DOT/FAA/AR-01/46

Office of Aviation Research
Washington, D.C. 20591

# Full-Scale Testing and Analysis of Fuselage Structure Containing Multiple Cracks

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July 2002

Final Report

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**Technical Report Documentation Page**

| 1. Report No. | 2. Government Accession No. | 3. Recipient's Catalog No. |
|---|---|---|
| DOT/FAA/AR-01/46 | | |

| 4. Title and Subtitle | 5. Report Date |
|---|---|
| FULL-SCALE TESTING OF FUSELAGE STRUCTURE CONTAINING MULTIPLE CRACKS | July 2002 |
| | 6. Performing Organization Code |

| 7. Author(s) | 8. Performing Organization Report No. |
|---|---|
| John Bakuckas | |

| 9. Performing Organization Name and Address | 10. Work Unit No. (TRAIS) |
|---|---|
| Federal Aviation Administration<br>William J. Hughes Technical Center<br>Airport and Aircraft Safety<br>Research and Development Division<br>Materials and Structures Branch<br>Atlantic City International Airport, NJ 08405 | 11. Contract or Grant No. |

| 12. Sponsoring Agency Name and Address | 13. Type of Report and Period Covered |
|---|---|
| U.S. Department of Transportation<br>Federal Aviation Administration<br>Office of Aviation Research<br>Washington, DC 20591 | Final Report |
| | 14. Sponsoring Agency Code<br>ANM-100 |

15. Supplementary Notes

16. Abstract

An experimental and analytical study was conducted to determine the effects of multiple cracks on the fatigue crack growth and residual strength of curved fuselage panels. Four panels were tested, two panels with a longitudinal lap splice and two with a circumferential butt joint. For each joint configuration, one panel contained only a lead crack and the other contained a lead crack with multiple cracks located along the outer critical fastener row of the joints. The panels were tested in the Full-Scale Aircraft Structural Test Evaluation and Research (FASTER) facility. First, strains were measured under quasi-static load conditions to ensure proper load introduction into the panels. Second, fatigue crack formation and growth were monitored and recorded in real time using the Remote Controlled Crack Monitoring (RCCM) system under constant amplitude loading up to a prescribed amount of fatigue crack growth. Third, the crack growth and residual strength were measured during quasi-static loading to failure.

Geometric nonlinear finite element analyses were conducted to support the tests. The strain distributions and fracture parameters governing crack formation and growth were determined. Comparisons with strain-gage data verified the finite element models. For fatigue crack growth predictions, the corresponding mixed mode stress-intensity factors were calculated using the Modified Crack Closure Integral (MCCI) method. Results include comparisons of strain distributions, fatigue crack growth characteristics, and the damage growth process during residual strength test for the two joint configurations. In general, results show that multiple cracking did not have an effect on the overall global strain response. However, the number of cycles to grow a fatigue crack to a predetermined length was reduced by 37% and 27% for the longitudinal lap joint and circumferential butt joint panels, respectively. In addition, the presence of multiple cracks reduced the residual strength of the panels with a longitudinal lap joint by approximately 20%. For the circumferential butt joint panels, the effect of multiple cracking on the residual strength could not be quantified due to premature failures at the load application points in the baseline panel. However, it was observed that the growth of lead crack into the first fastener directly ahead was more rapid for the panel containing multiple cracks.

| 17. Key Words | 18. Distribution Statement |
|---|---|
| Fatigue crack growth, Residual strength, Longitudinal lap joint, Circumferential butt joint | This document is available to the public through the National Technical Information Service (NTIS) Springfield, Virginia 22161. |

| 19. Security Classif. (of this report) | 20. Security Classif. (of this page) | 21. No. of Pages | 22. Price |
|---|---|---|---|
| Unclassified | Unclassified | 452 | |

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# EXECUTIVE SUMMARY

An experimental and analytical study was conducted to determine the effects of multiple cracks on the fatigue crack growth and residual strength of curved fuselage panels. Four panels were tested, two panels with a longitudinal lap splice and two with a circumferential butt joint. For each joint configuration, one panel contained only a lead crack and the other contained a lead crack with multiple cracks located along the outer critical fastener row of the joints. The panels were tested in the Full-Scale Aircraft Structural Test Evaluation and Research (FASTER) facility. First, strains were measured under quasi-static load conditions to ensure proper load introduction into the panels. Second, fatigue crack formation and growth were monitored and recorded in real time using the Remote Controlled Crack Monitoring (RCCM) system under constant amplitude loading up to a prescribed amount of fatigue crack growth. Third, the crack growth and residual strength were measured during quasi-static loading to failure.

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# INTRODUCTION

Since the 1988 Aloha Airlines accident in which a large portion of the fuselage crown of a Boeing 737 tore apart due to the linkup of small cracks emanating from rivet holes in the lap joint, much effort has been placed on developing methodologies to predict the reduction in residual strength of aircraft fuselage structure due to various multiple-site cracking scenarios. Research efforts sponsored by the Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA), and the Department of Defense (DoD) include the development of various analytical tools that address this complex problem at several levels. Both rigorous numerical methods and simplified engineering approaches have been developed to predict crack initiation, growth, and linkup, and residual strength [1-9]. In general, the development of each tool has been focused on analyzing different aspects of the process, such as crack initiation, crack growth, crack linkup, or residual strength of the fuselage structure. When fully validated, the combination of the tools should be able to predict the entire process and could be used in the current fleet of aircraft to predict the effect of multiple-site cracks on the residual strength or in future aircraft designs to prevent the occurrence of multiple-site cracking within the design life of the structure.

As part of the FAA research program, a research effort was conducted at the FAA William J. Hughes Technical Center to assess the effects of multiple-site cracking on the fatigue crack growth and residual strength of fuselage structures. One focus of the research effort is on developing computational methods to determine fracture parameters governing the onset and growth of cracks and the residual strength of fuselage structure with multiple cracks. These methods will be used to predict strain distributions, crack growth, and residual strength.

The second focus is on conducting tests to understand the damage mechanics and guide the model development. A state-of-the-art facility, the Full-Scale Aircraft Structural Test Evaluation and Research (FASTER) facility, was developed to apply realistic flight load conditions to large, full-scale, curved sections of fuselage structure [10 and 11]. Both quasi-static and spectrum loadings can be applied, including differential pressure, longitudinal load, and hoop load in the skin and frames, and shear load. The test data will be used to validate analytical methodologies developed by the FAA and NASA [9]. The FASTER facility is located at and operated by the FAA William J. Hughes Technical Center.

This document reports on tests and analyses that were conducted to verify the predictive methodologies. The curved panels used in the test program are similar to a typical narrow-body fuselage structure consisting of skin, frames, shear clips, stringers, and either longitudinal splice or circumferential joints. A total of four panels were tested, two panels with a longitudinal lap splice and two with a circumferential butt joint. For each joint configuration, one panel contained only a lead crack and the other contained a lead crack with multiple cracks. A strain survey was conducted under quasi-static loading conditions on a test panel to verify proper load transfer from the load application points to the panel. Comparison with an independent full-scale test conducted by Boeing Aircraft Company on an aft fuselage section of an actual aircraft with similar structural details to the panels tested in this program and comparisons with detailed finite element analysis results confirmed appropriate applied load conditions. Crack growth under fatigue loading conditions was measured and recorded up to a predetermined crack length. Finally, crack extension and residual strength were measured under quasi-static loading

conditions. In the following sections, a brief description of the FASTER test fixture is presented followed by the analytical and experimental results, including strain distributions, damage growth process, and residual strength characteristics. These findings provide experimental and analytical procedures for testing curved panels containing multiple-site cracking scenarios.

## FULL-SCALE AIRCRAFT STRUCTURAL TEST EVALUATION AND RESEARCH (FASTER) FACILITY

The FASTER test fixture, shown in figure 1, features a unique adaptation of mechanical, fluid, and electronic components and is capable of applying internal pressurization, longitudinal, hoop, frame, and shear loads to a curved panel. As shown in the exploded view in figure 1, the fixture consists of a base structure, hoop load assembly, longitudinal load assembly, fuselage pressure box, frame load assembly, and shear fixture assembly. The FASTER facility also includes a computerized instrument control and data acquisition system and a remote-controlled video system that are not shown in figure 1.

In general, the test fixture is capable of dynamically cycling the internal pressure as well as performing a static pressurization. The hoop and longitudinal stresses are simulated by the controlled application of distributed loads around the perimeter of the test panel. Hoop forces are distributed by individual loading linkages using a two-tier coaxial whiffle tree assembly, which generates four equal forces from each controlled load point. A total of seven load points are used on each side of the specimen, creating a total of 28 attachment points. Longitudinal forces are applied using similar loading devices on each end of the panel, consisting of four load control points and 16 attachment points. Similar devices are available to apply hoop tension loads at each end of a frame.

An innovative shear load application system was developed that uses two load distribution points in the longitudinal direction at the edges of the specimen. The force is applied as a couple and is reacted by a couple in the hoop direction. A unique feature of the shear loading system is the elastomeric coupling between the loading mechanisms and the test specimen. The elastomer, which has a soft shear modulus, creates a close approximation to uniform shear distribution in both the applied and reacted couples.

All forces are generated using water and air as the fluid medium. The external loads are generated by applying water pressure to bladder type actuators, which are controlled by pressure-activated dome valves. The dome valves are automatically controlled by electro/pneumatic (E/P) control valves. The E/P valves are driven by a computer control system in a closed-loop configuration. The operator can control the loads, speed, and type of test. Data from strain transducers, load transducers, pressure transducers, etc., are displayed on color monitors in real time and stored for off-line analysis.

## MECHANICAL LOADING MECHANISMS.

Water actuators with a lever arm construction are used to apply loads to the curved panel. The water actuators used are air-water springs. An air-water spring is an elastomeric rubber fabric bellow with metal-end closures which contains a column of compressed air or water. In the FASTER test fixture, water is used. The compressed water provides the force or supports the

load. Air-water springs have wide industrial applications, including vibration isolation, truck suspension, and actuators. They are highly durable, rugged, and reliable. The water actuators used for the FASTER test fixture are more cost-effective than the standard oil-based hydraulic cylinder actuators. The initial purchase cost is much less and no maintenance or lubrication is required. There is no internal rod or piston or sliding seals, as in conventional cylinders. Since there are no moving parts in the water actuator, it is maintenance free, friction free and the response is immediate.

A schematic of the general loading mechanism for the longitudinal and hoop load assemblies is shown in figure 2. The loading mechanism consists of a water actuator, lever arm, fulcrum pivot point, a load cell, and a whiffle tree. The lever arm is connected to the water actuator at one end and to the load cell at the other and rotates about the fulcrum pivot point. The distance from the water actuator to the fulcrum is $l_1$, and the distance from the top of the lever arm to the fulcrum is $l_2$. As the water actuator inflates, the bottom of lever arm will displace an amount $u_1$, rotate at the fulcrum pivot point, causing the top of the lever arm to displace an amount $u_2$. There are eight loading mechanisms to apply longitudinal load, four attached to each end of the specimen as shown in figure 1. There are 14 loading mechanisms to apply the hoop load, 7 on each side of the specimen. The load is distributed to the edge of the specimen through four links in the whiffle tree for each loading mechanisms as shown in figure 2.

Although the application of shear loading was not included in this test program, a brief description of this capability is described herein for the sake of completeness. The shear load assembly consists of the shear fixture and four counter balance poles and baskets as shown in figure 3. The shear fixture consists of a rigid reaction structure and pairs of water actuators, shear lever arms, pivot points, longitudinal skis, and hoop skis. The longitudinal and hoop skis are attached to the curved panel using elastic polyurethane strips 1″ thick by 4″ wide with a Shore A durometer scale hardness rating of 90. The strips are a hard rubber material on the Shore A scale compared to rubber bands at 40, tire treads at 50, and shoe heels at 70. As the water actuator inflates, the shear lever arm will displace downward, $u_1$, and will rotate about the shear arm pivot point. As a result, the lever arm keyway, which is attached to longitudinal ski, will displace amount $u_2$ as shown in figure 3. The displacement $u_2$ will deform the polyurethane strip, which will distribute the point force at the keyway into a uniform shear force distributed along the entire length of the longitudinal ski. By inflating the two water actuators, which are located at diagonal corners of the reaction structure, the shear loads are applied through the longitudinal skis in equal magnitude but opposite direction. The shear couple is reacted by the rigid support structure, which is attached to the hoop skis. The entire shear load fixture weighs approximately 3800 lbs. To insure this weight is not applied to the panel, the fixture is counter balanced using four weights attached to the fixture through four cable support columns as shown in figure 3.

The frame load assembly loading mechanism is shown in figure 4. The figure shows a cut-away view through a frame loader. The frame-loading mechanism consists of a water actuator, a frame lever arm, a fulcrum pivot point, a radial reaction link, and a frame load link. As the water actuator inflates, the end of the frame lever arm will displace an amount $u_1$ and will cause a displacement of the frame load link in the hoop direction, $u_2$. The radial reaction link ensures that the frame attachment point is displaced only in the hoop direction. There are 12 loading mechanisms for the frame load assembly.

The curved panel can be pressurized using either air, water, or a combination of both. The panel skin is attached to the pressure box using an elastomeric rubber seal as shown in figure 4. The seal is bonded to the panel skin and bolted to the pressure box.

## HYDRAULIC AND PNEUMATIC SYSTEMS.

All forces are generated using water supplied by a stand-alone water system. The water supply system consists of a 1050-gallon reservoir, a 40-hourspower (HP) pump capable of discharging water at 140-psi pressure. A radiator on the water return line acts as a heat exchanger to keep the water temperature below 105ºF. The water supply line and supply manifold is constructed from 3″ schedule 80 CPVC pipe. Under normal operating conditions, 60 psi is sufficient operational pressure. The water return line and manifold are constructed from 4″ schedule 80 CPVC pipe.

A schematic of the hydraulic and pneumatic system for a single loading mechanism is shown in figure 5. The pressure regulator dome valves are attached to the water supply and return manifolds with a 3/4″ flexible hose. The high-precision pressure regulator dome valves control the water outlet pressure to inflate the water actuators of the loading mechanisms. When the water actuator deflates, the water exits to the water return manifold through a constant flow orifice valve. The pressure regulator dome valves use air pressure applied above the valve diaphragm controlled by E/P valves to accurately regulate water outlet pressure. The water outlet pressure is identical to the air inlet pressure applied to the dome above the diaphragm. The E/P valves convert a 0- to 10-volt control input signal to a proportional 0.7 to 127 psi pneumatic air pressure inlet signal sent to the pressure regulator dome valves. Air supply pressure to the E/P valves is set to 130 psi supplied by an air compressor. Plastic tubing having 1/4″ diameter is used to connect the E/P valves to the supply from an air compressor and inlet to the pressure regulator dome valves. The E/P valves are computer controlled in a closed-loop configuration as discussed in the next section.

## CONTROL AND DATA ACQUISITION INSTRUMENTATION.

The computer control and data acquisition instrumentation integrates the various mechanical load assemblies of the FASTER test fixture. The control and data acquisition instrumentation uses the VXIbus (VMEbus eXstenions for Instrumentation) standard. The VXIbus standard is based on the VMEbus (versa modular European) architecture, a recognized standard that offers an excellent computer backplane for high-speed digital data transfer and communication between devices. The VMEbus standard was originally designed for digital communication and is too noisy for precise low-level analog measurements of test instrumentation. The VXIbus standard enhanced the VMEbus standard by specifying interference shielding requirements on the backplane and between modules and by increased spacing between modules. The VXIbus standard provides the architecture to allow low-level analog signals to coexist on the backplane with high-speed digital signals resulting in state-of-the-art test and measurement instrumentation with high throughput and versatility.

The control and data acquisition instrumentation contains a six-slot VXI mainframe (HP 1421B). In the current configuration, five slots are used for control and data acquisition, with one reserved for expansion. The zero slot contains a UNIX-based VXI-embedded controller

(HP V732/100) with a 100-MHz RISC processor. The next four slots of the mainframe contain VXI multifunction measurement and control (HP E1419A) modules having 16-bit measurement resolution and 56,000 samples per second maximum reading rate. The HP E1419A module can be configured for a specific measurement and control application by using up to eight signal-conditioning plug-on (SCP) cards. The SCP cards can accommodate up to eight input or output channels and can provide various analog and digital input or output functions. In the first slot, the E1419A module is designed for control of the longitudinal load assemblies, internal fuselage pressure, the shear load assemblies, and system hydraulic supply. In the second and third slots, the E1419A modules have similar configurations, each designed for the control of the hoop and frame load assemblies on both sides of the system. In the fourth slot, the E1419A is designed for 64 channels of data acquisition with 56 low-level signals with a gain of 64 used for strain and crack propagation gages, and eight high-level signals for pressure transducers.

The scanning rate of the control and data acquisition process is 150 times per second. There are 64 channels dedicated to data acquisition from strain gages, load transducers, pressure transducers, crack gages, etc. There are 40 channels to control the FASTER test fixture. The control channels include operation of the E/P valves, using a full proportional integral derivative (PID), closed-loop feedback error control process as shown in the block diagram in figure 6. In the figure, lines indicate the path of a signal, ± the sign of the signal, Σ within a circle designates a summation junction of signals, and the boxes represent a process done to the signal. The controlling signals shown in the figure are the command signal, *Cmd*, the feedback signal from the loading system, *Fbk*, and the error signal *Err*, which is the difference in the *Cmd* and *Fbk* signals. The error signal is used to adjust the response of the load system using proportional error correction, integral error correction, and derivative error correction processes. The proportional error correction process scales the error by parameter *Pgain* to obtain a quick response. The integral error correction process takes the history of the error and integrates over time and scales to parameter *Igain* to reduce steady-state error of the response. The derivative error correction process takes the rate of change of the error and scales to parameter *Dgain* to help damp the response. The final control input signal, *Cin*, is the summation of the *Cmd* signal, and the signals from the proportional, integral, and derivative error correction processes given by:

$$Cin = Cmd + Pgain \times Err + Igain \times \int sign(Err)dt + Dgain \times \frac{d(Err)}{dt} \qquad (1)$$

This signal is then used as input to the E/P value of a loading system as shown, for example, in figure 5. Limit parameters are used to ensure that the system does not run unstable or inadvertently overload the system. These parameters include maximum and minimum limits on the command signal, $O_{max}$ and $O_{min}$, a limit range on the integral error correction, $\pm I_{lim}$. In addition, a limit is set to shut the system down if the error exceeds parameter $\pm D_{umpl}$.

A target signal specifies the level the command signal must obtain over a certain time interval called the end point, EP, and time (figure 6). The three ramping functions, which are used to define the path the command signal follows to get to the target level, are a haversine (half sinusoidal wave), linear, and step. To synchronize the loading mechanisms, two other control parameters are used: the static hold, $S_{hold}$, and the dynamic hold, $D_{hold}$. The $S_{hold}$ and $D_{hold}$

parameters are limits on the amount of error between the command signal and the feedback signals at the target signal end point and between the target signal end points, respectively. If the $S_{hold}$ or $D_{hold}$ limits are exceeded, a hold is placed on all control channels until the feedback control adjusts itself to within these limits.

The graphic programming language, HP-Visual Engineering Environment (VEE) was used to develop the graphical user interface (GUI) and the control and data acquisition system. The HP-VEE software is designed for use with the HP VXI-based instrumentation. It can access and load any driver for standard VXI instrument cards. The driver then provides a procedural interface to the instrument for programmatic control. The user-friendly GUI of HP-VEE allows a user to efficiently develop code necessary for controlling instruments, acquiring data, display data in real time, analyze and reduce data in real time, or store data to buffers and files for posttest analysis and data reduction. A graphical interface program developed using HP-VEE allows the operator to control the loads, speed, and type of test desired. Data acquisition from strain transducers, load transducers, pressure transducers, etc., are displayed on color monitors in real time and stored for off-line analysis.

## REMOTE CONTROLLED CRACK MONITORING (RCCM) SYSTEM.

The Remote Controlled Crack Monitoring (RCCM) system, shown in figure 7, tracks and records multiple crack formation and propagation during loading in real time. The RCCM system is a stand alone, computer-based video data acquisition system capable of monitoring the entire fuselage panel test surface at several levels of magnification with a field of view ranging from 0.05″ up to 14″. The system consists of cameras mounted to two computer remote-controlled, high-precision translation stages and provides accurate and repeatable length measurements.

The RCCM system is comprised of three main components: a mechanical frame assembly, a motion control assembly, and a video data acquisition system. The mechanical frame assembly is used to mount and place the motion control assembly over the test section of the panels while in the fixture. A large rectangular frame made from 4″ square aluminum tubing is mounted on top of the four counterbalance columns of the fixture. A second section sits within the rectangular frame and can slide to provide longitudinal positioning of the motion control assembly. The third component fits within the second section for lateral positioning of the motion control assembly.

The motion control assembly is comprised of three bidirectional and two single-directional translation stages each having a 0.078″ lead screw. A bidirectional translation stage provides 24″ of overall travel in each direction. Two more bidirectional translation stages are mounted underneath the 24″ bidirectional stage, each providing 36″ of travel in longitudinal direction and 12″ of travel in the lateral direction. Periscope stages are mounted to the two 36″ by 12″ bidirectional translation stages to provide translation in the z direction of 10″.

The motion of the stages are remotely controlled by a computer via a joystick, mouse, and keyboard, which sends step and direction commands through a 50-pin ribbon cable to each of the eight motor driver modules. The stages are powered by 24 volt, 4 ampere, and four-phase

stepper motors that provide 200 full steps per revolution. The stepper motors driver modules further divide the step to ten increments, providing motion resolution of 0.000039″. The accuracy of the lead screws is 0.0039″ per 10 inches of travel and bidirectional repeatability is 0.000236″.

The video data acquisition assembly contains two black and white RS-170 format analog cameras operating at 30 frames per second with high-resolution 768- by 493-pixel chips. The two cameras are mounted to each of the two periscope stages. A high magnification zoom lens (narrow-field-of-view (NFOV) lens) is attached to the first camera and provides a field of view ranging from 0.05″ up to 0.5″. The NFOV lens was modified to accommodate a simple belt-driven motor to control the zoom ring remotely. In addition, a fiber-optic ring light is attached to the end of the NFOV lens to provide localized lighting that also can be controlled remotely.

A zoom lens (wide-field-of-view (WFOV) lens) is attached to the second camera with a focal length range of 0.45″ to 2.71″, having complete motorized zoom, focus, and iris controls built-in. A +1 diopter and +2 diopter were added to the WFOV lens end to provide a field of view ranging from 2″ up to 14″.

Video data acquisition and reduction software provides real-time crack length measurement capabilities from the cameras on each stage. Using a cross-hair on the image as a reference, accurate measurements of crack length can be obtained through the control of the translation stages. Up to 360 of the 768- by 493-pixel digital images can be captured continuously and stored in bitmap format at a rate up to 30 frames per second. The software can playback the stored images. In addition, direct hookup to monitors and video control recording (VCR) equipment is provided for continuous real-time monitoring and recording.

## EXPERIMENTAL PROCEDURE

The test matrix for the four curved panel tests is shown in table 1. Panel CVP1 contains a longitudinal lap splice with a lead crack. Panel CVP2 has the same configuration and lead crack as CVP1 with the addition of multiple small cracks emanating from rivet holes ahead of the lead crack. Panel CVP3 has a circumferential butt joint with a lead crack. Panel CVP4 has the same configuration and lead crack as panel CVP3 with the addition of multiple small cracks emanating from rivet holes ahead of the lead crack. These panels were subjected to a sequence of three loading functions: (1) initial monotonic, quasi-static loading to a predetermined load level; (2) a constant amplitude cyclic loading; and (3) a postfatigue monotonic, quasi-static loading up to fracture.

### PANEL CONFIGURATIONS.

Detailed engineering drawings for the four panels tested are presented in appendix A. The selected panel configurations represent generic fuselage structure from a narrow-body aircraft, fabricated according to original equipment manufacturing (OEM) specifications. It was decided in this program to test panels that were generic instead of aircraft specific, since the purpose of this study is to provide experimental data to support and verify analysis methodologies to assess the effects of multiple cracks applicable to all aircraft types. The panel size was selected so that

the test section will contain large damage such as a two-bay crack with central frame severed. The test section of the panel was sized in order to minimize the effect of the test fixture attachment points along the perimeter.

Typical panel dimensions are 120″ in the longitudinal direction, 68″ in the circumferential direction, with a radius of 66″ as shown in figure 8. For all four panels, the skin was 2024-T3 aluminum with a thickness of 0.063″. Each panel had six frames with a 19″ spacing and seven stringers with a 7.5″ spacing. The cross-sectional properties of the substructure are shown in figure 9. The frames and shear clips were 7075-T6 aluminum with thicknesses of 0.071″ and 0.063″, respectively. The stringers were also 7075-T6 aluminum with a thickness of 0.063″, except for S4 where the thickness is 0.071″. As shown in the photographs, the shear clip is connected to skin using NAS1097AD6 rivets with a pitch of 1.0″. The stringer is connected to skin using NAS1097AD6 rivet with a pitch of 1.25″. The frame and shear clips are connected using MS20470AD6 rivets with a pitch of 1.0″, and the shear clips and stringers are connected using HL518-6 Hi-Lok pin fasteners.

The edges of the curved panels, where loads are applied, were reinforced by bonding six layers of 0.045~0.065-inch-thick aluminum alloy doublers to the skin to ensure a uniform load transfer. Along the perimeter of the panel, reinforcing doublers with a length of 112″ on the longitudinal sides and 56″ on the hoop sides were added. Holes with a diameter of 0.5″ were spaced approximately 4″ apart along each side and 3.5″ apart along each end to attach the whiffle tree assemblies which apply the load. There were 28 load application points on each longitudinal side and 16 load application points on each end. Doublers were also added to the frame ends where they attach to the frame loaders.

LONGITUDINAL LAP JOINT PANEL CONFIGURATION. Figure 8 shows a schematic of the longitudinal lap joint test panels CVP1 and CVP2 as well as the dimensions and location of the strain gages. Details can be found in appendix A. Photographs of the CVP1 panel are shown in figure 10. As shown in figure 8, there are six frames, F1 through F6, in the circumferential direction and seven stringers, S1 through S7, in the longitudinal direction. A longitudinal lap joint is located along stringer S4 as shown in figure 11. The joint consist of two layers of the 2024-T3 panel skin with a thickness of 0.063″ and two layers of 2024-T3 finger doublers with a thickness of 0.025″. Four rows of fasteners, A, B, C, and D, are used to connect the skin and doublers. For rows A and D, MS20470AD5 rivets were used with a pitch of 1.5″. For row C, MS20470AD6 rivets were used with a pitch of 0.813″, and for row B, NAS1097AD6 rivets were used with a pitch of 0.813″. The distance between rows A and B and rows C and D is 0.875″, and the distance between rows B and C is 1.25″.

The initial damage configuration for the two longitudinal lap joint panels is shown in figure 12. For both panels CVP1 and CVP2, a crack-like slit representing a lead crack was placed symmetrically across frame F4, machined in the skin along the critical rivet row A in the longitudinal lap splice. The total length of the lead crack was 7.0″ long. Between rivet holes 2L and 2R, the crack-like slit was saw cut with a width of 0.012″. The tips of the lead crack emanated 0.5″ from the centerline of rivet holes 2L and 2R where it was wire cut to a width of 0.008″. For panel CVP2, small multiple cracks were machined in the first 18 rivets to the left

and right of the lead crack centerline rivet designated 0. The nominal length of each crack is indicated in figure 12. The nominal width of all the cracks was 0.008″.

CIRCUMFERENTIAL BUTT JOINT PANEL CONFIGURATION. Figure 13 shows a schematic of the circumferential butt joint test panels CVP3 and CVP4 as well as the dimensions and location of the strain gages. Photographs of the CVP3 panel are shown in figure 14. The structural details of CVP3 and CVP4 test panels were similar to those in the longitudinal lap joint panels and can be found in appendix A. Both CVP3 and CVP4 test panels have a butt joint in the circumferential direction between frames F3 and F4 as shown in figure 15. The joint consists of two layers of the 2024-T3 panel skin with a thickness of 0.063″, a 2024-T3 finger doubler with a thickness of 0.025″, and a tapered doubler with a thickness of 0.071″, which tapers to a thickness of 0.025″ along the edge. Eight rows of fasteners, A through H, are used to connect the skin and doublers. For rows A and H, MS20470AD5 rivets were used with a pitch of 1.5″. For rows B, C, F, and G, NAS1097AD6 rivets were used with a pitch of 0.75″, and for rows D and E, S4931919-6 Hi-Lok pin fasteners were used with a pitch of 0.75″. The distance between rows A and B and rows G and H is 0.875″, and the distance between rows B and C, C and D, F and G, and E and F is 0.625″. The distance between rows D and E is 1.0″.

The initial damage configuration for the two circumferential lap joint panels is shown in figure 16. For both panels, CVP3 and CVP4, a crack-like slit representing a lead crack was placed symmetrically across stringer S4, machined in the skin along the critical rivet row A in the circumferential butt joint. Stringer S4 was cut to simulate a broken stringer. The total length of the lead crack was 7.0″ long. Between rivet holes 2L and 2R, the crack-like slit was saw cut to a width of 0.012″. The tips of the lead crack emanated 0.5″ from the centerline of rivet holes 2L and 2R where it was wire cut to a width of 0.008″. For panel CVP4, small multiple cracks were machined in the first 12 rivets to the left and right of the lead crack centerline rivet designated 0. The nominal length of each crack is indicated in figure 16. The nominal width of all the cracks was 0.008″.

STRAIN GAGE LOCATIONS.

Strain gages were placed on all four panels to monitor the strain distribution and to ensure proper load introduction. The precise location of the strain gages and types of strain gages, coatings, cables, and adhesives are provided in detail in appendix B. For the longitudinal lap joint panels CVP1 and CVP2, the approximate locations of the stain gages on the skin, frames, and stringers are shown in figure 8. In general, 20 axial strain gages were located on both the inner and outer flanges of the frames. The stringers were instrumented with eight axial strain gages on the flange and hat section (see detail in figure 8). The skin was instrumented with eight strain gage rosettes. At one location on the skin, two back-to-back 45º strain gage rosettes (gages 31 and 32) were installed to provide a measure of bending of the skin.

For the circumferential lap joint panels CVP3 and CVP4, the approximate locations of the strain gages on the skin, frames, and stringers are shown in figure 13. Panels CVP3 and CVP4 were instrumented with 9 strain gage rosettes (45$^{o}$) in the skin and 31 axial strain gages in the frames and stringers. At two locations on the skin, namely at gages 36 and 37 and at gages 39 and 40, two back-to-back 45º rosette gages were installed to provide a measure of bending of the skin.

## TEST CONDITIONS.

The longitudinal lap joint and circumferential butt joint panels were subjected to the sequence of loadings listed in tables 2 and 3, respectively. Three different quasi-static loadings were applied, followed by fatigue loading and postfatigue residual strength loading.

Three quasi-static loadings were applied, as shown in tables 2 and 3, to determine the strain distribution and insure proper introduction of load into the panels. In load condition 1a, each panel was subjected to an internal pressure; 10.1 psi for longitudinal lap joint panels and 8.8 psi for the circumferential butt joint panels. Hoop and frame loads were applied as reactive loads from the internal pressure. In load condition 1b, only longitudinal load was applied. Load conditions 1a and 1b were superimposed for load condition 1c. For the longitudinal lap joint panels, load condition 1c simulates the cylindrical pressurization that a section of the fuselage along the neutral axis would experience. For the circumferential butt joint panels, load condition 1c simulates a fuselage down-bending condition that a fuselage section along the crown of the aircraft would experience, where the longitudinal stress is 50% higher than the hoop stress.

In load sequence 2, shown in tables 2 and 3, the same load conditions as in load sequence 1c was applied at constant amplitude and a frequency of 0.2 Hz with an R-ratio (minimum to maximum load) of 0.1. Crack growth of the lead crack and small multiple cracks were continuously monitored and recorded using the RCCM system.

The postfatigue residual strength test was performed using loading condition 3 as listed in tables 2 and 3. Frame F4 in longitudinal lap joint panels, which was intact prior to the residual strength test, was saw cut midway between stringers S4 and S5 to simulate a broken frame. The panels were statically loaded until catastrophic failure. For the longitudinal lap joint panels, the applied loading consisted of internal pressurization with reactive hoop and frame loads with a longitudinal stress that was 50% less than hoop stress. For the circumferential butt joint panels, the applied loading consisted of internal pressurization with reactive hoop and frame loads, with a longitudinal stress that was 50% higher than the hoop stress.

## VERIFICATION OF TEST RESULTS.

The test results from a full-scale test conducted on an aft fuselage section of an actual narrow-body aircraft by Boeing Aircraft Company in Long Beach, CA, were compared to the FASTER test results. The aft fuselage test article is shown in figure 17. The test article was mounted on a strong back fixture and pressurized quasi-statically from 0 to 7.8 psi for three tests. A section of aircraft, from frame station 1269 to 1288 and stringer L4 to L5, was instrumented with strain gages as shown in figure 18. The instrumented section of the aft fuselage test article has a structure which is similar to the four curved panels tested in the FASTER facility with a similar radius, skin thickness, and substructure detail. A 45º rosette gage was placed near skin mid-bay location A, and uniaxial gages were placed in the cap and flange of stringer L4, locations B and C, and the inner and outer frame cap at frame station 1269, locations E and F. The strain gage data from the three tests are listed in the tables of appendix C. Strains measured from these locations were compared with the strains measured at similar locations in longitudinal lap joint panels CVP1 and CVP2.

## ANALYSIS

Geometric nonlinear finite element analyses were conducted using the commercial finite element code ABAQUS 5.8 [12]. A full description of the analysis procedures and results are provided in appendix D. A brief description is provided herein. In general, two analyses were conducted for each panel: the first to predict the strain distributions and the second to compute the stress-intensity factor (SIF) solutions. The SIF solutions were used to predict the fatigue crack growth of the curved panels and the predictions were compared with test results.

### DESCRIPTION OF MODELS.

The panels were modeled using two-dimensional shell elements with each node having six degrees of freedom. Figure 19 shows the global view of a typical finite element model of panel CVP3. Four-noded shell elements were used throughout to model the skin, frames, shear clip, stringers, and intercostals, except near the crack tips. In the immediate vicinity of the crack tips, eight-noded shell elements were used. The major geometric details of the panels were modeled, including the cross-section properties of the substructure (frames, stringers, shear clip, and intercostals), the dimensions of finger doublers, and the load attachment doublers. Beam elements were used to model the rivets that connected the substructures with the skin and the substructures to one another. The semiempirical equation developed by Swift [13], shown below, was used to calculate the shear stiffness of the beams as:

$$k_{shear} = \frac{E'd}{5 + 0.8\left(\frac{d}{t_1} + \frac{d}{t_2}\right)} \tag{2}$$

where $E' = 10.5\times10^6$ psi is the effective modulus, $d = 0.1875''$ is the fastener diameter, and $t_1 = 0.063''$, and $t_2 = 0.063''$ are the thickness of the skin and substructure (shear clip or stringer), respectively. To simplify the global panel modeling, the rivet holes were not modeled. The typical finite element model of a panel had 250,000 degrees of freedom.

The load conditions specified in tables 2 and 3 were simulated in the analysis. For the hoop, frame, and longitudinal loads, nodal point forces were applied at the load application points in the actual test, as shown by the arrows in figure 19. Internal pressure was applied to the inner surface of the skin.

### THE MODIFIED CRACK CLOSURE INTEGRAL (MCCI) METHOD.

In the MCCI approach [14-16], it is assumed that the energy released during crack extension is the same as the work that would be needed to close the crack, and that the energy released can be related to the four components of SIF. The four components of SIF are the Mode I SIF caused by tensile load, $K_1$, the Mode II SIF cause by in-plane shear load, $K_2$, the SIF due to symmetric bending loads, $k_1$, and the SIF due to out-of-plane shear and twist loads, $k_2$, as shown in figure 20.

The MCCI method approximates the rate of work needed to close a crack using the local crack tip displacements and forces. The displacements and forces at the nodes of the four elements surrounding the crack tip were obtained from the finite element results for each crack length, as shown in figure 20. The work ($W_i$) done to close a crack of length, $\Delta a$, for each nodal degree of freedom is given by [16]:

$$W_i = \frac{1}{2t\Delta a}\left[F_i^{Close}\left(u_i^{top} - u_i^{bot}\right)\right], i = 1,\cdots,6 \tag{3}$$

where $t$ is the thickness of the panel, $F$ is the force needed to close the crack surfaces, $u$ is the displacement component on each surface of the crack, and $i$ denotes the degree of freedom (DOF). The total amount of work done to close a crack of length, $\Delta a$, is numerically equal to the total amount of strain energy released during a crack growth increment of $\Delta a$, and the components of strain energy release rate can be related to the stress-intensity factors. Thus, the work done to close the crack is related to the SIFs as:

$$W_2 + W_6 = \frac{K_1^2}{E} \tag{4}$$

$$W_1 = \frac{K_2^2}{E} \tag{5}$$

$$W_4 = \frac{k_1^2\pi}{3E}\left(\frac{1+\nu}{3+\nu}\right) \tag{6}$$

and

$$W_3 + W_5 = \frac{k_2^2\pi}{3E}\left(\frac{1+\nu}{3+\nu}\right) \tag{7}$$

where $E$ = 10,500 ksi and $\nu$ = 0.3 are the Young's modulus and Poison's ratio of the panel skin material and $K_1$, $K_2$, $k_1$, and $k_2$ are the SIFs described earlier. Only the Mode I SIF, $K_1$, was used to predict the fatigue crack growth behavior because, as will be shown, it was found to be the dominant SIF compared to the other modes.

## RESULTS AND DISCUSSION

The effects of a lead crack and multiple cracking on the strain distribution, fatigue crack growth, and postfatigue residual strength for both the longitudinal lap joint panels (CVP1 and CVP2) and the circumferential butt joint panels (CVP3 and CVP4) were studied. In the following sections, strain survey test results and analytical predictions are first discussed, followed by the fatigue crack test results, and lastly, the residual strength test results.

STRAIN SURVEY.

The strain distribution was measured and predicted at ten equal load increments up to the maximum values for load sequences 1a through 1c in tables 2 and 3 for the longitudinal lap joint and circumferential butt joint panels, respectively. The strain gage locations for each joint configuration are shown in figures 8 and 13 and appendix B. Details of the predicted strains are provided in appendix D.

The strain survey test was repeated twice using water and twice using air for each panel to verify the repeatability of the results and determine the effect of the pressurizing media. The raw data from the strain survey for the strain gages on each panel are listed in the tables in appendix E. In the tables, for each test condition (1a, 1b, and 1c) and run (Air 1 and 2, Water 1 and 2), applied loads and strains measured at each gage at each of the ten equal load increments up to the maximum loads are listed.

The raw data was reduced to remove the strain offset that occurred due to preloading after the panel was installed in the fixture. In the strain gage data reduction, the first three data points were removed to minimize the effects of preloading and free play. A linear regression using a least squares method was used to curve-fit the remaining data set to the following first order polynomial:

$$\varepsilon = A\chi + B \tag{8}$$

where $\varepsilon$ is the dependent strain variable, $\chi$ the independent load increment variable, $A$ the slope, and $B$ the ordinate intercept. Parameter $B$ was used to define the zero load offset used to shift all data in the set. The reduced strain gage data is listed in appendix F at the ten equal load increments up to the maximum loads for each load sequence. Cross-reference tables in appendix E list the corresponding values of the applied loads.

In general, for all panels tested, strain gage results from the four runs were repeatable for gages measuring strain in the principle loading direction. In particular, strains measured in the skin, the stringer cap, and outer cap of the frames had the least amount of scatter. Strains measured in the inner frame cap had the most scatter. Complete results are given in appendix F. Representative results are discussed for each joint configuration in the subsequent sections.

LONGITUDINAL LAP JOINT CONFIGURATION. The hoop strain at a rosette strain gage located in the skin mid-bay, as a function of applied pressure, is shown in figure 21 for panel CVP1 (lead crack only) and panel CVP2 (lead crack and multiple cracks). The load was applied in ten equal increments up to the maximum values listed for test condition 1c (table 2), which simulates a cylindrical pressurization. For each panel, the test was repeated twice using water and twice using air. As shown in the figure, the strains are nearly identical for both panels for all four runs, indicating that small multiple cracks have no effect on the global strain response at the given load level. As expected, there were no differences in the results when air or water was used to pressurize the panel.

In addition, the three sets of results from the Boeing full-scale test (appendix C) measured from a rosette strain gage in the skin mid-bay location are plotted in figure 21. The Boeing full-scale test results are repeatable and match the results from CVP1 and CVP2 panels up to the maximum pressure of 7.8 psi. This indicates that the loading applied using the FASTER facility closely resemble the pressurization of a fuselage structure.

Also shown in figure 21 is a plot of the results predicted using the ABAQUS finite element analysis as described in detail in appendix D. The prediction from analysis shown by the solid curve in the figure is in good agreement with the experimental data validating the finite element analysis.

Similar results are shown in figures 22-27 for other strain gage locations for test condition 1c (table 2). In general, strain gage results from panels CVP1 and CVP2 were repeatable and in close agreement with the Boeing full-scale test results for the skin mid-bay location (figures 22 and 23) for the outer fame cap (figure 24) and the stringer cap (figure 25). For strain gage results from the two panels measured at the frame inner cap (figure 26) and the stringer flange (figure 27), the agreement with the Boeing full-scale test results is not as good due to more scatter. Overall, trends in the results show good agreement with the Boeing full-scale test and provide confidence that the applied loads were introduced into the panels correctly.

The hoop strain in the skin for panels CVP1 and CVP2 for test condition 1c (table 2) is shown in figure 28. The data shown for each panel is the average of the four tests conducted. As shown in the figure, the magnitudes of the measured strains in both panels were similar and the distributions were nearly uniform in the middle of the panels. Thus, multiple cracking did not effect the overall strain response.

CIRCUMFERENTIAL BUTT JOINT CONFIGURATION. The longitudinal strain in the skin mid-bay, as a function of load step, is shown in figure 29 for panel CVP3 (lead crack only) and panel CVP4 (lead crack and multiple cracks). The load was applied in ten equal increments up to the maximum values listed for test condition 1c (table 3), which simulates a fuselage down bend condition. For each panel, the test was repeated twice using water and twice using air. As shown in the figure, the strains are nearly identical for both panels for all four runs indicating that small multiple cracks have no effect on the global strain response at the given load levels. As expected, there were no differences in the results when air or water was used to pressurize the panel. Predictions from analyses, shown by the curves, were in excellent agreement with the experimental data.

The longitudinal strain in the skin for panels CVP3 and CVP4 for test condition 1c (table 3) is shown in figure 30. In addition, the distribution of longitudinal strain in the stringer is shown in figure 31 for both panels for test condition 1c (table 3). The data shown in both figures for each panel is the average of the four tests conducted. As shown in the figures, the magnitudes of the measured strains in both panels were similar.

In general, similar trends in strain gage data were obtained at the other gage locations in the both joint configurations. That is, experimental results were very repeatable and the analytical predictions were in good agreement with the test results. Measured strains were nearly uniform

in the middle of the panel. This provides confidence that the applied loads were introduced properly and the models have enough fidelity to capture the mechanical response. In addition, the small multiple cracks had no effect the global strain response.

FATIGUE CRACK GROWTH.

The fatigue crack growth was measured during the constant amplitude loading, defined by load sequence 2 in tables 2 and 3 for the longitudinal lap joint and circumferential butt joint panels, respectively. The growth of the lead crack and the multiple cracks was monitored and recorded. Details of the analysis procedure and results are provided in appendix D. All experimental fatigue crack growth data is provided in the tables of appendix G. Representative results are presented for each joint configuration.

LONGITUDINAL LAP JOINT CONFIGURATION. Photographs of crack extension under fatigue loading obtained from the RCCM system are shown in figures 32 and 33 for panels CVP1 and CVP2, respectively. The photographs illustrate the damage growth process from the original slit to the first neighboring rivet (3R and 3L). The block size of the grid paper on the top of each photograph is 0.05″. In general, for both panels, the crack extension was symmetric and collinear indicating a symmetric load in the region of the crack. As the crack length increased, the in-plane crack opening displacement increased indicating Mode I crack growth. Some Mode III crack growth was assumed to occur where out-of-plane (bulging) deflection of one of the crack faces occurred opposite to the lap joint along stringer S4. There was little deflection of the crack face reinforced by the lap joint.

For panel CVP1, the crack growth rate of the lead crack increased as the crack tip approached the rivet directly ahead. In the test shown in figure 32, after 3850 cycles, the lead crack on the right-hand side grew 4.2575 inches and the tip was approximately 0.2″ from rivet hole 3R. In the next 40 cycles, the crack grew 0.15″ and the tip was only 0.05″ from the rivet hole. Shortly afterwards, at 3916 cycles (an additional 26 cycles) the lead crack grew into rivet hole 3R. A large number of cycles were required to reform the crack on the opposite side of the rivet hole (an additional 909 cycles) for a total of 4825 cycles.

For panel CVP2, the crack growth rate of the lead crack and the small crack increased as they grew closer together. As shown in figure 33, fatigue cracks formed from the small crack notches at rivets 3L and 3R when the lead crack tip was approximately 0.25″ from the small crack notch tip after 2852 and 3000 cycles, respectively. The lead crack and the smaller crack then grew faster when at approximately 0.15″ apart, the lead crack and the small crack linked up within four cycles, as shown in the photographs taken on the left side at 2884 and 2888 cycles. The crack reformed on the opposite side, as shown, after 3000 cycles.

The predicted stress-intensity factor ranges for the lead crack in panels CVP1 and CVP2 are listed in table 4 and shown in figure 34. The numbers inside the circles along the x axis represent the location of rivets. As shown in the figure, $\Delta K_1$, which governs Mode I crack growth, is the dominant SIF range. The next highest SIF range, $\Delta k_2$, which would cause Mode III crack growth, was not significant. Thus, as stated earlier, only the Mode I SIF was used to predict the crack growth. For short crack lengths, the values of the SIF were similar for both

panels. For CVP2, the SIF increased compared to CVP1 as the lead crack tip approached the rivet directly ahead due to the small cracks at the rivet hole.

The half length of the lead crack, as a function of number of fatigue cycles, is shown in figure 35 for panels CVP1 and CVP2. The initial half-crack length prior to loading was 3.5″. Loading condition 2 (table 2) was used to simulate a cylindrical pressurization. In figure 35, the circular and square symbols represent the measured crack lengths at both the left and the right crack tips, respectively, for each panel. The numbers inside the circles along the y axis represent the location of rivets. For panel CVP1, indicated by the open symbols, the vertical jumps indicate crack extension across a rivet hole. When this happened, the crack length increased instantaneously by the diameter of the rivet hole. The rate of crack growth increased as the crack tips approached the rivet holes. The horizontal segments shown in the plot indicate the number of cycles before the crack reformed on the opposite side of the rivet hole. As the crack length increased, the delay in crack reformation (incubation period) decreased due to the larger crack driving force. For panel CVP2, which contained multiple cracks, the vertical jumps in the experimental data indicate linkup of the lead crack and a small multiple crack. When this happened, the crack length increased instantaneously by the diameter of the rivet hole plus the lengths of the small cracks at that rivet. There was no crack reformation. The length of the lead crack front instantaneously grew the length of the small cracks located in the rivets directly ahead. As a result, the number of cycles needed to grow the lead crack to the final length (~12.5 inches) in panel CVP2 was approximately 37%, less than that in panel CVP1.

The Mode I SIF range, $\Delta K_1$, (figure 34) and the crack growth data for 2024-T3 aluminum [17-19] were used in a cycle-by-cycle crack growth analysis program to predict the fatigue crack growth in panels CVP1 and CVP2, also shown in figure 35. A complete description of the analysis procedure is provided in appendix D. Briefly, the rivet holes were not explicitly modeled in the finite element analysis. For panel CVP1, crack growth across rivet holes, indicated by the vertical jumps in the curve, was modeled by instantaneously increasing the length of the crack by the diameter of the rivet hole when the crack reached the rivet. For panel CVP2, crack growth across the rivets was modeled by instantaneously increasing the length of the crack by the diameter of the rivet plus the length of the small cracks at the rivet when the lead crack reached the first small multiple crack. It is important to note that only $\Delta K_1$ was used to predict crack growth since it was the dominant SIF. There were indications of other loading modes, specifically the Mode III from the $\Delta k_2$, calculated from analysis and from the crack-bulging deflection observed during the test. Mode III crack growth was not included in the crack growth analysis due to the lack of experimental crack growth data. Good agreement was obtained between experiments and predictions relying on $\Delta K_1$. For CVP2, the growth of the small multiple crack in the rivet ahead of the lead crack was not accounted for in the analysis.

In figure 36, the crack tip positions of the lead crack and the small cracks at the rivet holes ahead of the lead crack are plotted as a function of the number of cycles for panel CVP2. The labeled circles on the x axis denote the rivets directly ahead of the lead crack on the left and right hand sides. In general, fatigue cracks formed from the small crack notches when the lead crack tip was an average distance of 0.426″ from the small crack notch tip. The average length of observable cracks formed from the notches was 0.019″. The rate of crack growth of the lead crack and the small crack increased as their tips grew closer together. Sudden linkup of the lead

crack and small crack occurred within an average of four cycles when the average distance of their tips reached 0.238″. In general, this process repeats itself. On one occasion, at rivet 4R, the lead crack and the small crack grew past each other, as shown in the inset of figure 36.

As the damage grew during fatigue loading, the strain distribution changed as shown in figure 37 for panel CVP2. In this figure, the hoop strain at a gage located in the mid-bay of the skin, SG35T, and a gage located in a frame, SG10, is plotted as a function of the lead crack length normalized with respect to the distance of the strain gages from the crack centerline. When this ratio is equal to one, the crack tip and the strain gage location coincide. For a value less than one, the crack is growing towards the gage, and for a value greater than one, the crack has grown past the gage. As shown in the figure, the value of strain in gage SG35T increased as the crack grew and reached a maximum value when the crack tip and gage location coincided. The value of strain decreased as the crack grew past the gage SG35T. For gage SG10, the value of strain increased as the crack grew closer to the gage. The fatigue test was stopped before the crack tip reached SG10.

CIRCUMFERENTIAL BUTT JOINT CONFIGURATION. Photographs of crack extension under fatigue loading obtained from the RCCM system are shown in figure 38 and figure 39 for panels CVP3 and CVP4, respectively. The photographs illustrate the damage growth from the original slit to the first neighboring rivets on either side (3R and 3L). The block size of the grid paper on the top of each photograph is 0.05″. For panel CVP3, the lead crack growth rate increased as the crack approached the rivet directly ahead. As shown in figure 38, after 4715 cycles, the lead crack tip was approximately 0.15″ from rivet hole 3R. Shortly afterwards, at 4918 cycles, the lead crack grew into rivet hole 3R. An additional 1307 cycles were required for the crack to reform on the opposite side of the rivet hole.

The crack growth of the lead crack and small crack directly ahead is shown in figure 39 for panel CVP4. In general, it was observed that when the path of lead crack projected above or below the rivet directly ahead, the lead crack and adjacent small crack grew past each other. This is shown in the photographs on the left side of figure 39. If the path of the lead crack was in a direction to intersect the rivet directly ahead, the crack tips coalesced as shown in the photographs on the right side of figure 39.

The predicted stress-intensity factor ranges for the lead crack in panels CVP3 and CVP4 are listed in table 5 and shown in figure 40. The numbers inside the circles along the x axis represent the location of rivets. As shown in the figure, $\Delta K_1$, which governs Mode I crack growth, is the dominant SIF range. The next highest SIF range, $\Delta k_2$, which would cause Mode III crack growth, was not significant. Thus, as stated earlier, only the Mode I SIF was used to predict the crack growth. For short crack lengths, the values of the SIF were similar for both panels. For CVP4, the SIF increased, compared to CVP3, as the lead crack tip approached the rivet directly ahead due to the small cracks at the rivet hole. In both cases, for crack lengths longer than the stringer spacing of 7.5″, the SIF range reduced due to the stiffening of stringers bridging the crack.

The fatigue crack growth behavior of panels CVP3 and CVP4 is shown in figure 41. The initial half crack length prior to loading was approximately 3.5″. Loading condition 2 (table 3) was

used to simulate a narrow-body fuselage down bending where the longitudinal stress was 50% higher than the hoop stress. In figure 41, the circular and square symbols represent the measured crack lengths of the left and the right crack tips, respectively, from both panels. The numbers inside the circles along the y axis indicate the locations of the rivets. For panel CVP3, crack growth across a rivet hole is indicated by a vertical jump in the data, where the crack length instantaneously increases by a length equal to the hole diameter. The horizontal segments shown in the plot indicate the incubation period or the number of cycles for the crack to reform on the opposite side of the rivet hole. For panel CVP4, which contained multiple cracks, the vertical jumps in the experimental data indicate the point when the lead crack and small multiple crack linked up. When this happened, the crack length increased instantaneously by the diameter of the rivet hole plus the lengths of the small cracks at that rivet. There was no crack reformation. The small crack at the rivet hole on the opposite side became the new lead crack front. As a result, the number of cycles to grow the lead crack to the third rivet hole in panel CVP4 was approximately 27% less than that in panel CVP3. At the third rivet holes, 5R and 5L, the crack tips had just reached the first intact stringers (S3 and S5), increasing the incubation period for panel CVP3 and decreasing the subsequent crack growth rate for both panels.

The Mode I SIF range, $\Delta K_I$, (figure 40) and the crack growth data for 2024-T3 aluminum [17-19] were used in a cycle-by-cycle crack growth analysis program to predict the fatigue crack growth in panels CVP3 and CVP4, also shown in figure 41. Details of the analysis procedure are provided in appendix D. Briefly, the analysis based on $\Delta K_I$ was in good agreement with the test data for crack growth in both panels until the crack reached the third rivet hole. Little crack bulging was observed during the test, indicating that the crack growth was primarily due to Mode I loading.

The crack tip positions of the lead crack and the small cracks at the rivet holes ahead of the lead crack is plotted as a function of the number of cycles for panel CVP4 in figure 42. In general, fatigue cracks formed from the small crack notches when the lead crack tip was an average distance of 0.283″ from the small crack notch tip. The average length of observable cracks formed from the notches was 0.0115″. The crack tips coalesced at rivets 3R and 4R while they grew past each other at rivets 3L, 4L, 5L, and 5R, as shown in the inset of figure 42. Cracks typically reformed from the notch tip of the crack on the opposite side once linkup occurred or as soon as the two cracks grew past each other.

Strain redistribution occurred as fatigue cracks formed and grew in panels CVP3 and CVP4 as shown in figure 43. In this figure, the longitudinal strain at a gage located in the mid-bay of the skin, SG36L, and a gage located in a stringer, SG26, is plotted as a function of the lead crack length normalized with respect to the distance of the strain gages from the crack centerline for both panels. When this ratio is equal to one, the crack tip has grown to the strain gage location. For a ratio value less than one, the crack is growing towards the gage, and for a ratio value greater than one, the crack has grown past the gage. As shown in the figure, the strain measured in gage SG36L in both panels reaches a maximum when the crack tip and gage location coincided. The value of strain decreased as the crack grew past gage SG36L. For gage SG26, the measured strain increased as the crack grew closer to the gage and is maximum when the crack grew up to the gage. Note that the trends of the results for both panels are nearly identical. This provides confidence that the applied loadings, data acquisition characteristics, and test

procedure were the same for both panels, that the test data is repeatable and reliable, and that the small multiple cracks had no effect on the global strain response.

COMPARISONS WITH OTHER DATA. The fatigue crack growth data generated in this study was compared with similar data previously generated by Boeing Aircraft Company [20] on wide-body panels using a full-barrel test fixture. Similar to the damage in the CVP1 and CVP2 panels, the initial damage configuration for the Boeing wide-body panels consisted of a two-bay crack in the outer rivet row of a longitudinal lap joint with (test 2) and without (test 1) smaller, collinear multiple cracks approximately 0.05″ long. Unlike the CVP1 and CVP2 panels representing a narrow-body aircraft fuselage structure, the Boeing panels represented wide-body aircraft fuselage structure having a radius of 127″. Other differences include the joint configuration, substructure details, and the loading fixture. The raw data for the Boeing full-scale test is shown in table H-1 of appendix H for a baseline panel containing only a lead crack, test 1, and a second panel containing the same lead crack configuration with the addition of multiple cracks, test 2.

For panel test 1, a 5″ saw cut was made in the central tear strap and the outer rivet row of the skin placed symmetrically across a frame. The lead crack tips terminated at fastener holes. Consequently, no cracks developed after 1170 cycles. Similar phenomena was observed in panel CVP1 after the lead crack grew into a fastener hole, a number of cycles were required to reform a crack on the opposite side of a hole. For test 1, the lead crack tips were saw cut 0.25″ beyond the fastener holes to a length of 5.71″, and the test was resumed. Stable fatigue crack growth occurred up to 3101 cycles, where the total crack length was 36.91″, at which fatigue loading was terminated.

For panel test 2, small multiple cracks were saw cut in the outer rivet row of the skin. In addition, a 5″ saw cut was placed symmetrically across a frame in the outer critical rivet row of the skin. The tips of the lead crack extended 0.05″ beyond the fastener holes. Unlike panel test 1, the central tear strap was intact prior to testing panel test 2. After 281 cycles, no crack growth was observed in panel test 2 and the tear strap was cut to match the initial condition in panel test 1. The test was then resumed. Stable crack growth occurred up to 1231 cycles, where the total crack length was 17.20″. At 1233 cycles, dynamic crack extension occurred, where the total crack length was 37.44″, at which fatigue testing was terminated.

To compare the results from panel test 1 and panel test 2, the raw data was reduced (appendix H) so that the initial damage configurations and corresponding cycle counts in both panels matched—an initial crack length of 5.71″ with the central tear strap severed. For panel test 1, the cycle count data was shifted by 1171 cycles corresponding to a crack length of 5.71″. For test 2, the cycle count data was shifted by 451 cycles corresponding to a crack length of 5.71″, which was approximated using a linear interpolation. In addition, the final crack lengths used were matched to correspond to stable fatigue crack growth. For panel test 1, the final crack length assumed in the comparison was 17.20″, which was selected to best compare with that in panel test 2, where the final crack length for stable cracking was 17.30″. The reduced data is shown in table H-2 in appendix H for panel tests 1 and 2.

A comparison of the fatigue crack growth data generated for CVP1 and CVP2 panel with the Boeing full-scale barrel panels, test 1 and test 2, is shown in figure 44. The circular symbols are

the data set from the CVP1 (baseline) and the CVP2 (multiple crack) panels. The square symbols are the data set from the Boeing test for the baseline panel containing only a lead crack (test 1) and for the second panel containing the same lead crack configuration with the addition of multiple cracks (test 2). For each data set in the figure, the crack length data and the cycle count data were normalized with respect to the final crack length and final cycle count for the baseline panel. As shown in figure 44, the normalized fatigue crack growth data from both sets have similar rates. In addition, both data sets show that small multiple crack caused a reduction in the number of cycles to grow the crack to a predetermined length. For the current study, a 37% reduction was measured; and for the Boeing full-scale barrel tests, a 54% reduction was measured.

RESIDUAL STRENGTH.

After the fatigue loading, each panel was loaded quasi-statically to failure to measure the crack growth and residual strength. The lead crack length for the longitudinal lap joint panels (CVP1 and CVP2) was approximately 25″ and for the circumferential butt joint panels (CVP3 and CVP4) was approximately 19″. For longitudinal lap joint panels, the frame directly underneath the crack centerline, frame F4, was cut prior to the residual strength test to simulate a broken frame. For the circumferential butt joint panels, stringer S4 had already been cut to simulate a broken stringer. All the residual strength data is provided in the tables of appendix I. Representative results are presented for each joint configuration.

LONGITUDINAL LAP JOINT CONFIGURATION. Results from the residual strength test of panels CVP1 and CVP2 are shown in figure 45, where the square and circular symbols represent the crack extension for the left and right crack tips, respectively. The numbers inside the circles along the x axis indicate a rivet location. During the test, cylinderical pressurization was applied quasi-statically, and the crack extension measured up to panel failure. In the initial stages of loading, slow stable crack extension was observed in both panels up to 10.25 psi pressure for panel CVP1 and 8.5 psi pressure for panel CVP2. The crack grew rapidly through rivets 9 through 11 on both the right and left side to the first intact frames (F3 and F5) for both panels, and then were arrested. An increase of pressure was required to grow the cracks past the frames in both panels, and stable crack extension continued until catastrophic failure occurred at 11.14 psi for panel CVP1 and 9.16 psi for panel CVP2. The presence of multiple cracks reduced the residual strength by approximately 20%.

The position of the lead crack tip and the small multiple crack tips at rivets 9R through 18R are plotted as a function of the applied pressure in figure 46 for the right side of panel CVP2. In the figure, the point at which the lead crack and small crack directly ahead of it coalesced is called the linkup position and is indicated in the plot by the two arrowheads in contact. The direction of crack growth, right or left, is indicated by the arrowheads. Initially, stable crack extension of the lead crack occurred where an increase in applied pressure to 8.44 psi was required to grow the crack. At 8.44 psi, the lead crack and the small crack at rivet 9R linked. The crack at rivet 9R had grown during the loading, so the new crack front was at approximately 14″. The applied pressure was increased to 8.57 psi, where the lead crack and small cracks at rivets 10R through 15R suddenly merged. Crack growth was then arrested due to the intact frame located at rivet 13R. With increase in the applied pressure to 8.60, 8.8, and 9.019 psi, linkup occurred between

the lead crack and small multiple cracks at rivets 15R, 16R, and 17R, respectively. At an applied pressure of 9.16 psi, panel CVP2 failed catastrophically. It was observed that the lengths of the small multiple cracks at linkup were nearly constant with an average length of 0.3697″.

CIRCUMFERENTIAL BUTT JOINT CONFIGURATION. The load application points failed prematurely during the residual strength test of panel CVP3. A tab end failed first at the longitudinal load application point as shown in figure 47. During the original fatigue loading of CVP3, a fatigue crack initiated from a manufacturing flaw at the stop-drill hole at the end of a load transfer slot. The fatigue crack grew and caused the end tab to break during the first residual strength test attempt. The tab end was repaired and the residual strength test was resumed. The tab ends at several longitudinal load application points then failed as shown in figure 48. At these locations, the tab ends delaminated, resulting in bearing failures of the tab ends. All tab ends were then reinforced with several layers of 4130A steel doublers as shown in figure 49. The doubler layers were cold bonded using EA9309.3NA and bolted together using NAS 6204 and 6205 steel bolts. After reinforcing all tab ends at the longitudinal load application points, the residual strength test was resumed and the panel failed in the test section during the third test attempt.

Results from three residual strength tests for panel CVP3 are shown in figure 50, where each of the three runs is shown using different symbols. Crack growth began at a pressure of 17 psi in the first run. Stable tearing then occurred up to a pressure of 19.1 psi. At this point, one of the load attachment points failed and the test was stopped. The broken load attachment point was repaired and the test was restarted from zero load. During the second run, the panel was loaded monotonically up to a pressure of 18.4 psi, then stringer S3 broke causing a large amount of crack extension at the left crack tip. One of the longitudinal load application reinforcement doublers delaminated at one of the load application points. After repairing the panel a second time, the panel was loaded again. In the third run, stringer S5 failed at an applied pressure of 17 psi, causing the crack to extend to the next intact stringers S2 and S6. The panel then failed catastrophically at a pressure of 17.9 psi. Note that after each attempt of residual strength, the maximum load reduced.

The effect of multiple cracking on the residual strength of the circumferential butt joints cannot be accurately quantified since the final residual strength of panel CVP3 could not be determined. However, the effect of multiple cracking on the damage growth process can be seen using the first test done for the residual strength. Figure 51 shows the results from the first residual strength test for panel CVP3 and the residual strength test for panel CVP4. In this figure, the numbers inside the circles along the x axis indicate the location of rivets. For panel CVP3, growth of the lead crack was slow and stable up to rivet 7. A continuous increase in load was required to extend the crack. However, the load attachment point failed prematurely. For panel CVP4, once the lead crack started to grow, the subsequent growth was very rapid through rivet 7. Catastrophic failure of panel CVP4 occurred at a pressure of 20.75 psi.

The position of the lead crack tip and the small multiple crack tips at rivets 6L through 12L is plotted as a function of the applied pressure in figure 52 for the left side of panel CVP4. In the figure, the point at which the lead crack and small crack directly ahead coalesce is called the linkup position and is shown in the plot by the two arrowheads in contact. The direction of crack

growth, left or right, is indicated by the arrowheads. At an applied pressure of 20 psi, the lead crack and the small crack at rivet 7L linked up. The crack from rivet 7L continued to grow on further increase in applied pressure. At an applied pressure of 20.75 psi, panel CVP4 failed catastrophically. The lengths of the small multiple cracks at linkup were nearly constant, with an average length of 0.4374″.

COMPARISON WITH OTHER DATA. The residual strength data generated in this study was compared with similar data previously generated by the Boeing Aircraft Company [20 and 21] on wide-body panels, using a full-barrel test fixture, and by Foster Miller [22] on narrow-body panels, using a panel pressurization fixture. The Boeing panels tested [20 and 21] represented wide-body aircraft fuselage structure having a radius of 127″. For the panels tested in reference 20, a floating frame construction was used and for the panels tested in reference 21, a shear-tied frame construction was used. Similar to FAA longitudinal lap joint panels CVP1 and CVP2, the Boeing panels had an initial damage configuration of a two-bay crack in the outer rivet row of a longitudinal lap joint with and without smaller, collinear multiple cracks with a length of approximately 0.05″. In addition, the central frame was severed.

The Foster Miller (FM) panels tested [22] represented narrow-body fuselage structure having a radius of 75″. Different from the two-bay crack configurations for the FAA and Boeing tests, the FM panels had an initial damage configuration of a single-bay crack in the outer rivet row of a longitudinal lap joint with and without smaller, collinear multiple cracks with a length of approximately 0.05″. Other differences among the FAA, Boeing, and FM tests include the joint configuration, skin thickness, substructure details, and the loading fixture employed.

The reduction of residual strength due to multiple cracks measured in these tests is compared in figure 53. As shown in three of the four tests, an approximate 20% reduction in the residual strength was measured. For the shear-tied panels tested by Boeing [21], the residual strength was reduced by ~10% due to multiple cracks.

## POSTTEST OBSERVATIONS AND ANALYSIS.

After the residual strength tests, all panels were examined to determine the extent of damage. In general, the final state of damage was similar for the two panels of each joint configuration. Posttest analysis of the strains was conducted to interpret the observed damage.

LONGITUDINAL LAP JOINT CONFIGURATION. The final state of damage in panel CVP1 is shown in the photographs in figure 54 (the final state of damage in panel CVP2 was similar). As shown in the figure, the skin crack grew to a length of approximately 68″. A large amount of permanent bulging of the crack faces occurred. A considerable amount of damage occurred to the substructure as frames F3 and F5 were fractured (frame F4 was cut prior to the residual strength test).

Analysis of the residual strength test data of panels CVP1 and CVP2 shows that frames F3 and F5 fractured due to load transfer from the skin to the frame as the crack grew. In both panels, the frame failure occurred from the hi-lok connecting the outer flange of the frame to the stinger as shown in the photograph in figure 55 for CVP1. In both panels, a strain gage was located in the

frame approximately 3″ from this crack site. The strain measured by the strain gage and the crack length is plotted as a function of applied pressure for panels CVP1 and CVP2 in the graph in figure 55. As shown, the value of strain increased gradually with pressure. When the crack reached frame F5 there was an abrupt increase in the strain. Values of strain of 4958 με and 5219 με were measured in frame F5 at failure for panels CVP1 and CVP2, respectively.

CIRCUMFERENTIAL BUTT JOINT CONFIGURATION. The final state of damage in panel CVP3 is shown in figures 56 and 57 (the final state of damage in panel CVP4 was similar). The photographs in figure 56 show the crack path along the original rivet row, the change in crack path from the original rivet row, and the fractured doublers at the load transfer slots. Once the doublers fractured, the panel was broken completely in half. A considerable amount of damage occurred to the substructure where all seven stringers fractured during the residual strength test as shown in the photographs in figure 57.

The maximum strain measured in stringer S5 is plotted as a function of applied pressure in figure 58 for both panels. Data plotted for panel CVP3 is from the first residual strength test attempt. As shown, the value of strain increased linearly as the pressure increased. Values of strain of 3710 με and 3992 με were measured in frame S5 at failure for panels CVP3 and CVP4, respectively.

## CONCLUDING REMARKS

An experimental and analytical investigation was undertaken to assess the effects of multiple cracking on the fatigue crack growth and residual strength characteristics of curved panels with either a longitudinal lap splice or a circumferential butt joint. The Full-Scale Aircraft Structural Test Evaluation and Research (FASTER) facility was used to apply realistic loading conditions to curved panels representing fuselage sections. Both quasi-static and constant-amplitude fatigue loadings were applied to the panels. A geometrically nonlinear finite element analysis was used to determine the strain distribution in the panels and the fracture parameters necessary for predicting the fatigue crack growth behavior of the panel were calculated.

A total of four panels were tested, two panels with a longitudinal lap splice and two with a circumferential butt joint. For each joint configuration, one panel contained only a lead crack and the other contained a lead crack with small multiple cracks. Strains were measured under quasi-static loading conditions to ensure proper load introduction to the panels. The strain measurements were highly repeatable and were in good agreement with the finite element analyses. The presence of multiple cracks did not affect the overall global strain response.

In general, symmetric, collinear crack propagation was observed under constant-amplitude fatigue loading for the four panels tested. Reasonable agreement was obtained between experimental fatigue crack growth data and predictions relying on the Mode I stress-intensity factors calculated from finite element analyses of the test panels. The number of cycles to grow a fatigue crack to a predetermined length was reduced by approximately 37% due to the presence of multiple cracks for the longitudinal lap joint panels and 27% for the circumferential butt joint panels.

Residual strength tests were conducted on each panel after the fatigue loading. For the curved panels with the longitudinal lap splice, the initial damage consisted of a two-bay crack with a length of approximately 25″ with the central frame cut. The presence of multiple cracks reduced the residual strength of the panels with a longitudinal lap joint by approximately 20%. For the curved panels with the circumferential butt joint, the initial damage consisted of a four-bay crack with a length of approximately 19″ with the central stringer cut. The residual strength of the baseline panel containing only a lead crack was not measured due to premature failures at the load application points. Consequently, the effect of multiple cracks on the residual strength of the circumferential butt joint configuration could not be quantified. However, it was observed that the growth of lead crack into the first rivet was more rapid for the panel containing multiple cracks.

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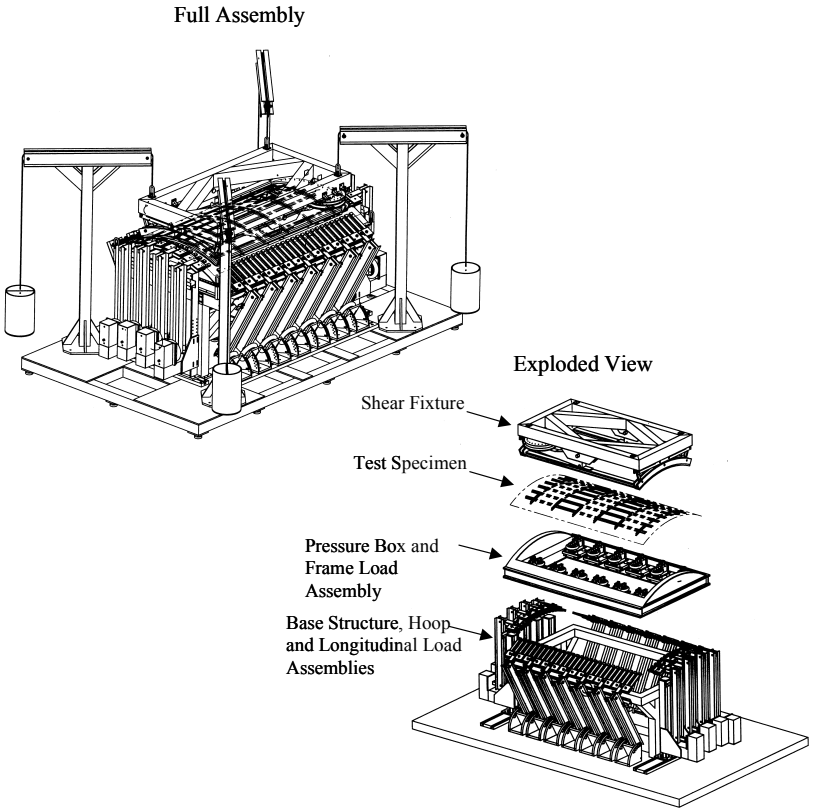



FIGURE 1. FULL-SCALE AIRCRAFT STRUCTURAL TEST EVALUATION AND RESEARCH (FASTER) FIXTURE

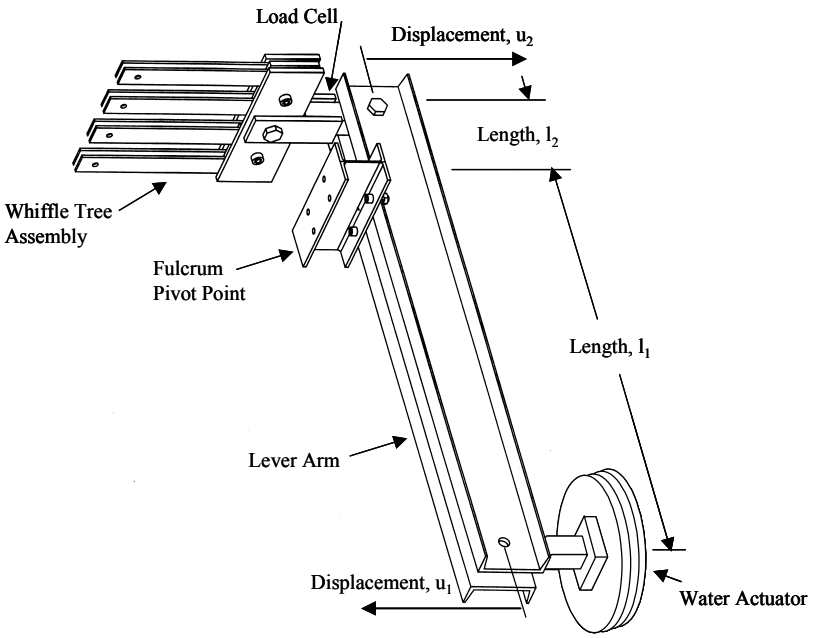



FIGURE 2. SCHEMATIC OF LONGITUDINAL AND HOOP LOADING MECHANISM

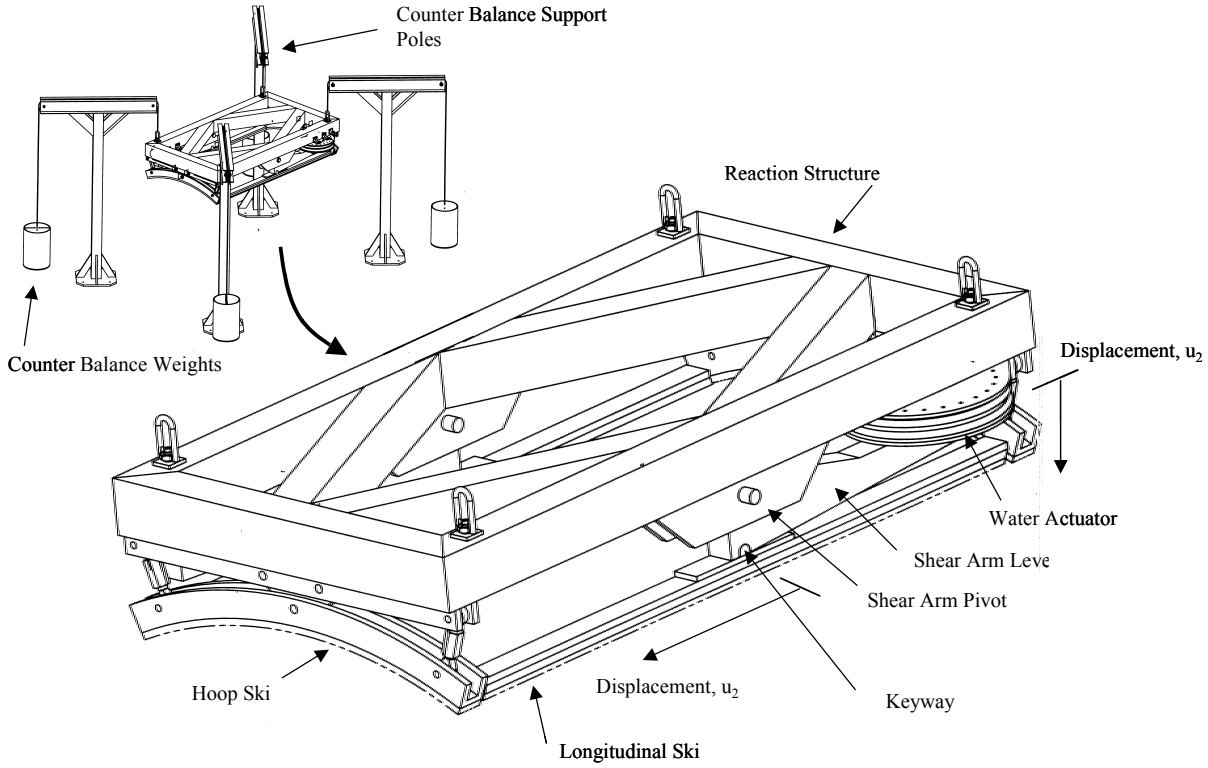



FIGURE 3. SCHEMATIC OF SHEAR LOADING MECHANISM

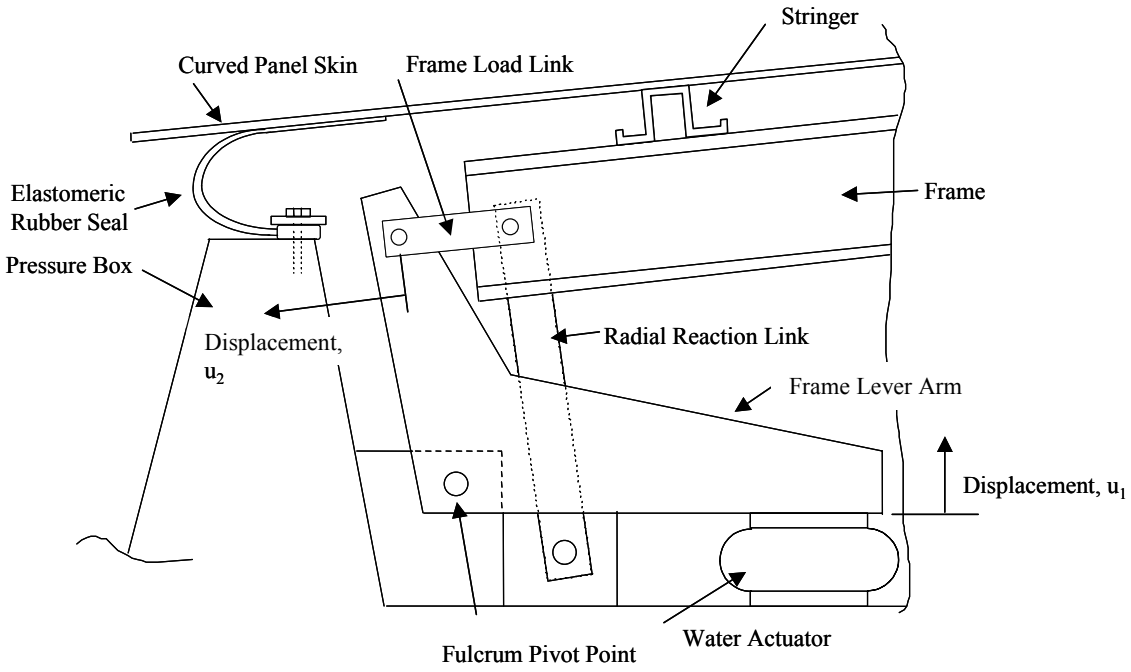



FIGURE 4. SCHEMATIC OF FRAME LOADING MECHANISM

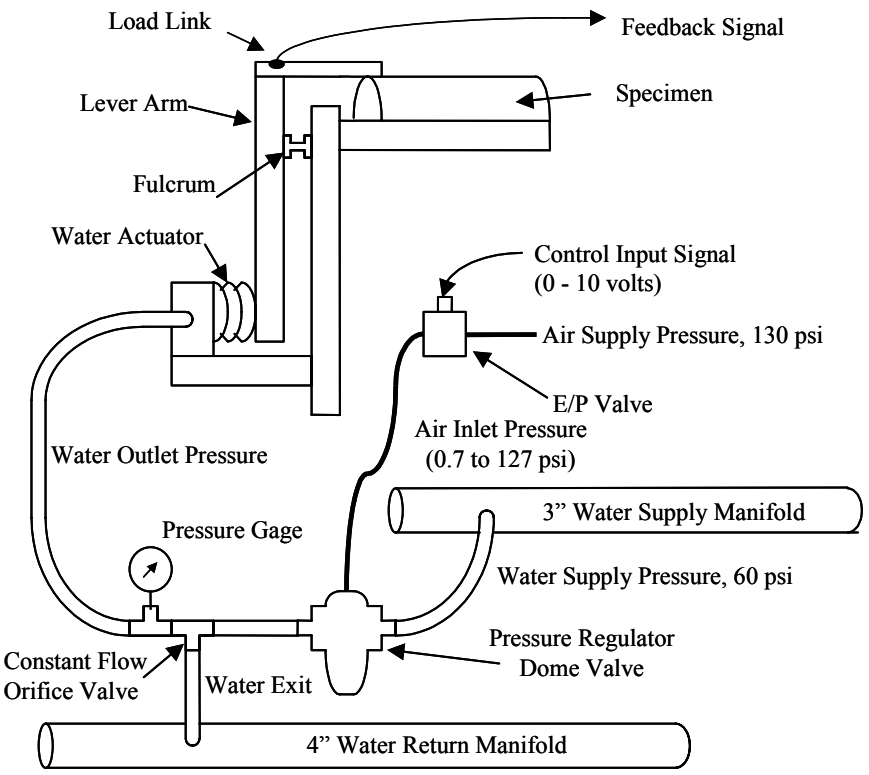



FIGURE 5. SCHEMATIC OF THE HYDRAULIC AND PNEUMATIC SYSTEM

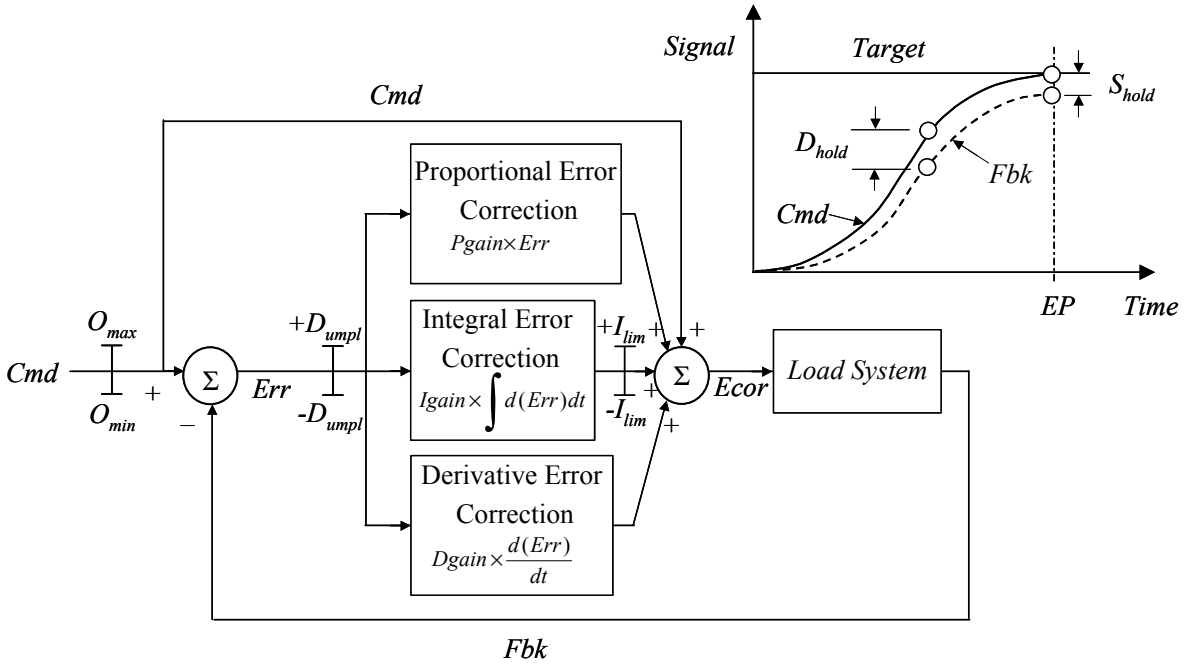



FIGURE 6. SCHEMATIC OF THE PROPORTIONAL INTEGRAL DERIVATIVE (PID) CLOSED-LOOP ERROR CORRECTION PROCESS

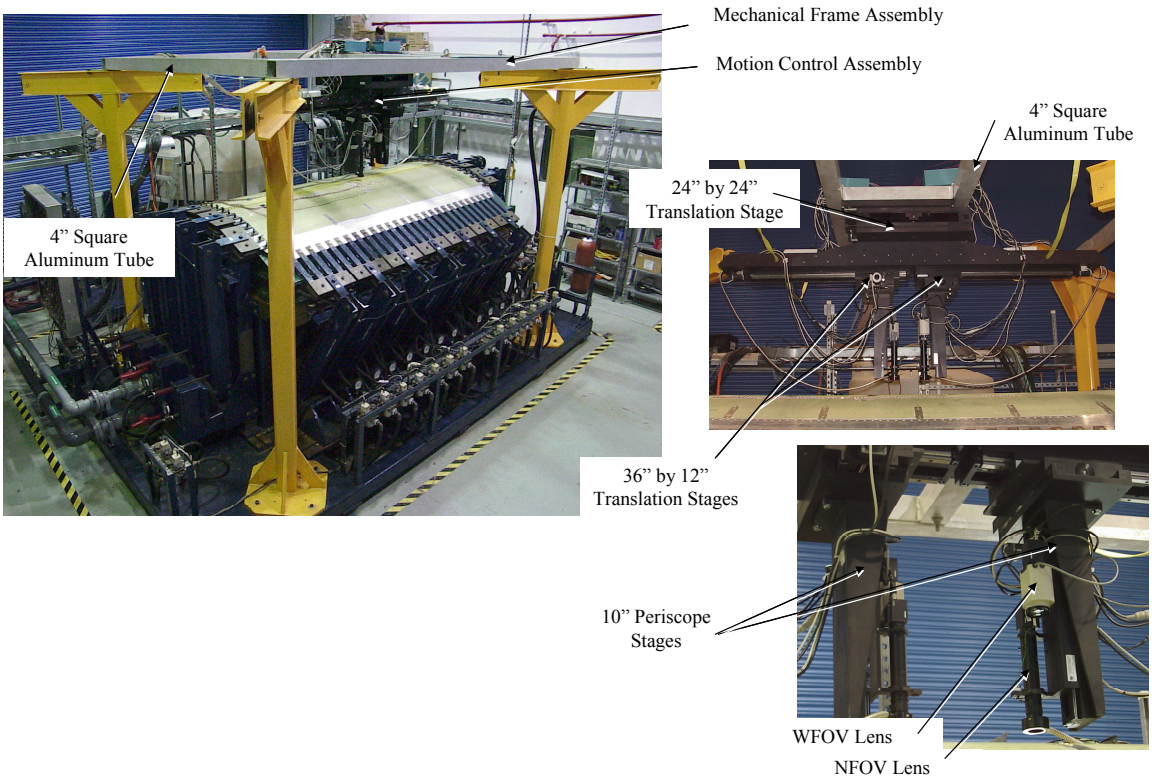



FIGURE 7. PHOTOGRAPHS OF FASTER FACILITY AND RCCM SYSTEM

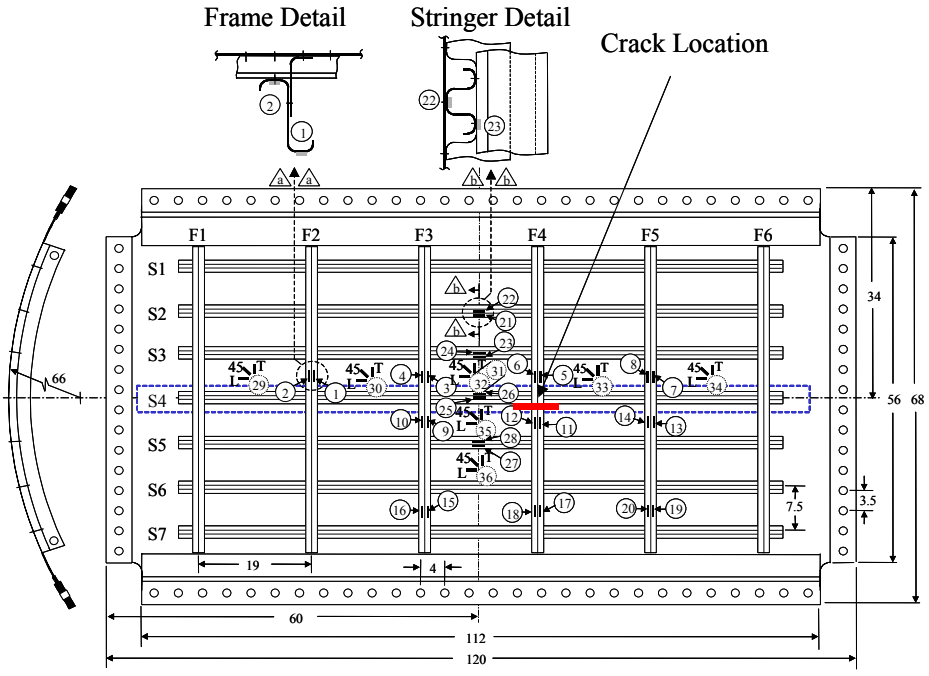



FIGURE 8. CVP1 AND CVP2 PANEL CONFIGURATION AND STRAIN GAGE LOCATIONS

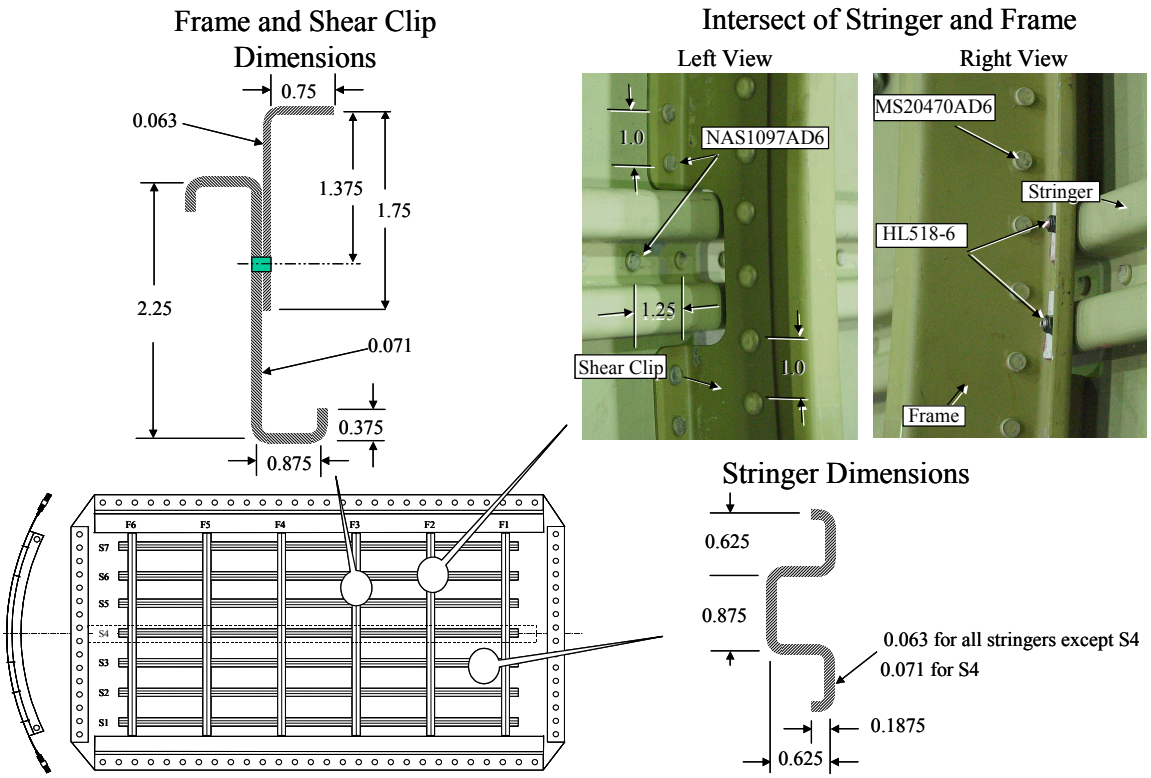



FIGURE 9. DIMENSIONS OF FRAMES, STRINGERS, SHEAR CLIPS, AND INTERSECT OF STRINGER AND FRAME

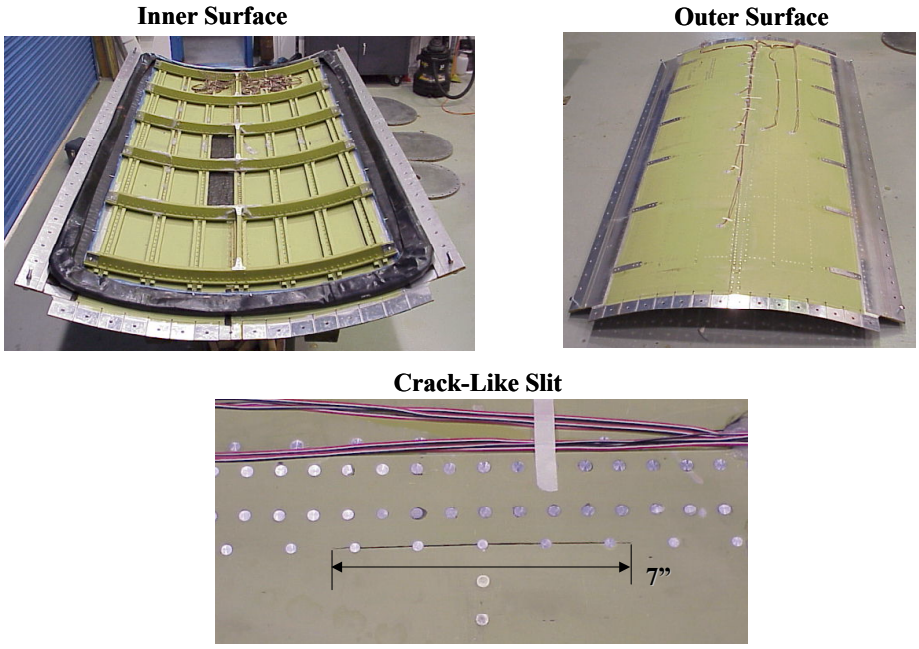



FIGURE 10. PHOTOGRAPHS OF PANEL CVP1 SHOWING THE INNER AND OUTER SURFACES AND THE INITIAL CRACK-LIKE SLIT

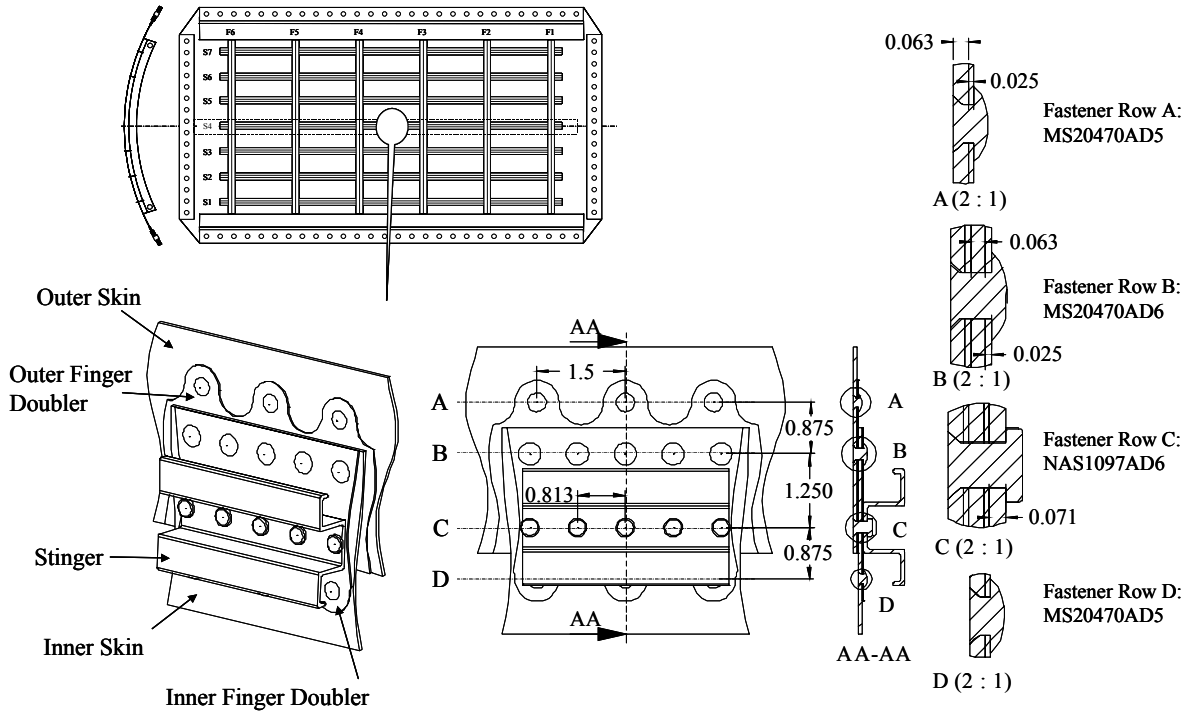



FIGURE 11. JOINT CONFIGURATION FOR PANELS CVP1 AND CVP2

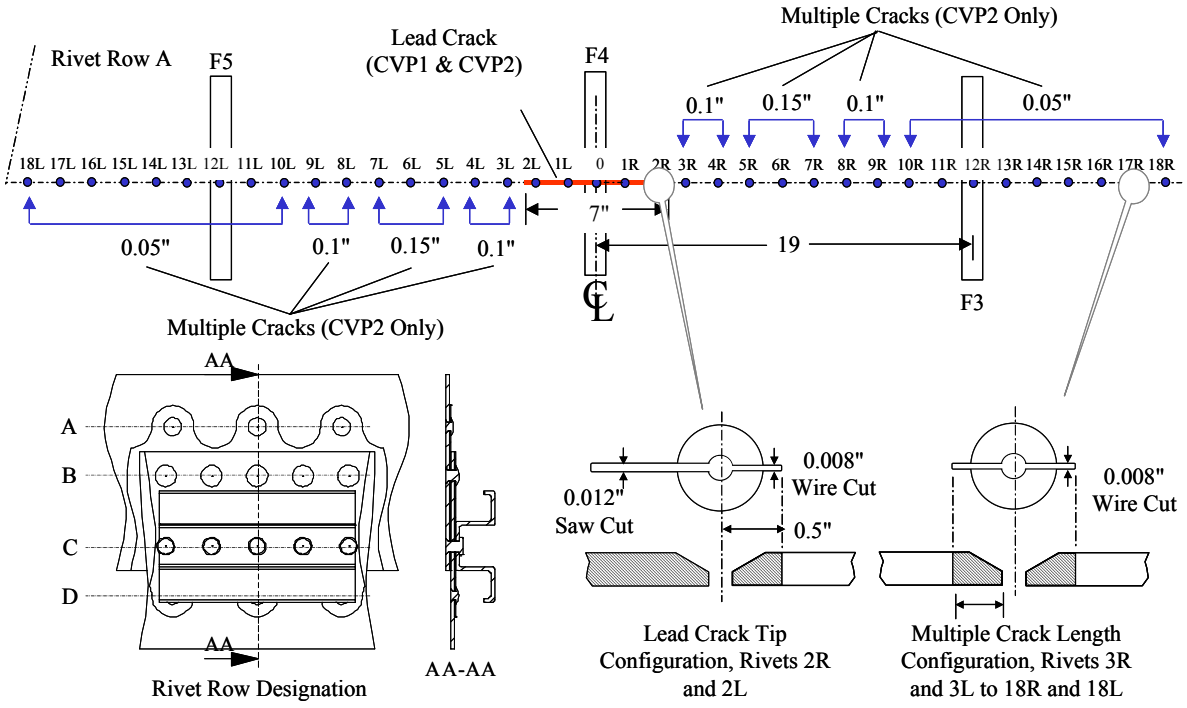



FIGURE 12. INITIAL DAMAGE CONFIGURATIONS FOR PANELS CVP1 AND CVP2

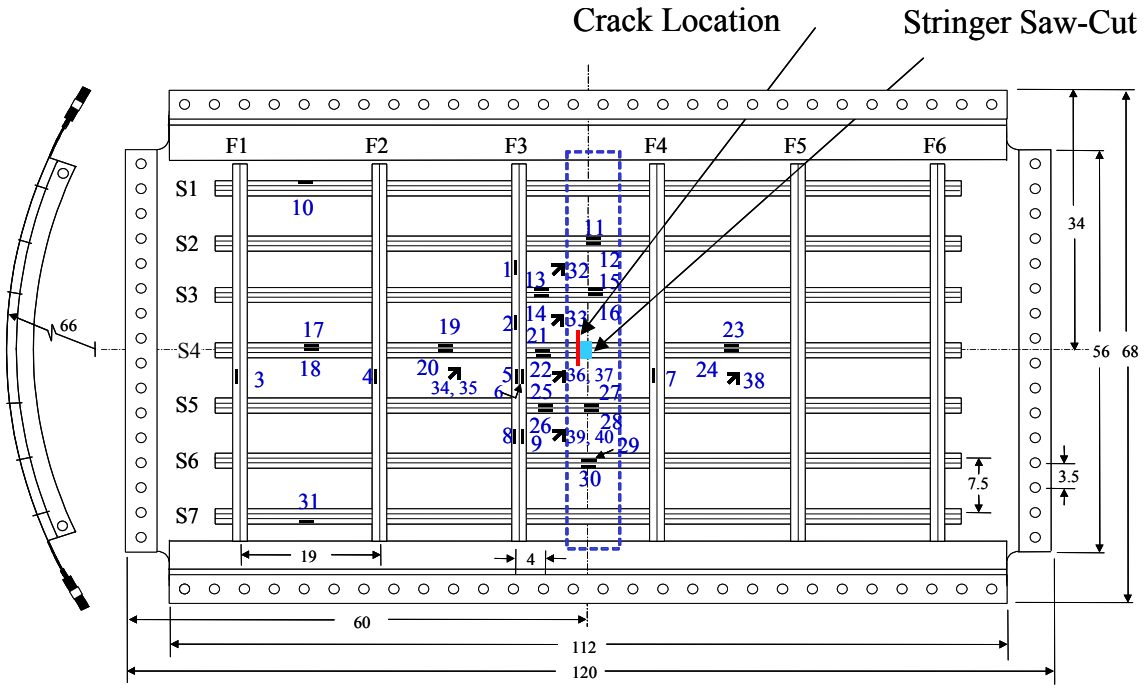



FIGURE 13. CVP3 AND CVP4 PANEL CONFIGURATIONS AND STRAIN GAGE LOCATIONS

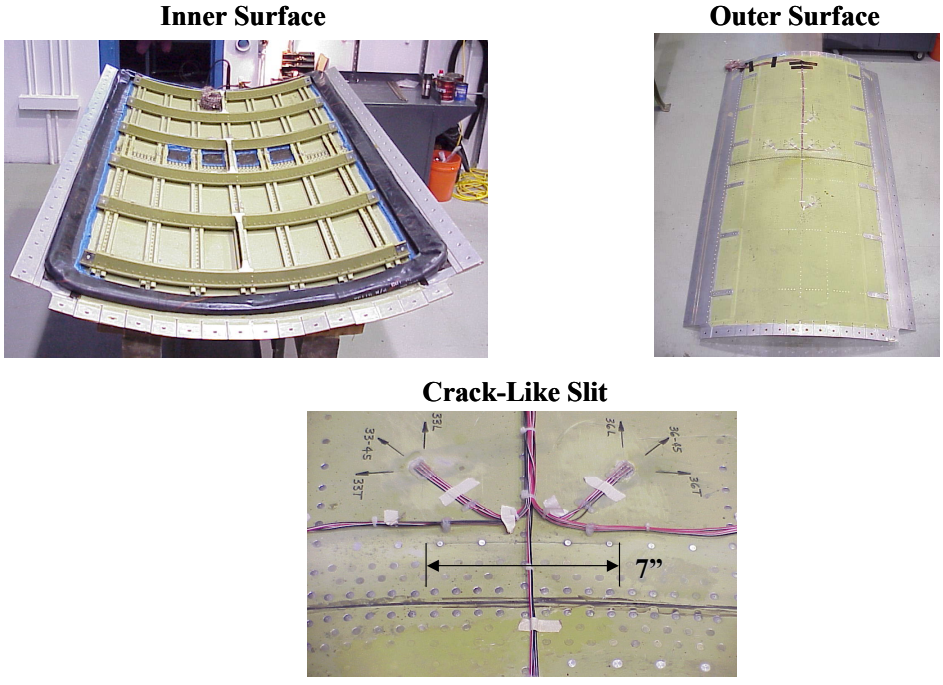



FIGURE 14. PHOTOGRAPHS OF PANEL CVP3 SHOWING THE INNER AND OUTER SURFACES AND THE INITIAL CRACK-LIKE SLIT

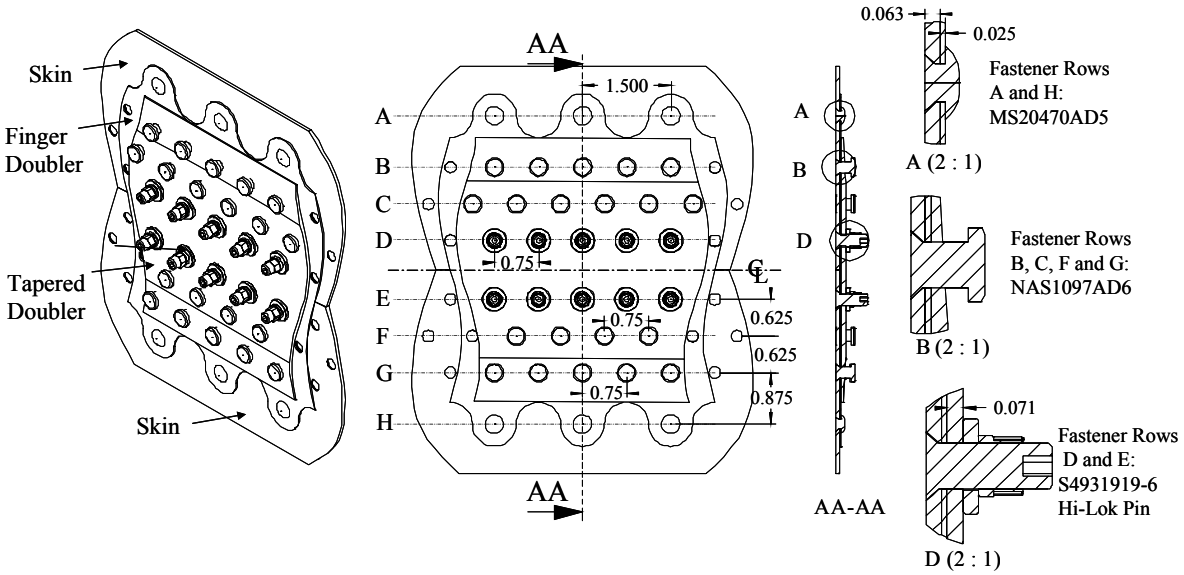



FIGURE 15. JOINT CONFIGURATION FOR PANELS CVP3 AND CVP4

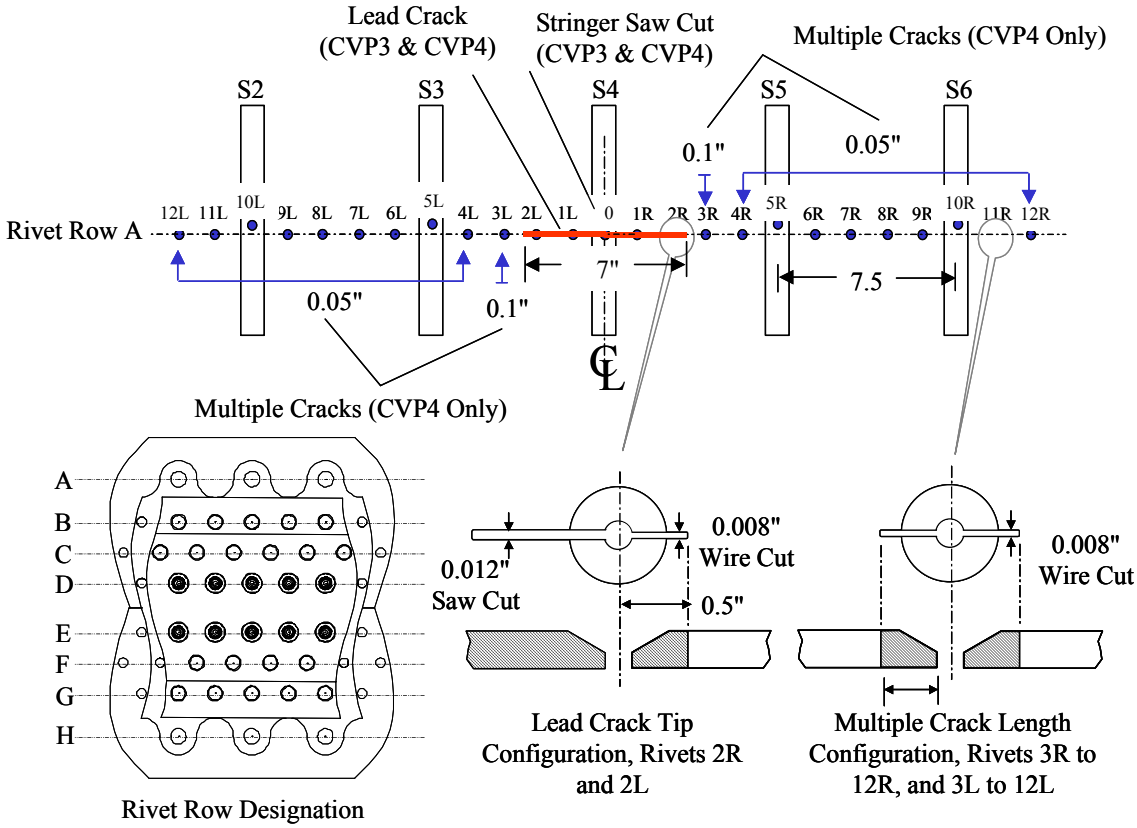



FIGURE 16. INITIAL DAMAGE CONFIGURATIONS FOR PANELS CVP3 AND CVP4

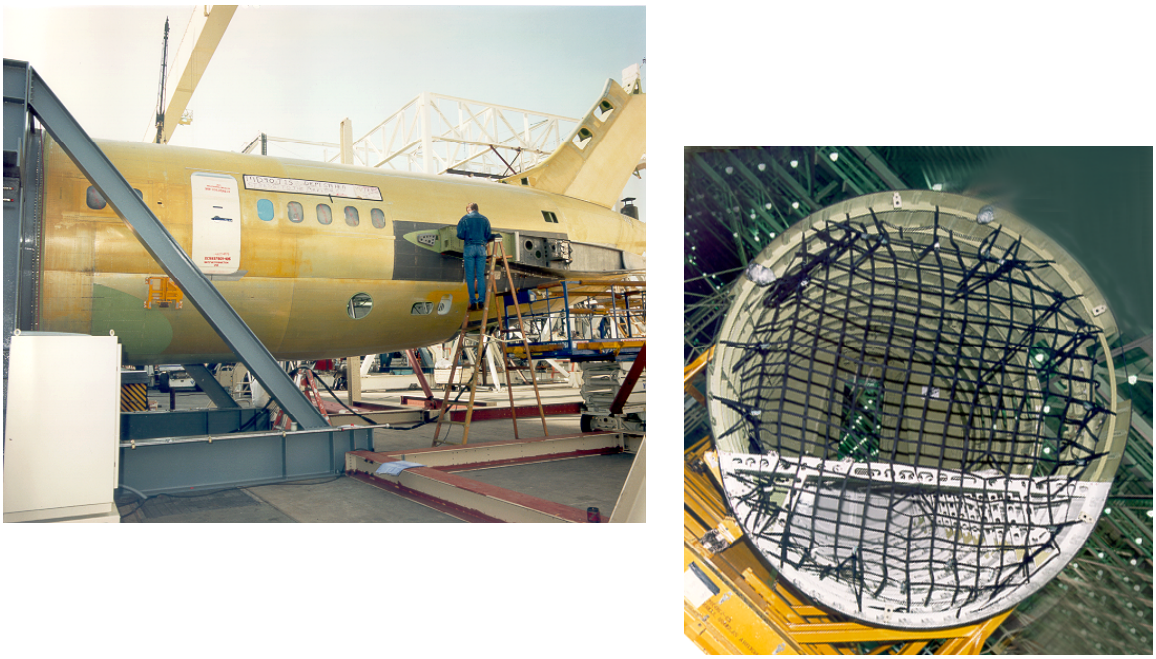


FIGURE 17. BOEING AFT FUSELAGE SECTION TEST ARTICLE

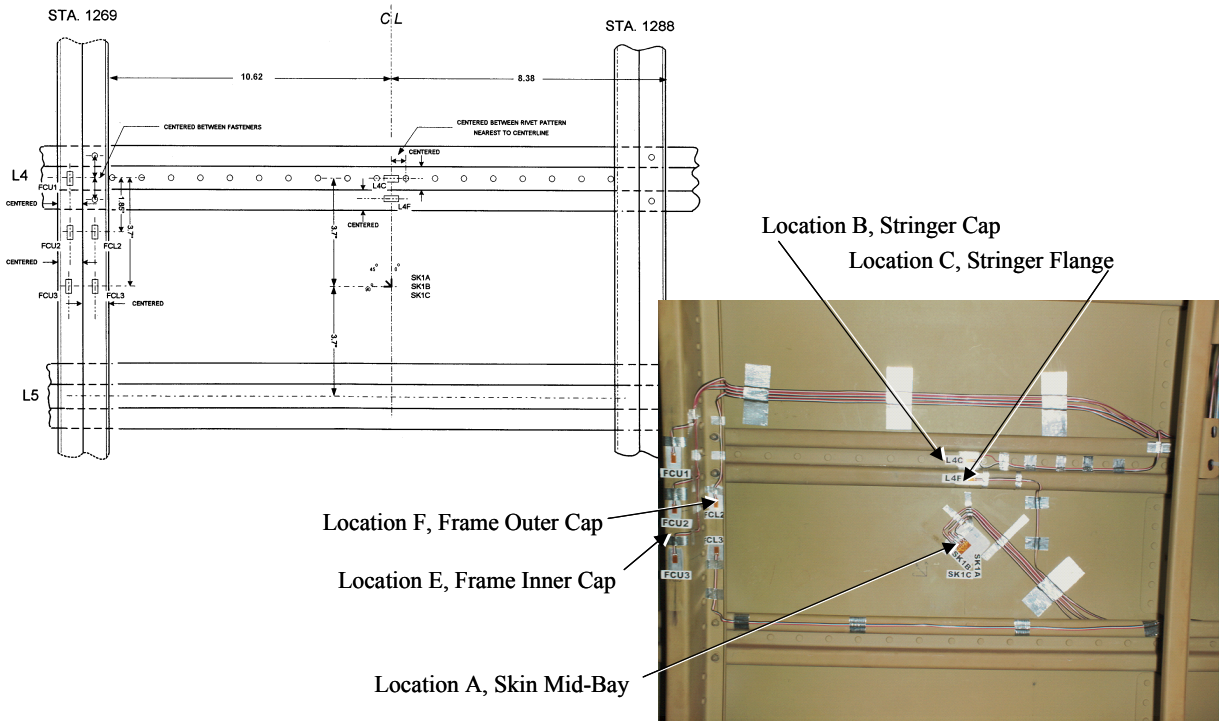



FIGURE 18. LOCATION OF STRAIN GAGES IN AFT FUSELAGE SECTION TEST ARTICLE

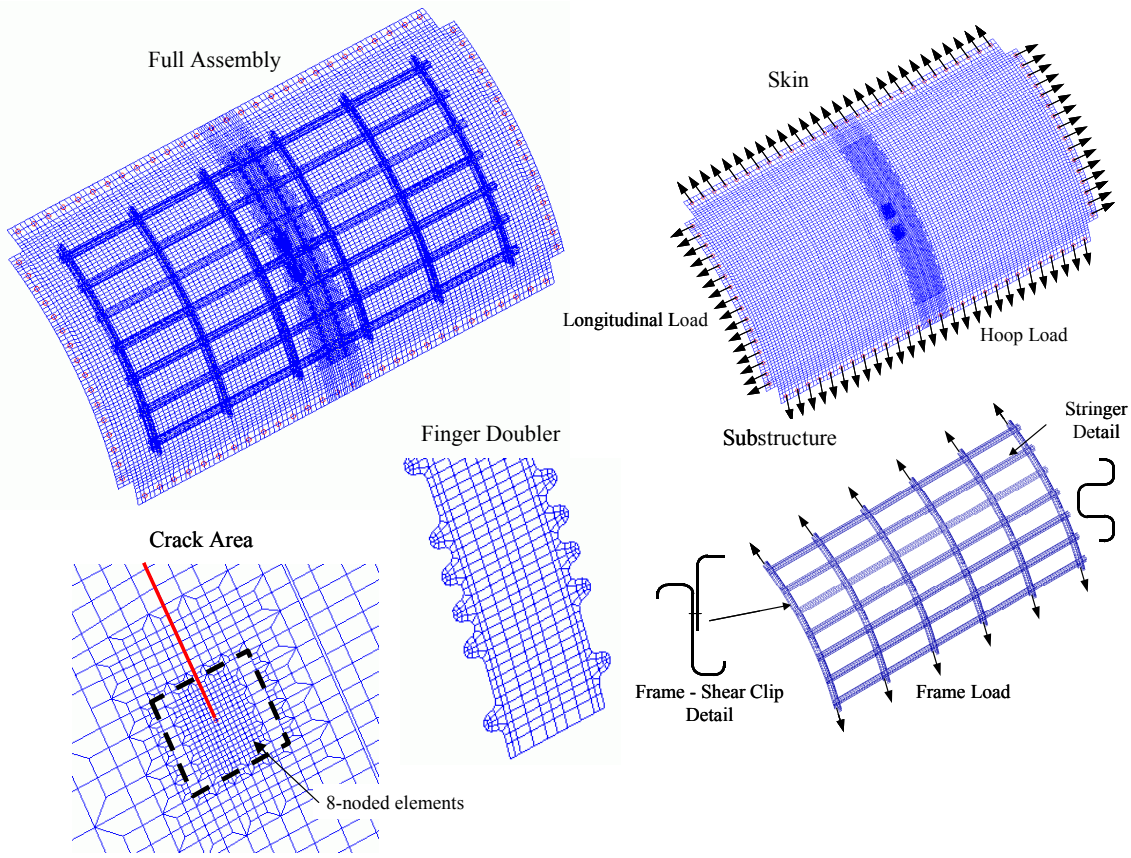



FIGURE 19. FINITE ELEMENT MODEL OF CVP3 SHOWING FULL ASSEMBLY AND SUBSTRUCTURE COMPONENTS

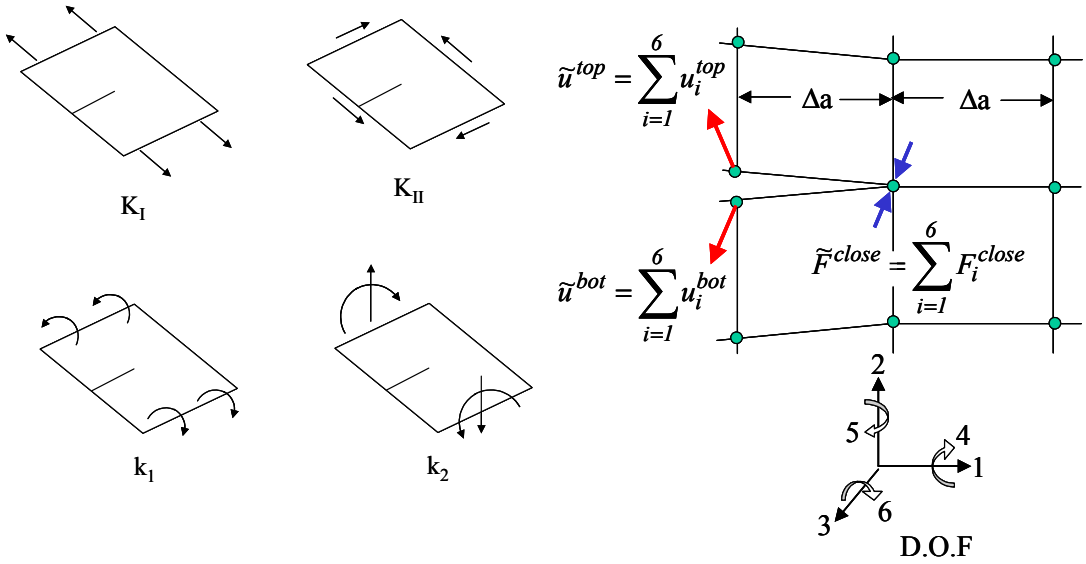



FIGURE 20. DEFINITION OF FOUR STRESS-INTENSITY FACTORS AND CRACK TIP ELEMENTS AND NODES FOR COMPUTING THE RATE OF WORK DONE TO CLOSE A CRACK USING THE MCCI METHOD

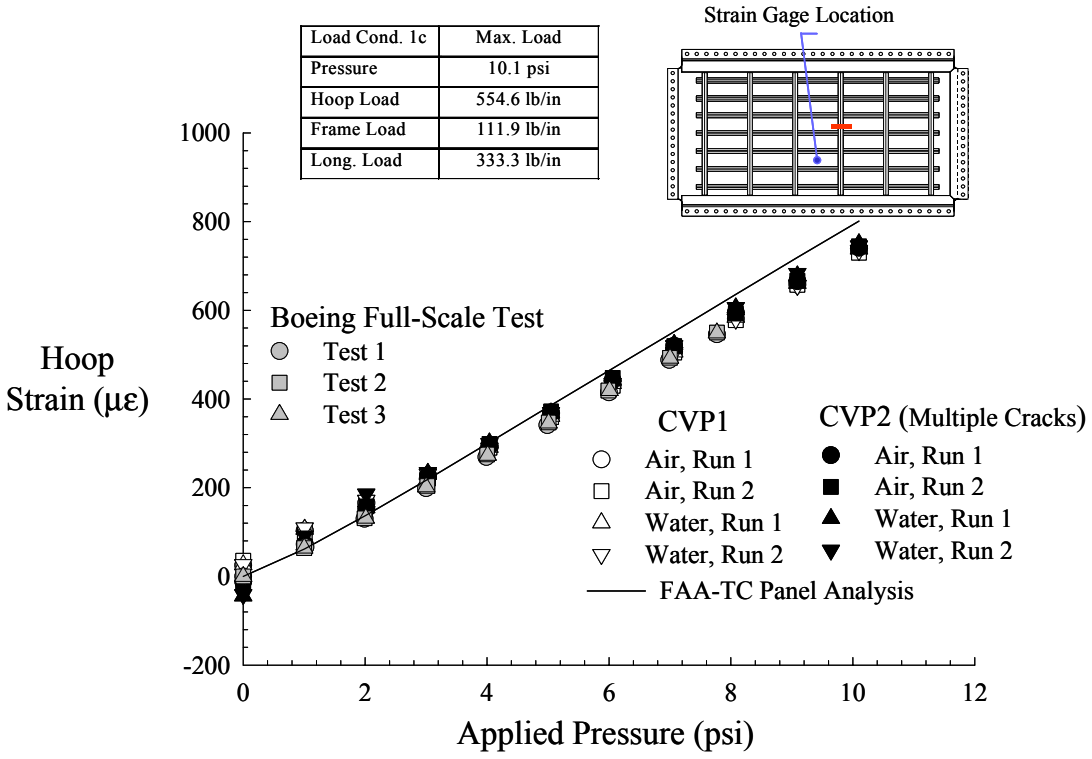



FIGURE 21. HOOP STRAIN IN GAGE LOCATED AT SKIN MID-BAY IN PANELS CVP1 AND CVP2 AND BOEING FULL-SCALE TEST ARTICLE

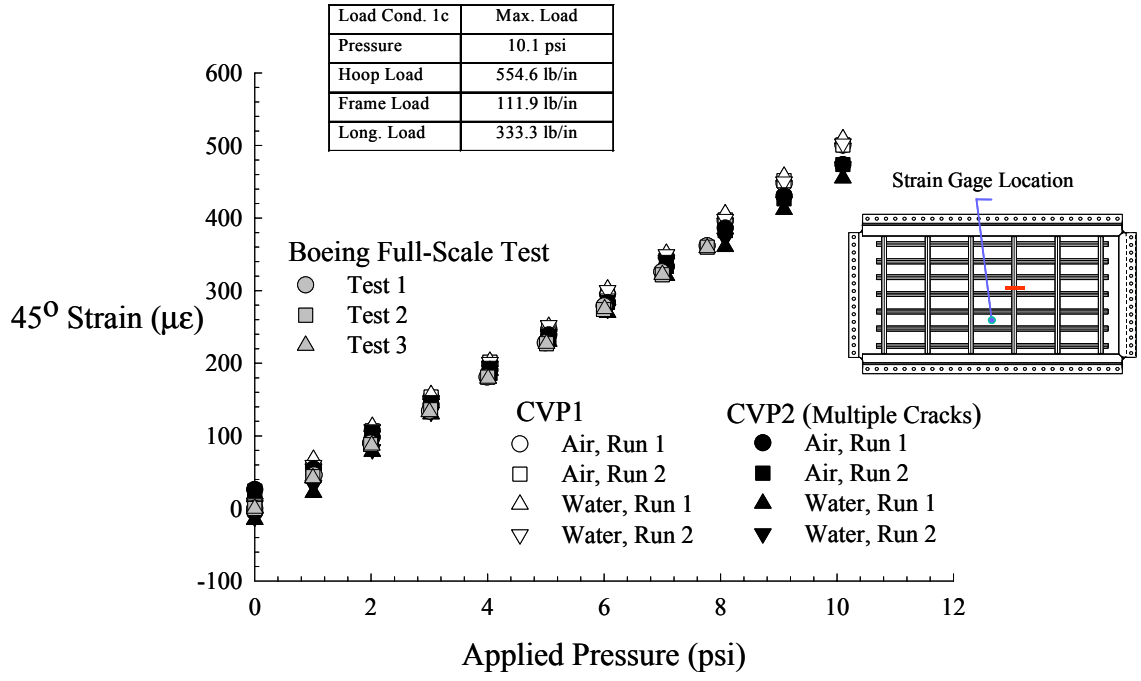



FIGURE 22. FORTY-FIVE DEGREE STRAIN IN GAGE LOCATED AT SKIN MID-BAY IN PANELS CVP1 AND CVP2 AND BOEING FULL-SCALE TEST ARTICLE

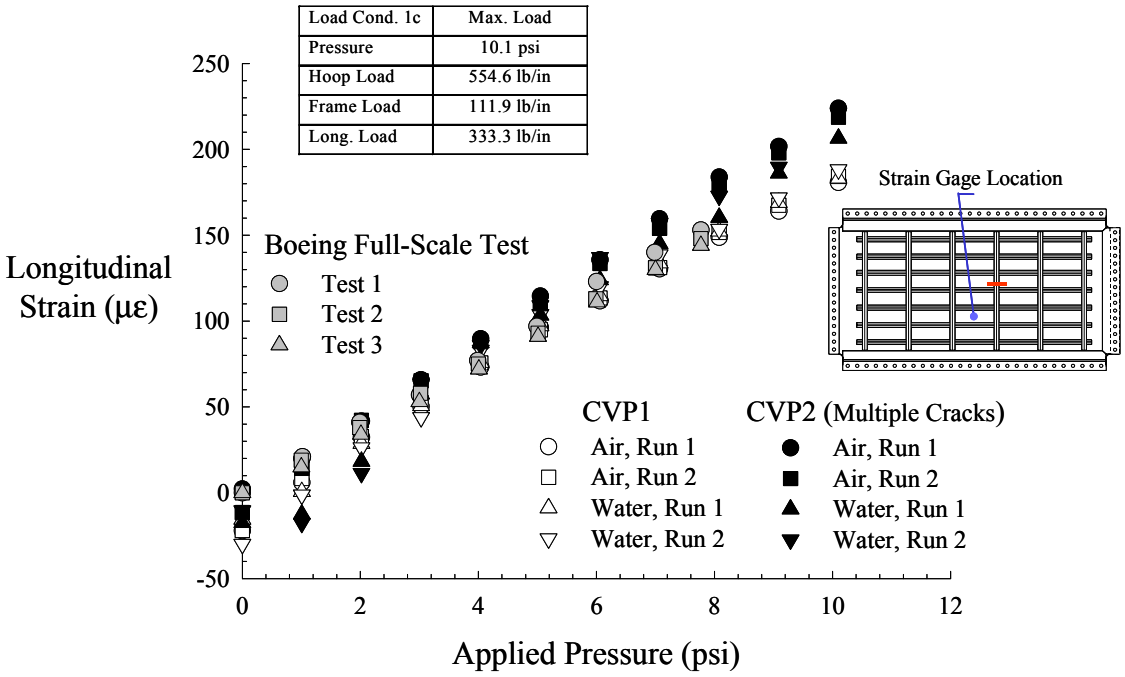



FIGURE 23. LONGITUDINAL STRAIN IN GAGE LOCATED AT SKIN MID-BAY IN PANELS CVP1 AND CVP2 AND BOEING FULL-SCALE TEST ARTICLE

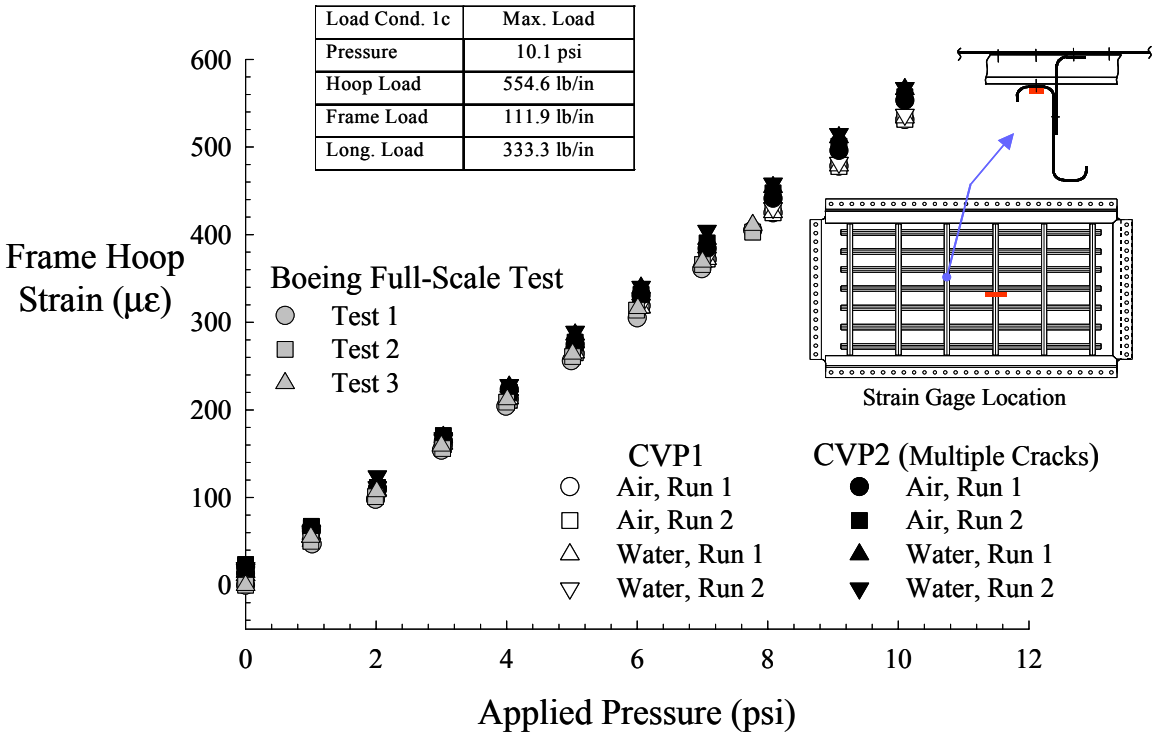



FIGURE 24. HOOP STRAIN AT OUTER CAP OF FRAME IN PANELS CVP1 AND CVP2 AND BOEING FULL-SCALE TEST ARTICLE

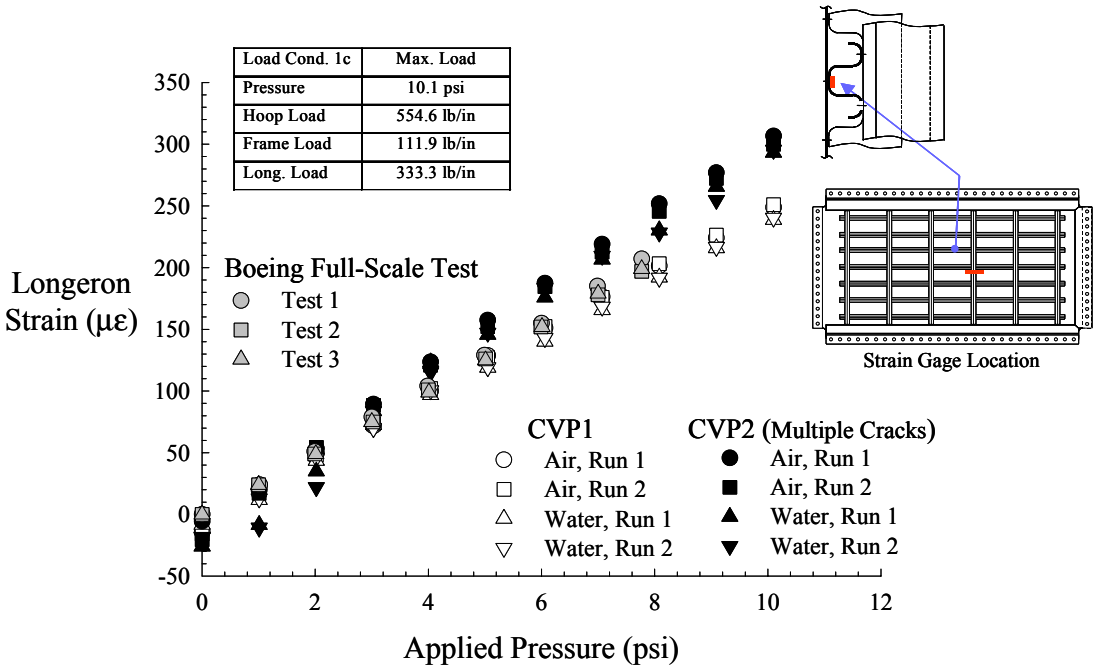



FIGURE 25. LONGITUDINAL STRAIN AT OUTER CAP OF STRINGER IN PANELS CVP1 AND CVP2 AND BOEING FULL-SCALE TEST ARTICLE

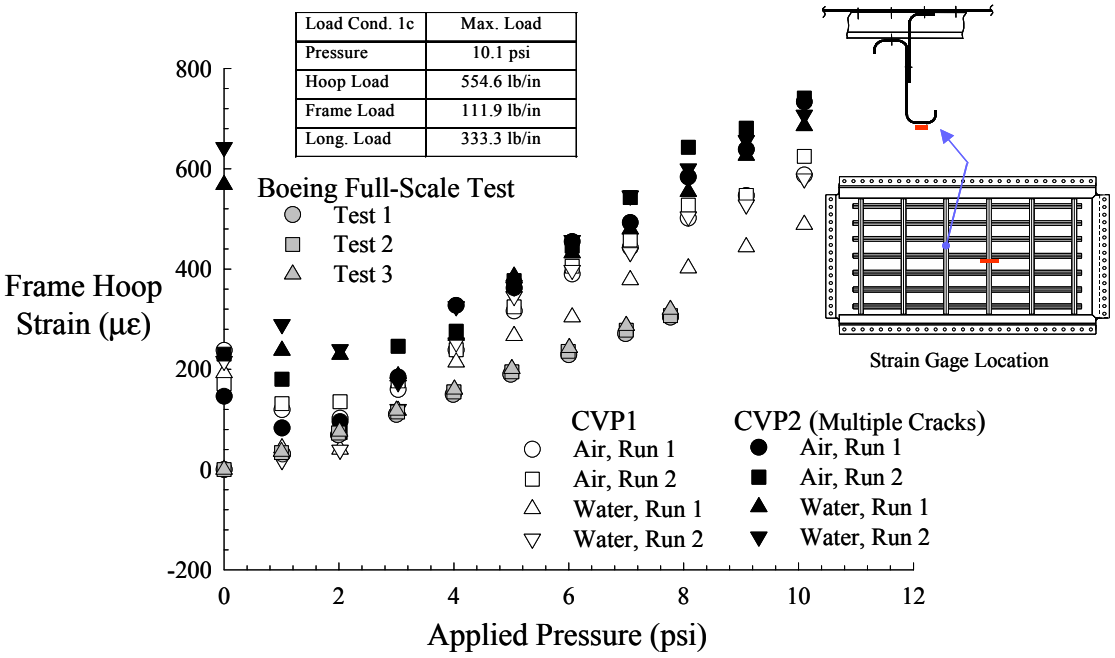



FIGURE 26. HOOP STRAIN AT INNER CAP OF FRAME IN PANELS CVP1 AND CVP2 AND BOEING FULL-SCALE TEST ARTICLE

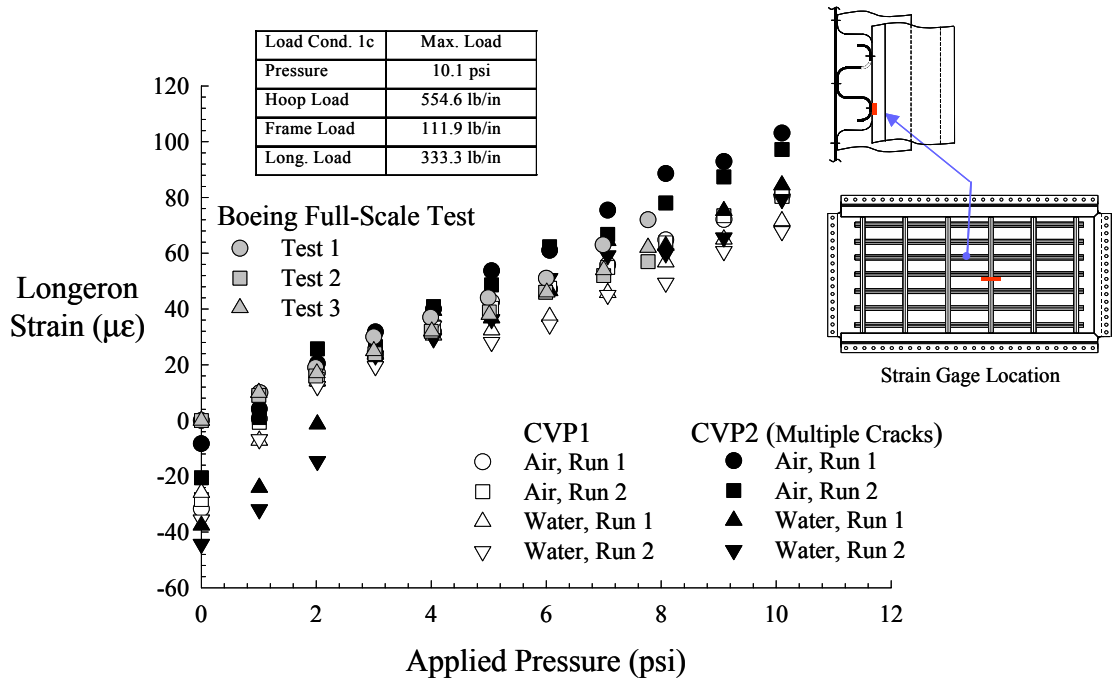



FIGURE 27. LONGITUDINAL STRAIN AT FLANGE OF STRINGER IN PANELS CVP1 AND CVP2 AND BOEING FULL-SCALE TEST ARTICLE

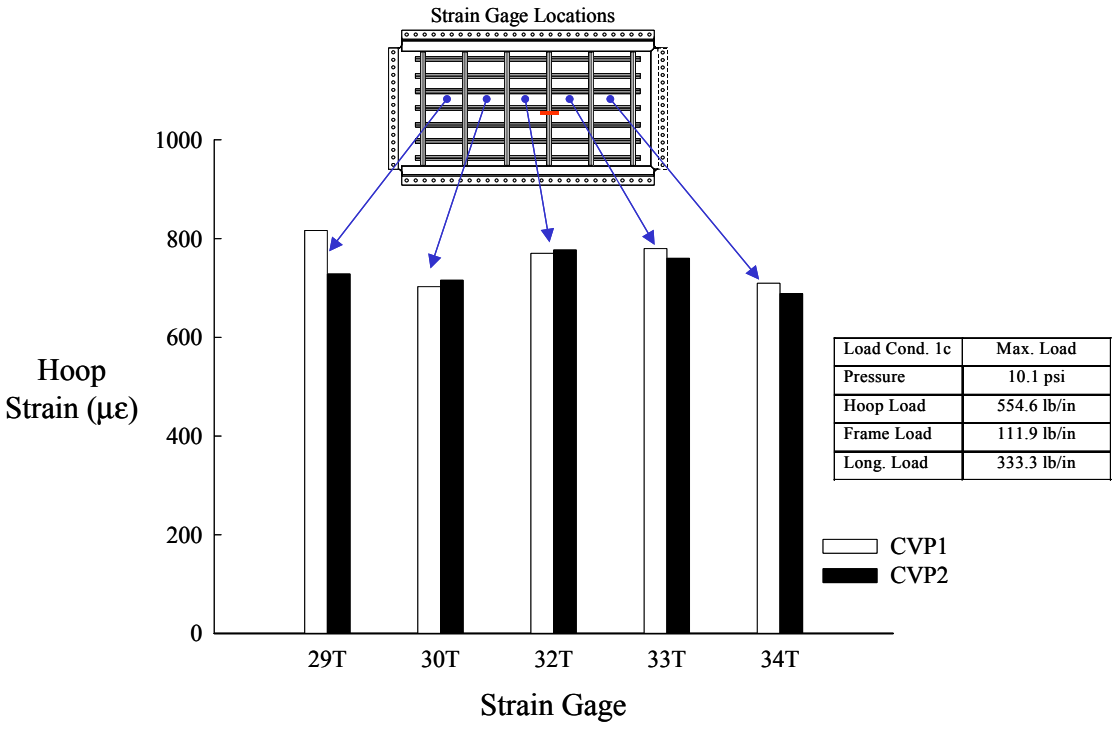



FIGURE 28. HOOP STRAIN DISTRIBUTION IN THE SKIN MID-BAY IN PANELS CVP1 AND CVP2

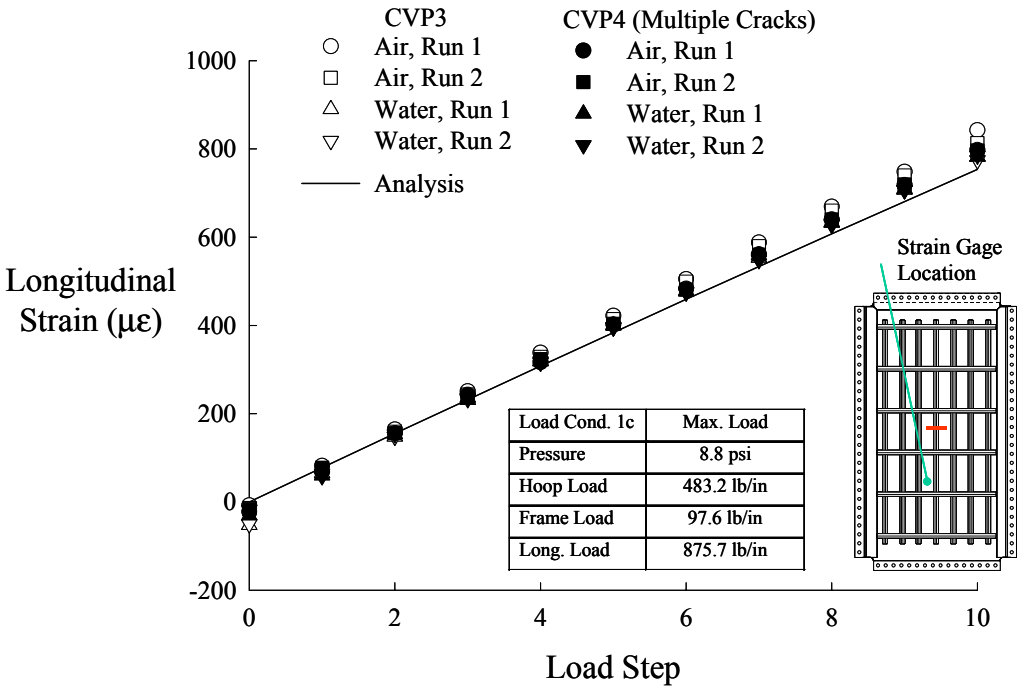



FIGURE 29. LONGITUDINAL STRAIN IN GAGE LOCATED AT SKIN MID-BAY IN PANELS CVP3 AND CVP4

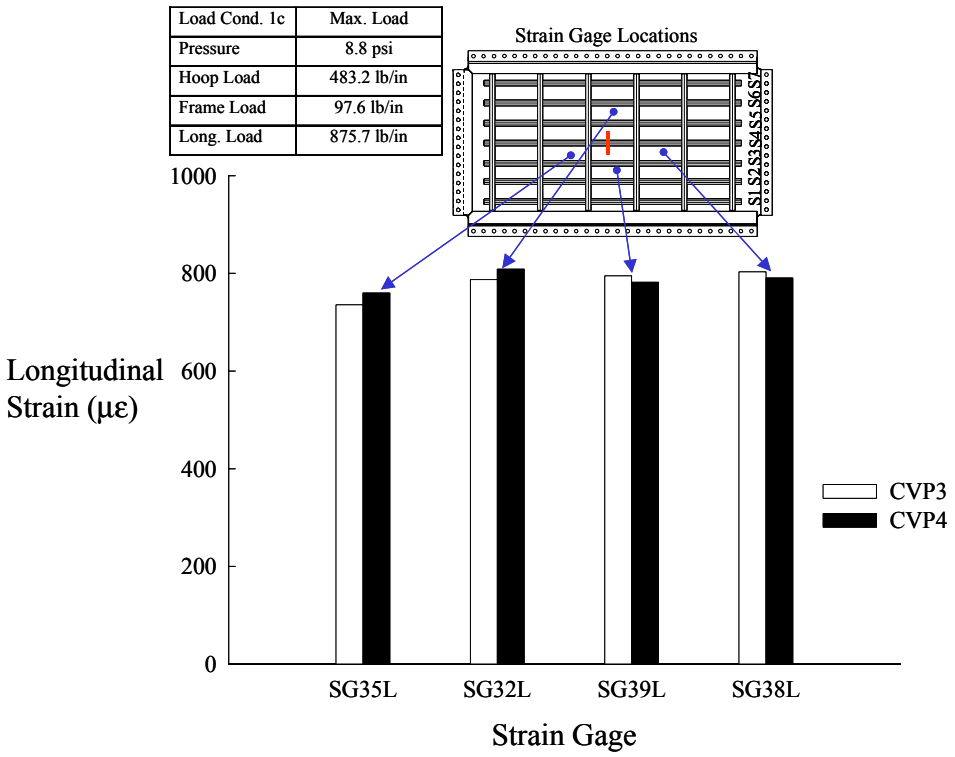



FIGURE 30. LONGITUDINAL STRAIN DISTRIBUTION IN THE SKIN MID-BAY IN PANELS CVP3 AND CVP4

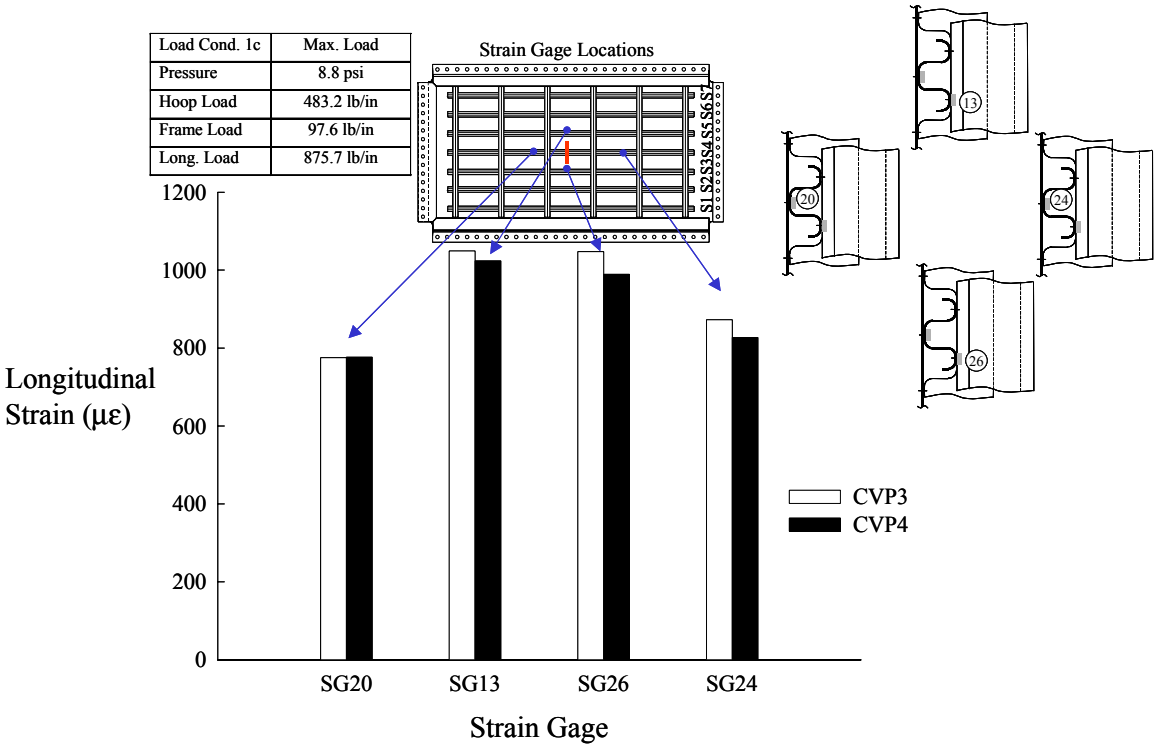



FIGURE 31. LONGITUDINAL STRAIN DISTRIBUTION IN THE STRINGERS OF PANELS CVP3 AND CVP4

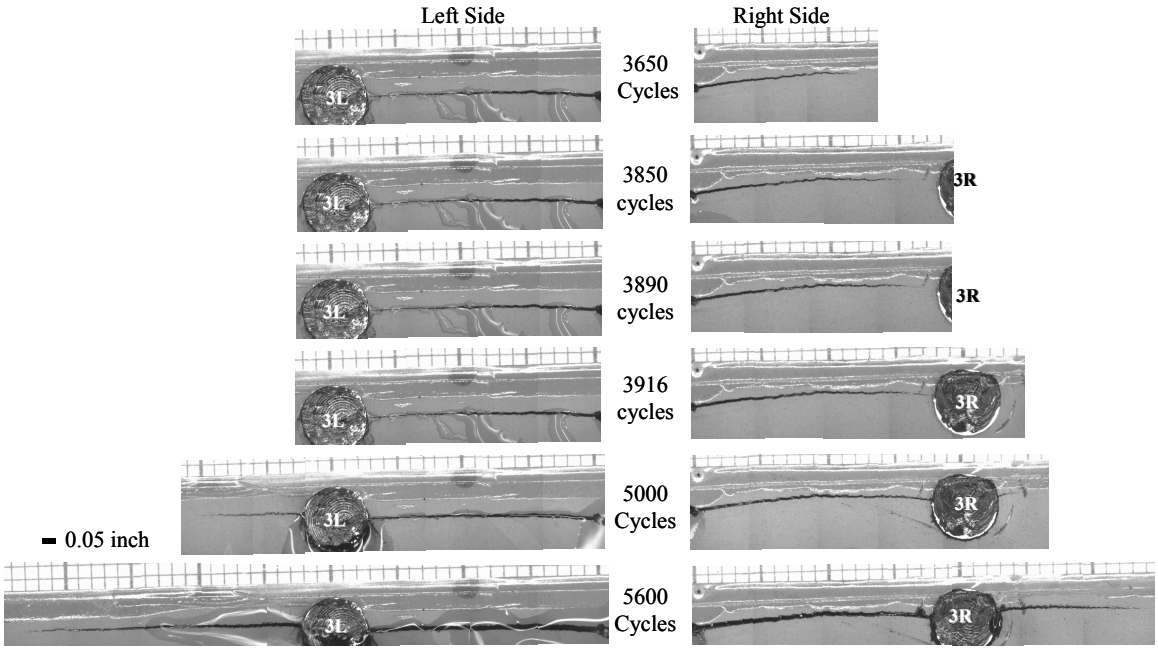



FIGURE 32. PHOTOGRAPHS OF CRACK GROWTH IN CVP1 DURING FATIGUE LOADING USING RCCM SYSTEM

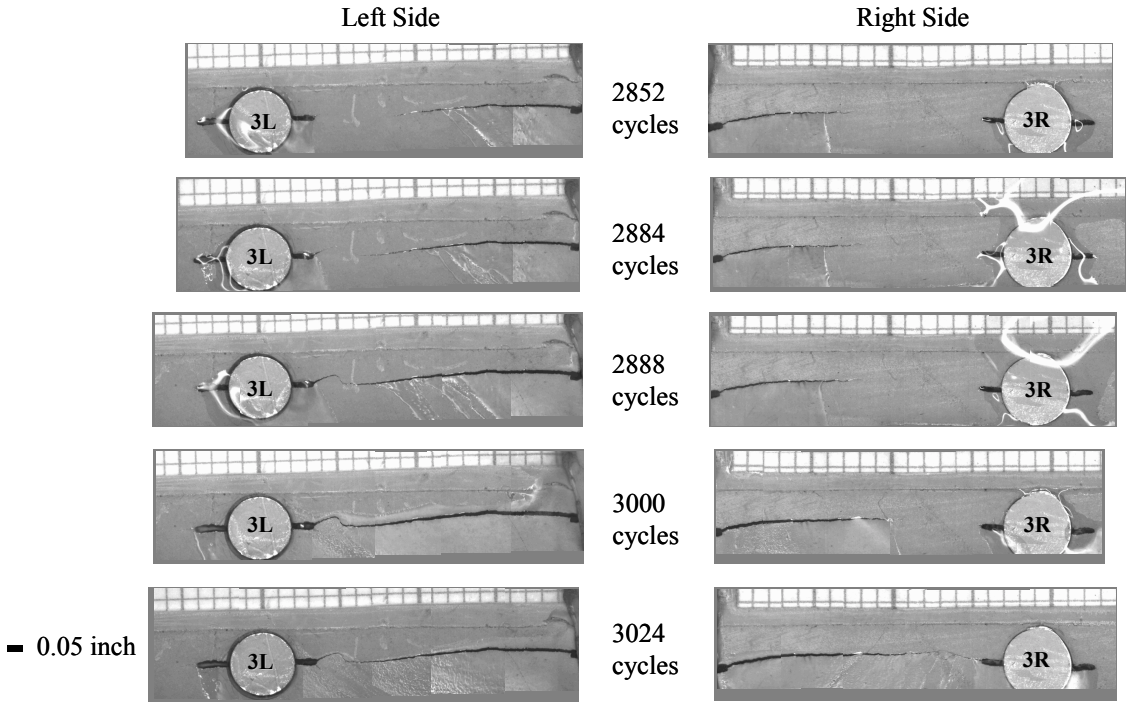



FIGURE 33. PHOTOGRAPHS OF CRACK GROWTH IN PANEL CVP2 DURING FATIGUE LOADING USING RCCM SYSTEM

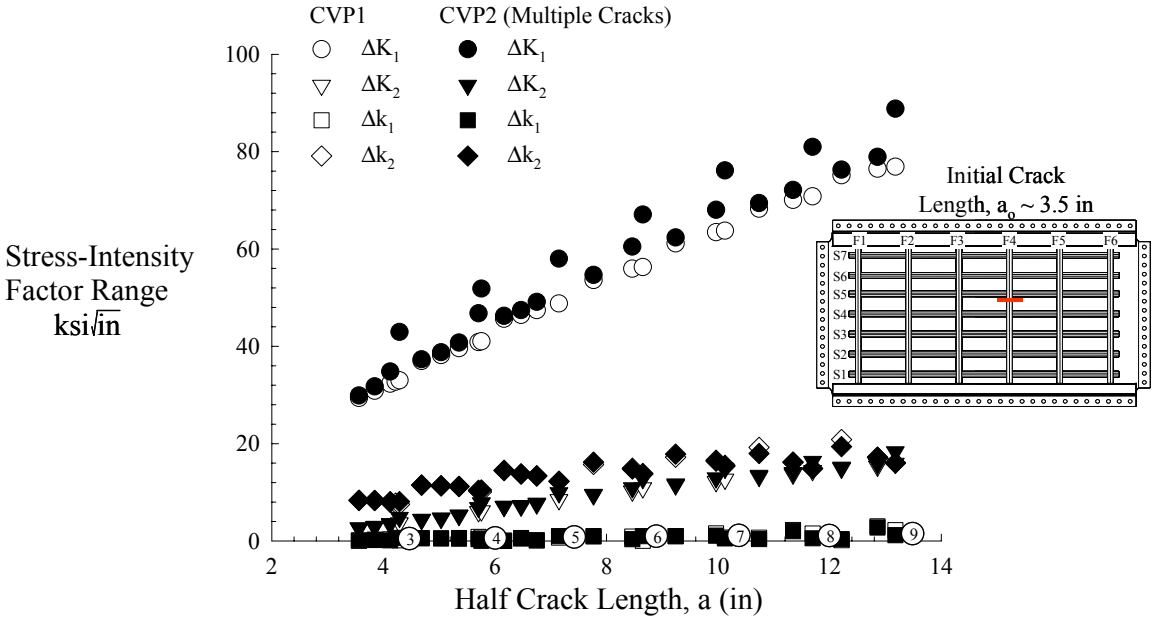



FIGURE 34. STRESS-INTENSITY FACTOR RANGE AS A FUNCTION OF HALF CRACK LENGTH FOR PANELS CVP1 AND CVP2

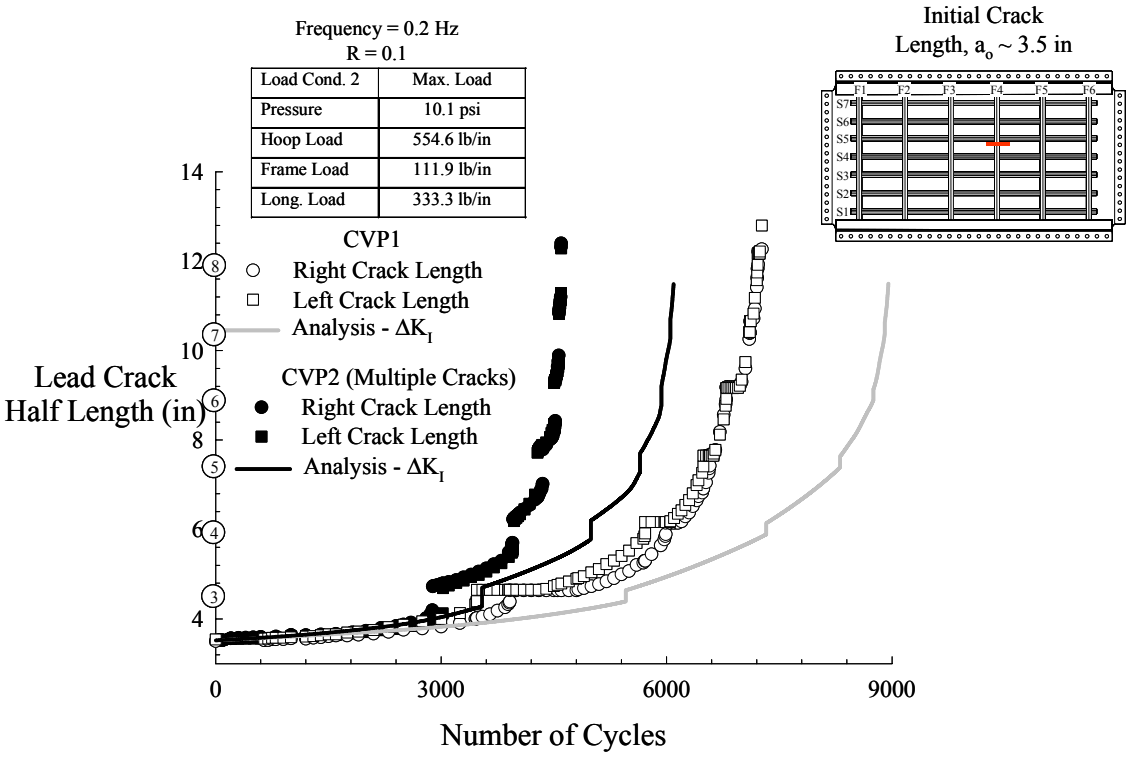



FIGURE 35. HALF LENGTH OF THE LEAD CRACK AS A FUNCTION OF NUMBER OF FATIGUE CYCLES FOR PANELS CVP1 AND CVP2

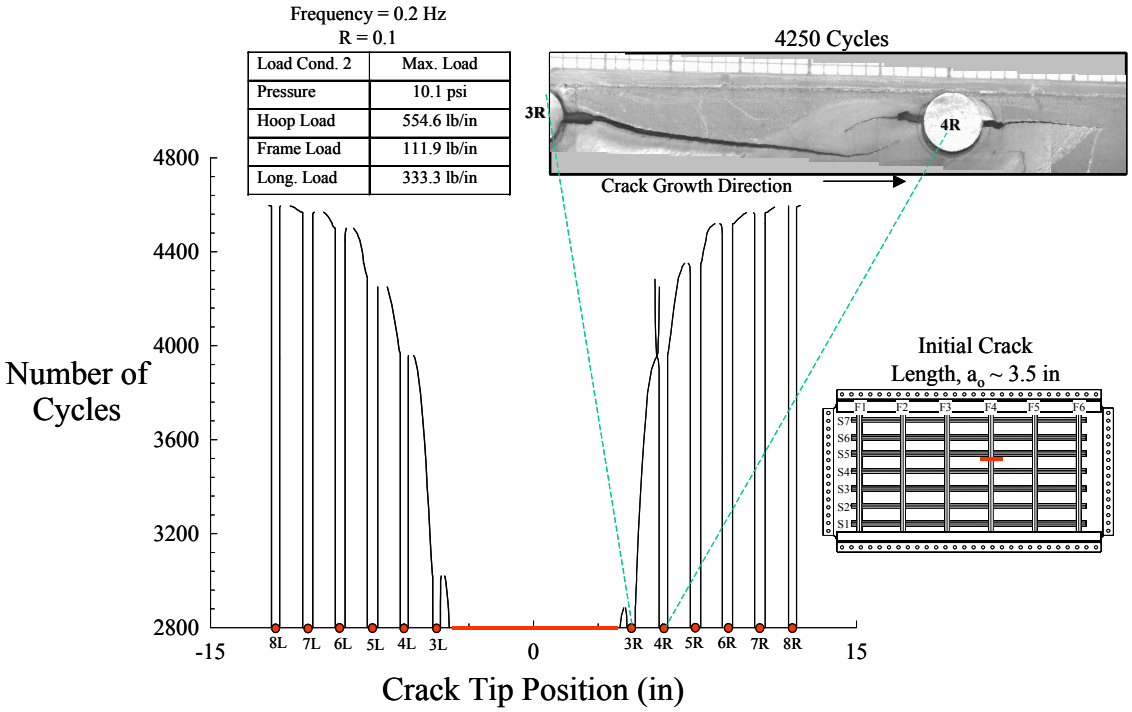



FIGURE 36. CRACK TIP POSITION AS A FUNCTION OF FATIGUE CYCLES FOR PANEL CVP2

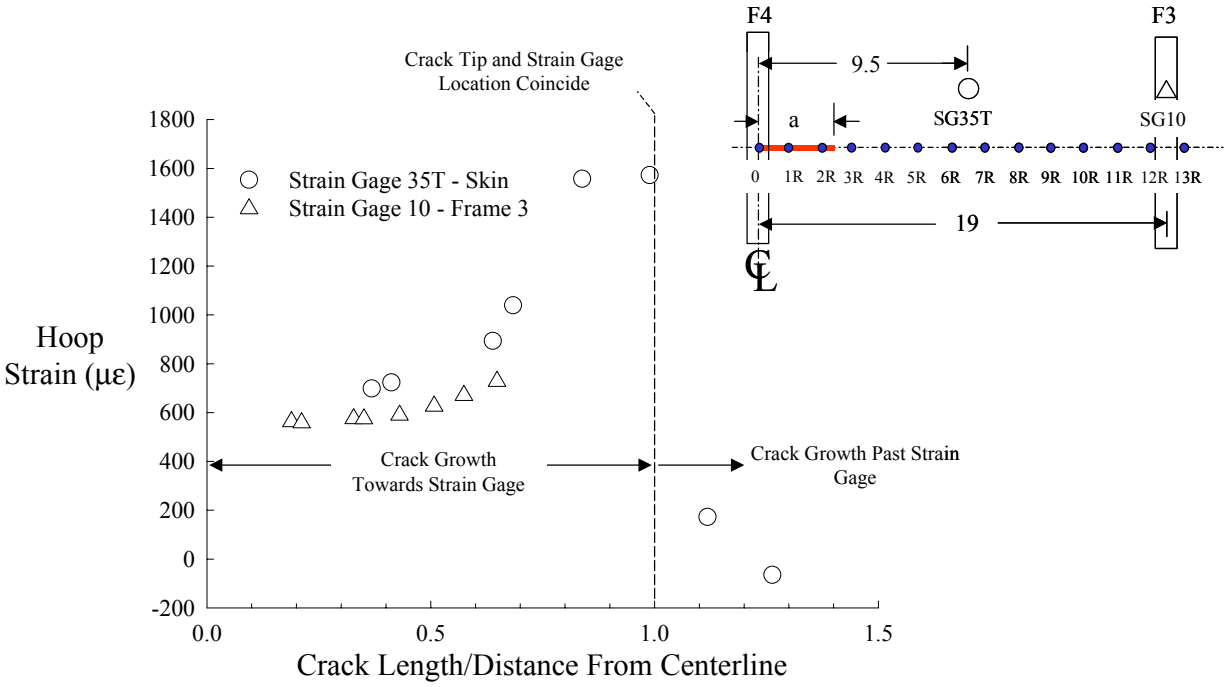



FIGURE 37. STRAIN REDISTRIBUTION IN PANEL CVP2

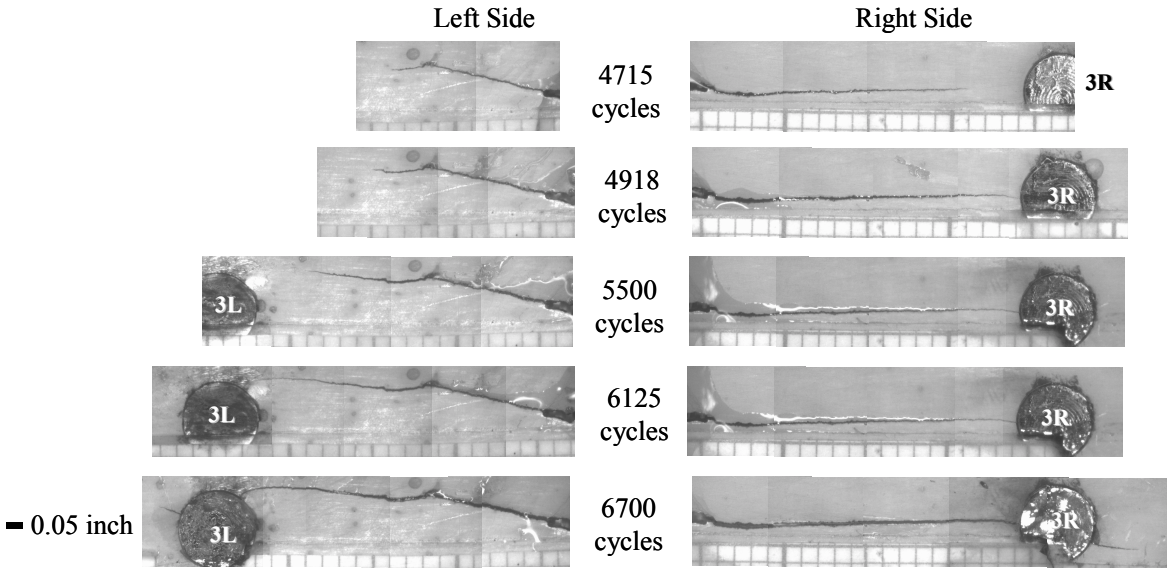



FIGURE 38. PHOTOGRAPHS OF CRACK GROWTH IN PANEL CVP3 DURING FATIGUE LOADING USING RCCM SYSTEM

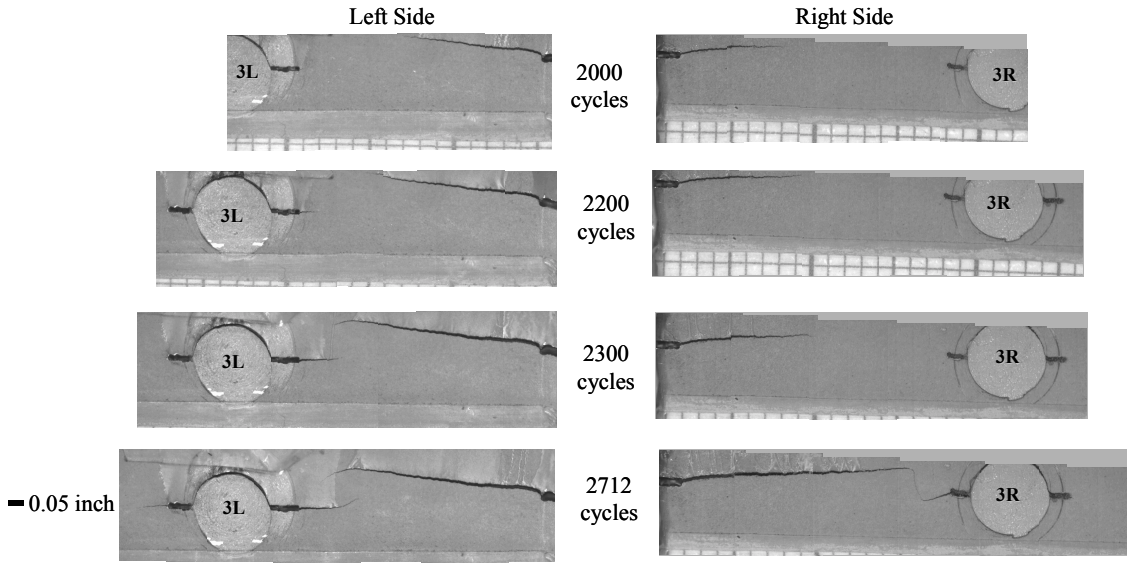



FIGURE 39. PHOTOGRAPHS OF CRACK GROWTH IN PANEL CVP4 DURING FATIGUE LOADING USING RCCM SYSTEM

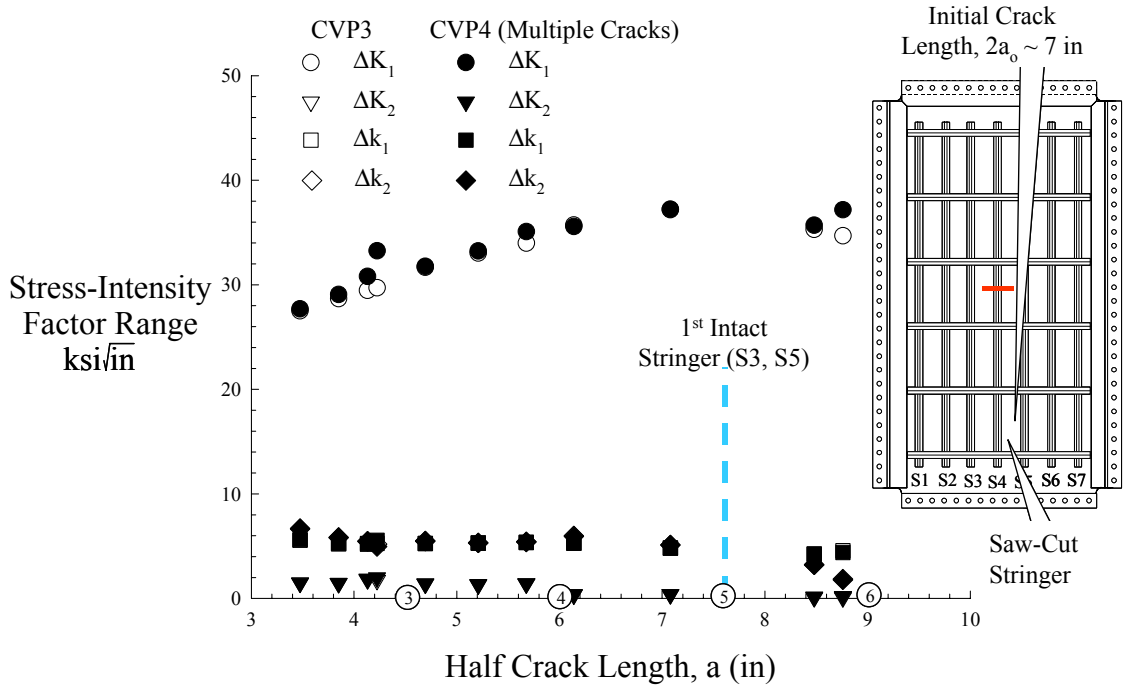



FIGURE 40. STRESS-INTENSITY FACTOR RANGE AS A FUNCTION OF HALF CRACK LENGTH FOR PANELS CVP3 AND CVP4

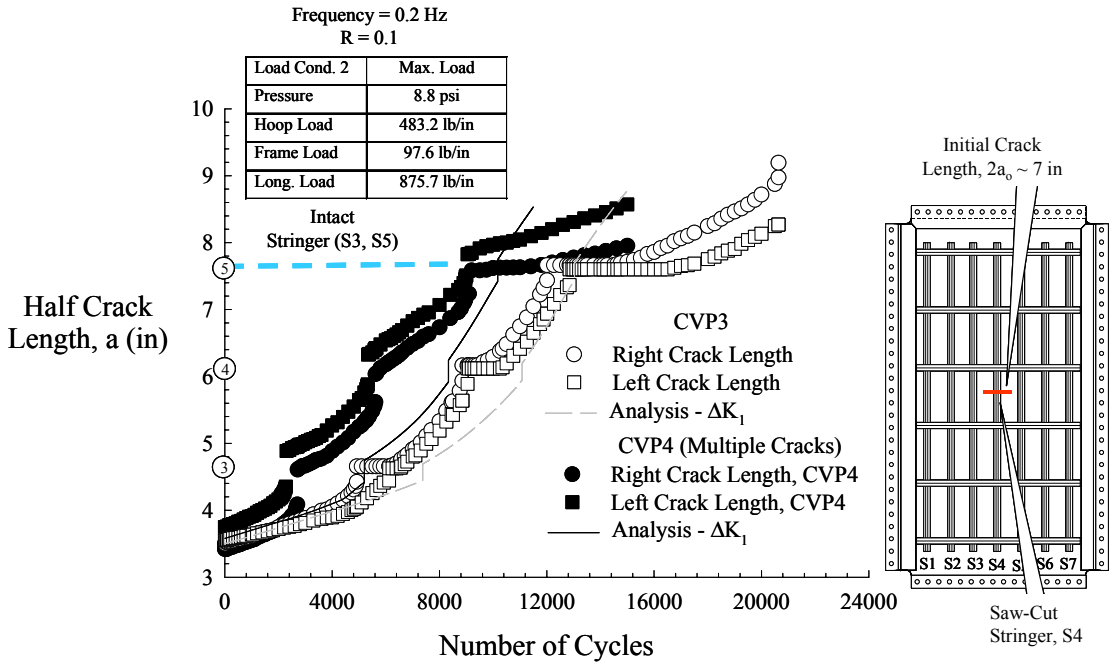



FIGURE 41. HALF CRACK LENGTH AS A FUNCTION OF NUMBER OF FATIGUE CYCLES FOR PANELS CVP3 ANDCVP4

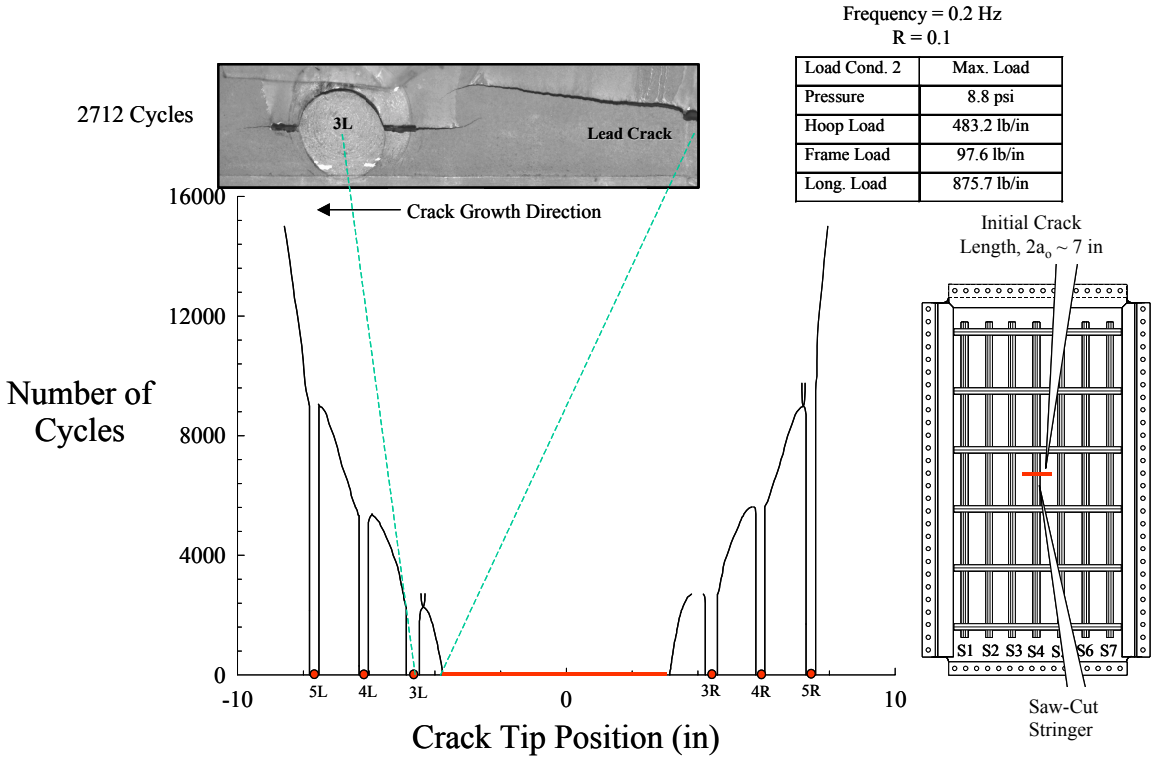



FIGURE 42. CRACK TIP POSITION AS A FUNCTION OF FATIGUE CYCLES FOR PANEL CVP4

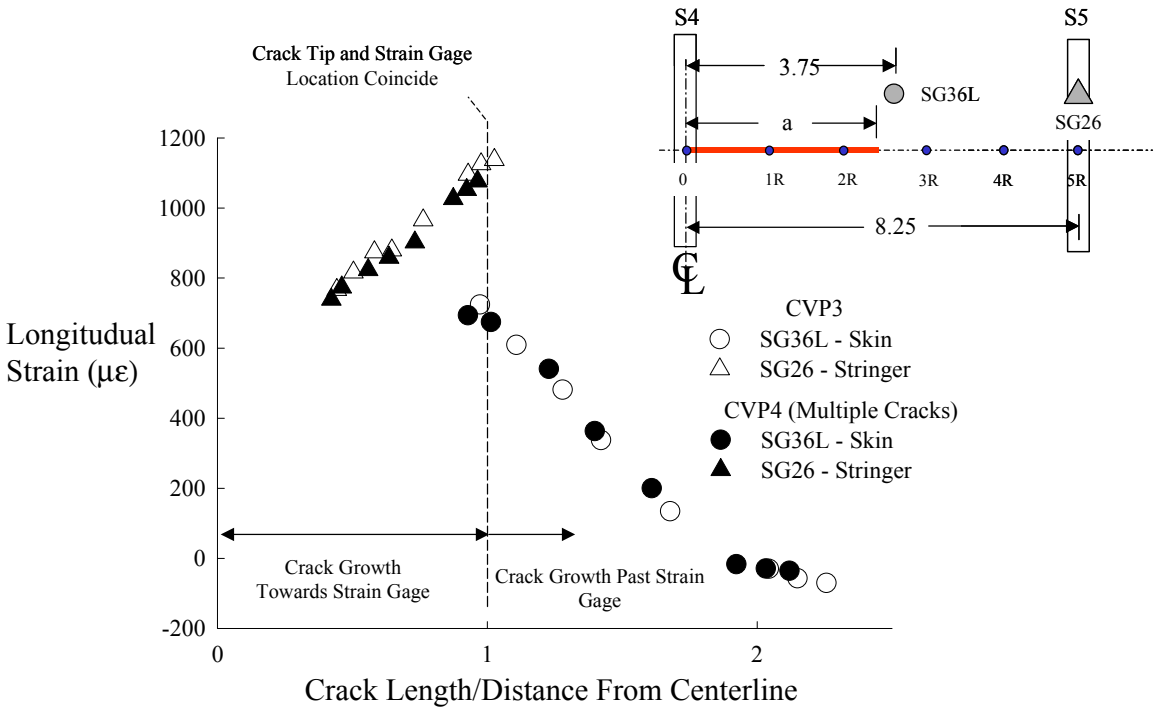



FIGURE 43. STRAIN REDISTRIBUTION IN PANEL CVP4

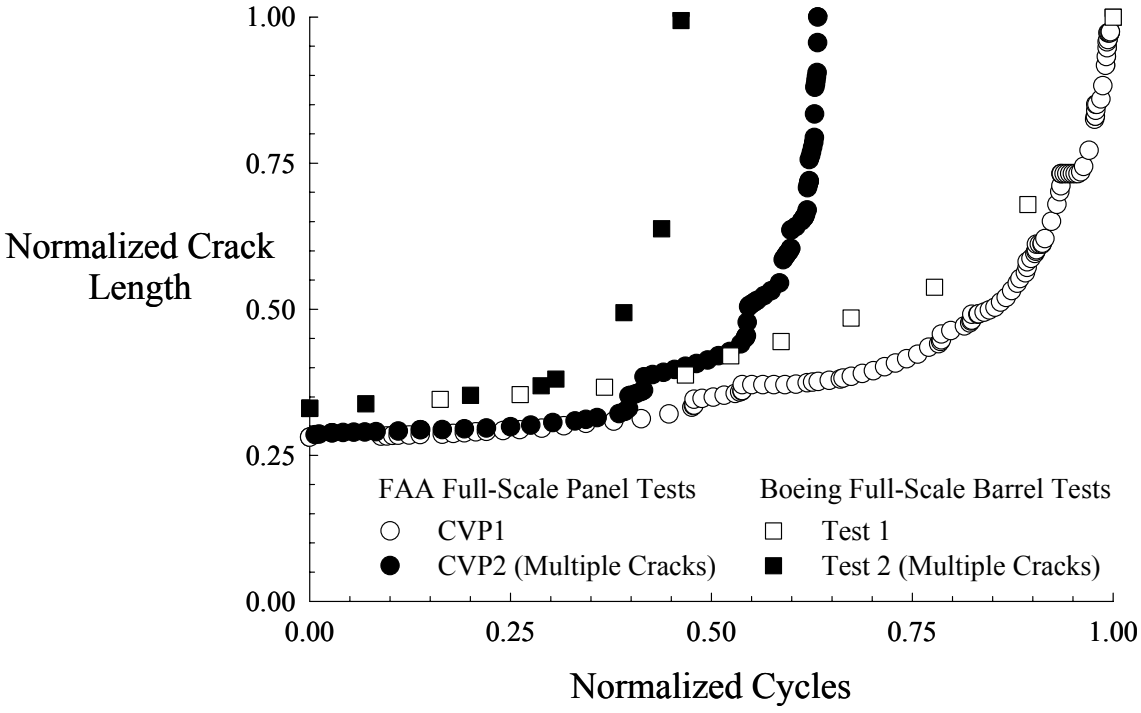



FIGURE 44. COMPARISON OF FATIGUE CRACK GROWTH DATA SHOWING EFFECT OF MULTIPLE CRACKS ON LEAD CRACK GROWTH

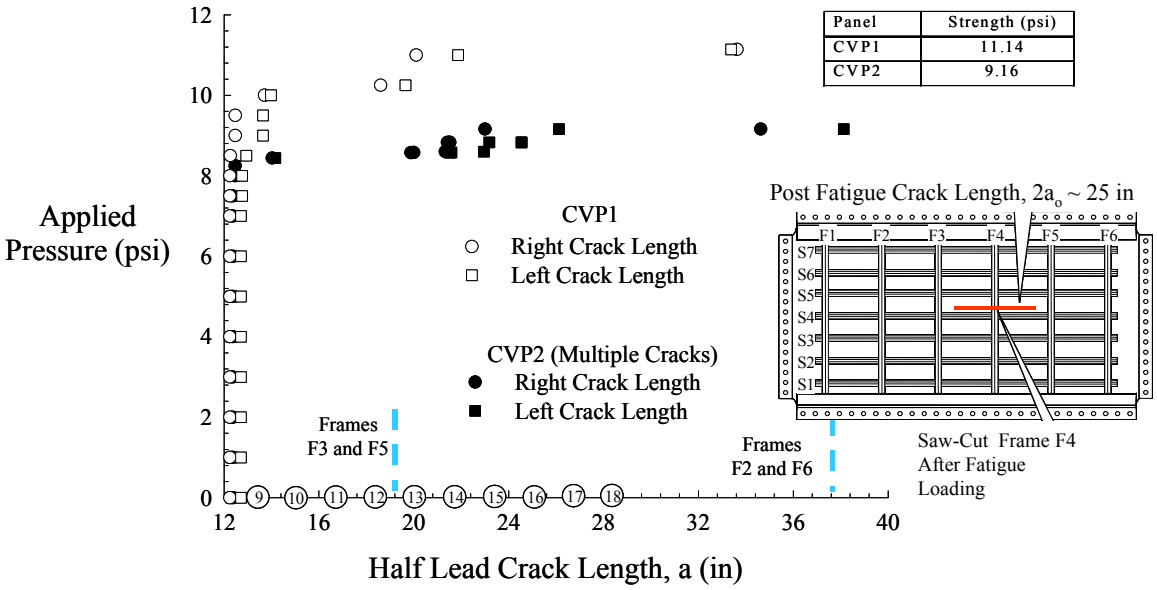



FIGURE 45. CRACK EXTENSION DURING RESIDUAL STRENGTH TESTS FOR PANELS CVP1 AND CVP2

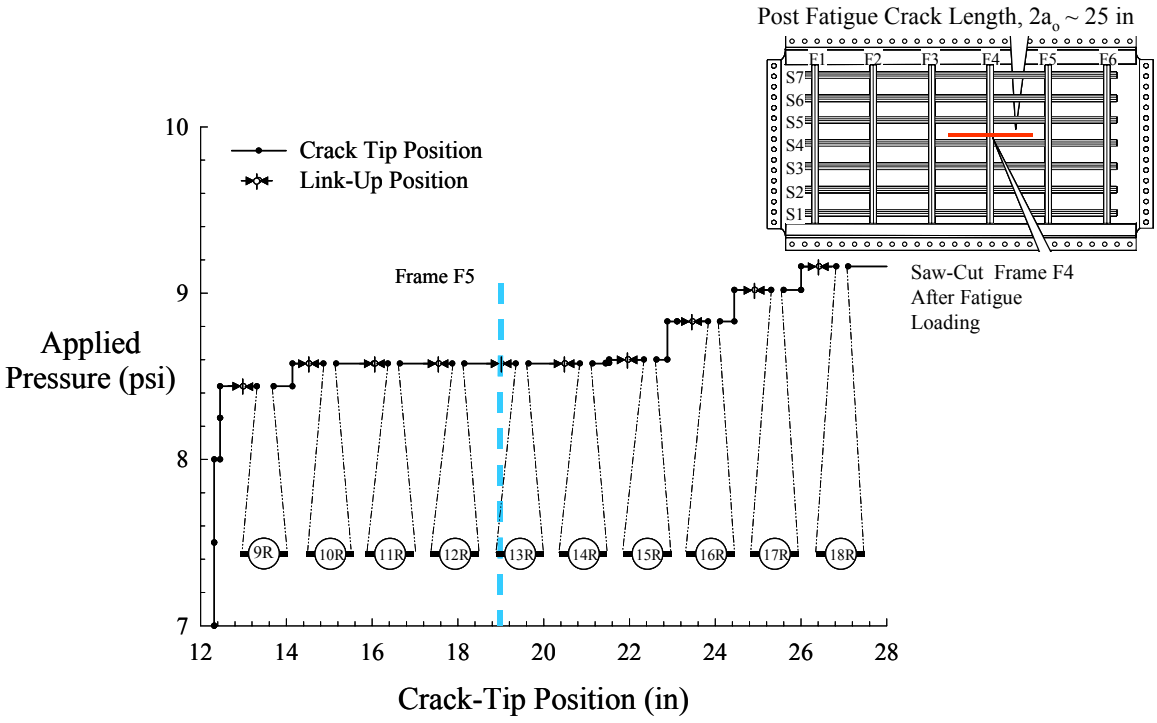



FIGURE 46. CRACK TIP POSITION OF LEAD CRACK AND MULTIPLE CRACKS AS A FUNCTION OF APPLIED PRESSURE FOR RESIDUAL STRENGTH TEST OF CVP2

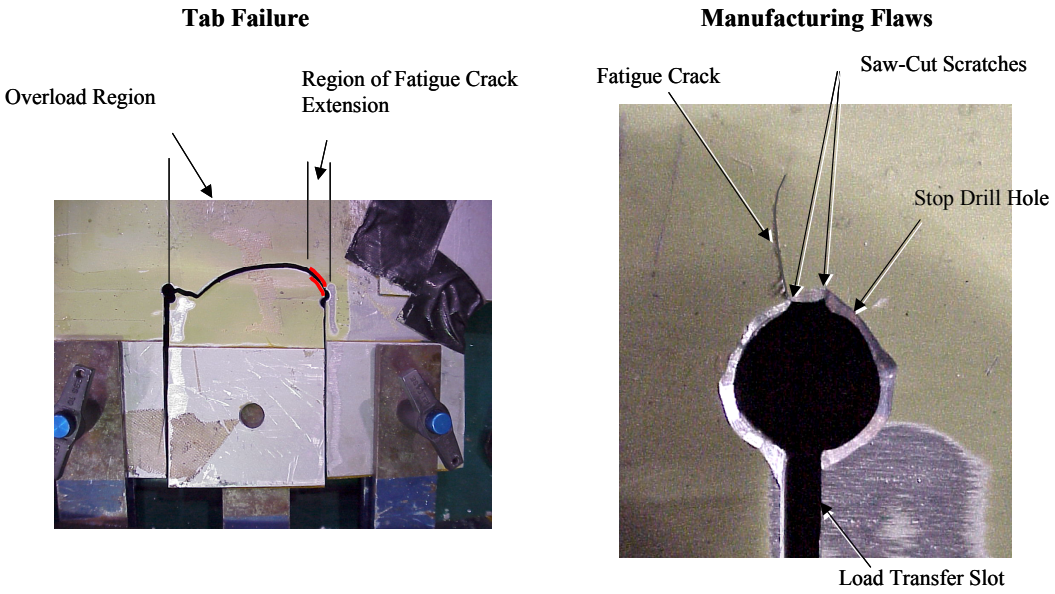



FIGURE 47. PHOTOGRAPHS OF TAB FAILURE AFTER FIRST RESIDUAL STRENGTH ATTEMPT FOR PANEL CVP3

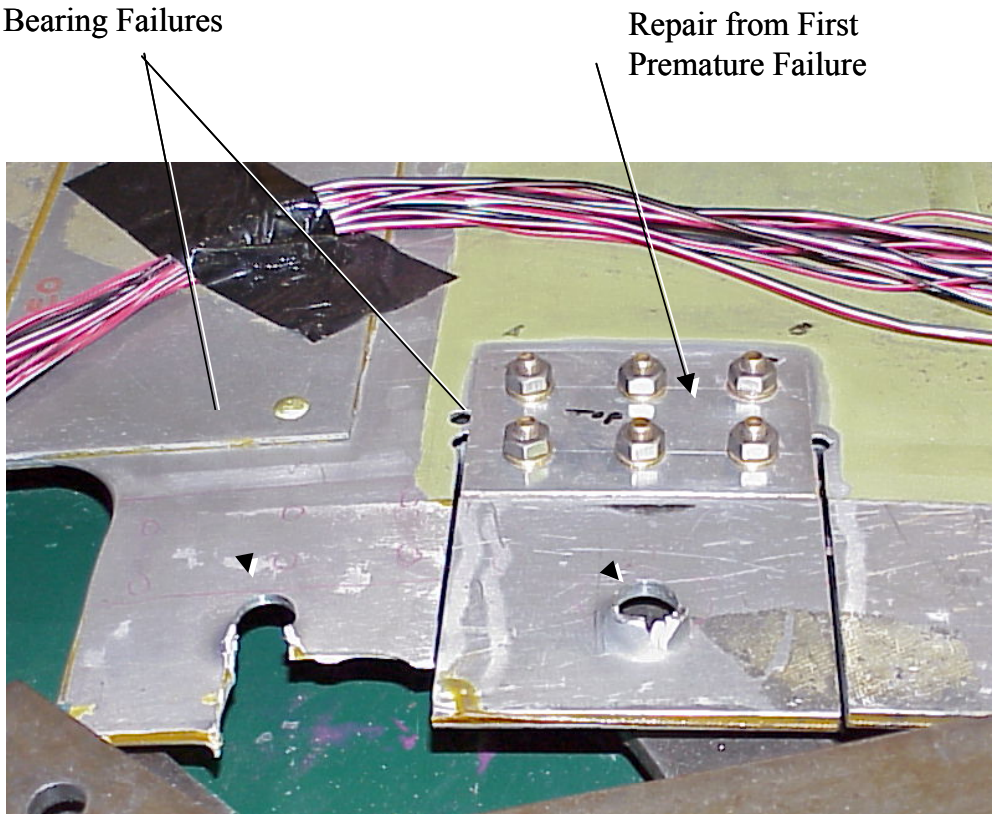



FIGURE 48. PHOTOGRAPHS OF TAB FAILURE AFTER SECOND RESIDUAL STRENGTH ATTEMPT FOR PANEL CVP3

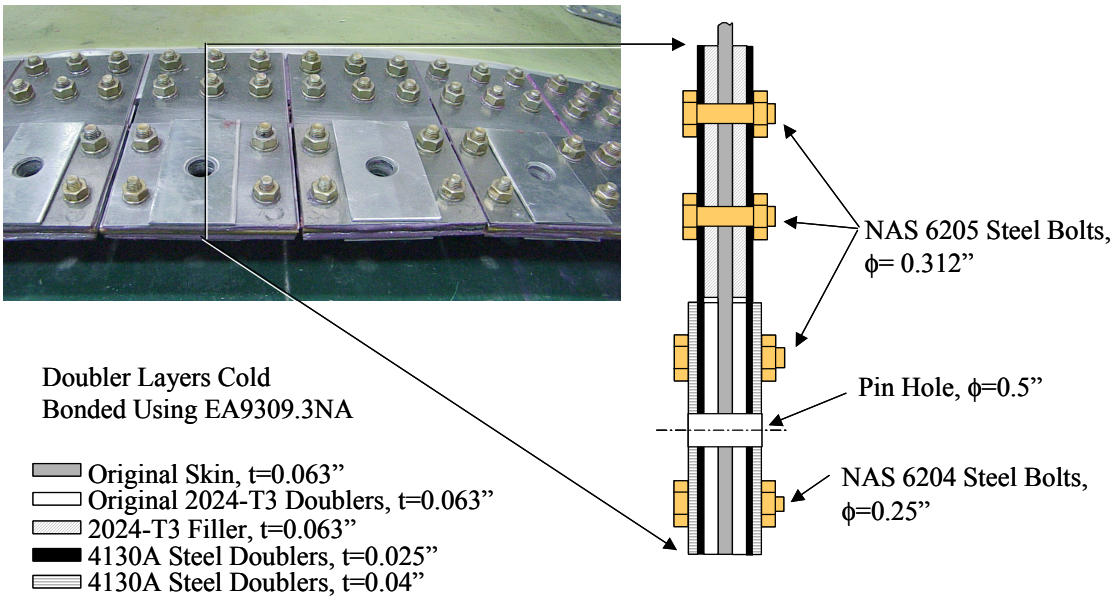



FIGURE 49. PHOTOGRAPHS OF REINFORCEMENTS MADE TO ALL TAB ENDS FOR THE LONGITUDINAL LOAD APPLICATION POINTS FOR PANEL CVP3

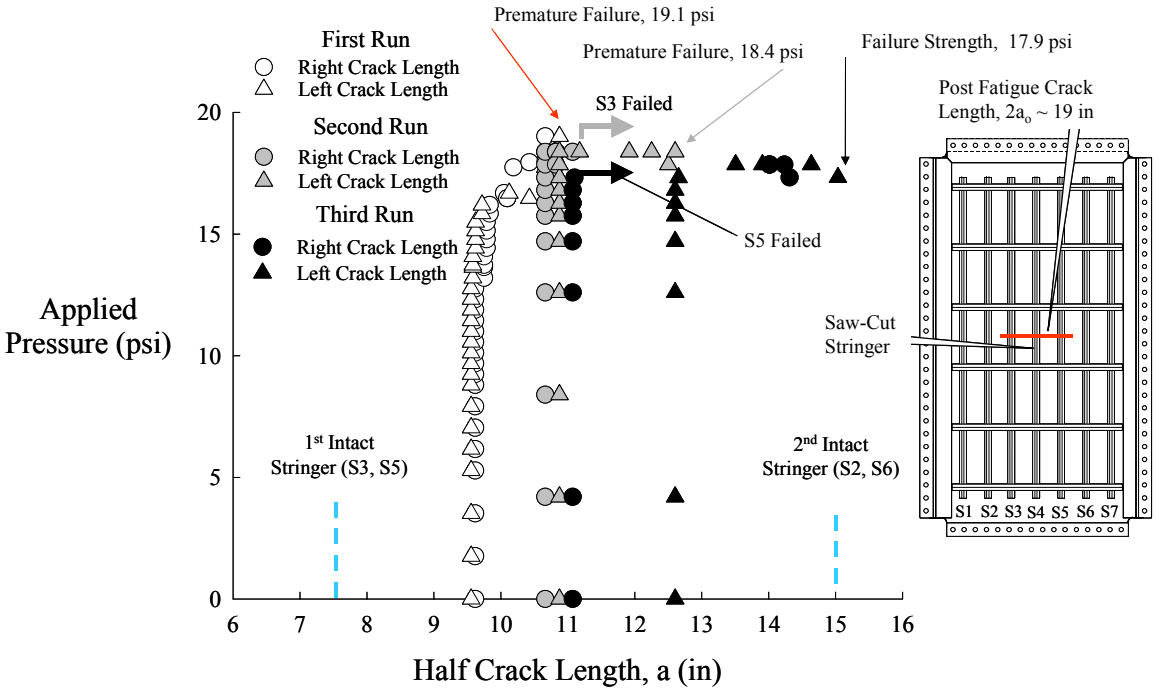



FIGURE 50. CRACK EXTENSION, AS A FUNCTION OF APPLIED PRESSURE, RECORDED FOR RESIDUAL STRENGTH TESTS OF PANEL CVP3

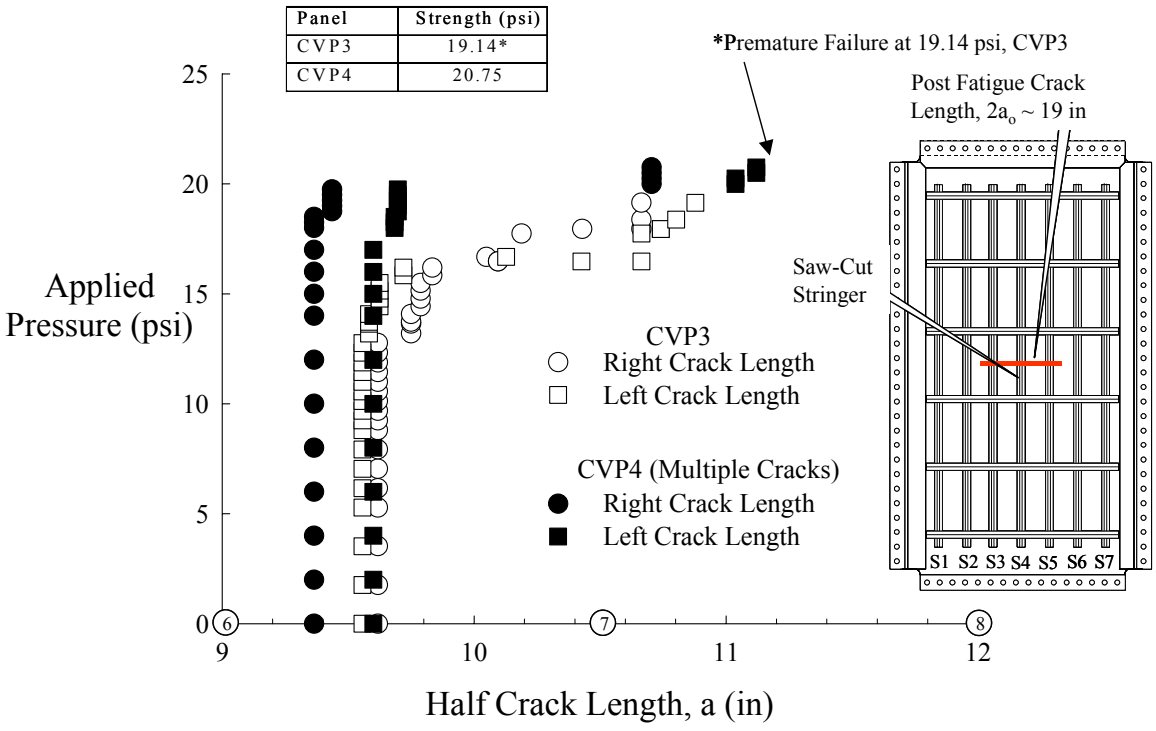



FIGURE 51. CRACK EXTENSION, AS A FUNCTION OF APPLIED PRESSURE, RECORDED FOR RESIDUAL STRENGTH TESTS OF PANELS CVP3 AND CVP4

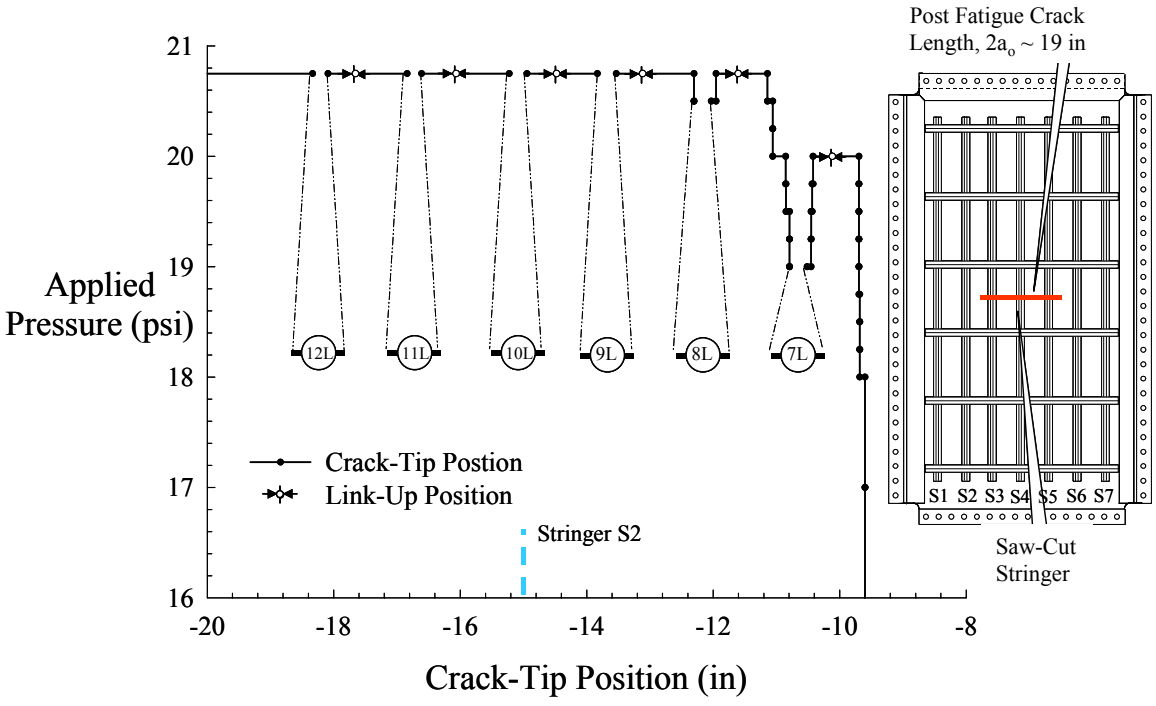



FIGURE 52. CRACK TIP POSITION OF LEAD CRACK AND MULTIPLE CRACKS AS A FUNCTION OF APPLIED PRESSURE FOR RESIDUAL STRENGTH TEST OF CVP4

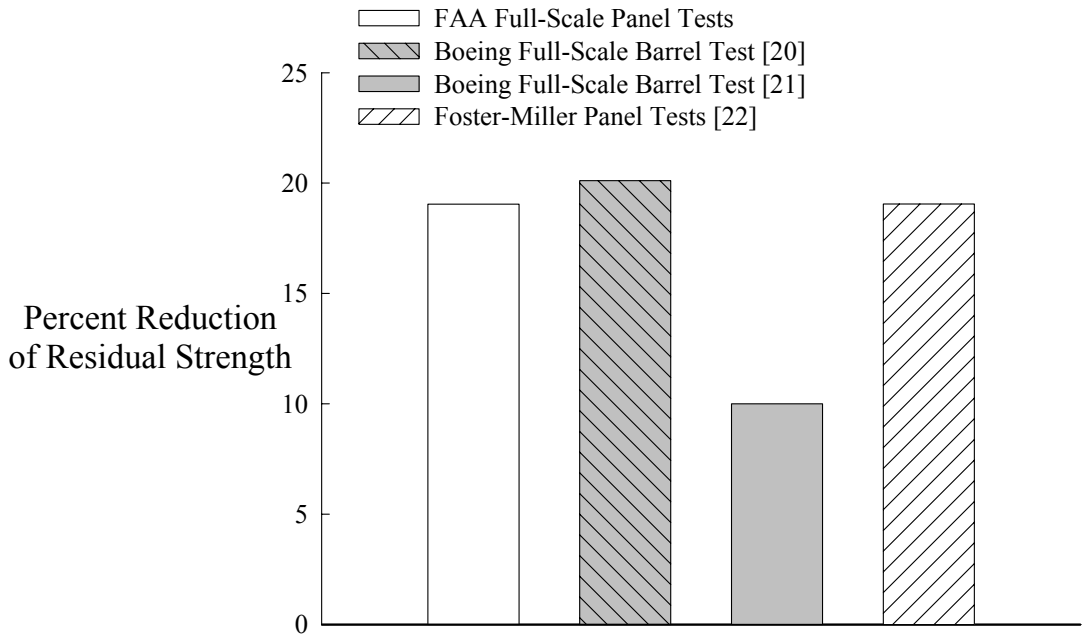



FIGURE 53. COMPARISON OF DATA SHOWING THE EFFECT OF MULTIPLE CRACKS ON THE RESIDUAL STRENGTH

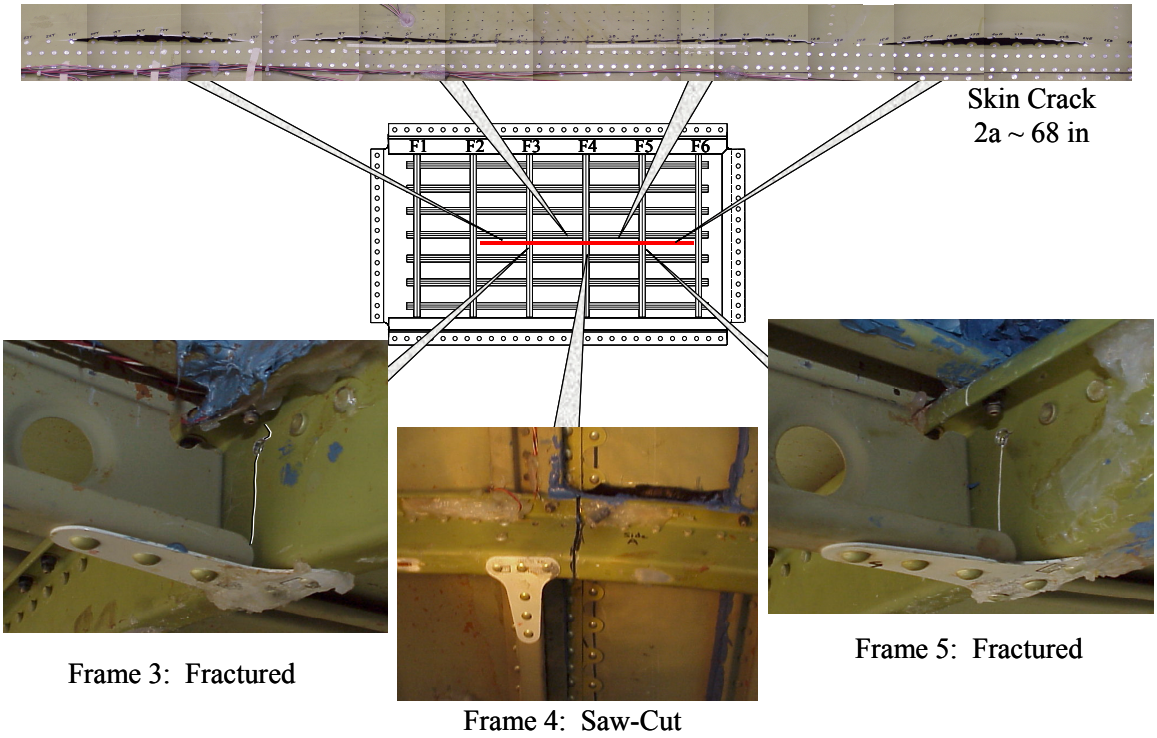
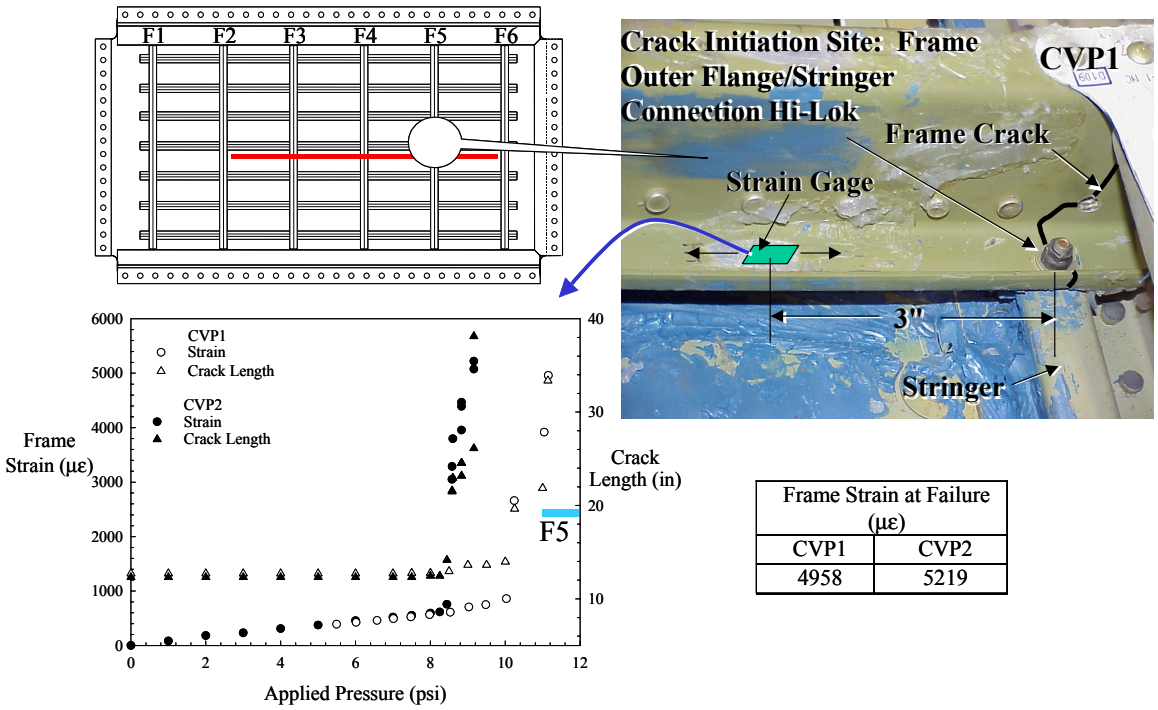



FIGURE 54. PHOTOGRAPHS OF THE FINAL STATE OF DAMAGE SHOWING CRACK BULGING AND DAMAGED FRAMES IN PANEL CVP1




| Frame Strain at Failure (με) | |
|---|---|
| CVP1 | CVP2 |
| 4958 | 5219 |

FIGURE 55. STRAIN IN FRAME F5 PRIOR TO FAILURE OF PANELS CVP1 AND CVP2

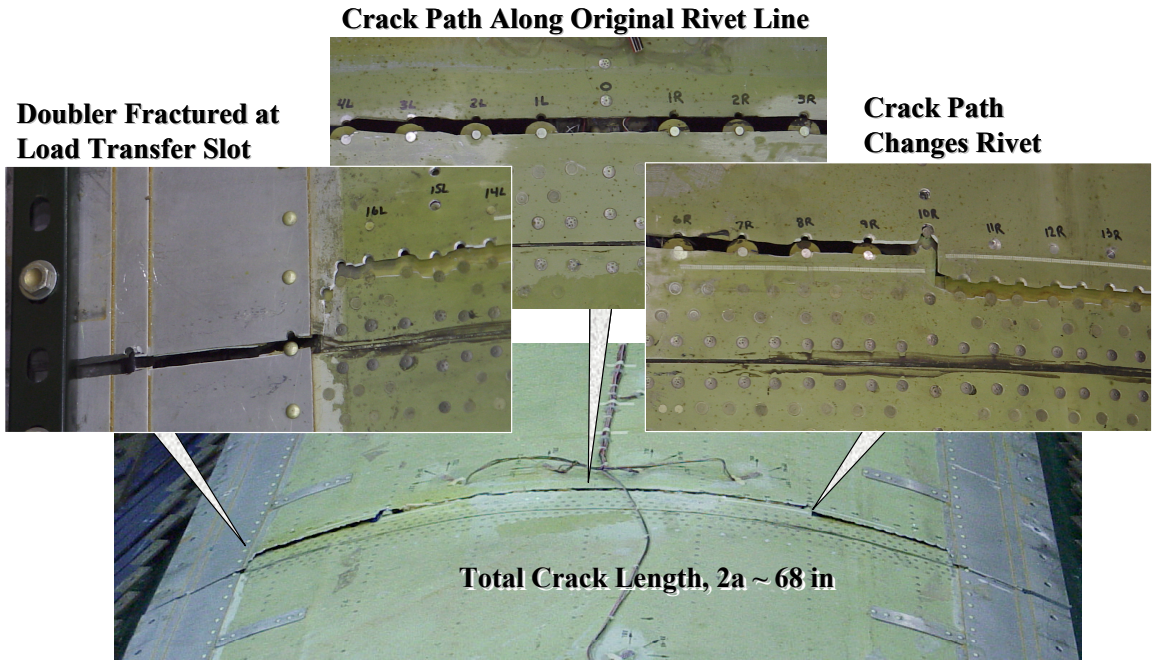



FIGURE 56. PHOTOGRAPHS OF THE FINAL STATE OF DAMAGE IN PANEL CVP3 SHOWING SKIN FAILURE

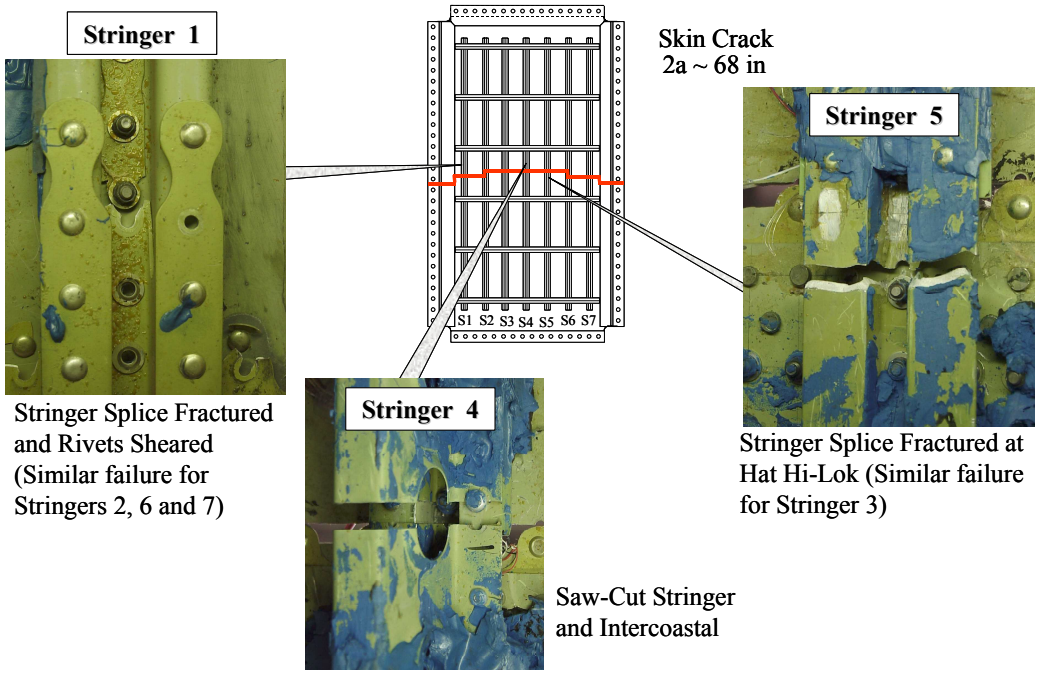
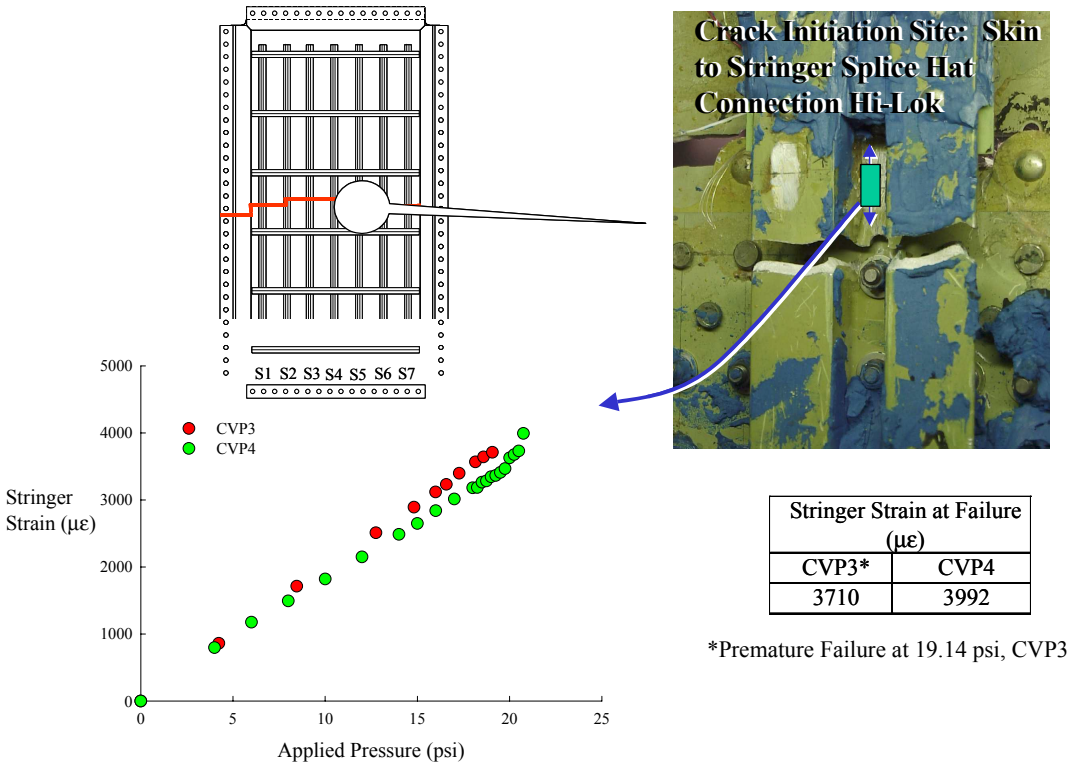



FIGURE 57. PHOTOGRAPHS OF THE FINAL STATE OF DAMAGE IN PANEL CVP3 SHOWING THE SUBSTRUCTURE FAILURE




| Stringer Strain at Failure (με) | |
|---|---|
| CVP3* | CVP4 |
| 3710 | 3992 |

*Premature Failure at 19.14 psi, CVP3

FIGURE 58. STRAIN IN STRINGER S5 PRIOR OF FAILURE OF PANELS CVP3 AND CVP4

TABLE 1. TEST MATRIX

| Specimen | Joint Configuration | Initial Damage | Date Completed |
|---|---|---|---|
| CVP1 | Longitudinal Lap Joint | Lead Crack only | August 1999 |
| CVP2 | Longitudinal Lap Joint | Lead Crack with Multiple Cracks | February 2000 |
| CVP3 | Circumferential Butt Joint | Lead Crack only | July 2000 |
| CVP4 | Circumferential Butt Joint | Lead Crack with Multiple Cracks | September 2000 |

TABLE 2. SEQUENCE OF LOADING CONDITIONS APPLIED TO PANELS CVP1 AND CVP2

| Load Condition | Test Type | Maximum Load | | | |
|---|---|---|---|---|---|
| | | Pressure (psi) | Hoop (lb/in) | Frame (lb/in) | Long. (lb/in) |
| 1a | Quasi-Static Loading, Strain Survey | 10.1 | 554.6 | 111.9 | 0 |
| 1b | Quasi-Static Loading, Strain Survey | 0 | 0 | 0 | 333.3 |
| 1c | Quasi-Static Loading, Strain Survey | 10.1 | 554.6 | 111.9 | 333.3 |
| 2 | Cyclic Fatigue Crack Growth | 10.1 | 554.6 | 111.9 | 333.3 |
| 3 | Quasi-Static, Residual Strength | Internal pressurization with reactive hoop and frame loads plus longitudinal stress 50% less than hoop stress | | | |

TABLE 3. SEQUENCE OF LOADING CONDITIONS APPLIED TO PANELS CVP3 AND CVP4

| Load Condition | Test Type | Maximum Load | | | |
|---|---|---|---|---|---|
| | | Pressure (psi) | Hoop (lb/in) | Frame (lb/in) | Long. (lb/in) |
| 1a | Quasi-Static Loading, Strain Survey | 8.8 | 483.2 | 97.6 | 0 |
| 1b | Quasi-Static Loading, Strain Survey | 0 | 0 | 0 | 875.7 |
| 1c | Quasi-Static Loading, Strain Survey | 8.8 | 483.2 | 97.6 | 875.7 |
| 2 | Cyclic Fatigue Crack Growth | 8.8 | 483.2 | 97.6 | 875.7 |
| 3 | Quasi-Static, Residual Strength | Internal pressurization with reactive hoop and frame load plus longitudinal stress 50% higher than hoop stress | | | |

TABLE 4. STRESS-INTENSITY FACTOR RANGE CALCULATIONS FOR PANELS CVP1 AND CVP2

| | CVP1 Baseline ($ksi\sqrt{in}$) | | | | CVP2 Multiple Cracks ($ksi\sqrt{in}$) | | | |
|---|---|---|---|---|---|---|---|---|
| a, in | $\Delta K_1$ | $\Delta K_2$ | $\Delta k_1$ | $\Delta k_2$ | $\Delta K_1$ | $\Delta K_2$ | $\Delta k_1$ | $\Delta k_2$ |
| 3.56 | 30.19 | 0.75 | 0.24 | 9.76 | 30.78 | 0.73 | 0.30 | 9.76 |
| 3.84 | 31.68 | 1.08 | 0.13 | 9.89 | 32.79 | 1.05 | 0.03 | 9.90 |
| 4.13 | 33.30 | 1.56 | 0.29 | 9.35 | 36.57 | 1.62 | 0.02 | 9.40 |
| 4.29 | 34.11 | 1.95 | 0.32 | 8.38 | 44.39 | 2.46 | 0.66 | 8.81 |
| 4.69 | 38.13 | 2.42 | 0.63 | 12.45 | 38.47 | 2.41 | 0.68 | 12.46 |
| 5.04 | 39.52 | 2.72 | 0.46 | 13.08 | 40.09 | 2.71 | 0.44 | 13.07 |
| 5.36 | 40.91 | 3.27 | 0.62 | 13.01 | 42.09 | 3.29 | 0.88 | 12.99 |
| 5.71 | 42.23 | 4.34 | 0.88 | 11.86 | 47.33 | 4.76 | 0.34 | 12.06 |
| 5.76 | 42.46 | 4.41 | 0.89 | 11.66 | 51.97 | 5.32 | 0.03 | 12.20 |
| 6.16 | 47.09 | 4.74 | 0.04 | 15.36 | 47.68 | 4.94 | 0.33 | 16.01 |
| 6.47 | 48.07 | 5.19 | 0.87 | 15.52 | 49.04 | 5.22 | 0.89 | 15.53 |
| 6.75 | 49.14 | 5.55 | 0.17 | 15.17 | 50.86 | 5.64 | 0.32 | 15.11 |
| 7.15 | 50.56 | 6.49 | 0.77 | 13.85 | 59.91 | 7.48 | 1.06 | 13.83 |
| 7.77 | 55.41 | 7.23 | 0.97 | 16.88 | 56.50 | 7.28 | 1.03 | 16.88 |
| 8.46 | 58.06 | 7.96 | 0.85 | 16.26 | 62.62 | 8.47 | 0.34 | 16.14 |
| 8.65 | 58.43 | 8.51 | 0.19 | 14.98 | 69.44 | 9.96 | 0.92 | 14.99 |
| 9.24 | 63.13 | 9.15 | 0.97 | 18.44 | 64.37 | 9.26 | 0.86 | 18.90 |
| 9.96 | 65.54 | 9.77 | 1.72 | 17.36 | 70.26 | 10.38 | 1.20 | 17.26 |
| 10.13 | 65.78 | 10.20 | 0.79 | 16.18 | 78.54 | 12.05 | 0.48 | 16.13 |
| 10.73 | 70.57 | 10.85 | 0.78 | 19.98 | 71.67 | 11.03 | 0.47 | 18.96 |
| 11.34 | 72.26 | 11.31 | 2.29 | 16.98 | 74.39 | 11.57 | 2.07 | 16.96 |
| 11.70 | 72.93 | 11.84 | 1.57 | 15.58 | 83.55 | 13.44 | 0.53 | 15.60 |
| 12.21 | 77.37 | 12.43 | 0.08 | 21.66 | 78.54 | 12.65 | 0.44 | 20.03 |
| 12.86 | 78.40 | 12.76 | 3.17 | 17.95 | 80.93 | 13.09 | 2.95 | 17.87 |
| 13.18 | 78.90 | 13.40 | 2.53 | 16.62 | 91.15 | 15.34 | 1.52 | 16.62 |

TABLE 5. STRESS-INTENSITY FACTOR RANGE CALCULATIONS FOR PANELS CVP3 AND CVP4

| | CVP3, Baseline ($ksi\sqrt{in}$) | | | | CVP4, Multiple Cracks $ksi\sqrt{in}$ | | | |
|---|---|---|---|---|---|---|---|---|
| a, in | $\Delta K_1$ | $\Delta K_2$ | $\Delta k_1$ | $\Delta k_2$ | $\Delta K_1$ | $\Delta K_2$ | $\Delta k_1$ | $\Delta k_2$ |
| 3.47 | 27.51 | 1.49 | 5.57 | 6.64 | 27.69 | 1.49 | 5.61 | 6.68 |
| 3.85 | 28.67 | 1.46 | 5.22 | 5.81 | 29.07 | 1.46 | 5.26 | 5.83 |
| 4.13 | 29.46 | 1.80 | 5.19 | 5.46 | 30.79 | 1.86 | 5.25 | 5.47 |
| 4.22 | 29.71 | 1.75 | 5.25 | 5.20 | 33.24 | 1.98 | 5.55 | 4.95 |
| 4.69 | 31.67 | 1.41 | 5.24 | 5.49 | 31.76 | 1.40 | 5.25 | 5.49 |
| 5.21 | 33.03 | 1.34 | 5.29 | 5.31 | 33.23 | 1.31 | 5.30 | 5.31 |
| 5.68 | 33.98 | 1.42 | 5.37 | 5.40 | 35.08 | 1.41 | 5.34 | 5.42 |
| 6.14 | 35.70 | 0.34 | 5.30 | 5.98 | 35.57 | 0.38 | 5.29 | 5.95 |
| 7.08 | 37.18 | 0.38 | 4.81 | 5.11 | 37.22 | 0.38 | 4.81 | 5.11 |
| 8.48 | 35.29 | 0.09 | 4.23 | 3.22 | 35.69 | 0.14 | 4.23 | 3.21 |
| 8.76 | 34.68 | 0.08 | 4.55 | 1.84 | 37.17 | 0.19 | 4.39 | 1.78 |

# APPENDIX A—PANEL ENGINEERING DRAWINGS

Detailed engineering drawings for the four panels tested are presented in this appendix. Panels CVP1, CVP2, CVP3, and CVP4 are cross-referenced in the accompanied engineering drawings numbered ZB128403 as configurations –1, –501, –505, and –507, respectively. The selected panel configurations represent generic fuselage structure from a narrow-body aircraft fabricated according to original equipment manufacturing (OEM) specifications. It was decided in this program to test panels that were generic instead of aircraft specific, since the purpose of this study is to provide experimental data to support and verify analysis methodologies to assess the effects of multiple cracks applicable to all aircraft types. The panel size was selected so that the test section will contain large damage such as a two-bay crack with central frame severed. The test section of the panel was sized in order to minimize the effect of the test fixture attachment points along the perimeter.

Typical panel dimensions are 120″ in the longitudinal direction, 68″ in the circumferential direction, with a radius of 66″. For all four panels, the skin was 2024-T3 aluminum with a thickness of 0.063″. Each panel had six frames with a 19″ spacing and seven stringers with a 7.5″ spacing. The frames and shear clips were 7075-T6 aluminum with thickness of 0.071″ and 0.063″, respectively. The stringers were also 7075-T6 aluminum with a thickness of 0.063″, except for S4 where the thickness is 0.071″. The edges of the curved panels, where loads are applied, were reinforced by bonding six layers of 0.045~0.065-inch-thick aluminum alloy doublers to the skin to ensure a uniform load transfer. Along the perimeter of the panel, reinforcing doublers with a length of 112″ on the longitudinal sides and 56″ on the hoop sides were added. Holes with a diameter of 0.5″ were spaced approximately 4″ apart on the longitudinal sides and 3.5″ apart on the hoop sides to attach the whiffle tree assemblies which apply the load. There were 28 load application points on each longitudinal side and 16 load application points on each hoop side. Doublers were also added to the frame ends where they attach to the frame loaders.

**ENGINEERING ORDER**
NEW RELEASE
DAC 25-1709 (REV 4-91)

*Douglas Aircraft Company*
*MCDONNELL DOUGLAS*
CAGE CODE 88277

GRID DWG ☐ YES ☒ NO | CAD DWG ☐ YES ☒ NO | G CODE: 1XR

**TYPE RELEASE**: DEVELOPMENT A | PRODUCTION B | NON PROD. C X

NO. PL INPUT SH | NO. NL WORK SH | NO. DWG SH | NO.

ADV DATE

SHEET 1 OF 1

B ZB128403
SIZE DRAWING NUMBER

**TYPE OF DRAWING:**
A ☐ SECTION LIST/OPTION CONTROL
J ☐ VARIATION
B ☐ SPEC OR SOURCE CONTROL
C ☐ DAC STANDARD
K ☐ OATP
G ☐ UNDIMENSIONED
S ☐ SERVICE
I ☒ OTHER TEST

COST CHARGE NO. (CCN): DJDØGJØ1 | RLSE CLASS | CHNG CAT CODE | LEADMAN CODE

MI | BUN | DOG | COE | NLT

TITLE: PANEL ASSEMBLY- CURVED

EWO | WRO | ROUTING CODE | CHNG CLASS

EXITED DQI ☐ Y ☐ N
CORRECTS A DWG/EO WHICH EXITED DQI ☐ Y ☐ N

| | | |
|---|---|---|
| DATE | 1 | DRAWING CHANGED |
| DATE | 2 | ADVANCED DWG CHNG |
| DATE | 3 | SERIAL EO |
| DATE JUL 31 1997 | 4 | NEW / REVISED RLSE: NEW |
| DATE | 5 | REISSUE TO REVISE: R |

☐ DWG REPLACES
☐ REPLACED BY ____ NUMBER

COORDINATE DRAWING/EO WITH

| EO MADE BY | DESIGN APPROVAL | CHECK EO | WEIGHTS | MAINTAINABILITY | PROGRAM ENGRG | CONFIGURATION MGT |
|---|---|---|---|---|---|---|
| HAYMAN 7/31/97 | | | | | | |
| **DWG MADE / CHKD BY** | **SPEC COMPLIANCE** | **CHECK DWG** | **STRESS** | **MATERIAL** | **CHANGE CONTROL** | **RELEASE / DATE** |
| E.R. 1-8 | | | | | | 7-31-97 |
| | | | | | CORROSION PREV | CUSTOMER AUTH |

SEQ/REWORK INSTR - DESIGN INTENT REQUIRES DRAWING CHANGE
☐ YES ☐ NO ____ EXPECTED INCORP DATE

| | 1.2 LTR | MODEL | SECTION | WRO EFFECT | EFFECTIVITY | CONFIGURATION | QTY PER ARTICLE NEW | QTY PER ARTICLE FORMER | NEXT ASSEMBLY DRAWING NO. | U CD | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | CRAD | | | TEST ONLY | -1 | 1 | 0 | | | 1 |
| 2 | | | | | | -501 | 1 | 0 | | | 2 |
| 3 | | | | | | -503 | 1 | 0 | | | 3 |
| 4 | | | | | | -505 | 1 | 0 | | | 4 |
| 5 | | | | | | -507 | 1 | 0 | | | 5 |
| 6 | | | | | | -509 | 1 | 0 | | | |

RECORD RELEASE ONLY.

| | INCORPORATES/RELEASES Y | N | NUMBER |
|---|---|---|---|
| STOP ORDER | | | |
| SEQ/REWORK | | | |
| QAEO | | | |
| VIR | | | |

CONTRACT NO DTFA03-96-C-00027

| P/C | ASD | 1 ST ACFT | FAB |
|---|---|---|---|
| | | | |

Orig at LB
Repro at ____
CHANGES MUST BE MADE ON ORIGINAL ONLY

| DESCRIPTION | YES | NO |
|---|---|---|
| [illegible] AFF | | |
| [illegible] AFF | | |
| [illegible] AFF | | |
| [illegible] AFF | | |
| [illegible] AFF | | |
| [illegible] AFF | | |
| [illegible] AFF | | |
| [illegible] AFF | | |
| LAB TEST AFF | | |

SB / SCN

KD3 EAB

| NAME | DEPT | MAIL CODE | EXTRA EO QTY | DWG & EO QTY | NAME | DEPT | MAIL CODE | EXTRA EO QTY | DWG & EO QTY |
|---|---|---|---|---|---|---|---|---|---|
| J. MECKLENBURG | KD3 | 1-18 | 0 | 4 | | | | | |
| C. THRASH | KD3 | 1-18 | 0 | 1 | | | | | |
| C. CHEN | IXR | 71-34 | 0 | 1 | | | | | |
| J. LO | IXR | 71-34 | 0 | 1 | | | | | |
| C. HSU | IXR | 71-34 | 0 | 1 | | | | | |
| K. CHAN | IXR | 71-34 | 0 | 1 | | | | | |

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DRAWING NUMBER
ZB128403

# ENGINEERING ORDER

DAC 25-1709K (REV. 3-91)

Douglas Aircraft Company
MCDONNELL DOUGLAS
CAGE CODE 88277

**HANDLING INSTRUCTIONS (HI)**

0. INTERCHANGEABILITY NOT AFFECTED USAGE OF PRIOR CHANGE OPTIONAL.
2. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY.
3. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY. OPTIONAL REPAIR INSTRUCTIONS ARE NOT TO BE INCORPORATED ON PRODUCTION DRAWING GRAPHICS.
4. SCRAP.
5. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY UNLESS OTHERWISE NOTED.
6. RETROFIT (DELIVERED ARTICLES).

| GRID DWG | CAD DWG | CODE |
|---|---|---|
| ☐ YES ☒ NO | ☐ YES ☒ NO | IXR |

TYPE RELEASE: DEVELOPMENT A; PRODUCTION B; NON PROD. C X

NO. PL INPUT SH | NO. NL INPUT SH | NO

ADV DATE | SHEET 1 OF 5

B | ZB128403 (SIZE | DRAWING NUMBER)

COST CHARGE NO. (CCN): DJDØGUØ1 | RLSE CLASS | CHNG CAT CODE | LEADMAN CODE

MI | BUN | DOG | COE | NLT

TITLE: PANEL ASSEMBLY- CURVED

| | | |
|---|---|---|
| DATE JAN 21 1998 | 1 | DRAWING CHANGED: A |
| DATE | 2 | ADVANCED DWG CHNG |
| DATE | 3 | SERIAL EO |
| DATE | 4 | NEW / REVISED RLSE |
| DATE | 5 | REISSUE TO REVISE: R |

EWO | WRO | ROUTING CODE | CHNG CLASS

EXITED DQI ☐ Y ☐ N

CORRECTS A DWG/EO WHICH EXITED DQI ☐ Y ☐ N

☐ DWG REPLACES
☐ REPLACED BY ____ NUMBER

COORDINATE DRAWING/EO WITH

| | | | | | | |
|---|---|---|---|---|---|---|
| EO MADE BY: E.P. HAYMAN 1-19-98 | DESIGN APPROVAL: [signature] 1-21-98 STOLLS | CHECK EO 1-21-98 | WEIGHTS | MAINTAINABILITY | PROGRAM ENGRG | CONFIGURATION MGT |
| DWG MADE / CHNGD BY | SPEC COMPLIANCE | CHECK DWG | STRESS [signature] 1/21/98 | MATERIAL | CHANGE CONTROL | RELEASE (TB) DATE 1-21-98 |
| | | | | | CORROSION PREV | CUSTOMER AUTH |

SEO/REWORK INSTR – DESIGN INTENT REQUIRES DRAWING CHANGE
☐ YES ☐ NO EXPECTED INCORP DATE

| | 1.2 LTR | MODEL | SECTION | HI NO. | WRO EFFECT | EFFECTIVITY | CONFIGURATION | QTY PER ARTICLE NEW | QTY PER ARTICLE FORMER | NEXT ASSEMBLY DRAWING NO. | U CD | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | CRAD | | | | TEST ONLY | -1 | 1 | 1 | | | 1 |
| 2 | | | | | | | -501 | 1 | 1 | | | 2 |
| 3 | | | | | | | -503 | 1 | 1 | | | 3 |
| 4 | | | | | | | -505 | 1 | 1 | | | 4 |
| 5 | | | | | | | -507 | 1 | 1 | | | 5 |
| 6 | | | | | | | -509 | 1 | 1 | | | 6 |

EXPANDED "SHEET REVISION STATUS" ON SHEET 1.
CONTINUED ON SHEET 2

REASONS: TO CLARIFY DRAWING AND RESULTS OF DETAIL SKIN AND FRAME LOAD ANALYSIS.

| | Y | N | NUMBER |
|---|---|---|---|
| STOP ORDER | | | |
| SEO/REWORK | | | |
| QAEO | | | |
| VIR | | | |
| MII | | | |
| MIR | | | |
| PII | | | |
| PRR | | | |

CONTRACT NO. DTFA03-96-C-00027

P/C | ASD | 1 ST ACFT | FAB

Orig at LB
Repro at —

CHANGES MUST BE MADE ON ORIGINAL ONLY

| PRINT DISTRIBUTION | YES | NO | PRINT DISTRIBUTION | YES | NO |
|---|---|---|---|---|---|
| SIMULATOR AFF | | | SEALING AFF | | |
| OAT AFF | | | ELEC BONDING AFF | | |
| SCHEMATICS AFF | | | LUBRICATION AFF | | |
| DAMS & DRAINS AFF | | | LAB TEST AFF | | |
| VENTILATION AFF | | | | | |

SB / SC NO.

| NAME | DEPT | MAIL CODE | EXTRA EO QTY | DWG & EO QTY |
|---|---|---|---|---|
| J. MECKLENBURG | KD3 | 1-18 | 0 | 4 |
| C. THRASH | KD3 | 1-18 | 0 | 1 |
| C. CHEN | IXR | 71-34 | 0 | 1 |
| J. LO | IXR | 71-34 | 0 | 1 |
| C. HSU | IXR | 71-34 | 0 | 1 |
| K. CHAN | IXR | 71-34 | 0 | 1 |

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DRAWING NUMBER ZB128403

ENGINEERING ORDER

DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
MCDONNELL DOUGLAS CORPORATION
CODE IDENT NO. 80877

DAC 25-1709B (REV. 8-86)

| 2 | ZB128403 |
|---|---|
| SHEET | DRAWING NUMBER |

| | | | |
|---|---|---|---|
| DATE JAN 21 1988 | 1/2 | CHANGE LETTER | A |
| DATE | 3 | SERIAL EO | |
| DATE | 4 | NEW/REVISED RELEASE | |
| DATE | 5 | REISSUE TO REVISE | R |

REVISE GENERAL NOTE ON SHEET 2;

IS NOW;= ADHESIVE BOND -33, -37, -43, -45, -47, -49, -69, -71 AND -73 DOUBLERS AND -35 FILLER WITH DMS 2169 PER DPS 1.950."

WAS; "METAL BOND -33, -37, -43, -45, -47, -49, -51, -53 DOUBLERS AND -35 FILLER ALSO -55, -57, -59 AND -61 SPACERS WITH DMS 2169 PER DPS 1.950."

ADDED ON SHEET 3;

DETAIL OF -63 DOUBLER TO SHOW LOCATIONS ONLY.

CHANGED ON SHEET 3;

RADIUS OF SKIN CURVATURE,

IS NOW; 65.81 R. (REF.) WAS; 66 R. (REF.)

ADDED TO VIEW A ON SHEET 4;

DETAIL OF -63 DOUBLER TO SHOW LOCATIONS ONLY.

CHANGED IN PROJECTION OF VIEW J-J ON SHEET 7;

9951791-3 INTERCOSTAL ALONG WITH RELATED DETAIL PARTS REDRAWN TO OPPOSITE FLANGE OF -13 LONGERON TO AGREE WITH VIEW F-F ON SHEET 10.

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DRAWING NUMBER ZB128403

ENGINEER, ORDER

DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
MCDONNELL DOUGLAS CORPORATION
CODE IDENT NO 88577

DAC 25-1709B (REV. 8-86)

| SHEET | DRAWING NUMBER |
|---|---|
| 3 | ZB128403 |

| | | | |
|---|---|---|---|
| DATE JAN 21 1998 | 1/2 | CHANGE LETTER | A |
| DATE | 3 | SERIAL EO | |
| DATE | 4 | NEW REVISED RELEASE | |
| DATE | 5 | REISSUE TO REVISE | R |

CHANGED IN PROJECTION OF VIEW L-L ON SHEET 9;

3913490-1 INTERCOSTAL ALONG WITH RELATED DETAIL PARTS REDRAWN TO OPPOSITE FLANGE OF -9 LONGERON TO AGREE WITH VIEW F-F ON SHEET 10.

ADDED TO VIEW F-F ON SHEET 10;

NOTATION, "℄ L4"

CHANGED IN PROJECTION OF VIEW G-G ON SHEET 12;

3913490-1 INTERCOSTAL ALONG WITH RELATED DETAIL PARTS REDRAWN TO OPPOSITE FLANGE OF -9 LONGERON TO AGREE WITH VIEW F-F ON SHEET 10.

REDESIGNED PANEL ASSEMBLY EDGE DOUBLERS IN VIEW D AND EDGE PROJECTION ON SHEET 13.

CANCELLED -51 AND -53 DOUBLER ALSO -55, -57, -59 AND -61 SPACERS (REMOVED FROM F/D AND P/L).

ADDED -69, -71 AND -73 DOUBLERS (ADDED TO F/D AND P/L).

MODIFY VIEW D TO SHOW SHORTENED LENGTH OF -15 DOUBLER AND FASTENER PATTERN IN -3 AND -5 SKIN AND -17 DOUBLER. CHANGED FASTENERS IN THIS AREA;

IS NOW, LZ 6F (℄ 82) WAS, BJ 6

MCDONNELL DOUGLAS CORPORATION PROPRIETARY INFORMATION - USE OR DISCLOSURE OF THIS INFORMATION IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE OR ON THE FIRST PAGE OF THIS DOCUMENT.

DRAWING NUMBER ZB128403

ENGINEERING ORDER

DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
MCDONNELL DOUGLAS CORPORATION
CODE IDENT NO. 80577

DAC 25-1709B (REV. 8-86)

| 4 | ZB128403 |
|---|---|
| SHEET | DRAWING NUMBER |

| | | | |
|---|---|---|---|
| DATE JAN 21 1998 | 2 | CHANGE LETTER | A |
| DATE | 3 | SERIAL EO | |
| DATE | 4 | NEW/REVISED RELEASE | |
| DATE | 5 | REISSUE TO REVISE | R |

ADDED TO VIEW R ON SHEET 14;

-65 AND -67 DOUBLERS (ADDED TO F/D AND P/L).

CHANGED ON SHEET 15 (-3 SKIN), SHEET 16 (-5 SKIN), AND SHEET 17(-7 SKIN);

RADIUS OF SKIN CURVATURE,

| IS NOW; | WAS; |
|---|---|
| 65.81 R. | 66 R. |

ADDED TO DETAIL OF -23 FRAME ASSEMBLY ON SHEET 23 AND 24;

-63 DOUBLER (ADDED TO F/D AND P/L)

-65 AND -67 (ADDED TO F/D)

NOTE: "ADHESIVE BOND PER DPS 1.950.
USE DPM 3279-3 ADHESIVE."

-5 (ADDED TO -23 ON SHEET 23)

-3 (ADDED TO -23 ON SHEET 24)

BJ/6 5 PLACES (ADDED TO -23 ON SHEET 23)
LOCATE FROM -29

BJ/6 5 PLACES (ADDED TO -23 ON SHEET 24)
LOCATE FROM -31

MCDONNELL DOUGLAS CORPORATION PROPRIETARY INFORMATION - USE OR DISCLOSURE OF THIS INFORMATION IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE OR ON THE FIRST PAGE OF THIS DOCUMENT.

DRAWING NUMBER ZB128403

ENGINEERING ORDER

DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
MCDONNELL DOUGLAS CORPORATION
CODE IDENT NO. 88277

DAC 25-1709B (REV. 8-86)

5 | ZB128403
SHEET | DRAWING NUMBER

| | | | |
|---|---|---|---|
| DATE JAN 21 1998 | 1/2 | CHANGE LETTER | A |
| DATE | 3 | SERIAL EO | |
| DATE | 4 | NEW/REVISED RELEASE | |
| DATE | 5 | REISSUE TO REVISE | R |

ADDED TO DETAIL OF -25 FRAME ASSEMBLY ON SHEET 25 AND 26;

-63 AND -65 (ADDED TO F/D)

NOTE: "ADHESIVE BOND PER DPS 1.950. USE DPM 3279-3 ADHESIVE."

-7 (ADDED TO -25 ON SHEET 25 AND 26)

BJ|6 5 PLACES (ADDED TO -25 ON SHEET 25)
LOCATE FROM -39

BJ|6 5 PLACES (ADDED TO -25 ON SHEET 26)
LOCATE FROM -41

CHANGED ON -15 DOUBLER DETAIL ON SHEET 28;

LENGTH OF -15 DOUBLER,
IS NOW; 98.38 WAS; 120.00

DIMENSION FROM LAST FULL LOLLIPOP TO END OF PART,
IS NOW; 1.19 WAS; .75

ADDED SHEET 29 SHOWING DETAILS OF -63 DOUBLER, -65 DOUBLER AND -67 DOUBLER.

MCDONNELL DOUGLAS CORPORATION PROPRIETARY INFORMATION - USE OR DISCLOSURE OF THIS INFORMATION IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE OR ON THE FIRST PAGE OF THIS DOCUMENT.

DRAWING NUMBER ZB128403

# ENGINEERING ORDER

DAC 25-1709K (REV. 3-91)

Douglas Aircraft Company
MCDONNELL DOUGLAS
CAGE CODE 88277

**HANDLING INSTRUCTIONS (HI)**

0. INTERCHANGEABILITY NOT AFFECTED. USAGE OF PRIOR CHANGE OPTIONAL.
2. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY
3. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY. OPTIONAL REPAIR INSTRUCTIONS ARE NOT TO BE INCORPORATED ON PRODUCTION DRAWING GRAPHICS.
4. SCRAP
5. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY UNLESS OTHERWISE NOTED.
6. RETROFIT (DELIVERED ARTICLES).

| GRID DWG | CAD DWG | CODE | TYPE RELEASE | | NO PL INPUT SH | NO NL INPUT SH | NO. |
|---|---|---|---|---|---|---|---|
| ☐ YES ☒ NO | ☐ YES ☒ NO | IXR | DEVELOPMENT | A | ADV DATE | B | ZB128403 |
| | | | PRODUCTION | B | | SIZE | DRAWING NUMBER |
| | | | NON PROD. | C X | SHEET 1 OF 3 | | |

| COST CHARGE NO. (CCN) | RLSE CLASS | CHNG CAT CODE | LEADMAN CODE |
|---|---|---|---|
| DJDQGJQ1 | | | |

MI
BUN
DOG
COE
NLT

TITLE: PANEL ASSEMBLY-CURVED

| | | | | | |
|---|---|---|---|---|---|
| EWO | WRO | ROUTING CODE | CHNG CLASS | EXITED DOI ☐ Y ☐ N | CORRECTS A DWG/EO WHICH EXITED DOI ☐ Y ☐ N |

| | | | | | | |
|---|---|---|---|---|---|---|
| DATE NOV 11 1998 | 1 | DRAWING CHANGED | B |
| DATE | 2 | ADVANCED DWG CHNG | |
| DATE | 3 | SERIAL EO | |
| DATE | 4 | NEW / REVISED RLSE | |
| DATE | 5 | REISSUE TO REVISE | R |

☐ DWG REPLACES
☐ REPLACED BY _____ NUMBER

COORDINATE DRAWING/EO WITH

| EO MADE BY | DESIGN APPROVAL | CHECK EO | WEIGHTS | MAINTAINABILITY | PROGRAM ENGRG | CONFIGURATION MGT |
|---|---|---|---|---|---|---|
| HAYMAN 11-9-98 | JAMES LO 11-10-98 | STOLLS 11-11-98 | | | | |

| DWG MADE/CHKED BY | DESIGN COMPLIANCE | CHECK DWG | STRESS | MATERIAL | CHANGE CONTROL | RELEASE | DATE |
|---|---|---|---|---|---|---|---|
| E.L. 11-9 | | STOLLS 11-11-98 | Chen H 11-10-98 | | | KLB | 11-11-98 |
| | | | | | CORROSION PREV | CUSTOMER AUTH | |

SEO/REWORK INSTR - DESIGN INTENT REQUIRES DRAWING CHANGE
☐ YES ☐ NO EXPECTED INCORP DATE

| | 1.2 LTR | MODEL | SECTION | HI NO. | WRO EFFECT | EFFECTIVITY | CONFIGURATION | QTY PER ARTICLE NEW | QTY PER ARTICLE FORMER | NEXT ASSEMBLY DRAWING NO. | U CD | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | CRAD | | | | TEST ONLY | -1 | 0 | 1 | | | 1 |
| 2 | | | | | | | -501 | 0 | 1 | | | 2 |
| 3 | | | | | | | -503 | 0 | 1 | | | 3 |
| 4 | | | | | | | -505 | 0 | 1 | | | 4 |
| 5 | | | | | | | -507 | 0 | 1 | | | 5 |
| 6 | | | | | | | -509 | 0 | 1 | | | 6 |

ADDED TO SHT. 23; VIEW U-U

REASON: TO PROVIDE CLEARANCE FOR LOAD LINKS, ALSO FOR ADDED GENERICICITY.

| INCORPORATES/RELEASES | Y | N | NUMBER |
|---|---|---|---|
| STOP ORDER | | | |
| SEO/REWORK | | | |
| QAEO | | | |
| VIR | | | |
| MII | | | |
| MIR | | | |
| PII | | | |
| PRR | | | |

| PRINT DISTRIBUTION | YES | NO | PRINT DISTRIBUTION | YES | NO |
|---|---|---|---|---|---|
| SIMULATOR AFF | | | SEALING AFF | | |
| OATP AFF | | | ELEC BONDING AFF | | |
| SCHEMATICS AFF | | | LUBRICATION AFF | | |
| DAMS & DRAINS AFF | | | LAB TEST AFF | | |
| VENTILATION AFF | | | | | |

SB / SC NO.

| NAME | DEPT | MAIL CODE | EXTRA EO QTY | DWG & EO QTY |
|---|---|---|---|---|
| J. MECKLENBURG | KD3 | 1-18 | 3 | — |
| C. CHEN | IXR | 78-209 | 1 | — |
| J. LO | IXR | 78-209 | 1 | — |
| C. HSU | IXR | 78-209 | 1 | — |

CONTRACT NO. DTFA03-96-C-00027

| P / C | ASD | 1 ST ACFT | FAB |
|---|---|---|---|
| | | | |

Orig at LB
Repro at —

CHANGES MUST BE MADE ON ORIGINAL ONLY

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DRAWING NUMBER ZB128403

ENGINEER. ORDER

DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
MCDONNELL DOUGLAS
CODE IDENT NO. 88577 CORPORATION

DAC 25-1709B (REV. 8-86)

2 | ZB128403
SHEET | DRAWING NUMBER

| | | | |
|---|---|---|---|
| DATE NOV 11 1998 | 1/2 | CHANGE LETTER | B |
| DATE | 3 | SERIAL EO | |
| DATE | 4 | NEW REVISED RELEASE | |
| DATE | 5 | REISSUE TO REVISE | R |

REMOVED ON SHT. 23;

DIMENSION ".700 CONSTANT" FROM -23 FRAME ASSEMBLY

REMOVED ON SHT. 25;

DIMENSION ".700 CONSTANT" FROM -25 FRAME ASSEMBLY

REVIESED ON SHTS. 23, 24, 25 & 26;

ENDS OF -27 FRAME TO SHOW CUTOUT OF FLANGE

REVISED ON SHTS. 20 AND 21;

VIEW N TO ADD -75 DOUBLER

REPLACED ON SHT. 5;

LZ|6F RIVETS WITH ASS|6F RIVETS (ON ℄ LONGERON 4 ONLY)

REPLACED ON SHT. 6;

2 ROWS OF LZ|6F RIVETS WITH XES|6F HI-LOK PINS
(ONE ROW EACH SIDE OF ℄ SYM.)

ADDED ON SHT. 11;

FASTENERS IN FRAME TO SHEAR CLIP ON RIGHT HAND PROJECTION OF VIEW C (FASTENERS PREVIOUSLY OMITTED).

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DRAWING NUMBER ZB128403

ENGINEER[illegible] ORDER

DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
MCDONNELL DOUGLAS CORPORATION
CODE IDENT NO. 80877

DAC 25-1709B (REV. 8-86)

3 | ZB128403
SHEET | DRAWING NUMBER

| | | | |
|---|---|---|---|
| DATE NOV 11 1998 | 1/2 | CHANGE LETTER | B |
| DATE | 3 | SERIAL EO | |
| DATE | 4 | NEW/REVISED RELEASE | |
| DATE | 5 | REISSUE TO REVISE | R |

ADDED TO G/N SHT. 2 AND
P/L SHTS. 4 AND 5;

ASS|6 RIVETS AND XES|6 HI-LOK PINS
NAS1097KE6
S4931919-6
NAS1252-10L WASHER
MS21042-3 NUT

ADDED TO P/L SHT. 4;

-75 DOUBLER MAKE FROM 5936017-27

MCDONNELL DOUGLAS CORPORATION PROPRIETARY INFORMATION - USE OR DISCLOSURE OF THIS INFORMATION IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE OR ON THE FIRST PAGE OF THIS DOCUMENT.

DRAWING NUMBER ZB128403

# ENGINEERING ORDER

DAC 25-1709K (REV. 3-91)

**Douglas Aircraft Company**
**MCDONNELL DOUGLAS**
CAGE CODE 88277

| GRID DWG | CAD DWG | CODE | TYPE RELEASE | | NO. PL INPUT SH | NO. NL INPUT SH | NO. |
|---|---|---|---|---|---|---|---|
| ☐ YES ☒ NO | ☐ YES ☒ NO | IXR | DEVELOPMENT | A | ADV DATE | | |
| | | | PRODUCTION | B | | B ZB128403 | |
| | | | NON PROD. | C X | SHEET 1 OF 2 | SIZE DRAWING NUMBER | |

**HANDLING INSTRUCTIONS (HI)**

0. INTERCHANGEABILITY NOT AFFECTED. USAGE OF PRIOR CHANGE OPTIONAL.
2. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY.
3. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY. OPTIONAL REPAIR INSTRUCTIONS ARE NOT TO BE INCORPORATED ON PRODUCTION DRAWING GRAPHICS.
4. SCRAP.
5. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY UNLESS OTHERWISE NOTED.
6. RETROFIT (DELIVERED ARTICLES).

| COST CHARGE NO. (CCN) | RLSE CLASS | CHNG CAT CODE | LEADMAN CODE |
|---|---|---|---|
| D1D0G101 | | | |

MI
BUN
DOG
COE
NLT

TITLE: PANEL ASSEMBLY- CURVED

| EWO | WRO | ROUTING CODE | CHNG CLASS |
|---|---|---|---|
| | | | |

EXITED DOI ☐ Y ☐ N
CORRECTS A DWG/EO WHICH EXITED DOI ☐ Y ☐ N

| | DATE | | |
|---|---|---|---|
| 1 | DATE | DRAWING CHANGED | |
| 2 | DATE | ADVANCED DWG CHNG | |
| 3 | DATE DEC 07 1998 | SERIAL EO | 001 |
| 4 | DATE | NEW / REVISED RLSE | |
| 5 | DATE | REISSUE TO REVISE | R |

☐ DWG REPLACES
☐ REPLACED BY _____ NUMBER
COORDINATE DRAWING/EO WITH

| EO MADE BY | DESIGN APPROVAL | CHECK EO | WEIGHTS | MAINTAINABILITY | PROGRAM ENGRG | CONFIGURATION MGT |
|---|---|---|---|---|---|---|
| E.K. HAYMAN 11-11-98 | James Lo 11-10-98 | STOLLS 12-7-98 | | | | |

| DWG MADE / CHNGD BY | FOD COMPLIANCE | CHECK DWG | STRESS | MATERIAL | CHANGE CONTROL | RELEASE DATE |
|---|---|---|---|---|---|---|
| | | | Chuy Hsu 10/21/98 | | | MB 1209 |
| | | | | | CORROSION PREV | CUSTOMER AUTH |

SEO/REWORK INSTR - DESIGN INTENT REQUIRES DRAWING CHANGE
☐ YES ☐ NO EXPECTED INCORP DATE

| | 1.2 LTR | MODEL | SECTION | HI NO. | WRO EFFECT | EFFECTIVITY | CONFIGURATION | QTY PER ARTICLE NEW | QTY PER ARTICLE FORMER | NEXT ASSEMBLY DRAWING NO. | U CD | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | CRAD | | | | TEST ONLY | -1-001 | 1 | 0 | | | 1 |
| 2 | | CRAD | | | | TEST ONLY | -501-001 | 1 | 0 | | | 2 |
| 3 | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | 5 |

SEE SHT. 2

REASON: TO SIMULATE A SEVERED SHEAR CLIP ADJACENT TO LEAD CRACK.

| INCORPORATES/RELEASES | Y | N | NUMBER |
|---|---|---|---|
| STOP ORDER | | | |
| SEO/REWORK | | | |
| QAEO | | | |
| VIR | | | |
| MII | | | |
| MIR | | | |
| PII | | | |
| PRR | | | |

| PRINT DISTRIBUTION | YES | NO | PRINT DISTRIBUTION | YES | NO |
|---|---|---|---|---|---|
| SIMULATOR AFF | | | SEALING AFF | | |
| OATP AFF | | | ELEC BONDING AFF | | |
| SCHEMATICS AFF | | | LUBRICATION AFF | | |
| DAMS & DRAINS AFF | | | LAB TEST AFF | | |
| VENTILATION AFF | | | | | |

SB / SC NO.

| NAME | DEPT | MAIL CODE | EXTRA EO QTY | DWG & EO QTY |
|---|---|---|---|---|
| J. MECKLENBURG | KD3 | 1-18 | 3 | — |
| C. CHEN | IXR | 78-209 | 1 | — |
| J. LO | IXR | 78-209 | 1 | — |
| C. HSU | IXR | 78-209 | 1 | — |

CONTRACT NO. DTFA03-96-C-00027

| P / C | ASD | 1 ST ACFT | FAB |
|---|---|---|---|
| | | | |

Orig at LB
Repro at _____
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DRAWING NUMBER ZB128403

ENGINEERING ORDER

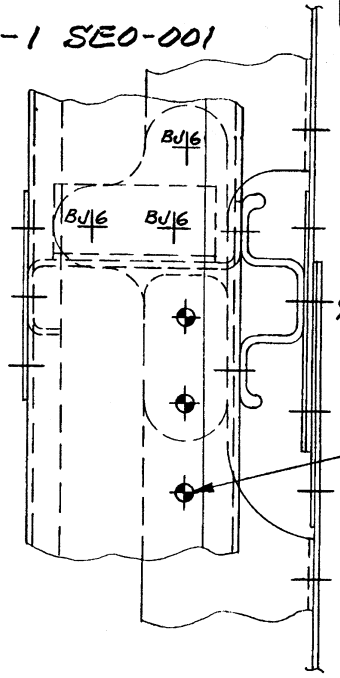
DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
MCDONNELL DOUGLAS CORPORATION
CODE IDENT NO. 88277

DAC 25-1709B (REV. 8-86)

| 2 | ZB128403 |
|---|---|
| SHEET | DRAWING NUMBER |

| | | | | |
|---|---|---|---|---|
| DATE | 1/2 | CHANGE LETTER | | |
| DATE DEC 07 1998 | 3 | SERIAL EO | 001 | |
| DATE | 4 | NEW-REVISED RELEASE | | |
| DATE | 5 | REISSUE TO REVISE | R | |

MODIFY -1 AND -501 PANEL ASSEMBLIES AS SHOWN BELOW
REIDENTIFY AS ZB128403-1 SEO-001 AND ZB128403-501 SEO-001




INDICATES OMIT OR REMOVE FASTENERS AT THESE LOCATIONS (3 PLACES) ON FRAME F4 ONLY.

VIEW F-F

SEE SHT. 5

MCDONNELL DOUGLAS CORPORATION PROPRIETARY INFORMATION - USE OR DISCLOSURE OF THIS INFORMATION IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE OR ON THE FIRST PAGE OF THIS DOCUMENT.

DRAWING NUMBER ZB128403

**ENGINEERING ORDER** DAC 25-1709K (REV.)

*Douglas Aircraft Company*
**MCDONNELL DOUGLAS**
CAGE CODE 88277

GRID DWG ☐ YES ☒ NO | CAD DWG ☐ YES ☒ NO | IXR

TYPE RELEASE: DEVELOPMENT A | PRODUCTION B | NON PROD. C ☒

NO. PL INPUT SH | NO. NL INPUT SH

ADV DATE

SHEET 1 OF 2

B ZB128403
SIZE DRAWING NUMBER

**HANDLING INSTRUCTIONS (HI)**

0. INTERCHANGEABILITY NOT AFFECTED. USAGE OF PRIOR CHANGE OPTIONAL.
2. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY.
3. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY. OPTIONAL REPAIR INSTRUCTIONS ARE NOT TO BE INCORPORATED ON PRODUCTION DRAWING GRAPHICS.
4. SCRAP.
5. CONFORMANCE REQUIRED AT NOTED EFFECTIVITY UNLESS OTHERWISE NOTED.
6. RETROFIT (DELIVERED ARTICLES).

COST CHARGE NO. (CCN): DJDPGGQP1 | RLSE CLASS | CHNG CAT CODE | LEADMAN CODE

MI | BUN | DOG | COE | NLT

TITLE: PANEL ASSEMBLY-CURVED

EWO | WRO | ROUTING CODE | CHNG CLASS

EXITED DOI ☐ Y ☐ N
CORRECTS A DWG/EO WHICH EXITED DOI ☐ Y ☐ N

| | DATE |
|---|---|
| 1 | DRAWING CHANGED |
| 2 | ADVANCED DWG CHNG |
| 3 | SERIAL EO 005 (DATE JUN 03 1999) |
| 4 | NEW / REVISED RLSE |
| 5 | REISSUE TO REVISE R |

☐ DWG REPLACES
☐ REPLACED BY NUMBER

COORDINATE DRAWING/EO WITH

| EO MADE BY | DESIGN APPROVAL | CHECK EO | WEIGHTS | MAINTAINABILITY | PROGRAM ENGRG | CONFIGURATION MGT |
|---|---|---|---|---|---|---|
| E.L. HAYMAN 5-28-99 | James LO 5/28/99 | STOLLS 6-3-99 | | | | |
| **DWG MADE / CHKD BY** | **SPEC COMPLIANCE** | **CHECK DWG** | **STRESS** | **MATERIAL** | **CHANGE CONTROL** | **RELEASE DATE** |
| E.L. HAYMAN 5-28-99 | | STOLLS 6-3-99 | CHSU 5/28/99 | | | 6-3-99 |
| | | | | | **CORROSION PREV** | **CUSTOMER AUTH** |

SEO/REWORK INSTR – DESIGN INTENT REQUIRES DRAWING CHANGE
☐ YES ☐ NO EXPECTED INCORP DATE

| | 1.2 LTR | MODEL | SECTION | HI NO. | WRO EFFECT | EFFECTIVITY | CONFIGURATION | QTY PER ARTICLE NEW | QTY PER ARTICLE FORMER | NEXT ASSEMBLY DRAWING NO. | U CD | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | CRAD | | | | TEST ONLY | -501-005 | 1 | 0 | | | 1 |
| 2 | | 〃 | | | | 〃 | -503-005 | 1 | 0 | | | 2 |
| 3 | | 〃 | | | | 〃 | -507-005 | 1 | 0 | | | 3 |
| 4 | | CRAD | | | | TEST ONLY | -509-005 | 1 | 0 | | | 4 |
| 5 | | | | | | | | | | | | 5 |

SEE SHT. 2

NOTE: PANEL ASSY. -1 AND -505 WAS MODIFIED BY CUSTOMER.

REASON: TO PROVIDE INCREASED CLEARANCE FOR FRAME LOADER LINKAGE.

| INCORPORATES/RELEASES | Y | N | NUMBER |
|---|---|---|---|
| STOP ORDER | | | |
| SEO/REWORK | | | |
| QAEO | | | |
| VIR | | | |
| MII | | | |
| MIR | | | |
| PII | | | |
| PRR | | | |

| PRINT DISTRIBUTION | YES | NO | PRINT DISTRIBUTION | YES | NO |
|---|---|---|---|---|---|
| SIMULATOR AFF | | | SEALING AFF | | |
| OATP AFF | | | ELEC BONDING AFF | | |
| SCHEMATICS AFF | | | LUBRICATION AFF | | |
| DAMS & DRAINS AFF | | | LAB TEST AFF | | |
| VENTILATION AFF | | | | | |

SB / SC NO.

| NAME | DEPT | MAIL CODE | EXTRA EO QTY | DWG & EO QTY |
|---|---|---|---|---|
| J. MECKLENBURG | KD3 | 1-18 | 3 | — |
| C. CHEN | IXR | 78-209 | 1 | — |
| J. LO | IXR | 78-209 | 1 | — |
| C. HSU | IXR | 78-209 | 1 | — |

CONTRACT NO. DTFA03-96-C-00027

| P / C | ASD | 1 ST ACFT | FAB |
|---|---|---|---|
| | | | |

Orig at LB
Repro at
CHANGES MUST BE MADE ON ORIGINAL ONLY

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DRAWING NUMBER ZB128403

ENGINEER'S ORDER

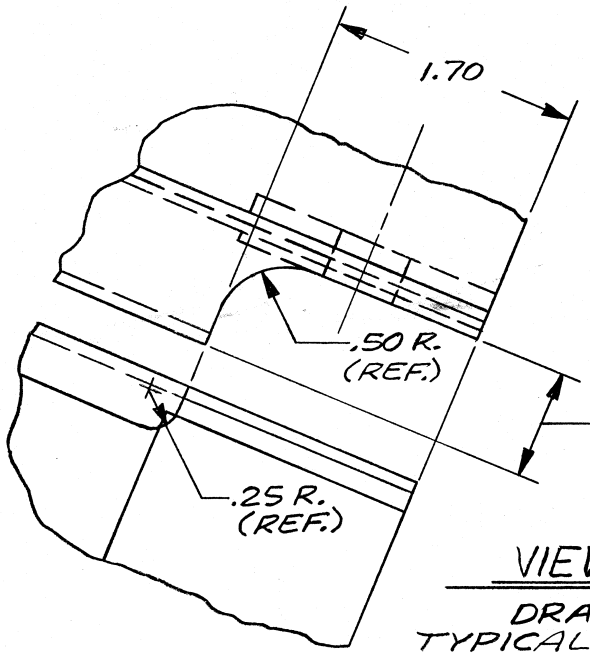
DAC 25-1709B (REV. 8-86)

DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
MCDONNELL DOUGLAS CORPORATION
CODE IDENT NO. 88277

2 SHEET | ZB128403 DRAWING NUMBER

CHANGED CUTOUT IN -27 FRAMES
AS SHOWN IN VIEW U-U ON SHT. 23
WAS: 1.50 IS NOW 1.70

| | | | |
|---|---|---|---|
| DATE | 1/2 | CHANGE LETTER | |
| DATE JUN 0 3 1999 | 3 | SERIAL EO | 005 |
| DATE | 4 | NEW/REVISED RELEASE | |
| DATE | 5 | REISSUE TO REVISE | R |




VIEW U-U

DRAWN FULL SIZE
TYPICAL FOR EACH END
OF -27 FRAME

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DRAWING NUMBER ZB128403

DAC XA60-13B1 (1-81)

DWG NO. 7B128403 TM 1

| REVISIONS | | | |
|---|---|---|---|
| REV | DESCRIPTION | DATE | APPROVED |
| A | ADDED SHT. 29 SEE E.O. | 12-18-97 | |
| B | REV. SHT. 23-26 SEE E.O. | 11-5-98 | |
| | | | |

SHEET REV STATUS

| 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | A | - | A | A | A | A | - | - | - | - | - | A | A | A | A | A | A | - | A | A | - | A | - | - | A | A | A | A |
| - | - | - | B | B | B | B | - | B | B | - | - | - | - | - | - | B | - | B | - | - | - | - | B | B | - | - | B | B |

GENERAL NOTES: UNLESS NOTED OTHERWISE.

FOR CONTINUATION SEE SHEET 2.

SEE SEPARATE PARTS LIST

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UNLESS OTHERWISE SPECIFIED
DASH NUMBERS OF THIS DRAWING
ODD DASH NUMBERS SHOWN
EVEN DASH NUMBERS OPPOSITE

NEXT ASSY | USED ON

FIRST APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCES
ANGLES ± 0°-30'
3 PLACES DEC ± .015
2 PLACES DEC ± .03

FINISH

CONTRACT NO.

| | |
|---|---|
| STRESS | Chris Hon 7/31/97 |
| CHECK | |
| DESIGN | Jason Lu 7/31/97 |
| PREP BY | E.L. HAYMAN |
| DESIGN ACTIVITY APPROVAL | Neal Hammond 7/31/97 |
| CUSTOMER APPROVAL | |

DOUGLAS AIRCRAFT COMPANY
LONG BEACH, CALIFORNIA
McDONNELL DOUGLAS

PANEL ASSEMBLY-
CURVED

| SIZE | FSCM NO. | DWG NO. |
|---|---|---|
| B | 88277 | 7B128403 |
| SCALE NOTED | | SHEET 1 OF 29 |

| FIRST RELEASE OF PRINTS | ORIGINAL DATE OF DRAWING | FOR COMPLETE USAGE DATA SEE ENGINEERING RECORDS | ORIG SECTION | RELEASE CODE |
|---|---|---|---|---|
| JUL 31 1997 | 970708 | | | |

## GENERAL NOTES: UNLESS NOTED OTHERWISE.

CENTERLINES AND/OR SURFACES SHOWN AS PERPENDICULAR OR PARALLEL ARE TO BE .50 WITHIN .030 IN WIDTH OR LENGTH OF PART.
SURFACE TEXTURE PER ANSI B46.1-1978.
FABRICATION STANDARDS PER DPS 4.710.
ASSEMBLY SHOP PRACTICE PER DPS 2.70-2.
IDENTIFY PER DPS 3.02.
HOLES PER DPS 3.67-22.
INSTALL RIVETS PER S5076260.
INSTALL HI-LOK PINS PER S7933654
STANDARD INTERFERENCE FITS APPLY UNLESS OTHERWISE INDICATED BY SYMBOL DESIGNATION.
FASTENERS INDICATED THUS:

BJS — ARE MS20470AD5 RIVET

BJ6 — ARE MS20470AD6 RIVET

LZ6 — ARE NAS1097AD6 RIVET

B — ARE 3D0009-6 PIN
BH00601-3 NUT

XHW6 — ARE 2D0009-6 PIN
3D0007-3 NUT ASSY.

ADHESIVE BOND -33, -37, -43, -45, -47, -49, -69, -71 AND -73 DOUBLERS AND -35 FILLER WITH DMS 2169 PER DPS 1.950.

ALL DETAIL PARTS (EXCEPT THOSE TO BE ADHESIVE BONDED) SHALL BE CC OR MC COATED PER DPS 9.45 AND FR PRIMED WITH DMS 1786 PER DPS 4.50-36.
SEAL FAYING SURFACES USING DPM 2292-6 (IF ASSEMBLED WITHIN 6 HOURS) OR DPM 2082 (IF ASSEMBLED WITHIN 2 HOURS) PER DPS 2.590-2 (REF. FIG. 4.2.12).
FILL GAP IN SKINS ON -505, -507 AND -509 ASSEMBLIES WITH DMS 1819.
FASTENERS INDICATED THUS:

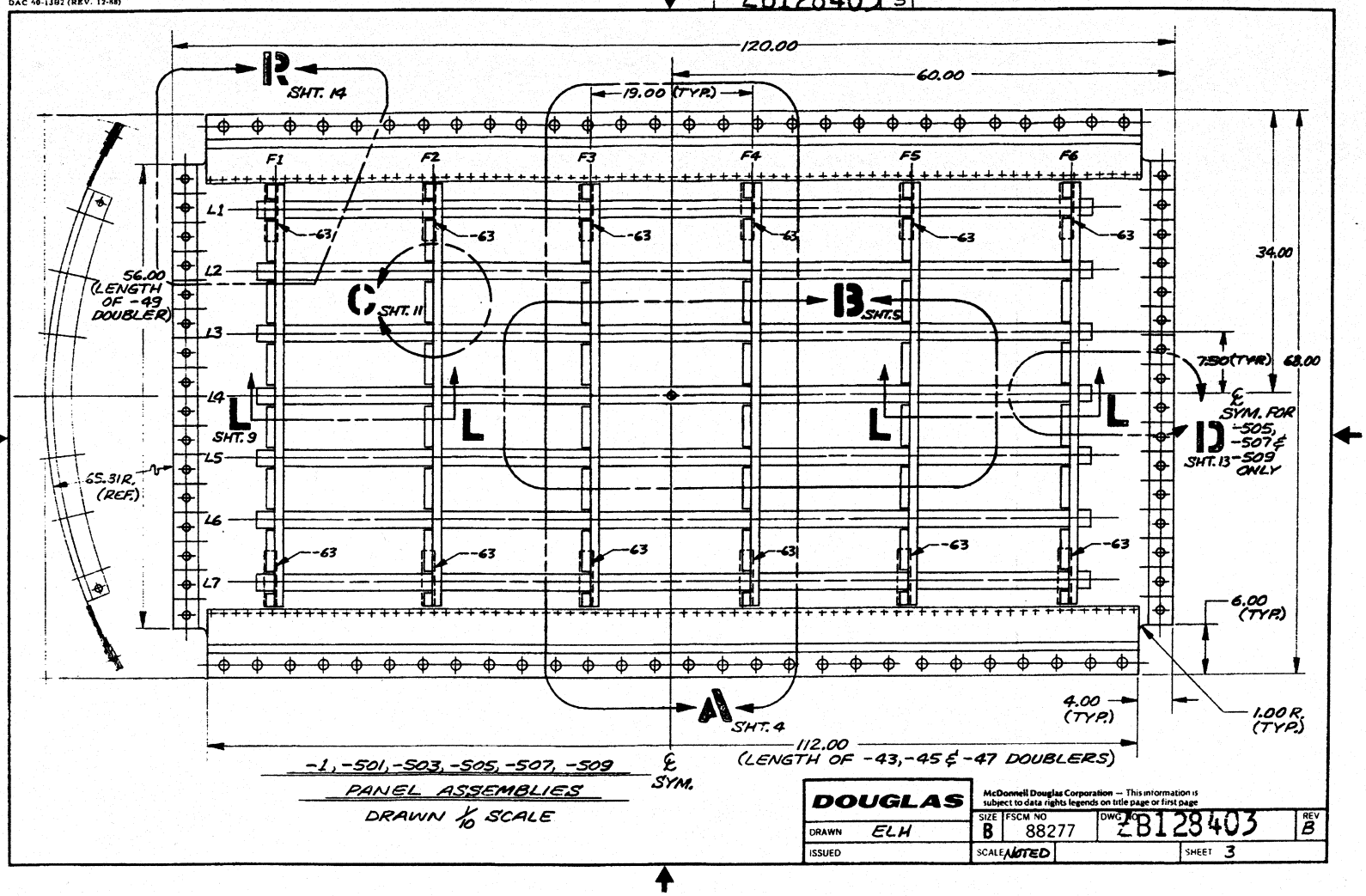
ASS6 — ARE NAS1097KE6 RIVETS

XES6 — ARE S4931919-6 HI-LOK PINS
USE NAS1252-10L WASHERS AND MS21042-3 NUTS.

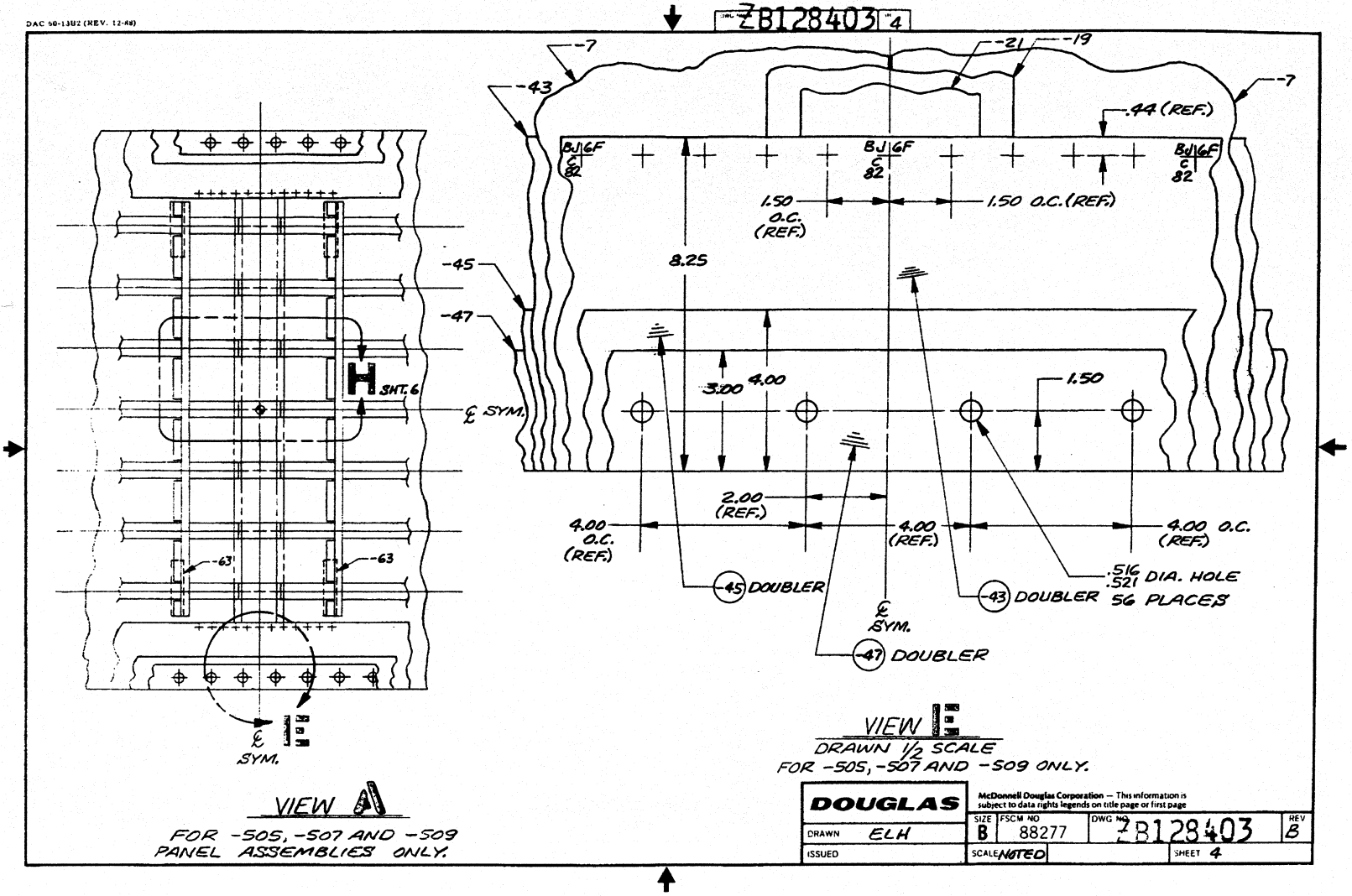
| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO 7B128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 2 | |

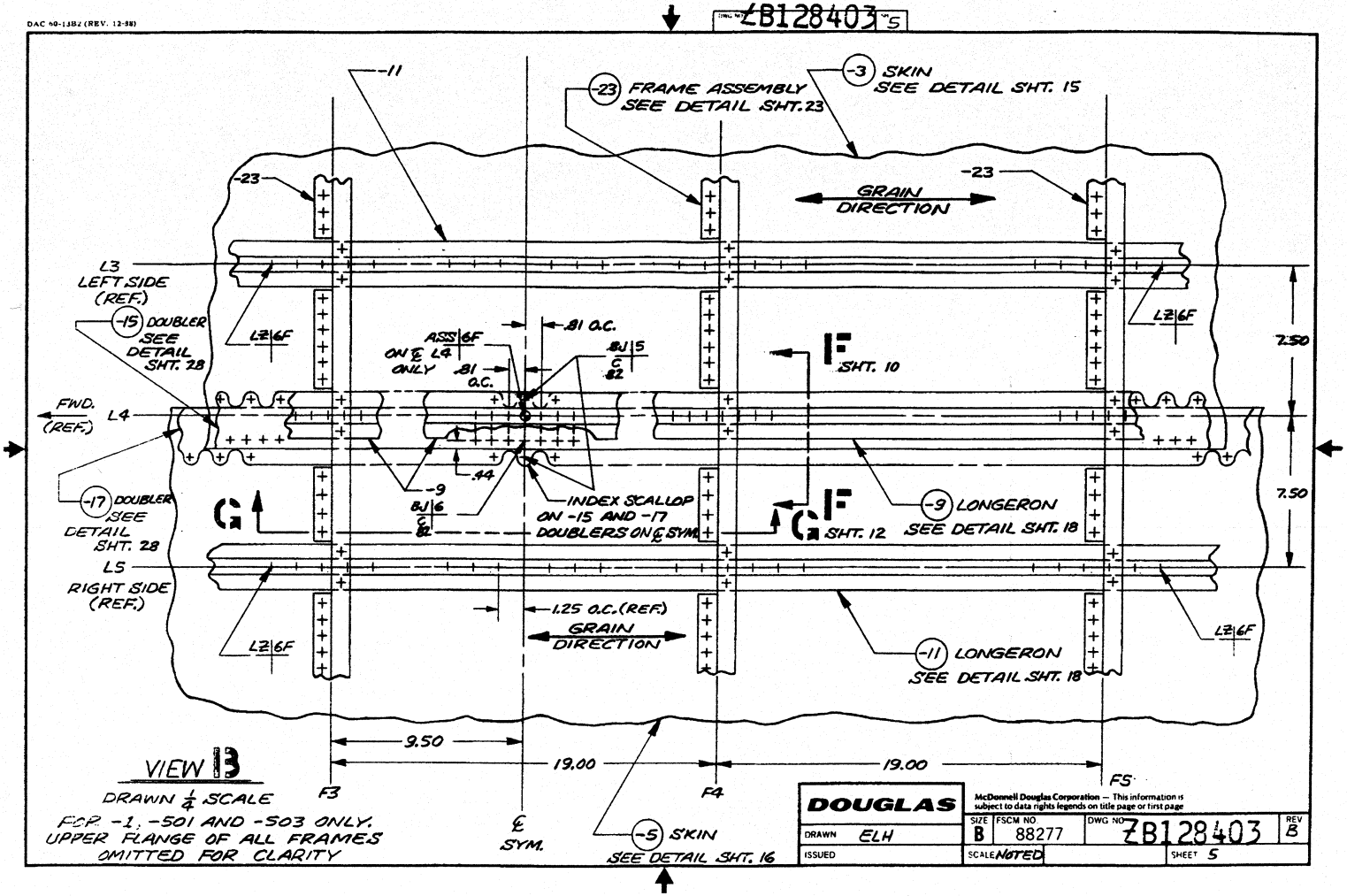
DAC 40-1382 (REV. 12-68)

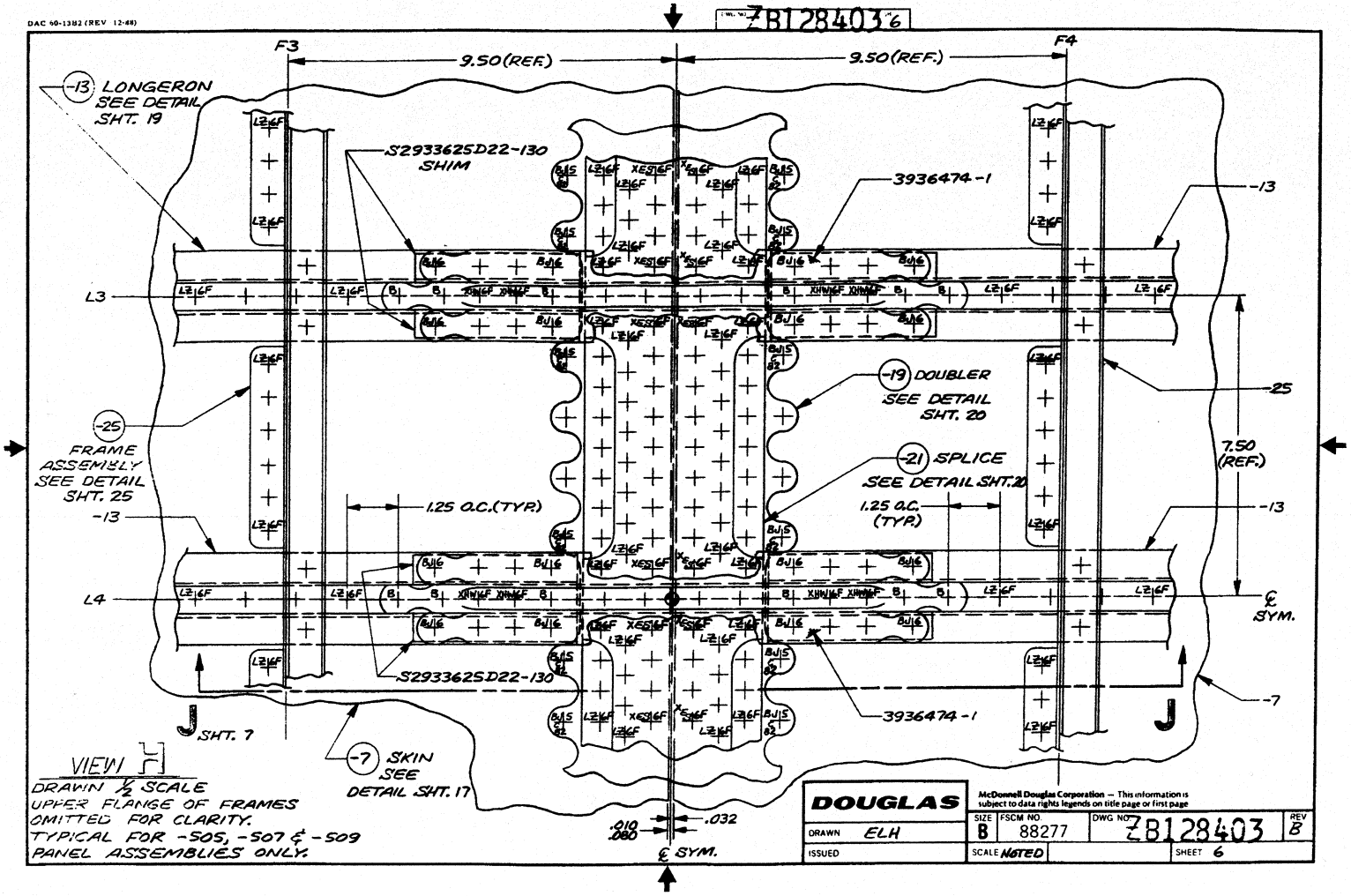
DWG NO. ZB128403 3




| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 3 | |


DAC 60-13U2 (REV. 12-68)
ZB128403 4
-7
-43
-21
-19
-7
.44 (REF.)
BJ/GF ℄ 82
BJ/GF ℄ 82
BJ/GF ℄ 82
1.50 O.C. (REF.)
1.50 O.C. (REF.)
8.25
-45
-47
H SHT. 6
℄ SYM.
3.00
4.00
1.50
2.00 (REF.)
4.00 O.C. (REF.)
4.00 (REF.)
4.00 O.C. (REF.)
-45 DOUBLER
-43 DOUBLER
.516 .521 DIA. HOLE 56 PLACES
℄ SYM.
-47 DOUBLER
-63
-63
℄ SYM.
VIEW E
DRAWN 1/2 SCALE
FOR -505, -507 AND -509 ONLY.
VIEW A
FOR -505, -507 AND -509 PANEL ASSEMBLIES ONLY.
DOUGLAS
McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page
DRAWN ELH
ISSUED
SIZE B
FSCM NO 88277
DWG NO ZB128403
REV B
SCALE NOTED
SHEET 4


DAC 60-1382 (REV. 12-88)
ZB128403 S
-11
-23 FRAME ASSEMBLY SEE DETAIL SHT. 23
-3 SKIN SEE DETAIL SHT. 15
-23
-23
GRAIN DIRECTION
L3 LEFT SIDE (REF.)
-15 DOUBLER SEE DETAIL SHT. 28
LZ 6F
LZ 6F
ASS 6F ON ℄ L4 ONLY
.81 O.C.
.81 O.C.
8J 5 ℄ 82
F SHT. 10
7.50
FWD. (REF.)
L4
.44
-9
8J 6 ℄ 82
INDEX SCALLOP ON -15 AND -17 DOUBLERS ON ℄ SYM.
-17 DOUBLER SEE DETAIL SHT. 28
G
F
G SHT. 12
-9 LONGERON SEE DETAIL SHT. 18
7.50
L5 RIGHT SIDE (REF.)
1.25 O.C. (REF.)
GRAIN DIRECTION
LZ 6F
LZ 6F
-11 LONGERON SEE DETAIL SHT. 18
9.50
19.00
19.00
F3
F4
F5
VIEW B
DRAWN 1/4 SCALE
FOR -1, -501 AND -503 ONLY. UPPER FLANGE OF ALL FRAMES OMITTED FOR CLARITY
℄ SYM.
-5 SKIN SEE DETAIL SHT. 16
DOUGLAS
McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page
DRAWN ELH
ISSUED
SIZE B
FSCM NO 88277
DWG NO ZB128403
REV B
SCALE NOTED
SHEET 5


DAC 60-1382 (REV 12-68)
2B128403 6
F3
F4
9.50(REF.)
9.50(REF.)
-13 LONGERON SEE DETAIL SHT. 19
S293625D22-130 SHIM
3936474-1
-13
L3
-19 DOUBLER SEE DETAIL SHT. 20
-25
-25 FRAME ASSEMBLY SEE DETAIL SHT. 25
-21 SPLICE SEE DETAIL SHT. 20
1.25 O.C.(TYP.)
1.25 O.C. (TYP.)
7.50 (REF.)
-13
L4
℄ SYM.
S293625D22-130
3936474-1
-7
J
SHT. 7
-7 SKIN SEE DETAIL SHT. 17
VIEW H
DRAWN ½ SCALE
UPPER FLANGE OF FRAMES OMITTED FOR CLARITY.
TYPICAL FOR -505, -507 & -509 PANEL ASSEMBLIES ONLY.
.010 .080
.032
℄ SYM.
DOUGLAS
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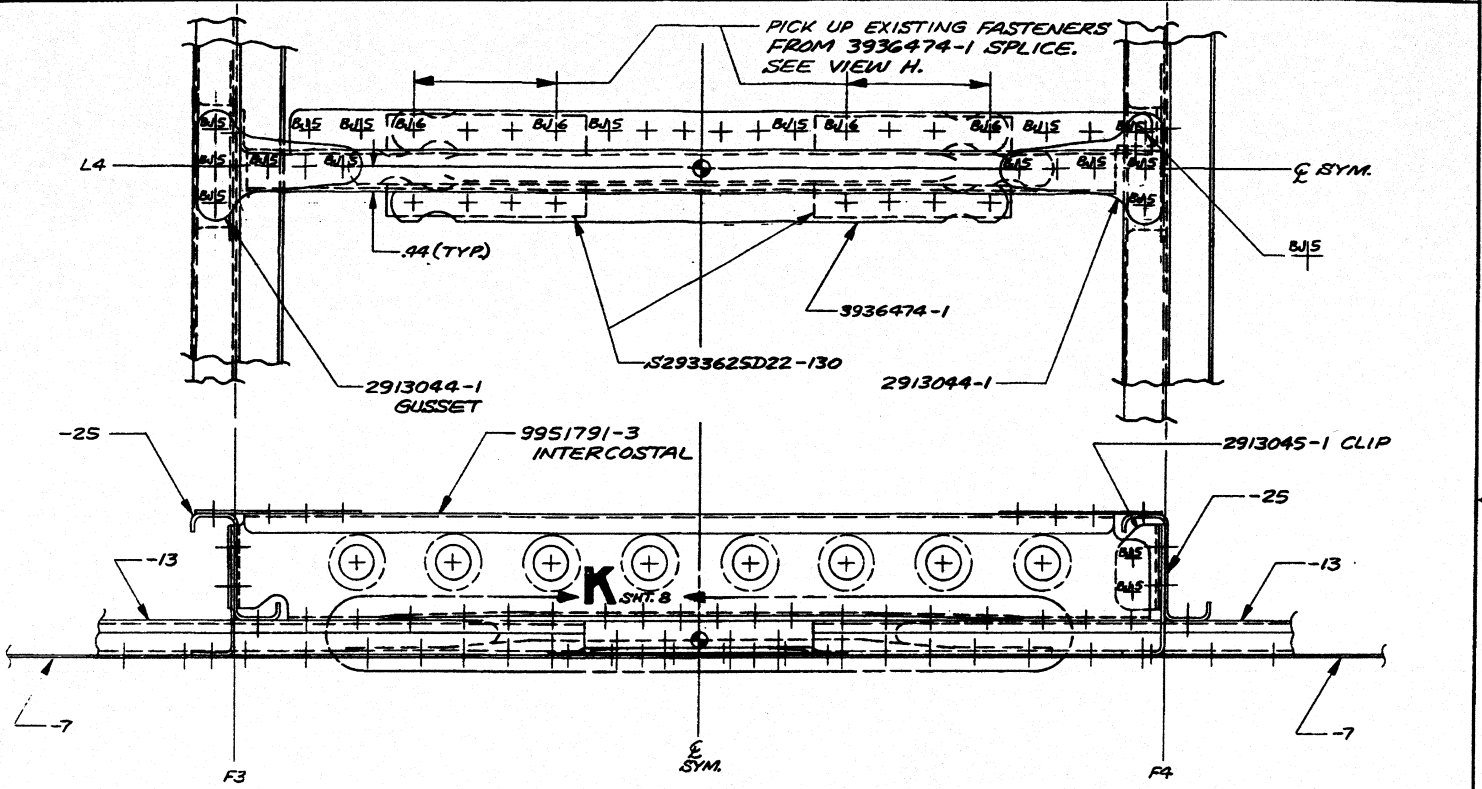
DRAWN ELH
ISSUED
SIZE B
FSCM NO 88277
DWG NO 2B128403
REV B
SCALE NOTED
SHEET 6

DAC 00-13H2 (REV. 12-88)

ZB128403 7



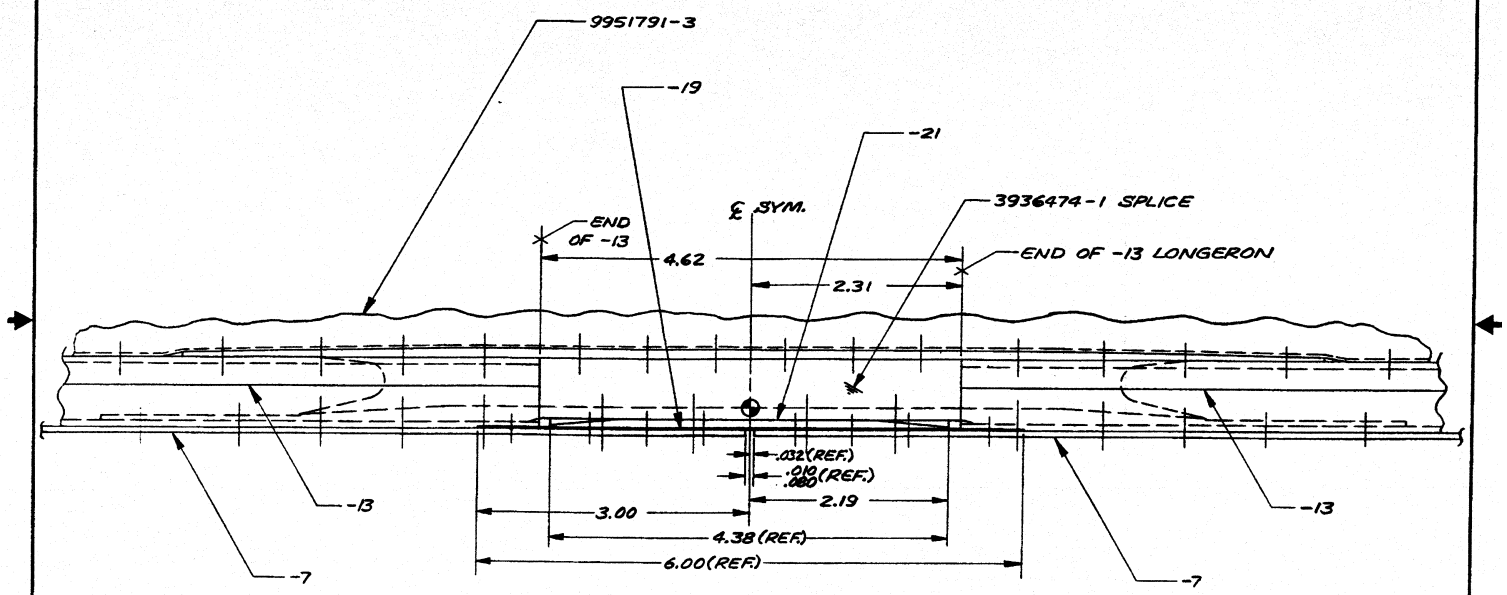

## VIEW J - J

DRAWN ½ SCALE
TYPICAL FOR -505, -507 & -509 PANEL ASSEMBLIES ONLY.

| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO. 88277 | DWG NO. ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 7 | |

DAC 60-1382 (REV. 12-88)

DWG ZB128403 SH 8



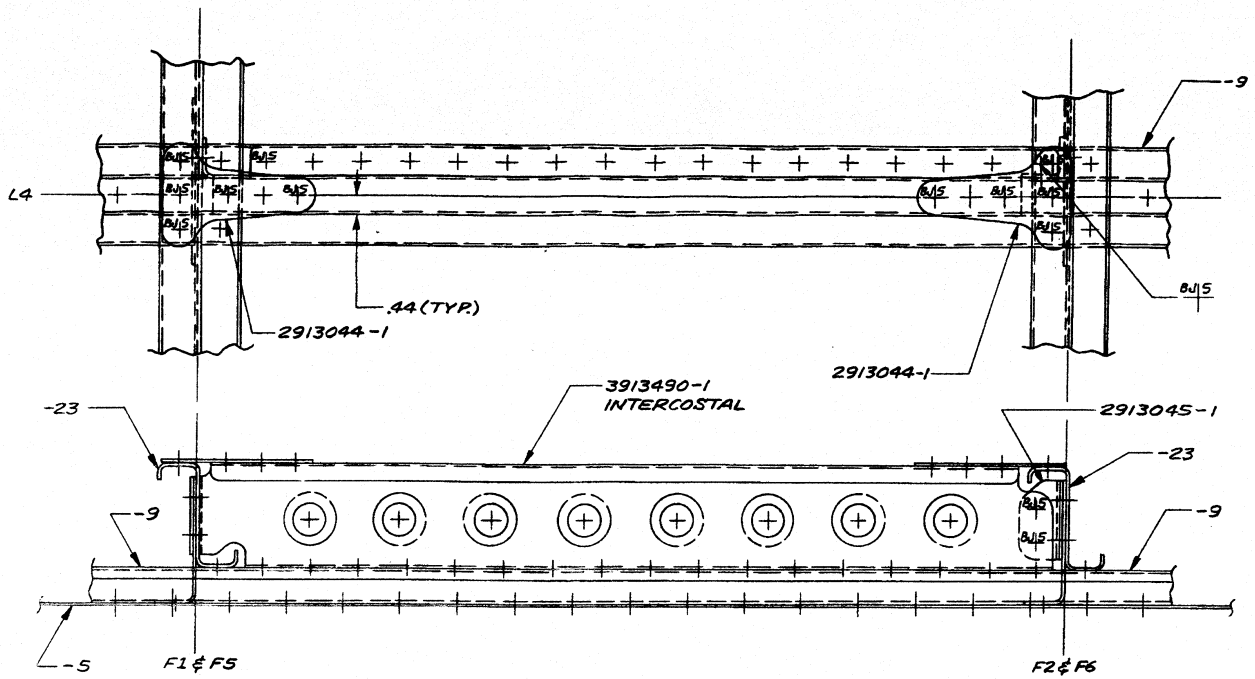

VIEW K

DRAWN FULL SCALE

| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
|---|---|---|---|---|
| DRAWN ELH | SIZE B | FSCM NO. 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 8 | |

DAC 60-1382 (REV. 12-88)

ZB128403 9



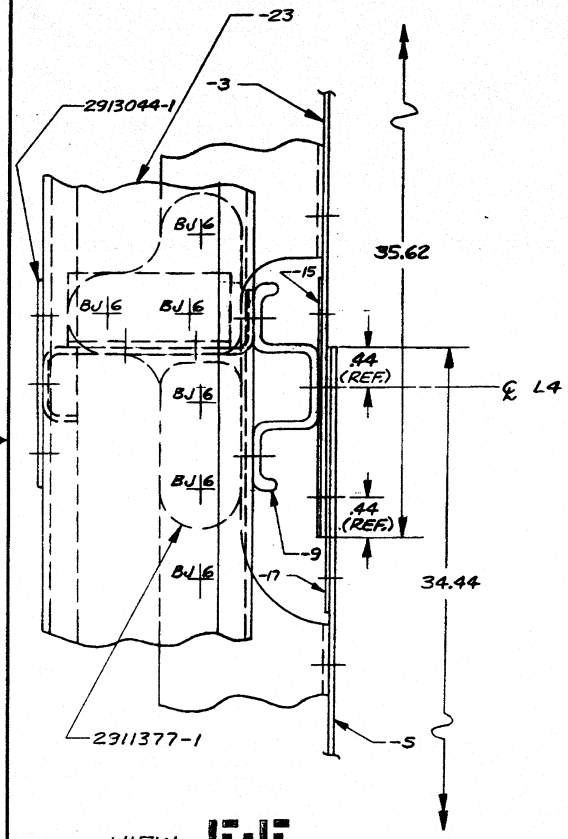

VIEW L-L

DRAWN ½ SCALE
TYPICAL FOR -1, -501, -503, -505, -507 & -509
PANEL ASSEMBLIES.

| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
|---|---|---|---|---|
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE | | SHEET 9 | |

DAC 60-13B2 (REV. 12-88)

DWG NO ZB128403 SH 10

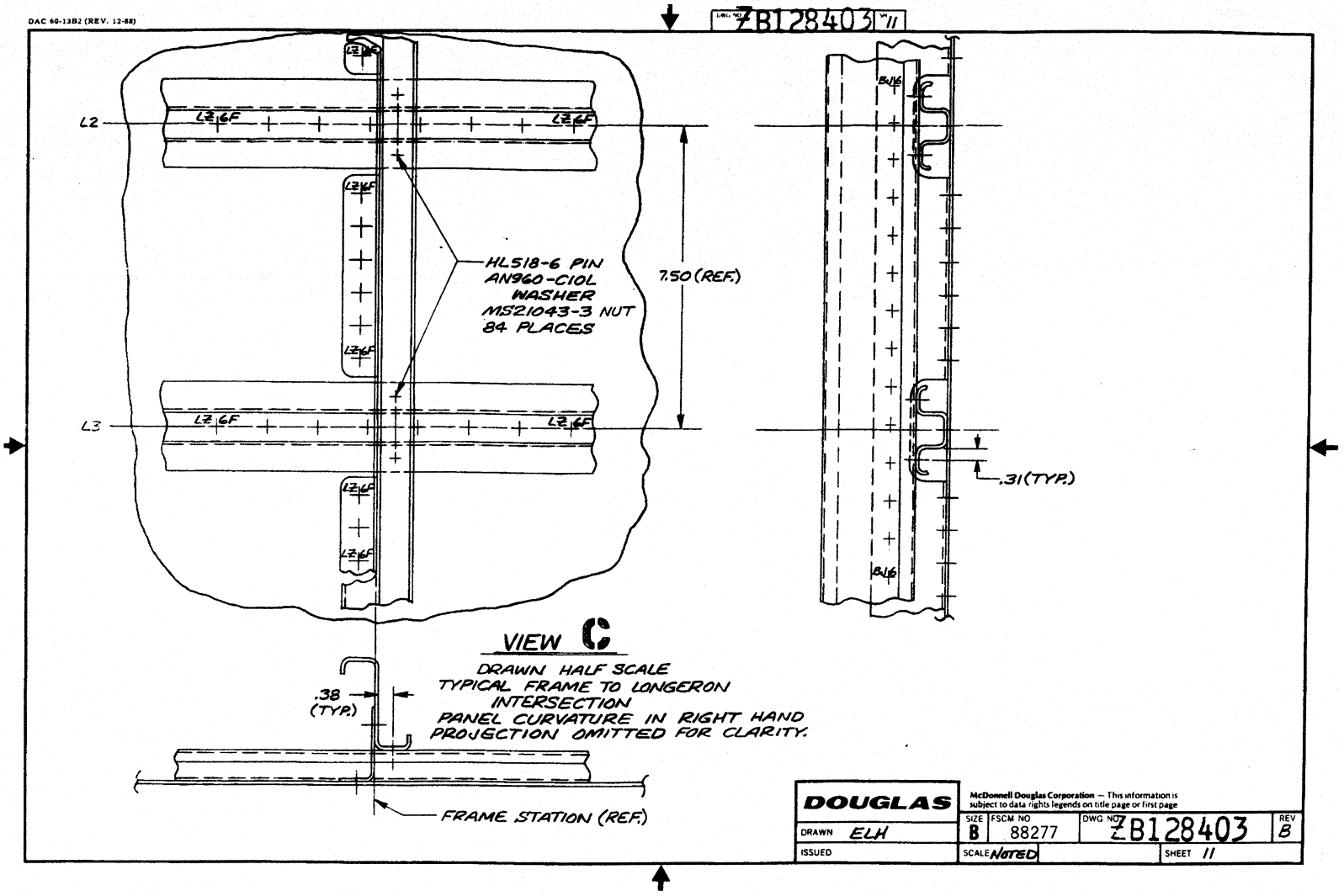



VIEW F-F

DRAWN FULL SCALE

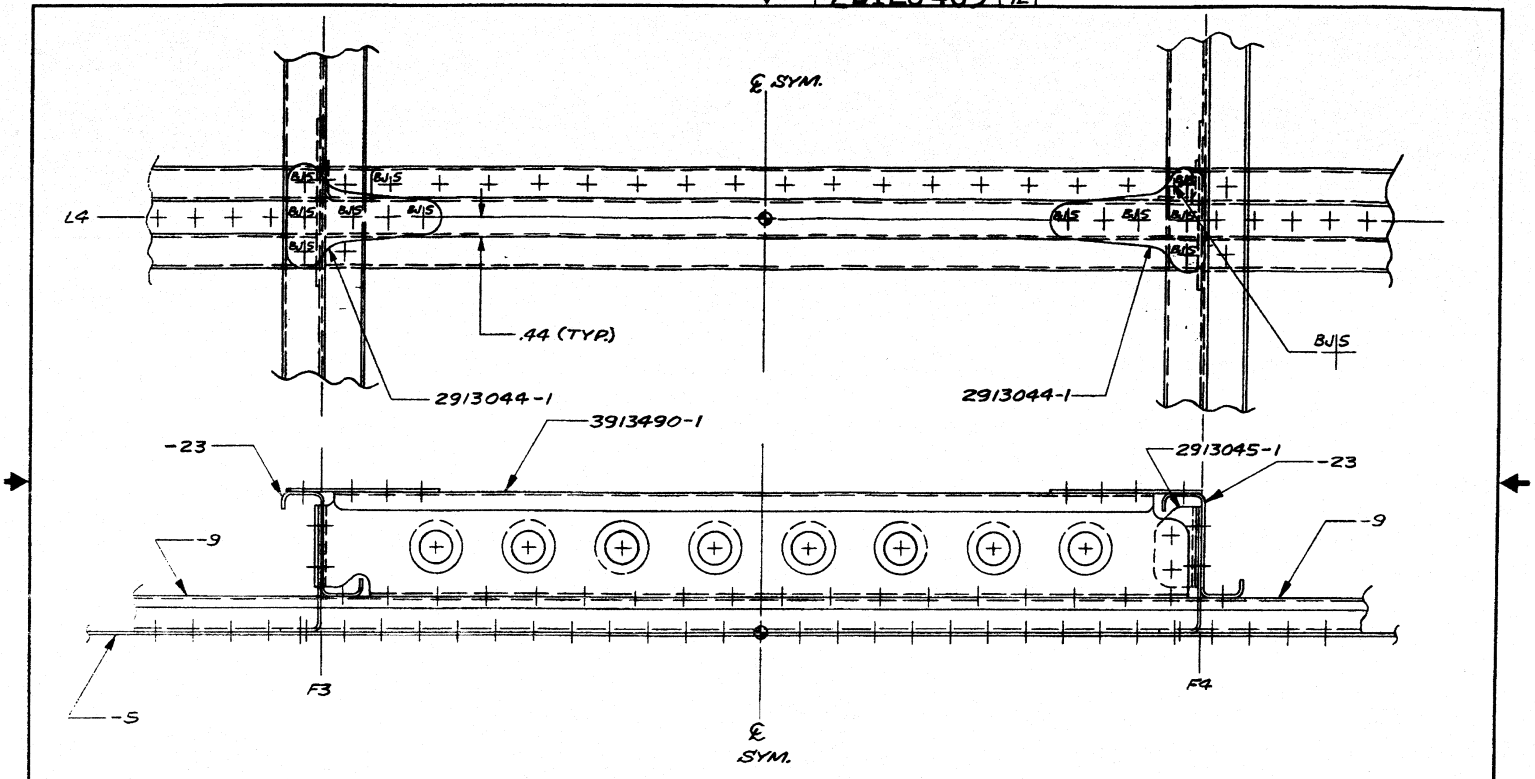
PANEL CURVATURE OMITTED FOR CLARITY

| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 10 | |


DAC 60-13B2 (REV. 12-88)
ZB128403 11
L2
L3
LZ.6F
HL518-6 PIN
AN960-C10L
WASHER
MS21043-3 NUT
84 PLACES
7.50 (REF.)
B.16
.31 (TYP.)
VIEW C
DRAWN HALF SCALE
TYPICAL FRAME TO LONGERON
INTERSECTION
PANEL CURVATURE IN RIGHT HAND
PROJECTION OMITTED FOR CLARITY.
.38
(TYP.)
FRAME STATION (REF.)
DOUGLAS
McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page
DRAWN ELH
ISSUED
SIZE B
FSCM NO 88277
DWG NO ZB128403
REV B
SCALE NOTED
SHEET 11

DAC 80-1382 (REV. 12-88)

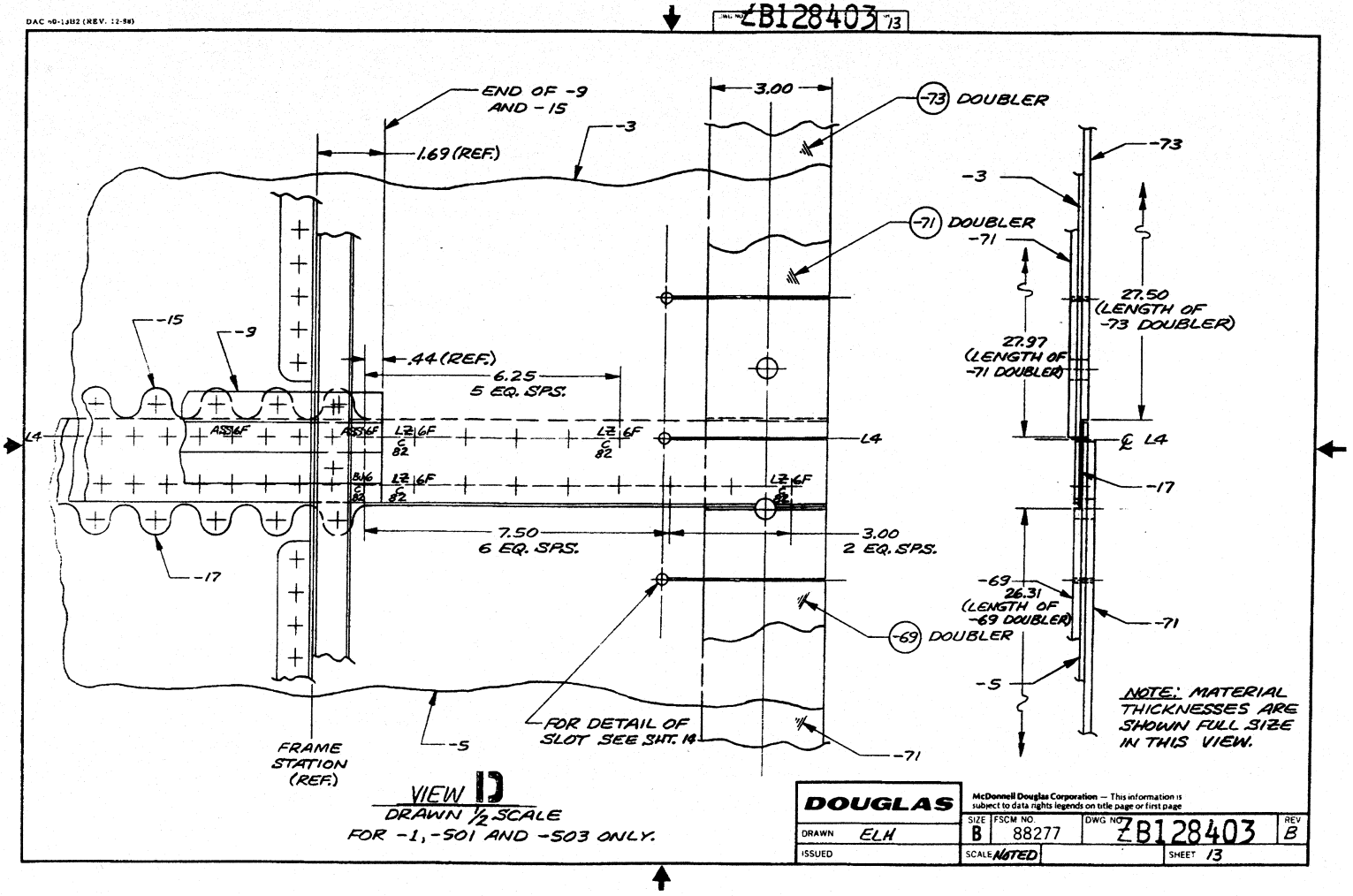
ZB128403 12




VIEW G-G

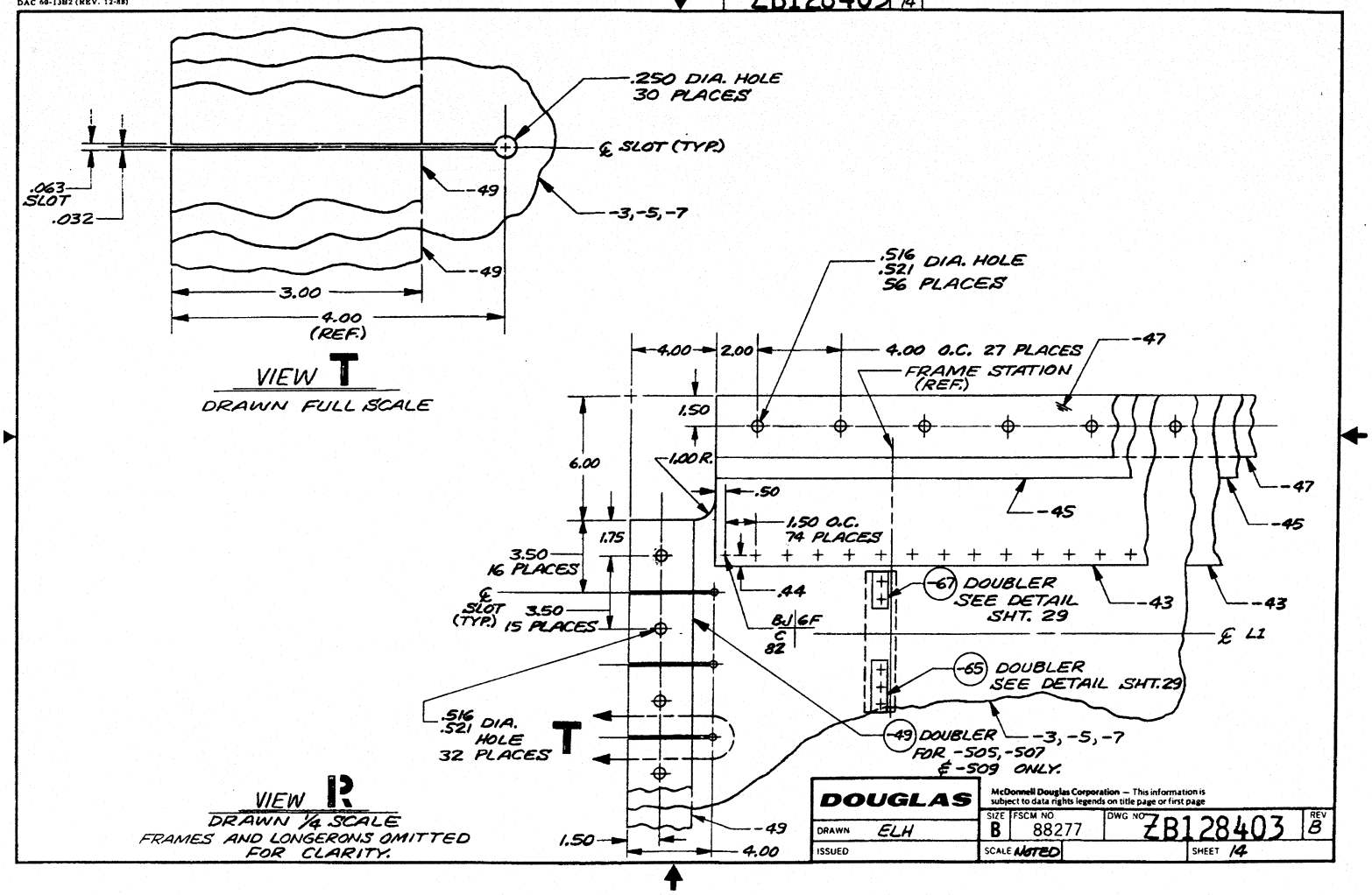
DRAWN ½ SCALE
FOR -1, -501 AND -503
PANEL ASSEMBLIES ONLY.

| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO. 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 12 | |


ZB128403
END OF -9 AND -15
1.69 (REF.)
-3
3.00
-73 DOUBLER
-71 DOUBLER
-15
-9
.44 (REF.)
6.25
5 EQ. SPS.
L4
7.50
6 EQ. SPS.
3.00
2 EQ. SPS.
-17
-5
-69 DOUBLER
FOR DETAIL OF SLOT SEE SHT. 14
-71
FRAME STATION (REF.)
27.50 (LENGTH OF -73 DOUBLER)
27.97 (LENGTH OF -71 DOUBLER)
26.31 (LENGTH OF -69 DOUBLER)
NOTE: MATERIAL THICKNESSES ARE SHOWN FULL SIZE IN THIS VIEW.
VIEW D
DRAWN 1/2 SCALE
FOR -1, -501 AND -503 ONLY.
DOUGLAS
McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page
DRAWN ELH
ISSUED
SIZE B
FSCM NO. 88277
DWG NO. ZB128403
REV B
SCALE NOTED
SHEET 13

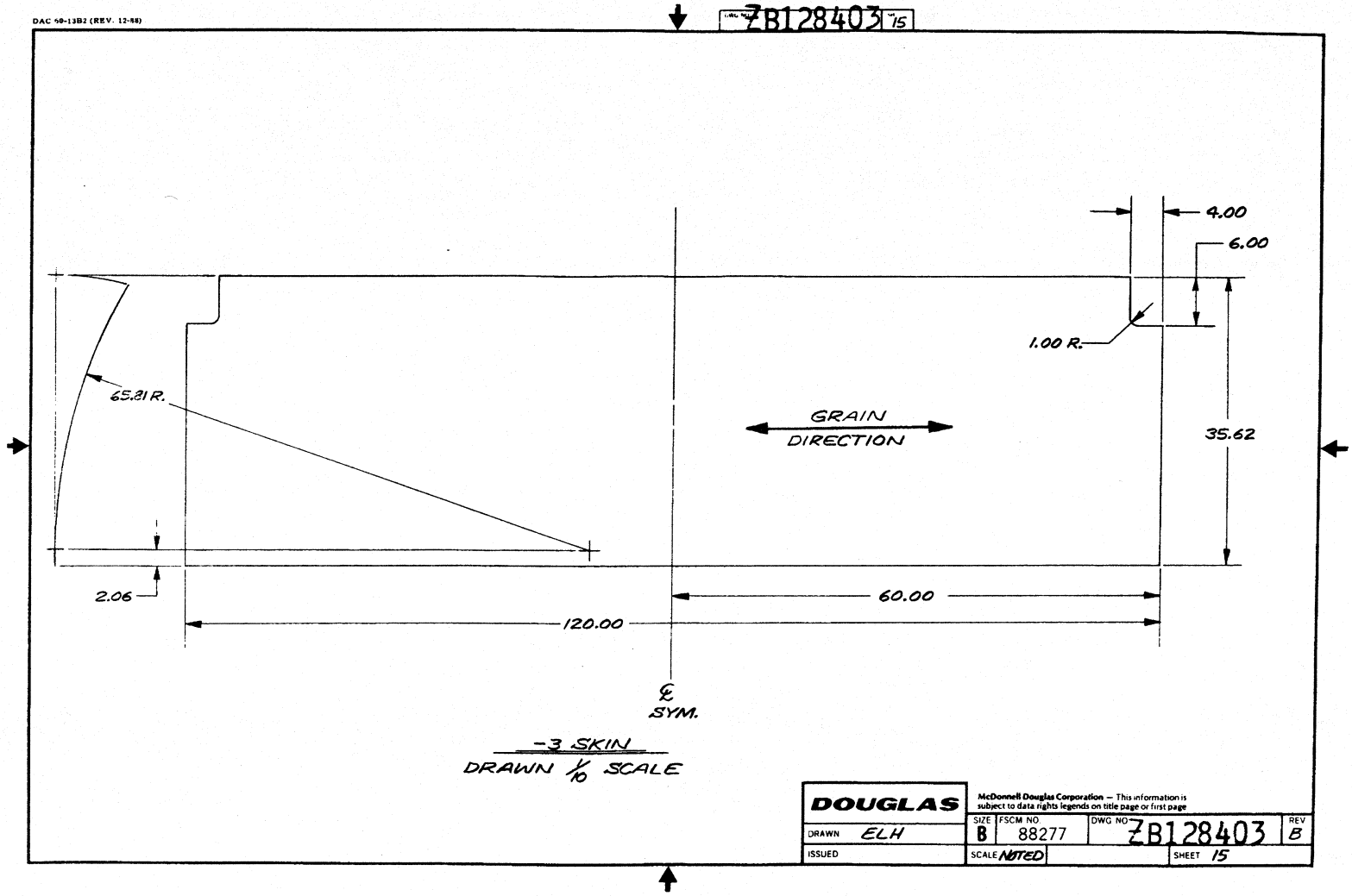
DAC 60-13B2 (REV. 12-88)

ZB128403 14




| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 14 | |

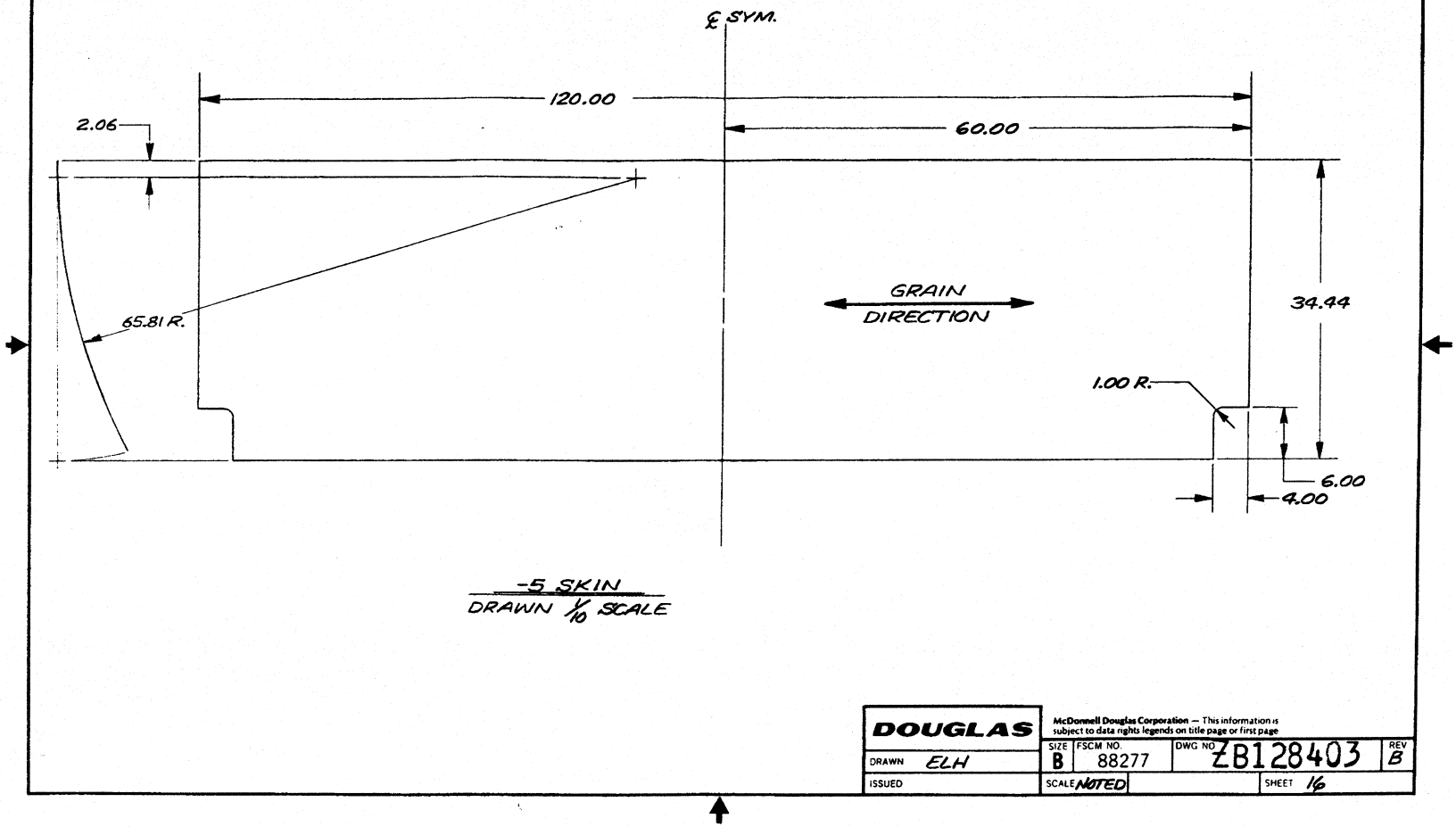
DAC 50-13B2 (REV. 12-88)




| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO. 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 15 | |

DAC 60-1382 (REV. 12-88)

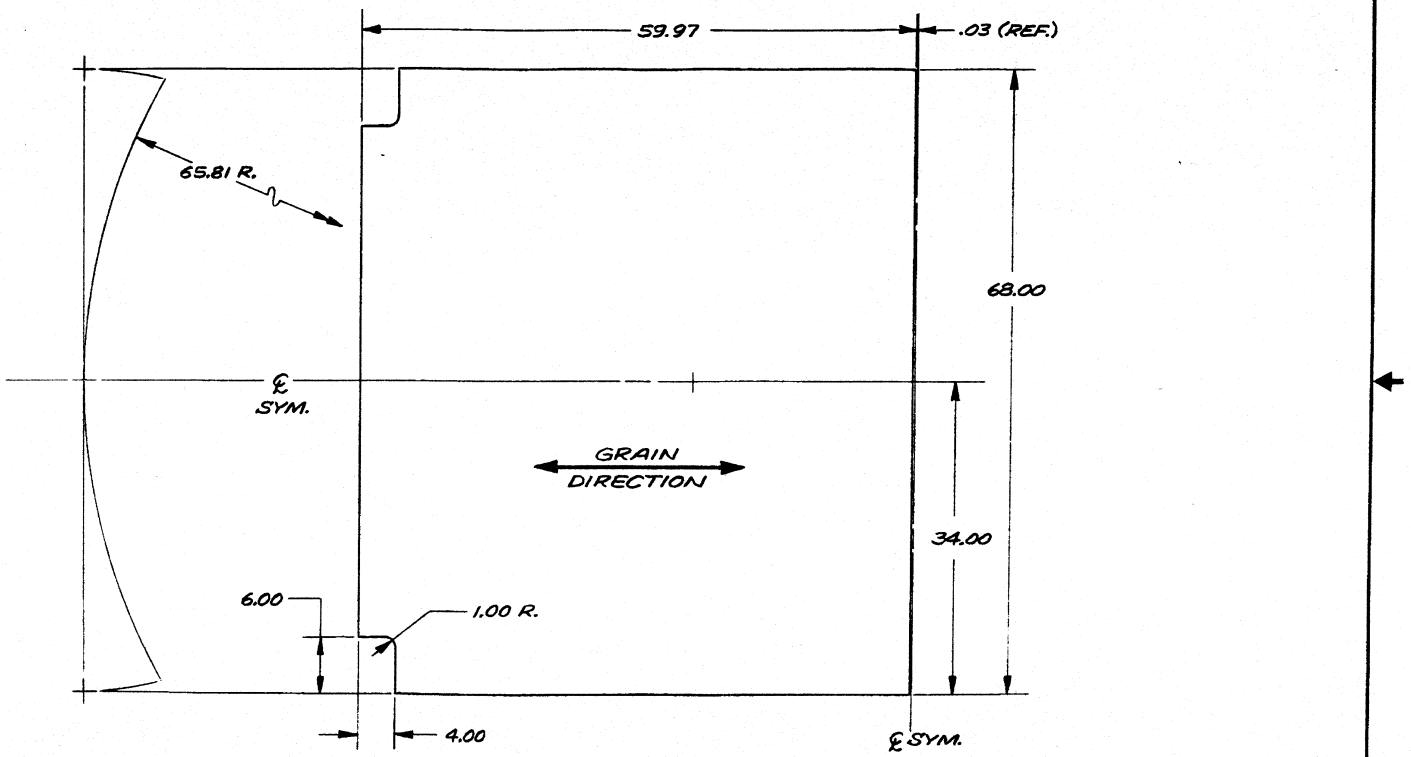
ZB128403 16




| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO. 88277 | DWG NO. ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 16 | |

DAC 60-13B2 (REV. 12-68)

ZB128403 17

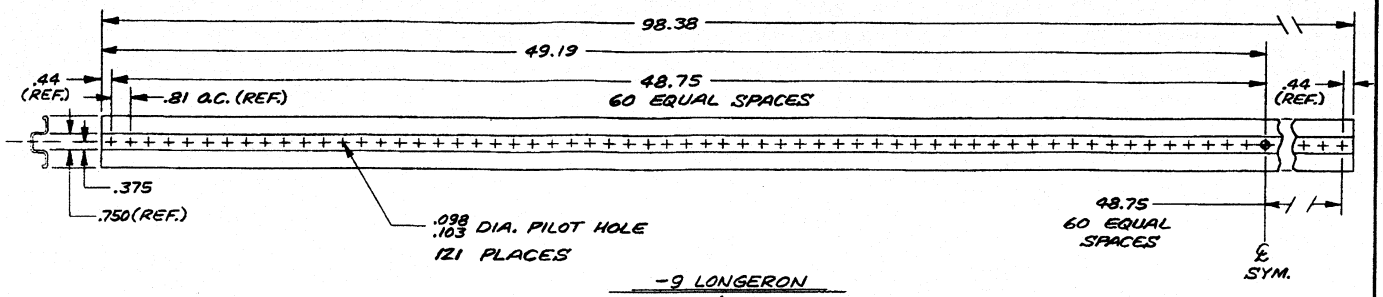



-7 SKIN
DRAWN 1/10 SCALE

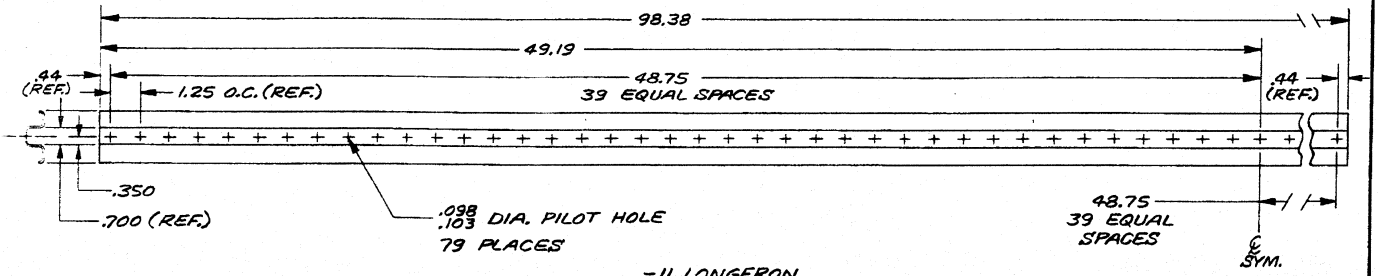
| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 17 | |

DAC 90-1382 (REV. 12-88)

ZB128403 18




-9 LONGERON
DRAWN 1/4 SCALE

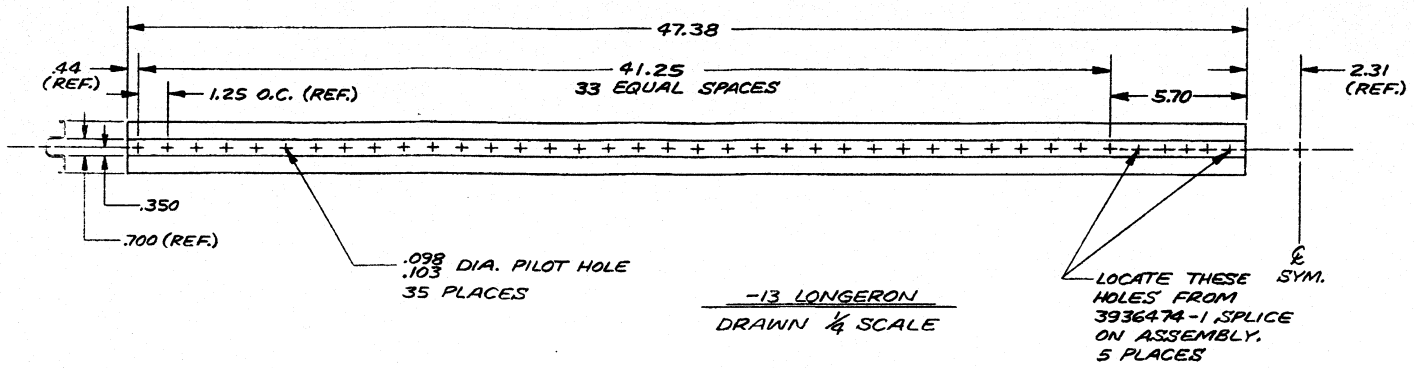



-11 LONGERON
DRAWN 1/4 SCALE

| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
|---|---|---|---|---|
| DRAWN ELH | SIZE B | FSCM NO. 88277 | DWG NO. ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 18 | |

DAC 60-1382 (REV. 12-68)

ZB128403 SH 19



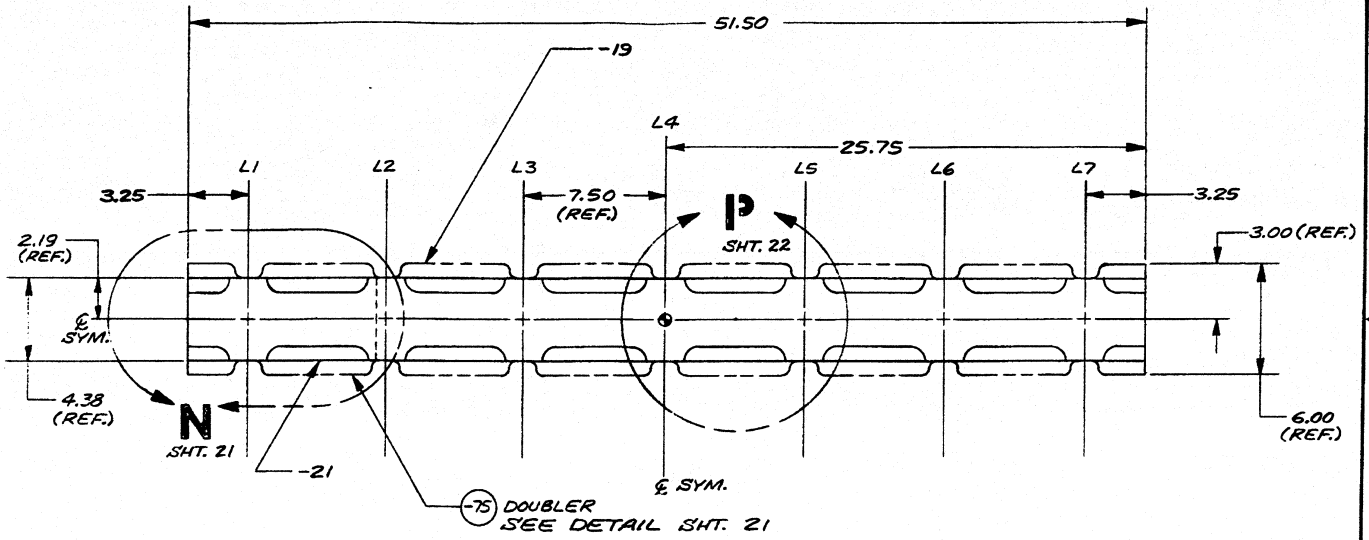

-13 LONGERON

DRAWN 1/4 SCALE

| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 19 | |

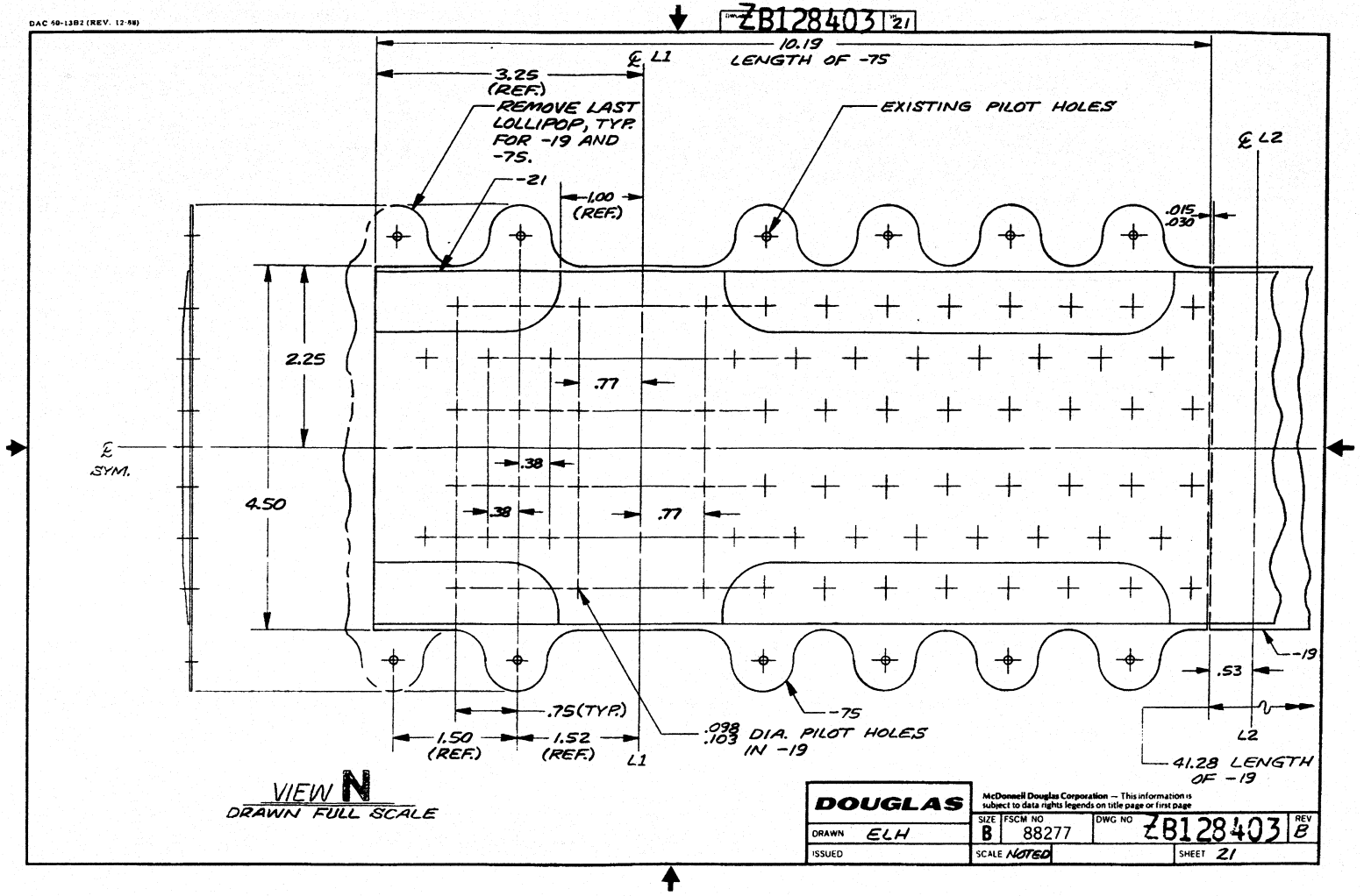
DAC 60-LJB2 (REV. 12-88)

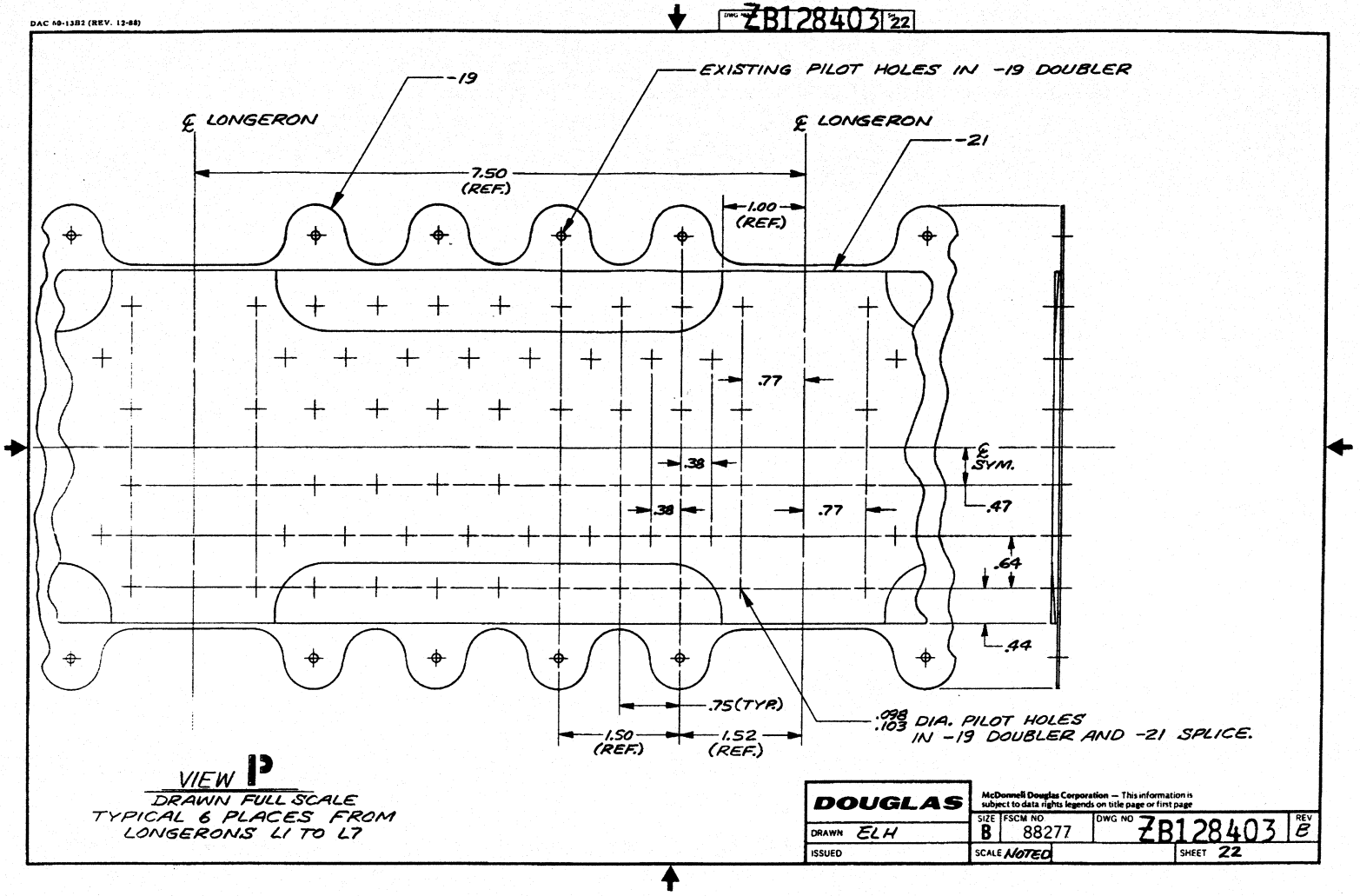
ZB128403 20




-19 & -75 DOUBLER AND -21 SPLICE
DRAWN ½ SCALE

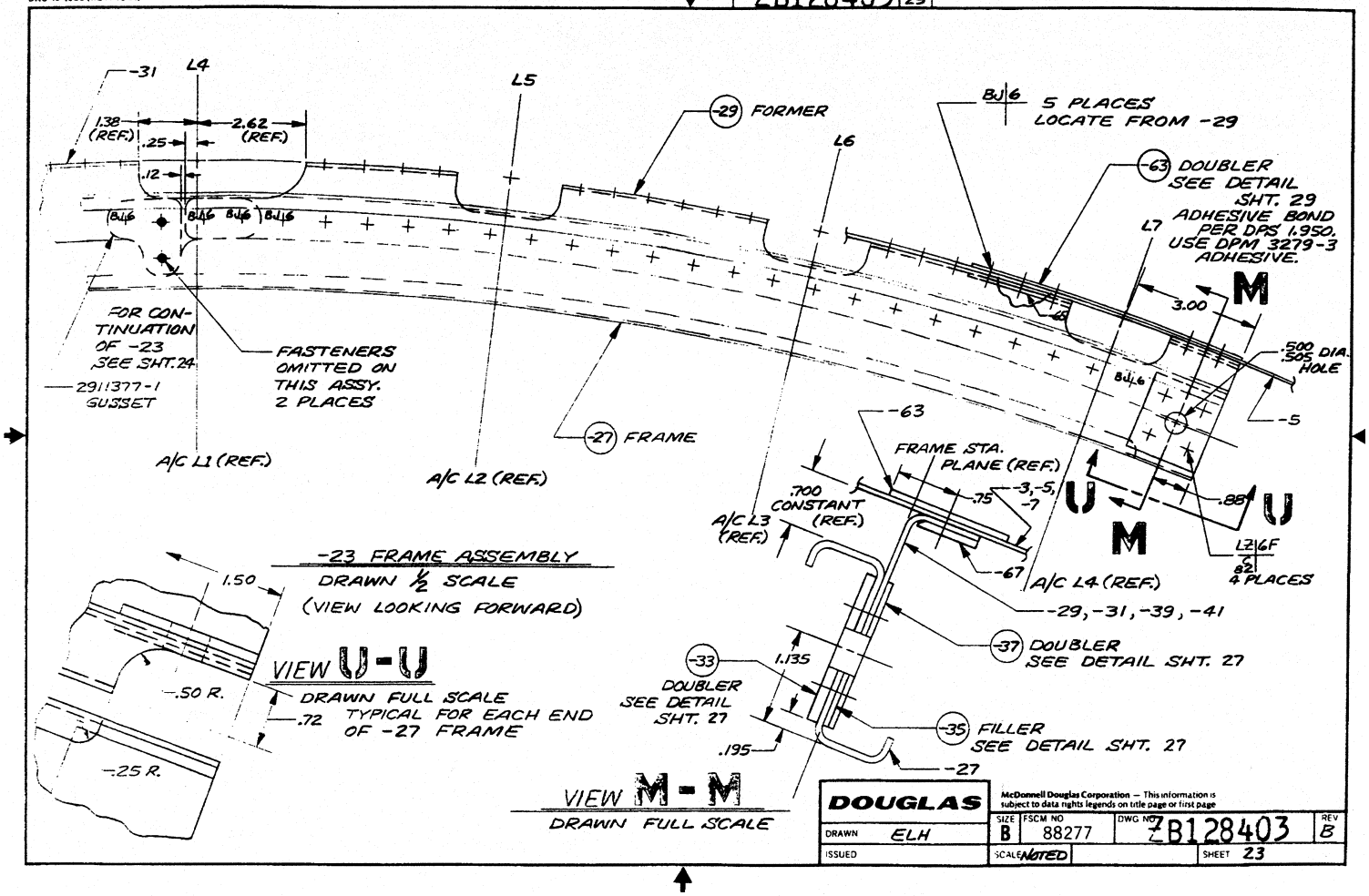
| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 20 | |


DAC 60-13B2 (REV. 12-88)
ZB128403 21
10.19
LENGTH OF -75
℄ L1
3.25
(REF.)
REMOVE LAST LOLLIPOP, TYP. FOR -19 AND -75.
-21
1.00
(REF.)
EXISTING PILOT HOLES
℄ L2
.015
.030
2.25
.77
℄
SYM.
.38
.38
.77
4.50
-19
.53
-75
.75(TYP.)
1.50
(REF.)
1.52
(REF.)
.098
.103
DIA. PILOT HOLES IN -19
L1
L2
41.28 LENGTH OF -19
VIEW N
DRAWN FULL SCALE
DOUGLAS
McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page
DRAWN ELH
ISSUED
SIZE B
FSCM NO 88277
DWG NO ZB128403
REV B
SCALE NOTED
SHEET 21


DAC 40-1382 (REV. 12-88)
DWG NO ZB128403 SH 22
-19
EXISTING PILOT HOLES IN -19 DOUBLER
℄ LONGERON
℄ LONGERON
-21
7.50 (REF.)
1.00 (REF.)
.77
.38
.38
.77
℄ SYM.
.47
.64
.44
.75(TYP.)
1.50 (REF.)
1.52 (REF.)
.098 .103 DIA. PILOT HOLES IN -19 DOUBLER AND -21 SPLICE.
VIEW P
DRAWN FULL SCALE
TYPICAL 6 PLACES FROM LONGERONS L1 TO L7
DOUGLAS
McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page
DRAWN ELH
ISSUED
SIZE B
FSCM NO 88277
DWG NO ZB128403
REV B
SCALE NOTED
SHEET 22

DAC 98-1382 (REV. 12-88)

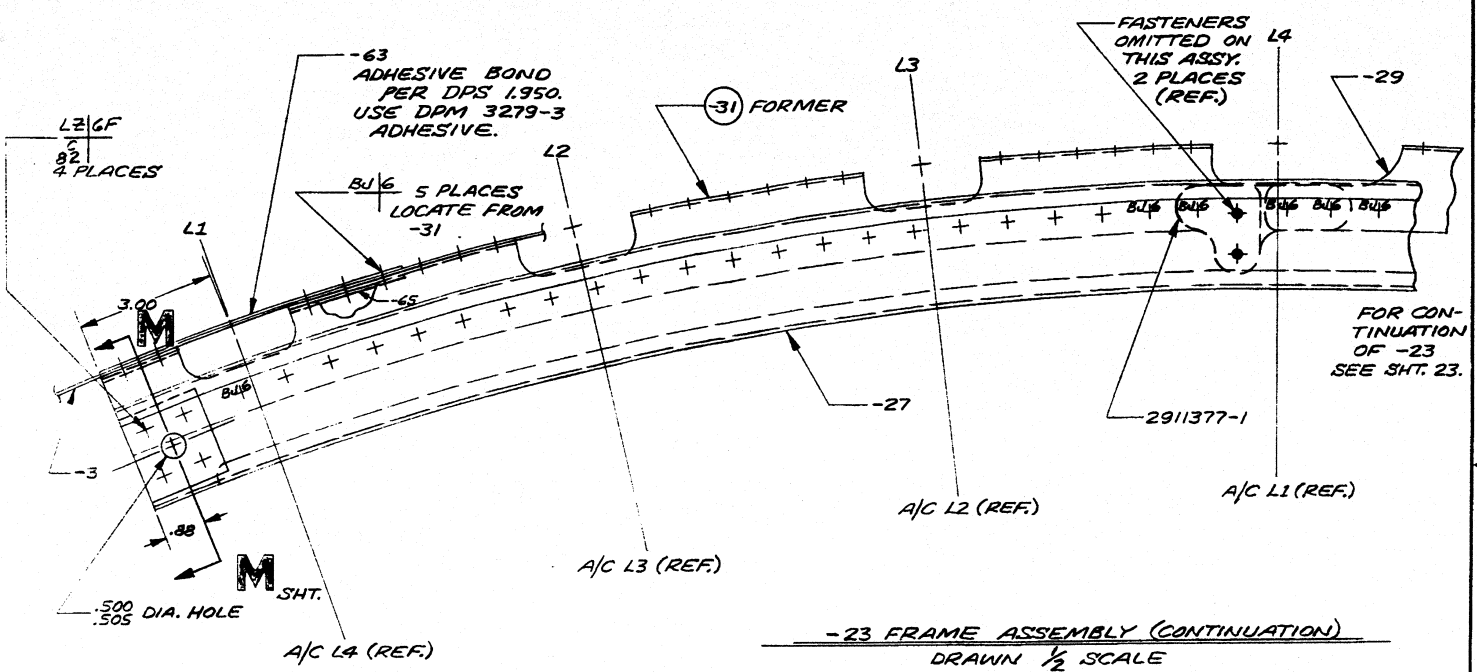
ZB128403 23




| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 23 | |

DAC 60-1382 (REV. 12-68)

ZB128403 24




-23 FRAME ASSEMBLY (CONTINUATION)

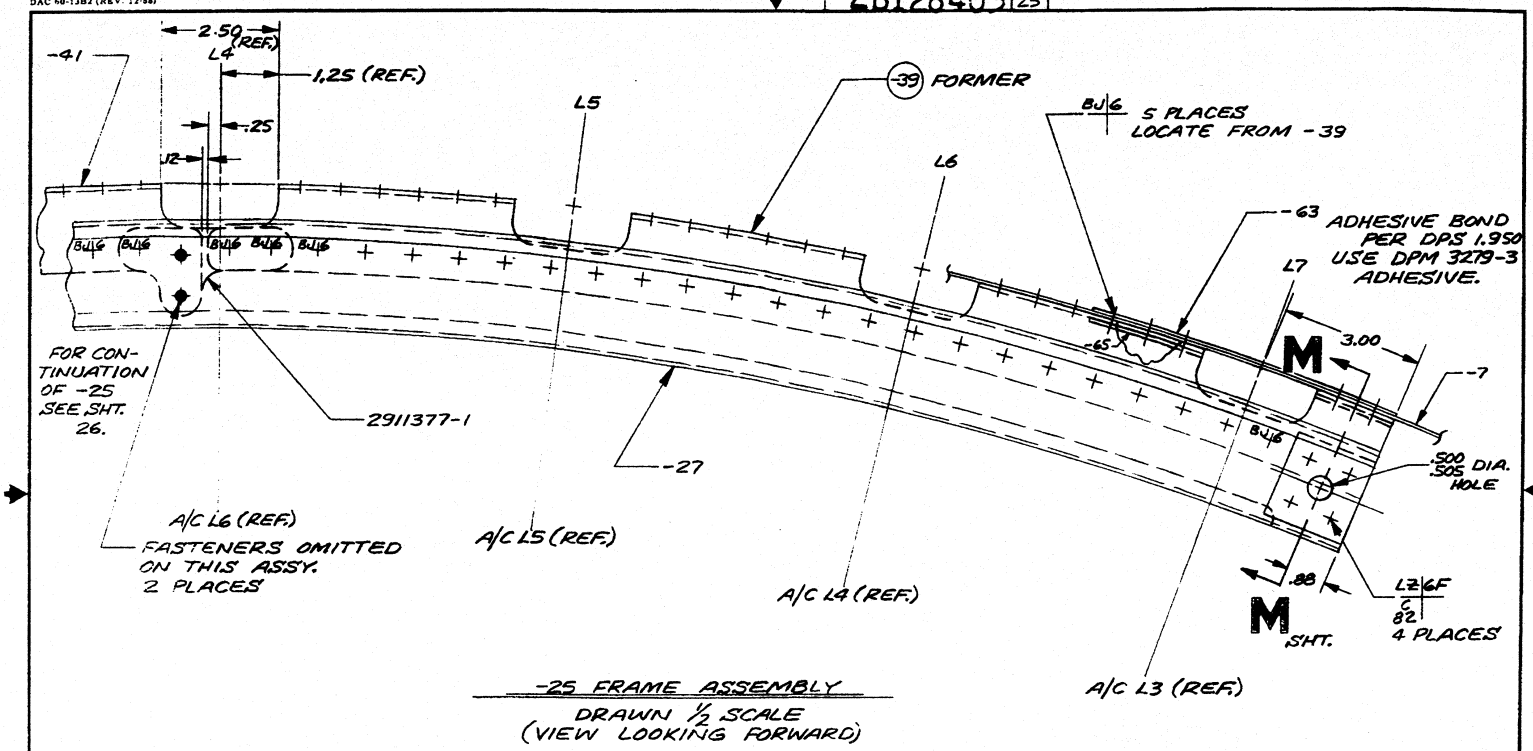
DRAWN 1/2 SCALE

(VIEW LOOKING FORWARD)

| DOUGLAS | McDonnell Douglas Corporation -- This information is subject to data rights legends on title page or first page | | | |
|---|---|---|---|---|
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 24 | |

DAC 60-1382 (REV. 12-88)

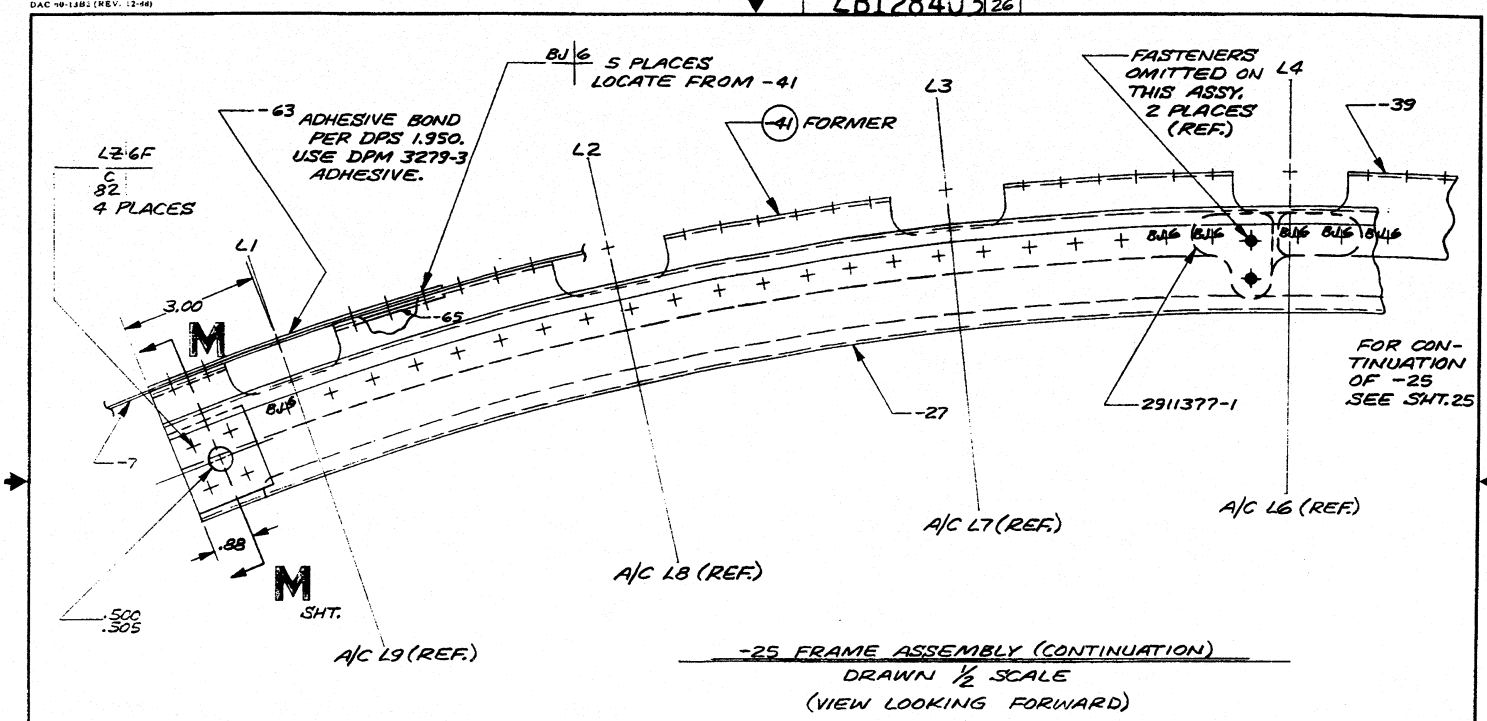
ZB128403 SH 25




-25 FRAME ASSEMBLY

DRAWN ½ SCALE
(VIEW LOOKING FORWARD)

| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 25 | |

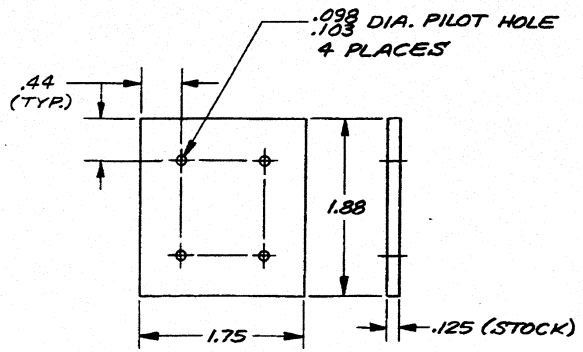



-25 FRAME ASSEMBLY (CONTINUATION)
DRAWN 1/2 SCALE
(VIEW LOOKING FORWARD)

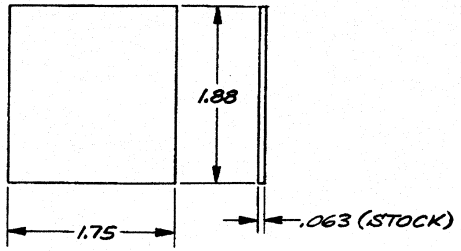
| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 26 | |

DAC 60-1382 (REV. 12-88)

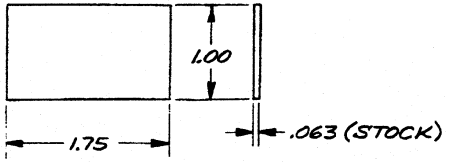
ZB128403 27




-33 DOUBLER
DRAWN FULL SCALE

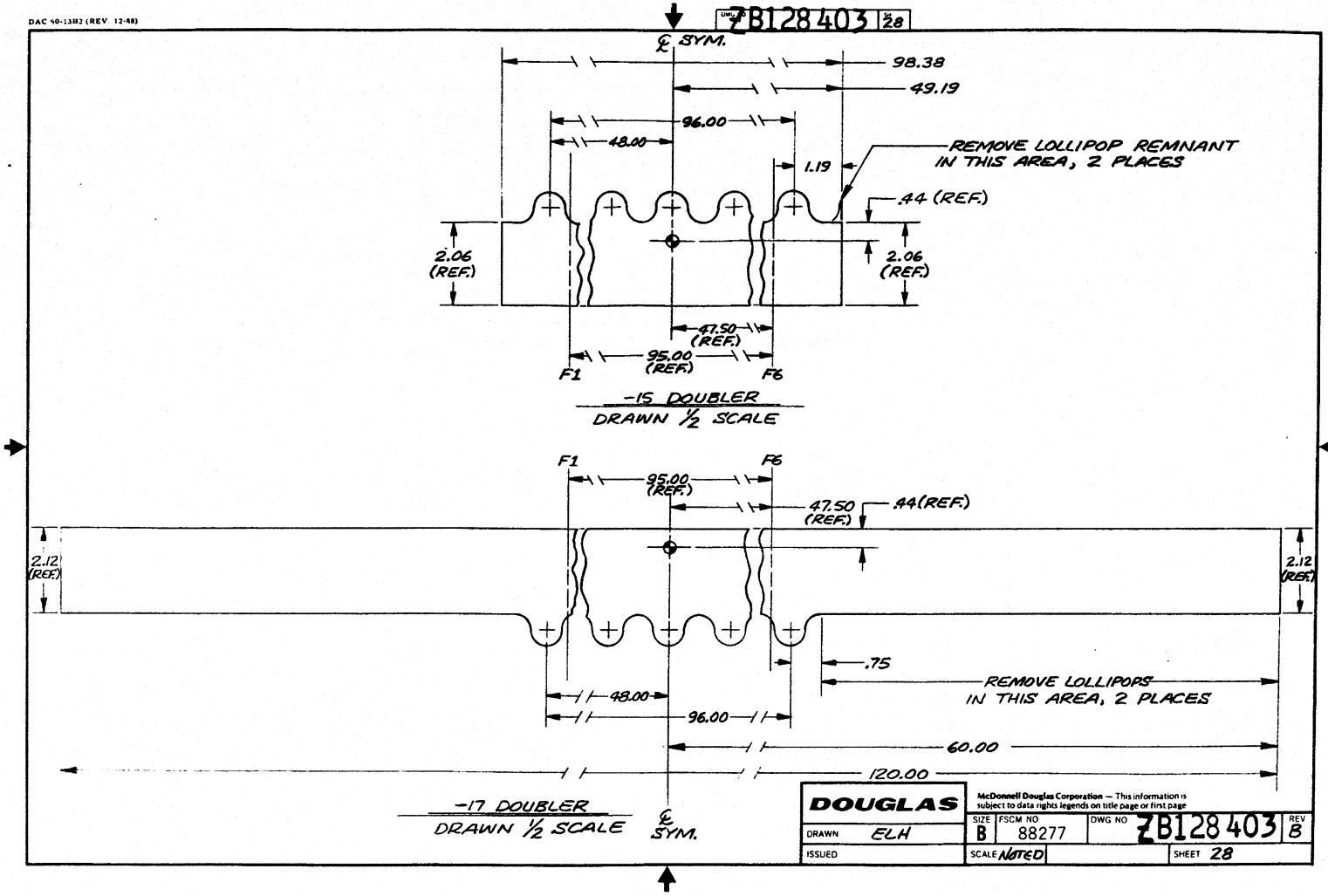



-37 DOUBLER
DRAWN FULL SCALE



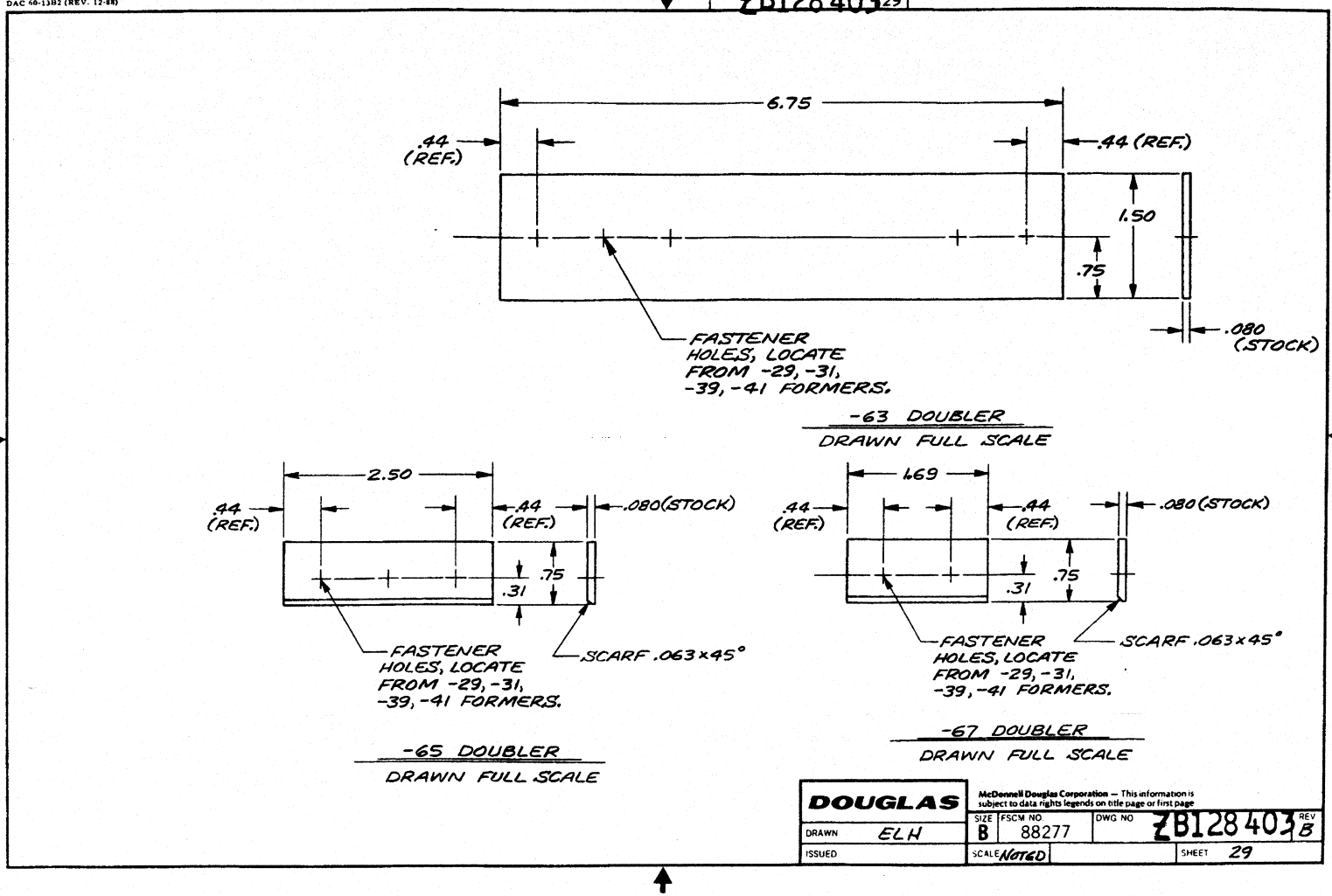

-35 FILLER
DRAWN FULL SCALE

| | | | | |
|---|---|---|---|---|
| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 27 | |


DAC 50-1382 (REV. 12-88)
ZB128403 28
℄ SYM.
98.38
49.19
96.00
48.00
1.19
REMOVE LOLLIPOP REMNANT IN THIS AREA, 2 PLACES
.44 (REF.)
2.06 (REF.)
2.06 (REF.)
47.50 (REF.)
95.00 (REF.)
F1
F6
-15 DOUBLER
DRAWN ½ SCALE
F1
F6
95.00 (REF.)
47.50 (REF.)
.44(REF.)
2.12 (REF.)
2.12 (REF.)
.75
REMOVE LOLLIPOPS IN THIS AREA, 2 PLACES
48.00
96.00
60.00
120.00
-17 DOUBLER
DRAWN ½ SCALE
℄ SYM.
DOUGLAS
McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page
DRAWN ELH
ISSUED
SIZE B
FSCM NO 88277
DWG NO ZB128403
REV B
SCALE NOTED
SHEET 28

DAC 60-1382 (REV. 12-88)

ZB128403 29




| DOUGLAS | McDonnell Douglas Corporation — This information is subject to data rights legends on title page or first page | | | |
|---|---|---|---|---|
| DRAWN ELH | SIZE B | FSCM NO 88277 | DWG NO ZB128403 | REV B |
| ISSUED | SCALE NOTED | | SHEET 29 | |

## DRAWING PARTS LIST

DOUGLAS AIRCRAFT COMPANY
MCDONNELL DOUGLAS
CAGE CODE 88277

AC 25-460B-4D, REV 2-1-93)

QUANTITY REQUIRED PER NOTED DASH NUMBER

NOTE: DRAWING CONFIGURATIONS ARE INDICATED THUS* OTHER DASH NUMBERS ASSEMBLE INTO DRAWING CONFIGURATIONS AS NOTED.

C/C CONTROL CODE

| | | | |
|---|---|---|---|
| B | BULK MATL | P1 | PURCH DAC PART–SUP MATL |
| C | CUST FURN CUST INSTL | P2 | PURCH DAC PART–DAC MATL |
| D | CUST FURN DAC INSTL | R | REWORK OR REPAIR PART |
| F | CUST FURN INSTL CHECK | S | DAC STANDARD PART |
| G | GOVT OR IND STANDARD | V | SUPPLIER ITEM–SPEC CONT |
| L | COMML SHELF ITEM | X | PROCESS REQD BY SCN |
| M | 'MAKE FROM' ITEM | Z | REF DOCUMENT |
| M– | 'MAKE FROM' DAC ITEM | – | DAC DRAWING NOT STD PART |

CONTRACT NUMBER DTFA03-96-C-00027 DWG SIZE B DWG NO. PL ZB128403 REV B

TITLE (NOUN PHRASE) PANEL ASSEMBLY SHEET 1 OF 5

ENGINEER/DRAFTSMAN E.L. HAYMAN DATE 7-8-97

DESIGN GROUP ATAS D&DT

| PRSX | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 -25 | 11 -23 | 12 -509 | 13 -507 | 14 -505 | 15 -503 | 16 -501 | 17 -1 | | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | CAGE NO. | C/C | STOCK SIZE | PARTS LIST CODE OR (MATERIAL DESCRIPTION) | MATERIAL SPECIFICATION (AND/OR SUPPLIER) | NOTES | ITEM FIND NO. | SHT. | I-PRSX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | 1 | 1 | 1 | 1 | -3 | SKIN | | | .063×36×120 GR. LONG. | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 5 | |
| | | | | | | | | | | | | | | | 1 | 1 | 1 | 2 | -5 | SKIN | | | .063×35×120 GR. LONG. | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 5 | |
| | | | | | | | | | | | | 2 | 2 | 2 | | | | 3 | -7 | SKIN | | | .063×60×68 GR. XWISE | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 6 | |
| | | | | | | | | | | | | | | | 1 | 1 | 1 | 4 | -9 | LONGERON | | | MAKE FROM S00067-10000 | | | | | 5 | |
| | | | | | | | | | | | | | | | 6 | 6 | 6 | 5 | -11 | LONGERON | | | MAKE FROM S2777922-6-10000 | | | | | 5 | |
| | | | | | | | | | | | | 14 | 14 | 14 | | | | 6 | -13 | LONGERON | | | MAKE FROM S2777922-6-5000 | | | | | 6 | |
| | | | | | | | | | | | | | | | 1 | 1 | 1 | 7 | -15 | DOUBLER | | | MAKE FROM S00056-3-12000 | | | | | 5 | |
| | | | | | | | | | | | | | | | 1 | 1 | 1 | 8 | -17 | DOUBLER | | | MAKE FROM S00056-10-12000 | | | | | 5 | |
| | | | | | | | | | | | | 1 | 1 | 1 | | | | 9 | -19 | DOUBLER | | | MAKE FROM 5936017-27 | | | | | 6 | |
| | | | | | | | | | | | | 1 | 1 | 1 | | | | 10 | -21 | SPLICE | | | MAKE FROM 5936017-25 | | | | | 6 | |
| | | | | | | | | | | | | | | | 6 | 6 | 6 | 11 | -23 | FRAME ASSEMBLY | | | | | | | | 5 | |
| | | | | | | | | | | | | 6 | 6 | 6 | | | | 12 | -25 | FRAME ASSEMBLY | | | | | | | | 6 | |

D O CONTROL CODE
B BULK MATL
C CUST FURN CUST INSTL
D CUST FURN DAC INSTL
F CUST FURN INSTL CHECK
G GOVT OR IND STANDARD
L COMML SHELF ITEM
M "MAKE FROM" ITEM
M- "MAKE FROM" DAC ITEM

ED DASH NUMBER
are indicated thus
assemble into drawing
is cited.

CONTRACT NUMBER DTFA03-96-C-00027 DWG SIZE B DWG NO PL ZB128403 REV B

TITLE NOUN PHRASE PANEL ASSEMBLY SHEET 2 OF 5

DRAFTSMAN EJW DATE 2-28-97
DESIGN SECTION D&DT

| | -25 | -23 | -509 | -507 | -505 | -503 | -501 | * | | PART OR IDENT FY NO NO | NOMENCLATURE OR DESCRIPTION | REFER NO | C/G | STOCK SIZE | MATERIAL DESCRIPTION (OR PL CODE) | MATERIAL SPECIFICATION (AND OR SUPPLIER) | NOTE | ITEM FIND NO | SHT. | ZONE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 1 | | | | | | | 1 | -27 | FRAME | | | MAKE FROM 5911447-515 | | | | | 23 | |
| | | 1 | | | | | | | 2 | -29 | FORMER | | | MAKE FROM 9911528-11 | | | | | 23 | |
| | | 1 | | | | | | | 3 | -31 | FORMER | | | MAKE FROM 9911521-25 | | | | | 24 | |
| | 2 | 2 | | | | | | | 4 | -33 | DOUBLER | | | .125×2×2 | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 23 | |
| | 2 | 2 | | | | | | | 5 | -35 | FILLER | | | .063×1×2 GR. OPT. | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 23 | |
| | 2 | 2 | | | | | | | 6 | -37 | DOUBLER | | | .063×2×2 | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 23 | |
| | 1 | | | | | | | | 7 | -39 | FORMER | | | MAKE FROM 9911521-25 | | | | | 25 | |
| | 1 | | | | | | | | 8 | -41 | FORMER | | | MAKE FROM 9936513-5 | | | | | 26 | |
| | | | 4 | 4 | 4 | 4 | 4 | 4 | | -43 | DOUBLER | | | .063×9×112 GR. LONG. | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 4 | |
| | | | 4 | 4 | 4 | 4 | 4 | 4 | | -45 | DOUBLER | | | .063×4×112 GR. LONG. | ↕ | ↕ | | | 4 | |
| | | | 4 | 4 | 4 | 4 | 4 | 4 | | -47 | DOUBLER | | | .063×3×112 GR. LONG. | ↕ | ↕ | | | 4 | |
| | | | 4 | 4 | 4 | | | | | -49 | DOUBLER | | | .063×3×56 GR. LONG. | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 14 | |

## DRAWING PARTS LIST

DOUGLAS AIRCRAFT COMPANY
MCDONNELL DOUGLAS
CAGE CODE 88277

DAC 25-46CB-4D (REV 2-93)

QUANTITY REQUIRED PER NOTED DASH NUMBER

NOTE: DRAWING CONFIGURATIONS ARE INDICATED THUS* OTHER DASH NUMBERS ASSEMBLE INTO DRAWING CONFIGURATIONS AS NOTED.

C/C CONTROL CODE

| | | | |
|---|---|---|---|
| B | BULK MATL | P1 | PURCH DAC PART–SUP MATL |
| C | CUST FURN CUST INSTL | P2 | PURCH DAC PART–DAC MATL |
| D | CUST FURN DAC INSTL | R | REWORK OR REPAIR PART |
| F | CUST FURN INSTL CHECK | S | DAC STANDARD PART |
| G | GOVT OR IND STANDARD | V | SUPPLIER ITEM–SPEC CONT |
| L | COMML SHELF ITEM | X | PROCESS REQD BY SCN |
| M | 'MAKE FROM' ITEM | Z | REF DOCUMENT |
| M– | 'MAKE FROM' DAC ITEM | – | DAC DRAWING NOT STD PART |

CONTRACT NUMBER DTFA03-96-C-00027

DWG SIZE B

DWG NO. PL ZB128403 REV B

TITLE (NOUN PHRASE) PANEL ASSEMBLY

SHEET 3 OF 5

ENGINEER/DRAFTSMAN E.L. HAYMAN

DATE 7-8-97

DESIGN GROUP ATAS D&DT

| IPRSX | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 -25 | 11 -23 | 12 -509 | 13 -507 | 14 -505 | 15 -503 | 16 -501 | 17 -1 | | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | CAGE NO. | C/C | STOCK SIZE | PARTS LIST CODE OR (MATERIAL DESCRIPTION) | MATERIAL SPECIFICATION (AND/OR SUPPLIER) | NOTES | ITEM FIND NO. | SHT. | IPRSX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | 1 | -51 | CANCELLED | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | 2 | -53 | CANCELLED | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | 3 | -55 | CANCELLED | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | 4 | -57 | CANCELLED | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | 5 | -59 | CANCELLED | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | 6 | -61 | CANCELLED | | | | | | | | | |
| | | | | | | | | | | | | 12 | 12 | 12 | 12 | 12 | 12 | 7 | -63 | DOUBLER | | .080 x 2 x 7 GR. LONG. | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 23 | |
| | | | | | | | | | | | | 12 | 12 | 12 | 12 | 12 | 12 | 8 | -65 | DOUBLER | | .080 x 1 x 3 GR. OPT. | ↑ | ↑ | | | 14 | |
| | | | | | | | | | | | | 12 | 12 | 12 | 12 | 12 | 12 | 9 | -67 | DOUBLER | | .080 x 1 x 2 GR. OPT. | | | | | 14 | |
| | | | | | | | | | | | | | | | 2 | 2 | 2 | 10 | -69 | DOUBLER | | .080 x 3 x 27 GR. LONG. | | | | | 13 | |
| | | | | | | | | | | | | | | | 4 | 4 | 4 | 11 | -71 | DOUBLER | | .080 x 3 x 28 GR. LONG. | ↓ | ↓ | | | 13 | |
| | | | | | | | | | | | | | | | 2 | 2 | 2 | 12 | -73 | DOUBLER | | .080 x 3 x 28 GR. LONG. | AL SHEET CLAD 2024-T3 | QQ-A-250/5 TEMP. T3 | | | 13 | |

## DRAWING PARTS LIST

DOUGLAS AIRCRAFT COMPANY
MCDONNELL DOUGLAS
CAGE CODE 81277

DAC 25-46CB-4D (REV 2-93)

C/C CONTROL CODE

| | | | |
|---|---|---|---|
| B | BULK MATL | P1 | PURCH DAC PART–SUP MATL |
| C | CUST FURN CUST INSTL | P2 | PURCH DAC PART–DAC MATL |
| D | CUST FURN DAC INSTL | R | REWORK OR REPAIR PART |
| F | CUST FURN INSTL CHECK | S | DAC STANDARD PART |
| G | GOVT OR IND STANDARD | V | SUPPLIER ITEM–SPEC CONT |
| L | COMML SHELF ITEM | X | PROCESS REQD BY SCN |
| M | 'MAKE FROM' ITEM | Z | REF DOCUMENT |
| M– | 'MAKE FROM' DAC ITEM | – | DAC DRAWING NOT STD PART |

CONTRACT NUMBER DTFA03-96-C-00027 DWG SIZE B DWG NO. PLZB128403 REV B

TITLE (NOUN PHRASE) PANEL ASSEMBLY SHEET 4 OF 5

ENGINEER/DRAFTSMAN DATE 7-8-97

DESIGN GROUP ATAS D&DT

QUANTITY REQUIRED PER NOTED DASH NUMBER

NOTE: DRAWING CONFIGURATIONS ARE INDICATED THUS* OTHER DASH NUMBERS ASSEMBLE INTO DRAWING CONFIGURATIONS AS NOTED.

| IPRSX | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 -25 | 11 -23 | 12 -509 | 13 -507 | 14 -505 | 15 -503 | 16 -501 | 17 -1 | | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | CAGE NO. | C/C | STOCK SIZE | PARTS LIST CODE OR (MATERIAL DESCRIPTION) | MATERIAL SPECIFICATION (AND/OR SUPPLIER) | NOTES | ITEM FIND NO. | SHT. | IPRSX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 1 | 1 | | | | | | | 1 | 2911377-1 | GUSSET | | | | | | | | 23 | |
| | | | | | | | | | | | | 6 | 6 | 6 | 6 | 6 | 6 | 2 | 2913044-1 | GUSSET | | | | | | | | 7 | |
| | | | | | | | | | | | | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3913490-1 | INTERCOSTAL | | | | | | | | 9 | |
| | | | | | | | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 2913045-1 | CLIP | | | | | | | | 7 | |
| | | | | | | | | | | | | 1 | 1 | 1 | | | | 5 | 9951791-3 | INTERCOSTAL | | | | | | | | 7 | |
| | | | | | | | | | | | | 7 | 7 | 7 | | | | 6 | 3936474-1 | SPLICE | | | | | | | | 8 | |
| | | | | | | | | | | | | 28 | 28 | 28 | | | | 7 | S2933625 D22-130 | SHIM | | | | | | | | 6 | |
| | | | | | | | | | | | | | | | | | | 8 | | | | | | | | | | | |
| | | | | | | | | | | | | 1 | 1 | 1 | | | | 9 | -75 | DOUBLER | | | MAKE FROM 5936017-27 | | | | | 20 | |
| | | | | | | | | | | | | | | | | | | 10 | | | | | | | | | | | |
| | | | | | | | | | | | | 120 | 120 | 120 | | | | 11 | NAS1252-10L | WASHER | | | | | | | | | |
| | | | | | | | | | | | | 120 | 120 | 120 | | | | 12 | MS21042-3 | NUT | | | | | | | | | |

## DRAWING PARTS LIST

DOUGLAS AIRCRAFT COMPANY
MCDONNELL DOUGLAS
CAGE CODE 98377

DAC 25-460B-4D (REV 2-93)

C/C CONTROL CODE

| | | | |
|---|---|---|---|
| B | BULK MATL | P1 | PURCH DAC PART-SUP MATL |
| C | CUST FURN CUST INSTL | P2 | PURCH DAC PART-DAC MATL |
| D | CUST FURN DAC INSTL | R | REWORK OR REPAIR PART |
| F | CUST FURN INSTL CHECK | S | DAC STANDARD PART |
| G | GOVT OR IND STANDARD | V | SUPPLIER ITEM-SPEC CONT |
| L | COMML SHELF ITEM | X | PROCESS REQD BY SCN |
| M | 'MAKE FROM' ITEM | Z | REF DOCUMENT |
| M- | 'MAKE FROM' DAC ITEM | – | DAC DRAWING NOT STD PART |

CONTRACT NUMBER DTFA03-96-C-00027 DWG SIZE B DWG NO. PL ZB128403 REV B

TITLE (NOUN PHRASE) PANEL ASSEMBLY SHEET 5 OF 5

ENGINEER/DRAFTSMAN E.L. HAYMAN DATE 7-8-97
DESIGN GROUP ATAS D&DT

QUANTITY REQUIRED PER NOTED DASH NUMBER

NOTE: DRAWING CONFIGURATIONS ARE INDICATED THUS* OTHER DASH NUMBERS ASSEMBLE INTO DRAWING CONFIGURATIONS AS NOTED.

| PRSX | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 -25 | 11 -23 | 12 -509 | 13 -507 | 14 -505 | 15 -503 | 16 -501 | 17 * -1 | | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | CAGE NO. | C/C | STOCK SIZE | PARTS LIST CODE OR (MATERIAL DESCRIPTION) | MATERIAL SPECIFICATION (AND/OR SUPPLIER) | NOTES | ITEM FIND NO. | ZONE | PRSX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | A/R | A/R | A/R | A/R | A/R | A/R | 1 | MS20470AD5 | RIVET | | | INDICATED THUS | | BJ 5 | | | | |
| | | | | | | | | | | A/R | A/R | A/R | A/R | A/R | A/R | A/R | A/R | 2 | MS20470AD6 | RIVET | | | INDICATED THUS | | BJ 6 | | | | |
| | | | | | | | | | | A/R | A/R | A/R | A/R | A/R | A/R | A/R | A/R | 3 | NAS1097AD6 | RIVET | | | INDICATED THUS | | LZ 6 | | | | |
| | | | | | | | | | | | | 70 | 70 | 70 | | | | 4 | 3D0009-6 | PIN | | | INDICATED THUS | | B | | | | |
| | | | | | | | | | | | | 28 | 28 | 28 | | | | 5 | 2D0009-6 | PIN | | | INDICATED THUS | | XHW 6 | | | | |
| | | | | | | | | | | | | 84 | 84 | 84 | 84 | 84 | 84 | 6 | HL518-6 | PIN | | | | | | | | | |
| | | | | | | | | | | | | 84 | 84 | 84 | 84 | 84 | 84 | 7 | AN960-C10L | WASHER | | | | | | | | | |
| | | | | | | | | | | | | 84 | 84 | 84 | 84 | 84 | 84 | 8 | MS21043-3 | NUT | | | | | | | | | |
| | | | | | | | | | | | | 70 | 70 | 70 | | | | 9 | BH00601-3 | NUT | | | | | | | | | |
| | | | | | | | | | | | | 28 | 28 | 28 | | | | 10 | 3D0007-3 | NUT ASSY. | | | | | | | | | |
| | | | | | | | | | | | | | | | A/R | A/R | A/R | 11 | NAS1097KE6 | RIVET | | | INDICATED THUS | | ASS 6 | | | | |
| | | | | | | | | | | | | 120 | 120 | 120 | | | | 12 | S4931919-6 | PIN | | | INDICATED THUS | | XES 6 | | | | |

# APPENDIX B—LOCATION OF STRAIN GAGES

Strain gages were placed on the all four panels to monitor the strain distribution and to ensure proper load introduction. The type and location of the strain gages used are provided in the tables and figures of this appendix. All strain gages were 350 Ohms with a Constantan foil alloy. A three conductor, Teflon-coated twisted cable was used for connection to the strain gages. Boeing Aircraft Company, Long Beach, CA, installed all strain gages to panels CVP1 and CVP3. The Federal Aviation Administration William J. Hughes Technical Center, Atlantic City International Airport, NJ installed all strain gages to panels CVP2 and CVP4.

The strain gage, coating, cable, and adhesive types for each panel are listed in table B-1. A full description of the Micro-Measurement (MM) products is provided in MM Catalog A-110-8 and MM Catalog 500. These catalogs can be obtained from:

Micro-Measurements Division
Measurements Group
P.O. Box 27777
Raleigh, North Carolina 27611
Phone: (919) 365-3800

The location of the strain gages for the longitudinal lap joint panels, CVP1 and CVP2, is provided in table B-2 and figures B-1 through B-4. In these panels, 20 axial strain gages were located on both the inner and outer flanges of the frames. The stringers were instrumented with eight axial strain gages on the flange and hat section. The skin was instrumented with eight strain gage rosettes. At one location on the skin, two back-to-back 45º strain gage rosettes (gages 31 and 32) were installed to provide a measure of bending of the skin.

The location of the strain gages for the circumferential lap joint panels, CVP3 and CVP4, is provided in table B-3 and figures B-5 through B-11. In these panels, nine axial strain gages were located on both the inner and outer flanges of the frames. The stringers were instrumented with 22 axial strain gages on the flange and hat section. The skin was instrumented with nine strain gage rosettes ($45^{o}$) in the skin and 31 axial strain gages in the frames and stringers. At two locations on the skin, namely at gages 36 and 37 and at gages 39 and 40, two back-to-back 45º strain gage rosettes were installed to provide a measure of bending of the skin.

TABLE B-1. GENERAL STRAIN GAGE INFORMATION

| Panel | CVP1 | CVP2 | CVP3 | CVP4 |
|---|---|---|---|---|
| No. Gages Axial | 28 | 28 | 31 | 31 |
| Gage No. Axial | 1-28 | 1-28 | 1-31 | 1-31 |
| Micro-Measurement Part No., Axial | EA-13-062AQ-350 | CEA-13-062UW-350 | EA-13-062AQ-350 | CEA-13-062UW-350 |
| No. Gages, Rosette | 8 | 8 | 9 | 9 |
| Gage No. Rosette | 29-36 | 29-36 | 32-40 | 32-40 |
| Micro-Measurement Part No., Axial | EA-13-120WR-350 | CEA-13-125UR-350 | EA-13-120WR-350 | CEA-13-125UR-350 |
| Micro-Measurement Part No., Coatings | 3140 RTV | M Coat J | 3140 RTV | M Coat J |
| Micro-Measurement Part No., Cable | 330-FFE | 330-FTE | 330-FFE | 330-FTE |
| Micro-Measurement Part No., Adhesive | M-Bond AE-10 | M-Bond 200 | M-Bond AE-10 | M-Bond 200 |

TABLE B-2. STRAIN GAGE LOCATIONS FOR PANELS CVP1 AND CVP2

| Strain Gage No. (View) | Location | |
|---|---|---|
| | Name and P/N | Dimensional |
| 1 (C) | Outside of Frame Flange F2 | Midway Between L3 and L4 (3.75), Center of Flange (0.46) |
| 2 (C) | Inside of Frame Flange F2 | Midway Between L3 and L4 (3.75), Center of Flange (0.39) |
| 3 (C) | Outside of Frame Flange F3 | Midway Between L3 and L4 (3.75), Center of Flange (0.46) |
| 4 (C) | Inside of Frame Flange F3 | Midway Between L3 and L4 (3.75), Center of Flange (0.39) |
| 5 (C) | Outside of Frame Flange F4 | Midway Between L3 and L4 (3.75), Center of Flange (0.46) |
| 6 (C) | Inside of Frame Flange F4 | Midway Between L3 and L4 (3.75), Center of Flange (0.39) |
| 7 (C) | Outside of Frame Flange F5 | Midway Between L3 and L4 (3.75), Center of Flange (0.46) |
| 8 (C) | Inside of Frame Flange F5 | Midway Between L3 and L4 (3.75), Center of Flange (0.39) |
| 9 (C) | Outside of Frame Flange F3 | Midway Between L4 and L5 (3.75), Center of Flange (0.46) |
| 10 (C) | Inside of Frame Flange F3 | Midway Between L4 and L5 (3.75), Center of Flange (0.39) |
| 11 (C) | Outside of Frame Flange F4 | Midway Between L4 and L5 (3.75), Center of Flange (0.46) |
| 12 (C) | Inside of Frame Flange F4 | Midway Between L4 and L5 (3.75), Center of Flange (0.39) |
| 13 (C) | Outside of Frame Flange F5 | Midway Between L4 and L5 (3.75), Center of Flange (0.46) |
| 14 (C) | Inside of Frame Flange F5 | Midway Between L4 and L5 (3.75), Center of Flange (0.39) |
| 15 (C) | Outside of Frame Flange F3 | Midway Between L6 and L7 (3.75), Center of Flange (0.46) |
| 16 (C) | Inside of Frame Flange F3 | Midway Between L6 and L7 (3.75), Center of Flange (0.39) |
| 17 (C) | Outside of Frame Flange F4 | Midway Between L6 and L7 (3.75), Center of Flange (0.46) |
| 18 (C) | Inside of Frame Flange F4 | Midway Between L6 and L7 (3.75), Center of Flange (0.39) |
| 19 (C) | Outside of Frame Flange F5 | Midway Between L6 and L7 (3.75), Center of Flange (0.46) |

TABLE B-2. STRAIN GAGE LOCATIONS FOR PANELS CVP1 AND CVP2 (Continued)

| Strain Gage No. (View) | Location | |
|---|---|---|
| | Name and P/N | Dimensional |
| 20 (C) | Inside of Frame Flange F5 | Midway Between L6 and L7 (3.75), Center of Flange (0.39) |
| 21 (D) | Outside of Longeron Flange L2 | Aft of Frame F3 (8.88), Center of Flange (0.37) |
| 22 (D) | Inside of Longeron Hat L2 | Aft of Frame F3 (8.88), Center of Hat (0.35) |
| 23 (D) | Outside of Longeron Flange L3 | Aft of Frame F3 (8.88), Center of Flange (0.37) |
| 24 (D) | Inside of Longeron Hat L3 | Aft of Frame F3 (8.88), Center of Hat (0.35) |
| 25 (D) | Outside of Longeron Flange L4 | Aft of Frame F3 (9.09), Center of Flange (0.37) |
| 26 (D) | Inside of Longeron Hat L4 | Aft of Frame F3 (9.09), Center of Hat (0.38) |
| 27 (D) | Outside of Longeron Flange L5 | Aft of Frame F3 (8.88), Center of Flange (0.37) |
| 28 (D) | Inside of Longeron Hat L5 | Aft of Frame F3 (8.88), Center of Hat (0.35) |
| 29L (E)<br>29-45,<br>29T | Exterior Surface of Skin | Midway Between Frames F1 and F2 (9.50) and Longerons L3 and L4 (3.75) |
| 30L (E)<br>30-45,<br>30T | Exterior Surface of Skin | Midway Between Frames F2 and F3 (9.50) and Longerons L3 and L4 (3.75) |
| 31L (E)<br>31-45,<br>31T | Interior Surface of Skin | Midway Between Frames F3 and F4 (9.50) and Longerons L3 and L4 (3.75) |
| 32L (E)<br>32-45,<br>32T | Exterior Surface of Skin | Midway Between Frames F3 and F4 (9.50) and Longerons L3 and L4 (3.75) |
| 33L (E)<br>33-45<br>33T | Exterior Surface of Skin | Midway Between Frames F4 and F5 (9.50) and Longerons L3 and L4 (3.75) |
| 34L (E)<br>34-45<br>34T | Exterior Surface of Skin | Midway Between Frames F5 and F6 (9.50) and Longerons L3 and L4 (3.75) |
| 35L (E)<br>35-45<br>35T | Exterior Surface of Skin | Midway Between Frames F3 and F4 (9.50) and Longerons L4 and L5 (3.75) |
| 36L (E)<br>36-45<br>36T | Exterior Surface of Skin | Midway Between Frames F3 and F4 (9.50) and Longerons L5 and L6 (3.75) |

TABLE B-3. STRAIN GAGE LOCATIONS FOR PANELS CVP3 AND CVP4

| Strain Gage No. (View) | Location | |
|---|---|---|
| | Name and P/N | Dimensional |
| 1 (F) | Outside of Frame Flange F3 | Midway Between L2 and L3 (3.75), Center of Flange (0.46) |
| 2 (F) | Outside of Frame Flange F3 | Midway Between L3 and L4 (3.75), Center of Flange (0.46) |
| 3 (F) | Outside of Frame Flange F1 | Midway Between L4 and L5 (3.75), Center of Flange (0.46) |
| 4 (F) | Outside of Frame Flange F2 | Midway Between L4 and L5 (3.75), Center of Flange (0.46) |
| 5 (F) | Outside of Frame Flange F3 | Midway Between L4 and L5 (3.75), Center of Flange (0.46) |
| 6 (F) | Inside of Frame Flange F3 | Midway Between L4 and L5 (3.75), Center of Flange (0.39) |
| 7 (F) | Outside of Frame Flange F4 | Midway Between L4 and L5 (3.75), Center of Flange (0.46) |
| 8 (F) | Inside of Frame Flange F3 | Midway Between L5 and L6 (3.75), Center of Flange (0.39) |
| 9 (F) | Outside of Frame Flange F3 | Midway Between L4 and L5 (3.75), Center of Flange (0.46) |
| 10 (M) | Outside of Longeron Flange L1 | FWD. of F2 (8.87), on Center of Flange (0.37) |
| 11 (G) | Outside of Splice Flange L2 | FWD. of $C_L$ Sym. (2.25), on Center of Flange (0.43) |
| 12 (G) | Inside of Splice Hat L2 | FWD. of $C_L$ Sym. (2.25), on Center of Hat (0.26) |
| 13 (H) | Outside of Longeron Flange L3 | FWD. of $C_L$ Sym. (7.50), on Center of Flange (0.37) |
| 14 (H) | Inside of Longeron Hat L3 | FWD. of $C_L$ Sym. (7.50), on Center of Hat (0.35) |
| 15 (G) | Outside of Splice Flange L3 | FWD. of $C_L$ Sym. (2.25), on Center of Flange (0.43) |
| 16 (G) | Inside of Splice Hat L3 | FWD. of $C_L$ Sym. (2.25), on Center of Hat (0.26) |
| 17 (M) | Inside of Longeron Hat L4 | FWD. of F2 (8.87), on Center of Hat (0.35) |
| 18 (M) | Outside of Longeron Flange L4 | FWD. of F2 (8.87), on Center of Flange (0.37) |
| 19 (M) | Outside of Longeron Flange L4 | FWD. of F3 (9.12), on Center of Flange (0.37) |

TABLE B-3. STRAIN GAGE LOCATIONS FOR PANELS CVP3 AND CVP4 (Continued)

| Strain Gage No. (View) | Location | |
|---|---|---|
| | Name and P/N | Dimensional |
| 20 (M) | Inside of Longeron Hat L4 | FWD. of F3 (9.12), on Center of Hat (0.35) |
| 21 (H) | Inside of Longeron Hat L4 | FWD. of $C_L$ Sym. (7.50), on Center of Hat (0.35) |
| 22 (H) | Outside of Longeron Flange L4 | FWD. of $C_L$ Sym. (7.50), on Center of Flange (0.37) |
| 23 (M) | Outside of Longeron Flange L4 | Aft of F4 (9.12), on Center of Flange (0.37) |
| 24 (M) | Inside of Longeron Hat L4 | Aft of F4 (9.12), on Center of Hat (0.35) |
| 25 (H) | Inside of Longeron Hat L5 | FWD. of $C_L$ Sym. (7.50), on Center of Hat (0.35) |
| 26 (H) | Outside of Longeron Flange L5 | FWD. of $C_L$ Sym. (7.50), on Center of Flange (0.37) |
| 27 (G) | Inside of Splice Hat L5 | FWD. of $C_L$ Sym. (2.25), on Center of Flange (0.26) |
| 28 (G) | Outside of Splice Flange L5 | FWD. of $C_L$ Sym. (2.25), on Center of Flange (0.43) |
| 29 (G) | Inside of Splice Hat L6 | FWD. of $C_L$ Sym. (2.25), on Center of Hat (0.26) |
| 30 (G) | Outside of Splice Flange L6 | FWD. of $C_L$ Sym. (2.25), on Center of Flange (0.43) |
| 31 (M) | Outside of Longeron Flange L7 | FWD. of F2 (8.87), on Center of Flange (0.37) |
| 32L (J)<br>32-45<br>32T | Exterior Surface of Skin | FWD. of $C_L$ Sym. (6.25), Midway Between Longerons L2 and L3 (3.75) |
| 33L (J)<br>33-45<br>33T | Exterior Surface of Skin | FWD. of $C_L$ Sym. (6.25), Midway Between Longerons L3 and L4 (3.75) |
| 34L (L)<br>34-45<br>34T | Exterior Surface of Skin | Midway Between Frames F2 and F3 (9.50) and Longerons L4 and L5 (3.75) |
| 35L (L)<br>35-45<br>35T | Interior Surface of Skin | Midway Between Frames F2 and F3 (9.50) and Longerons L4 and L5 (3.75) |
| 36L (K)<br>36-45<br>36T | Exterior Surface of Skin | FWD. of $C_L$ Sym. (6.25), Midway Between Longerons L4 and L5(3.75) |

TABLE B-3. STRAIN GAGE LOCATIONS FOR PANELS CVP3 AND CVP4 (Continued)

| Strain Gage No. (View) | Location | |
|---|---|---|
| | Name | Dimensional |
| 37L (K)<br>37-45<br>37T | Interior Surface of Skin | FWD. of $C_L$ Sym. (6.25), Midway Between Longerons L4 and L5 (3.75) |
| 38L (L)<br>38-45<br>38T | Exterior Surface of Skin | Midway Between Frames F4 and F5 (9.50) and Longerons L4 and L5 (3.75) |
| 39L (K)<br>39-45<br>39T | Exterior Surface of Skin | FWD. of $C_L$ Sym. (6.25), Midway Between Longerons L5 and L6 (3.75) |
| 40L (K)<br>40-45<br>40T | Interior Surface of Skin | FWD. of $C_L$ Sym. (6.25), Midway Between Longerons L5 and L6 (3.75) |

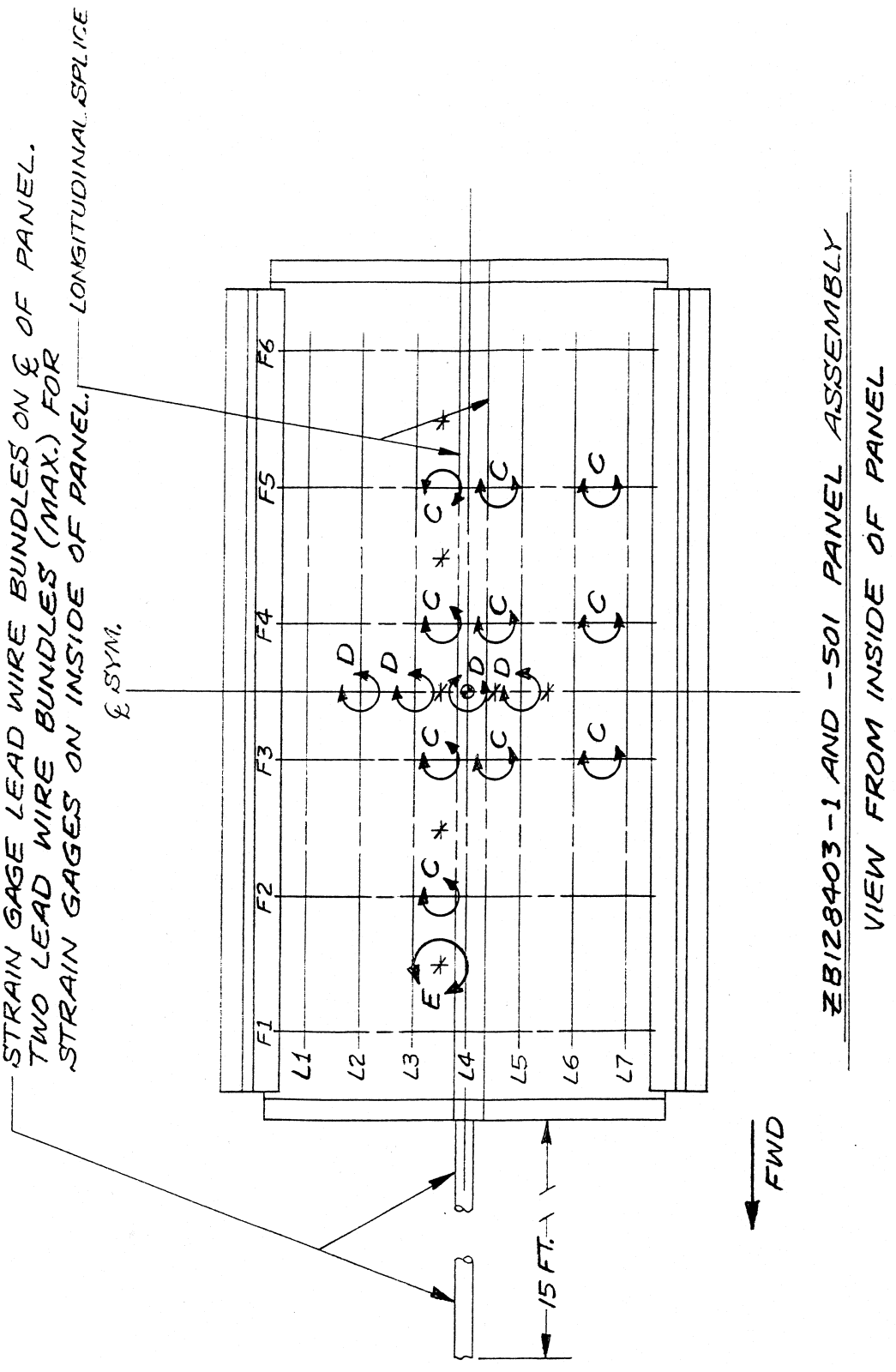



FIGURE B-1. SECTION VIEWS FOR PANELS CVP1 AND CVP2

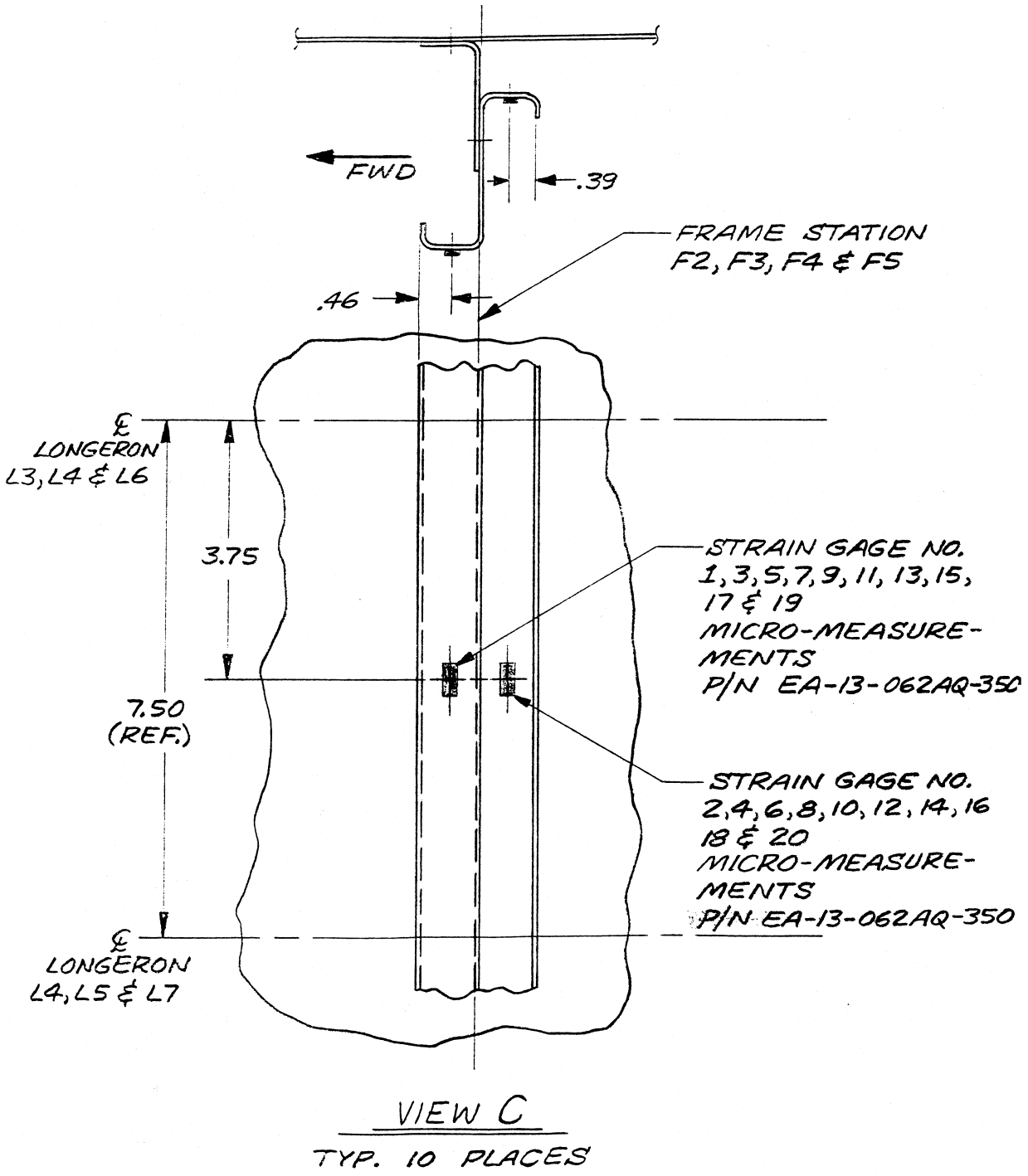



FIGURE B-2. PLACEMENT OF AXIAL GAGES AT THE INNER AND OUTER CAP OF THE FRAMES IN PANELS CVP1 AND CVP2

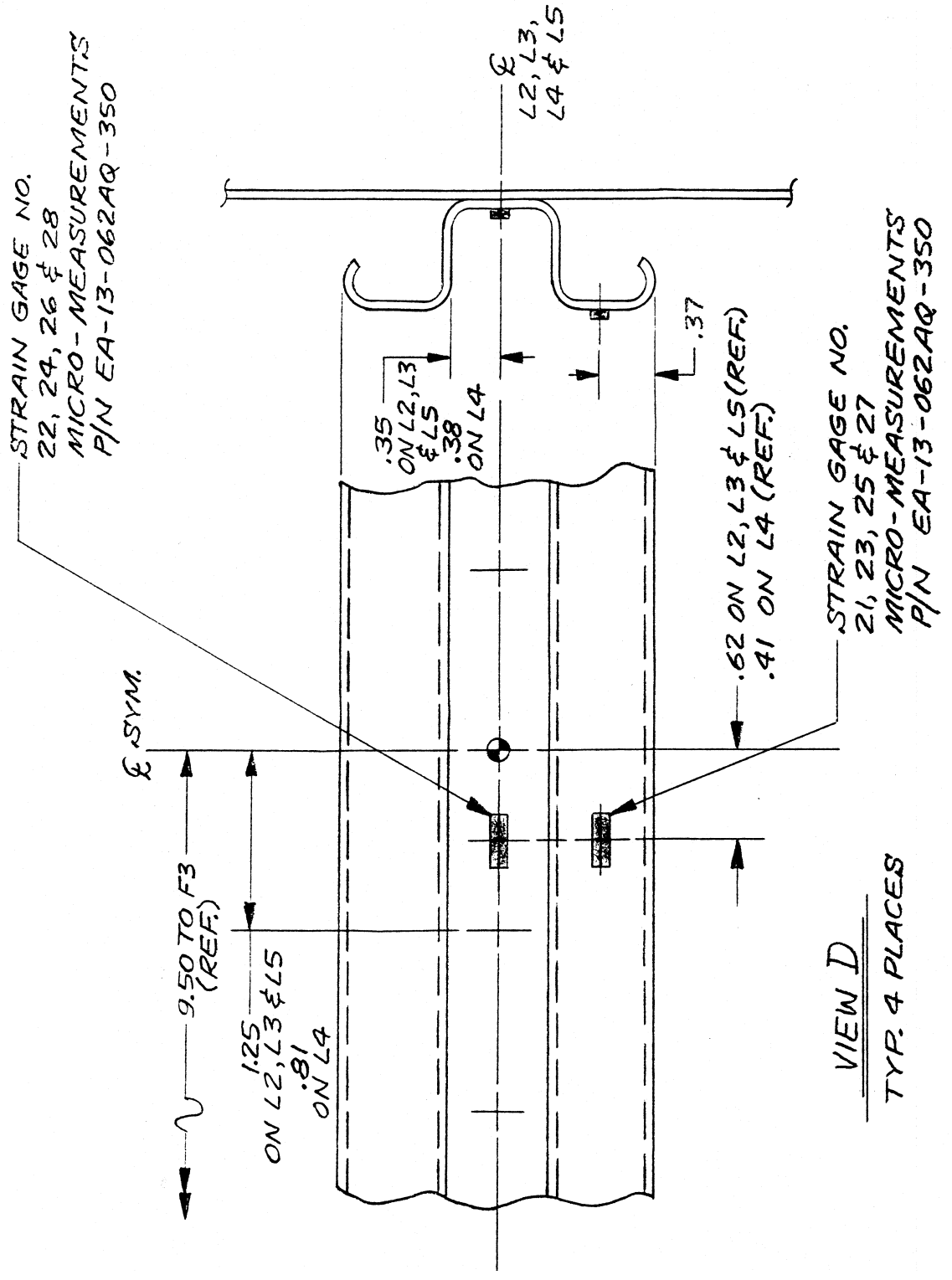



FIGURE B-3. PLACEMENT OF AXIAL GAGES AT THE CAP AND FLANGE OF THE STRINGERS (LONGERONS) OF PANELS CVP1 AND CVP2

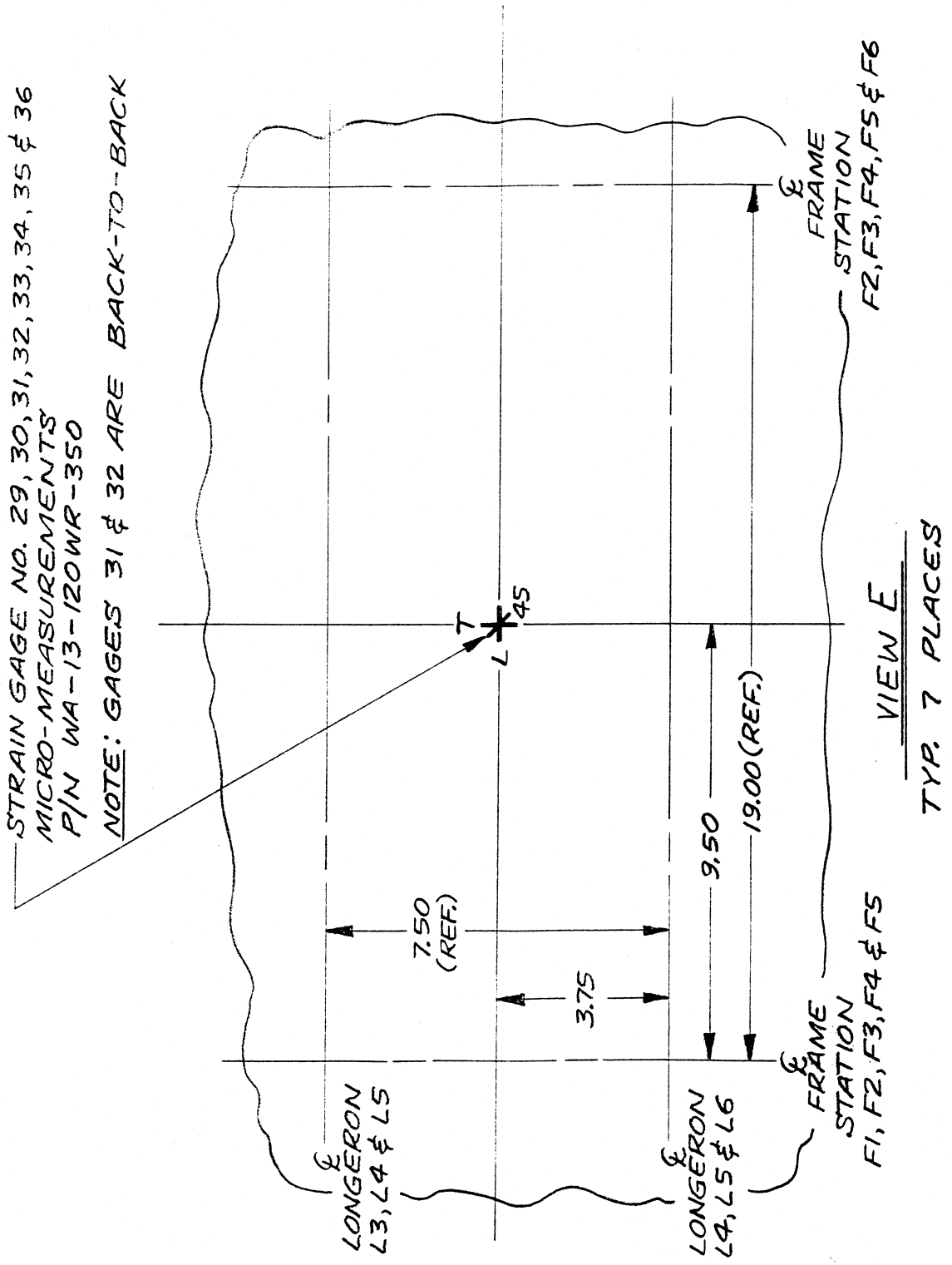



FIGURE B-4. PLACEMENT OF ROSETTE GAGES AT THE SKIN MID-BAY LOCATION IN PANELS CVP1 AND CVP2

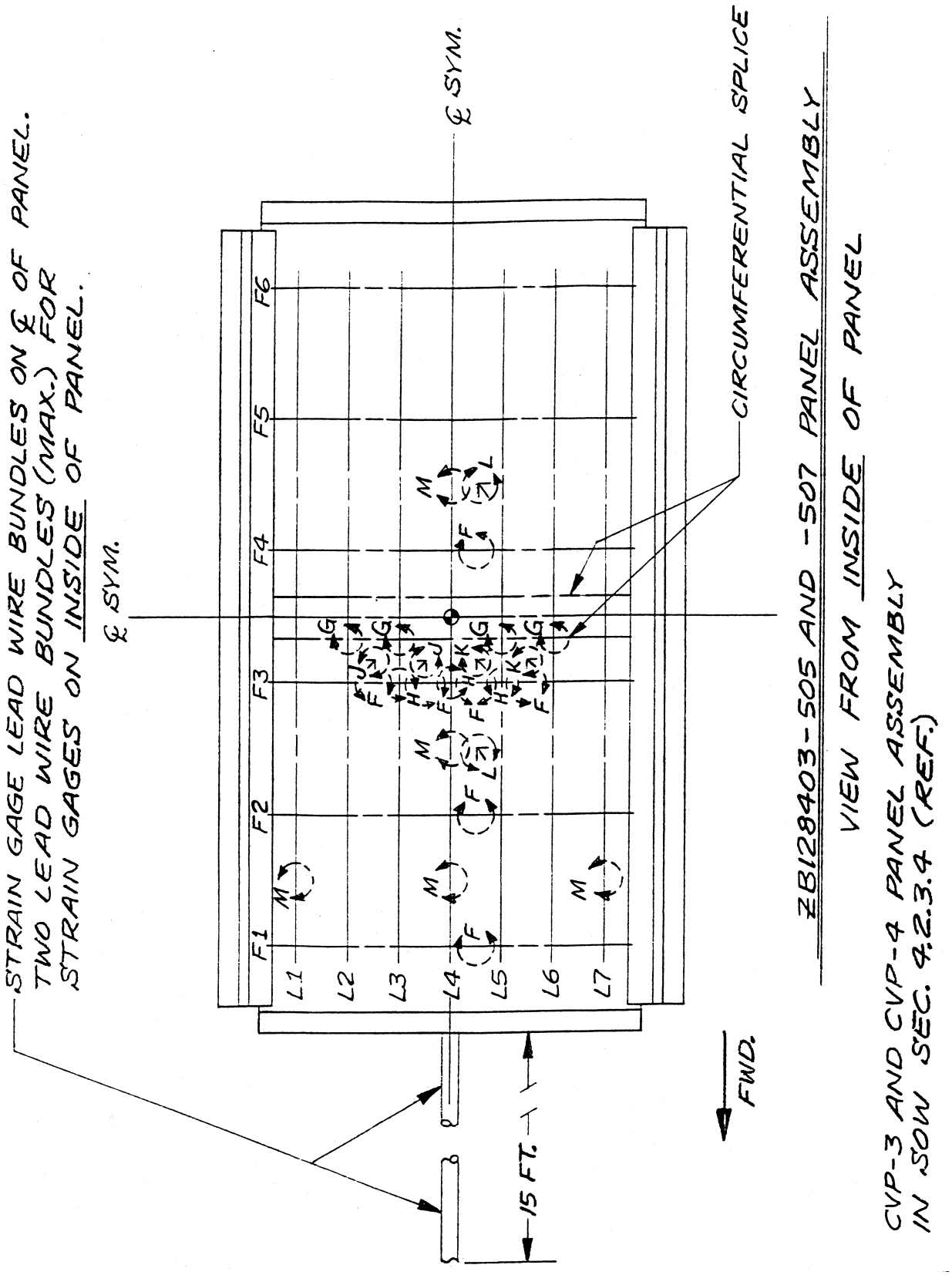



FIGURE B-5. SECTION VIEWS FOR PANELS CVP3 AND CVP4

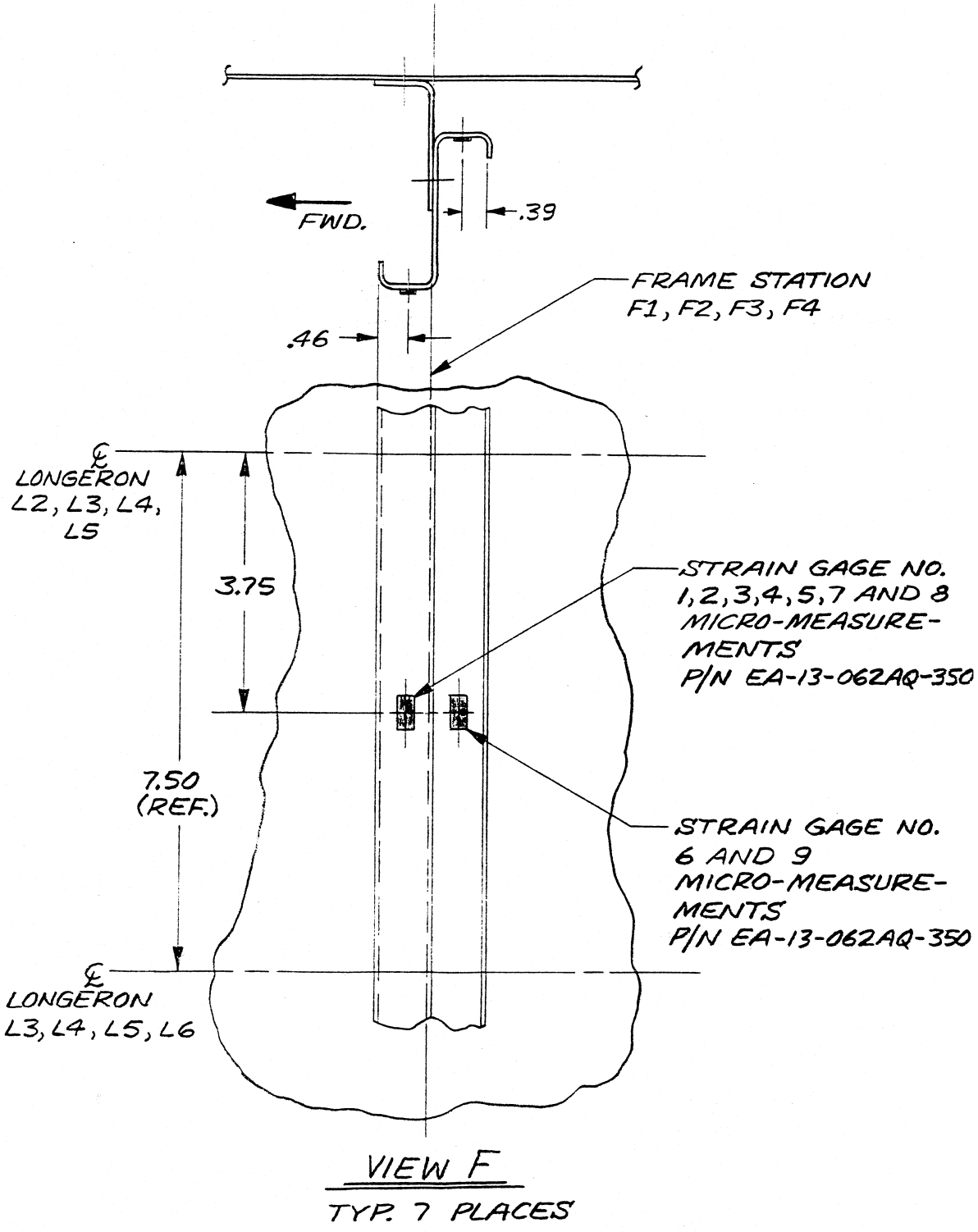



FIGURE B-6. PLACEMENT OF AXIAL GAGES AT THE INNER AND OUTER CAP OF THE FRAMES IN PANELS CVP3 AND CVP4

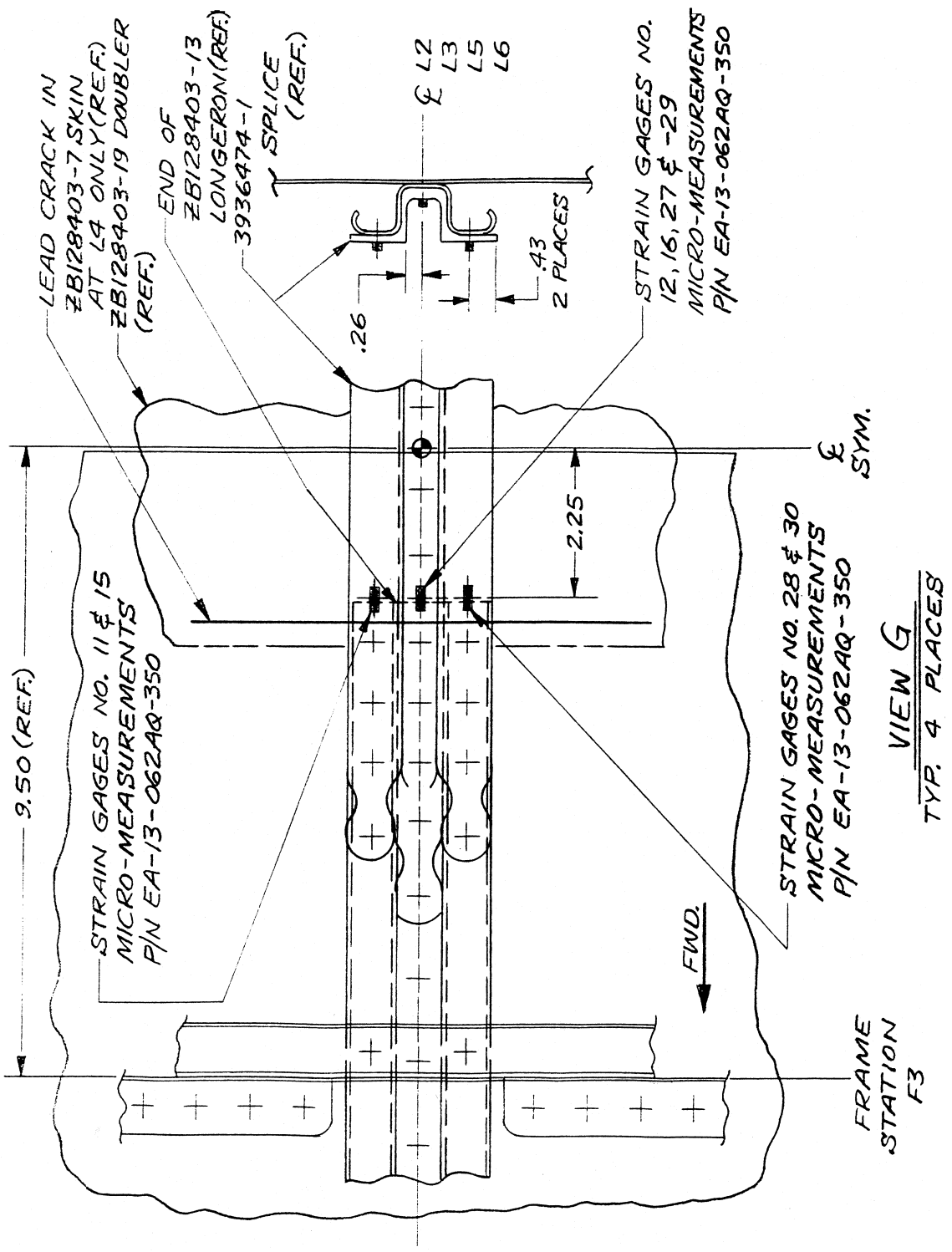



FIGURE B-7. PLACEMENT OF AXIAL GAGES AT THE CAP AND FLANGE OF THE STRINGERS (LONGERONS) SPLICE REGION OF THE BUTT JOINT OF PANELS CVP3 AND CVP4

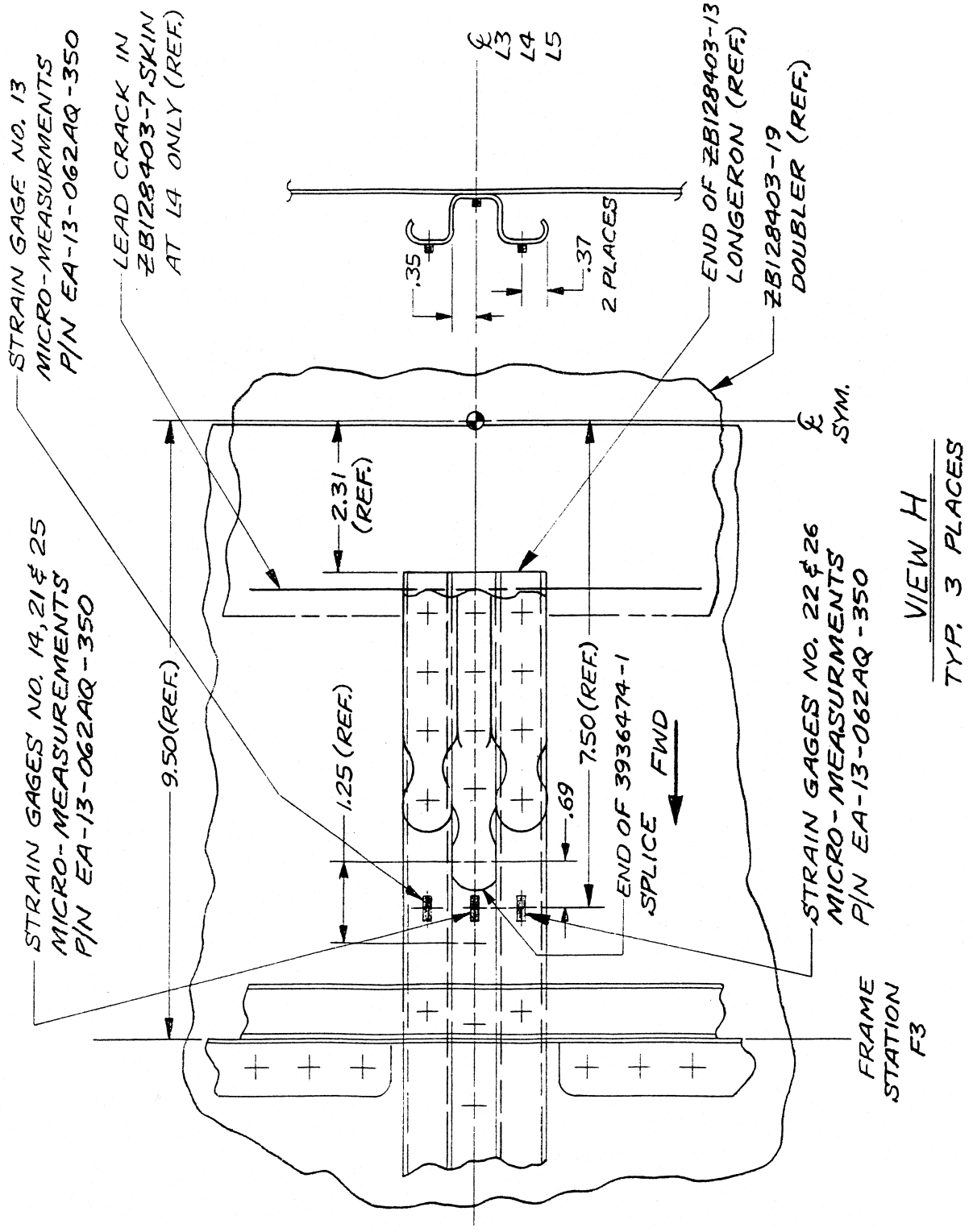



FIGURE B-8. PLACEMENT OF AXIAL GAGES AT THE CAP AND FLANGE OF THE STRINGERS (LONGERONS) NEAR THE BUTT JOINT OF PANELS CVP3 AND CVP4

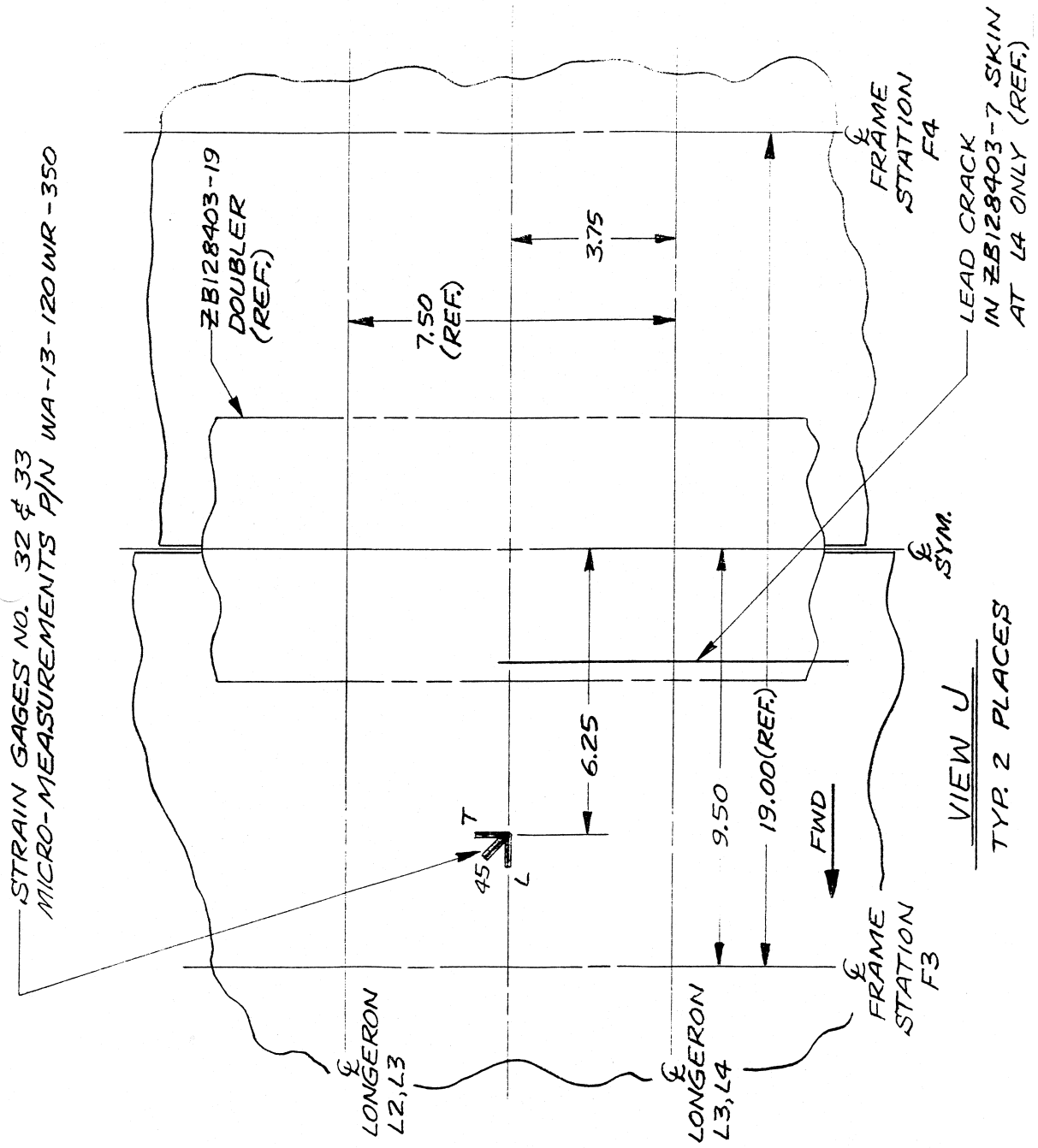



FIGURE B-9. PLACEMENT OF ROSETTE GAGES AT THE SKIN BUTT JOINT LOCATION IN PANELS CVP3 AND CVP4

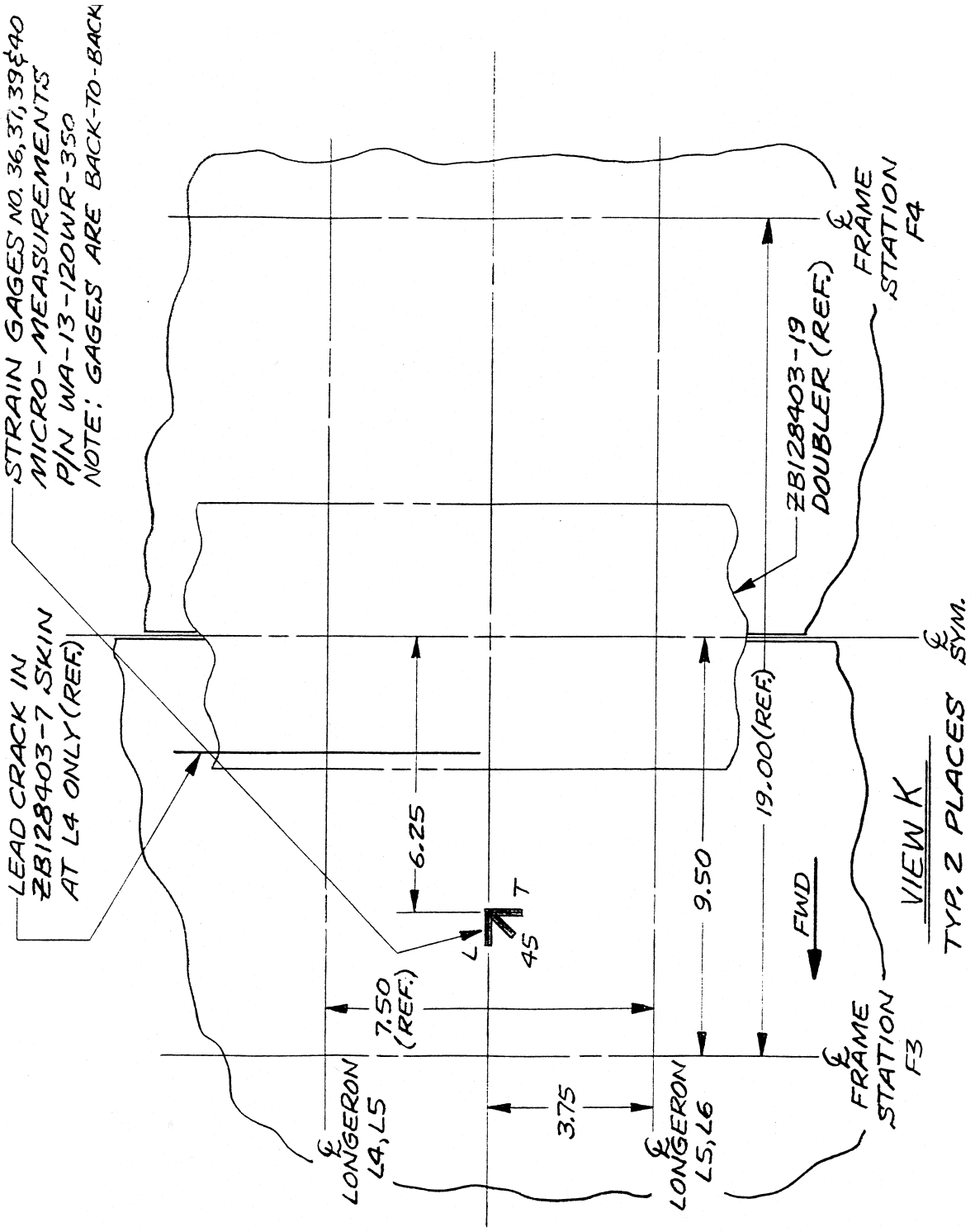



FIGURE B-9. PLACEMENT OF ROSETTE GAGES AT THE SKIN BUTT JOINT LOCATION IN PANELS CVP3 AND CVP4 (Continued)

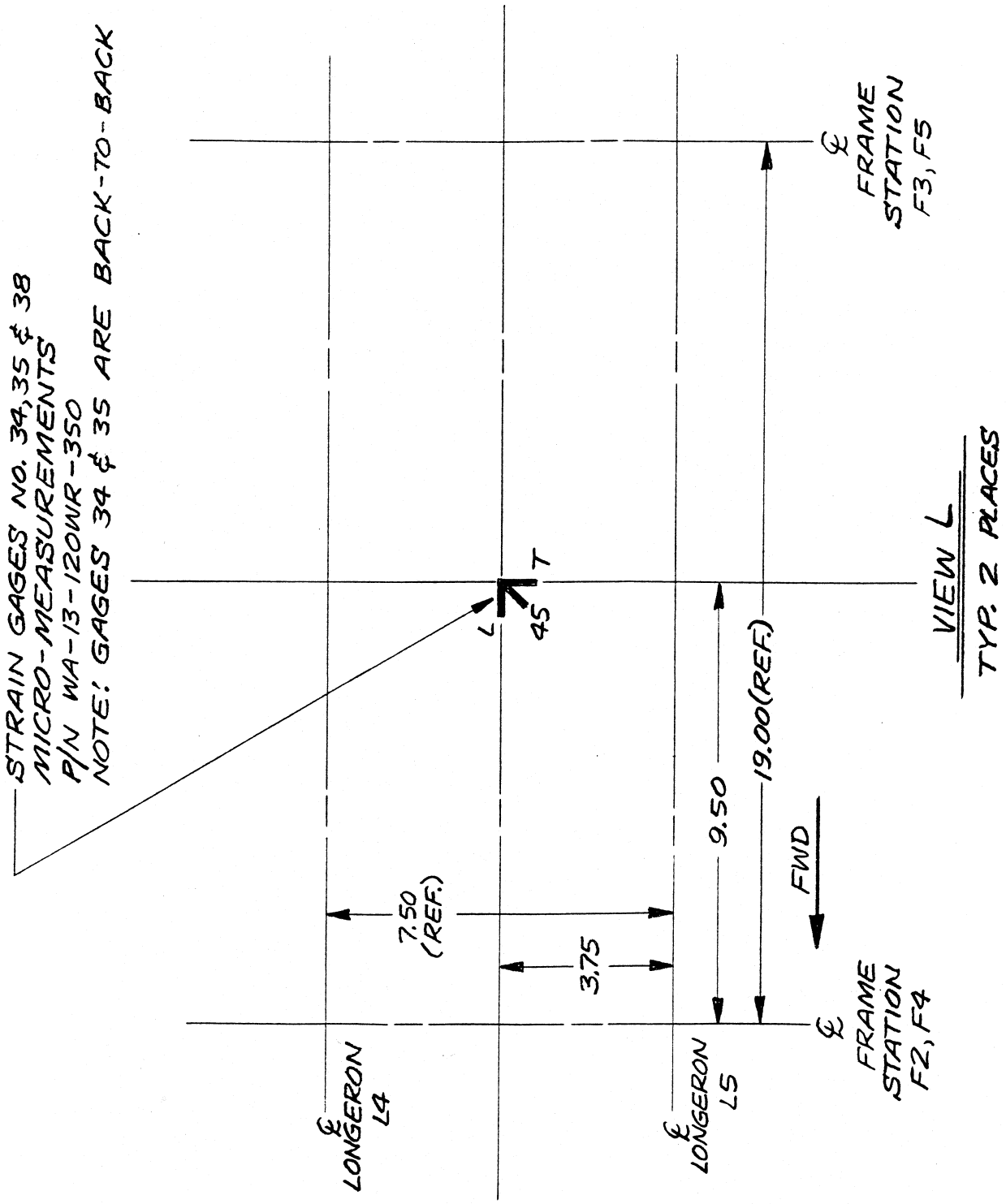



FIGURE B-10. PLACEMENT OF ROSETTE GAGES AT THE SKIN MID-BAY LOCATION IN PANELS CVP3 AND CVP4

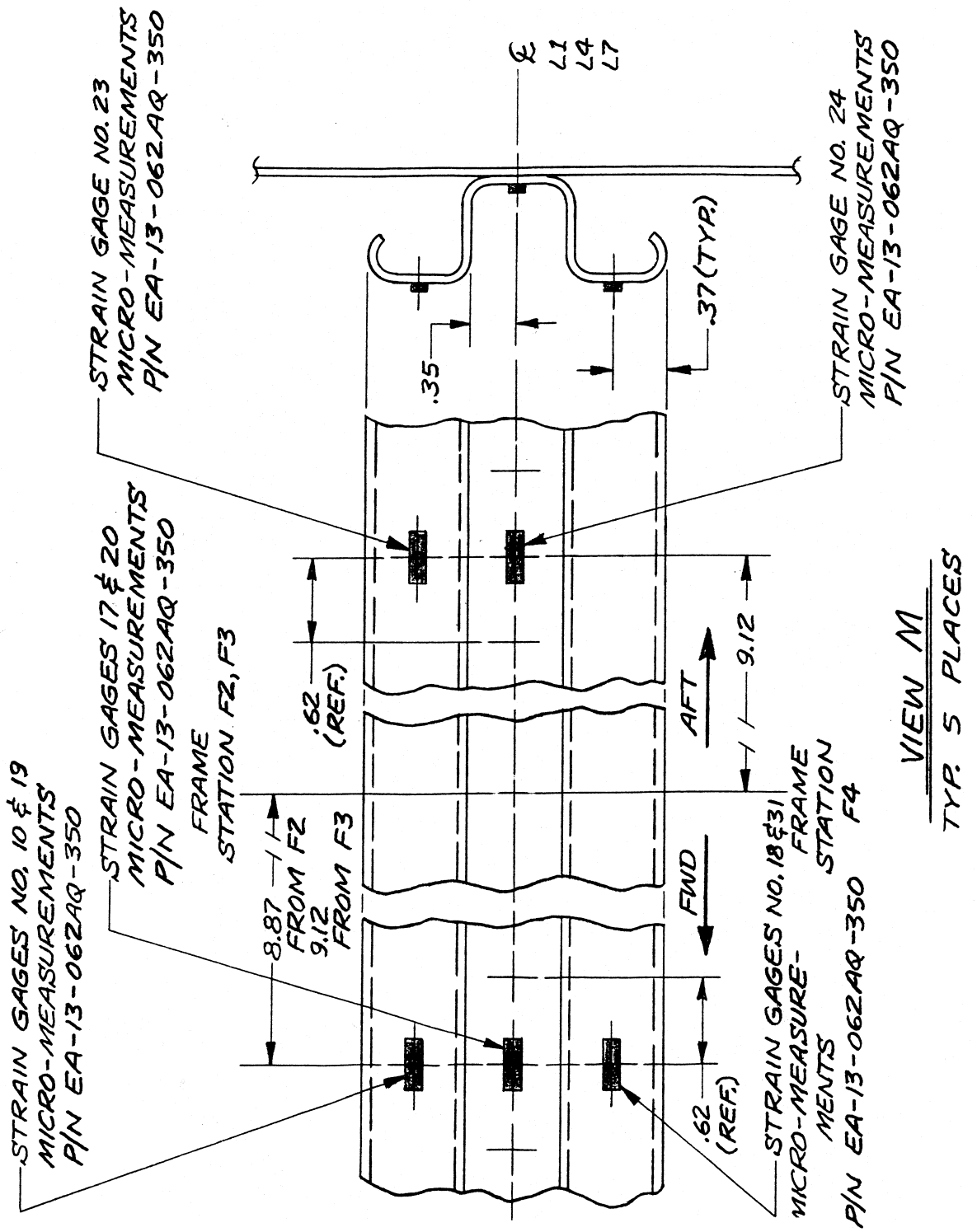



FIGURE B-11. PLACEMENT OF AXIAL GAGES AT THE CAP AND FLANGE OF THE STRINGERS (LONGERONS) OF PANELS CVP3 AND CVP4

## APPENDIX C—BOEING FULL-SCALE STRAIN SURVEY TEST RESULTS

To help verify test results generated using the FASTER facility, results from a full-scale test conducted on an aft fuselage section of an actual narrow-body aircraft by Boeing Aircraft Company, in Long Beach, CA, were compared with results from the FASTER facility. The aft fuselage test article is shown in figure C-1. The test article was mounted on a strong-back fixture and pressurized quasi-statically from 0 to 7.8 psi for three tests, tests 1 to 3. A section of aircraft, from frame station 1269 to 1288 and stringer L4 to L5, was instrumented with strain gages as shown in figure C-2. In this section, the aft fuselage test article closely resembles the four curved panels in this test program, having similar radius, skin thickness, and substructure details. A 45º rosette gage was placed near a skin mid-bay, location A, and uniaxial gages were placed in the cap and flange of stringer L4, locations B and C, and the inner and outer frame cap at frame station 1269, locations E and F. The strain gage data from the three tests are listed in the tables C-1 through C-3 of this appendix.

TABLE C-1. STRAIN GAGE RESULTS FROM TEST 1, ALL STRAIN GAGE DATA IN με

| Pressure | A Skin Mid-Bay | | | B Stringer Cap | C Stringer Flange | D Frame Inner Cap | | | E Frame Outer Cap | |
|---|---|---|---|---|---|---|---|---|---|---|
| (psi) | SK1A | SK1B | SK1C | L4C | L4F | FCL2 | FCL3 | FCU1 | FCU2 | FCU3 |
| 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1.02 | 66 | 46 | 21 | 24 | 10 | 50 | 47 | 29 | 31 | 31 |
| 1.99 | 130 | 90 | 41 | 51 | 19 | 104 | 98 | 63 | 68 | 69 |
| 3.00 | 199 | 134 | 57 | 79 | 30 | 163 | 154 | 100 | 107 | 110 |
| 3.99 | 269 | 181 | 77 | 104 | 37 | 216 | 204 | 136 | 146 | 150 |
| 4.99 | 341 | 228 | 97 | 129 | 44 | 272 | 256 | 171 | 184 | 190 |
| 6.00 | 415 | 279 | 123 | 155 | 51 | 324 | 305 | 205 | 221 | 229 |
| 6.99 | 488 | 326 | 140 | 185 | 63 | 384 | 361 | 242 | 262 | 271 |
| 7.77 | 546 | 362 | 153 | 207 | 72 | 431 | 405 | 271 | 293 | 304 |

TABLE C-2. STRAIN GAGE RESULTS FROM TEST 2, ALL STRAIN GAGE DATA IN με

| Pressure | A Skin Mid-Bay | | | B Stringer Cap | C Stringer Flange | D Frame Inner Cap | | | E Frame Outer Cap | |
|---|---|---|---|---|---|---|---|---|---|---|
| (psi) | SK1A | SK1B | SK1C | L4C | L4F | FCL2 | FCL3 | FCU1 | FCU2 | FCU3 |
| 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1.00 | 64 | 44 | 19 | 24 | 9 | 54 | 50 | 31 | 33 | 34 |
| 1.99 | 131 | 88 | 38 | 49 | 16 | 108 | 101 | 66 | 71 | 73 |
| 3.02 | 204 | 136 | 58 | 75 | 24 | 166 | 156 | 105 | 113 | 115 |
| 4.00 | 275 | 181 | 75 | 101 | 32 | 222 | 209 | 140 | 150 | 155 |
| 5.01 | 347 | 227 | 93 | 126 | 39 | 278 | 261 | 176 | 189 | 195 |
| 5.99 | 419 | 274 | 113 | 152 | 46 | 333 | 314 | 213 | 230 | 236 |
| 7.00 | 493 | 322 | 131 | 178 | 52 | 389 | 366 | 249 | 268 | 278 |
| 7.77 | 550 | 360 | 148 | 197 | 57 | 430 | 403 | 276 | 297 | 307 |

TABLE C-3. STRAIN GAGE RESULTS FROM TEST 3, ALL STRAIN GAGE DATA IN με

| Pressure (psi) | A Skin Mid-Bay | | | B Strin. Cap | C Strin. Flange | D Frame Inner Cap | | | E Frame Outer Cap | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SK1A | SK1B | SK1C | L4C | L4F | FCL2 | FCL3 | FCU1 | FCU2 | FCU3 |
| 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1.00 | 64 | 42 | 15 | 24 | 10 | 58 | 55 | 33 | 35 | 36 |
| 2.01 | 131 | 87 | 34 | 49 | 17 | 113 | 107 | 70 | 75 | 76 |
| 3.00 | 202 | 133 | 53 | 75 | 25 | 168 | 159 | 108 | 116 | 118 |
| 4.01 | 273 | 179 | 72 | 99 | 32 | 225 | 212 | 145 | 155 | 160 |
| 5.01 | 346 | 227 | 91 | 125 | 38 | 280 | 264 | 183 | 196 | 201 |
| 6.01 | 419 | 275 | 111 | 152 | 46 | 335 | 316 | 220 | 236 | 243 |
| 7.00 | 492 | 322 | 130 | 179 | 54 | 393 | 369 | 258 | 276 | 287 |
| 7.77 | 549 | 359 | 144 | 199 | 62 | 437 | 411 | 287 | 308 | 319 |



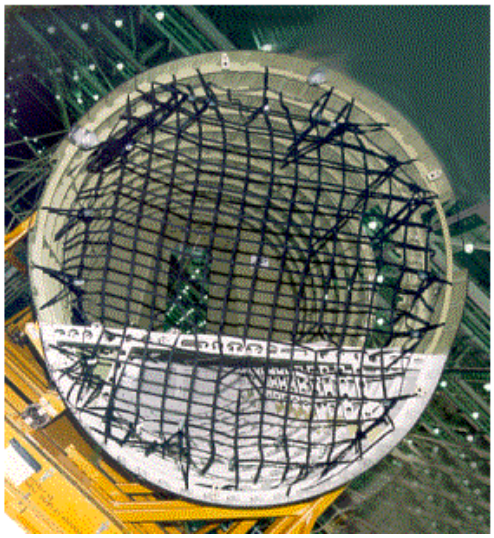


FIGURE C-1. BOEING AFT FUSELAGE TEST ARTICLE

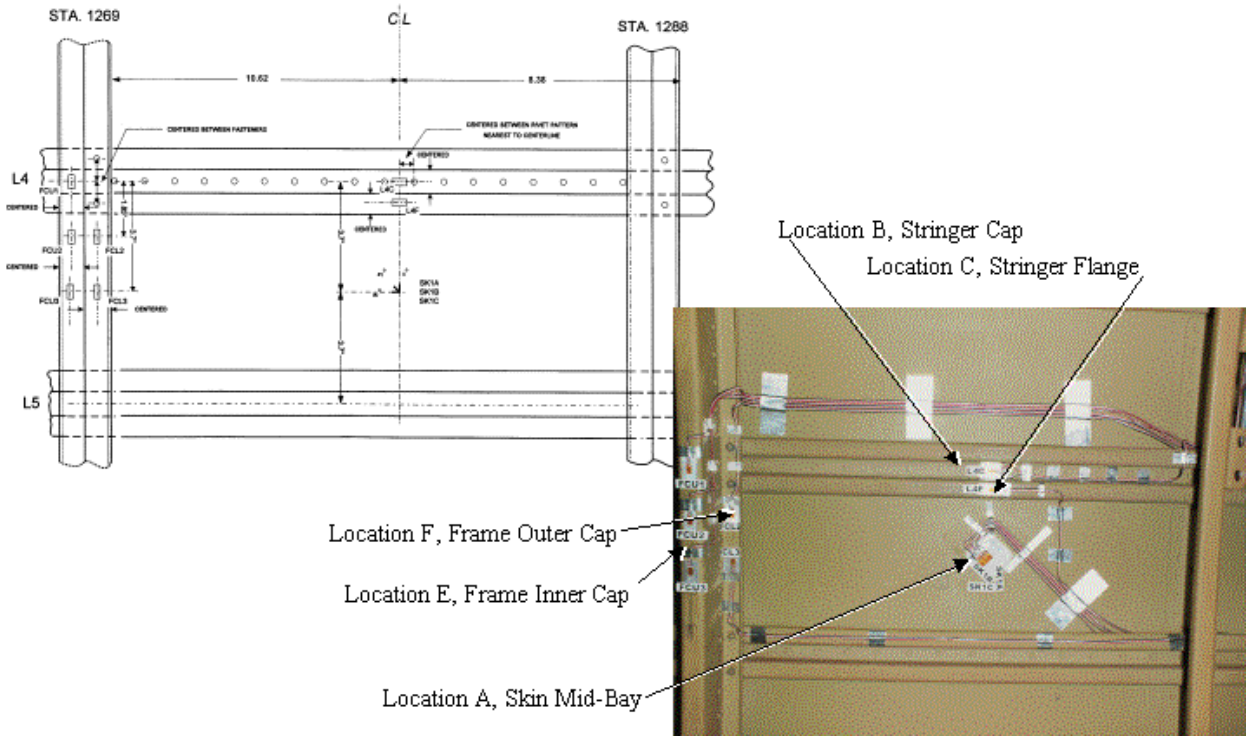



FIGURE C-2. LOCATION OF STRAIN GAGES IN TEST ARTICLE

# APPENDIX D—ANALYSIS OF FULL-SCALE PANELS

## SUMMARY

Analysis to support the full-scale testing of four curved fuselage panels was conducted using the Airframe Computational Modeling (ACM) facility. Emphasis was placed on assessing the effect of multiple cracking on the fatigue crack growth behavior for two joint configurations: a longitudinal lap joint and a circumferential butt joint. Geometric nonlinear finite element analyses were conducted on the two joint configurations to determine strain distributions and fracture parameters governing crack formation and growth. Comparisons with strain gage data verified the finite element models. Fatigue crack growth predictions were made using a cycle-by-cycle crack growth algorithm and the corresponding mixed mode stress-intensity factor (SIF) ranges calculated using the Modified Crack Closure Integral (MCCI) method. Results include comparisons of strain distributions and fatigue crack growth characteristics for the two joint configurations.

## DESCRIPTION OF PANELS

Four panels were tested in this study: (1) panel CVP1 contains a longitudinal lap splice with a lead crack, (2) panel CVP2 has the same configuration and lead crack as CVP1 with the addition of multiple small cracks emanating from rivet holes ahead of the lead crack, (3) panel CVP3 has a circumferential butt joint with a lead crack, and (4) panel CVP4 has the same configuration and lead crack as panel CVP3, with the addition of multiple small cracks emanating from rivet holes ahead of the lead crack.

The panel configuration represents a generic fuselage structure from a narrow-body aircraft fabricated according to original equipment manufacturing (OEM) specifications. Figures D-1 and D-2 show a schematic of the longitudinal lap joint and the circumferential butt joint panels, respectively, including the dimensions and location of the strain gages. Details of the panel configurations and locations of the strain gages can be found in appendices A and B, respectively, of this report. A brief description is provided herein.

For the longitudinal lap joint panels CVP1 and CVP2, a lap joint was located along stringer S4 as shown in figure D-1. The joint consisted of two layers of the 2024-T3 panel skin with a thickness of 0.063″ and two layers of 2024-T3 finger doublers with a thickness of 0.025″. Four rows of fasteners, A, B, C, and D were used to connect the skin and doublers. A crack-like slit representing a lead crack was placed symmetrically across frame F4, machined in the skin along the critical fastener row A in the longitudinal lap splice. The total length of the lead crack was 7.0″. For panel CVP2, additional small cracks were machined in the fasteners ahead of the lead crack in row A.

For panels CVP3 and CVP4, a circumferential butt joint was located between frames F3 and F4 as shown in figure D-2. The joint consisted of two layers of the 2024-T3 panel skin with a thickness of 0.063″, a 2024-T3 finger doubler with a thickness of 0.025″, and a tapered doubler with a maximum thickness of 0.08″, which tapered to a thickness of 0.025″ along the edge. Eight rows of fasteners, A through H, were used to connect the skin and doublers. A crack-like slit representing a lead crack was placed symmetrically across stringer S4, machined in the skin

along the critical fastener row A in the circumferential butt joint. Stringer S4 was cut to simulate a broken stringer. The total length of the lead crack was 7.0″. For panel CVP4, additional small cracks were machined in the fasteners ahead of the lead crack in row A.

These panels were subjected to a sequence of three load conditions: (1) strain survey under quasi-static loading, (2) fatigue test loading under constant-amplitude loading, and (3) residual strength test under quasi-static loading up to fracture. Geometric nonlinear finite element analyses were conducted to support the full-scale testing of the four fuselage panels for the strain survey and the fatigue crack growth tests.

## DESCRIPTION OF AIRFRAME COMPUTATIONAL MODELING FACILITY

Analysis to support the full-scale testing of four curved fuselage panels was conducted using the Airframe Computational Modeling (ACM) facility. With advances in commuter technology, computational modeling offers a cost-effective supplement to full-scale testing which can be extremely expensive. The ACM facility has an in-house capability, at the Federal Aviation Administration William J. Hughes Technical Center, Atlantic City International Airport, NJ, to conduct high fidelity modeling and analysis of aircraft structures. The facility consists of three UNIX-based Silicon Graphics Incorporated (SGI) computers interfaced in a local area network (LAN) and running under IRIX 6.5 operating system. Two workstations are equipped with dual 250-MHz R10000 processors, 512 Mbytes of main memory, and 36 GBytes of hard disk space. The third computer, a high-end server, is equipped with four 400-MHz MIPS R12000 processors, 1 Gbyte of main memory, and 180 GBytes of hard disk space.

Several commercial and government-developed software tools are used in the ACM facility. The commercial tools include PATRAN, a pre- and postprocessor used for model development and data reduction, and ABAQUS, a general-purpose finite element analysis package. The government developed software tools tailored for fracture mechanics studies, including finite element alternating method (FEAM), FRANC2D, and STAGS. In addition, a probabilistic-based analysis tool, Transport Risk Assessment Containing Multiple Site Damage (TRACMSD), is available to assess the effect of a variety of factors on the overall risk of aircraft under conditions of aging. The ACM facility allows the FAA to develop and evaluate highly sophisticated methods, which may be used by industry for airframe designs and maintenance and inspection procedures. The ACM facility was used in this study to conduct analysis to support the full-scale testing of the four curved panels.

## ANALYTICAL PROCEDURE

The strain distributions and fracture parameters governing crack formation and growth were determined for each panel using geometric nonlinear finite element analyses. The mixed mode stress-intensity factors calculated using the MCCI method were used in a cycle-by-cycle crack growth analysis program to predict the fatigue crack growth in the panels tested.

### DESCRIPTION OF FINITE ELEMENT MODELS.

Geometric nonlinear finite element analyses were conducted using the commercial finite element code ABAQUS 5.8 [D-1] in the ACM facility. Analyses of the strain survey and fatigue crack

growth were conducted for panels tested. As shown in figures D-3 through D-6, the finite element models contained the major geometric details of the panels including the cross-section properties and dimensions of the substructure (frames, stringers, shear-clip, and intercostals), the finger doublers, the load attachment doublers, and reaction links. Table D-1 lists the components of the model and the corresponding thickness, and material properties.

Figures D-3 and D-4 show the global view of typical finite element models for the longitudinal lap joint and circumferential butt joint panels, respectively. Models were developed for each of the four panels tested using general-purpose, two-dimensional shell elements with each node having six degrees of freedom. The shell elements used account for finite membrane strains and are suitable for large-strain analysis. Reduced integration was used to form the element stiffness. In general, four-node shell elements were used throughout to model the skin, doublers, frames, shear clip, stringers, and intercostals, except near the crack tips. In the immediate vicinity of the crack tips, eight-node shell elements were used in forming an orthogonal mesh, where the size of the elements were at least 1/40 of the lead crack length, as shown in figures D-5 and D-6, for the longitudinal lap and circumferential butt joint panels, respectively. Skin, stringer, shear-clip, frame, and finger doublers were modeled with a uniform thickness. Tapered doublers and attachment doublers were modeled using shell elements with increased stepped uniform thickness in the ranges specified in table D-1.

At the end of each frame, stainless steel reaction links, 1″ wide, 0.5″ thick, and 4″ long are attached in order to prevent rigid motion in the radial direction, as shown in figures D-5 and D-6. These reaction links are modeled as grounded springs fixed on one end and provide a stiffness in the radial direction. The value of stiffness used is based on the stainless steel properties and the dimensions of the link.

Beam elements were used to model the fasteners that connected the substructures with the skin and the substructures to one another. To simplify the global panel modeling, the fastener holes were not modeled. Figure D-7 shows a schematic cross section of a lap joint with four layers with thicknesses of $t_1$ through $t_4$ and the corresponding finite element representation. The layers were modeled using shell elements having the same thickness and mid-plane location. A single fastener that connects all four layers was modeled using three beams, designated “a,” “b,” and “c,” aligned sequentially connecting each layer. The length of each beam was the distance between the mid-planes of two adjacent shells. For example, for beam element “a,” the length was $(t_1 + t_2)/2$.

For the strain survey analysis, the elements used to calculate values of strain were approximately the same size and at the same location as the actual strain gages. The average characteristic length of the elements used to calculate the strain was 0.125″. As illustrated in figure D-8, the strain gages were categorized in seven groups, according to similar gage locations with common structural details and the measured strain directions: (1) frame outer cap location measuring strains in the hoop direction; (2) frame inner cap location measuring strains in the hoop direction; (3) stringer cap location measuring strains in the longitudinal direction; (4) stringer flange location measuring strains in the longitudinal direction; (5) skin mid-bay location measuring strains in the hoop direction; (6) skin mid-bay location measuring strains in the longitudinal direction; and (7) skin mid-bay location measuring strains in the 45º direction.

MATERIAL PROPERTIES.

Mechanical Properties: Table D-1 lists the mechanical properties used for the shell elements to model components including the skin, doublers, frames, shear-clip, stringers, and intercostals. Mechanical properties were referenced from MIL-HDBK-5H [D-2].

Fastener Shear Stiffness: The empirical equation developed by Swift [D-3], shown below, was used to calculate the fastener shear stiffness of the beam elements as:

$$k_{shear} = \frac{E' d}{A + B\left(\frac{d}{t_1} + \frac{d}{t_2}\right)} \tag{1}$$

where $E'$ is the effective modulus, $d$ is the fastener diameter, and $t_1$ and $t_2$ are the thickness of the two layers, and $A$ and $B$ are empirical constants based on the fastener material. Tables D-2 and D-3 show the properties and data used to model fasteners in the longitudinal lap joint and circumferential butt joint panels, respectively. Values of the fastener shear stiffness for the beam elements connecting the layers in each of the fastener rows (see figures D-1 and D-2) are listed along with the beam elements connecting the skin to stringer and skin to shear clip designated Y and Z, respectively.

Reaction Link Stiffness: The value of stiffness used for the grounded spring elements is based on the stainless steel properties and the dimensions of the link by:

$$k_{link} = \frac{EtW}{L} = \frac{\left(30 \times 10^6\right)(0.5)(1.0)}{4.0} = 3{,}750{,}000 \text{ lb/in} \tag{2}$$

where $E$ is the link modulus of elasticity, and $t$, $W$, and $L$ are the link thickness, width, and gage length, respectively.

Fatigue Crack Growth Properties: Three sets of fatigue crack growth data [D-4 through D-6] for 2024-T3 aluminum were compiled, as shown in figure D-9, with varying R-ratios and used in the fatigue crack growth analysis. The data shown by the black symbols generated by Phillips [D-4] is in the region of slow crack growth and near the threshold conditions. The data shown by the open symbols (generated by Hudson [D-5]) is in the straight line Paris region, and the data shown by the gray symbols (by Dubensky [D-6]) is in the rapid unstable crack growth region. For a given stress-intensity factors (SIF) range, the crack growth rate increases with increase in the R-ratio.

CRACK CONFIGURATIONS.

The crack configurations of the panels were simulated using pairs of coincident nodes along the shared edges of two rows of elements, as shown in the exploded view in figure D-10. In the immediate vicinity of the crack tips, eight-node shell elements were used in forming an orthogonal mesh where the size of the elements were at least 1/40 of the lead crack length, as

shown in figures D-5 and D-6, for the longitudinal lap and circumferential butt joint panels, respectively. For the fatigue crack growth analysis, the lead crack length was increased in separate finite element runs from the initial length to the final length. Tables D-4 through D-7 describe the crack length, the number of nodes, the number of elements for each element type, and the crack tip element size for the finite element runs conducted for each panel. The number of finite element runs conducted was 26 and 11 for each of the longitudinal lap joint panels and the circumferential butt joint panels, respectively. Typical finite element models for the longitudinal lap joint panels consist of 62,600 elements and 11,4600 nodes and for the circumferential butt joint panels, 33,000 elements and 42,800 nodes.

TEST CONDITIONS.

The load conditions for the strain survey and fatigue crack growth tests are specified in tables D-8 and D-9 for the longitudinal lap joint and circumferential butt joint panels, respectively. For each type of panel, three quasi-static loadings were applied to assess the strain distribution and reproducibility of the strain data. In load condition 1a, each panel was subjected to an internal pressure, and the hoop and frame loads were applied as reactive loads to balance the internal pressure. In load condition 1b, load was applied in the longitudinal direction along the edges of the panels only. Load condition 1c is the superposition of load conditions 1a and 1b. For the hoop load, 16.8% was applied on the six frames and the remaining load was applied on 28 loading points along the edge of the panel. The longitudinal load was applied on 16 loading points along the edge of the panel. No load was applied directly on the stringers.

For longitudinal lap joint panels CVP1 and CVP2, load condition 1c simulates the cylindrical pressurization that a section of the fuselage along the neutral axis would experience. Therefore, the average hoop stress should be twice as much as the longitudinal stress. For these two panels, a maximum internal pressure of 10.1 psi was used, resulting in a maximum load of 2218.4 lb. for each loading point along the edge in the hoop direction and a maximum load of 2090.5 lb. for each frame. The corresponding maximum load applied on each loading point along the longitudinal edges was 1166.6 lb.

For circumferential butt joint panels CVP3 and CVP4, load condition 1c simulates a fuselage down-bending condition that a fuselage section along the crown of the aircraft would experience, where the longitudinal stress is 50% higher than the hoop stress. For these two panels, a maximum internal pressure of 8.8 psi was used, resulting in a maximum load of 1927.3 lb. for each loading point along the edge in the hoop direction and a maximum load of 1816.2 lb. for each frame. The corresponding maximum load applied on each loading point along the longitudinal edges was 3065.0 lb.

In load condition 2, the same loads as in load condition 1c were applied at constant-amplitude and a frequency of 0.2 Hz with an R-ratio (minimum to maximum load) of 0.1 for all load components except for the longitudinal load, which was 0.3.

MODEL BOUNDARY CONDITIONS.

For the hoop, frame, and longitudinal loads, nodal point forces (listed in tables D-8 and D-9) were applied at the load application points in the actual test, as shown by the arrows in figures

D-3 and D-4, for the longitudinal lap and circumferential butt joint panels, respectively. Internal pressure was applied to the inner surface of the skin elements. For the hoop load, 28 nodal forces were applied along each edge; for the longitudinal load, 16 nodal forces were applied in each end; and for the frame load, 12 nodal forces were applied to the ends of the frames. For the strain survey analysis, the loads were applied incrementally in a ramp function up to the maximum values for load conditions 1a, 1b, and 1c specified in tables D-8 and D-9. For the fatigue crack growth analysis, load condition 2 (specified in tables D-8 and D-9) was applied incrementally in a ramp function in two steps, each up to the minimum and maximum applied loads as shown schematically in figure D-11. In this figure, time can be regarded as a dummy variable denoting the value in the applied load.

To eliminate rigid-body motion, two node points located in the middle of each end were fixed in the hoop direction and two nodes located in the middle of each edge were fixed in the longitudinal direction, as shown in figures D-3 and D-4.

## THE MODIFIED CRACK CLOSURE INTEGRAL (MCCI) METHOD

For fatigue crack growth predictions, the corresponding mixed mode SIF were calculated using the MCCI method [D-7 through D-9]. In the MCCI approach, it is assumed that the energy released during crack extension is the same as the work that would be needed to close the crack and that the energy released can be related to the four components of SIF. The four components of SIF are the Mode I SIF caused by tensile load, $K_1$, the Mode II SIF cause by in-plane shear load, $K_2$, the SIF due to symmetric bending loads, $k_1$, and the SIF due to out-of-plane shear and twist loads, $k_2$, as shown in figure D-12.

The MCCI method approximates the rate of work needed to close a crack using the local crack tip displacements and forces. The displacements and forces at the nodes of the four elements surrounding the crack tip were obtained from the finite element results for each crack length, as shown in figure D-12. The work ($W_i$) done to close a crack of length $\Delta a$ for each nodal degree of freedom (DOF) is given by [D-9]:

$$W_i = \frac{1}{2t\Delta a}\left[F_i^{Close}\left(u_i^{top} - u_i^{bot}\right)\right], i = 1,\cdots,6 \tag{3}$$

where $t$ is the thickness of the panel, $F$ is the force needed to close the crack surfaces, $u$ is the displacement component on each surface of the crack, and $i$ denotes the DOF. The total amount of work done to close a crack of length $\Delta a$ is numerically equal to the total amount of strain energy released during a crack growth increment of $\Delta a$, and the components of strain energy release rate:

$$G_1 = W_2 + W_6 \tag{4}$$
$$G_2 = W_1 \tag{5}$$
$$G_3 = W_3 \tag{6}$$
$$G_4 = W_4 \tag{7}$$
$$G_5 = W_5 \tag{8}$$

The strain energy release rates can be related to the stress-intensity factors as:

$$G_1 = \frac{K_1^2}{E} \tag{9}$$

$$G_2 = \frac{K_2^2}{E} \tag{10}$$

$$G_4 = \frac{k_1^2 \pi}{3E}\left(\frac{1+\nu}{3+\nu}\right) \tag{11}$$

$$G_3 + G_5 = \frac{k_2^2 \pi}{3E}\left(\frac{1+\nu}{3+\nu}\right) \tag{12}$$

where $E$ = 10500 ksi and $\nu$ = 0.33 are the modulus of elasticity and Poison's ratio of the panel skin material, and $K_1$, $K_2$, $k_1$, and $k_2$ are the SIF described earlier. Only the Mode I SIF, $K_1$, was used to predict the fatigue crack growth behavior because, as will be shown, it was found to be the dominant SIF.

CRACK GROWTH ALGORITHM.

The SIF range and the crack growth data for 2024-T3 aluminum were used in a cycle-by-cycle crack growth analysis program to predict the fatigue crack growth in panels tested. The algorithm used is illustrated in figure D-13. All parameters are initialized in step 1, including the counter $i$, the initial cycle number, and crack length. The algorithm then enters a loop in step 2 where, for a given crack length, $a_i$, the SIF range, $(\Delta K)_i$, is determined from linear interpolation of tabular SIF versus crack length data obtained from the finite element analysis. For the calculated SIF, $(\Delta K)_i$, and given R-ratio, the corresponding crack growth rate, $(da/dN)_i$, is determined in step 3 from experimental tabular data at various R-ratios using linear interpolation. In step 4, the crack length, $a_{i+1}$, and cycle, $N_{i+1}$, are updated, assuming the incremental crack extension, $\Delta a_i$, is equal to the crack growth rate, $(da/dN)_i$, in a cycle-by-cycle analysis with $\Delta N_i$ equal to 1. A check is made in step 5 to terminate the algorithm in step 9 if the updated crack length, $a_{i+1}$, is greater than or equal to the final crack length, $a_{final}$. If not, a check is made in step 6 to determine if linkup occurred between the lead crack and multiple-site damage (MSD) or between the lead crack and rivet hole. If no linkup occurs, the increment counter is increased in step 8 and the algorithm returns to step 2. If a linkup event occurs, then step 7 increases the crack length. For the case of MSD linkup, the crack length, $a_{i+1}$, is instantaneously increased by the length of the two MSD cracks, $2a_{msd}$, and the diameter of the rivet hole, $d_{riv}$. For the case of rivet hole linkup, the crack length, $a_{i+1}$, is instantaneously increased by the diameter of the rivet hole, $d_{riv}$. The increment counter is increased in step 8 and the algorithm returns to step 2. This process is repeated until the crack length is equal to or greater than the final crack length where the algorithm terminates at step 9.

## RESULTS

Results from the analysis to study the strain distribution and fatigue crack growth for both joint configurations are presented.

### STRAIN DISTRIBUTIONS.

The strain distributions were predicted at equal load increments up to the maximum values for load conditions 1a through 1c in table D-8 for the longitudinal lap joint panels and for load conditions 1a through 1c in table D-9 for the circumferential butt joint panels. A preliminary analysis revealed that small multiple cracks had no effect on the calculated strains at the strain gage locations for both joint configurations. Therefore, only one analysis was conducted for each joint configuration for the strain distribution calculation.

The predicted strains at the strain gage locations are provided in tables D-10 through D-12 for the longitudinal lap joint panels and in tables D-13 through D-15 for the circumferential butt joint panels. The locations of strain gages are shown schematically in figures D-1 and D-2. For each loading condition, the applied loads and calculated strains at equal load increments up to the maximum loads are listed. Ten load increments were used for the longitudinal lap joint panels, and five load increments were used for the circumferential butt joint panels. The pressure applied to the inner surface of the skin is in units of psi, the frame loads applied to each of the 12 frame ends are in units of lbs., the hoop loads applied at the 28 locations along each side of the panel are in units of lbs., and the longitudinal load applied at the 16 locations along each end of the panel are in units of lbs. The strains calculated at the gage locations are in units of με.

The measured and predicted strain data were categorized in seven groups, as illustrated in figure D-8, according to similar gage locations in common structural details and the measured strain directions. Comparisons between the measured and predicted strains of the seven groups for each load condition are shown in figures D-14 through D-34 for longitudinal lap panels, CVP1 and CVP2, and in figures D-35 through D-55 for the circumferential butt joint panels CVP3 and CVP4. For the longitudinal lap joint panel, results for load conditions 1a, 1b, and 1c are shown in figures D-14 through D-20, figures D-21 through D-27, and figures D-28 through D-34, respectively. For the circumferential butt joint panels, results for load conditions 1a, 1b, and 1c are shown in figures D-35 through D-41, figures D-42 through D-48, and figures D-49 through D-55, respectively. For each panel, four sets of experimental results are plotted, two using air and two using water as the pressurization media.

As shown in figures D-14 through D-55, there was more scatter in the experiments for strains measured farthest from the skin: group 2, frame inner cap, and group 4, stringer flange. In general, good agreement was obtained between experiments and analysis for strains measured in the principle loading direction for gages closest to the skin; group 1, frame outer cap; group 3, stringer cap; group 5, skin hoop; group 6, skin longitudinal; and group 7, skin 45º.

The strain at the maximum load predicted by finite element analysis was compared with the experimental data. For load condition 1a, each panel was subjected to an internal pressure, while hoop and frame loads were applied as reactive loads from the internal pressure. Even though load was not applied in the longitudinal direction, longitudinal strain still developed in the skin

and stringers, as the result of Poisson's effect and difference in stiffness between the skin and stringers. The magnitude of the longitudinal strain, however, was in general much smaller compared to that in the hoop direction.

Table D-16 shows the comparison for panel CVP1 subjected to loading condition 1a. The test results obtained from two air runs and two water runs were averaged first, and then compared with that of analysis. The standard deviation of the test results for each gage is also listed in the table, serving as an indication of the consistency of the test data. In addition, according to their locations and directions, the gages were grouped into seven groups, two for frame gages, two for stringer gages, and three for skin gages. For each group, a group percentage error, defined by the following equation, was also calculated

$$Group\,\%\,Error = \frac{\sqrt{\sum \left(e_i^{ave} - a_i\right)^2}}{\sqrt{\sum \left(e_i^{ave}\right)^2}} \times 100\% \tag{12}$$

where $e_i^{ave}$ is the averaged experimental data of the $i^{th}$ gage and $a_i$ is the corresponding analysis result.

As indicated in table D-16, for strain gages located in the substructure, good agreement (a 13.2% group error) was obtained between the measurement and predictions for frame gages located at outer cap region, group 1, which is closest to the skin. For the gages located at the frame inner cap region, group 2, that is farthest from the skin, the agreement was not as good. This may be attributed to the experimental data being less consistent, as indicated by their relatively high standard deviations. The agreement for gages located at stringers was relatively poor (93.7% for stringer hat gages, group 3 and 26.8% for stringer flange gages, group 4). However, the magnitude of strain generally was much smaller since the measurement was in the direction normal to the loading direction.

Also shown in table D-16, for strain gages located on the skin, an excellent agreement, i.e., a 9.0% group error was obtained between measurement and prediction for strain component in the hoop direction, group 5, measuring strain in the principle loading direction. A good agreement was also obtained for the 45-degree strain component (a 12.6% group error). The agreement was not as good for the longitudinal strain component, group 7 (a 39.3% group error), but the magnitude of strain in that direction was much smaller because it is normal to the loading direction. It should be noted that the high percentage error for the longitudinal strain component, group 6, was mainly due to gage SG35L, which has unusually low experimental results.

Table D-17 shows the comparison for panel CVP1 subjected to loading condition 1b, longitudinal load applied on the edges of the skin only. Load was not applied directly on the stringers, although they tended to deform with the skin in the longitudinal direction. The hoop strain on the skin and frames was the result of Poisson's effect and differences in stiffness between the skin and frames. Only two test results using water as the pressure media were recorded. For the substructure, excellent agreement (a 2.2% group error) was obtained for gages located at the stringer hat region (closest to the skin). For the gages located at the stringer flange

region (farthest from the skin), the agreement was not as good (a 35.0% group error). For the gages located at frames, which were aligned in the direction normal to the loading, the agreement, as expected, was relatively poor (35.4% for outer cap gages and 26.5% for inner cap gages). For strain gages located on the skin, an excellent agreement (a 7.5% group error) was obtained between measurement and prediction for strain component in the longitudinal (loading) direction. The agreement was almost as good for the hoop strain (a 8.1% group error) and was fair for the 45-degree strain (a 16.6% group error).

Table D-18 shows the comparison for panel CVP1 subjected to loading condition 1c, a cylindrical pressurization of a fuselage along the neutral axis. Therefore, the hoop direction can be considered as the primary loading direction, while the longitudinal direction is considered the secondary loading direction. For the skin gages, excellent agreement was obtained for the strain components in the primary loading (hoop) direction (10.3%) and 45-degree direction (7.8%). In the secondary loading direction, the agreement was not as good (17.2%), but the magnitude of strain was small. For the substructure, the comparison for the frame gage locations (in the primary loading direction) was better than those on the stringers, and the comparison for gages located closest to the skin also fared better than those that were farthest from the skin.

In summary, for panel CVP1, excellent agreement was obtained between measured and predicted strain for skin mid-bay gages in the primary loading direction, with the average percentage error ranging from 7.5% to 10.3%. In the direction normal to the primary loading, the percentage error ranged from 8.1% to 39.3%, but the magnitude of strain was generally much smaller. For the substructure, the gages located closest to the skin and aligned in the direction of primary loading also compared very well with average percentage error ranging from 2.2% to 13.2%. Gages that were aligned normal to the primary loading direction or located farthest from the skin typically compared poorly.

A similar trend was observed for panel CVP2 subjected to the same load conditions as CVP1. The results of comparison are listed in tables D-19 through D-22.

For the circumferential butt joint panels CVP3 and CVP4, the comparisons for load conditions 1a, 1b, and 1c, as shown in table D-9, are given in tables D-23 through D-27. It is noted that for these two panels, load condition 1c simulates a fuselage down-bending condition that a fuselage section along the crown of the aircraft would experience. Therefore, the longitudinal stress is 50% higher than the hoop stress. Consequently, the longitudinal direction was considered as the primary loading direction, while the hoop direction is considered the secondary loading direction. For panel CVP3, the average percentage error for skin mid-bay gage locations in the primary loading direction ranged from 10.9% to 16.9%. For gages on substructure that aligned in the primary loading direction and located closest to the skin, the average percentage error ranged from 11.9% to 12.1%. For panel CVP4, the corresponding average percentage errors were from 10.1% to 15.0 % and from 7.7% to 38.9%, respectively.

Table D-28 summaries the group percentage errors for all four panels subjected to the three load conditions. In general, good agreement was obtained between experiments and analysis for strains measured in the principle loading direction for gages closest to the skin: group 1, frame outer cap; group 3, stringer cap; group 5, skin hoop; group 6, skin longitudinal; and group 7, skin

45º. The agreement was not as good for strains measured in the secondary loading direction, particularly for the gages located farthest from the skin: group 2, frame inner cap and group 4, the stringer flange.

DEFORMATION FIELDS.

Numerical simulations of the deformation process at several crack lengths are shown in figure D-56 for the longitudinal lap joint panels CVP1 and CVP2. In this figure, the displaced meshes are shown at the maximum applied load for load condition 2 in table D-8. The displacements have been scaled by 25. The inset shows the local crack-tip deformation in each of the two panels. As indicated, crack-bulging deformation occurred. As the crack length increased, the distance between the crack edges increased indicating Mode I crack deformation. Mode III crack deformation also occur where out-of-plane (bulging) deflection of one of the crack faces occurred opposite to the lap joint. There was little deflection of the crack face reinforced by the lap joint.

For the circumferential butt joint panels CVP3 and CVP4, the numerical simulation of the deformation process is shown in figure D-57, at several crack lengths. In this figure the displacement meshes are shown at the maximum applied load for load condition 2 in table D-9. The displacements have been scaled by 40. The inset shows the local crack-tip deformation in each of the two panels. Unlike the longitudinal lap joint panel, little crack-bulging deformation occurred for the circumferential butt joint panels. As the shown in the figure, as the crack length increased, the distance between the crack edges increased, indicating primarily Mode I crack deformation.

STRESS-INTENSITY FACTOR SOLUTIONS.

The predicted SIF ranges for the lead crack in panels CVP1 and CVP2 are listed in table D-29 and shown in figure D-58. The numbers inside the circles along the x axis represent the location of rivets. As shown in the figure, $\Delta K_1$, which governs Mode I crack growth, is the dominant SIF range. The next highest SIF range, $\Delta k_2$, which would cause Mode III crack growth, was not significant. Thus, only the Mode I SIF was used to predict the crack growth. As the lead crack tip approached the rivet directly ahead, the SIF increased more for CVP2 compared to CVP1 due to the small cracks at the rivet hole.

The predicted stress-intensity factor ranges for the lead crack in panels CVP3 and CVP4 are listed in table D-30 and shown in figure D-59. The numbers inside the circles along the x axis represent the location of rivets. As shown in the figure, $\Delta K_1$, which governs Mode I crack growth, is the dominant SIF range. The next highest SIF ranges, $\Delta k_1$ and $\Delta k_2$, which would cause crack-bulging deflections, were not significant. Thus, as for the longitudinal lap joint panels, the Mode I SIF was used to predict the crack growth. As the lead crack tip approached the rivet directly ahead, the SIF increased more for CVP4 compared to CVP3 due to the small cracks at the rivet hole. In both panels, for crack lengths longer than the stringer spacing of 7.5″, the SIF ranges decreased slightly due to the stiffening of stringers bridging the crack.

FATIGUE CRACK GROWTH.

The half length of the lead crack, as a function of number of fatigue cycles, is shown in figure D-60 for panels CVP1 and CVP2. The initial half-crack length prior to loading was 3.5″. In the figure, the circular and square symbols represent the measured crack lengths at the left and the right crack tips, respectively, for each panel. The numbers inside the circles along the y axis represent the location of rivets. For panel CVP1, indicated by the open symbols, the vertical jumps indicate crack extension across a rivet hole. When this happened, the crack length increased instantaneously by the diameter of the rivet hole. The rate of crack growth increased as the crack tip approached the rivet hole. The horizontal segments shown in the plot indicate the number of cycles before the crack reformed on the opposite side of the rivet hole. As the crack length increased, the delay in crack reformation (incubation period) decreased due to the larger crack driving force. For panel CVP2, which contained multiple cracks, the vertical jumps in the experimental data indicate linkup of the lead crack and a small multiple crack. When this happened, the crack length increased instantaneously by the diameter of the rivet hole plus the lengths of the small cracks at that rivet. There was no crack reformation. The length of the lead crack front instantaneously grew the length of the small cracks located in the rivets directly ahead. As a result, the number of cycles needed to grow the lead crack to the final length (~12.5inches) in panel CVP2 was approximately 37% less than that in panel CVP1.

The Mode I SIF range, $\Delta K_1$, (figure D-58) and crack growth data for 2024-T3 aluminum (figure D-9) were used in a cycle-by-cycle crack growth analysis program to predict the fatigue crack growth in panels CVP1 and CVP2, also shown in figure D-60. For panel CVP1, crack growth across rivet hole, indicated by the vertical jumps in the curve, was modeled by instantaneously increasing the length of the crack by the diameter of the rivet hole when the lead crack reached the rivet. For panel CVP2, crack growth at the rivet was modeled by instantaneously increasing the length of the crack by the diameter of the rivet plus the length of the small cracks at the rivet when the lead crack reached the first small crack. It is important to note that only $\Delta K_1$ was used to predict crack growth since it was the dominant SIF. There were indications of Mode III loading as indicated by $\Delta k_2$ values shown in figure D-58 and crack-bulging deflection observed during the test. Mode III crack growth was not included in the crack growth analysis due to the lack of experimental crack growth data. Good agreement was obtained between experiments and predictions relying on $\Delta K_1$. For CVP2, the growth of the small multiple crack in the rivet ahead of the lead crack was not modeled for in the analysis.

The fatigue crack growth behavior of panels CVP3 and CVP4 is shown in figure D-61. The initial half-crack length prior to loading was approximately 3.5″. In the figure, the circular and square symbols represent the measured crack lengths of the left and the right crack and CVP4 tips, respectively, from both panels. The numbers inside the circles along the y axis indicates the locations of the rivets. For panel CVP3, crack growth across a rivet hole is indicated by a vertical jump in the data, where the crack length instantaneously increased by a length equal to the hole diameter. The horizontal segments shown in the plot indicate the incubation period or the number of cycles for the crack to reform on the opposite side of the rivet hole. For panel CVP4, which contained multiple cracks, the vertical jumps in the experimental data indicate the point when the lead crack and small multiple crack linked up. When this happened, the crack length increased instantaneously by the diameter of the rivet hole plus the lengths of the small

cracks at that rivet. There was no crack reformation required. The small crack at the rivet hole on the opposite side became the new lead crack front. As a result, the number of cycles to grow the lead crack to the third rivet hole in panel CVP4 was approximately 27%, less than that in panel CVP3. At the third rivet hole on either side, 5R and 5L, the crack had just reached the first intact stringers (S3 and S5). The additional stiffness added by the stringers increased the incubation period for panel CVP3 and decreased the subsequent crack growth rate for both panels.

The Mode I SIF range, $\Delta K_I$, (figure D-59) and the crack growth data for 2024-T3 aluminum (figure 9) were used in a cycle-by-cycle crack growth analysis program to predict the fatigue crack growth in panels CVP3 and CVP4, also shown in figure D-61. The analysis based on $\Delta K_I$ was in good agreement with the test data for crack growth in both panels until the crack reached the intact stringer. Little crack bulging was observed during the test, indicating that the crack growth was primarily due to Mode I loading.

## CONCLUDING REMARKS

Geometric nonlinear finite element analyses were conducted to determine strain distributions and fracture parameters governing crack formation and growth. In general, for the strain distributions, good agreement was obtained between experiments and analysis for strains measured in the principle loading direction for gages closest to the skin. The agreement was not as good for strains measured in the secondary loading direction, particularly for the gages located farthest from the skin.

For fatigue crack growth predictions, the corresponding mixed mode stress-intensity factors were calculated using the Modified Crack Closure Integral (MCCI) method. The Mode I stress-intensity factor (SIF) range was used in a cycle-by-cycle crack growth analysis program to predict the fatigue crack growth in the panels tested. Reasonable agreement was obtained between experimental fatigue crack growth data and predictions relying on the Mode I SIF calculated using finite element analyses. The Mode I SIF was dominate compared to the other modes. The number of cycles to grow a fatigue crack to a predetermined length was reduced by approximately 37% due to the presence of multiple cracks for the longitudinal lap joint panels and 27% for the circumferential butt joint panels.

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TABLE D-1. MECHANICAL PROPERTIES REFERENCED FROM MIL-HDBK-5H [D-2]

| Component | Material | Thickness (in) | Modulus of Elasticity (ksi) | Poisson's Ratio |
|---|---|---|---|---|
| Skin | 2024-T3 | 0.063 | 10500 | 0.33 |
| Stringer | 7075-T3 | 0.071 | 10300 | 0.33 |
| Frame | 7075-T3 | 0.071 | 10300 | 0.33 |
| Shear-Clip | 7075-T3 | 0.063 | 10300 | 0.33 |
| Intercostal | 7075-T3 | 0.040 | 10300 | 0.33 |
| Finger Doublers | 2024-T3 | 0.025 | 10500 | 0.33 |
| Attachment Doublers | 2024-T3 | 0.125-0.50 | 10500 | 0.33 |
| Tapered Doublers | 2024-T3 | 0.025-0.08 | 10500 | 0.33 |

TABLE D-2. PROPERTIES USED TO MODEL FASTENERS FOR CVP1 AND CVP2

| Fastener Row | Fastener Type | Fastener Diameter, d (in) | Fastener Material, A, B | Effective Modulus E' (KSI) | Layer1/ Layer 2 | Layer Thick. (in), $t_1$ /$t_2$ | Shear Stiffness, $k_{shear}$ (lb/in) |
|---|---|---|---|---|---|---|---|
| A | MS20470AD5 | 0.15625 | Aluminum 5.0, 0.8 | 10500 | Outer Skin<br>Outer Doubler | 0.063<br>0.025 | 136899.8 |
| B | MS20470AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Outer Skin<br>Outer Doubler | 0.063<br>0.025 | 147130.8 |
| B | MS20470AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Outer Doubler<br>Inner Skin | 0.025<br>0.063 | 147130.8 |
| B | MS20470AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Inner Skin<br>Inner Doubler | 0.063<br>0.025 | 147130.8 |
| C | NAS1097KE6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Outer Skin<br>Outer Doubler | 0.063<br>0.025 | 147130.8 |
| C | NAS1097KE6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Outer Doubler<br>Inner Skin | 0.025<br>0.063 | 147130.8 |
| C | NAS1097KE6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Inner Skin<br>Inner Doubler | 0.063<br>0.025 | 147130.8 |
| C | NAS1097KE6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Inner Doubler<br>Stringer | 0.025<br>0.071 | 150140.9 |
| D | MS20470AD5 | 0.15625 | Aluminum 5.0, 0.8 | 10500 | Inner Skin<br>Inner Doubler | 0.063<br>0.025 | 136899.8 |
| Y | NAS1097AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Skin<br>Stringer | 0.063<br>0.071 | 207375.9 |
| Z | NAS1097AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Skin<br>Shear Clip | 0.063<br>0.063 | 201676.8 |

TABLE D-3. PROPERTIES USED TO MODEL FASTENERS FOR CVP3 AND CVP4

| Fastener Row | Fastener Type | Fastener Diameter, d (in) | Fastener Material, A, B | Effective Modulus E' (KSI) | Layer1/ Layer 2 | Layer Thick. (in), $t_1$ /$t_2$ | Shear Stiffness, $k_{shear}$ (lb/in) |
|---|---|---|---|---|---|---|---|
| A, H | MS20470AD5 | 0.15625 | Aluminum 5.0, 0.8 | 10500 | Top Skin<br>Finger Doubler | 0.063<br>0.025 | 136899.8 |
| B, G | NAS1097AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Top Skin<br>Finger Doubler | 0.063<br>0.025 | 147130.8 |
| B, G | NAS1097AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Finger Doubler<br>Tapper Doubler | 0.025<br>0.0525 | 142074.7 |
| C, F | NAS1097AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Top Skin<br>Finger Doubler | 0.063<br>0.025 | 147130.8 |
| C, F | NAS1097AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Finger Doubler<br>Tapper Doubler | 0.025<br>0.080 | 152912.6 |
| D, E | HLT 435-6 | 0.1875 | Titanium 4.0, 0.82 | 10500 | Top Skin<br>Finger Doubler | 0.063<br>0.025 | 156368.2 |
| D, E | HLT 435-6 | 0.1875 | Titanium 4.0, 0.82 | 10500 | Finger Doubler<br>Tapper Doubler | 0.025<br>0.080 | 163085.7 |
| Y | NAS1097AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Skin<br>Stringer | 0.063<br>0.071 | 187613.8 |
| Z | NAS1097AD6 | 0.1875 | Aluminum 5.0, 0.8 | 10500 | Skin<br>Shear Clip | 0.063<br>0.063 | 182936.9 |

TABLE D-4. FINITE ELEMENT MODEL INFORMATION FOR CVP1

| Finite Element Run | Crack Length, a(in) | Number of Shell Elements | Number of Beam Elements | Total Number of Nodes | Crack Tip Element Dimension (in by in) |
|---|---|---|---|---|---|
| cvp1_1_1 | 3.563 | 61396 | 2099 | 116952 | 0.0938 x 0.0939 |
| cvp1_1_2 | 3.844 | 61396 | 2099 | 116964 | 0.0938 x 0.0939 |
| cvp1_1_3 | 4.125 | 61432 | 2099 | 117092 | 0.0469 x 0.0470 |
| cvp1_1_4 | 4.219 | 56356 | 2099 | 101928 | 0.0234 x 0.0235 |
| cvp1_1_5 | 4.289 | 56356 | 2099 | 101912 | 0.0234 x 0.0235 |
| cvp1_2_1 | 4.714 | 61396 | 2099 | 117062 | 0.0268 x 0.0235 |
| cvp1_2_2 | 5.036 | 61432 | 2099 | 117208 | 0.1070 x 0.0939 |
| cvp1_2_3 | 5.357 | 61432 | 2099 | 117220 | 0.1070 x 0.0939 |
| cvp1_2_4 | 5.705 | 58748 | 2099 | 109288 | 0.0268 x 0.0235 |
| cvp1_2_5 | 5.759 | 58748 | 2099 | 109268 | 0.0268 x 0.0235 |
| cvp1_3_1 | 6.188 | 62156 | 2099 | 119478 | 0.0234 x 0.0235 |
| cvp1_3_2 | 6.469 | 61432 | 2099 | 117344 | 0.0937 x 0.0939 |
| cvp1_3_3 | 6.750 | 61432 | 2099 | 117356 | 0.0937 x 0.0939 |
| cvp1_3_4 | 7.149 | 59948 | 2099 | 112952 | 0.0234 x 0.0235 |
| cvp1_4_1 | 7.768 | | | | |
| cvp1_4_3 | 8.464 | 61432 | 2099 | 117456 | 0.1070 x 0.0939 |
| cvp1_4_4 | 8.652 | 59948 | 2099 | 113016 | 0.0268 x 0.0235 |
| cvp1_5_1 | 9.241 | | | | |
| cvp1_5_3 | 9.964 | 61432 | 2099 | 117545 | 0.1070 x 0.0939 |
| cvp1_5_4 | 10.125 | 59948 | 2099 | 113068 | 0.0268 x 0.0235 |
| cvp1_6_1 | 10.734 | | | | |
| cvp1_6_3 | 11.344 | 61432 | 2099 | 117632 | 0.0937 x 0.0939 |
| cvp1_6_4 | 11.695 | 59348 | 2099 | 111324 | 0.0234 x 0.0235 |
| cvp1_7_1 | 12.214 | | | | |
| cvp1_7_3 | 12.857 | 61432 | 2099 | 117772 | 0.1070 x 0.0939 |
| cvp1_7_4 | 13.179 | 59348 | 2099 | 111384 | 0.0268 x 0.0235 |

TABLE D-5. FINITE ELEMENT MODEL INFORMATION FOR CVP2

| Finite Element Run | Crack Length, a(in) | Number of Shell Elements | Number of Beam Elements | Total Number of Nodes | Crack Tip Element Dimension (in by in) |
|---|---|---|---|---|---|
| cvp2_1_1 | 3.563 | 61396 | 2099 | 117010 | 0.0938 x 0.0939 |
| cvp2_1_2 | 3.844 | 61396 | 2099 | 117022 | 0.0938 x 0.0939 |
| cvp2_1_3 | 4.125 | 61432 | 2099 | 117150 | 0.0469 x 0.0470 |
| cvp2_1_4 | 4.219 | 56356 | 2099 | 101982 | 0.0234 x 0.0235 |
| cvp2_1_5 | 4.289 | 56356 | 2099 | 101966 | 0.0234 x 0.0235 |
| cvp2_2_1 | 4.714 | 61432 | 2099 | 117232 | 0.0268 x 0.0235 |
| cvp2_2_2 | 5.036 | 61432 | 2099 | 117262 | 0.1070 x 0.0939 |
| cvp2_2_3 | 5.357 | 61432 | 2099 | 117274 | 0.1070 x 0.0939 |
| cvp2_2_4 | 5.705 | 58748 | 2099 | 109341 | 0.0268 x 0.0235 |
| cvp2_2_5 | 5.759 | 58748 | 2099 | 109322 | 0.0268 x 0.0235 |
| cvp2_3_1 | 6.188 | 61432 | 2099 | 117350 | 0.0234 x 0.0235 |
| cvp2_3_2 | 6.469 | 61432 | 2099 | 117382 | 0.0937 x 0.0939 |
| cvp2_3_3 | 6.750 | 61432 | 2099 | 117394 | 0.0937 x 0.0939 |
| cvp2_3_4 | 7.149 | 59948 | 2099 | 113030 | 0.0234 x 0.0235 |
| cvp2_4_1 | 7.768 | 61432 | 2099 | 117462 | 0.0536 x 0.0470 |
| cvp2_4_3 | 8.464 | 61432 | 2099 | 117494 | 0.1070 x 0.0939 |
| cvp2_4_4 | 8.652 | 59948 | 2099 | 113086 | 0.0268 x 0.0235 |
| cvp2_5_1 | 9.241 | 61432 | 2099 | 117550 | 0.0536 x 0.0470 |
| cvp2_5_3 | 9.964 | 61432 | 2099 | 117582 | 0.1070 x 0.0939 |
| cvp2_5_4 | 10.125 | 59948 | 2099 | 113118 | 0.0268 x 0.0235 |
| cvp2_6_1 | 10.734 | 61432 | 2099 | 117662 | 0.0469 x 0.0470 |
| cvp2_6_3 | 11.344 | 61432 | 2099 | 117694 | 0.0937 x 0.0939 |
| cvp2_6_4 | 11.695 | 59348 | 2099 | 111386 | 0.0234 x 0.0235 |
| cvp2_7_1 | 12.214 | 61432 | 2099 | 117794 | 0.0268 x 0.0235 |
| cvp2_7_3 | 12.857 | 61432 | 2099 | 117834 | 0.1070 x 0.0939 |
| cvp2_7_4 | 13.179 | 59348 | 2099 | 111446 | 0.0268 x 0.0235 |

TABLE D-6. FINITE ELEMENT MODEL INFORMATION FOR CVP3

| Finite Element Run | Crack Length, a(in) | Number of Shell Elements | Number of Beam Elements | Total Number of Nodes | Crack Tip Element Dimension (in by in) |
|---|---|---|---|---|---|
| cvp3_1_1 | 3.474 | 28850 | 2335 | 36990 | 01097 x 0.0938 |
| cvp3_1_3 | 3.849 | 28850 | 2335 | 37006 | 01097 x 0.0938 |
| cvp3_1_4 | 4.131 | 28850 | 2335 | 37018 | 01094 x 0.0938 |
| cvp3_1_5 | 4.224 | 28850 | 2335 | 37022 | 01094 x 0.0938 |
| cvp3_2_1 | 4.693 | 31826 | 2329 | 45978 | 0.0547 x 0.0469 |
| cvp3_2_3 | 5.209 | 31826 | 2329 | 46022 | 0.0547 x 0.0469 |
| cvp3_2_5 | 5.677 | 31826 | 2329 | 46070 | 0.0547 x 0.0469 |
| cvp3_3_1 | 6.140 | 31826 | 2325 | 46102 | 0.0554 x 0.0469 |
| cvp3_3_3 | 7.080 | 31826 | 2327 | 46182 | 0.0548 x 0.0471 |
| cvp3_3_6 | 8.480 | 31826 | 2327 | 46302 | 0.0550 x 0.0469 |
| cvp3_3_9 | 8.760 | 31826 | 2327 | 46326 | 0.0551 x 0.0469 |

TABLE D-7. FINITE ELEMENT MODEL INFORMATION FOR CVP4

| Finite Element Run | Crack Length, a(in) | Number of Shell Elements | Number of Beam Elements | Total Number of Nodes | Crack Tip Element Dimension (in by in) |
|---|---|---|---|---|---|
| cvp4_1_1 | 3.474 | 28850 | 2335 | 37004 | 0.1097 x 0.0938 |
| cvp4_1_3 | 3.849 | 28850 | 2335 | 37020 | 0.1097 x 0.0938 |
| cvp4_1_4 | 4.131 | 28850 | 2335 | 37032 | 0.1094 x 0.0938 |
| cvp4_1_5 | 4.224 | 29338 | 2335 | 38547 | 0.0547 x 0.0469 |
| cvp4_2_1 | 4.693 | 31826 | 2329 | 46000 | 0.0547 x 0.0469 |
| cvp4_2_3 | 5.209 | 31826 | 2329 | 46044 | 0.0547 x 0.0469 |
| cvp4_2_5 | 5.677 | 31826 | 2329 | 46092 | 0.0548 x 0.0469 |
| cvp4_3_1 | 6.140 | 31826 | 2327 | 46124 | 0.0554 x 0.0469 |
| cvp4_3_3 | 7.080 | 31826 | 2327 | 46204 | 0.0548 x 0.0471 |
| cvp4_3_6 | 8.480 | 31826 | 2327 | 46324 | 0.0550 x 0.0469 |
| cvp4_3_9 | 8.760 | 31826 | 2327 | 46348 | 0.0551 x 0.0469 |

TABLE D-8. LOADING SEQUENCE AND CONDITIONS OF PANELS CVP1 AND CVP2

| Load Condition | Test Type | Minimum and Maximum Load | | | |
|---|---|---|---|---|---|
| | | Pressure (psi) | Hoop (lb) | Frame (lb) | Long. (lb) |
| 1a | Quasi-Static Loading, Strain Survey | 0 to 10.1 | 0 to 2218.4 | 0 to 2090.5 | 0 to 0 |
| 1b | Quasi-Static Loading, Strain Survey | 0 to 0 | 0 to 0 | 0 to 0 | 0 to 1166.6 |
| 1c | Quasi-Static Loading, Strain Survey | 0 to 10.1 | 0 to 2218.4 | 0 to 2090.5 | 0 to 1166.6 |
| 2 | Cyclic Fatigue Crack Growth | 1.0 to 10.1 | 221.8 to 2218.4 | 209.1 to 2090.5 | 116.7 to 1166.6 |

TABLE D-9. LOADING SEQUENCE AND CONDITIONS OF PANELS CVP3 AND CVP4

| Load Condition | Test Type | Minimum to Maximum Load | | | |
|---|---|---|---|---|---|
| | | Pressure (psi) | Hoop (lb) | Frame (lb) | Long. (lb) |
| 1a | Quasi-Static Loading, Strain Survey | 0 to 8.8 | 0 to 1927.3 | 0 to 1816.2 | 0 to 0 |
| 1b | Quasi-Static Loading, Strain Survey | 0 to 0 | 0 to 0 | 0 to 0 | 0 to 3065.0 |
| 1c | Quasi-Static Loading, Strain Survey | 0 to 8.8 | 0 to 1927.3 | 0 to 1816.2 | 0 to 3065.0 |
| 2 | Cyclic Fatigue Crack Growth | 0.9 to 8.8 | 192.7 to 1927.3 | 181.6 to 1816.2 | 919.5 to 3065.0 |

TABLE D-10. FINITE ELEMENT PREDICTIONS OF STRAIN FOR LONGITUDINAL LAP JOINT PANELS CVP1 AND CVP2, LOAD CONDITION 1a

| Increment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Pressure (psi) | 1.01 | 2.02 | 3.03 | 4.04 | 5.05 | 6.06 | 7.07 | 8.08 | 9.09 | 10.10 |
| Frame Load (lb.) | 209.05 | 418.09 | 627.14 | 836.18 | 1045.23 | 1254.28 | 1463.32 | 1672.37 | 1881.41 | 2090.46 |
| Hoop Load (lb.) | 221.84 | 443.69 | 665.53 | 887.38 | 1109.22 | 1331.06 | 1552.91 | 1774.75 | 1996.60 | 2218.44 |
| Long. Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SG01 | 55.45 | 113.47 | 173.10 | 233.88 | 295.52 | 357.88 | 420.83 | 484.28 | 548.18 | 612.45 |
| SG02 | 57.40 | 115.54 | 174.30 | 233.56 | 293.19 | 353.12 | 413.31 | 473.72 | 534.32 | 595.11 |
| SG03 | 63.25 | 128.86 | 195.83 | 263.71 | 332.26 | 401.34 | 470.84 | 540.71 | 610.91 | 681.39 |
| SG04 | 53.84 | 108.38 | 163.82 | 220.02 | 276.81 | 334.07 | 391.72 | 449.72 | 508.00 | 566.54 |
| SG05 | 61.49 | 125.15 | 190.26 | 256.38 | 323.28 | 390.81 | 458.86 | 527.36 | 596.27 | 665.56 |
| SG06 | 66.45 | 133.01 | 200.04 | 267.51 | 335.36 | 403.52 | 471.97 | 540.66 | 609.59 | 678.72 |
| SG07 | 55.00 | 112.84 | 172.43 | 233.23 | 294.95 | 357.39 | 420.43 | 483.98 | 547.99 | 612.43 |
| SG08 | 52.96 | 106.43 | 160.68 | 215.57 | 270.96 | 326.76 | 382.89 | 439.33 | 496.03 | 552.98 |
| SG09 | 62.43 | 128.34 | 196.48 | 266.05 | 336.56 | 407.73 | 479.38 | 551.38 | 623.66 | 696.16 |
| SG10 | 65.10 | 126.23 | 185.05 | 242.50 | 299.11 | 355.19 | 410.92 | 466.44 | 521.82 | 577.12 |
| SG11 | 45.52 | 96.02 | 149.34 | 204.37 | 260.50 | 317.40 | 374.86 | 432.76 | 491.01 | 549.57 |
| SG12 | 92.01 | 176.50 | 257.00 | 335.24 | 412.14 | 488.24 | 563.82 | 639.09 | 714.19 | 789.20 |
| SG13 | 55.83 | 115.72 | 178.13 | 242.18 | 307.33 | 373.27 | 439.80 | 506.79 | 574.15 | 641.82 |
| SG14 | 64.68 | 125.32 | 183.62 | 240.54 | 296.60 | 352.12 | 407.29 | 462.23 | 517.04 | 571.77 |
| SG15 | 71.77 | 144.58 | 217.91 | 291.59 | 365.54 | 439.73 | 514.16 | 588.77 | 663.58 | 738.56 |
| SG16 | 42.43 | 86.10 | 130.43 | 175.14 | 220.08 | 265.18 | 310.38 | 355.65 | 400.97 | 446.34 |
| SG17 | 76.29 | 153.19 | 230.44 | 307.94 | 385.68 | 463.63 | 541.77 | 620.10 | 698.60 | 777.26 |
| SG18 | 43.03 | 87.16 | 131.87 | 176.95 | 222.26 | 267.72 | 313.30 | 358.95 | 404.67 | 450.42 |
| SG19 | 70.27 | 141.81 | 214.01 | 286.65 | 359.65 | 432.94 | 506.49 | 580.27 | 654.25 | 728.41 |
| SG20 | 41.66 | 84.63 | 128.32 | 172.46 | 216.90 | 261.54 | 306.32 | 351.20 | 396.16 | 441.19 |
| SG21 | -27.75 | -57.45 | -88.23 | -119.64 | -151.41 | -183.38 | -215.45 | -247.56 | -279.66 | -311.72 |
| SG22 | -4.38 | -7.25 | -9.32 | -10.94 | -12.33 | -13.58 | -14.79 | -15.98 | -17.20 | -18.47 |
| SG23 | -31.07 | -64.67 | -99.39 | -134.61 | -170.04 | -205.55 | -241.05 | -276.51 | -311.89 | -347.18 |
| SG24 | -6.18 | -10.77 | -14.66 | -18.23 | -21.66 | -25.05 | -28.46 | -31.90 | -35.40 | -38.96 |
| SG25 | -30.49 | -58.32 | -85.40 | -112.24 | -139.01 | -165.74 | -192.45 | -219.14 | -245.83 | -272.52 |
| SG26 | -13.80 | -28.00 | -42.35 | -56.78 | -71.27 | -85.80 | -100.38 | -114.99 | -129.63 | -144.31 |
| SG27 | -23.89 | -47.14 | -70.12 | -93.10 | -116.19 | -139.48 | -163.00 | -186.76 | -210.77 | -235.02 |
| SG28 | -7.78 | -16.71 | -26.19 | -35.91 | -45.72 | -55.53 | -65.31 | -75.02 | -84.66 | -94.20 |
| SG29T | 123.15 | 224.75 | 317.37 | 405.89 | 492.45 | 578.10 | 663.36 | 748.50 | 833.68 | 918.95 |
| SG29-45 | 58.41 | 104.27 | 144.82 | 182.87 | 219.66 | 255.80 | 291.60 | 327.22 | 362.77 | 398.28 |
| SG29L | -5.94 | -15.97 | -27.77 | -40.42 | -53.54 | -66.90 | -80.41 | -94.00 | -107.64 | -121.29 |
| SG30T | 121.75 | 223.80 | 317.23 | 406.57 | 493.91 | 580.27 | 666.17 | 751.88 | 837.55 | 923.26 |
| SG30-45 | 57.42 | 103.28 | 144.02 | 182.30 | 219.34 | 255.76 | 291.86 | 327.82 | 363.73 | 399.65 |
| SG30L | -8.83 | -20.63 | -33.81 | -47.67 | -61.89 | -76.28 | -90.77 | -105.28 | -119.80 | -134.30 |
| SG31T | 57.61 | 134.74 | 219.97 | 308.92 | 399.68 | 491.37 | 583.55 | 675.98 | 768.56 | 861.23 |
| SG31-45 | 23.79 | 56.40 | 92.39 | 129.78 | 167.74 | 205.91 | 244.13 | 282.32 | 320.45 | 358.52 |
| SG31L | -15.47 | -32.15 | -49.75 | -67.98 | -86.68 | -105.72 | -125.02 | -144.53 | -164.21 | -184.03 |
| SG32T | 122.79 | 225.32 | 319.88 | 411.12 | 501.03 | 590.48 | 679.90 | 769.50 | 859.33 | 949.44 |
| SG32-45 | 58.33 | 103.87 | 144.22 | 182.31 | 219.42 | 256.14 | 292.74 | 329.38 | 366.11 | 402.98 |
| SG32L | -13.44 | -30.61 | -49.29 | -68.61 | -88.21 | -107.91 | -127.63 | -147.32 | -166.96 | -186.55 |
| SG33T | 122.61 | 225.23 | 319.98 | 411.47 | 501.64 | 591.36 | 681.06 | 770.91 | 860.99 | 951.31 |
| SG33-45 | 52.90 | 94.29 | 131.23 | 166.36 | 200.79 | 235.01 | 269.27 | 303.65 | 338.20 | 372.93 |
| SG33L | -13.51 | -30.55 | -49.07 | -68.26 | -87.75 | -107.37 | -127.04 | -146.70 | -166.35 | -185.96 |
| SG34T | 123.09 | 224.72 | 317.34 | 405.85 | 492.38 | 578.01 | 663.24 | 748.35 | 833.51 | 918.78 |
| SG34-45 | 58.94 | 104.67 | 144.84 | 182.44 | 218.81 | 254.60 | 290.16 | 325.66 | 361.19 | 396.82 |
| SG34L | -6.32 | -16.44 | -28.23 | -40.85 | -53.91 | -67.23 | -80.70 | -94.25 | -107.86 | -121.50 |
| SG35T | 58.56 | 135.85 | 221.89 | 312.00 | 403.97 | 496.68 | 589.58 | 682.41 | 775.01 | 867.34 |
| SG35-45 | 20.36 | 52.35 | 89.97 | 130.36 | 172.16 | 214.67 | 257.54 | 300.56 | 343.62 | 386.69 |
| SG35L | -20.93 | -37.62 | -52.12 | -65.39 | -77.89 | -89.91 | -101.57 | -112.99 | -124.20 | -135.25 |
| SG36T | 110.08 | 209.24 | 303.35 | 394.86 | 484.93 | 574.18 | 662.94 | 751.43 | 839.78 | 928.04 |
| SG36-45 | 42.70 | 79.43 | 113.58 | 146.50 | 178.82 | 210.87 | 242.80 | 274.72 | 306.67 | 338.70 |
| SG36L | -15.92 | -33.92 | -52.75 | -71.90 | -91.17 | -110.44 | -129.67 | -148.82 | -167.89 | -186.88 |
| SG37T | 107.31 | 206.83 | 301.60 | 393.47 | 483.48 | 572.29 | 660.31 | 747.78 | 834.89 | 921.75 |
| SG37-45 | 45.83 | 88.78 | 129.92 | 169.96 | 209.31 | 248.24 | 286.90 | 325.40 | 363.80 | 402.16 |
| SG37L | -18.77 | -35.39 | -50.86 | -65.63 | -79.92 | -93.88 | -107.59 | -121.10 | -134.45 | -147.68 |

TABLE D-11. FINITE ELEMENT PREDICTIONS OF STRAIN FOR LONGITUDINAL LAP JOINT PANELS CVP1 AND CVP2, LOAD CONDITION 1b

| Increment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Pressure (psi) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Frame Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hoop Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Long. Load (lb.) | 116.66 | 233.31 | 349.97 | 466.62 | 583.28 | 699.93 | 816.59 | 933.24 | 1049.90 | 1166.55 |
| SG01 | -1.76 | -3.52 | -5.28 | -7.03 | -8.77 | -10.50 | -12.22 | -13.92 | -15.61 | -17.28 |
| SG02 | -2.63 | -5.33 | -8.14 | -11.07 | -14.11 | -17.26 | -20.51 | -23.87 | -27.32 | -30.86 |
| SG03 | -19.21 | -38.22 | -57.07 | -75.75 | -94.27 | -112.63 | -130.84 | -148.88 | -166.78 | -184.53 |
| SG04 | -3.88 | -7.79 | -11.73 | -15.73 | -19.77 | -23.86 | -27.99 | -32.17 | -36.38 | -40.63 |
| SG05 | -19.15 | -38.08 | -56.82 | -75.38 | -93.76 | -111.98 | -130.03 | -147.91 | -165.64 | -183.20 |
| SG06 | -4.25 | -8.49 | -12.78 | -17.12 | -21.53 | -26.00 | -30.52 | -35.09 | -39.72 | -44.39 |
| SG07 | 0.42 | 0.86 | 1.31 | 1.74 | 2.17 | 2.60 | 3.02 | 3.45 | 3.87 | 4.30 |
| SG08 | -3.99 | -8.02 | -12.11 | -16.25 | -20.47 | -24.74 | -29.08 | -33.47 | -37.92 | -42.42 |
| SG09 | -19.02 | -37.86 | -56.53 | -75.03 | -93.36 | -111.52 | -129.52 | -147.35 | -165.02 | -182.54 |
| SG10 | -2.87 | -5.74 | -8.67 | -11.65 | -14.69 | -17.80 | -20.96 | -24.17 | -27.43 | -30.74 |
| SG11 | -19.97 | -39.69 | -59.19 | -78.47 | -97.54 | -116.40 | -135.06 | -153.53 | -171.81 | -189.91 |
| SG12 | -2.52 | -5.09 | -7.77 | -10.55 | -13.44 | -16.42 | -19.49 | -22.66 | -25.90 | -29.22 |
| SG13 | 0.27 | 0.54 | 0.81 | 1.09 | 1.38 | 1.68 | 1.99 | 2.32 | 2.65 | 2.99 |
| SG14 | -2.40 | -4.78 | -7.23 | -9.77 | -12.41 | -15.13 | -17.94 | -20.83 | -23.79 | -26.83 |
| SG15 | -7.31 | -14.60 | -21.86 | -29.07 | -36.24 | -43.37 | -50.44 | -57.48 | -64.47 | -71.42 |
| SG16 | -2.08 | -4.25 | -6.46 | -8.68 | -10.92 | -13.16 | -15.41 | -17.66 | -19.93 | -22.20 |
| SG17 | -7.18 | -14.33 | -21.45 | -28.52 | -35.55 | -42.54 | -49.48 | -56.38 | -63.24 | -70.06 |
| SG18 | -2.11 | -4.34 | -6.59 | -8.86 | -11.14 | -13.43 | -15.73 | -18.03 | -20.34 | -22.66 |
| SG19 | -2.54 | -5.07 | -7.59 | -10.11 | -12.64 | -15.16 | -17.69 | -20.22 | -22.74 | -25.27 |
| SG20 | -1.25 | -2.54 | -3.84 | -5.16 | -6.49 | -7.84 | -9.19 | -10.57 | -11.95 | -13.35 |
| SG21 | 26.11 | 52.16 | 78.16 | 104.09 | 129.96 | 155.77 | 181.53 | 207.23 | 232.88 | 258.47 |
| SG22 | 26.30 | 52.55 | 78.75 | 104.90 | 130.99 | 157.03 | 183.02 | 208.97 | 234.86 | 260.71 |
| SG23 | 31.33 | 62.57 | 93.73 | 124.81 | 155.81 | 186.73 | 217.58 | 248.34 | 279.04 | 309.66 |
| SG24 | 31.79 | 63.53 | 95.20 | 126.81 | 158.36 | 189.84 | 221.27 | 252.63 | 283.93 | 315.17 |
| SG25 | 31.56 | 63.13 | 94.65 | 126.12 | 157.55 | 188.91 | 220.22 | 251.48 | 282.68 | 313.83 |
| SG26 | 33.72 | 67.37 | 100.94 | 134.44 | 167.86 | 201.21 | 234.48 | 267.67 | 300.79 | 333.85 |
| SG27 | 29.99 | 59.89 | 89.70 | 119.44 | 149.10 | 178.68 | 208.19 | 237.63 | 267.00 | 296.30 |
| SG28 | 31.53 | 63.00 | 94.39 | 125.72 | 156.99 | 188.19 | 219.33 | 250.40 | 281.42 | 312.37 |
| SG29T | -14.68 | -29.25 | -43.72 | -58.10 | -72.39 | -86.61 | -100.76 | -114.83 | -128.85 | -142.80 |
| SG29-45 | 7.28 | 14.75 | 22.37 | 30.13 | 38.02 | 46.01 | 54.11 | 62.31 | 70.60 | 78.97 |
| SG29L | 34.93 | 69.97 | 105.07 | 140.24 | 175.47 | 210.74 | 246.05 | 281.39 | 316.75 | 352.13 |
| SG30T | -12.28 | -24.46 | -36.57 | -48.62 | -60.60 | -72.52 | -84.39 | -96.20 | -107.95 | -119.66 |
| SG30-45 | 10.88 | 21.82 | 32.81 | 43.85 | 54.93 | 66.05 | 77.20 | 88.38 | 99.59 | 110.83 |
| SG30L | 34.85 | 69.67 | 104.44 | 139.16 | 173.84 | 208.47 | 243.03 | 277.55 | 312.00 | 346.40 |
| SG31T | -7.41 | -14.90 | -22.45 | -30.05 | -37.71 | -45.41 | -53.17 | -60.97 | -68.82 | -76.71 |
| SG31-45 | 14.07 | 28.04 | 41.91 | 55.68 | 69.38 | 82.98 | 96.51 | 109.95 | 123.32 | 136.60 |
| SG31L | 35.07 | 70.03 | 104.87 | 139.60 | 174.22 | 208.72 | 243.13 | 277.43 | 311.63 | 345.73 |
| SG32T | -11.79 | -23.51 | -35.18 | -46.80 | -58.38 | -69.91 | -81.40 | -92.84 | -104.23 | -115.57 |
| SG32-45 | 11.60 | 23.19 | 34.74 | 46.27 | 57.78 | 69.25 | 80.70 | 92.13 | 103.53 | 114.91 |
| SG32L | 34.62 | 69.16 | 103.62 | 138.01 | 172.31 | 206.53 | 240.68 | 274.74 | 308.72 | 342.63 |
| SG33T | -12.05 | -24.01 | -35.90 | -47.73 | -59.49 | -71.20 | -82.85 | -94.45 | -105.99 | -117.47 |
| SG33-45 | 11.44 | 22.89 | 34.32 | 45.74 | 57.14 | 68.52 | 79.88 | 91.23 | 102.55 | 113.86 |
| SG33L | 34.68 | 69.31 | 103.91 | 138.45 | 172.95 | 207.39 | 241.77 | 276.11 | 310.38 | 344.59 |
| SG34T | -14.92 | -29.69 | -44.35 | -58.89 | -73.33 | -87.68 | -101.94 | -116.12 | -130.22 | -144.26 |
| SG34-45 | 12.77 | 25.57 | 38.41 | 51.28 | 64.18 | 77.09 | 90.01 | 102.95 | 115.89 | 128.82 |
| SG34L | 34.88 | 69.87 | 104.94 | 140.09 | 175.29 | 210.55 | 245.84 | 281.18 | 316.53 | 351.91 |
| SG35T | -13.57 | -27.05 | -40.40 | -53.61 | -66.70 | -79.67 | -92.51 | -105.24 | -117.85 | -130.36 |
| SG35-45 | 11.03 | 22.05 | 33.09 | 44.14 | 55.20 | 66.27 | 77.35 | 88.44 | 99.54 | 110.64 |
| SG35L | 35.47 | 70.82 | 106.04 | 141.15 | 176.14 | 211.03 | 245.81 | 280.49 | 315.06 | 349.54 |
| SG36T | -9.68 | -19.33 | -28.96 | -38.58 | -48.18 | -57.77 | -67.33 | -76.88 | -86.41 | -95.91 |
| SG36-45 | 10.63 | 21.26 | 31.88 | 42.48 | 53.07 | 63.65 | 74.21 | 84.76 | 95.29 | 105.80 |
| SG36L | 31.16 | 62.27 | 93.30 | 124.28 | 155.19 | 186.03 | 216.81 | 247.52 | 278.17 | 308.75 |
| SG37T | -10.43 | -20.80 | -31.13 | -41.40 | -51.63 | -61.81 | -71.93 | -82.01 | -92.05 | -102.03 |
| SG37-45 | 10.17 | 20.32 | 30.44 | 40.55 | 50.63 | 60.69 | 70.74 | 80.77 | 90.77 | 100.77 |
| SG37L | 30.72 | 61.34 | 91.87 | 122.32 | 152.68 | 182.95 | 213.14 | 243.25 | 273.28 | 303.23 |

TABLE D-12. FINITE ELEMENT PREDICTIONS OF STRAIN FOR LONGITUDINAL LAP JOINT PANELS CVP1 AND CVP2, LOAD CONDITION 1c

| Increment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Pressure (psi) | 1.01 | 2.02 | 3.03 | 4.04 | 5.05 | 6.06 | 7.07 | 8.08 | 9.09 | 10.10 |
| Frame Load (lb.) | 209.05 | 418.09 | 627.14 | 836.18 | 1045.23 | 1254.28 | 1463.32 | 1672.37 | 1881.41 | 2090.46 |
| Hoop Load (lb.) | 221.84 | 443.69 | 665.53 | 887.38 | 1109.22 | 1331.06 | 1552.91 | 1774.75 | 1996.60 | 2218.44 |
| Long. Load (lb.) | 116.66 | 233.31 | 349.97 | 466.62 | 583.28 | 699.93 | 816.59 | 933.24 | 1049.90 | 1166.55 |
| SG01 | 53.12 | 107.75 | 163.09 | 218.79 | 274.68 | 330.68 | 386.73 | 442.82 | 498.93 | 555.07 |
| SG02 | 54.68 | 109.85 | 165.40 | 221.24 | 277.29 | 333.48 | 389.79 | 446.20 | 502.69 | 559.25 |
| SG03 | 43.69 | 89.28 | 135.85 | 183.04 | 230.66 | 278.65 | 326.96 | 375.54 | 424.39 | 473.50 |
| SG04 | 49.98 | 100.65 | 152.16 | 204.34 | 257.05 | 310.17 | 363.62 | 417.35 | 471.31 | 525.47 |
| SG05 | 41.99 | 85.71 | 130.52 | 176.07 | 222.21 | 268.84 | 315.89 | 363.33 | 411.14 | 459.30 |
| SG06 | 62.08 | 124.13 | 186.48 | 249.11 | 311.98 | 375.03 | 438.23 | 501.56 | 564.99 | 628.50 |
| SG07 | 54.78 | 111.23 | 168.42 | 225.93 | 283.58 | 341.28 | 398.98 | 456.65 | 514.30 | 571.91 |
| SG08 | 49.01 | 98.56 | 148.88 | 199.85 | 251.32 | 303.21 | 355.44 | 407.97 | 460.76 | 513.79 |
| SG09 | 43.23 | 89.68 | 138.10 | 187.74 | 238.16 | 289.15 | 340.55 | 392.27 | 444.25 | 496.47 |
| SG10 | 61.94 | 119.60 | 174.77 | 228.45 | 281.19 | 333.32 | 385.03 | 436.45 | 487.67 | 538.75 |
| SG11 | 25.68 | 56.52 | 90.17 | 125.51 | 161.94 | 199.16 | 236.97 | 275.26 | 313.97 | 353.05 |
| SG12 | 88.81 | 169.33 | 245.48 | 319.15 | 391.31 | 462.51 | 533.06 | 603.18 | 672.99 | 742.58 |
| SG13 | 55.68 | 114.51 | 175.01 | 236.37 | 298.15 | 360.10 | 422.10 | 484.07 | 545.97 | 607.77 |
| SG14 | 61.95 | 119.53 | 174.58 | 228.12 | 280.73 | 332.74 | 384.36 | 435.73 | 486.92 | 538.01 |
| SG15 | 64.24 | 129.15 | 194.27 | 259.50 | 324.80 | 390.16 | 455.58 | 521.06 | 586.60 | 652.19 |
| SG16 | 40.41 | 82.04 | 124.36 | 167.11 | 210.13 | 253.36 | 296.74 | 340.24 | 383.84 | 427.52 |
| SG17 | 68.85 | 137.90 | 206.97 | 276.04 | 345.12 | 414.21 | 483.33 | 552.47 | 621.64 | 690.84 |
| SG18 | 40.94 | 82.93 | 125.52 | 168.49 | 211.73 | 255.16 | 298.73 | 342.42 | 386.20 | 430.05 |
| SG19 | 67.54 | 136.04 | 204.91 | 273.98 | 343.18 | 412.49 | 481.86 | 551.29 | 620.78 | 690.30 |
| SG20 | 40.39 | 82.03 | 124.33 | 167.04 | 210.02 | 253.19 | 296.49 | 339.90 | 383.40 | 426.97 |
| SG21 | -1.49 | -4.70 | -8.80 | -13.36 | -18.14 | -23.01 | -27.89 | -32.73 | -37.49 | -42.15 |
| SG22 | 21.74 | 44.65 | 68.05 | 91.61 | 115.18 | 138.65 | 161.98 | 185.13 | 208.10 | 230.85 |
| SG23 | 0.47 | -1.28 | -3.90 | -6.85 | -9.88 | -12.88 | -15.79 | -18.58 | -21.23 | -23.73 |
| SG24 | 25.31 | 51.66 | 78.28 | 104.87 | 131.27 | 157.43 | 183.32 | 208.93 | 234.26 | 259.30 |
| SG25 | 1.25 | 5.30 | 10.18 | 15.33 | 20.62 | 26.01 | 31.50 | 37.09 | 42.77 | 48.55 |
| SG26 | 19.75 | 38.75 | 57.30 | 75.50 | 93.38 | 110.98 | 128.32 | 145.42 | 162.28 | 178.93 |
| SG27 | 6.15 | 12.89 | 19.84 | 26.72 | 33.42 | 39.88 | 46.08 | 52.02 | 57.70 | 63.15 |
| SG28 | 23.50 | 45.44 | 66.53 | 87.12 | 107.38 | 127.40 | 147.24 | 166.92 | 186.47 | 205.89 |
| SG29T | 108.90 | 197.99 | 279.70 | 358.47 | 436.08 | 513.31 | 590.49 | 667.75 | 745.16 | 822.70 |
| SG29-45 | 65.71 | 119.71 | 169.29 | 217.07 | 264.12 | 310.91 | 357.65 | 404.45 | 451.32 | 498.29 |
| SG29L | 28.68 | 53.10 | 75.71 | 97.43 | 118.64 | 139.54 | 160.22 | 180.74 | 201.13 | 221.40 |
| SG30T | 109.49 | 200.00 | 282.59 | 361.59 | 438.87 | 515.32 | 591.38 | 667.24 | 743.04 | 818.81 |
| SG30-45 | 68.25 | 125.26 | 177.49 | 227.49 | 276.38 | 324.69 | 372.68 | 420.48 | 468.18 | 515.80 |
| SG30L | 25.80 | 48.31 | 69.23 | 89.26 | 108.76 | 127.88 | 146.73 | 165.35 | 183.80 | 202.08 |
| SG31T | 50.61 | 120.38 | 197.59 | 277.96 | 359.70 | 442.03 | 524.58 | 607.15 | 689.67 | 772.10 |
| SG31-45 | 37.87 | 84.09 | 133.19 | 183.27 | 233.59 | 283.86 | 333.94 | 383.80 | 433.42 | 482.81 |
| SG31L | 19.33 | 36.98 | 53.39 | 68.91 | 83.75 | 98.03 | 111.85 | 125.27 | 138.35 | 151.11 |
| SG32T | 110.91 | 202.34 | 286.63 | 368.16 | 448.66 | 528.88 | 609.13 | 689.53 | 770.11 | 850.87 |
| SG32-45 | 69.64 | 126.59 | 178.63 | 228.59 | 277.63 | 326.28 | 374.77 | 423.20 | 471.62 | 520.04 |
| SG32L | 20.90 | 37.73 | 52.84 | 67.10 | 80.87 | 94.32 | 107.53 | 120.55 | 133.41 | 146.13 |
| SG33T | 110.53 | 201.92 | 286.26 | 367.88 | 448.50 | 528.83 | 609.18 | 689.67 | 770.34 | 851.17 |
| SG33-45 | 64.27 | 117.35 | 166.29 | 213.57 | 260.17 | 306.50 | 352.73 | 398.94 | 445.14 | 491.35 |
| SG33L | 20.92 | 38.04 | 53.54 | 68.21 | 82.43 | 96.35 | 110.06 | 123.60 | 137.00 | 150.27 |
| SG34T | 108.71 | 197.81 | 279.57 | 358.39 | 436.04 | 513.31 | 590.52 | 667.82 | 745.26 | 822.84 |
| SG34-45 | 71.84 | 131.21 | 185.71 | 238.06 | 289.41 | 340.25 | 390.83 | 441.25 | 491.56 | 541.79 |
| SG34L | 28.29 | 52.64 | 75.30 | 97.09 | 118.39 | 139.38 | 160.15 | 180.75 | 201.21 | 221.55 |
| SG35T | 46.86 | 114.24 | 190.84 | 271.60 | 354.17 | 437.43 | 520.82 | 604.06 | 687.03 | 769.68 |
| SG35-45 | 32.30 | 76.86 | 126.95 | 179.57 | 233.31 | 287.49 | 341.79 | 396.02 | 450.09 | 503.98 |
| SG35L | 14.42 | 32.48 | 52.11 | 72.46 | 93.10 | 113.85 | 134.61 | 155.31 | 175.92 | 196.43 |
| SG36T | 100.24 | 189.83 | 274.76 | 357.37 | 438.72 | 519.35 | 599.54 | 679.46 | 759.20 | 838.81 |
| SG36-45 | 53.23 | 100.61 | 145.56 | 189.37 | 232.61 | 275.52 | 318.26 | 360.89 | 403.44 | 445.94 |
| SG36L | 15.03 | 27.72 | 39.44 | 50.69 | 61.70 | 72.57 | 83.35 | 94.06 | 104.73 | 115.34 |
| SG37T | 97.48 | 187.83 | 273.76 | 356.91 | 438.28 | 518.45 | 597.79 | 676.55 | 754.88 | 832.88 |
| SG37-45 | 56.34 | 110.01 | 161.90 | 212.60 | 262.51 | 311.89 | 360.87 | 409.57 | 458.03 | 506.33 |
| SG37L | 11.97 | 25.85 | 40.55 | 55.64 | 70.93 | 86.30 | 101.68 | 117.05 | 132.36 | 147.61 |

TABLE D-13. FINITE ELEMENT PREDICTIONS OF STRAIN FOR CIRCUMFERENTIAL BUTT JOINT PANELS CVP3 AND CVP4, LOAD CONDITION 1a

| Increment | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Pressure (psi) | 1.76 | 3.52 | 5.28 | 7.04 | 8.80 |
| Frame Load (lb.) | 363.23 | 726.46 | 1089.69 | 1452.92 | 1816.15 |
| Hoop Load (lb.) | 385.47 | 770.94 | 1156.40 | 1541.87 | 1927.34 |
| Long. Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SG01 | 123.78 | 244.85 | 364.43 | 483.12 | 601.27 |
| SG02 | 128.15 | 252.10 | 373.77 | 494.14 | 613.71 |
| SG03 | 102.51 | 199.80 | 294.07 | 386.53 | 477.87 |
| SG04 | 125.52 | 246.89 | 365.89 | 483.46 | 600.14 |
| SG05 | 127.77 | 251.44 | 372.83 | 492.90 | 612.16 |
| SG06 | 77.48 | 158.24 | 241.01 | 325.18 | 410.39 |
| SG07 | 133.61 | 262.76 | 389.39 | 514.46 | 638.55 |
| SG08 | 121.47 | 239.98 | 356.91 | 472.94 | 588.45 |
| SG09 | 80.61 | 164.14 | 249.32 | 335.56 | 422.54 |
| SG10 | -50.88 | -103.10 | -155.11 | -206.42 | -256.89 |
| SG11 | -14.20 | -27.78 | -41.13 | -54.33 | -67.39 |
| SG12 | -2.07 | -3.63 | -4.87 | -5.85 | -6.62 |
| SG13 | -11.99 | -23.54 | -35.56 | -48.19 | -61.43 |
| SG14 | -14.63 | -29.96 | -45.13 | -59.83 | -73.97 |
| SG15 | -2.53 | -2.34 | -0.39 | 2.91 | 7.29 |
| SG16 | -21.17 | -44.27 | -68.85 | -94.61 | -121.34 |
| SG17 | -32.91 | -66.46 | -100.59 | -135.24 | -170.36 |
| SG18 | -31.08 | -64.48 | -99.37 | -135.38 | -172.33 |
| SG19 | -53.02 | -111.46 | -172.32 | -234.52 | -297.57 |
| SG20 | -14.17 | -27.01 | -39.47 | -51.86 | -64.27 |
| SG21 | -22.42 | -45.96 | -69.73 | -93.40 | -116.86 |
| SG22 | 30.24 | 61.30 | 92.34 | 123.08 | 153.42 |
| SG23 | -65.86 | -136.20 | -208.01 | -280.27 | -352.58 |
| SG24 | -13.80 | -26.51 | -39.28 | -52.37 | -65.82 |
| SG25 | -14.81 | -30.25 | -45.48 | -60.21 | -74.36 |
| SG26 | -12.11 | -23.75 | -35.84 | -48.54 | -61.85 |
| SG27 | -21.13 | -44.18 | -68.69 | -94.37 | -121.01 |
| SG28 | -2.65 | -2.61 | -0.82 | 2.30 | 6.48 |
| SG29 | -12.02 | -25.45 | -40.04 | -55.56 | -71.88 |
| SG30 | -9.58 | -17.00 | -23.04 | -28.01 | -32.09 |
| SG31 | -50.95 | -103.19 | -155.16 | -206.41 | -256.79 |

| Increment | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Pressure (psi) | 1.76 | 3.52 | 5.28 | 7.04 | 8.80 |
| Frame Load (lb.) | 363.23 | 726.46 | 1089.69 | 1452.92 | 1816.15 |
| Hoop Load (lb.) | 385.47 | 770.94 | 1156.40 | 1541.87 | 1927.34 |
| Long. Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SG32T | 185.95 | 353.96 | 510.69 | 659.75 | 803.32 |
| SG32-45 | 88.64 | 167.02 | 239.03 | 306.76 | 371.44 |
| SG32L | -7.29 | -19.37 | -34.32 | -51.19 | -69.40 |
| SG33T | 183.74 | 351.54 | 509.50 | 660.79 | 807.23 |
| SG33-45 | 85.84 | 161.50 | 230.86 | 295.98 | 358.03 |
| SG33L | -8.09 | -21.21 | -37.49 | -55.90 | -75.84 |
| SG34T | 183.19 | 347.61 | 505.22 | 660.02 | 813.61 |
| SG34-45 | 76.93 | 145.50 | 211.34 | 276.23 | 340.88 |
| SG34L | -32.52 | -63.14 | -92.61 | -121.32 | -149.49 |
| SG35T | 123.93 | 264.28 | 411.29 | 561.52 | 713.52 |
| SG35-45 | 47.69 | 103.92 | 163.57 | 224.87 | 287.11 |
| SG35L | -29.83 | -59.25 | -88.76 | -118.44 | -148.23 |
| SG36T | 182.64 | 349.41 | 506.37 | 656.66 | 802.11 |
| SG36-45 | 82.98 | 156.34 | 223.75 | 287.11 | 347.56 |
| SG36L | -6.44 | -18.36 | -33.70 | -51.35 | -70.67 |
| SG37T | 112.66 | 232.49 | 355.51 | 479.92 | 604.81 |
| SG37-45 | 20.59 | 50.48 | 85.72 | 124.31 | 165.15 |
| SG37L | -81.65 | -151.06 | -212.63 | -268.69 | -320.60 |
| SG38T | 183.73 | 347.91 | 505.26 | 659.93 | 813.55 |
| SG38-45 | 76.08 | 143.32 | 207.65 | 270.93 | 333.84 |
| SG38L | -30.81 | -59.71 | -87.48 | -114.53 | -141.11 |
| SG39T | 186.50 | 354.70 | 511.47 | 660.52 | 804.09 |
| SG39-45 | 87.78 | 165.26 | 236.41 | 303.33 | 367.29 |
| SG39L | -5.48 | -16.00 | -29.60 | -45.25 | -62.34 |
| SG40T | 108.07 | 223.52 | 342.39 | 462.83 | 583.91 |
| SG40-45 | 15.50 | 41.68 | 74.12 | 110.55 | 149.70 |
| SG40L | -82.19 | -150.61 | -210.25 | -263.82 | -312.90 |

TABLE D-14. FINITE ELEMENT PREDICTIONS OF STRAIN FOR CIRCUMFERENTIAL BUTT JOINT PANELS CVP3 AND CVP4, LOAD CONDITION 1b

| Increment | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Pressure (psi) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Frame Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hoop Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Long. Load (lb.) | 613.00 | 1226.00 | 1839.00 | 2452.00 | 3065.00 |
| SG01 | -96.93 | -188.39 | -275.40 | -358.66 | -438.70 |
| SG02 | -134.01 | -259.64 | -378.78 | -492.66 | -602.16 |
| SG03 | 208.32 | 405.77 | 593.82 | 773.29 | 944.74 |
| SG04 | -7.90 | -16.90 | -26.53 | -36.71 | -47.46 |
| SG05 | -132.55 | -256.78 | -374.52 | -487.03 | -595.19 |
| SG06 | -22.92 | -45.98 | -69.51 | -93.52 | -117.94 |
| SG07 | -139.70 | -271.42 | -396.61 | -516.36 | -631.49 |
| SG08 | -94.91 | -184.30 | -269.23 | -350.43 | -428.42 |
| SG09 | -24.92 | -49.35 | -73.76 | -98.32 | -123.10 |
| SG10 | 58.42 | 118.87 | 181.23 | 245.44 | 311.44 |
| SG11 | 69.98 | 137.37 | 203.56 | 269.06 | 334.11 |
| SG12 | 140.16 | 276.14 | 408.35 | 537.42 | 663.85 |
| SG13 | 235.24 | 462.86 | 684.56 | 901.45 | 1114.30 |
| SG14 | 231.11 | 454.54 | 673.27 | 888.69 | 1101.48 |
| SG15 | 103.26 | 207.97 | 313.94 | 421.00 | 528.98 |
| SG16 | 249.93 | 484.15 | 706.20 | 918.61 | 1123.20 |
| SG17 | 179.28 | 359.43 | 539.50 | 719.07 | 897.93 |
| SG18 | 113.03 | 228.25 | 344.98 | 462.83 | 581.58 |
| SG19 | 132.81 | 267.70 | 403.93 | 540.95 | 678.39 |
| SG20 | 140.39 | 280.43 | 419.48 | 557.24 | 693.62 |
| SG21 | 85.01 | 172.77 | 262.15 | 352.34 | 442.75 |
| SG22 | 15.06 | 28.46 | 41.29 | 54.07 | 67.04 |
| SG23 | 163.06 | 326.40 | 489.53 | 652.13 | 814.00 |
| SG24 | 169.20 | 337.25 | 503.91 | 669.05 | 832.63 |
| SG25 | 230.43 | 453.70 | 672.56 | 888.29 | 1101.55 |
| SG26 | 235.27 | 462.89 | 684.58 | 901.45 | 1114.28 |
| SG27 | 249.60 | 483.53 | 705.32 | 917.49 | 1121.83 |
| SG28 | 103.13 | 207.69 | 313.52 | 420.42 | 528.27 |
| SG29 | 184.68 | 361.18 | 530.93 | 695.03 | 854.34 |
| SG30 | 72.38 | 144.82 | 217.85 | 291.66 | 366.26 |
| SG31 | 58.46 | 118.97 | 181.37 | 245.64 | 311.68 |

| Increment | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Pressure (psi) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Frame Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hoop Load (lb.) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Long. Load (lb.) | 613.00 | 1226.00 | 1839.00 | 2452.00 | 3065.00 |
| SG32T | 15.50 | 17.51 | 9.92 | -4.46 | -23.69 |
| SG32-45 | 76.40 | 152.18 | 227.21 | 301.40 | 374.66 |
| SG32L | 122.78 | 256.41 | 396.85 | 541.51 | 688.72 |
| SG33T | 27.58 | 20.54 | -5.27 | -41.96 | -85.38 |
| SG33-45 | 13.49 | 17.46 | 16.96 | 14.00 | 9.48 |
| SG33L | 163.14 | 345.95 | 538.36 | 735.18 | 933.71 |
| SG34T | -72.45 | -141.36 | -207.19 | -270.40 | -331.35 |
| SG34-45 | 31.16 | 65.48 | 101.58 | 138.69 | 176.37 |
| SG34L | 179.22 | 358.94 | 538.00 | 715.89 | 892.34 |
| SG35T | -30.46 | -65.23 | -103.18 | -143.60 | -185.97 |
| SG35-45 | 58.52 | 114.88 | 169.01 | 220.98 | 270.95 |
| SG35L | 188.23 | 374.79 | 559.29 | 741.58 | 921.66 |
| SG36T | 25.18 | 13.90 | -16.84 | -58.81 | -107.78 |
| SG36-45 | 12.08 | 16.64 | 17.92 | 17.31 | 15.37 |
| SG36L | 163.88 | 346.80 | 539.51 | 736.91 | 936.28 |
| SG37T | -73.99 | -143.82 | -212.55 | -281.23 | -350.20 |
| SG37-45 | -33.92 | -57.92 | -78.23 | -97.18 | -115.80 |
| SG37L | 207.72 | 420.24 | 631.49 | 840.03 | 1045.55 |
| SG38T | -72.08 | -141.37 | -208.12 | -272.61 | -335.14 |
| SG38-45 | 66.89 | 134.79 | 203.36 | 272.38 | 341.66 |
| SG38L | 181.49 | 362.70 | 542.94 | 721.88 | 899.34 |
| SG39T | 10.61 | 8.27 | -3.21 | -21.17 | -43.77 |
| SG39-45 | 71.05 | 141.96 | 212.63 | 282.93 | 352.71 |
| SG39L | 122.76 | 256.34 | 396.69 | 541.28 | 688.52 |
| SG40T | -21.04 | -44.13 | -68.23 | -93.05 | -118.50 |
| SG40-45 | 90.93 | 176.53 | 258.66 | 338.13 | 415.44 |
| SG40L | 179.00 | 354.03 | 525.51 | 693.70 | 858.94 |

TABLE D-15. FINITE ELEMENT PREDICTIONS OF STRAIN FOR CIRCUMFERENTIAL BUTT JOINT PANELS CVP3 AND CVP4, LOAD CONDITION 1c

| Increment | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 |
|---|---|---|---|---|---|
| Pressure (psi) | 1.76 | 3.52 | 5.28 | 7.04 | 8.80 |
| Frame Load (lb.) | 363.23 | 726.46 | 1089.69 | 1452.92 | 1816.15 |
| Hoop Load (lb.) | 385.47 | 770.94 | 1156.40 | 1541.87 | 1927.34 |
| Long. Load (lb.) | 613.00 | 1226.00 | 1839.00 | 2452.00 | 3065.00 |
| SG01 | 24.41 | 47.68 | 71.00 | 94.99 | 119.98 |
| SG02 | -8.42 | -16.75 | -23.74 | -28.83 | -31.75 |
| SG03 | 302.88 | 577.92 | 832.30 | 1070.15 | 1294.30 |
| SG04 | 112.07 | 210.96 | 301.58 | 386.47 | 467.19 |
| SG05 | -7.32 | -14.49 | -20.32 | -24.30 | -26.16 |
| SG06 | 55.77 | 115.50 | 176.77 | 238.76 | 301.17 |
| SG07 | -8.45 | -17.32 | -25.10 | -31.11 | -35.03 |
| SG08 | 24.13 | 46.91 | 69.66 | 93.02 | 117.32 |
| SG09 | 56.84 | 117.95 | 180.91 | 244.86 | 309.45 |
| SG10 | 14.59 | 39.67 | 72.63 | 111.65 | 155.42 |
| SG11 | 56.28 | 112.00 | 168.09 | 224.66 | 281.66 |
| SG12 | 136.64 | 267.62 | 393.91 | 516.52 | 636.14 |
| SG13 | 220.02 | 429.63 | 631.66 | 827.75 | 1018.95 |
| SG14 | 213.98 | 416.91 | 613.84 | 806.78 | 996.74 |
| SG15 | 100.93 | 206.63 | 315.56 | 426.69 | 539.32 |
| SG16 | 225.79 | 430.86 | 621.40 | 801.18 | 972.67 |
| SG17 | 145.61 | 290.42 | 434.08 | 576.57 | 717.97 |
| SG18 | 83.22 | 167.54 | 252.58 | 338.23 | 424.53 |
| SG19 | 84.96 | 172.22 | 261.05 | 350.95 | 441.61 |
| SG20 | 124.40 | 246.89 | 366.86 | 484.35 | 599.58 |
| SG21 | 63.86 | 130.44 | 198.35 | 266.66 | 334.87 |
| SG22 | 43.17 | 82.31 | 118.82 | 153.63 | 187.31 |
| SG23 | 100.86 | 202.39 | 305.07 | 408.62 | 512.74 |
| SG24 | 152.60 | 301.58 | 447.25 | 590.02 | 730.27 |
| SG25 | 213.33 | 416.29 | 613.54 | 806.96 | 997.49 |
| SG26 | 219.90 | 429.38 | 631.26 | 827.22 | 1018.30 |
| SG27 | 225.49 | 430.32 | 620.64 | 800.25 | 971.59 |
| SG28 | 100.66 | 206.04 | 314.62 | 425.38 | 537.62 |
| SG29 | 170.48 | 328.71 | 477.91 | 620.15 | 756.87 |
| SG30 | 63.53 | 130.77 | 201.03 | 273.68 | 348.26 |
| SG31 | 14.60 | 39.75 | 72.78 | 111.86 | 155.69 |

| Increment | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 |
|---|---|---|---|---|---|
| Pressure (psi) | 1.76 | 3.52 | 5.28 | 7.04 | 8.80 |
| Frame Load (lb.) | 363.23 | 726.46 | 1089.69 | 1452.92 | 1816.15 |
| Hoop Load (lb.) | 385.47 | 770.94 | 1156.40 | 1541.87 | 1927.34 |
| Long. Load (lb.) | 613.00 | 1226.00 | 1839.00 | 2452.00 | 3065.00 |
| SG32T | 186.67 | 330.19 | 452.09 | 561.67 | 663.60 |
| SG32-45 | 155.07 | 291.06 | 418.61 | 541.53 | 661.46 |
| SG32L | 110.07 | 221.42 | 335.35 | 451.26 | 568.41 |
| SG33T | 188.76 | 312.96 | 409.27 | 491.11 | 564.49 |
| SG33-45 | 84.72 | 140.21 | 184.45 | 223.10 | 258.49 |
| SG33L | 147.69 | 302.98 | 461.97 | 622.00 | 781.69 |
| SG34T | 119.68 | 229.85 | 335.74 | 439.29 | 541.33 |
| SG34-45 | 112.85 | 222.64 | 330.26 | 436.09 | 540.36 |
| SG34L | 146.70 | 294.37 | 441.07 | 586.19 | 729.56 |
| SG35T | 86.69 | 180.65 | 277.28 | 374.80 | 472.46 |
| SG35-45 | 102.48 | 208.21 | 314.12 | 419.14 | 522.92 |
| SG35L | 157.20 | 311.41 | 462.41 | 610.42 | 755.72 |
| SG36T | 184.99 | 304.11 | 395.32 | 472.23 | 540.91 |
| SG36-45 | 81.29 | 136.81 | 182.94 | 224.50 | 263.41 |
| SG36L | 148.76 | 303.59 | 462.39 | 622.77 | 783.32 |
| SG37T | 45.54 | 103.67 | 163.49 | 222.69 | 280.88 |
| SG37-45 | -2.04 | 20.51 | 50.66 | 83.60 | 117.58 |
| SG37L | 141.50 | 307.70 | 478.46 | 648.76 | 817.13 |
| SG38T | 118.49 | 225.05 | 327.05 | 426.83 | 525.30 |
| SG38-45 | 146.14 | 286.06 | 422.93 | 557.79 | 691.12 |
| SG38L | 150.16 | 300.14 | 448.68 | 595.42 | 740.29 |
| SG39T | 182.16 | 321.48 | 439.78 | 546.27 | 645.50 |
| SG39-45 | 148.98 | 279.72 | 402.88 | 522.10 | 638.86 |
| SG39L | 111.57 | 223.76 | 338.18 | 454.40 | 571.81 |
| SG40T | 88.00 | 179.75 | 271.09 | 361.08 | 449.62 |
| SG40-45 | 112.71 | 234.09 | 356.75 | 478.55 | 598.84 |
| SG40L | 109.05 | 236.51 | 368.96 | 502.07 | 634.26 |

TABLE D-16. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP1, LOAD CONDITION 1a

| CVP1- Load Condition 1a | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | Loading direction |
| SG2 | 596.65 | 586.13 | 599.27 | 589.35 | 592.85 | 6.14 | 595.11 | -0.4% | |
| SG4 | 594.59 | 582.74 | 600.85 | 591.52 | 592.42 | 7.54 | 566.76 | 4.3% | |
| SG6 | 651.48 | 642.05 | 662.21 | 640.67 | 649.10 | 9.97 | 678.71 | -4.6% | |
| SG8 | 582.27 | 579.41 | 600.06 | 589.08 | 587.70 | 9.18 | 553.13 | 5.9% | |
| SG10 | - | - | - | - | - | - | - | - | Gage damaged |
| SG12 | 955.44 | 940.31 | 962.89 | 936.90 | 948.89 | 12.33 | 789.50 | 16.8% | |
| SG14 | 615.64 | 612.54 | 631.67 | 623.96 | 620.95 | 8.62 | 571.78 | 7.9% | |
| SG16 | 567.95 | 569.31 | 555.42 | 555.34 | 562.00 | 7.67 | 446.24 | 20.6% | |
| SG18 | 554.30 | 541.27 | 554.73 | 556.25 | 551.64 | 6.96 | 450.36 | 18.4% | |
| SG20 | 543.65 | 543.35 | 541.25 | 534.16 | 540.60 | 4.43 | 441.17 | 18.4% | |
| Group % Error | | | | | | | | 13.2% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | Loading direction |
| SG1 | 877.51 | 810.10 | 748.91 | 760.80 | 799.33 | 58.47 | 612.56 | 23.4% | |
| SG3 | 788.96 | 724.58 | 676.49 | 690.93 | 720.24 | 50.05 | 681.50 | 5.4% | |
| SG5 | 778.01 | 721.53 | 712.75 | 703.82 | 729.03 | 33.45 | 665.74 | 8.7% | |
| SG7 | 784.00 | 761.95 | 731.68 | 714.51 | 748.03 | 30.97 | 612.46 | 18.1% | |
| SG9 | 816.82 | 758.21 | 710.06 | 716.74 | 750.46 | 49.10 | 696.28 | 7.2% | |
| SG11 | 639.92 | 584.88 | 582.23 | 577.13 | 596.04 | 29.43 | 549.66 | 7.8% | |
| SG13 | 777.88 | 753.29 | 716.97 | 703.51 | 737.91 | 33.94 | 641.88 | 13.0% | |
| SG15 | 573.49 | 546.19 | 523.39 | 526.83 | 542.48 | 22.98 | 738.31 | -36.1% | |
| SG17 | 528.92 | 496.85 | 540.86 | 520.32 | 521.74 | 18.60 | 777.05 | -48.9% | |
| SG19 | 581.98 | 574.02 | 550.78 | 538.61 | 561.35 | 20.13 | 728.21 | -29.7% | |
| Group % Error | | | | | | | | 21.1% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | Negligible strain |
| SG22 | -21.12 | -23.62 | -7.45 | -18.66 | -17.71 | 7.13 | -18.50 | -4.4% | |
| SG24 | -61.57 | -63.83 | -59.80 | -70.80 | -64.00 | 4.82 | -38.98 | 39.1% | |
| SG26 | -44.60 | -45.92 | -54.85 | -56.85 | -50.55 | 6.19 | -144.30 | -185.4% | |
| SG28 | -66.93 | -69.11 | -62.05 | -72.01 | -67.53 | 4.20 | -94.19 | -39.5% | |
| Group % Error | | | | | | | | 93.7% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | |
| SG21 | -297.71 | -297.78 | -287.00 | -298.85 | -295.33 | 5.58 | -311.68 | -5.5% | |
| SG23 | -232.94 | -230.06 | -225.17 | -236.11 | -231.07 | 4.65 | -347.12 | -50.2% | |
| SG25 | -254.82 | -241.56 | -252.24 | -237.33 | -246.49 | 8.38 | -272.95 | -10.7% | |
| SG27 | - | - | - | - | - | - | - | - | Gage damaged |
| Group % Error | | | | | | | | 26.8% | |

TABLE D-16. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP1, LOAD CONDITION 1a (Continued)

| CVP1- Load Condition 1a (Continued) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | Loading direction |
| SG29T | 893.74 | 895.52 | 904.65 | 889.43 | 895.84 | 6.41 | 918.95 | -2.6% | |
| SG30T | 809.69 | 811.27 | 813.02 | 797.79 | 807.94 | 6.90 | 923.26 | -14.3% | |
| SG31T | 826.65 | 828.51 | 851.69 | 837.64 | 836.13 | 11.44 | 861.29 | -3.0% | Opposite Gage 32 |
| SG32T | 872.29 | 872.45 | 883.91 | 862.05 | 872.68 | 8.93 | 949.45 | -8.8% | |
| SG33T | 890.19 | 890.26 | 897.64 | 877.86 | 888.99 | 8.20 | 951.31 | -7.0% | |
| SG34T | 806.93 | 805.60 | 808.02 | 794.04 | 803.65 | 6.48 | 918.77 | -14.3% | |
| SG35T | 954.68 | 957.56 | 962.99 | 948.49 | 955.93 | 6.04 | 867.29 | 9.3% | |
| SG36T | 866.26 | 865.26 | 873.13 | 865.50 | 867.53 | 3.75 | 928.05 | -7.0% | |
| Group % Error | | | | | | | | 9.0% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | Negligible strain |
| SG29L | -110.55 | -114.60 | -120.21 | -111.24 | -114.15 | 4.41 | -121.29 | -6.3% | |
| SG30L | -98.74 | -98.59 | -106.75 | -94.69 | -99.69 | 5.07 | -134.31 | -34.7% | |
| SG31L | -147.66 | -148.28 | -164.20 | -150.28 | -152.60 | 7.81 | -184.07 | -20.6% | Opposite Gage 32 |
| SG32L | -153.10 | -152.94 | -172.03 | -153.73 | -157.95 | 9.39 | -186.50 | -18.1% | |
| SG33L | -146.98 | -144.42 | -159.00 | -136.80 | -146.80 | 9.21 | -185.98 | -26.7% | |
| SG34L | -146.15 | -136.22 | -145.46 | -138.54 | -141.59 | 4.96 | -121.51 | 14.2% | |
| SG35L | -34.68 | -36.81 | -34.32 | -35.70 | -35.38 | 1.12 | -135.25 | -282.3% | |
| SG36L | -115.74 | -117.39 | -116.44 | -122.31 | -117.97 | 2.97 | -186.88 | -58.4% | |
| Group % Error | | | | | | | | 39.3% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | |
| SG29-45 | 398.32 | 402.29 | 406.93 | 408.32 | 403.96 | 4.56 | 398.26 | 1.4% | |
| SG30-45 | 340.19 | 344.83 | 348.15 | 351.74 | 346.23 | 4.91 | 399.65 | -15.4% | |
| SG31-45 | 361.81 | 374.40 | 382.88 | 379.29 | 374.59 | 9.20 | 358.53 | 4.3% | Opposite Gage 32 |
| SG32-45 | 367.79 | 380.62 | 381.24 | 378.21 | 376.96 | 6.26 | 402.99 | -6.9% | |
| SG33-45 | 371.40 | 384.85 | 370.22 | 373.76 | 375.06 | 6.69 | 372.93 | 0.6% | |
| SG34-45 | 353.25 | 366.83 | 349.79 | 348.76 | 354.66 | 8.34 | 396.84 | -11.9% | |
| SG35-45 | 489.54 | 501.91 | 497.88 | 490.11 | 494.86 | 6.04 | 386.66 | 21.9% | |
| SG36-45 | 382.83 | 392.19 | 389.52 | 381.62 | 386.54 | 5.13 | 338.69 | 12.4% | |
| Group % Error | | | | | | | | 12.6% | |

TABLE D-17. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP1, LOAD CONDITION 1b

| CVP1 - Load Condition 1b | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Experiment | | | | Analysis | % Error | Remarks |
| Gage | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | Negligible strain |
| SG2 | -38.19 | -31.59 | -34.89 | 4.66 | -30.92 | 11.4% | |
| SG4 | -48.11 | -44.11 | -46.11 | 2.82 | -40.66 | 11.8% | |
| SG6 | -60.77 | -57.22 | -58.99 | 2.51 | -44.46 | 24.6% | |
| SG8 | -44.23 | -42.40 | -43.31 | 1.29 | -42.46 | 2.0% | |
| SG10 | - | - | - | - | - | - | Gage damaged |
| SG12 | -65.51 | -63.77 | -64.64 | 1.23 | -29.27 | 54.7% | |
| SG14 | -42.76 | -39.41 | -41.09 | 2.38 | -26.89 | 34.6% | |
| SG16 | -38.09 | -40.76 | -39.43 | 1.89 | -22.14 | 43.8% | |
| SG18 | -36.78 | -36.55 | -36.67 | 0.16 | -22.60 | 38.4% | |
| SG20 | -9.67 | -17.09 | -13.38 | 5.25 | -13.35 | 0.2% | |
| Group % Error | | | | | | 35.4% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | |
| SG1 | -36.31 | -41.38 | -38.84 | 3.59 | -17.28 | 55.5% | |
| SG3 | -182.02 | -227.36 | -204.69 | 32.06 | -184.54 | 9.8% | |
| SG5 | -112.54 | -184.28 | -148.41 | 50.73 | -183.22 | -23.5% | |
| SG7 | 109.19 | -10.13 | 49.53 | 84.37 | 4.28 | 91.4% | |
| SG9 | -194.87 | -229.22 | -212.04 | 24.28 | -182.53 | 13.9% | |
| SG11 | -106.08 | -187.87 | -146.98 | 57.83 | -189.91 | -29.2% | |
| SG13 | 107.89 | -16.16 | 45.86 | 87.72 | 2.99 | 93.5% | |
| SG15 | -66.26 | -77.92 | -72.09 | 8.25 | -71.38 | 1.0% | |
| SG17 | -37.28 | -61.01 | -49.14 | 16.78 | -70.03 | -42.5% | |
| SG19 | 38.78 | -27.08 | 5.85 | 46.57 | -25.28 | 532.0% | |
| Group % Error | | | | | | 26.5% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | |
| SG22 | 267.17 | 259.34 | 263.26 | 5.54 | 260.70 | 1.0% | |
| SG24 | 317.34 | 313.98 | 315.66 | 2.37 | 315.17 | 0.2% | |
| SG26 | 329.83 | 320.57 | 325.20 | 6.55 | 333.84 | -2.7% | |
| SG28 | 317.75 | 326.37 | 322.06 | 6.09 | 312.37 | 3.0% | |
| Group % Error | | | | | | 2.2% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | |
| SG21 | 268.60 | 267.37 | 267.99 | 0.87 | 258.47 | 3.6% | |
| SG23 | 309.69 | 310.49 | 310.09 | 0.57 | 309.66 | 0.1% | |
| SG25 | 558.68 | 550.87 | 554.78 | 5.52 | 313.78 | 43.4% | |
| SG27 | - | - | - | - | - | - | Gage damaged |
| Group % Error | | | | | | 35.0% | |

TABLE D-17. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP1, LOAD CONDITION 1b (Continued)

| CVP1 - Load Condition 1b (Continued) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Experiment | | | | Analysis | % Error | Remarks |
| Gage | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | |
| SG29T | -130.06 | -120.46 | -125.26 | 6.79 | -142.81 | -14.0% | |
| SG30T | -129.01 | -121.21 | -125.11 | 5.52 | -119.69 | 4.3% | |
| SG31T | -76.97 | -70.93 | -73.95 | 4.27 | -76.69 | -3.7% | Opposite Gage 32 |
| SG32T | -120.58 | -108.96 | -114.77 | 8.21 | -115.60 | -0.7% | |
| SG33T | -117.19 | -113.08 | -115.14 | 2.91 | -117.50 | -2.1% | |
| SG34T | -150.42 | -161.63 | -156.02 | 7.93 | -144.27 | 7.5% | |
| SG35T | -137.00 | -141.95 | -139.47 | 3.50 | -130.32 | 6.6% | |
| SG36T | -114.52 | -106.25 | -110.39 | 5.85 | -95.92 | 13.1% | |
| Group % Error | | | | | | 8.1% | |
| Group 6: Skin, Longitudinal Strain | | | | | | | Loading direction |
| SG29L | 314.79 | 311.66 | 313.23 | 2.21 | 352.12 | -12.4% | |
| SG30L | 337.90 | 330.81 | 334.35 | 5.01 | 346.39 | -3.6% | |
| SG31L | 335.55 | 329.82 | 332.68 | 4.05 | 345.73 | -3.9% | Opposite Gage 32 |
| SG32L | 338.53 | 330.39 | 334.46 | 5.75 | 342.62 | -2.4% | |
| SG33L | 344.03 | 340.68 | 342.35 | 2.37 | 344.58 | -0.7% | |
| SG34L | 354.61 | 359.87 | 357.24 | 3.72 | 351.90 | 1.5% | |
| SG35L | 303.60 | 290.71 | 297.16 | 9.11 | 349.55 | -17.6% | |
| SG36L | 302.06 | 290.20 | 296.13 | 8.38 | 308.75 | -4.3% | |
| Group % Error | | | | | | 7.5% | |
| Group 7: Skin, 45-degree Direction | | | | | | | |
| SG29-45 | 75.78 | 84.12 | 79.95 | 5.89 | 78.94 | 1.3% | |
| SG30-45 | 131.43 | 133.67 | 132.55 | 1.58 | 110.82 | 16.4% | |
| SG31-45 | 140.53 | 148.02 | 144.28 | 5.30 | 136.61 | 5.3% | Opposite Gage 32 |
| SG32-45 | 126.51 | 140.41 | 133.46 | 9.82 | 114.89 | 13.9% | |
| SG33-45 | 142.26 | 149.30 | 145.78 | 4.97 | 113.83 | 21.9% | |
| SG34-45 | 162.57 | 166.47 | 164.52 | 2.75 | 128.83 | 21.7% | |
| SG35-45 | 96.15 | 99.47 | 97.81 | 2.35 | 110.66 | -13.1% | |
| SG36-45 | 88.09 | 94.86 | 91.47 | 4.79 | 105.80 | -15.7% | |
| Group % Error | | | | | | 16.6% | |

TABLE D-18. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP1, LOAD CONDITION 1c

| CVP1- Load Condition 1c | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | Primary loading direction |
| SG2 | 543.75 | 544.92 | 545.29 | 548.37 | 545.58 | 1.97 | 559.26 | -2.5% | |
| SG4 | 531.29 | 531.73 | 533.59 | 536.83 | 533.36 | 2.52 | 525.71 | 1.4% | |
| SG6 | 579.94 | 579.70 | 577.45 | 574.70 | 577.95 | 2.44 | 628.48 | -8.7% | |
| SG8 | 542.78 | 542.68 | 551.59 | 553.69 | 547.69 | 5.79 | 513.93 | 6.2% | |
| SG10 | - | - | - | - | - | - | - | - | Gage damaged |
| SG12 | 861.89 | 861.15 | 862.78 | 859.56 | 861.35 | 1.36 | 742.86 | 13.8% | |
| SG14 | 575.51 | 575.43 | 585.52 | 592.28 | 582.19 | 8.23 | 538.01 | 7.6% | |
| SG16 | 508.91 | 516.43 | 513.00 | 521.42 | 514.94 | 5.30 | 427.48 | 17.0% | |
| SG18 | 525.01 | 525.31 | 526.14 | 535.54 | 528.00 | 5.05 | 430.07 | 18.5% | |
| SG20 | 520.07 | 525.35 | 522.19 | 537.44 | 526.26 | 7.76 | 426.98 | 18.9% | |
| Group % Error | | | | | | | | 12.3% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | Primary loading direction |
| SG1 | 769.04 | 799.62 | 693.95 | 767.52 | 757.53 | 44.89 | 555.17 | 26.7% | |
| SG3 | 587.02 | 624.64 | 488.28 | 580.48 | 570.11 | 57.92 | 473.59 | 16.9% | |
| SG5 | 645.33 | 681.07 | 580.31 | 640.53 | 636.81 | 41.78 | 459.47 | 27.8% | |
| SG7 | 811.29 | 861.36 | 723.79 | 804.59 | 800.26 | 56.92 | 571.93 | 28.5% | |
| SG9 | 617.55 | 660.12 | 520.84 | 622.89 | 605.35 | 59.44 | 496.58 | 18.0% | |
| SG11 | 531.05 | 564.63 | 460.42 | 533.93 | 522.51 | 44.09 | 353.11 | 32.4% | |
| SG13 | 815.01 | 869.35 | 722.61 | 820.03 | 806.75 | 61.22 | 607.81 | 24.7% | |
| SG15 | 511.01 | 547.69 | 468.63 | 544.01 | 517.84 | 36.72 | 651.97 | -25.9% | |
| SG17 | 502.77 | 506.56 | 485.68 | 530.29 | 506.33 | 18.38 | 690.65 | -36.4% | |
| SG19 | 574.83 | 614.41 | 535.27 | 620.58 | 586.27 | 39.58 | 690.08 | -17.7% | |
| Group % Error | | | | | | | | 26.0% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | |
| SG22 | 229.04 | 230.54 | 239.31 | 233.63 | 233.13 | 4.54 | 230.82 | 1.0% | |
| SG24 | 248.76 | 250.98 | 238.79 | 240.32 | 244.71 | 6.06 | 259.27 | -5.9% | |
| SG26 | 275.61 | 279.57 | 266.62 | 265.59 | 271.85 | 6.84 | 178.94 | 34.2% | |
| SG28 | 239.15 | 240.41 | 231.85 | 226.85 | 234.57 | 6.38 | 205.91 | 12.2% | |
| Group % Error | | | | | | | | 19.9% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | |
| SG21 | -22.71 | -22.42 | -22.00 | -26.34 | -23.37 | 2.00 | -42.11 | -80.2% | |
| SG23 | 80.71 | 80.41 | 71.58 | 67.89 | 75.15 | 6.43 | -23.68 | 131.5% | |
| SG25 | 210.51 | 243.88 | 171.16 | 213.86 | 209.85 | 29.84 | 48.09 | 77.1% | |
| SG27 | - | - | - | - | - | - | - | - | Gage damaged |
| Group % Error | | | | | | | | 85.0% | |

TABLE D-18. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP1, LOAD CONDITION 1c (Continued)

| CVP1- Load Condition 1c (Continued) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | Primary loading direction |
| SG29T | 820.74 | 818.22 | 815.28 | 811.56 | 816.45 | 3.95 | 822.70 | -0.8% | |
| SG30T | 708.66 | 706.45 | 699.56 | 695.65 | 702.58 | 6.03 | 818.80 | -16.5% | |
| SG31T | 734.94 | 729.97 | 738.27 | 734.78 | 734.49 | 3.42 | 772.18 | -5.1% | Opposite Gage 32 |
| SG32T | 776.50 | 773.22 | 766.63 | 762.76 | 769.78 | 6.22 | 850.87 | -10.5% | |
| SG33T | 788.18 | 784.36 | 775.11 | 771.09 | 779.69 | 7.93 | 851.17 | -9.2% | |
| SG34T | 718.06 | 714.74 | 704.37 | 699.95 | 709.28 | 8.53 | 822.84 | -16.0% | |
| SG35T | 863.29 | 861.61 | 858.16 | 851.40 | 858.62 | 5.26 | 769.64 | 10.4% | |
| SG36T | 781.30 | 778.30 | 784.20 | 781.56 | 781.34 | 2.41 | 838.82 | -7.4% | |
| Group % Error | | | | | | | | 10.3% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | Secondary loading direction |
| SG29L | 213.29 | 216.86 | 220.62 | 228.91 | 219.92 | 6.70 | 221.39 | -0.7% | |
| SG30L | 222.60 | 225.44 | 228.54 | 232.34 | 227.23 | 4.18 | 202.06 | 11.1% | |
| SG31L | 180.64 | 184.21 | 183.13 | 188.13 | 184.03 | 3.12 | 151.08 | 17.9% | Opposite Gage 32 |
| SG32L | 176.76 | 181.16 | 180.73 | 186.33 | 181.25 | 3.93 | 146.16 | 19.4% | |
| SG33L | 187.08 | 190.09 | 200.08 | 207.64 | 196.22 | 9.42 | 150.25 | 23.4% | |
| SG34L | 201.93 | 205.60 | 211.11 | 217.27 | 208.98 | 6.69 | 221.54 | -6.0% | |
| SG35L | 243.79 | 246.08 | 249.32 | 250.18 | 247.34 | 2.95 | 196.44 | 20.6% | |
| SG36L | 165.87 | 168.23 | 155.92 | 154.96 | 161.25 | 6.78 | 115.33 | 28.5% | |
| Group % Error | | | | | | | | 17.2% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | |
| SG29-45 | 499.85 | 496.14 | 499.16 | 504.67 | 499.96 | 3.53 | 498.26 | 0.3% | |
| SG30-45 | 477.88 | 474.72 | 474.75 | 477.10 | 476.11 | 1.62 | 515.80 | -8.3% | |
| SG31-45 | 500.48 | 500.69 | 508.99 | 502.21 | 503.09 | 4.01 | 482.83 | 4.0% | Opposite Gage 32 |
| SG32-45 | 514.39 | 513.36 | 521.03 | 511.38 | 515.04 | 4.18 | 520.04 | -1.0% | |
| SG33-45 | 518.74 | 520.08 | 509.51 | 511.89 | 515.06 | 5.15 | 491.34 | 4.6% | |
| SG34-45 | 547.50 | 551.08 | 530.77 | 530.72 | 540.02 | 10.81 | 541.80 | -0.3% | |
| SG35-45 | 603.69 | 605.67 | 595.48 | 594.82 | 599.92 | 5.57 | 503.96 | 16.0% | |
| SG36-45 | 485.02 | 486.71 | 476.88 | 476.06 | 481.17 | 5.48 | 445.94 | 7.3% | |
| Group % Error | | | | | | | | 7.8% | |

TABLE D-19. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP2, LOAD CONDITION 1a

| CVP2 - Load Condition 1a | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | Loading direction |
| SG2 | 620.05 | 625.67 | 621.52 | 616.66 | 620.97 | 3.73 | 595.11 | 4.2% | |
| SG4 | 616.58 | 617.18 | 609.07 | 602.11 | 611.24 | 7.12 | 566.76 | 7.3% | |
| SG6 | 714.61 | 718.77 | 718.82 | 711.92 | 716.03 | 3.38 | 678.71 | 5.2% | |
| SG8 | 617.09 | 613.09 | 618.58 | 611.02 | 614.95 | 3.49 | 553.13 | 10.1% | |
| SG10 | 624.45 | 624.81 | 617.08 | 609.58 | 618.98 | 7.21 | 577.18 | 6.8% | |
| SG12 | 1055.03 | 1058.84 | 1069.63 | 1054.73 | 1059.56 | 6.97 | 789.50 | 25.5% | |
| SG14 | 632.70 | 632.98 | 636.88 | 622.01 | 631.14 | 6.38 | 571.78 | 9.4% | |
| SG16 | 574.97 | 581.54 | 565.01 | 545.82 | 566.84 | 15.57 | 446.24 | 21.3% | |
| SG18 | 532.29 | 535.96 | 531.94 | 476.33 | 519.13 | 28.59 | 450.36 | 13.2% | |
| SG20 | 581.36 | 584.22 | 591.36 | 570.72 | 581.92 | 8.57 | 441.17 | 24.2% | |
| Group % Error | | | | | | | | 16.7% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | Loading direction |
| SG1 | 829.85 | 953.91 | 870.32 | 847.45 | 875.38 | 54.91 | 612.56 | 30.0% | |
| SG3 | 851.03 | 951.31 | 865.11 | 823.28 | 872.68 | 55.23 | 681.50 | 21.9% | |
| SG5 | 781.36 | 908.98 | 811.24 | 757.37 | 814.74 | 66.58 | 665.74 | 18.3% | |
| SG7 | - | - | - | - | - | - | - | - | Gage damaged |
| SG9 | 823.11 | 918.01 | 837.61 | 793.32 | 843.01 | 53.29 | 696.28 | 17.4% | |
| SG11 | 687.96 | 801.18 | 695.83 | 610.84 | 698.95 | 78.20 | 549.66 | 21.4% | |
| SG13 | 870.92 | 918.37 | 861.75 | 802.98 | 863.50 | 47.37 | 641.88 | 25.7% | |
| SG15 | 559.54 | 592.62 | 527.41 | 525.83 | 551.35 | 31.59 | 738.31 | -33.9% | |
| SG17 | 697.88 | 730.95 | 687.14 | 526.22 | 660.55 | 91.47 | 777.05 | -17.6% | |
| SG19 | 579.80 | 597.55 | 630.05 | 558.96 | 591.59 | 30.10 | 728.21 | -23.1% | |
| Group % Error | | | | | | | | 23.5% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | |
| SG22 | -9.92 | -7.31 | 6.22 | 10.31 | -0.18 | 9.95 | -18.50 | -10465.9% | Negligible strain |
| SG24 | -34.43 | -42.61 | -16.52 | -11.69 | -26.31 | 14.62 | -38.98 | -48.2% | |
| SG26 | 253.28 | -318.64 | -46.87 | -16.27 | -32.12 | 233.82 | -144.30 | -349.2% | Large Stdev |
| SG28 | -54.39 | -63.96 | -46.37 | -51.41 | -54.03 | 7.40 | -94.19 | -74.3% | |
| Group % Error | | | | | | | | 177.9% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | |
| SG21 | -319.58 | -325.50 | -296.33 | -310.72 | -313.03 | 12.68 | -311.68 | 0.4% | |
| SG23 | -229.61 | -243.56 | -218.54 | -228.41 | -230.03 | 10.30 | -347.12 | -50.9% | |
| SG25 | -76.21 | -85.80 | -123.55 | -103.65 | -97.30 | 20.87 | -272.95 | -180.5% | |
| SG27 | -228.79 | -239.83 | -245.74 | -221.35 | -233.93 | 10.94 | -235.05 | -0.5% | |
| Group % Error | | | | | | | | 45.5% | |

TABLE D-19. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP2, LOAD CONDITION 1a (Continued)

| CVP2 - Load Condition 1a (Continued) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | Loading direction |
| SG29T | 807.94 | 807.38 | 787.12 | 788.57 | 797.75 | 11.46 | 918.95 | -15.2% | |
| SG30T | 817.00 | 818.99 | 796.32 | 794.00 | 806.58 | 13.24 | 923.26 | -14.5% | |
| SG31T | 832.92 | 825.13 | 821.24 | 804.79 | 821.02 | 11.86 | 820.94 | 0.0% | Opposite Gage 37 |
| SG32T | 874.50 | 874.79 | 855.03 | 852.76 | 864.27 | 12.02 | 949.45 | -9.9% | |
| SG33T | 865.50 | 861.11 | 842.68 | 839.96 | 852.31 | 12.87 | 951.31 | -11.6% | |
| SG34T | 771.42 | 770.59 | 747.88 | 749.38 | 759.82 | 12.94 | 918.77 | -20.9% | |
| SG35T | 807.02 | 809.99 | 788.87 | 777.11 | 795.75 | 15.54 | 867.29 | -9.0% | |
| SG36T | 820.29 | 816.58 | 789.42 | 793.90 | 805.05 | 15.64 | 928.05 | -15.3% | |
| SG37T | 830.04 | 831.07 | 819.60 | 805.48 | 821.55 | 11.90 | 921.76 | -12.2% | |
| Group % Error | | | | | | | | 13.0% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | Negligible strain |
| SG29L | -96.86 | -99.84 | -98.93 | -110.02 | -101.41 | 5.87 | -121.29 | -19.6% | |
| SG30L | -81.39 | -86.66 | -88.81 | -79.07 | -83.98 | 4.52 | -134.31 | -59.9% | |
| SG31L | -89.62 | -92.44 | -70.07 | -64.01 | -79.03 | 14.11 | -150.16 | -90.0% | Opposite Gage 37 |
| SG32L | -144.55 | -153.85 | -158.24 | -146.19 | -150.71 | 6.45 | -186.50 | -23.8% | |
| SG33L | -171.27 | -164.81 | -165.45 | -161.79 | -165.83 | 3.96 | -185.98 | -12.2% | |
| SG34L | -134.94 | -126.66 | -136.35 | -130.06 | -132.00 | 4.47 | -121.51 | 7.9% | |
| SG35L | -28.30 | -45.16 | -75.28 | -26.70 | -43.86 | 22.55 | -135.25 | -208.4% | |
| SG36L | -93.73 | -98.34 | -78.85 | -78.42 | -87.33 | 10.22 | -186.88 | -114.0% | |
| SG37L | -64.66 | -67.83 | -47.31 | -40.07 | -54.97 | 13.41 | -147.72 | -168.7% | |
| Group % Error | | | | | | | | 59.4% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | |
| SG29-45 | 360.36 | 346.06 | 357.43 | 343.25 | 351.77 | 8.39 | 398.26 | -13.2% | |
| SG30-45 | 363.12 | 356.85 | 348.55 | 366.88 | 358.85 | 8.02 | 399.65 | -11.4% | |
| SG31-45 | 371.85 | 357.44 | 363.63 | 372.06 | 366.24 | 7.06 | 346.16 | 5.5% | Opposite Gage 37 |
| SG32-45 | 376.13 | 365.45 | 342.81 | 356.00 | 360.10 | 14.16 | 402.99 | -11.9% | |
| SG33-45 | 362.91 | 365.27 | 368.87 | 360.99 | 364.51 | 3.39 | 372.93 | -2.3% | |
| SG34-45 | 317.27 | 326.80 | 320.12 | 305.97 | 317.54 | 8.68 | 396.84 | -25.0% | Questionable gage |
| SG35-45 | 369.44 | 362.61 | 334.93 | 356.39 | 355.84 | 14.92 | 386.66 | -8.7% | |
| SG36-45 | 407.24 | 399.89 | 417.99 | 415.98 | 410.27 | 8.35 | 338.69 | 17.4% | |
| SG37-45 | 386.55 | 377.89 | 365.41 | 389.31 | 379.79 | 10.75 | 402.15 | -5.9% | |
| Group % Error | | | | | | | | 12.6% | |

TABLE D-20. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP2, LOAD CONDITION 1b

| CVP2 - Load Condition 1b | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | Negligible strain |
| SG2 | -19.49 | -23.10 | -20.03 | -24.93 | -21.89 | 2.58 | -30.92 | -41.3% | |
| SG4 | -53.46 | -69.28 | -54.65 | -64.65 | -60.51 | 7.71 | -40.66 | 32.8% | |
| SG6 | -61.34 | -62.71 | -63.65 | -71.63 | -64.83 | 4.63 | -44.46 | 31.4% | |
| SG8 | -32.50 | -37.75 | -25.22 | -33.11 | -32.15 | 5.18 | -42.46 | -32.1% | |
| SG10 | -63.40 | -64.10 | -56.92 | -73.12 | -64.38 | 6.66 | -30.77 | 52.2% | |
| SG12 | -78.38 | -82.55 | -79.22 | -92.74 | -83.22 | 6.60 | -29.27 | 64.8% | |
| SG14 | -39.26 | -46.56 | -35.99 | -45.86 | -41.92 | 5.14 | -26.89 | 35.9% | |
| SG16 | -40.75 | -23.76 | -29.61 | -52.78 | -36.72 | 12.82 | -22.14 | 39.7% | |
| SG18 | -30.86 | -28.63 | -39.02 | -51.97 | -37.62 | 10.56 | -22.60 | 39.9% | |
| SG20 | -27.40 | -28.76 | -27.96 | -25.34 | -27.37 | 1.46 | -13.35 | 51.2% | |
| Group % Error | | | | | | | | 47.9% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | Negligible strain |
| SG1 | 142.64 | 83.47 | 32.41 | 133.63 | 98.04 | 50.91 | -17.28 | 117.6% | |
| SG3 | -28.23 | -140.90 | -208.33 | -80.14 | -114.40 | 77.73 | -184.54 | -61.3% | |
| SG5 | -3.50 | -1.97 | -194.42 | -12.26 | -53.04 | 94.37 | -183.22 | -245.4% | |
| SG7 | - | - | - | - | - | - | - | - | Gage damaged |
| SG9 | -44.10 | -105.41 | -200.05 | -87.88 | -109.36 | 65.73 | -182.53 | -66.9% | |
| SG11 | 5.16 | -3.06 | -199.26 | -17.54 | -53.67 | 97.51 | -189.91 | -253.8% | |
| SG13 | 108.44 | 36.77 | -65.49 | 187.86 | 66.90 | 107.69 | 2.99 | 95.5% | |
| SG15 | -36.24 | -5.16 | -47.41 | -64.27 | -38.27 | 24.90 | -71.38 | -86.5% | |
| SG17 | -1.87 | 2.22 | -81.55 | -56.42 | -34.41 | 41.26 | -70.03 | -103.5% | |
| SG19 | 16.25 | 2.74 | -21.36 | 50.15 | 11.95 | 29.85 | -25.28 | 311.6% | |
| Group % Error | | | | | | | | 118.5% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | |
| SG22 | 281.59 | 303.81 | 268.83 | 305.87 | 290.02 | 17.90 | 260.70 | 10.1% | |
| SG24 | 356.51 | 371.73 | 339.48 | 384.31 | 363.01 | 19.37 | 315.17 | 13.2% | |
| SG26 | 5.20 | 48.93 | 321.34 | 365.64 | 185.28 | 184.45 | 333.84 | -80.2% | Large Stdev |
| SG28 | 346.00 | 350.87 | 318.59 | 362.24 | 344.42 | 18.52 | 312.37 | 9.3% | |
| Group % Error | | | | | | | | 26.7% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | |
| SG21 | 271.23 | 281.40 | 263.30 | 285.18 | 275.28 | 9.92 | 258.47 | 6.1% | |
| SG23 | 335.08 | 343.55 | 327.06 | 354.70 | 340.10 | 11.84 | 309.66 | 8.9% | |
| SG25 | 289.47 | 296.77 | 280.85 | 216.64 | 270.93 | 36.78 | 313.78 | -15.8% | |
| SG27 | 317.62 | 321.96 | 298.47 | 337.01 | 318.77 | 15.88 | 296.30 | 7.0% | |
| Group % Error | | | | | | | | 9.8% | |

TABLE D-20. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP2, LOAD CONDITION 1b (Continued)

| CVP2 - Load Condition 1b (Continued) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | |
| SG29T | -156.19 | -159.80 | -169.27 | -181.60 | -166.71 | 11.35 | -142.81 | 14.3% | |
| SG30T | -134.17 | -142.56 | -153.65 | -163.69 | -148.52 | 12.88 | -119.69 | 19.4% | |
| SG31T | -94.74 | -99.23 | -58.32 | -105.69 | -89.50 | 21.26 | -72.28 | 19.2% | Opposite Gage 37 |
| SG32T | -130.42 | -134.50 | -135.91 | -159.88 | -140.18 | 13.34 | -115.60 | 17.5% | |
| SG33T | -138.49 | -142.38 | -141.22 | -147.86 | -142.49 | 3.94 | -117.50 | 17.5% | |
| SG34T | -176.60 | -180.58 | -190.39 | -167.05 | -178.65 | 9.67 | -144.27 | 19.2% | |
| SG35T | -114.37 | -116.00 | -120.33 | -132.81 | -120.88 | 8.34 | -130.32 | -7.8% | |
| SG36T | -107.68 | -110.53 | -98.75 | -134.74 | -112.93 | 15.38 | -95.92 | 15.1% | |
| SG37T | -105.68 | -110.91 | -112.39 | -129.16 | -114.53 | 10.17 | -102.03 | 10.9% | |
| Group % Error | | | | | | | | 16.5% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | Loading direction |
| SG29L | 355.19 | 356.04 | 354.00 | 370.00 | 358.81 | 7.51 | 352.12 | 1.9% | |
| SG30L | 374.55 | 385.55 | 361.20 | 401.92 | 380.81 | 17.24 | 346.39 | 9.0% | |
| SG31L | 319.75 | 339.11 | 304.06 | 347.46 | 327.60 | 19.52 | 300.07 | 8.4% | Opposite Gage 37 |
| SG32L | 384.58 | 398.20 | 366.03 | 414.70 | 390.88 | 20.64 | 342.62 | 12.3% | |
| SG33L | 362.41 | 371.30 | 334.81 | 371.71 | 360.06 | 17.37 | 344.58 | 4.3% | |
| SG34L | 339.41 | 344.40 | 315.16 | 337.77 | 334.19 | 13.00 | 351.90 | -5.3% | |
| SG35L | 374.39 | 381.34 | 350.09 | 400.96 | 376.69 | 21.00 | 349.55 | 7.2% | |
| SG36L | 319.19 | 330.42 | 303.02 | 341.75 | 323.60 | 16.52 | 308.75 | 4.6% | |
| SG37L | 322.79 | 343.38 | 305.96 | 350.89 | 330.76 | 20.36 | 303.23 | 8.3% | |
| Group % Error | | | | | | | | 7.6% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | |
| SG29-45 | 137.11 | 159.17 | 121.49 | 147.22 | 141.25 | 15.96 | 78.94 | 44.1% | |
| SG30-45 | 108.15 | 132.77 | 90.10 | 131.21 | 115.56 | 20.36 | 110.82 | 4.1% | |
| SG31-45 | 96.44 | 88.91 | 91.66 | 103.90 | 95.23 | 6.57 | 114.37 | -20.1% | Opposite Gage 37 |
| SG32-45 | 103.53 | 91.62 | 79.03 | 106.74 | 95.23 | 12.60 | 114.89 | -20.6% | |
| SG33-45 | 95.33 | 98.32 | 93.81 | 101.93 | 97.35 | 3.58 | 113.83 | -16.9% | |
| SG34-45 | 24.38 | 25.16 | 32.30 | 40.42 | 30.57 | 7.47 | 128.83 | -321.5% | Questionable gage |
| SG35-45 | 121.24 | 117.03 | 111.95 | 144.37 | 123.65 | 14.33 | 110.66 | 10.5% | |
| SG36-45 | 94.72 | 98.03 | 114.21 | 126.07 | 108.26 | 14.61 | 105.80 | 2.3% | |
| SG37-45 | 86.58 | 81.26 | 59.84 | 88.69 | 79.09 | 13.21 | 100.77 | -27.4% | |
| Group % Error | | | | | | | | 40.0% | |

TABLE D-21. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP2, LOAD CONDITION 1c

| CVP2 - Load Condition 1c | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | Primary loading direction |
| SG2 | 579.98 | 586.49 | 591.92 | 589.19 | 586.90 | 5.12 | 559.26 | 4.7% | |
| SG4 | 553.07 | 557.42 | 565.94 | 567.61 | 561.01 | 6.92 | 525.71 | 6.3% | |
| SG6 | 637.36 | 638.54 | 658.56 | 659.98 | 648.61 | 12.33 | 628.48 | 3.1% | |
| SG8 | 571.61 | 575.27 | 602.10 | 597.42 | 586.60 | 15.39 | 513.93 | 12.4% | |
| SG10 | 557.94 | 559.38 | 562.67 | 565.44 | 561.35 | 3.37 | 538.80 | 4.0% | |
| SG12 | 959.66 | 962.17 | 979.46 | 983.76 | 971.26 | 12.12 | 742.86 | 23.5% | |
| SG14 | 580.50 | 579.57 | 608.39 | 600.40 | 592.22 | 14.44 | 538.01 | 9.2% | |
| SG16 | 540.10 | 528.85 | 537.34 | 530.13 | 534.10 | 5.47 | 427.48 | 20.0% | |
| SG18 | 497.14 | 488.46 | 491.19 | 493.07 | 492.46 | 3.65 | 430.07 | 12.7% | |
| SG20 | 557.41 | 546.90 | 543.07 | 551.79 | 549.79 | 6.21 | 426.98 | 22.3% | |
| Group % Error | | | | | | | | 15.6% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | Primary loading direction |
| SG1 | 876.17 | 898.59 | 807.80 | 859.26 | 860.46 | 38.62 | 555.17 | 35.5% | |
| SG3 | 733.30 | 740.54 | 685.05 | 707.24 | 716.53 | 25.40 | 473.59 | 33.9% | |
| SG5 | 681.88 | 668.39 | 699.98 | 687.03 | 684.32 | 13.07 | 459.47 | 32.9% | |
| SG7 | - | - | - | - | - | - | - | - | Gage damaged |
| SG9 | 723.13 | 715.81 | 663.33 | 687.11 | 697.35 | 27.49 | 496.58 | 28.8% | |
| SG11 | 608.06 | 573.74 | 582.48 | 580.81 | 586.27 | 15.01 | 353.11 | 39.8% | |
| SG13 | 871.88 | 807.36 | 808.85 | 795.67 | 820.94 | 34.47 | 607.81 | 26.0% | |
| SG15 | 525.25 | 487.40 | 494.77 | 495.97 | 500.85 | 16.70 | 651.97 | -30.2% | |
| SG17 | 662.64 | 602.36 | 611.77 | 617.50 | 623.57 | 26.78 | 690.65 | -10.8% | |
| SG19 | 579.73 | 532.71 | 542.87 | 543.99 | 549.82 | 20.57 | 690.08 | -25.5% | |
| Group % Error | | | | | | | | 30.6% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | |
| SG22 | 264.49 | 262.02 | 258.65 | 254.08 | 259.81 | 4.51 | 230.82 | 11.2% | |
| SG24 | 306.58 | 300.00 | 293.25 | 295.38 | 298.80 | 5.90 | 259.27 | 13.2% | |
| SG26 | 173.34 | 261.24 | 322.65 | 289.42 | 261.66 | 64.01 | 178.94 | 31.6% | Large Stdev |
| SG28 | 262.23 | 264.86 | 269.97 | 255.33 | 263.10 | 6.09 | 205.91 | 21.7% | |
| Group % Error | | | | | | | | 20.6% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | |
| SG21 | -33.01 | -35.01 | -40.08 | -36.47 | -36.14 | 2.98 | -42.11 | -16.5% | |
| SG23 | 103.10 | 97.20 | 84.43 | 79.38 | 91.02 | 11.00 | -23.68 | 126.0% | |
| SG25 | 195.74 | 195.79 | 185.93 | 162.99 | 185.11 | 15.46 | 48.09 | 74.0% | |
| SG27 | 75.89 | 77.90 | 66.99 | 68.00 | 72.19 | 5.51 | 63.12 | 12.6% | |
| Group % Error | | | | | | | | 80.8% | |

TABLE D-21. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP2, LOAD CONDITION 1c (Continued)

| CVP2 - Load Condition 1c (Continued) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | Primary loading direction |
| SG29T | 724.40 | 726.61 | 724.09 | 737.12 | 728.06 | 6.15 | 822.70 | -13.0% | |
| SG30T | 708.14 | 712.39 | 718.88 | 721.67 | 715.27 | 6.14 | 818.80 | -14.5% | |
| SG31T | 740.72 | 744.17 | 749.94 | 745.57 | 745.10 | 3.82 | 735.44 | 1.3% | Opposite Gage 37 |
| SG32T | 768.09 | 772.78 | 779.45 | 785.94 | 776.56 | 7.80 | 850.87 | -9.6% | |
| SG33T | 753.80 | 758.65 | 761.85 | 765.70 | 760.00 | 5.04 | 851.17 | -12.0% | |
| SG34T | 687.90 | 688.52 | 683.65 | 693.18 | 688.31 | 3.90 | 822.84 | -19.5% | |
| SG35T | 711.01 | 711.90 | 705.40 | 709.34 | 709.41 | 2.88 | 769.64 | -8.5% | |
| SG36T | 721.76 | 722.37 | 727.97 | 728.76 | 725.22 | 3.66 | 838.82 | -15.7% | |
| SG37T | 729.96 | 735.29 | 752.11 | 744.74 | 740.53 | 9.85 | 832.89 | -12.5% | |
| Group % Error | | | | | | | | 12.6% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | Secondary loading direction |
| SG29L | 252.24 | 250.79 | 265.07 | 236.07 | 251.04 | 11.87 | 221.39 | 11.8% | |
| SG30L | 278.90 | 273.92 | 264.47 | 261.84 | 269.78 | 7.99 | 202.06 | 25.1% | |
| SG31L | 223.87 | 218.78 | 206.40 | 221.29 | 217.58 | 7.74 | 142.44 | 34.5% | Opposite Gage 37 |
| SG32L | 224.89 | 220.84 | 206.04 | 194.97 | 211.69 | 13.78 | 146.16 | 31.0% | |
| SG33L | 195.85 | 189.66 | 181.62 | 174.01 | 185.29 | 9.51 | 150.25 | 18.9% | |
| SG34L | 204.16 | 206.11 | 194.92 | 184.56 | 197.44 | 9.88 | 221.54 | -12.2% | |
| SG35L | 304.38 | 304.39 | 295.91 | 295.29 | 299.99 | 5.08 | 196.44 | 34.5% | |
| SG36L | 205.42 | 209.67 | 203.95 | 210.64 | 207.42 | 3.24 | 115.33 | 44.4% | |
| SG37L | 243.16 | 237.48 | 226.94 | 238.56 | 236.54 | 6.86 | 147.57 | 37.6% | |
| Group % Error | | | | | | | | 30.1% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | |
| SG29-45 | 546.34 | 537.76 | 514.42 | 514.76 | 528.32 | 16.24 | 498.26 | 5.7% | |
| SG30-45 | 498.50 | 496.20 | 475.55 | 486.02 | 489.07 | 10.52 | 515.80 | -5.5% | |
| SG31-45 | 473.58 | 473.75 | 454.80 | 470.88 | 468.25 | 9.07 | 451.02 | 3.7% | Opposite Gage 37 |
| SG32-45 | 485.07 | 486.84 | 466.73 | 465.91 | 476.14 | 11.37 | 520.04 | -9.2% | |
| SG33-45 | 491.84 | 489.11 | 499.86 | 500.04 | 495.21 | 5.59 | 491.34 | 0.8% | |
| SG34-45 | 406.69 | 414.51 | 409.40 | 410.91 | 410.38 | 3.26 | 541.80 | -32.0% | questionable gage |
| SG35-45 | 497.37 | 491.06 | 483.83 | 489.63 | 490.47 | 5.56 | 503.96 | -2.7% | |
| SG36-45 | 507.63 | 502.82 | 521.87 | 519.80 | 513.03 | 9.26 | 445.94 | 13.1% | |
| SG37-45 | 478.74 | 479.51 | 464.67 | 479.07 | 475.50 | 7.23 | 506.32 | -6.5% | |
| Group % Error | | | | | | | | 11.3% | |

TABLE D-22. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP3, LOAD CONDITION 1a

| CVP3 - Load Condition 1a | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | Loading direction |
| SG6 | 445.18 | 441.21 | 469.51 | 462.70 | 454.65 | 13.62 | 410.33 | 9.7% | |
| SG9 | 483.24 | 476.35 | 501.05 | 491.73 | 488.09 | 10.69 | 422.34 | 13.5% | |
| Group % Error | | | | | | | | 11.9% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | Loading direction |
| SG1 | 328.39 | 276.12 | 409.39 | 414.21 | 357.03 | 66.78 | 601.41 | -68.4% | |
| SG2 | 377.86 | 307.18 | 473.21 | 457.82 | 404.02 | 76.91 | 613.67 | -51.9% | |
| SG3 | 421.35 | 348.87 | 644.97 | 539.44 | 488.66 | 130.49 | 477.95 | 2.2% | |
| SG4 | 482.46 | 409.17 | 613.15 | 529.65 | 508.60 | 85.52 | 600.18 | -18.0% | |
| SG5 | 397.36 | 327.36 | 482.80 | 454.74 | 415.57 | 68.72 | 612.17 | -47.3% | |
| SG7 | 405.24 | 321.41 | 496.61 | 521.20 | 436.12 | 91.30 | 638.60 | -46.4% | |
| SG8 | 381.07 | 330.22 | 428.06 | 399.63 | 384.74 | 41.17 | 588.46 | -52.9% | |
| Group % Error | | | | | | | | 42.4% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | Negligible strain |
| SG12 | -7.14 | -6.05 | 13.83 | 23.53 | 6.04 | 15.13 | -6.55 | 208.4% | |
| SG14 | -69.24 | -68.25 | -55.31 | -69.18 | -65.50 | 6.80 | -73.91 | -12.8% | |
| SG16 | -31.80 | -32.26 | -12.54 | -12.83 | -22.36 | 11.17 | -121.32 | -442.7% | |
| SG17 | - | - | - | - | - | - | - | - | Gage damaged |
| SG20 | -20.43 | -27.15 | -27.51 | -28.20 | -25.82 | 3.62 | -64.30 | -149.0% | |
| SG21 | -108.17 | -108.64 | -100.97 | -111.37 | -107.29 | 4.44 | -116.91 | -9.0% | |
| SG24 | -16.21 | -21.44 | -14.59 | 8.13 | -11.03 | 13.10 | -65.80 | -496.6% | |
| SG25 | -79.95 | -77.65 | -66.38 | -73.00 | -74.24 | 5.99 | -74.32 | -0.1% | |
| SG27 | -24.30 | -22.69 | -6.02 | -5.34 | -14.59 | 10.31 | -120.99 | -729.5% | |
| SG29 | -10.68 | -10.25 | 13.29 | 19.68 | 3.01 | 15.78 | -71.85 | 2488.8% | |
| Group % Error | | | | | | | | 117.4% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | |
| SG10 | -159.68 | -162.96 | -126.20 | -113.58 | -140.61 | 24.50 | -256.93 | -82.7% | |
| SG11 | -136.86 | -139.47 | -143.85 | -137.18 | -139.34 | 3.22 | -67.39 | 51.6% | |
| SG13 | -25.05 | -37.31 | -34.64 | -21.01 | -29.50 | 7.73 | -61.40 | -108.1% | |
| SG15 | -2.86 | -11.08 | -26.71 | -21.94 | -15.65 | 10.74 | 7.32 | 146.8% | |
| SG18 | -200.71 | -191.10 | -209.54 | -219.59 | -205.24 | 12.18 | -172.44 | 16.0% | |
| SG19 | -297.60 | -293.43 | -305.38 | -319.95 | -304.09 | 11.68 | -297.51 | 2.2% | |
| SG22 | 38.90 | 24.80 | 26.52 | 41.60 | 32.96 | 8.53 | 153.49 | -365.7% | |
| SG23 | -310.86 | -307.90 | -308.57 | -288.91 | -304.06 | 10.18 | -352.61 | -16.0% | |
| SG26 | -15.96 | -20.54 | -29.34 | -10.13 | -18.99 | 8.11 | -61.80 | -225.4% | |
| SG28 | -20.20 | -16.35 | -48.00 | -28.72 | -28.32 | 14.11 | 6.51 | 123.0% | |
| SG30 | -87.70 | -86.31 | -52.87 | -49.14 | -69.00 | 20.85 | -32.10 | 53.5% | |
| SG31 | -148.10 | -154.92 | -121.55 | -103.96 | -132.13 | 23.66 | -257.95 | -95.2% | |
| Group % Error | | | | | | | | 44.8% | |

TABLE D-22. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP3, LOAD CONDITION 1a (Continued)

| CVP3 - Load Condition 1a (Continued) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | Loading direction |
| SG32T | 684.70 | 693.69 | 682.65 | 678.91 | 684.99 | 6.28 | 803.29 | -17.3% | |
| SG33T | 672.96 | 688.69 | 682.42 | 672.27 | 679.08 | 7.90 | 807.21 | -18.9% | |
| SG34T | 803.45 | 805.16 | 790.05 | 771.36 | 792.50 | 15.63 | 813.62 | -2.7% | |
| SG35T | 652.85 | 661.03 | 636.16 | 639.57 | 647.40 | 11.59 | 713.55 | -10.2% | Opposite Gage 34 |
| SG36T | 762.12 | 767.95 | 764.18 | 750.88 | 761.28 | 7.34 | 802.08 | -5.4% | |
| SG37T | 452.89 | 467.93 | 416.90 | 414.00 | 437.93 | 26.70 | 604.89 | -38.1% | Opposite Gage 36 |
| SG38T | 766.41 | 769.08 | 759.20 | 736.50 | 757.80 | 14.80 | 813.54 | -7.4% | |
| SG39T | 717.92 | 719.64 | 712.96 | 701.16 | 712.92 | 8.34 | 804.06 | -12.8% | |
| SG40T | 526.05 | 532.30 | 522.19 | 501.65 | 520.55 | 13.27 | 583.99 | -12.2% | Opposite Gage 39 |
| Group % Error | | | | | | | | 14.0% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | Negligible strain |
| SG32L | -13.33 | -18.54 | 3.20 | -2.50 | -7.79 | 9.92 | -69.32 | -789.8% | |
| SG33L | -33.44 | -45.33 | -22.19 | -25.84 | -31.70 | 10.22 | -75.76 | -139.0% | |
| SG34L | -108.51 | -109.95 | -104.84 | -81.93 | -101.31 | 13.09 | -149.49 | -47.6% | |
| SG35L | -102.27 | -106.77 | -98.28 | -78.73 | -96.51 | 12.35 | -148.23 | -53.6% | Opposite Gage 34 |
| SG36L | -31.07 | -34.13 | -19.77 | -13.49 | -24.62 | 9.66 | -70.58 | -186.7% | |
| SG37L | -150.66 | -150.70 | -143.18 | -136.62 | -145.29 | 6.77 | -320.67 | -120.7% | Opposite Gage 36 |
| SG38L | -95.98 | -95.44 | -97.36 | -78.11 | -91.72 | 9.11 | -141.09 | -53.8% | |
| SG39L | -15.94 | -15.96 | -2.81 | 7.01 | -6.92 | 11.16 | -62.24 | -799.0% | |
| SG40L | -160.01 | -156.74 | -149.61 | -152.59 | -154.74 | 4.57 | -313.00 | -102.3% | Opposite Gage 39 |
| Group % Error | | | | | | | | 99.6% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | |
| SG32-45 | 349.69 | 348.18 | 342.51 | 365.45 | 351.46 | 9.82 | 371.47 | -5.7% | |
| SG33-45 | 280.97 | 278.37 | 275.95 | 270.77 | 276.51 | 4.35 | 358.06 | -29.5% | |
| SG34-45 | 354.24 | 352.97 | 349.85 | 362.02 | 354.77 | 5.17 | 340.89 | 3.9% | |
| SG35-45 | 305.01 | 303.52 | 311.37 | 314.05 | 308.49 | 5.03 | 287.12 | 6.9% | Opposite Gage 34 |
| SG36-45 | 340.42 | 332.76 | 325.56 | 332.88 | 332.90 | 6.07 | 347.59 | -4.4% | |
| SG37-45 | 185.47 | 185.99 | 177.00 | 178.15 | 181.65 | 4.74 | 165.16 | 9.1% | Opposite Gage 36 |
| SG38-45 | 325.31 | 327.50 | 316.81 | 313.02 | 320.66 | 6.87 | 333.85 | -4.1% | |
| SG39-45 | 409.46 | 414.10 | 404.04 | 423.54 | 412.78 | 8.27 | 367.34 | 11.0% | |
| SG40-45 | 217.65 | 223.50 | 208.74 | 213.94 | 215.96 | 6.22 | 149.71 | 30.7% | Opposite Gage 39 |
| Group % Error | | | | | | | | 12.9% | |

TABLE D-23. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP3, LOAD CONDITION 1b

| CVP3 - Load Condition 1b | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | |
| SG6 | -212.15 | -195.05 | -202.13 | -194.90 | -201.06 | 8.13 | -117.89 | 41.4% | |
| SG9 | -150.26 | -146.58 | -159.96 | -157.41 | -153.55 | 6.20 | -122.97 | 19.9% | |
| Group % Error | | | | | | | | 35.0% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | |
| SG1 | -199.76 | -231.96 | -230.24 | -282.13 | -236.02 | 34.11 | -438.79 | -85.9% | |
| SG2 | -262.11 | -310.42 | -334.72 | -409.52 | -329.19 | 61.47 | -602.18 | -82.9% | |
| SG3 | 755.96 | 762.56 | 662.97 | 532.39 | 678.47 | 107.48 | 944.82 | -39.3% | |
| SG4 | -14.97 | -10.77 | -84.78 | -211.26 | -80.45 | 93.58 | -47.49 | 41.0% | |
| SG5 | -260.83 | -292.82 | -337.36 | -424.15 | -328.79 | 70.90 | -595.22 | -81.0% | |
| SG7 | -376.25 | -365.94 | -312.35 | -436.87 | -372.85 | 51.05 | -631.57 | -69.4% | |
| SG8 | -187.21 | -186.42 | -238.48 | -308.92 | -230.26 | 57.82 | -428.45 | -86.1% | |
| Group % Error | | | | | | | | 62.6% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | |
| SG12 | 823.22 | 817.43 | 822.37 | 810.53 | 818.39 | 5.83 | 664.24 | 18.8% | |
| SG14 | 1011.40 | 1050.13 | 1041.56 | 1017.80 | 1030.22 | 18.56 | 1101.55 | -6.9% | |
| SG16 | 1020.41 | 998.39 | 1002.76 | 990.82 | 1003.10 | 12.55 | 1123.43 | -12.0% | |
| SG17 | - | - | - | - | - | - | - | - | Gage damaged |
| SG20 | 800.77 | 827.06 | 833.35 | 811.19 | 818.09 | 14.84 | 693.62 | 15.2% | |
| SG21 | 513.62 | 504.26 | 513.03 | 484.78 | 503.92 | 13.46 | 442.76 | 12.1% | |
| SG24 | 888.54 | 905.30 | 909.80 | 893.09 | 899.18 | 10.01 | 832.61 | 7.4% | |
| SG25 | 1052.49 | 1048.81 | 1046.46 | 1027.66 | 1043.86 | 11.08 | 1101.58 | -5.5% | |
| SG27 | 964.45 | 936.12 | 942.69 | 941.59 | 946.21 | 12.49 | 1122.08 | -18.6% | |
| SG29 | 807.42 | 790.23 | 799.00 | 796.36 | 798.25 | 7.13 | 854.52 | -7.0% | |
| Group % Error | | | | | | | | 12.1% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | |
| SG10 | 358.94 | 356.12 | 369.57 | 355.77 | 360.10 | 6.47 | 311.50 | 13.5% | |
| SG11 | 364.53 | 369.63 | 372.46 | 361.00 | 366.91 | 5.12 | 333.86 | 9.0% | |
| SG13 | 1094.75 | 1080.29 | 1098.28 | 1079.01 | 1088.08 | 9.86 | 1114.43 | -2.4% | |
| SG15 | 563.90 | 568.36 | 571.54 | 562.94 | 566.69 | 4.01 | 529.26 | 6.6% | |
| SG18 | 629.82 | 629.46 | 635.53 | 618.93 | 628.44 | 6.92 | 581.59 | 7.5% | |
| SG19 | 589.71 | 674.01 | 674.34 | 650.57 | 647.16 | 39.88 | 678.33 | -4.8% | |
| SG22 | -128.60 | 161.75 | 159.10 | 118.77 | 77.76 | 138.97 | 66.98 | 13.9% | |
| SG23 | 755.40 | 795.38 | 801.44 | 778.65 | 782.72 | 20.60 | 813.96 | -4.0% | |
| SG26 | 1085.30 | 1072.27 | 1079.17 | 1072.64 | 1077.35 | 6.18 | 1114.38 | -3.4% | |
| SG28 | 485.98 | 493.08 | 489.50 | 488.47 | 489.26 | 2.95 | 528.55 | -8.0% | |
| SG30 | 329.30 | 338.54 | 196.47 | 186.31 | 262.66 | 82.48 | 366.40 | -39.5% | |
| SG31 | 361.27 | 369.40 | 376.15 | 362.32 | 367.29 | 6.93 | 311.74 | 15.1% | |
| Group % Error | | | | | | | | 7.4% | |

TABLE D-23. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP3, LOAD CONDITION 1b (Continued)

| CVP3 - Load Condition 1b (Continued) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | |
| SG32T | -276.96 | -278.08 | -281.48 | -266.37 | -275.72 | 6.52 | -23.56 | 91.5% | |
| SG33T | -414.72 | -425.75 | -423.66 | -410.89 | -418.76 | 7.10 | -85.36 | 79.6% | |
| SG34T | -352.17 | -343.88 | -347.59 | -334.89 | -344.63 | 7.33 | -331.34 | 3.9% | |
| SG35T | -183.52 | -205.99 | -202.70 | -177.63 | -192.46 | 14.00 | -186.00 | 3.4% | Opposite Gage 34 |
| SG36T | -402.93 | -416.97 | -414.69 | -406.61 | -410.30 | 6.63 | -107.74 | 73.7% | |
| SG37T | -418.07 | -401.72 | -401.25 | -384.32 | -401.34 | 13.78 | -350.24 | 12.7% | Opposite Gage 36 |
| SG38T | -360.35 | -353.23 | -357.03 | -355.22 | -356.46 | 3.02 | -335.14 | 6.0% | |
| SG39T | -279.38 | -281.54 | -279.54 | -264.33 | -276.20 | 7.97 | -43.72 | 84.2% | |
| SG40T | -158.72 | -149.25 | -149.54 | -145.77 | -150.82 | 5.54 | -118.49 | 21.4% | Opposite Gage 39 |
| Group % Error | | | | | | | | 58.1% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | Loading direction |
| SG32L | 844.46 | 849.46 | 840.93 | 815.88 | 837.68 | 14.95 | 688.49 | 17.8% | |
| SG33L | 1067.39 | 1059.53 | 1056.25 | 1030.56 | 1053.43 | 15.95 | 933.70 | 11.4% | |
| SG34L | 875.16 | 884.03 | 888.28 | 871.50 | 879.74 | 7.75 | 892.35 | -1.4% | |
| SG35L | 850.73 | 857.62 | 863.73 | 848.20 | 855.07 | 7.01 | 921.66 | -7.8% | Opposite Gage 34 |
| SG36L | 1076.61 | 1075.79 | 1068.50 | 1052.38 | 1068.32 | 11.23 | 936.28 | 12.4% | |
| SG37L | 965.84 | 977.50 | 978.30 | 971.82 | 973.37 | 5.79 | 1045.55 | -7.4% | Opposite Gage 36 |
| SG38L | 898.61 | 911.76 | 909.97 | 903.88 | 906.06 | 6.00 | 899.34 | 0.7% | |
| SG39L | 851.83 | 842.83 | 844.38 | 833.65 | 843.17 | 7.47 | 688.39 | 18.4% | |
| SG40L | 808.81 | 810.75 | 811.07 | 798.28 | 807.23 | 6.05 | 858.77 | -6.4% | Opposite Gage 39 |
| Group % Error | | | | | | | | 10.9% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | |
| SG32-45 | 321.29 | 328.52 | 323.80 | 332.24 | 326.46 | 4.88 | 374.64 | -14.8% | |
| SG33-45 | -110.97 | -105.68 | -105.82 | -102.45 | -106.23 | 3.52 | 9.48 | 108.9% | |
| SG34-45 | 144.00 | 160.87 | 162.85 | 165.31 | 158.26 | 9.68 | 176.38 | -11.5% | |
| SG35-45 | 184.61 | 182.77 | 189.61 | 198.31 | 188.83 | 6.95 | 270.94 | -43.5% | Opposite Gage 34 |
| SG36-45 | -109.32 | -92.42 | -97.22 | -111.76 | -102.68 | 9.34 | 15.39 | 115.0% | |
| SG37-45 | -256.59 | -187.01 | -188.86 | -193.68 | -206.54 | 33.49 | -115.84 | 43.9% | Opposite Gage 36 |
| SG38-45 | 305.25 | 313.99 | 321.26 | 302.38 | 310.72 | 8.59 | 341.68 | -10.0% | |
| SG39-45 | 245.78 | 263.42 | 262.19 | 268.68 | 260.02 | 9.90 | 352.71 | -35.6% | |
| SG40-45 | 352.05 | 374.88 | 373.07 | 371.00 | 367.75 | 10.59 | 415.36 | -12.9% | Opposite Gage 39 |
| Group % Error | | | | | | | | 32.7% | |

TABLE D-24. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP3, LOAD CONDITION 1c

| CVP3 - Load Condition 1c | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | Secondary loading direction |
| SG6 | 258.32 | 246.40 | 265.09 | 274.00 | 260.95 | 11.63 | 301.19 | -15.4% | |
| SG9 | 321.97 | 303.36 | 322.40 | 330.44 | 319.54 | 11.47 | 309.44 | 3.2% | |
| Group % Error | | | | | | | | 10.1% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | Secondary loading direction |
| SG1 | 49.32 | 12.44 | 22.32 | 28.45 | 28.13 | 15.59 | 120.02 | -326.6% | |
| SG2 | -39.40 | -103.59 | -68.27 | -89.62 | -75.22 | 27.95 | -31.80 | 57.7% | |
| SG3 | 1142.93 | 1041.25 | 993.98 | 923.95 | 1025.53 | 91.91 | 1294.43 | -26.2% | |
| SG4 | 436.88 | 352.11 | 328.91 | 266.89 | 346.20 | 70.35 | 467.23 | -35.0% | |
| SG5 | -30.59 | -109.91 | -57.95 | -88.13 | -71.65 | 34.68 | -26.18 | 63.5% | |
| SG7 | -20.92 | -88.45 | -7.44 | -63.34 | -45.04 | 37.48 | -35.06 | 22.2% | |
| SG8 | 77.34 | -2.45 | 50.29 | 35.40 | 40.15 | 33.28 | 117.30 | -192.2% | |
| Group % Error | | | | | | | | 29.8% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | |
| SG12 | 836.44 | 808.29 | 800.77 | 793.71 | 809.80 | 18.73 | 636.60 | 21.4% | |
| SG14 | 954.65 | 938.30 | 916.50 | 902.87 | 928.08 | 22.95 | 996.80 | -7.4% | |
| SG16 | 1024.26 | 978.50 | 957.22 | 945.78 | 976.44 | 34.64 | 972.90 | 0.4% | |
| SG17 | - | - | - | - | - | - | - | - | Gage damaged |
| SG20 | 779.08 | 771.02 | 757.06 | 740.53 | 761.92 | 16.92 | 599.55 | 21.3% | |
| SG21 | 390.41 | 383.14 | 374.02 | 347.25 | 373.71 | 18.87 | 334.84 | 10.4% | |
| SG24 | 910.39 | 865.81 | 845.23 | 838.20 | 864.91 | 32.51 | 730.27 | 15.6% | |
| SG25 | 964.14 | 953.09 | 932.08 | 906.09 | 938.85 | 25.57 | 997.52 | -6.2% | |
| SG27 | 950.31 | 917.90 | 900.36 | 884.34 | 913.23 | 28.27 | 971.81 | -6.4% | |
| SG29 | 794.38 | 773.87 | 773.62 | 759.03 | 775.23 | 14.53 | 757.04 | 2.3% | |
| Group % Error | | | | | | | | 11.9% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | |
| SG10 | 276.02 | 274.29 | 302.99 | 291.10 | 286.10 | 13.56 | 155.45 | 45.7% | |
| SG11 | 264.03 | 261.39 | 252.96 | 241.87 | 255.06 | 9.98 | 281.44 | -10.3% | |
| SG13 | 1080.08 | 1048.25 | 1029.64 | 1026.94 | 1046.23 | 24.48 | 1019.14 | 2.6% | |
| SG15 | 569.58 | 566.44 | 547.13 | 542.00 | 556.29 | 13.76 | 539.64 | 3.0% | |
| SG18 | 454.26 | 464.61 | 450.32 | 434.36 | 450.89 | 12.56 | 424.46 | 5.9% | |
| SG19 | 464.33 | 461.58 | 442.33 | 418.30 | 446.64 | 21.27 | 441.61 | 1.1% | |
| SG22 | 229.11 | 208.41 | 215.18 | 217.80 | 217.63 | 8.62 | 187.30 | 13.9% | |
| SG23 | 586.99 | 554.49 | 537.95 | 525.74 | 551.29 | 26.55 | 512.68 | 7.0% | |
| SG26 | 1084.98 | 1051.49 | 1028.29 | 1015.45 | 1045.05 | 30.51 | 1018.47 | 2.5% | |
| SG28 | 476.14 | 476.36 | 448.85 | 442.71 | 461.02 | 17.77 | 537.95 | -16.7% | |
| SG30 | 264.46 | 271.96 | 152.71 | 141.49 | 207.66 | 70.14 | 348.43 | -67.8% | |
| SG31 | 310.06 | 289.52 | 319.72 | 308.69 | 307.00 | 12.64 | 155.72 | 49.3% | |
| Group % Error | | | | | | | | 13.8% | |

TABLE D-24. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP3, LOAD CONDITION 1c (Continued)

| CVP3 - Load Condition 1c (Continued) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | Secondary loading direction |
| SG32T | 383.15 | 391.52 | 390.33 | 411.49 | 394.12 | 12.15 | 663.65 | -68.4% | |
| SG33T | 215.84 | 229.88 | 235.96 | 254.97 | 234.16 | 16.23 | 564.47 | -141.1% | |
| SG34T | 512.69 | 513.63 | 508.26 | 525.07 | 514.91 | 7.17 | 541.33 | -5.1% | |
| SG35T | 396.73 | 403.32 | 350.83 | 428.74 | 394.91 | 32.46 | 472.46 | -19.6% | Opposite Gage 34 |
| SG36T | 292.44 | 299.69 | 307.82 | 325.56 | 306.38 | 14.25 | 540.87 | -76.5% | |
| SG37T | 65.08 | 80.76 | 58.81 | 69.53 | 68.55 | 9.25 | 280.91 | -309.8% | Opposite Gage 36 |
| SG38T | 442.99 | 457.07 | 449.34 | 463.59 | 453.25 | 8.98 | 525.27 | -15.9% | |
| SG39T | 401.08 | 410.00 | 410.28 | 430.63 | 413.00 | 12.51 | 645.50 | -56.3% | |
| SG40T | 336.89 | 345.52 | 341.68 | 342.16 | 341.56 | 3.55 | 449.72 | -31.7% | Opposite Gage 39 |
| Group % Error | | | | | | | | 54.2% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | Primary loading direction |
| SG32L | 805.37 | 789.80 | 769.10 | 750.38 | 778.66 | 24.00 | 568.22 | 27.0% | |
| SG33L | 1007.90 | 985.76 | 960.36 | 939.71 | 973.43 | 29.71 | 781.72 | 19.7% | |
| SG34L | 756.43 | 758.49 | 737.23 | 720.69 | 743.21 | 17.81 | 729.56 | 1.8% | |
| SG35L | 739.22 | 735.41 | 718.71 | 702.01 | 723.84 | 17.06 | 755.72 | -4.4% | Opposite Gage 34 |
| SG36L | 1004.92 | 999.91 | 965.00 | 944.30 | 978.53 | 28.92 | 783.37 | 19.9% | |
| SG37L | 851.25 | 843.95 | 823.63 | 803.63 | 830.62 | 21.45 | 817.08 | 1.6% | Opposite Gage 36 |
| SG38L | 839.83 | 809.01 | 774.06 | 767.29 | 797.55 | 33.60 | 740.31 | 7.2% | |
| SG39L | 807.57 | 795.28 | 778.72 | 764.57 | 786.54 | 18.82 | 571.72 | 27.3% | |
| SG40L | 696.26 | 691.06 | 677.77 | 648.94 | 678.51 | 21.19 | 634.03 | 6.6% | Opposite Gage 39 |
| Group % Error | | | | | | | | 16.9% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | |
| SG32-45 | 660.27 | 655.63 | 631.57 | 646.54 | 648.50 | 12.65 | 661.42 | -2.0% | |
| SG33-45 | 108.41 | 121.63 | 114.47 | 114.60 | 114.78 | 5.40 | 258.49 | -125.2% | |
| SG34-45 | 569.59 | 555.96 | 531.24 | 540.38 | 549.29 | 16.95 | 540.37 | 1.6% | |
| SG35-45 | 493.51 | 480.51 | 470.67 | 473.63 | 479.58 | 10.16 | 522.93 | -9.0% | Opposite Gage 34 |
| SG36-45 | 193.03 | 179.45 | 177.22 | 187.68 | 184.35 | 7.33 | 263.43 | -42.9% | |
| SG37-45 | -11.71 | -24.50 | -17.31 | -9.01 | -15.63 | 6.85 | 117.54 | 851.9% | Opposite Gage 36 |
| SG38-45 | 682.62 | 647.02 | 635.01 | 639.40 | 651.01 | 21.65 | 691.13 | -6.2% | |
| SG39-45 | 700.01 | 664.10 | 640.18 | 653.30 | 664.40 | 25.68 | 638.87 | 3.8% | |
| SG40-45 | 643.70 | 606.67 | 582.26 | 573.83 | 601.62 | 31.32 | 598.79 | 0.5% | Opposite Gage 39 |
| Group % Error | | | | | | | | 14.8% | |

TABLE D-25. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP4, LOAD CONDITION 1a

| CVP4 - Load Condition 1a | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Water-3 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | | Loading direction |
| SG6 | 440.62 | 439.04 | 416.63 | 440.76 | 437.50 | 434.91 | 10.31 | 410.33 | 5.7% | |
| SG9 | 473.30 | 471.61 | 454.64 | 462.26 | 462.11 | 464.79 | 7.67 | 422.34 | 9.1% | |
| Group % Error | | | | | | | | | 7.7% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | | Loading direction |
| SG1 | 688.74 | 745.80 | 658.59 | 619.54 | 679.43 | 678.42 | 46.12 | 601.41 | 11.4% | |
| SG2 | 835.98 | 884.33 | 772.17 | 679.97 | 770.95 | 788.68 | 77.12 | 613.67 | 22.2% | |
| SG3 | 1019.69 | 1015.79 | 896.52 | 634.68 | 842.74 | 881.88 | 157.94 | 477.95 | 45.8% | |
| SG4 | 860.00 | 859.85 | 790.64 | 594.22 | 734.56 | 767.85 | 110.38 | 600.18 | 21.8% | |
| SG5 | 2659.74 | 1014.47 | 744.26 | 633.93 | 770.78 | 1164.63 | 847.26 | 612.17 | 47.4% | |
| SG7 | - | - | - | - | - | - | - | - | - | Gage damaged |
| SG8 | 656.44 | 687.12 | 579.67 | 528.72 | 606.45 | 611.68 | 62.51 | 588.46 | 3.8% | |
| Group % Error | | | | | | | | | 35.7% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | | |
| SG12 | -30.84 | -30.19 | -41.07 | -39.99 | -39.90 | -36.40 | 5.40 | -6.55 | 82.0% | |
| SG14 | -234.92 | -108.12 | -167.97 | 236.61 | 745.37 | 94.19 | 406.90 | -73.91 | 178.5% | |
| SG16 | -63.77 | -64.81 | -67.93 | -77.04 | -72.32 | -69.17 | 5.51 | -121.32 | -75.4% | |
| SG17 | -42.24 | -34.93 | -31.89 | -40.72 | -49.34 | -39.82 | 6.78 | -170.45 | -328.0% | |
| SG20 | -3.64 | 1.37 | -5.88 | -14.62 | -17.29 | -8.01 | 7.77 | -64.30 | -702.3% | |
| SG21 | -157.66 | -159.94 | -151.64 | -174.48 | -176.76 | -164.10 | 10.98 | -116.91 | 28.8% | |
| SG24 | -35.40 | -27.79 | -28.27 | -42.23 | -38.86 | -34.51 | 6.39 | -65.80 | -90.7% | |
| SG25 | -140.12 | -137.68 | -139.67 | -165.31 | -163.01 | -149.16 | 13.75 | -74.32 | 50.2% | |
| SG27 | -61.74 | -57.86 | -54.13 | -67.65 | -67.28 | -61.73 | 5.88 | -120.99 | -96.0% | |
| SG29 | -68.73 | -67.66 | -62.86 | -64.10 | -70.38 | -66.75 | 3.16 | -71.85 | -7.6% | |
| Group % Error | | | | | | | | | 92.5% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | | |
| SG10 | -103.32 | -129.21 | -129.05 | -165.97 | -143.17 | -134.14 | 22.88 | -256.93 | -91.5% | |
| SG11 | -73.25 | -78.66 | -79.51 | -93.05 | -82.41 | -81.38 | 7.32 | -67.39 | 17.2% | |
| SG13 | 30.68 | 43.61 | 32.29 | 10.90 | 21.56 | 27.81 | 12.28 | -61.40 | 320.8% | |
| SG15 | -27.01 | -33.64 | -33.15 | -44.62 | -36.54 | -34.99 | 6.40 | 7.32 | 120.9% | |
| SG18 | -243.02 | -239.68 | -1537.38 | 278.65 | -333.64 | -415.02 | 672.28 | -172.44 | 58.4% | |
| SG19 | -348.57 | -341.18 | -345.02 | -352.23 | -352.99 | -348.00 | 4.96 | -297.51 | 14.5% | |
| SG22 | - | - | - | - | - | - | - | - | - | Gage damaged |
| SG23 | -344.66 | -337.58 | -331.59 | -347.53 | -348.43 | -341.96 | 7.19 | -352.61 | -3.1% | |
| SG26 | 5.93 | 26.06 | -5.74 | -5.39 | -1.00 | 3.97 | 13.21 | -61.80 | 1656.7% | |
| SG28 | -13.65 | -12.84 | -21.00 | -10.89 | -23.51 | -16.38 | 5.53 | 6.51 | 139.7% | |
| SG30 | -37.38 | -37.90 | -38.17 | -35.85 | -43.35 | -38.53 | 2.84 | -32.10 | 16.7% | |
| SG31 | -169.87 | -168.01 | -173.38 | -162.74 | -171.82 | -169.16 | 4.12 | -257.95 | -52.5% | |
| Group % Error | | | | | | | | | 46.1% | |

TABLE D-25. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP4, LOAD CONDITION 1a (Continued)

| CVP4 - Load Condition 1a (Continued) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Water-3 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | | Loading direction |
| SG32T | 774.92 | 772.07 | 792.78 | 809.24 | 791.77 | 788.16 | 15.11 | 803.29 | -1.9% | |
| SG33T | 804.45 | 800.49 | 806.68 | 835.49 | 823.14 | 814.05 | 14.77 | 807.21 | 0.8% | |
| SG34T | 746.79 | 742.23 | 727.59 | 733.87 | 753.74 | 740.84 | 10.34 | 813.62 | -9.8% | |
| SG35T | 703.26 | 695.36 | 704.37 | 742.17 | 710.56 | 711.14 | 18.17 | 713.55 | -0.3% | Opposite Gage 34 |
| SG36T | 746.86 | 744.22 | 743.50 | 760.73 | 762.14 | 751.49 | 9.18 | 802.08 | -6.7% | |
| SG37T | 459.27 | 444.31 | 452.09 | 482.53 | 462.82 | 460.21 | 14.36 | 604.89 | -31.4% | Opposite Gage 36 |
| SG38T | 796.39 | 790.67 | 793.14 | 792.70 | 801.76 | 794.93 | 4.33 | 813.54 | -2.3% | |
| SG39T | 775.12 | 768.36 | 780.13 | 796.14 | 785.20 | 780.99 | 10.51 | 804.06 | -3.0% | |
| SG40T | 451.17 | 439.32 | 439.04 | 466.31 | 452.59 | 449.68 | 11.27 | 583.99 | -29.9% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 10.3% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | | |
| SG32L | 41.53 | 46.36 | 29.59 | 27.09 | 29.23 | 34.76 | 8.61 | -69.32 | 299.4% | |
| SG33L | 14.22 | 21.02 | 13.69 | -19.69 | -3.79 | 5.09 | 16.61 | -75.76 | 1587.7% | |
| SG34L | -97.65 | -93.51 | -63.98 | -112.58 | -116.06 | -96.76 | 20.67 | -149.49 | -54.5% | |
| SG35L | -100.51 | -95.97 | -64.63 | -115.45 | -118.12 | -98.94 | 21.38 | -148.23 | -49.8% | Opposite Gage 34 |
| SG36L | -13.49 | -11.17 | -11.26 | -50.10 | -42.93 | -25.79 | 19.11 | -70.58 | -173.7% | |
| SG37L | -179.28 | -184.36 | -259.57 | -187.22 | -201.53 | -202.39 | 33.01 | -320.67 | -58.4% | Opposite Gage 36 |
| SG38L | -107.51 | -94.68 | -97.74 | -110.14 | -111.09 | -104.23 | 7.52 | -141.09 | -35.4% | |
| SG39L | 2.66 | 12.66 | 12.41 | -4.90 | -5.86 | 3.40 | 8.97 | -62.24 | 1933.2% | |
| SG40L | -166.23 | -160.90 | -160.39 | -155.36 | -167.10 | -162.00 | 4.79 | -313.00 | -93.2% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 82.2% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | | |
| SG32-45 | 425.30 | 434.40 | 436.13 | 429.39 | 426.01 | 430.25 | 4.88 | 371.47 | 13.7% | |
| SG33-45 | 420.32 | 425.03 | 402.49 | 420.39 | 417.23 | 417.09 | 8.63 | 358.06 | 14.2% | |
| SG34-45 | 322.46 | 323.99 | 352.20 | 324.03 | 336.74 | 331.88 | 12.74 | 340.89 | -2.7% | |
| SG35-45 | 307.00 | 305.17 | 349.26 | 328.08 | 318.70 | 321.64 | 18.02 | 287.12 | 10.7% | Opposite Gage 34 |
| SG36-45 | 336.84 | 331.94 | 318.81 | 331.33 | 339.95 | 331.77 | 8.07 | 347.59 | -4.8% | |
| SG37-45 | 175.46 | 160.96 | 206.00 | 233.79 | 191.44 | 193.53 | 28.14 | 165.16 | 14.7% | Opposite Gage 36 |
| SG38-45 | 350.31 | 345.13 | 345.70 | 351.73 | 352.51 | 349.08 | 3.44 | 333.85 | 4.4% | |
| SG39-45 | 422.21 | 422.75 | 428.99 | 450.41 | 438.85 | 432.64 | 11.98 | 367.34 | 15.1% | |
| SG40-45 | 152.77 | 149.08 | 145.05 | 177.09 | 166.16 | 158.03 | 13.28 | 149.71 | 5.3% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 11.5% | |

TABLE D-26. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP4, LOAD CONDITION 1b

| CVP4 - Load Condition 1b | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Water-3 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | | |
| SG6 | -147.39 | -146.64 | -136.29 | -135.86 | -149.96 | -143.23 | 6.64 | -117.89 | 17.7% | |
| SG9 | -154.46 | -155.82 | -146.22 | -142.41 | -160.90 | -151.96 | 7.50 | -122.97 | 19.1% | |
| Group % Error | | | | | | | | | 18.4% | |
| Group 2: Frame Inner Cap Farthest From Skin) | | | | | | | | | | |
| SG1 | -349.18 | -309.88 | -309.61 | -333.88 | -427.83 | -346.08 | 48.69 | -438.79 | -26.8% | |
| SG2 | -580.73 | -538.51 | -525.64 | -533.15 | -704.79 | -576.56 | 74.81 | -602.18 | -4.4% | |
| SG3 | 390.09 | 408.72 | 384.69 | 333.64 | 307.18 | 364.86 | 42.59 | 944.82 | -159.0% | |
| SG4 | -43.31 | 28.41 | 55.09 | -63.99 | -106.17 | -25.99 | 66.53 | -47.49 | -82.7% | |
| SG5 | -792.82 | -542.37 | -518.85 | -510.96 | -679.75 | -608.95 | 123.47 | -595.22 | 2.3% | |
| SG7 | - | - | - | - | - | - | - | - | - | Gage damaged |
| SG8 | -381.59 | -375.19 | -341.43 | -337.07 | -493.04 | -385.66 | 63.19 | -428.45 | -11.1% | |
| Group % Error | | | | | | | | | 56.1% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | | |
| SG12 | 756.21 | 754.25 | 725.77 | 735.25 | 762.55 | 746.81 | 15.55 | 664.24 | 11.1% | |
| SG14 | 1086.31 | 1145.14 | 1104.93 | 1115.95 | 991.15 | 1088.70 | 58.55 | 1101.55 | -1.2% | |
| SG16 | 759.18 | 755.74 | 754.90 | 741.76 | 764.69 | 755.25 | 8.47 | 1123.43 | -48.7% | |
| SG17 | 927.92 | 918.92 | 886.74 | 936.42 | 927.07 | 919.41 | 19.29 | 898.03 | 2.3% | |
| SG20 | 834.51 | 831.83 | 787.27 | 812.74 | 835.84 | 820.44 | 20.76 | 693.62 | 15.5% | |
| SG21 | 466.48 | 468.12 | 418.75 | 451.74 | 467.38 | 454.49 | 21.10 | 442.76 | 2.6% | |
| SG24 | 912.11 | 909.89 | 880.30 | 893.26 | 908.88 | 900.89 | 13.72 | 832.61 | 7.6% | |
| SG25 | 1137.48 | 1140.09 | 1078.21 | 1105.47 | 1134.73 | 1119.20 | 26.83 | 1101.58 | 1.6% | |
| SG27 | 723.81 | 723.49 | 680.27 | 710.77 | 728.83 | 713.44 | 19.71 | 1122.08 | -57.3% | |
| SG29 | 537.89 | 536.43 | 527.40 | 537.08 | 537.45 | 535.25 | 4.42 | 854.52 | -59.6% | |
| Group % Error | | | | | | | | | 25.1% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | | |
| SG10 | 343.62 | 346.18 | 334.73 | 348.30 | 345.18 | 343.60 | 5.24 | 311.50 | 9.3% | |
| SG11 | 453.86 | 449.79 | 444.55 | 447.71 | 456.98 | 450.58 | 4.92 | 333.86 | 25.9% | |
| SG13 | 1037.70 | 1032.00 | 1013.97 | 1017.87 | 1034.55 | 1027.22 | 10.60 | 1114.43 | -8.5% | |
| SG15 | 492.02 | 492.47 | 465.85 | 483.15 | 499.67 | 486.63 | 13.01 | 529.26 | -8.8% | |
| SG18 | 635.46 | 630.08 | 603.08 | 605.64 | 634.94 | 621.84 | 16.12 | 581.59 | 6.5% | |
| SG19 | 859.88 | 857.75 | 824.27 | 681.34 | 862.06 | 817.06 | 77.44 | 678.33 | 17.0% | |
| SG22 | - | - | - | - | - | - | - | - | - | Gage damaged |
| SG23 | 912.33 | 902.63 | 884.74 | 852.32 | 905.49 | 891.50 | 24.15 | 813.96 | 8.7% | |
| SG26 | 1022.48 | 1024.34 | 995.27 | 987.34 | 1021.15 | 1010.11 | 17.44 | 1114.38 | -10.3% | |
| SG28 | 485.50 | 484.24 | 476.83 | 477.36 | 487.56 | 482.30 | 4.90 | 528.55 | -9.6% | |
| SG30 | 393.06 | 396.48 | 375.02 | 407.10 | 396.10 | 393.55 | 11.64 | 366.40 | 6.9% | |
| SG31 | 347.00 | 333.05 | 327.30 | 334.62 | 318.19 | 332.03 | 10.56 | 311.74 | 6.1% | |
| Group % Error | | | | | | | | | 11.4% | |

TABLE D-26. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP4, LOAD CONDITION 1b (Continued)

| CVP4 - Load Condition 1b (Continued) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Water-3 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | | |
| SG32T | -229.53 | -232.37 | -232.72 | -239.19 | -216.65 | -230.09 | 8.30 | -23.56 | 89.8% | |
| SG33T | -543.47 | -549.69 | -550.67 | -574.90 | -522.38 | -548.22 | 18.77 | -85.36 | 84.4% | |
| SG34T | -348.90 | -346.55 | -336.39 | -359.83 | -345.48 | -347.43 | 8.40 | -331.34 | 4.6% | |
| SG35T | -222.14 | -225.64 | -212.69 | -216.41 | -197.59 | -214.90 | 10.89 | -186.00 | 13.4% | Opposite Gage 34 |
| SG36T | -469.51 | -474.57 | -467.03 | -487.34 | -456.10 | -470.91 | 11.40 | -107.74 | 77.1% | |
| SG37T | -289.57 | -289.98 | -289.65 | -277.52 | -273.25 | -283.99 | 8.01 | -350.24 | -23.3% | Opposite Gage 36 |
| SG38T | -339.20 | -343.11 | -339.93 | -355.44 | -330.81 | -341.70 | 8.93 | -335.14 | 1.9% | |
| SG39T | -244.61 | -247.44 | -245.10 | -250.05 | -222.57 | -241.95 | 11.05 | -43.72 | 81.9% | |
| SG40T | -154.11 | -160.04 | -155.42 | -151.81 | -146.92 | -153.66 | 4.82 | -118.49 | 22.9% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 65.2% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | | Loading direction |
| SG32L | 870.46 | 870.06 | 838.29 | 841.60 | 877.82 | 859.65 | 18.29 | 688.49 | 19.9% | |
| SG33L | 881.86 | 878.14 | 839.31 | 849.66 | 883.65 | 866.52 | 20.55 | 933.70 | -7.8% | |
| SG34L | 916.48 | 909.65 | 872.94 | 894.67 | 917.45 | 902.24 | 18.74 | 892.35 | 1.1% | |
| SG35L | 909.04 | 903.23 | 865.91 | 885.91 | 911.38 | 895.09 | 19.12 | 921.66 | -3.0% | Opposite Gage 34 |
| SG36L | 1032.30 | 1030.15 | 1003.81 | 1006.08 | 1037.75 | 1022.02 | 15.85 | 936.28 | 8.4% | |
| SG37L | 963.59 | 986.88 | 949.07 | 966.82 | 998.29 | 972.93 | 19.57 | 1045.55 | -7.5% | Opposite Gage 36 |
| SG38L | 936.09 | 934.67 | 907.47 | 922.47 | 936.98 | 927.54 | 12.66 | 899.34 | 3.0% | |
| SG39L | 852.97 | 851.42 | 840.82 | 843.76 | 856.09 | 849.01 | 6.45 | 688.39 | 18.9% | |
| SG40L | 833.72 | 830.87 | 811.52 | 822.14 | 832.93 | 826.24 | 9.43 | 858.77 | -3.9% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 10.1% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | | |
| SG32-45 | 390.22 | 396.44 | 373.03 | 369.57 | 421.15 | 390.08 | 20.72 | 374.64 | 4.0% | |
| SG33-45 | -249.98 | -250.65 | -293.06 | -276.47 | -226.80 | -259.39 | 25.75 | 9.48 | 103.7% | |
| SG34-45 | 227.77 | 232.64 | 224.30 | 209.54 | 220.92 | 223.04 | 8.70 | 176.38 | 20.9% | |
| SG35-45 | 288.68 | 292.68 | 280.71 | 275.63 | 292.81 | 286.10 | 7.64 | 270.94 | 5.3% | Opposite Gage 34 |
| SG36-45 | -67.66 | -74.22 | -81.39 | -80.93 | -78.33 | -76.50 | 5.71 | 15.39 | 120.1% | |
| SG37-45 | -72.61 | -75.67 | -86.60 | -62.99 | -77.02 | -74.98 | 8.50 | -115.84 | -54.5% | Opposite Gage 36 |
| SG38-45 | 332.15 | 326.01 | 339.76 | 327.15 | 315.55 | 328.13 | 8.88 | 341.68 | -4.1% | |
| SG39-45 | 356.86 | 356.23 | 364.36 | 354.63 | 362.79 | 358.98 | 4.32 | 352.71 | 1.7% | |
| SG40-45 | 385.41 | 382.44 | 383.87 | 382.83 | 381.70 | 383.25 | 1.44 | 415.36 | -8.4% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 34.0% | |

TABLE D-27. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP4, LOAD CONDITION 1c

| CVP4 - Load Condition 1c | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | | Analysis | % Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Water-3 | Average | Stdev | | | |
| Group 1: Frame Outer Cap (Closest to Skin) | | | | | | | | | | Secondary loading direction |
| SG8 | 283.50 | 280.95 | 262.82 | 287.39 | 292.33 | 281.40 | 11.24 | 301.19 | -7.0% | |
| SG9 | 322.94 | 318.52 | 292.74 | 316.86 | 327.29 | 315.67 | 13.45 | 309.44 | 2.0% | |
| Group % Error | | | | | | | | | 4.9% | |
| Group 2: Frame Inner Cap (Farthest From Skin) | | | | | | | | | | Secondary loading direction |
| SG1 | 290.56 | 247.64 | 163.36 | 196.33 | 239.60 | 227.50 | 49.03 | 120.02 | 47.2% | |
| SG2 | 209.58 | 153.70 | 22.91 | 61.01 | 146.70 | 118.78 | 75.45 | -31.80 | 126.8% | |
| SG3 | 1356.40 | 1304.94 | 1014.86 | 1009.97 | 1276.34 | 1192.50 | 166.89 | 1294.43 | -8.5% | |
| SG4 | 668.13 | 624.63 | 445.71 | 460.15 | 626.31 | 564.98 | 103.89 | 467.23 | 17.3% | |
| SG5 | 261.42 | 357.20 | 183.61 | -17754.56 | 617.63 | -3266.94 | 8100.48 | -26.18 | 99.2% | |
| SG7 | - | - | - | - | - | - | - | - | - | Gage damaged |
| SG8 | 263.16 | 206.17 | 103.10 | 129.16 | 216.06 | 183.53 | 65.83 | -35.06 | 119.1% | |
| Group % Error | | | | | | | | | 92.1% | |
| Group 3: Stringer Hat (Closest to Skin) | | | | | | | | | | |
| SG12 | 698.40 | 697.60 | 658.27 | 695.01 | 705.84 | 691.03 | 18.75 | 636.60 | 7.9% | |
| SG14 | 545.46 | 251.39 | 470.62 | 944.78 | -47.38 | 432.98 | 367.33 | 996.80 | -130.2% | Large stdev |
| SG16 | 653.34 | 651.25 | 629.60 | 645.82 | 658.47 | 647.70 | 11.09 | 972.90 | -50.2% | |
| SG17 | 836.02 | 834.50 | 813.42 | 819.51 | 834.69 | 827.63 | 10.43 | 717.99 | 13.2% | |
| SG20 | 787.94 | 785.29 | 750.57 | 764.20 | 786.50 | 774.90 | 16.73 | 599.55 | 22.6% | |
| SG21 | 317.05 | 317.56 | 287.59 | 297.16 | 313.50 | 306.57 | 13.48 | 334.84 | -9.2% | |
| SG24 | 830.99 | 828.51 | 813.41 | 820.05 | 837.13 | 826.02 | 9.34 | 730.27 | 11.6% | |
| SG25 | 979.79 | 972.15 | 934.64 | 942.73 | 965.22 | 958.90 | 19.37 | 997.52 | -4.0% | |
| SG27 | 624.30 | 619.43 | 605.45 | 611.66 | 622.28 | 616.63 | 7.88 | 971.81 | -57.6% | |
| SG29 | 447.90 | 446.20 | 442.56 | 447.80 | 451.86 | 447.27 | 3.36 | 757.04 | -69.3% | |
| Group % Error | | | | | | | | | 38.9% | |
| Group 4: Stringer Flange (Farthest From Skin) | | | | | | | | | | |
| SG10 | 317.74 | 296.90 | 278.44 | 309.20 | 324.17 | 305.29 | 18.15 | 155.45 | 49.1% | |
| SG11 | 367.18 | 369.86 | 356.43 | 364.35 | 372.40 | 366.04 | 6.15 | 281.44 | 23.1% | |
| SG13 | 1026.82 | 1022.51 | 996.63 | 1014.65 | 1034.19 | 1018.96 | 14.35 | 1019.14 | 0.0% | |
| SG15 | 420.63 | 423.53 | 407.98 | 414.69 | 423.25 | 418.02 | 6.64 | 539.64 | -29.1% | |
| SG18 | 422.92 | 426.67 | 159.73 | 396.61 | 454.10 | 372.01 | 120.40 | 424.46 | -14.1% | |
| SG19 | 525.67 | 528.97 | 502.87 | 515.02 | 531.85 | 520.88 | 11.91 | 441.61 | 15.2% | |
| SG22 | - | - | - | - | - | - | - | - | - | Gage damaged |
| SG23 | 581.10 | 587.14 | 576.04 | 585.77 | 594.85 | 584.98 | 7.03 | 512.68 | 12.4% | |
| SG26 | 1001.15 | 991.71 | 955.76 | 977.89 | 996.18 | 984.54 | 18.27 | 1018.47 | -3.4% | |
| SG28 | 437.24 | 439.43 | 425.05 | 445.07 | 437.79 | 436.92 | 7.32 | 537.95 | -23.1% | |
| SG30 | 335.64 | 338.20 | 328.69 | 342.16 | 336.01 | 336.14 | 4.90 | 348.43 | -3.7% | |
| SG31 | 258.56 | 263.16 | 248.51 | 279.06 | 260.59 | 261.98 | 11.05 | 155.72 | 40.6% | |
| Group % Error | | | | | | | | | 15.2% | |

TABLE D-27. COMPARISON OF MEASURED AND PREDICTED STRAINS FOR CVP4, LOAD CONDITION 1c (Continued)

| CVP4 - Load Condition 1c (Continued) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Experiment | | | | | | | Analysis | %Error | Remarks |
| Gage | Air-1 | Air-2 | Water-1 | Water-2 | Water-3 | Average | Stdev | | | |
| Group 5: Skin, Hoop Direction | | | | | | | | | | Secondary loading direction |
| SG32T | 467.57 | 466.72 | 496.85 | 488.55 | 473.30 | 478.60 | 13.44 | 663.65 | -38.7% | |
| SG33T | 313.98 | 324.71 | 371.91 | 337.94 | 324.59 | 334.62 | 22.51 | 564.47 | -68.7% | |
| SG34T | 461.29 | 461.56 | 473.08 | 451.69 | 464.11 | 462.35 | 7.64 | 541.33 | -17.1% | |
| SG35T | 422.05 | 428.87 | 449.84 | 460.24 | 427.50 | 437.70 | 16.45 | 472.46 | -7.9% | Opposite Gage 34 |
| SG36T | 282.33 | 282.92 | 310.08 | 290.30 | 284.61 | 290.05 | 11.64 | 540.87 | -86.5% | |
| SG37T | 149.97 | 154.02 | 184.02 | 177.86 | 154.25 | 164.02 | 15.69 | 280.91 | -71.3% | Opposite Gage 36 |
| SG38T | 498.39 | 499.14 | 504.69 | 493.58 | 499.75 | 499.11 | 3.96 | 525.27 | -5.2% | |
| SG39T | 474.17 | 478.60 | 484.61 | 491.22 | 481.03 | 481.92 | 6.43 | 645.50 | -33.9% | |
| SG40T | 283.83 | 290.42 | 283.07 | 302.28 | 285.72 | 289.06 | 7.92 | 449.72 | -55.6% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 39.7% | |
| Group 6: Skin, Longitudinal Direction | | | | | | | | | | Primary loading direction |
| SG32L | 814.17 | 813.32 | 773.78 | 791.25 | 818.51 | 802.21 | 19.11 | 568.22 | 29.2% | |
| SG33L | 842.50 | 830.91 | 767.97 | 796.56 | 829.86 | 813.56 | 30.71 | 781.72 | 3.9% | |
| SG34L | 781.07 | 778.57 | 744.58 | 752.23 | 774.74 | 766.24 | 16.66 | 729.56 | 4.8% | |
| SG35L | 772.60 | 770.59 | 740.47 | 743.85 | 766.43 | 758.79 | 15.39 | 755.72 | 0.4% | Opposite Gage 34 |
| SG36L | 937.87 | 935.84 | 917.09 | 896.11 | 931.20 | 923.62 | 17.39 | 783.37 | 15.2% | |
| SG37L | 765.55 | 764.66 | 761.03 | 752.94 | 760.06 | 760.85 | 4.99 | 817.08 | -7.4% | Opposite Gage 36 |
| SG38L | 794.50 | 793.51 | 778.56 | 781.63 | 796.13 | 788.87 | 8.13 | 740.31 | 6.2% | |
| SG39L | 783.76 | 778.10 | 771.61 | 764.39 | 783.71 | 776.31 | 8.33 | 571.72 | 26.4% | |
| SG40L | 675.05 | 670.82 | 656.26 | 674.69 | 674.76 | 670.31 | 8.05 | 634.03 | 5.4% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 15.0% | |
| Group 7: Skin, 45-degree Direction | | | | | | | | | | |
| SG32-45 | 719.39 | 713.17 | 712.03 | 716.87 | 730.26 | 718.35 | 7.28 | 661.42 | 7.9% | |
| SG33-45 | 175.90 | 177.66 | 179.71 | 172.32 | 184.56 | 178.03 | 4.55 | 258.49 | -45.2% | |
| SG34-45 | 558.00 | 555.00 | 555.45 | 546.95 | 551.31 | 553.34 | 4.30 | 540.37 | 2.3% | |
| SG35-45 | 539.02 | 539.60 | 555.63 | 545.35 | 530.85 | 542.09 | 9.17 | 522.93 | 3.5% | Opposite Gage 34 |
| SG36-45 | 236.81 | 239.92 | 276.05 | 233.25 | 237.02 | 244.61 | 17.73 | 263.43 | -7.7% | |
| SG37-45 | 49.36 | 54.17 | 127.19 | 88.87 | 65.30 | 76.98 | 31.95 | 117.54 | -52.7% | Opposite Gage 36 |
| SG38-45 | 700.24 | 701.61 | 715.22 | 703.04 | 700.54 | 704.13 | 6.30 | 691.13 | 1.8% | |
| SG39-45 | 706.65 | 701.55 | 708.41 | 719.06 | 707.06 | 708.55 | 6.43 | 638.87 | 9.8% | |
| SG40-45 | 539.82 | 538.04 | 531.32 | 556.96 | 538.28 | 540.89 | 9.56 | 598.79 | -10.7% | Opposite Gage 39 |
| Group % Error | | | | | | | | | 9.1% | |

TABLE D-28. SUMMARY OF GROUP PERCENTAGE ERRORS BETWEEN THE MEASURED AND PREDICTED STRAINS

| CVP1 | | | | | | |
|---|---|---|---|---|---|---|
| Gage Group | Load Condition 1a | | Load Condition 1b | | Load Condition 1c | |
| | % Error | Remarks | % Error | Remarks | % Error | Remarks |
| 1. Frame Outer Cap (Closest to skin) | 13.2% | Loading direction | 35.4% | | 12.3% | Primary loading direction |
| 2. Frame Inner Cap (Farthest from skin) | 21.1% | Loading direction | 26.5% | | 26.0% | Primary loading direction |
| 3. Stringer Hat (Closest to skin) | 93.7% | | 2.2% | | 19.9% | |
| 4. Stringer Flange (Farthest from skin) | 26.8% | | 35.0% | | 85.0% | |
| 5. Skin, Hoop Direction | 9.0% | Loading direction | 8.1% | | 10.3% | Primary loading direction |
| 6. Skin, Longitudinal Direction | 39.3% | | 7.5% | Loading direction | 17.2% | Secondary loading direction |
| 7. Skin, 45-degree Direction | 12.6% | | 16.6% | | 7.8% | |
| CVP2 | | | | | | |
| Gage Group | Load Condition 1a | | Load Condition 1b | | Load Condition 1c | |
| | % Error | Remarks | % Error | Remarks | % Error | Remarks |
| 1. Frame Outer Cap (Closest to skin) | 16.7% | Loading direction | 47.9% | | 15.6% | Primary loading direction |
| 2. Frame Inner Cap (Farthest from skin) | 23.5% | Loading direction | 118.5% | | 30.6% | Primary loading direction |
| 3. Stringer Hat (Closest to skin) | 177.9% | | 26.7% | | 20.6% | |
| 4. Stringer Flange (Farthest from skin) | 45.5% | | 9.8% | | 80.8% | |
| 5. Skin, Hoop Direction | 13.0% | Loading direction | 16.5% | | 12.6% | Primary loading direction |
| 6. Skin, Longitudinal Direction | 59.4% | | 7.6% | Loading direction | 30.1% | Secondary loading direction |
| 7. Skin, 45-degree Direction | 12.6% | | 40.0% | | 11.3% | |
| CVP3 | | | | | | |
| Gage Group | Load Condition 1a | | Load Condition 1b | | Load Condition 1c | |
| | % Error | Remarks | % Error | Remarks | % Error | Remarks |
| 1. Frame Outer Cap (Closest to skin) | 11.9% | Loading direction | 35.0% | | 10.1% | Secondary loading direction |
| 2. Frame Inner Cap (Farthest from skin) | 42.4% | Loading direction | 62.6% | | 29.8% | Secondary loading direction |
| 3. Stringer Hat (Closest to skin) | 117.4% | | 12.1% | | 11.9% | |
| 4. Stringer Flange (Farthest from skin) | 44.8% | | 7.4% | | 13.8% | |
| 5. Skin, Hoop Direction | 14.0% | Loading direction | 58.1% | | 54.2% | Secondary loading direction |
| 6. Skin, Longitudinal Direction | 99.6% | | 10.9% | Loading direction | 16.9% | Primary loading direction |
| 7. Skin, 45-degree Direction | 12.9% | | 32.7% | | 14.8% | |
| CVP4 | | | | | | |
| Gage Group | Load Condition 1a | | Load Condition 1b | | Load Condition 1c | |
| | % Error | Remarks | % Error | Remarks | % Error | Remarks |
| 1. Frame Outer Cap (Closest to skin) | 7.7% | Loading direction | 18.4% | | 4.9% | Secondary loading direction |
| 2. Frame Inner Cap (Farthest from skin) | 35.7% | Loading direction | 56.1% | | 92.1% | Secondary loading direction |
| 3. Stringer Hat (Closest to skin) | 92.5% | | 25.1% | | 38.9% | |
| 4. Stringer Flange (Farthest from skin) | 46.1% | | 11.4% | | 15.2% | |
| 5. Skin, Hoop Direction | 10.3% | Loading direction | 65.2% | | 39.7% | Secondary loading direction |
| 6. Skin, Longitudinal Direction | 82.2% | | 10.1% | Loading direction | 15.0% | Primary loading direction |
| 7. Skin, 45-degree Direction | 11.5% | | 34.0% | | 9.1% | |

TABLE D-29. STRESS-INTENSITY FACTOR RANGE CALCULATIONS FOR PANELS CVP1 AND CVP2

| | CVP1 Baseline ($ksi\sqrt{in}$) | | | | CVP2 Multiple Cracks ($ksi\sqrt{in}$) | | | |
|---|---|---|---|---|---|---|---|---|
| a, in | $\Delta K_1$ | $\Delta K_2$ | $\Delta k_1$ | $\Delta k_2$ | $\Delta K_1$ | $\Delta K_2$ | $\Delta k_1$ | $\Delta k_2$ |
| 3.56 | 30.19 | 0.75 | 0.24 | 9.76 | 30.78 | 0.73 | 0.30 | 9.76 |
| 3.84 | 31.68 | 1.08 | 0.13 | 9.89 | 32.79 | 1.05 | 0.03 | 9.90 |
| 4.13 | 33.30 | 1.56 | 0.29 | 9.35 | 36.57 | 1.62 | 0.02 | 9.40 |
| 4.29 | 34.11 | 1.95 | 0.32 | 8.38 | 44.39 | 2.46 | 0.66 | 8.81 |
| 4.69 | 38.13 | 2.42 | 0.63 | 12.45 | 38.47 | 2.41 | 0.68 | 12.46 |
| 5.04 | 39.52 | 2.72 | 0.46 | 13.08 | 40.09 | 2.71 | 0.44 | 13.07 |
| 5.36 | 40.91 | 3.27 | 0.62 | 13.01 | 42.09 | 3.29 | 0.88 | 12.99 |
| 5.71 | 42.23 | 4.34 | 0.88 | 11.86 | 47.33 | 4.76 | 0.34 | 12.06 |
| 5.76 | 42.46 | 4.41 | 0.89 | 11.66 | 51.97 | 5.32 | 0.03 | 12.20 |
| 6.16 | 47.09 | 4.74 | 0.04 | 15.36 | 47.68 | 4.94 | 0.33 | 16.01 |
| 6.47 | 48.07 | 5.19 | 0.87 | 15.52 | 49.04 | 5.22 | 0.89 | 15.53 |
| 6.75 | 49.14 | 5.55 | 0.17 | 15.17 | 50.86 | 5.64 | 0.32 | 15.11 |
| 7.15 | 50.56 | 6.49 | 0.77 | 13.85 | 59.91 | 7.48 | 1.06 | 13.83 |
| 7.77 | 55.41 | 7.23 | 0.97 | 16.88 | 56.50 | 7.28 | 1.03 | 16.88 |
| 8.46 | 58.06 | 7.96 | 0.85 | 16.26 | 62.62 | 8.47 | 0.34 | 16.14 |
| 8.65 | 58.43 | 8.51 | 0.19 | 14.98 | 69.44 | 9.96 | 0.92 | 14.99 |
| 9.24 | 63.13 | 9.15 | 0.97 | 18.44 | 64.37 | 9.26 | 0.86 | 18.90 |
| 9.96 | 65.54 | 9.77 | 1.72 | 17.36 | 70.26 | 10.38 | 1.20 | 17.26 |
| 10.13 | 65.78 | 10.20 | 0.79 | 16.18 | 78.54 | 12.05 | 0.48 | 16.13 |
| 10.73 | 70.57 | 10.85 | 0.78 | 19.98 | 71.67 | 11.03 | 0.47 | 18.96 |
| 11.34 | 72.26 | 11.31 | 2.29 | 16.98 | 74.39 | 11.57 | 2.07 | 16.96 |
| 11.70 | 72.93 | 11.84 | 1.57 | 15.58 | 83.55 | 13.44 | 0.53 | 15.60 |
| 12.21 | 77.37 | 12.43 | 0.08 | 21.66 | 78.54 | 12.65 | 0.44 | 20.03 |
| 12.86 | 78.40 | 12.76 | 3.17 | 17.95 | 80.93 | 13.09 | 2.95 | 17.87 |
| 13.18 | 78.90 | 13.40 | 2.53 | 16.62 | 91.15 | 15.34 | 1.52 | 16.62 |

TABLE D-30. STRESS-INTENSITY FACTOR RANGE CALCULATIONS FOR PANELS CVP3 AND CVP4

| | CVP3, Baseline ($ksi\sqrt{in}$) | | | | CVP4, Multiple Cracks $ksi\sqrt{in}$ | | | |
|---|---|---|---|---|---|---|---|---|
| a, in | $\Delta K_1$ | $\Delta K_2$ | $\Delta k_1$ | $\Delta k_2$ | $\Delta K_1$ | $\Delta K_2$ | $\Delta k_1$ | $\Delta k_2$ |
| 3.47 | 27.51 | 1.49 | 5.57 | 6.64 | 27.69 | 1.49 | 5.61 | 6.68 |
| 3.85 | 28.67 | 1.46 | 5.22 | 5.81 | 29.07 | 1.46 | 5.26 | 5.83 |
| 4.13 | 29.46 | 1.80 | 5.19 | 5.46 | 30.79 | 1.86 | 5.25 | 5.47 |
| 4.22 | 29.71 | 1.75 | 5.25 | 5.20 | 33.24 | 1.98 | 5.55 | 4.95 |
| 4.69 | 31.67 | 1.41 | 5.24 | 5.49 | 31.76 | 1.40 | 5.25 | 5.49 |
| 5.21 | 33.03 | 1.34 | 5.29 | 5.31 | 33.23 | 1.31 | 5.30 | 5.31 |
| 5.68 | 33.98 | 1.42 | 5.37 | 5.40 | 35.08 | 1.41 | 5.34 | 5.42 |
| 6.14 | 35.70 | 0.34 | 5.30 | 5.98 | 35.57 | 0.38 | 5.29 | 5.95 |
| 7.08 | 37.18 | 0.38 | 4.81 | 5.11 | 37.22 | 0.38 | 4.81 | 5.11 |
| 8.48 | 35.29 | 0.09 | 4.23 | 3.22 | 35.69 | 0.14 | 4.23 | 3.21 |
| 8.76 | 34.68 | 0.08 | 4.55 | 1.84 | 37.17 | 0.19 | 4.39 | 1.78 |

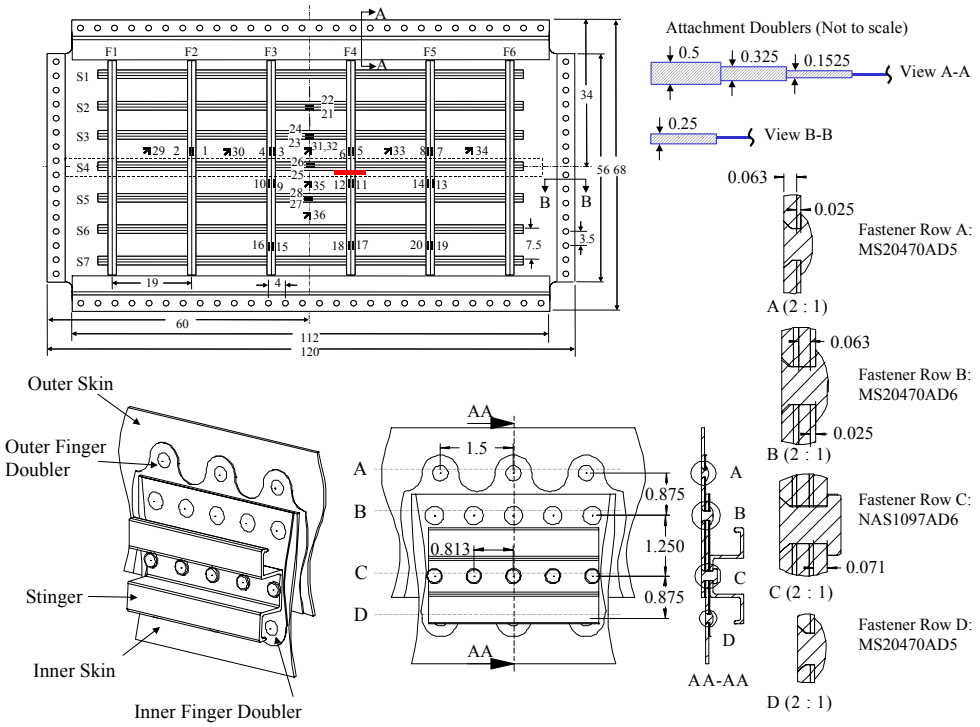



FIGURE D-1. CVP1 AND CVP2 PENAL CONFIGURATION AND STRAIN GAGE LOCATIONS

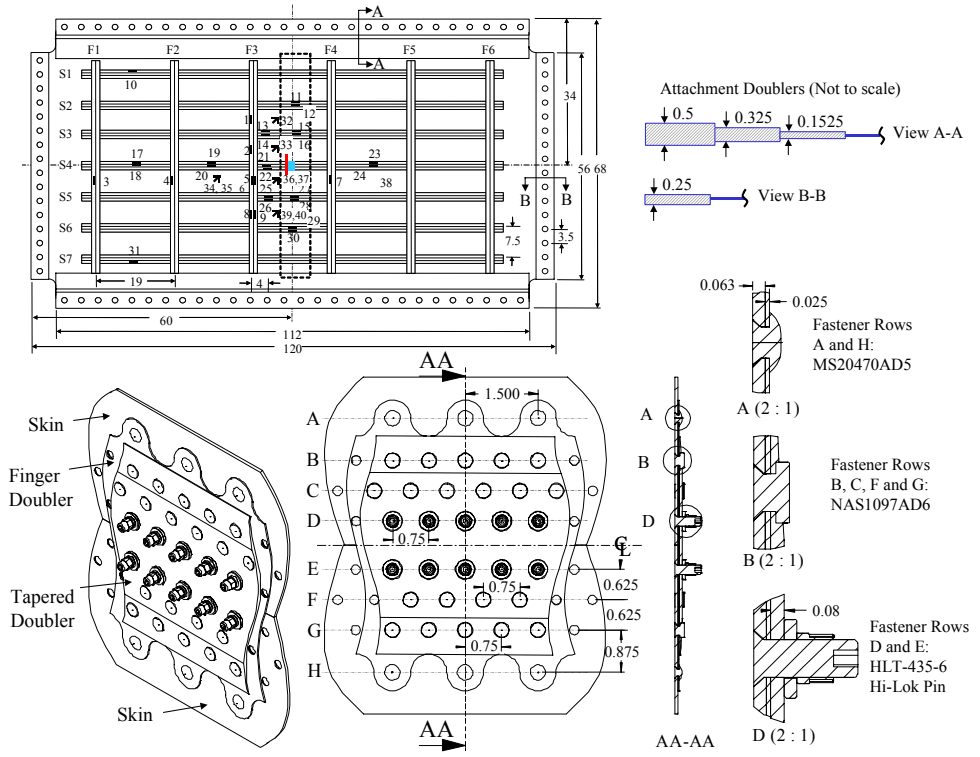



FIGURE D-2. CVP3 AND CVP4 PENAL CONFIGURATION AND STRAIN GAGE LOCATIONS

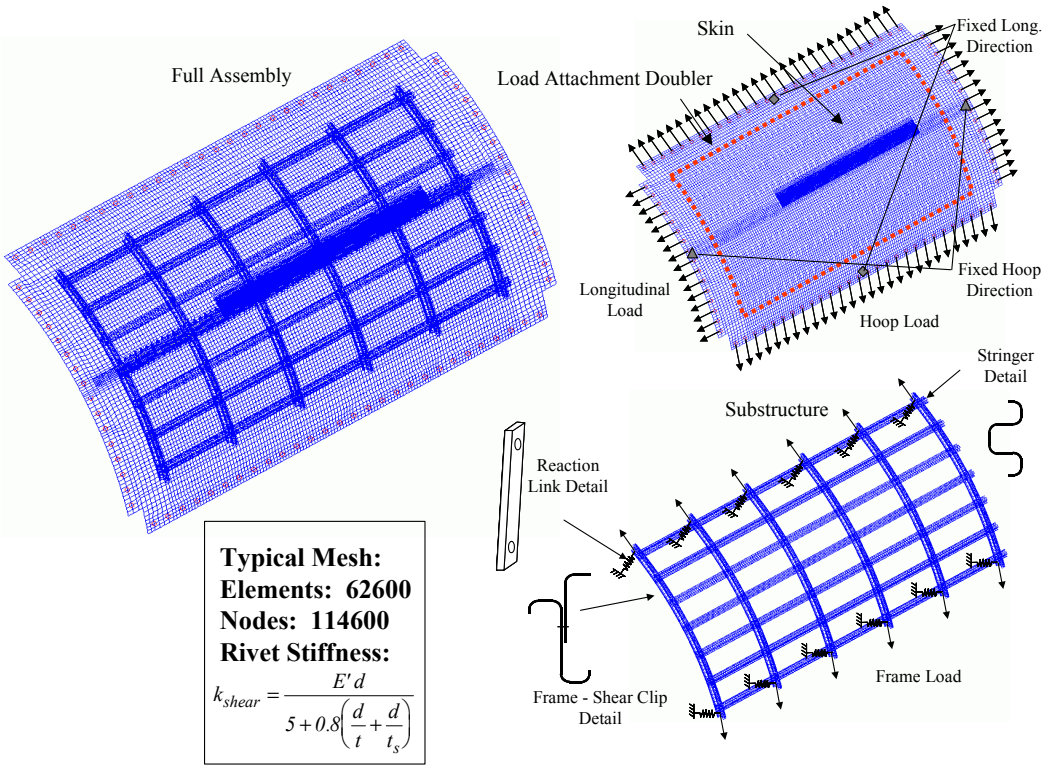



FIGURE D-3. FINITE ELEMENT MODEL OF CVP1 AND CVP2, SHOWING FULL ASSEMBLY AND SUBSTRUCTURE COMPONENTS

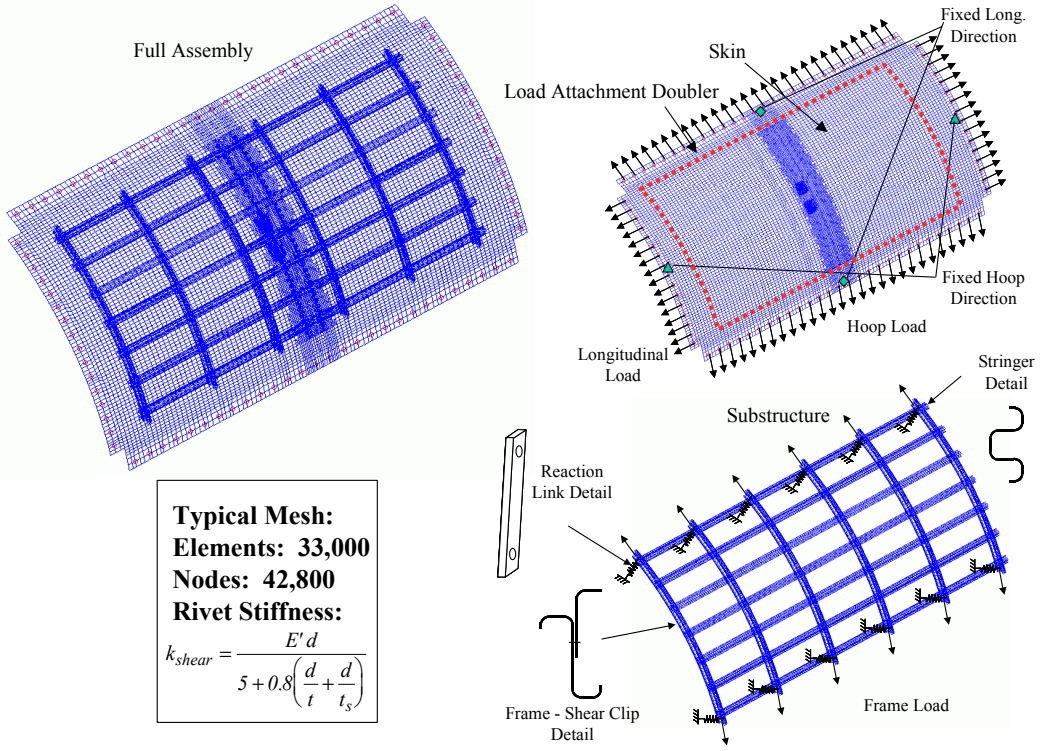



FIGURE D-4. FINITE ELEMENT MODEL OF CVP3 AND CVP4, SHOWING FULL ASSEMBLY AND SUBSTRUCTURE COMPONENTS

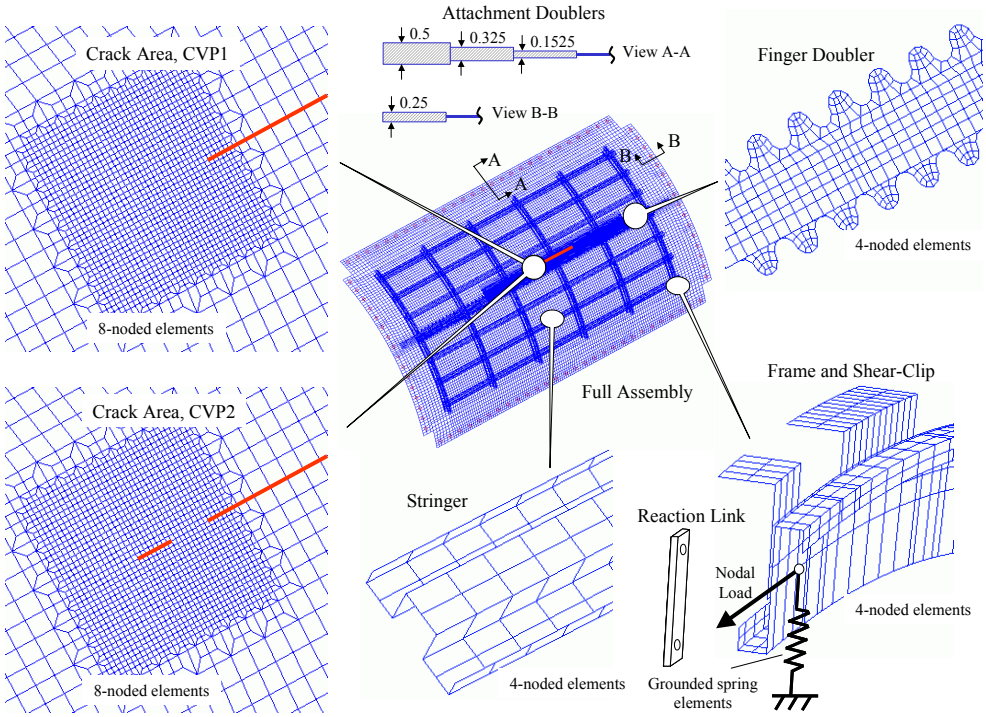



FIGURE D-5. FINITE ELEMENT MODEL OF CVP1 AND CVP2, SHOWING DETAILED MESHES OF FINGER DOUBLERS, FRAMES, STRINGERS, AND CRACK REGION

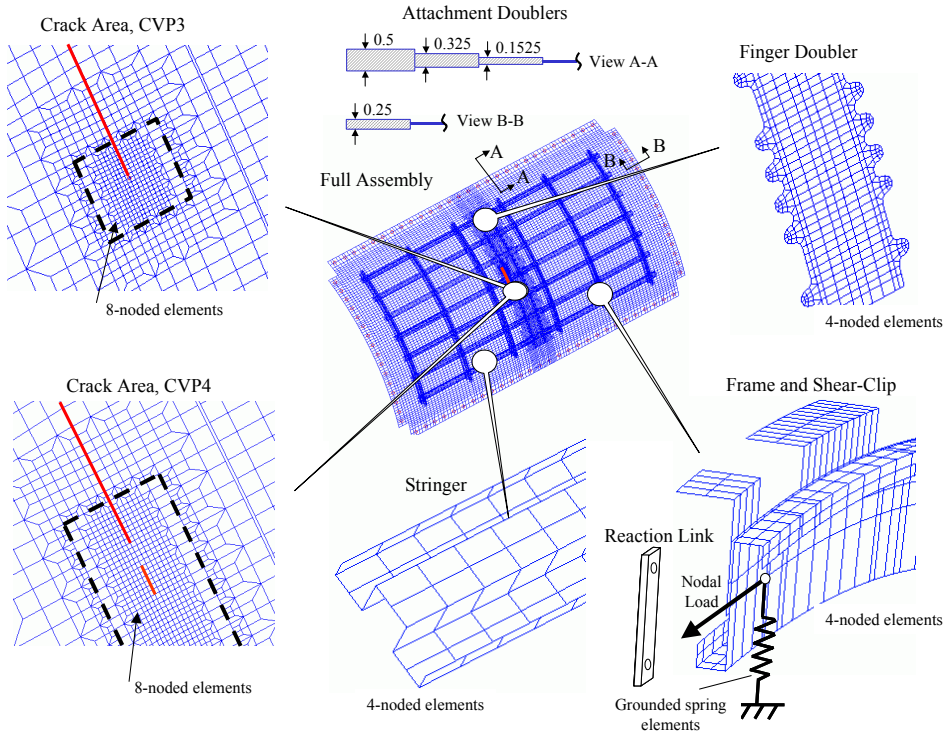



FIGURE D-6. FINITE ELEMENT MODEL OF CVP3 AND CVP4, SHOWING DETAILED MESHES OF FINGER DOUBLERS, FRAMES, STRINGERS, AND CRACK REGION

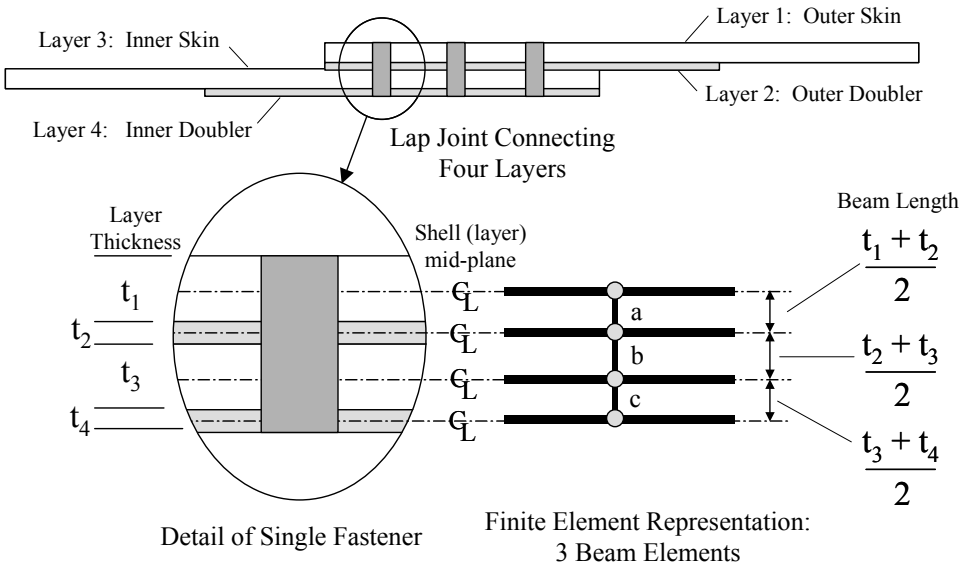
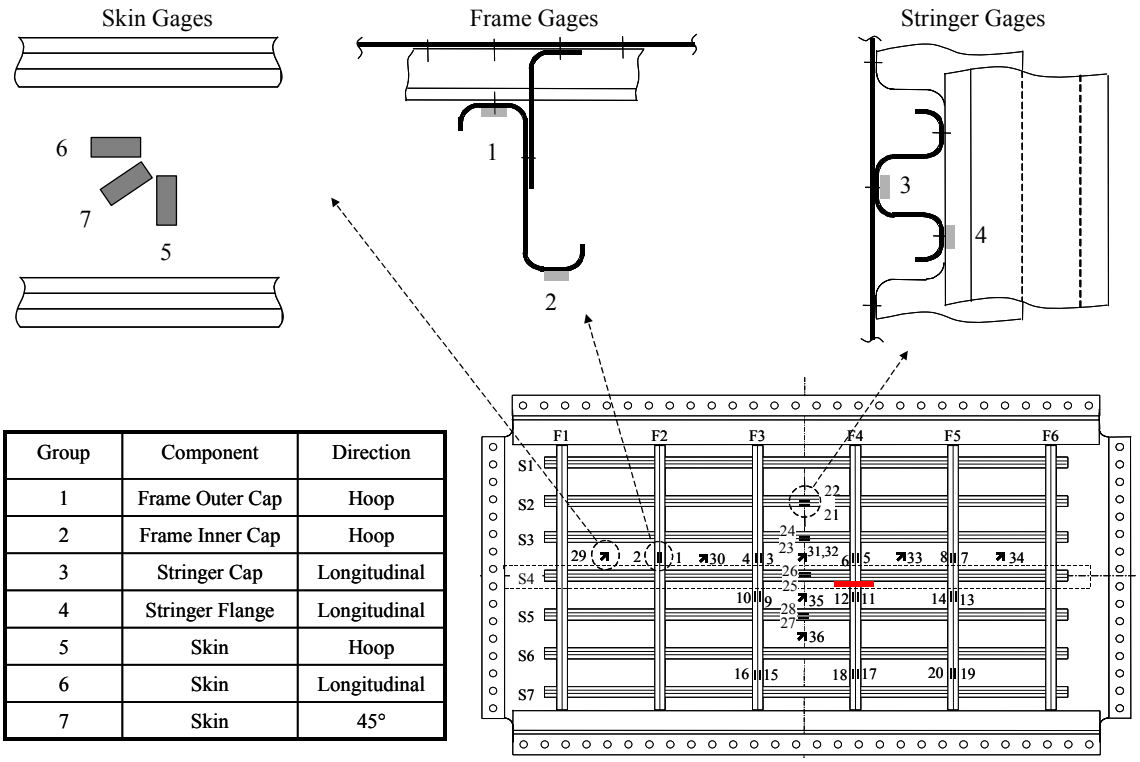



FIGURE D-7. SCHEMATIC OF LAP JOINT AND CORRESPONDING FINITE ELEMENT REPRESENTATION




| Group | Component | Direction |
|---|---|---|
| 1 | Frame Outer Cap | Hoop |
| 2 | Frame Inner Cap | Hoop |
| 3 | Stringer Cap | Longitudinal |
| 4 | Stringer Flange | Longitudinal |
| 5 | Skin | Hoop |
| 6 | Skin | Longitudinal |
| 7 | Skin | 45° |

FIGURE D-8. GROUPING OF STRAIN GAGES ACCORDING TO LOCATION AND MEASURE DIRECTION

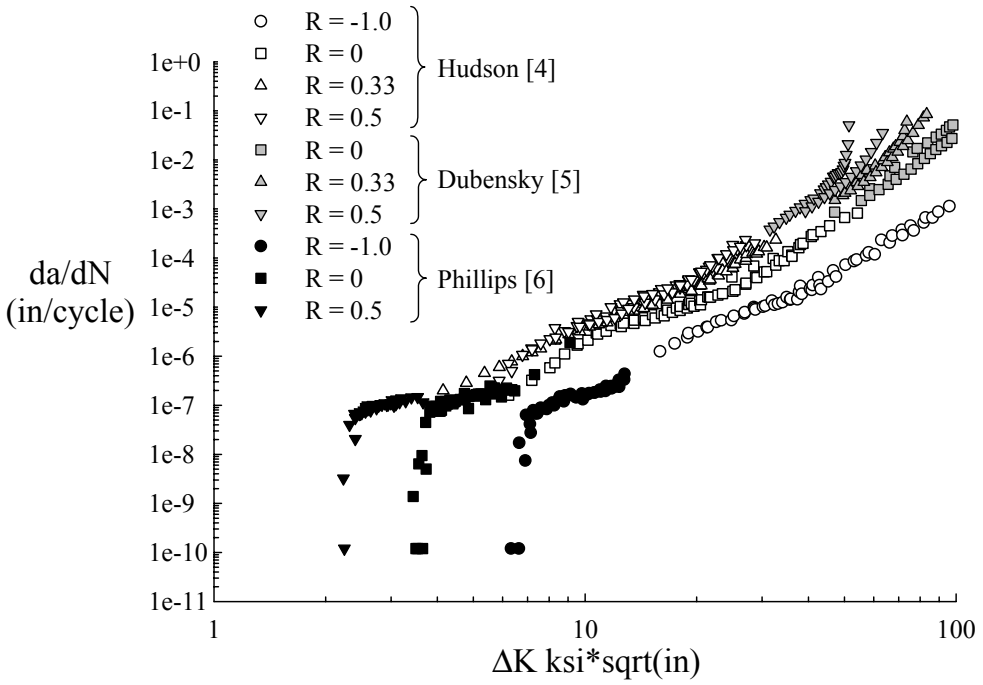



FIGURE D-9. FATIGUE CRACK GROWTH DATA FOR 2024-T3 ALUMINUM WITH VARIOUS R-RATIOS

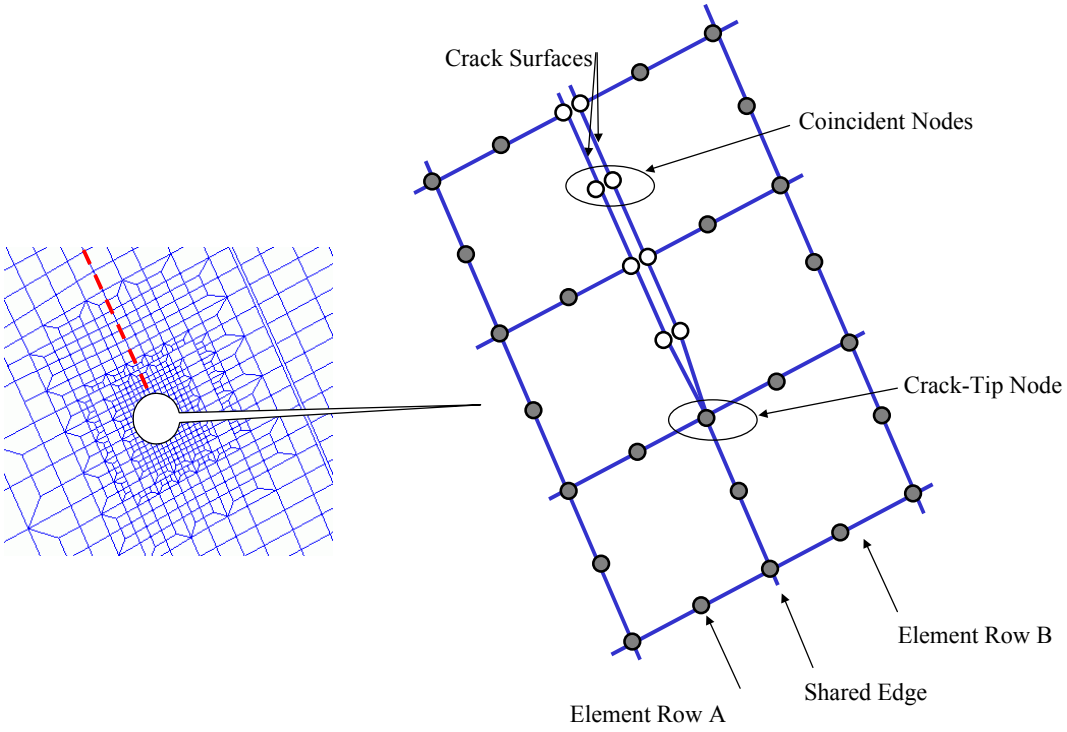



FIGURE D-10. FINITE ELEMENT MESH IN THE VICINITY OF A CRACK TIPS USED IN THE FATIGUE CRACK GROWTH ANALYSIS

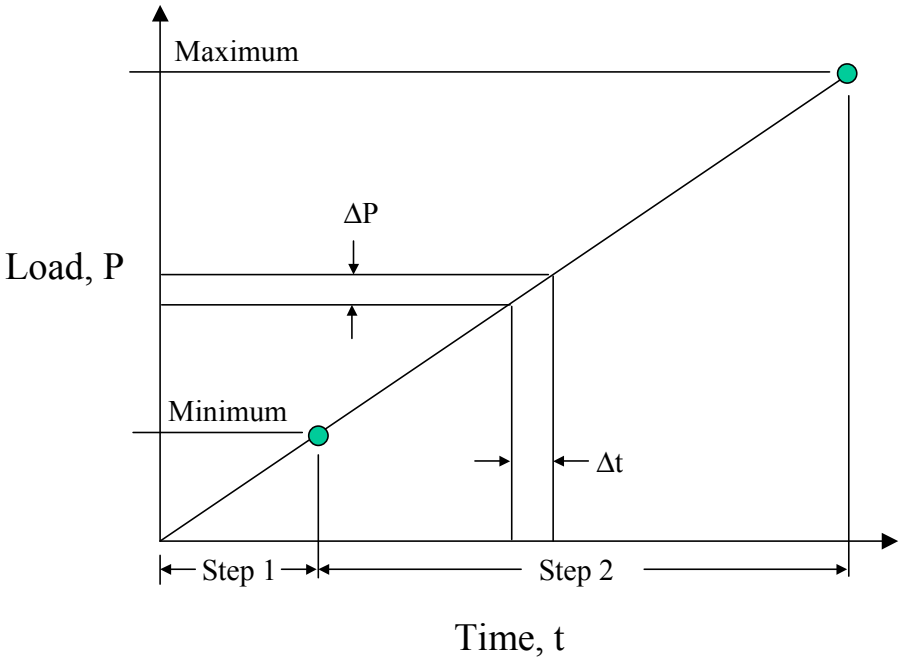



FIGURE D-11. RAMP FUNCTION USED IN THE FATIGUE CRACK GROWTH ANALYSIS

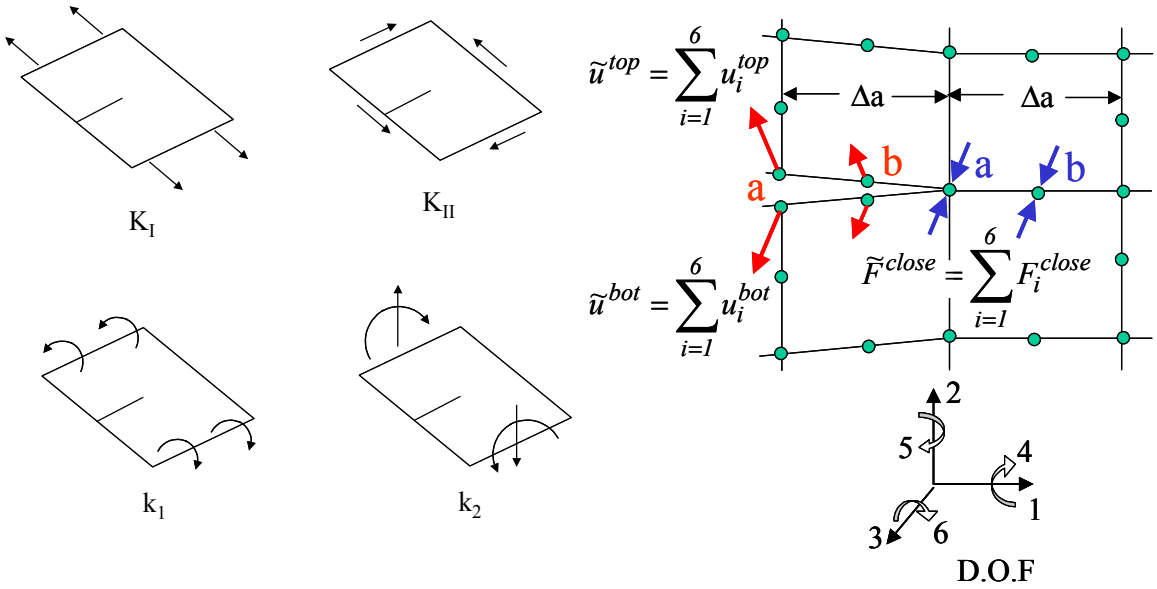



FIGURE D-12. DEFINITION OF FOUR STRESS-INTENSITY FACTORS AND CRACK TIP ELEMENTS AND NODES FOR THE MCCI METHOD

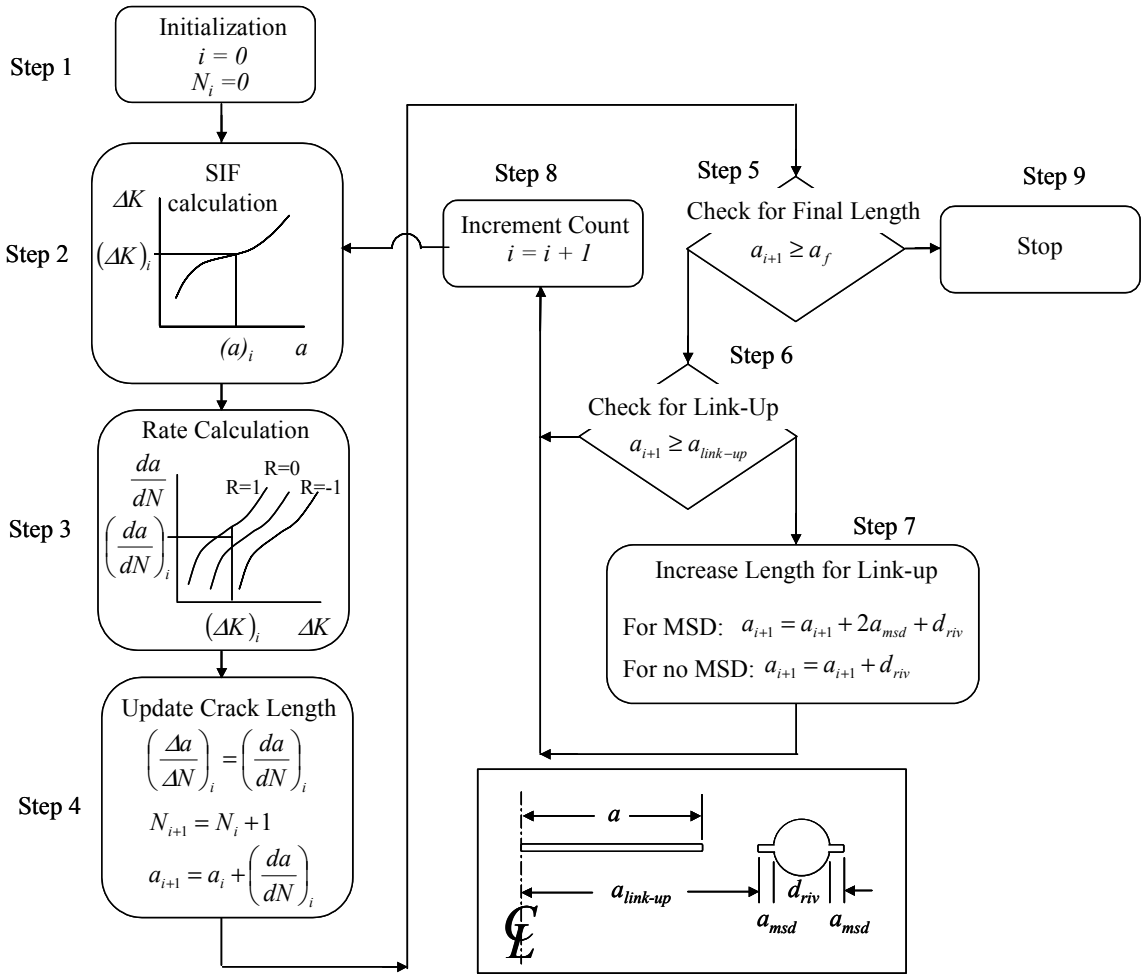
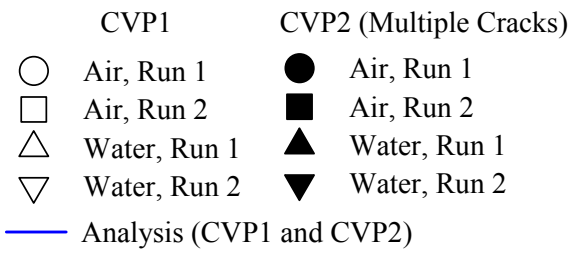
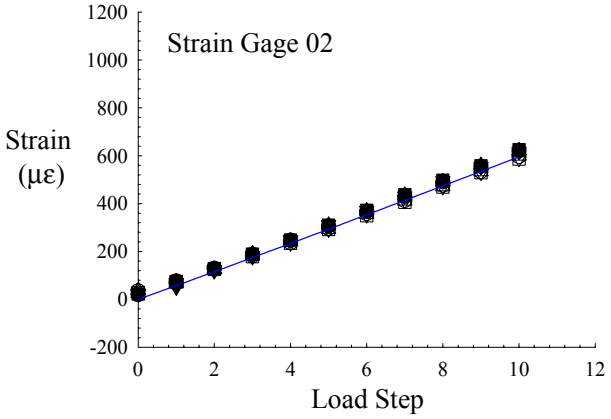
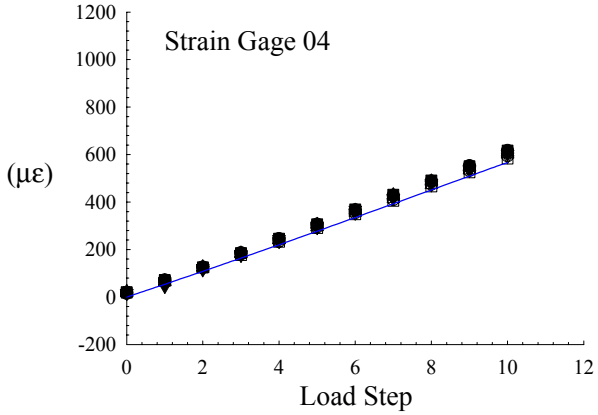


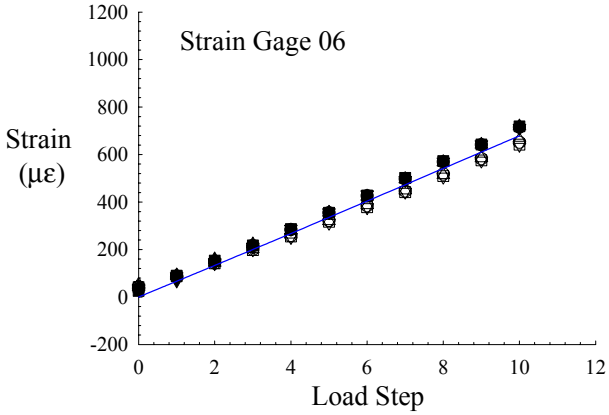

FIGURE D-13. ALGORITHM FOR THE CYCLE-BY-CYCLE CRACK GROWTH ANALYSIS

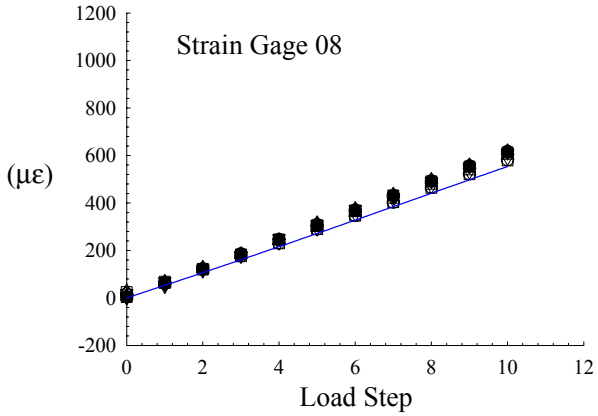
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |



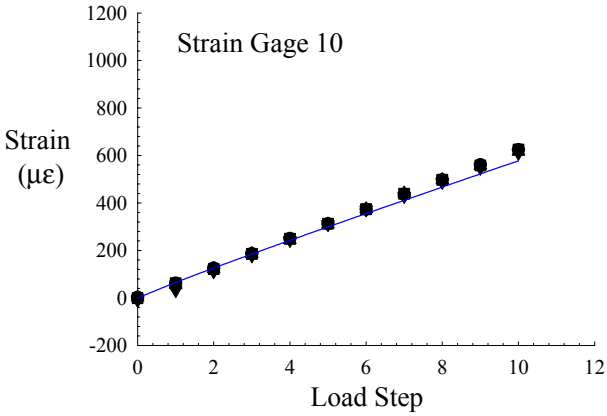
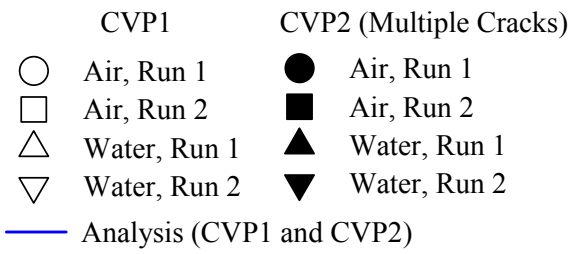
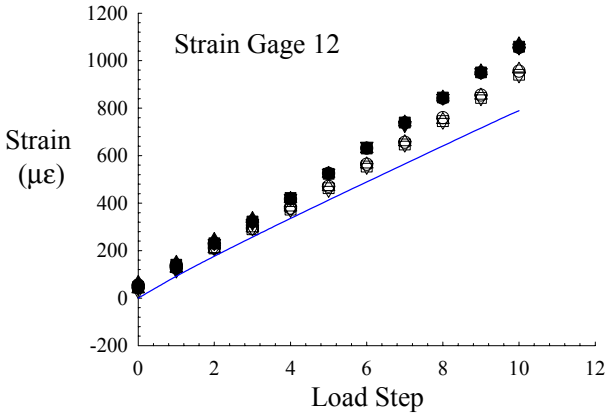
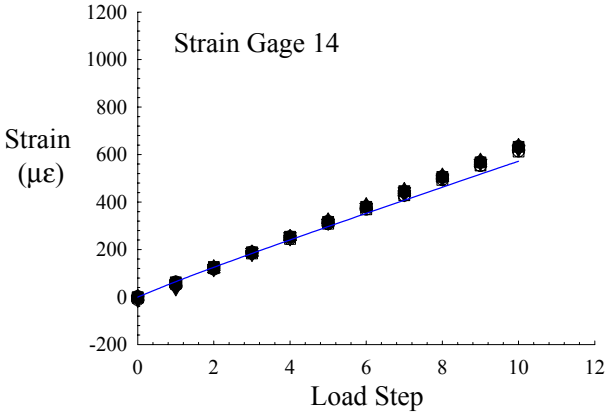



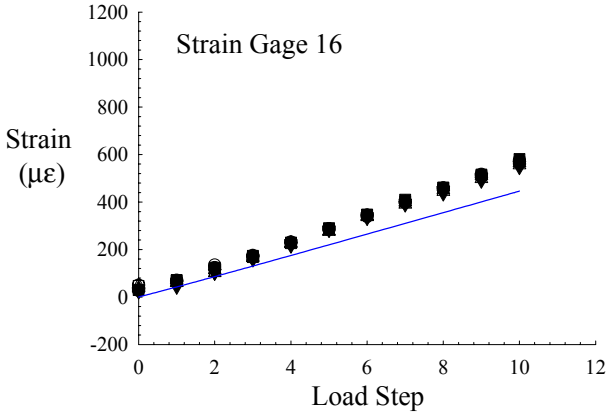

FIGURE D-14. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1a

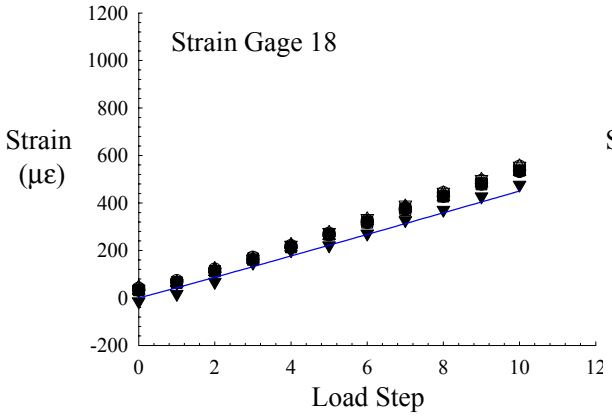
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |



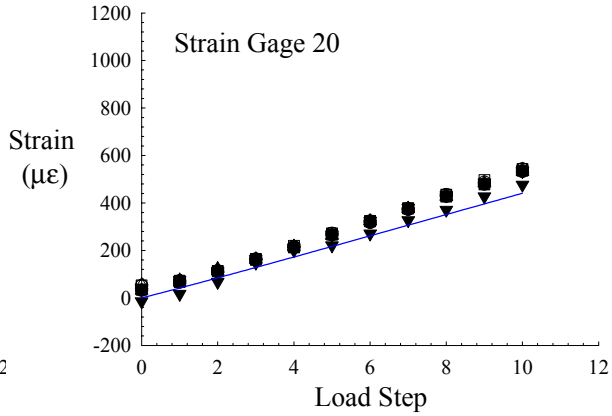




FIGURE D-14. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1a (Continued)

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |

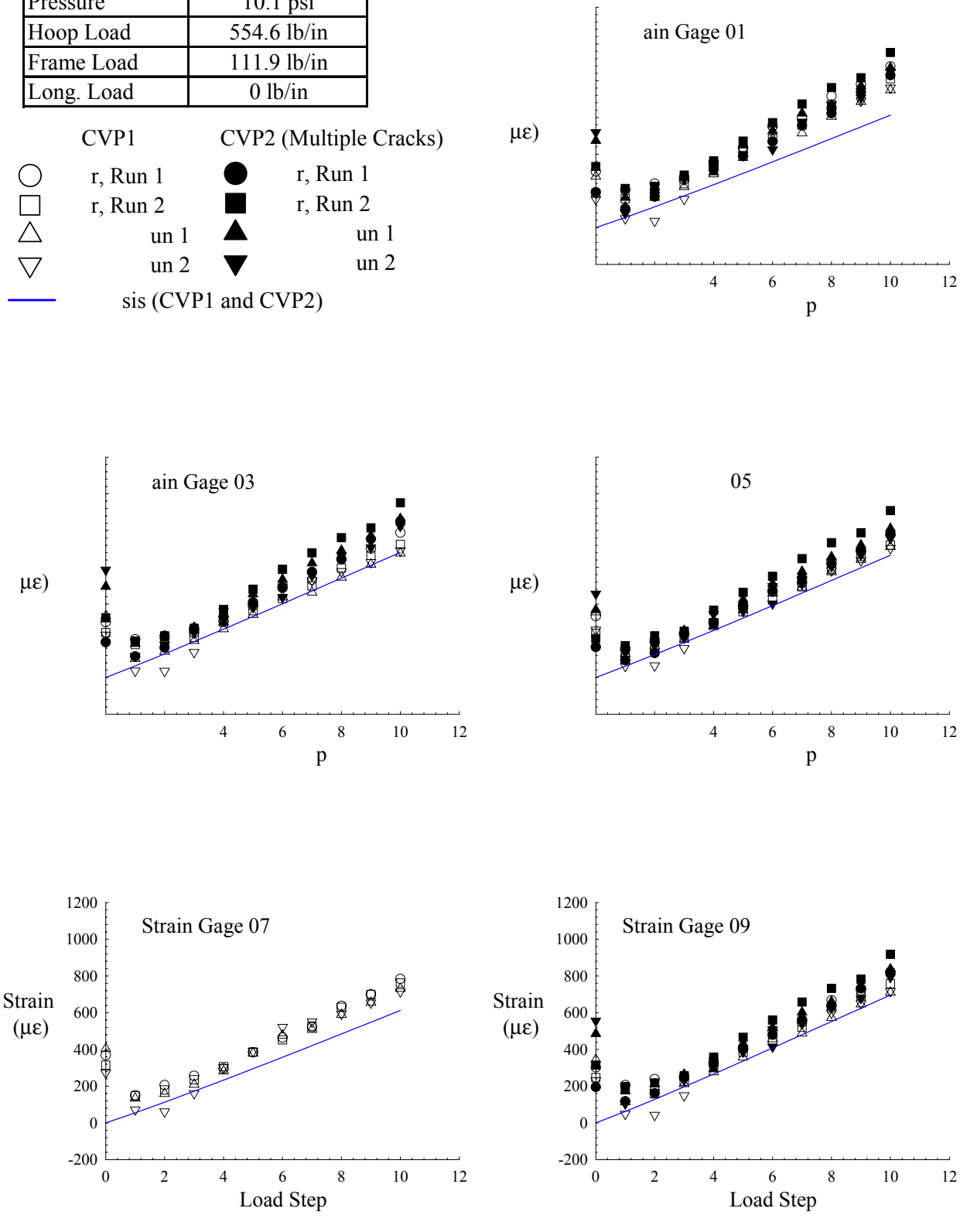
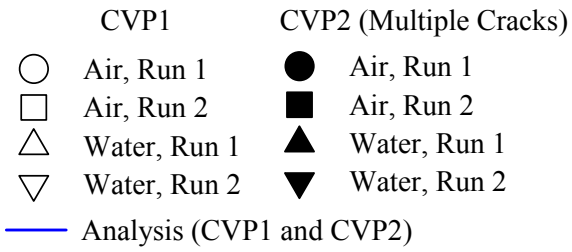
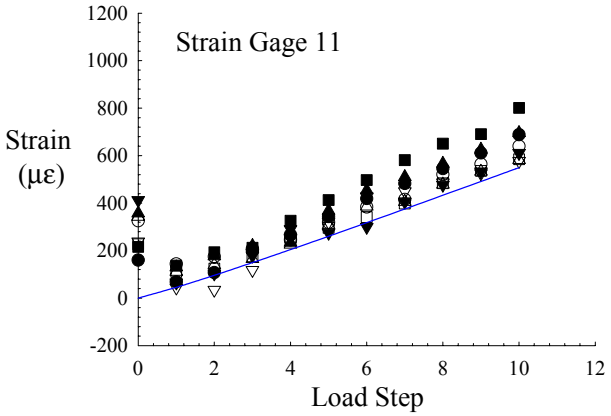
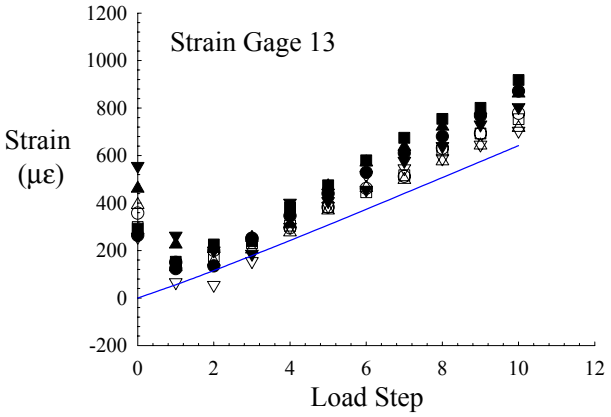


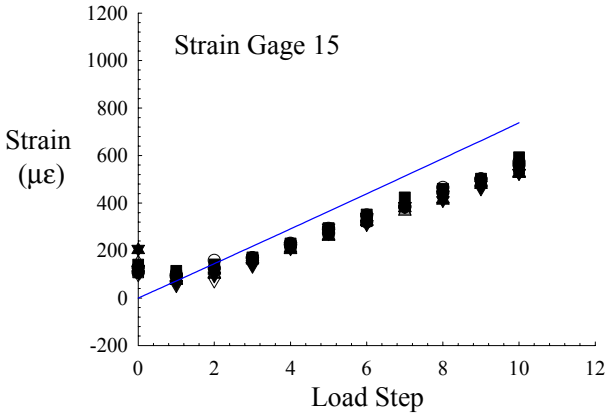

FIGURE D-15. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1a

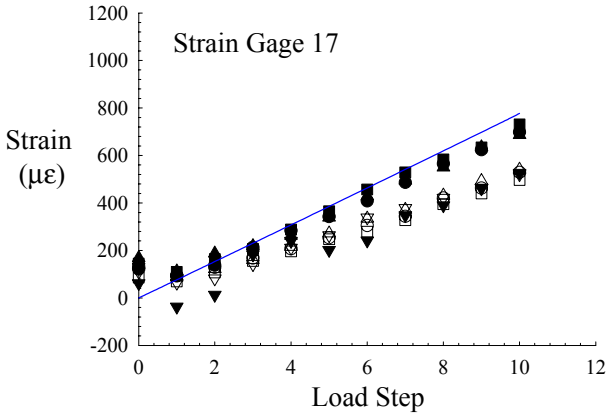
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |



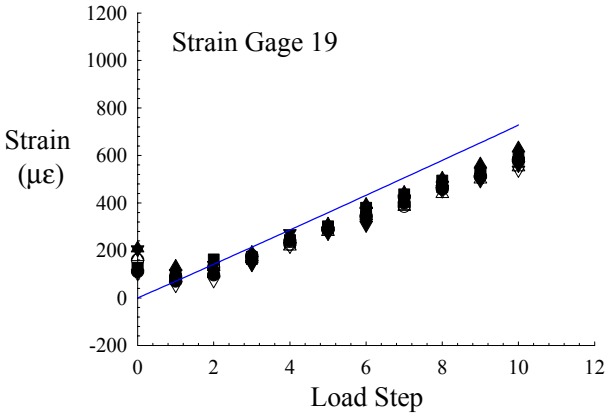




FIGURE D-15. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1a (Continued)

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |

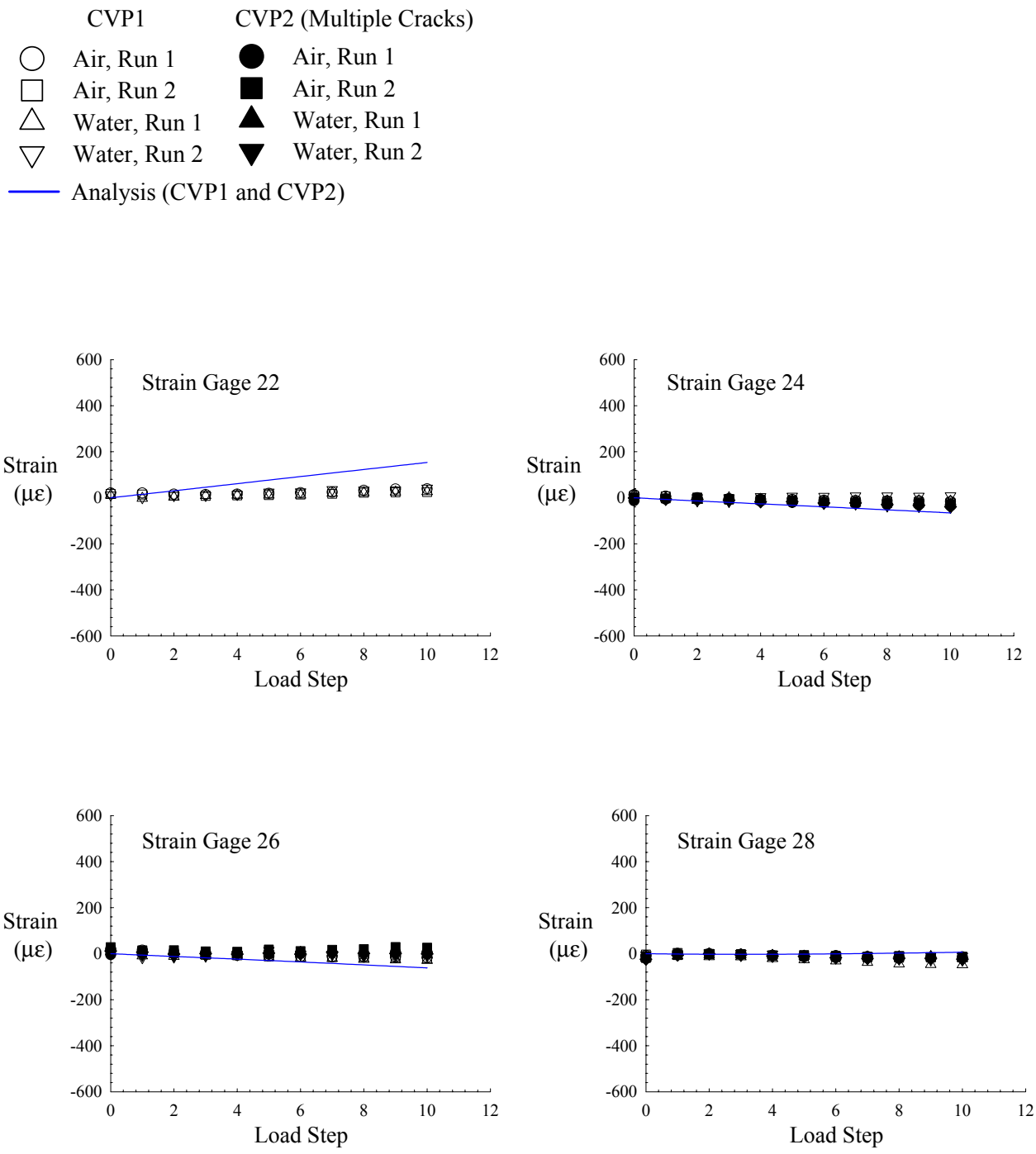



FIGURE D-16. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP1 AND CVP2, LOAD CONDITION 1a

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |

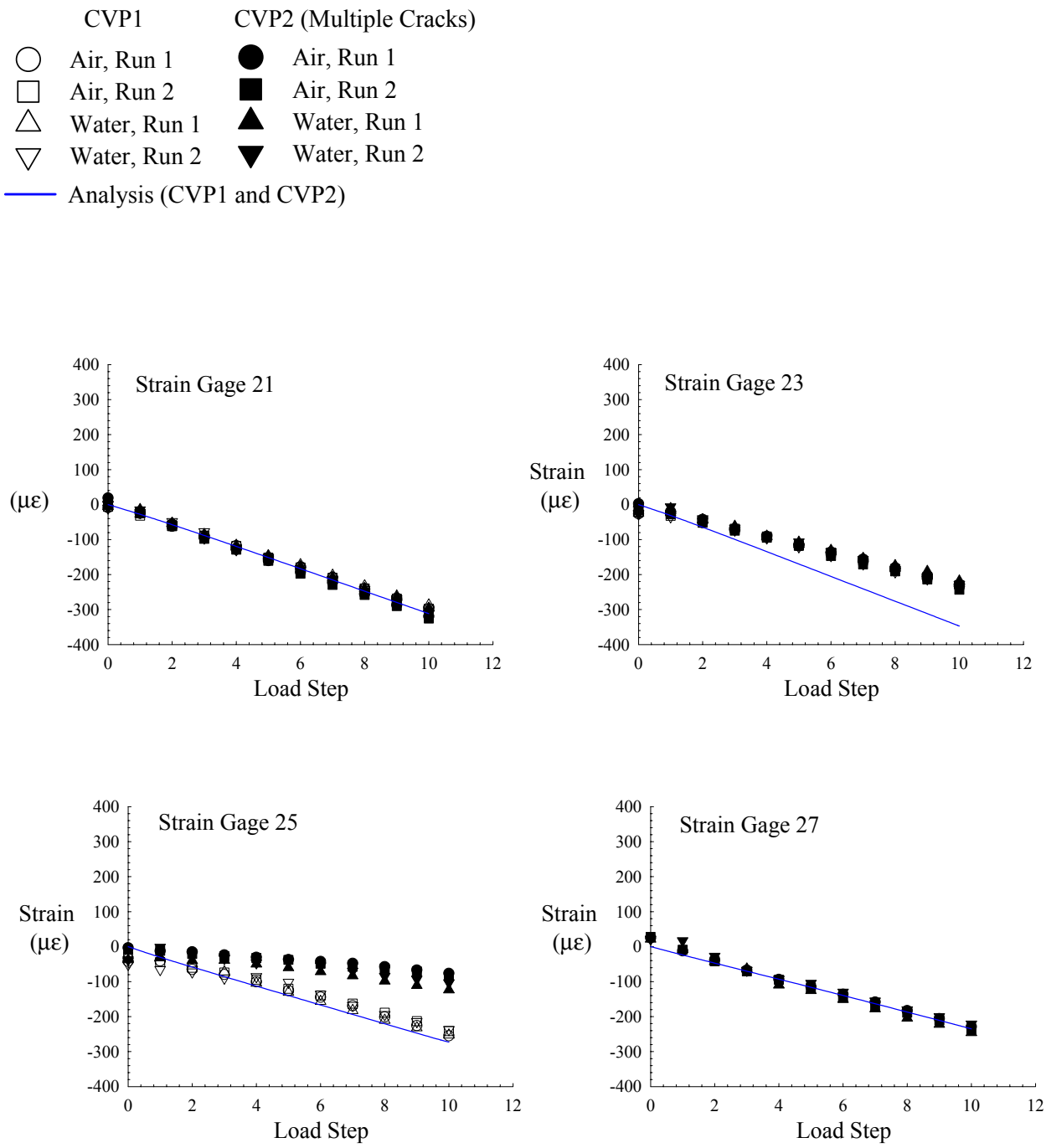



FIGURE D-17. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP1 AND CVP2, LOAD CONDITION 1a

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |

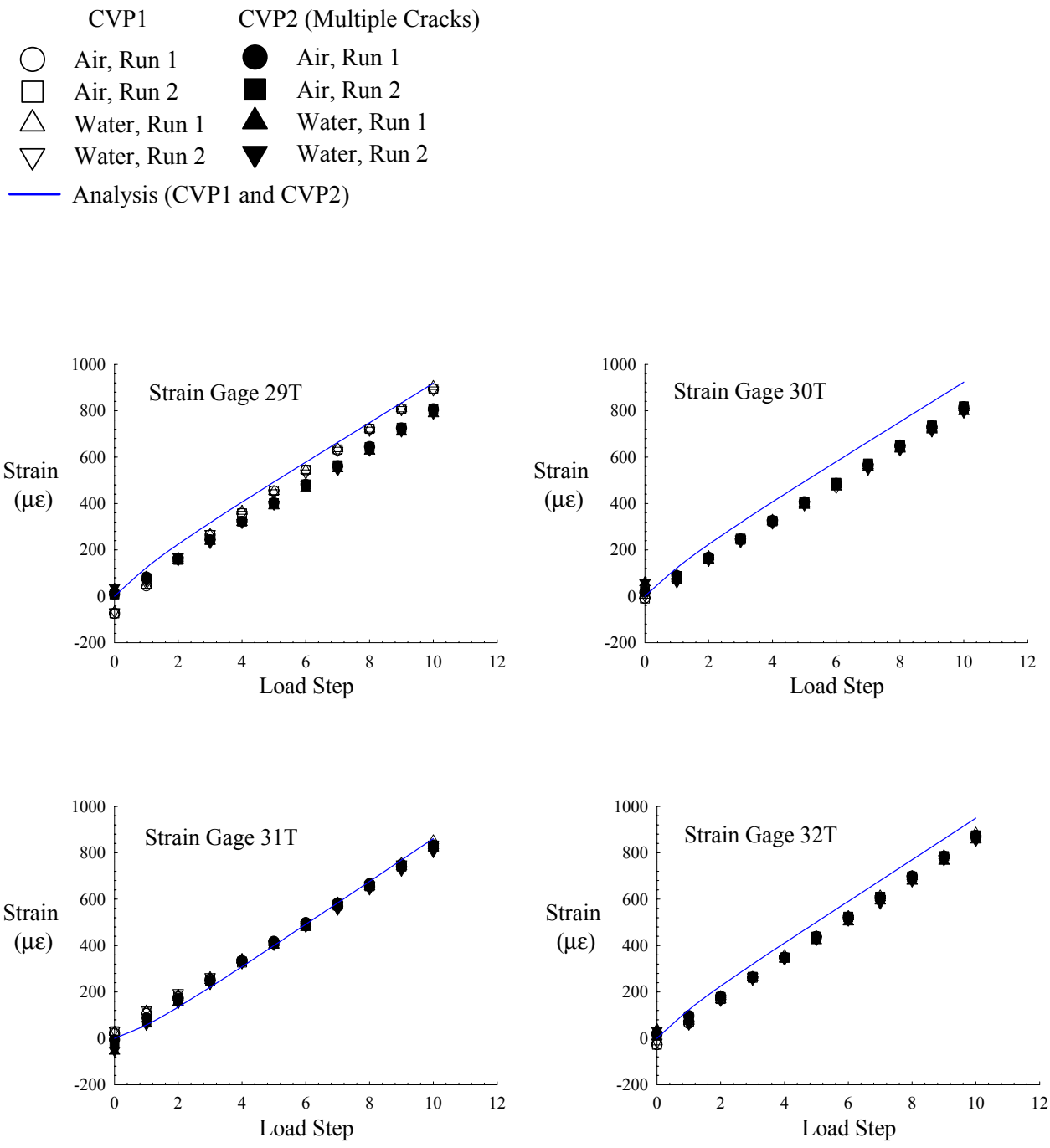
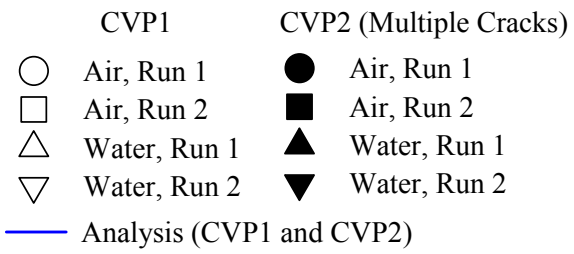
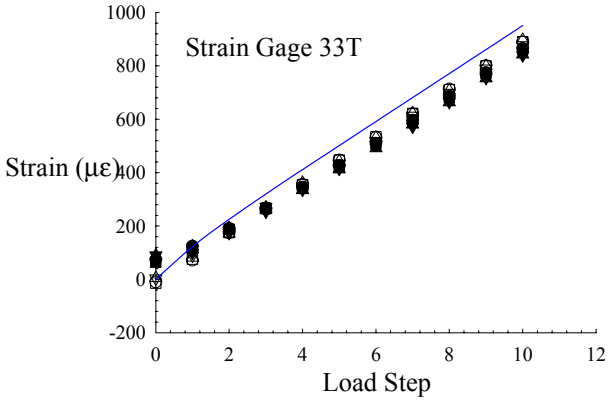
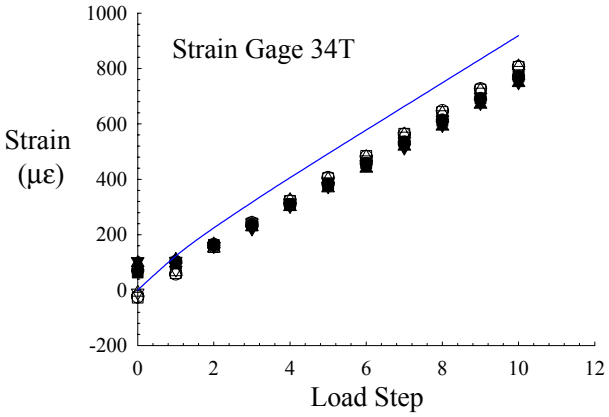


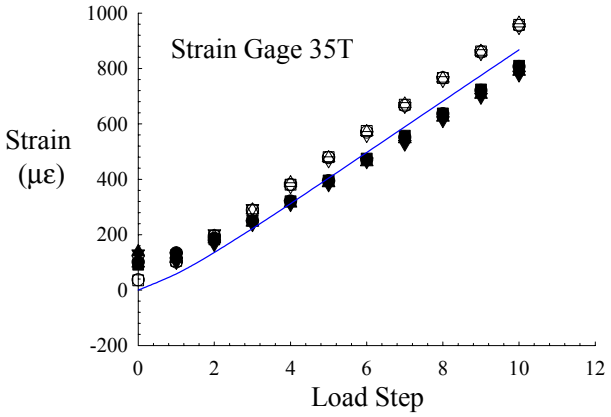

FIGURE D-18. MEASURED AND PREDICTED HOOP STRAIN FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1a

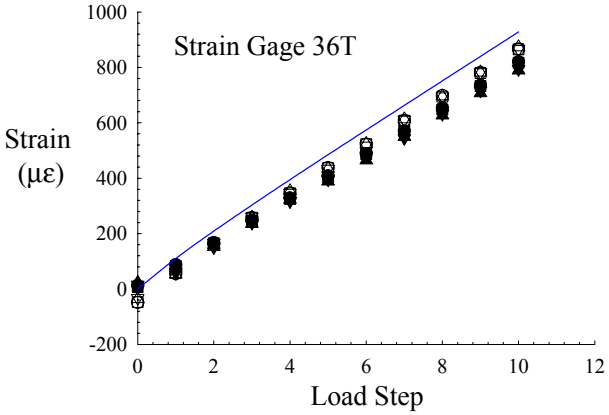
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |



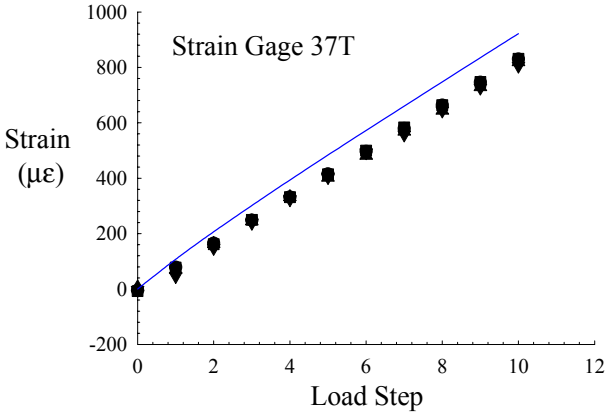




FIGURE D-18. MEASURED AND PREDICTED HOOP STRAIN FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1a (Continued)

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |

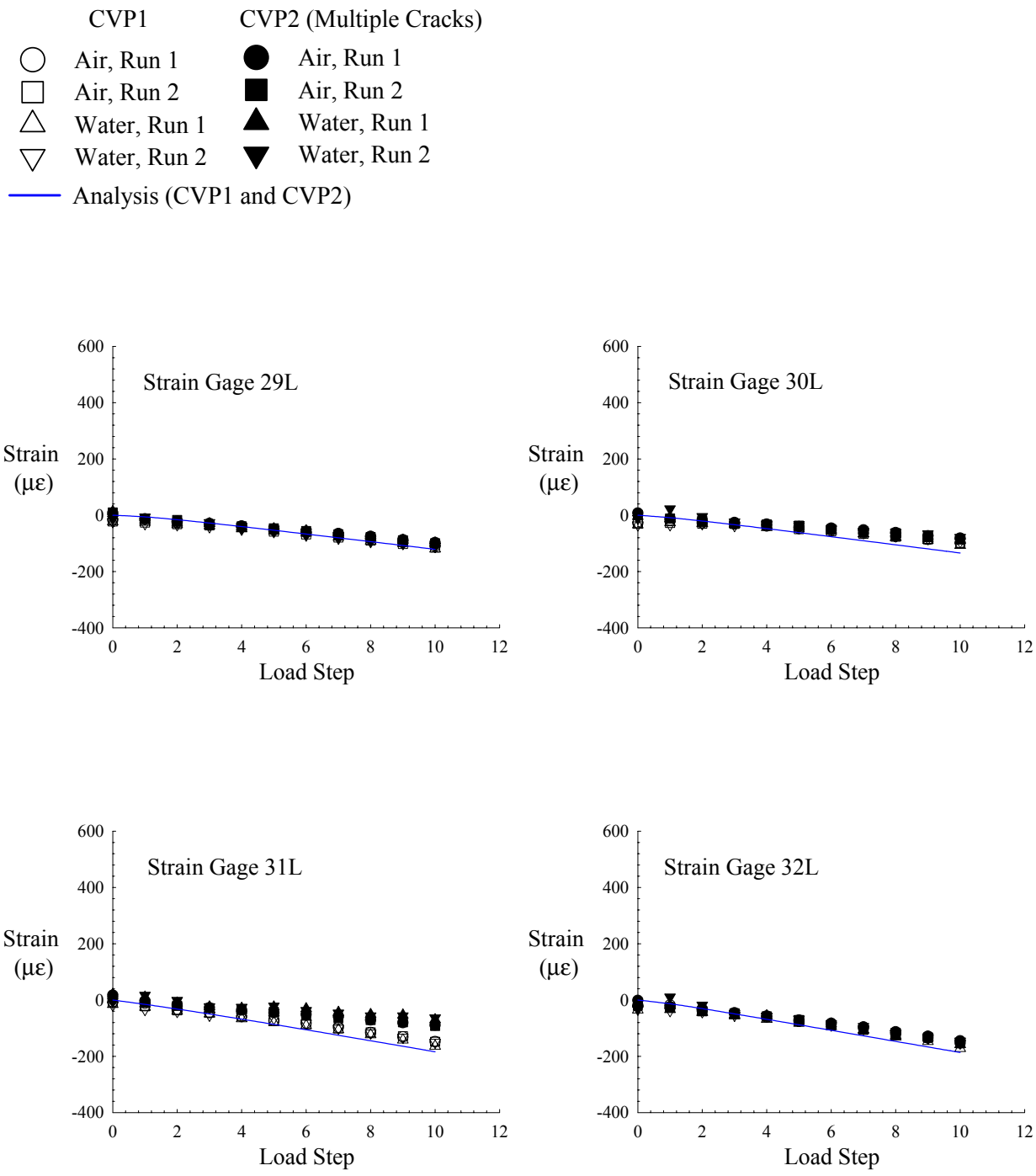
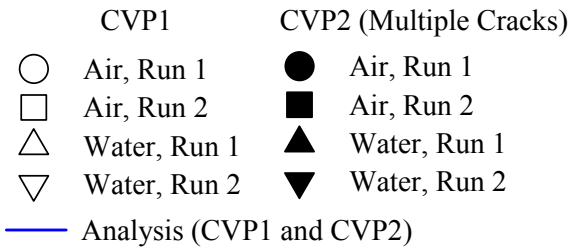
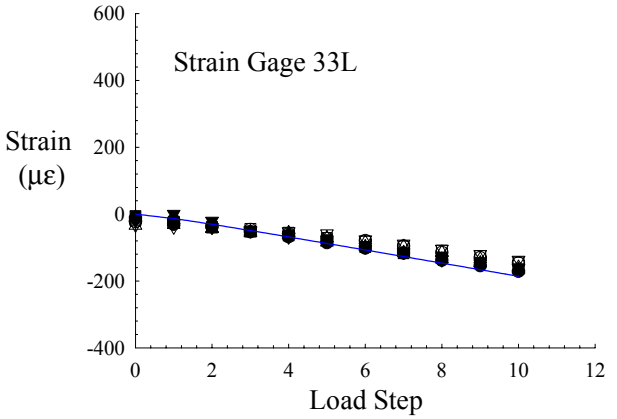
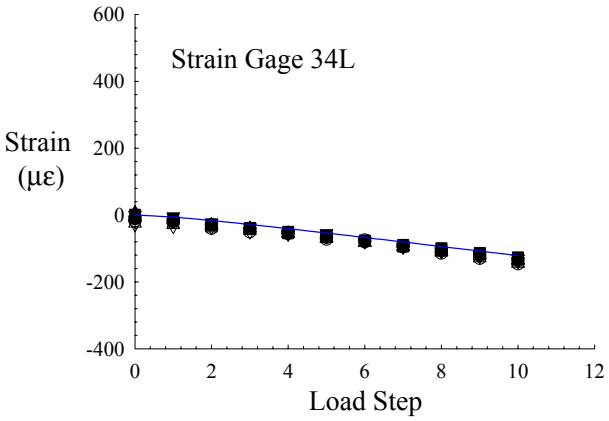


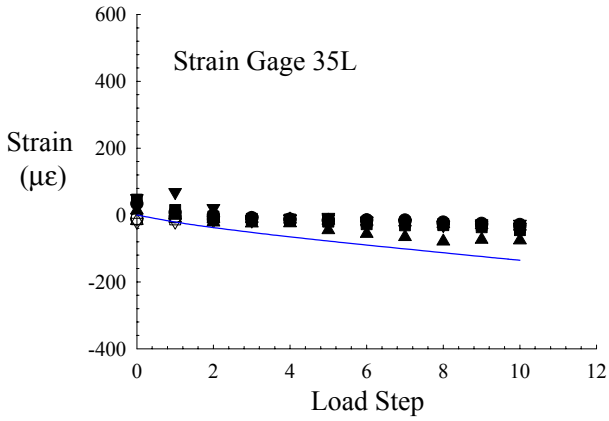

FIGURE D-19. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1a

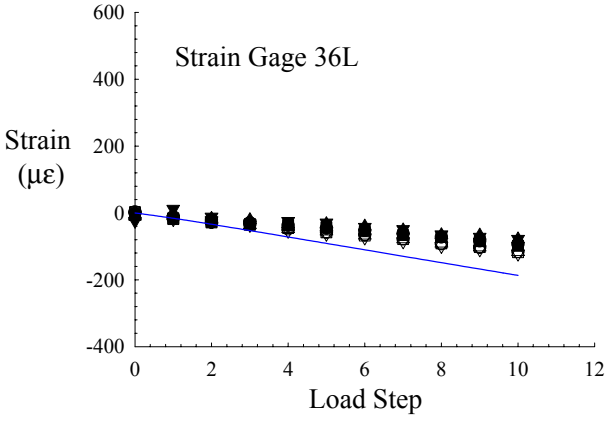
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |



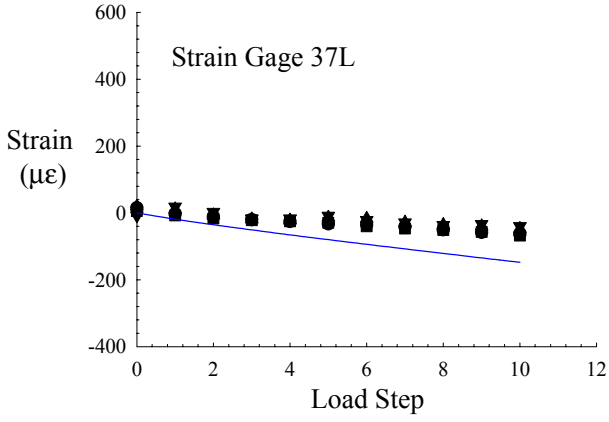




FIGURE D-19. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1a (Continued)

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |

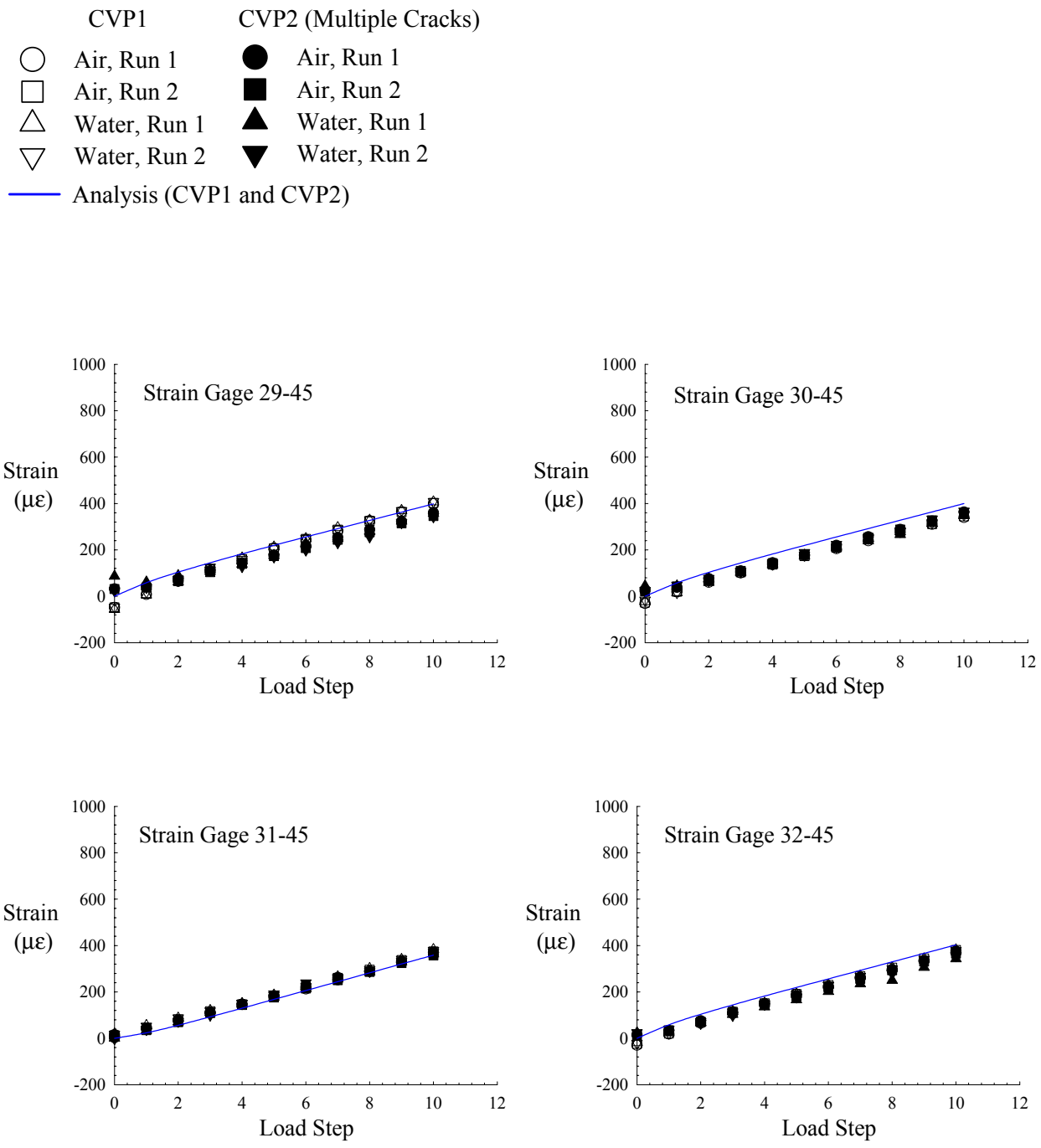
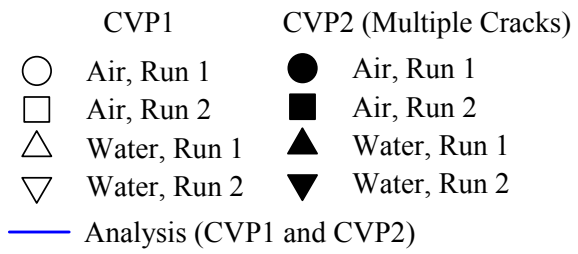
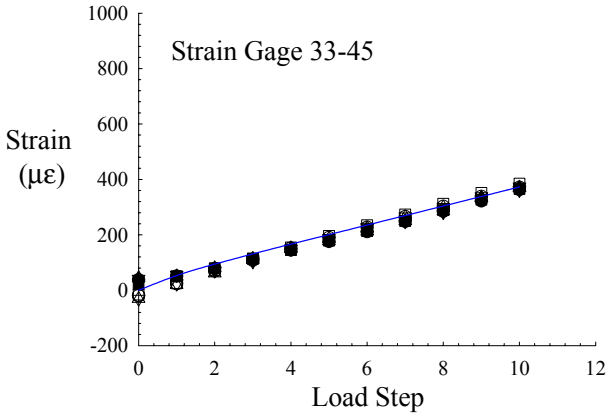
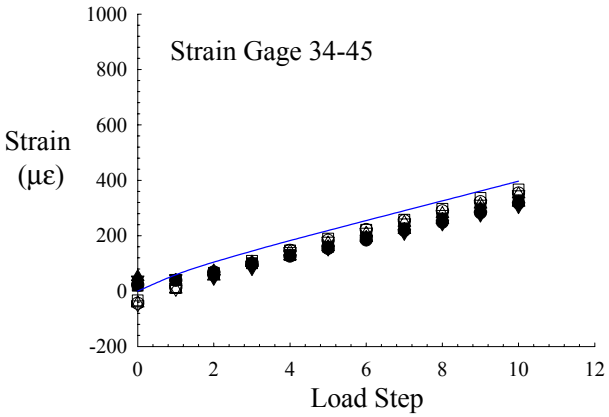


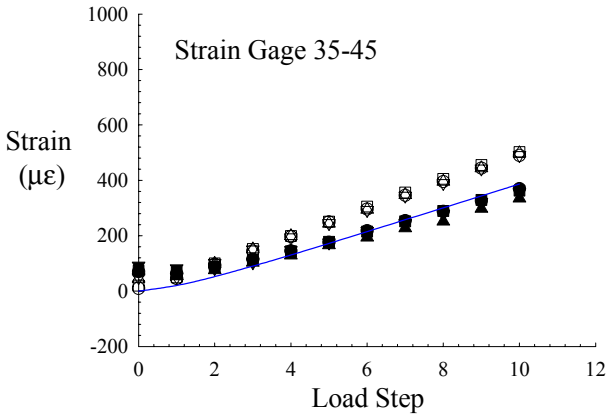

FIGURE D-20. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1a

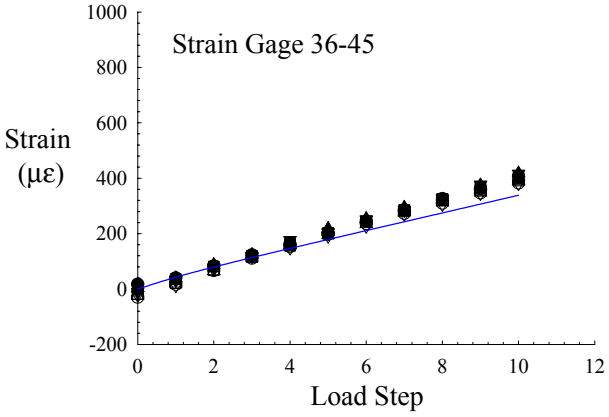
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 0 lb/in |



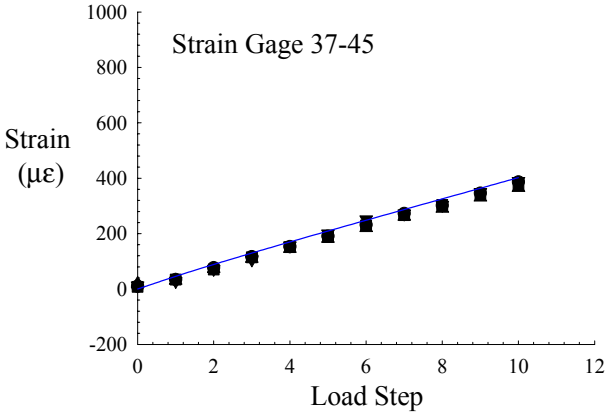
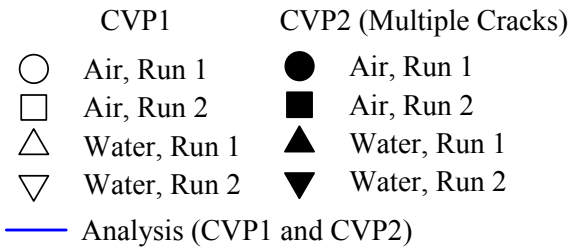
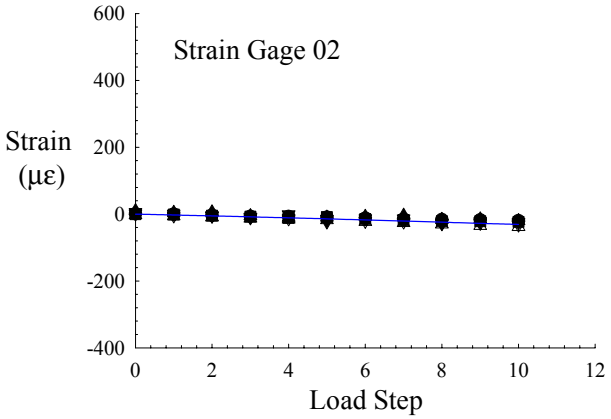
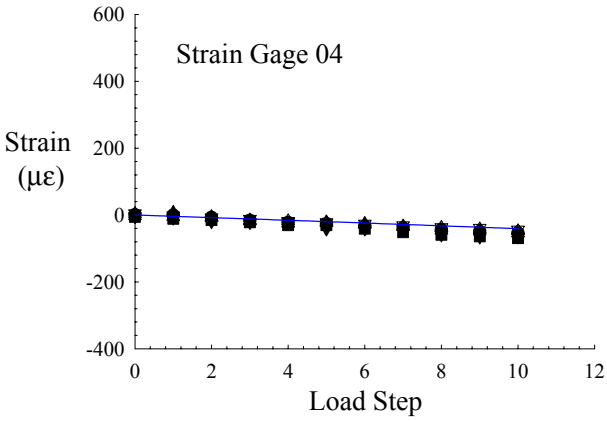



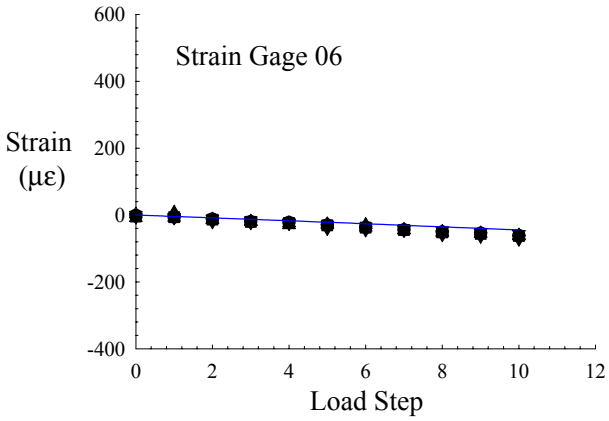

FIGURE D-20. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1a (Continued)

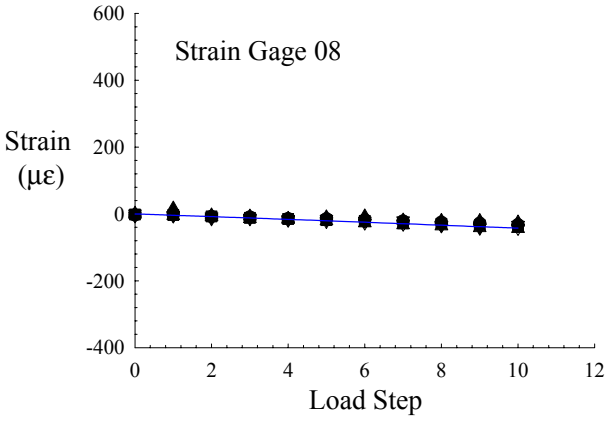
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |



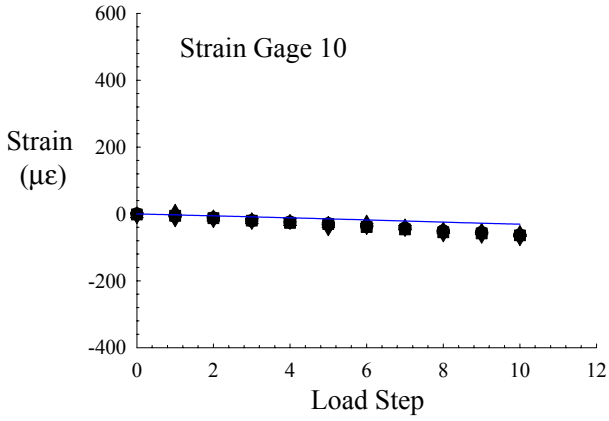
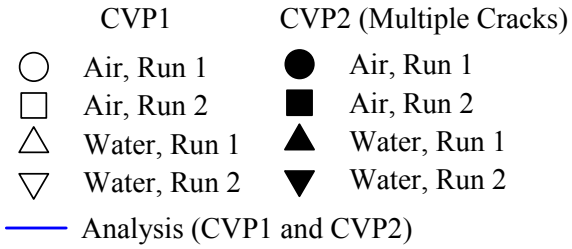
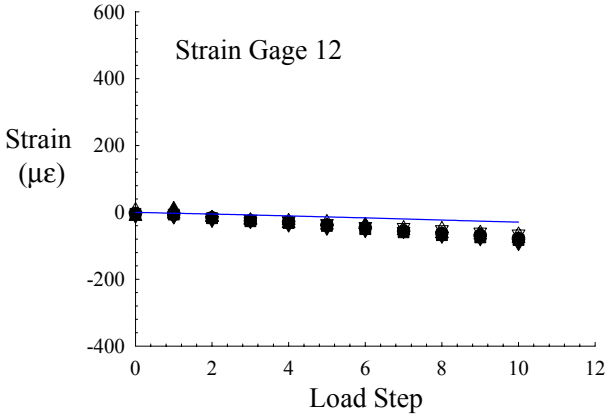
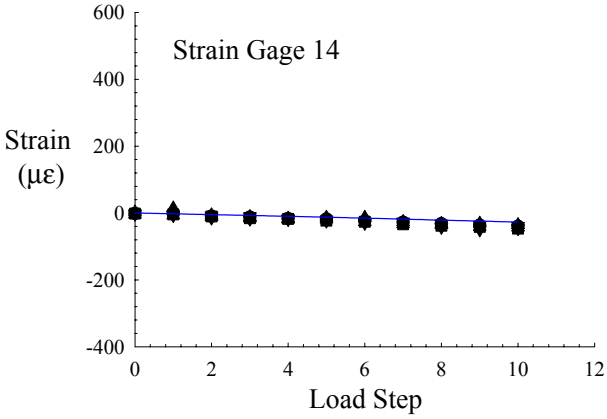



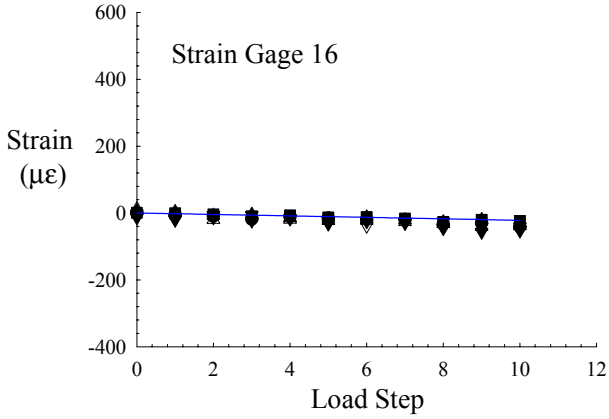

FIGURE D-21. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1b

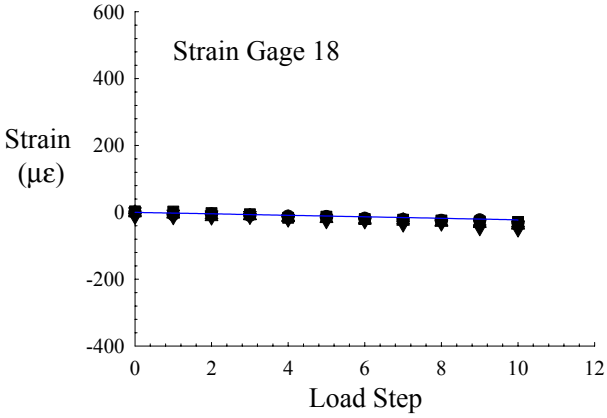
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |



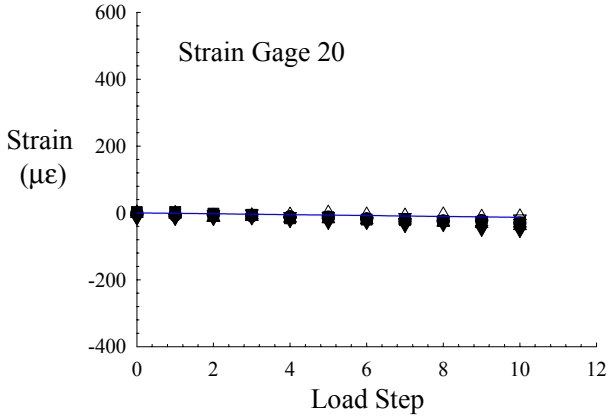
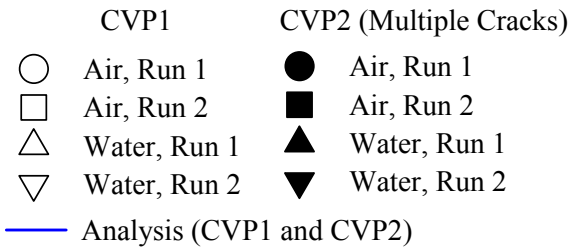
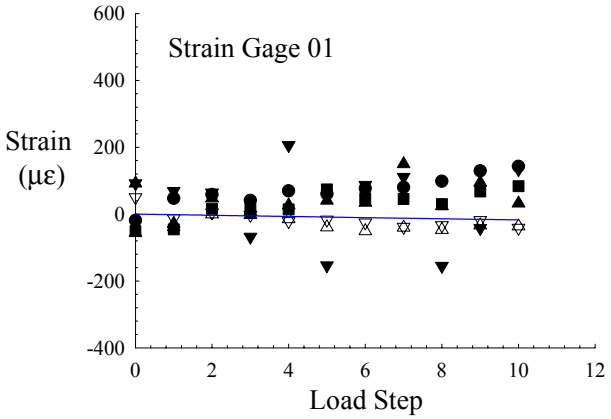
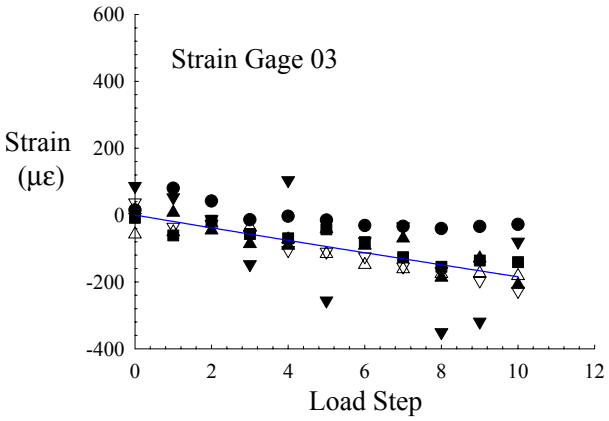



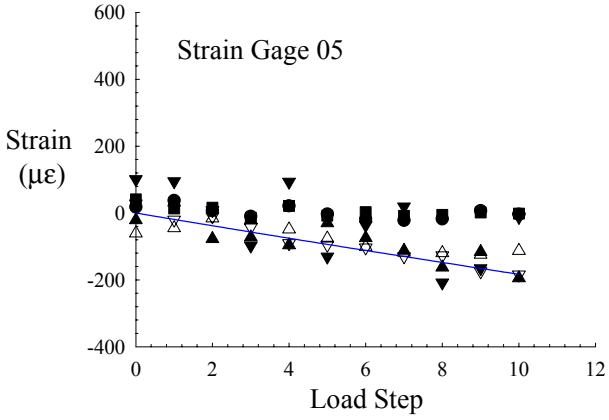

FIGURE D-21. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1b (Continued)

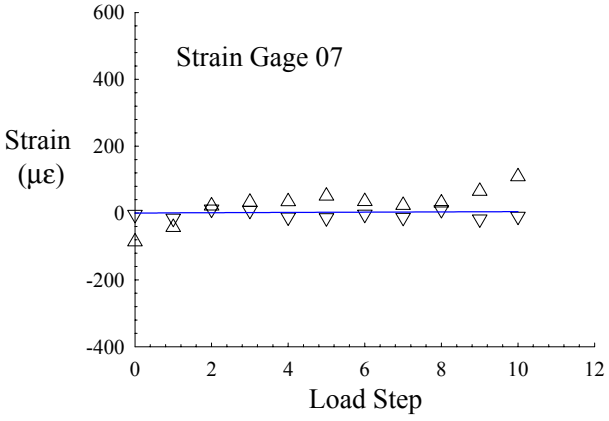
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |



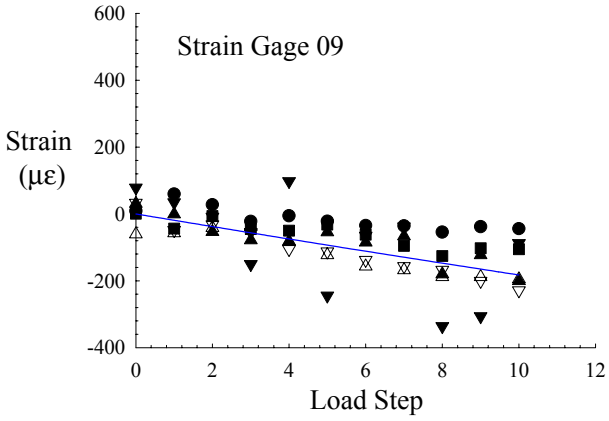




FIGURE D-22. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1b

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |

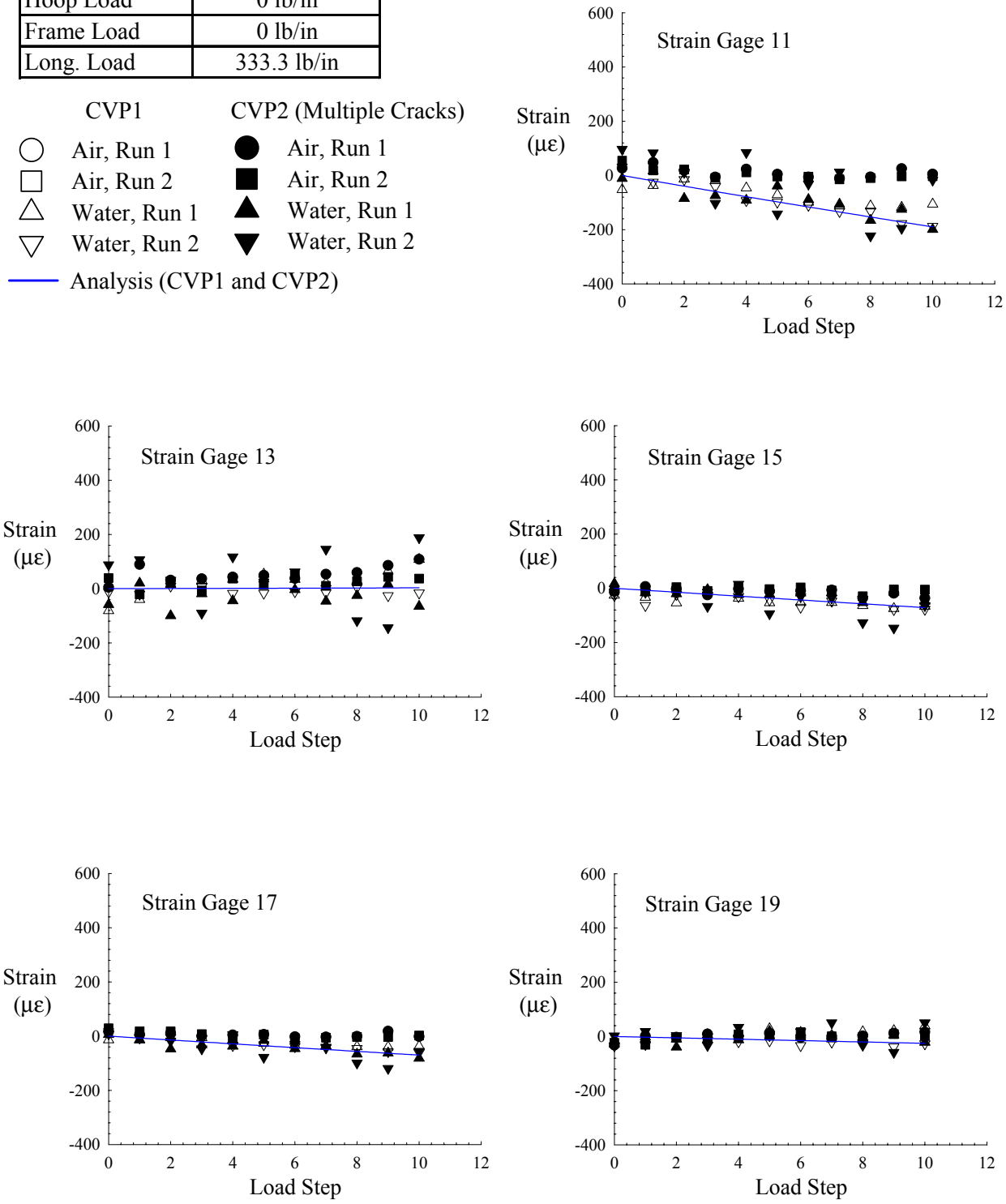



FIGURE D-22. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1b (Continued)

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |

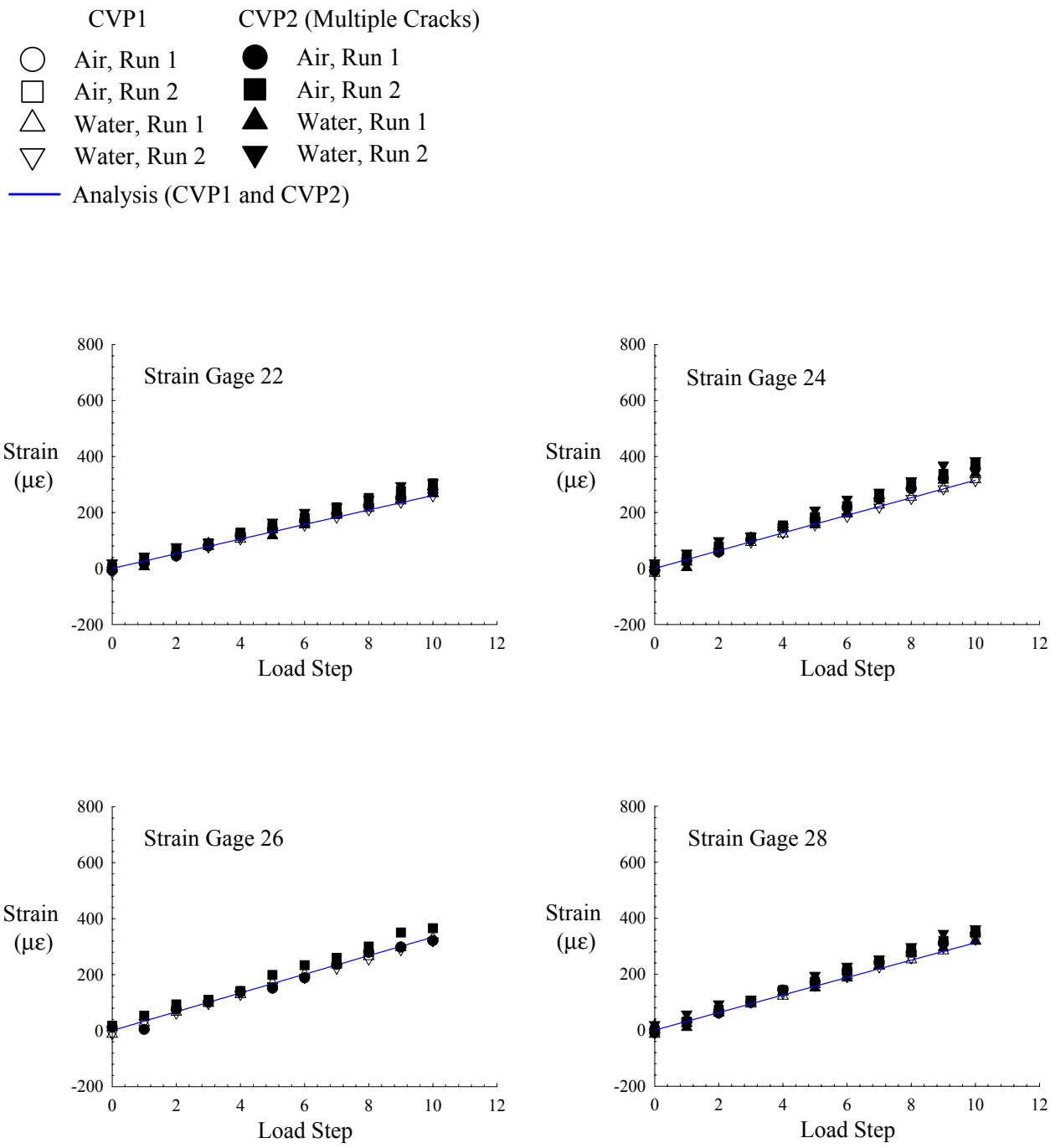



FIGURE D-23. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP1 AND CVP2, LOAD CONDITION 1b

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |

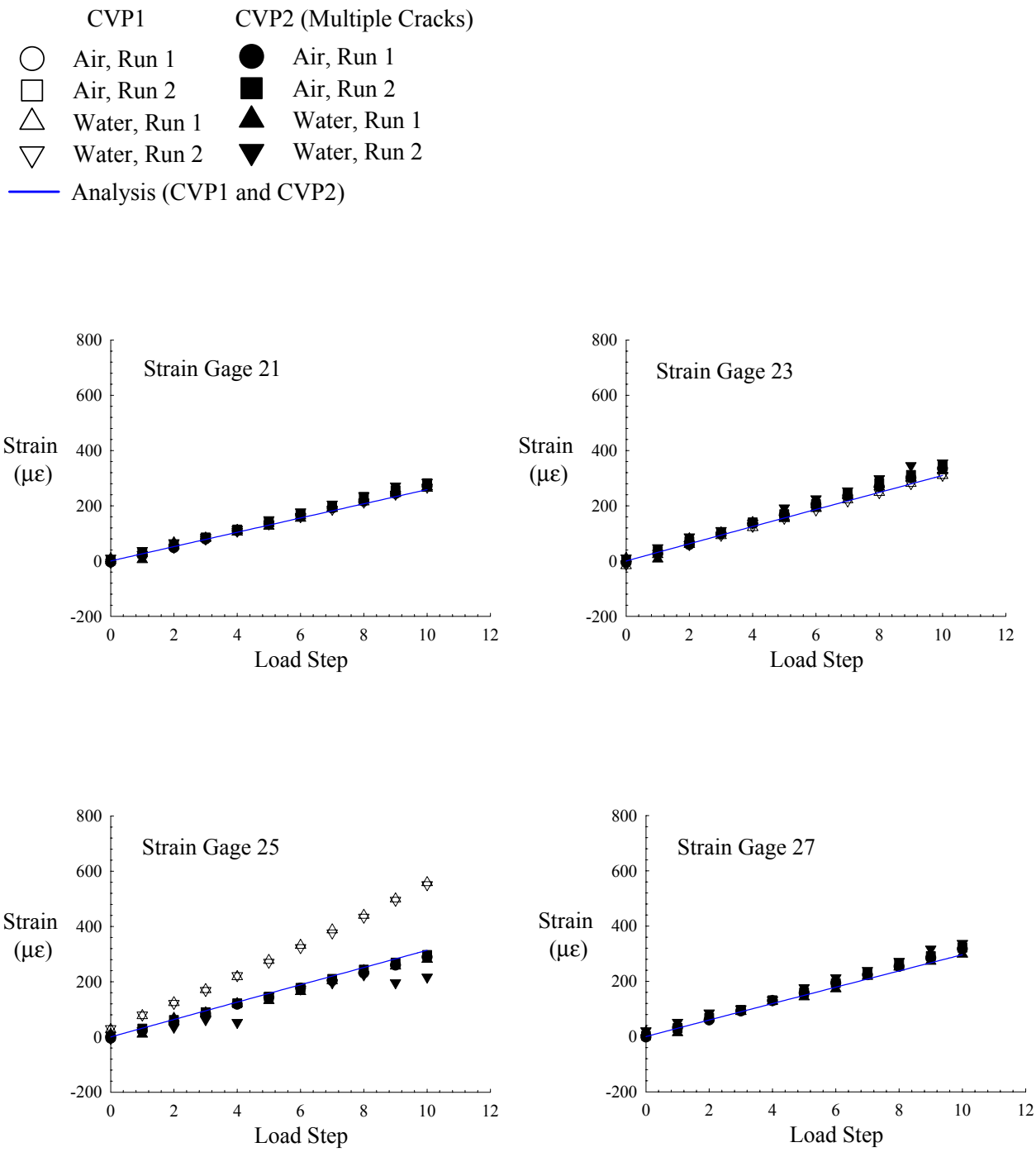



FIGURE D-24. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP1 AND CVP2, LOAD CONDITION 1b

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |

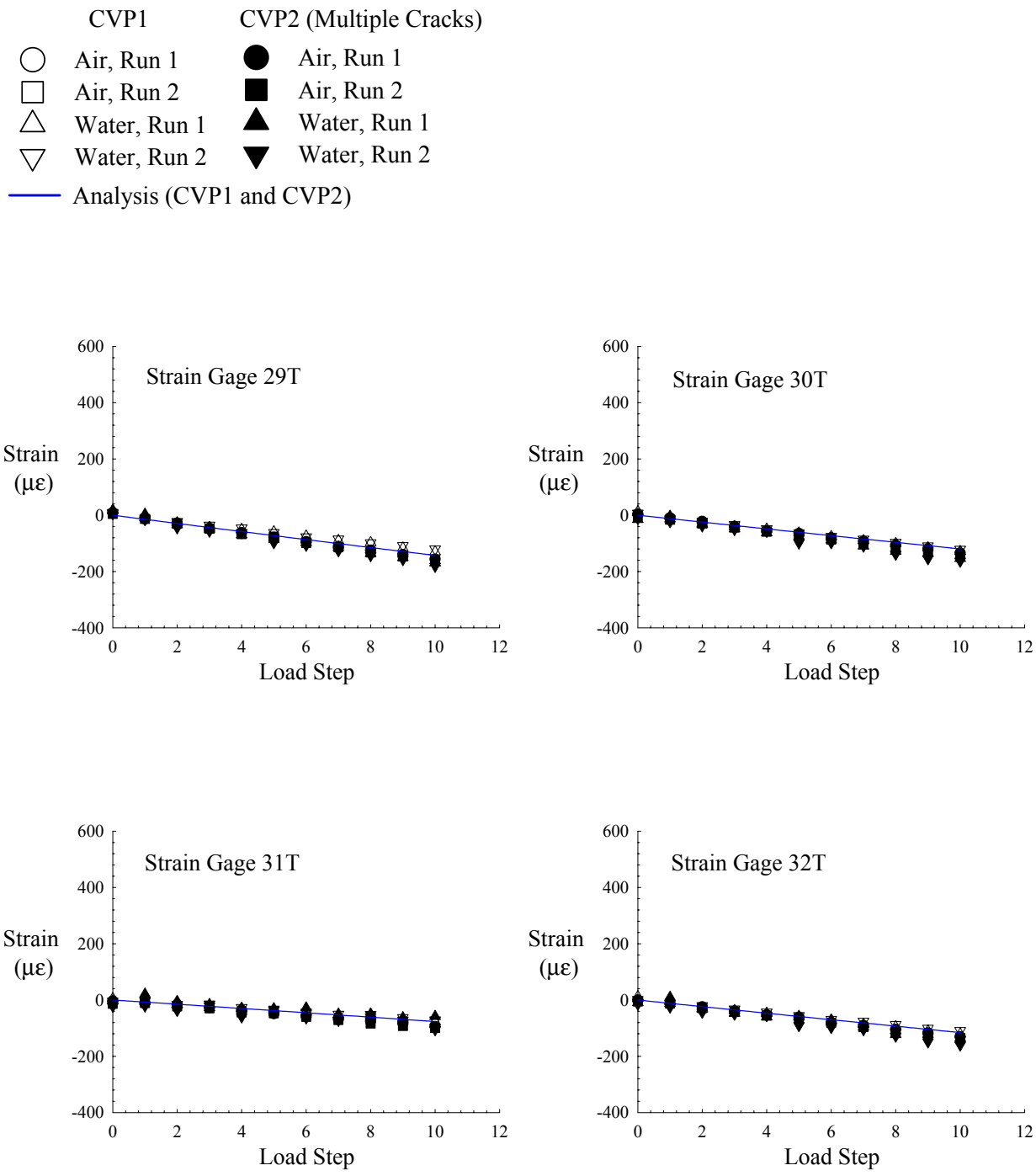
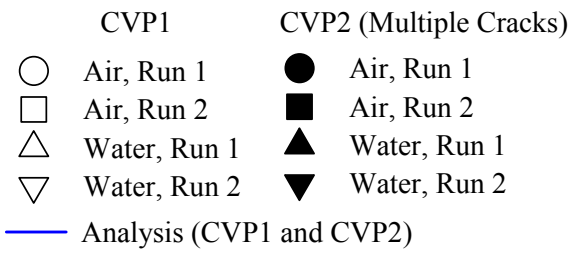
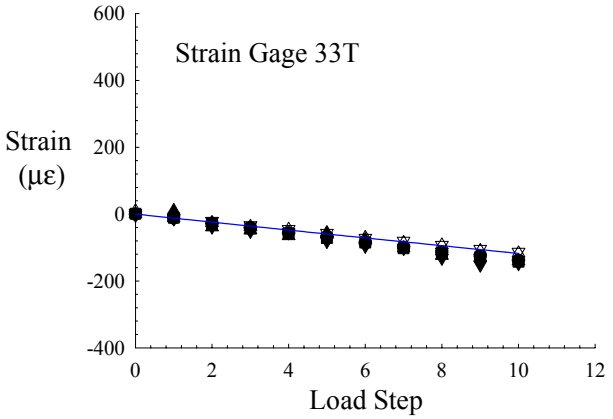
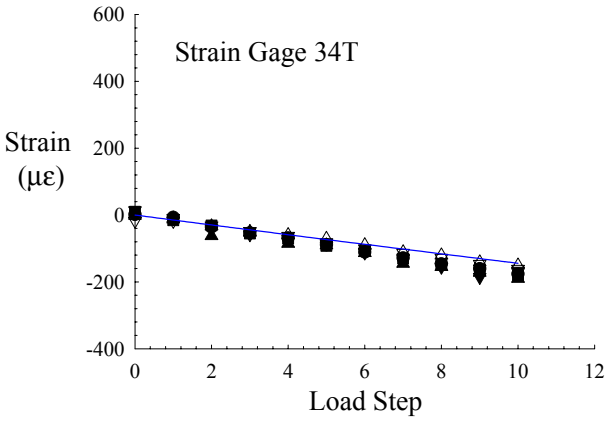


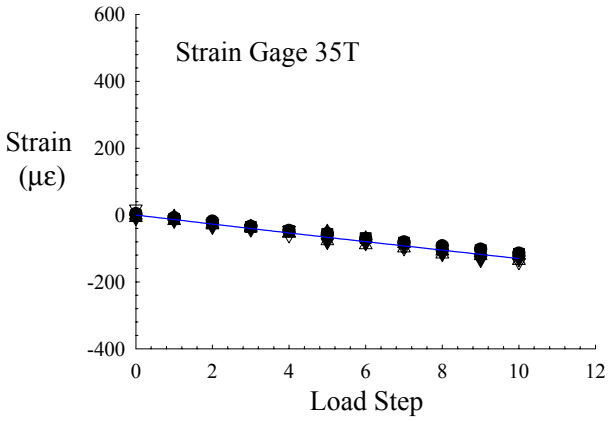

FIGURE D-25. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1b

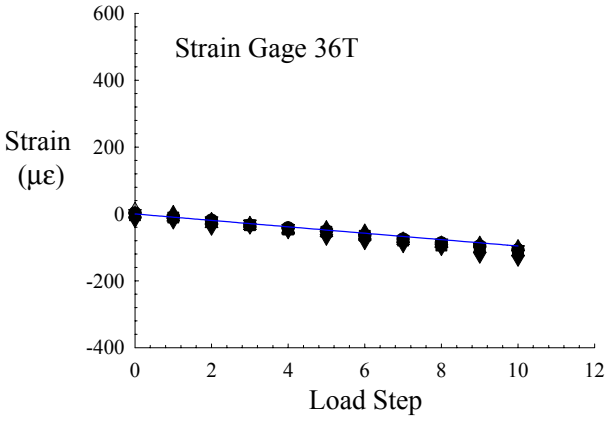
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |



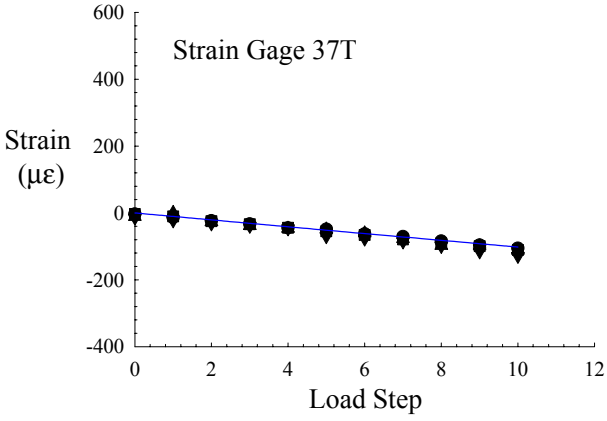




FIGURE D-25. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1b (Continued)

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |

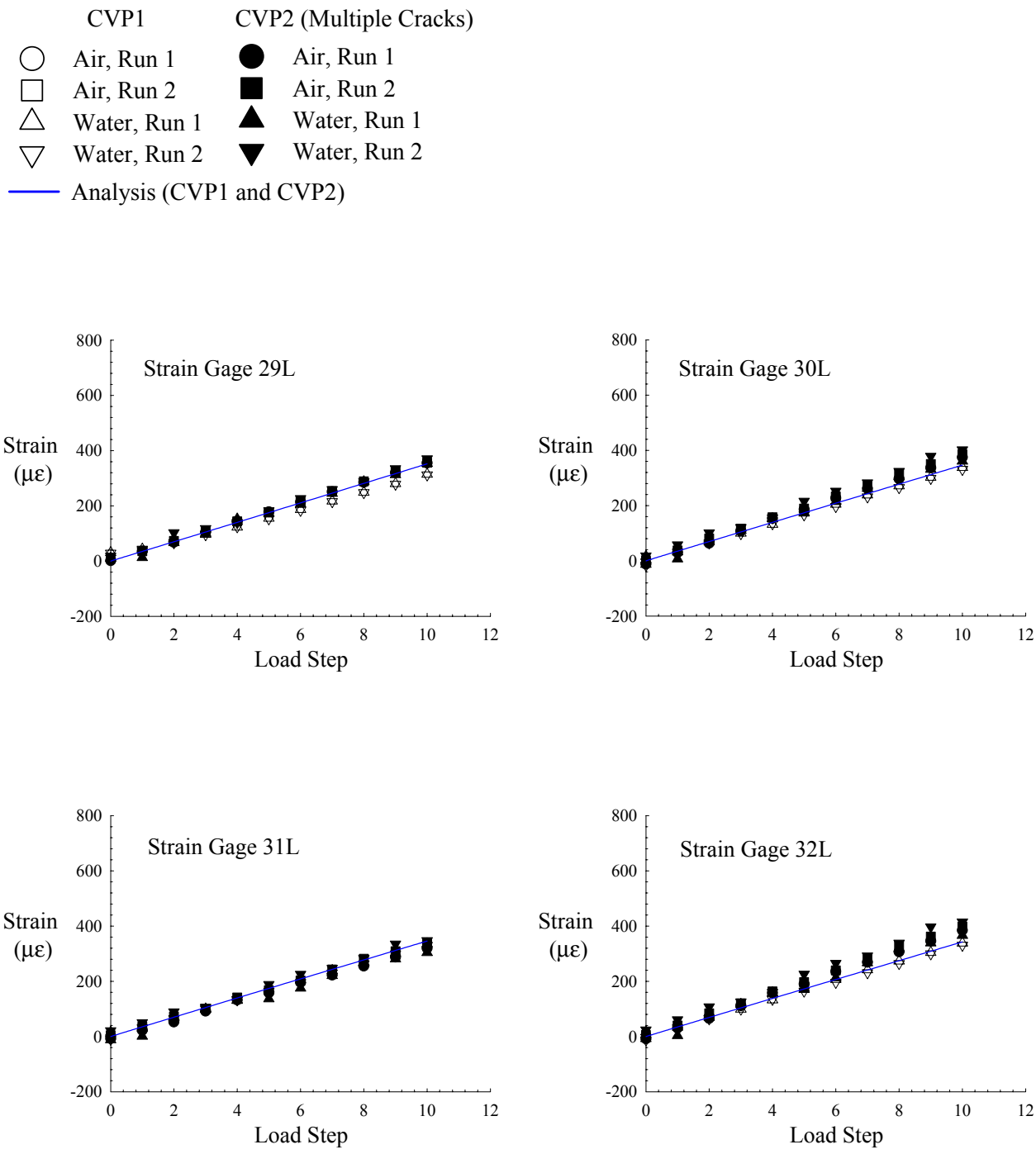
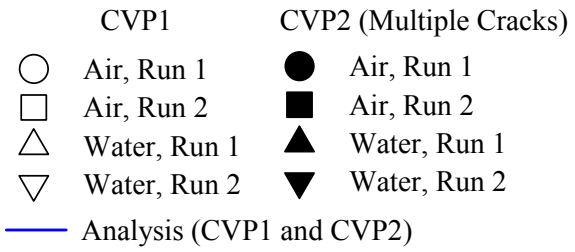
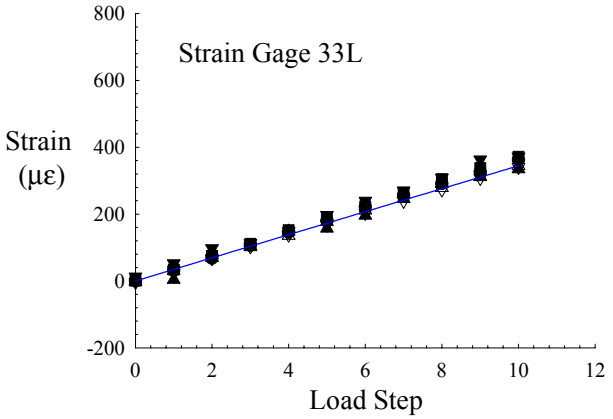
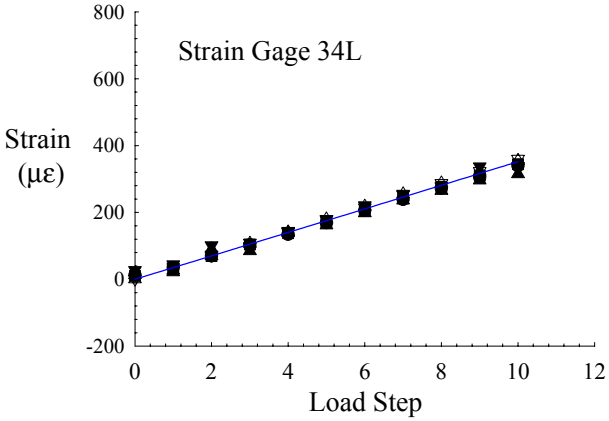


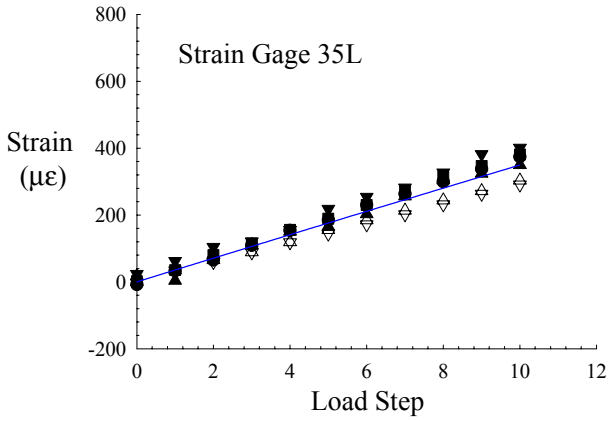

FIGURE D-26. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1b

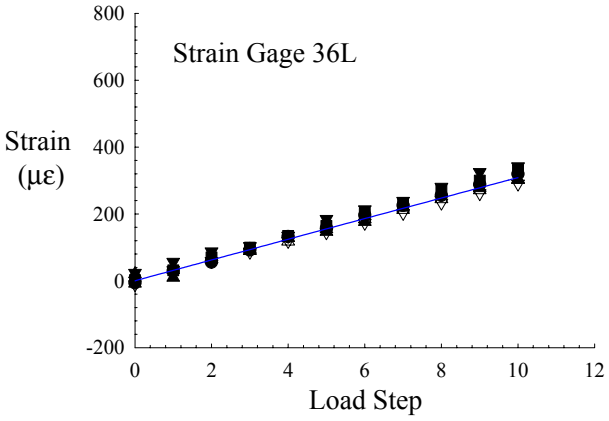
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |



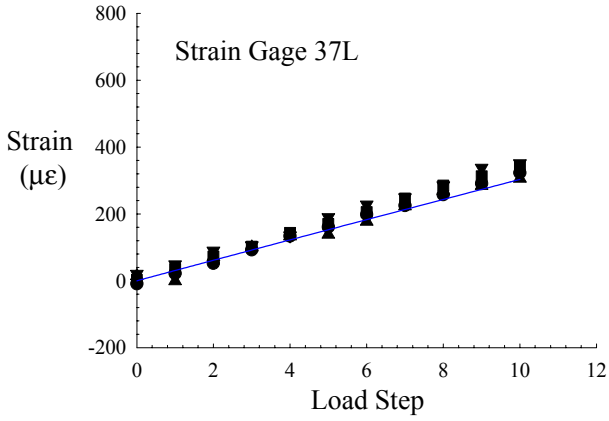




FIGURE D-26. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1b (Continued)

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |

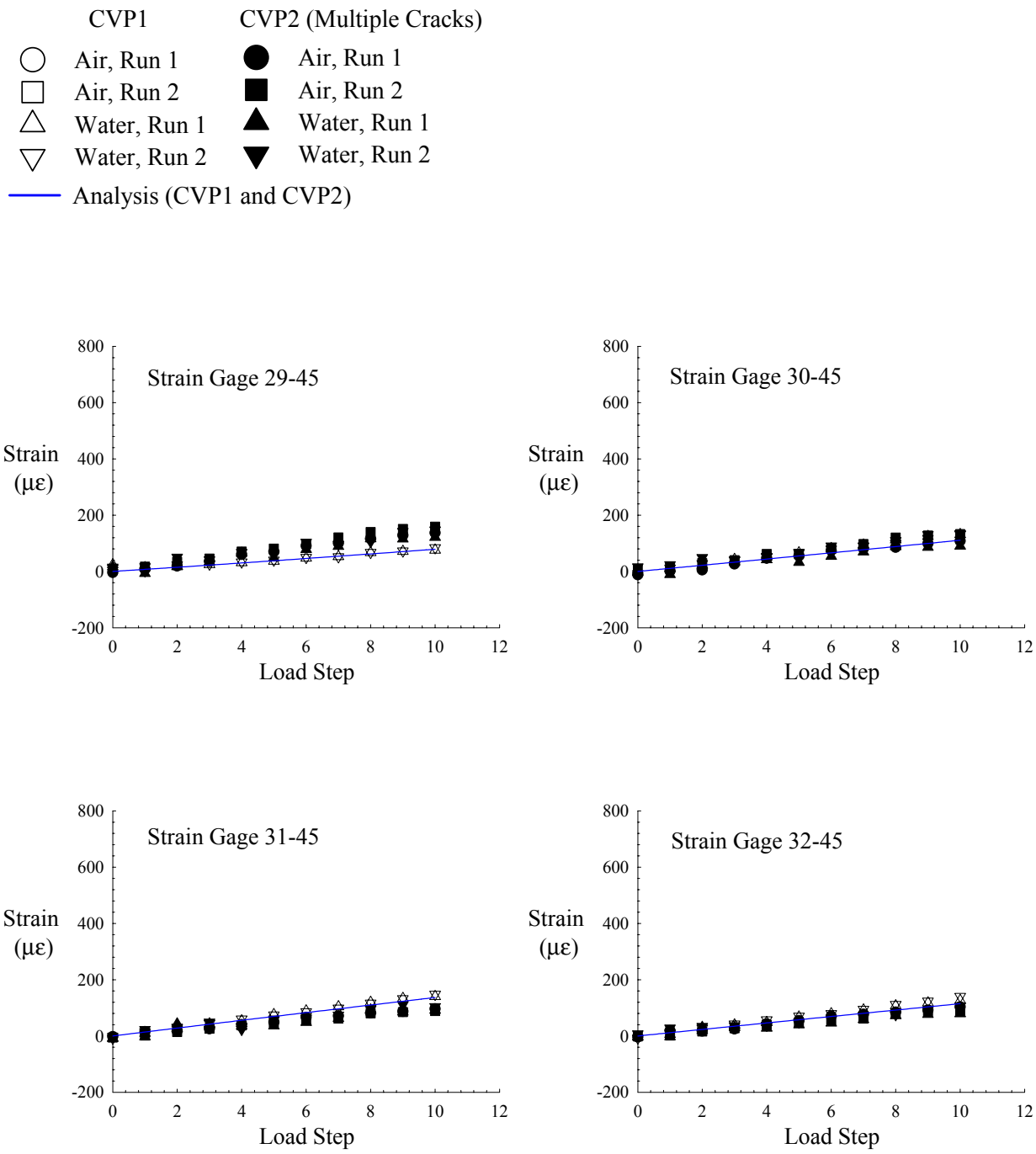
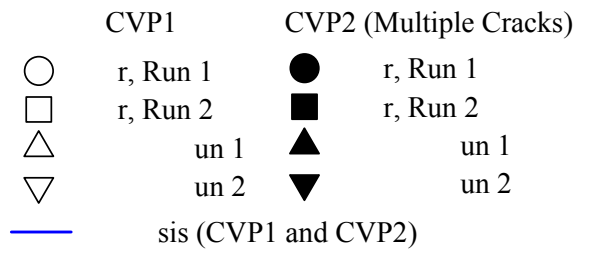
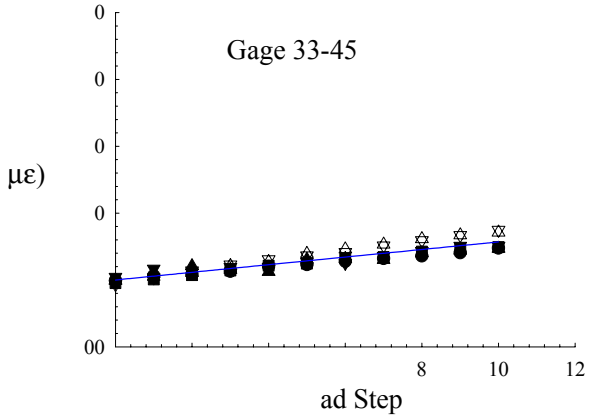
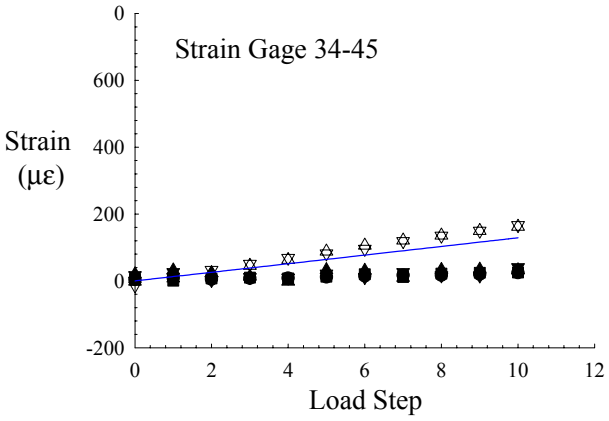


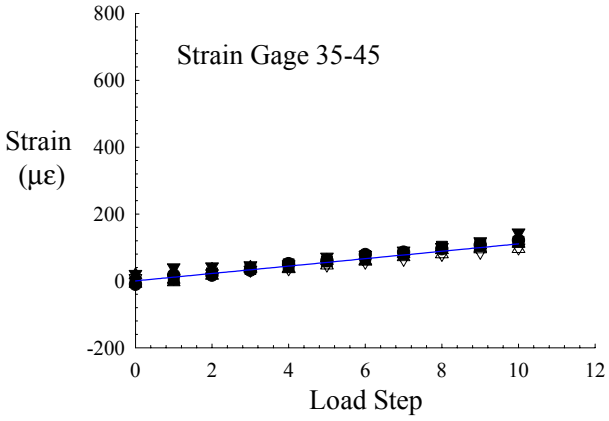

FIGURE D-27. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1b

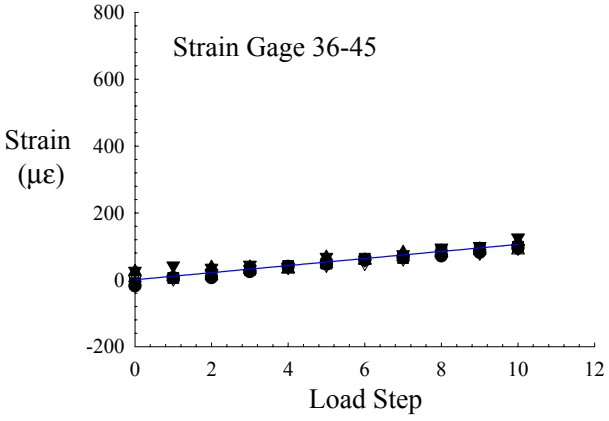
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 psi |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 333.3 lb/in |



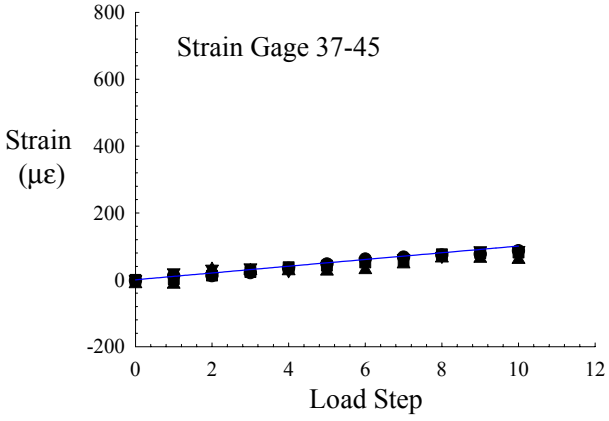




FIGURE D-27. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1b (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |

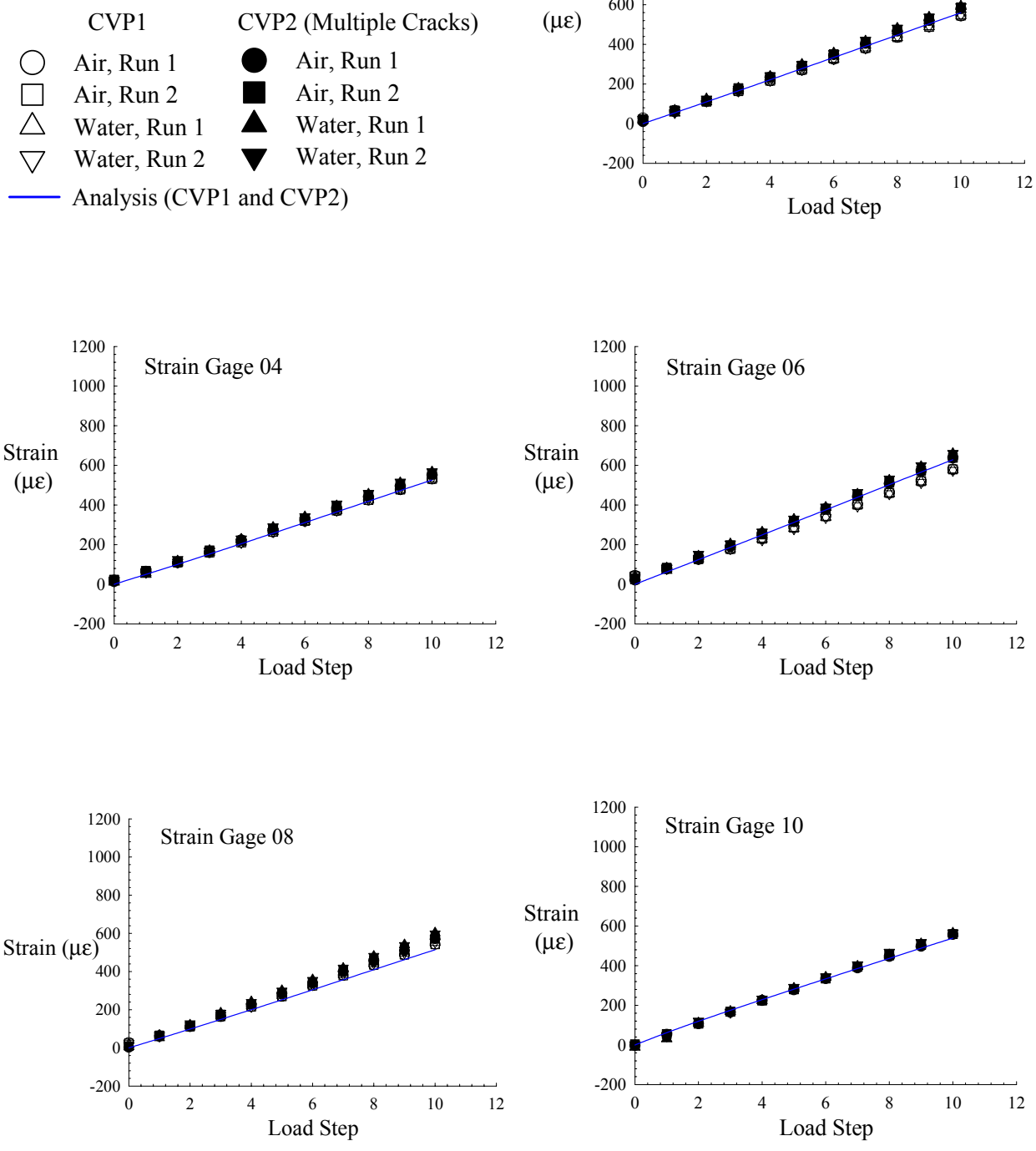
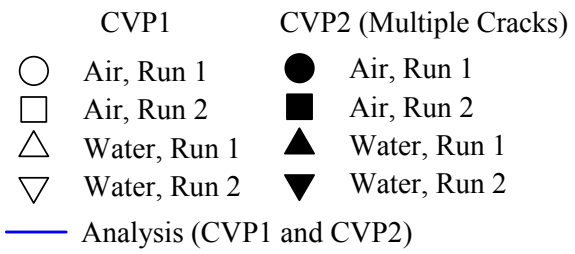
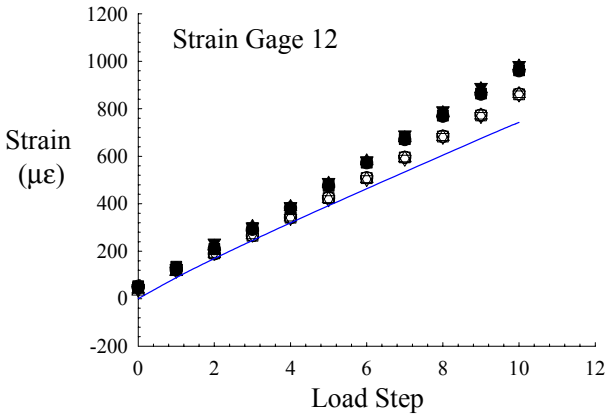
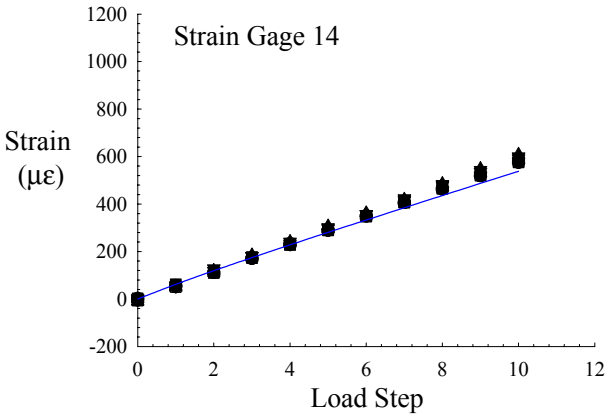


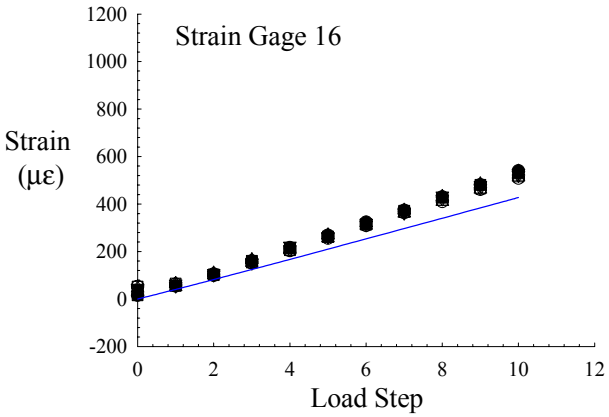

FIGURE D-28. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1c

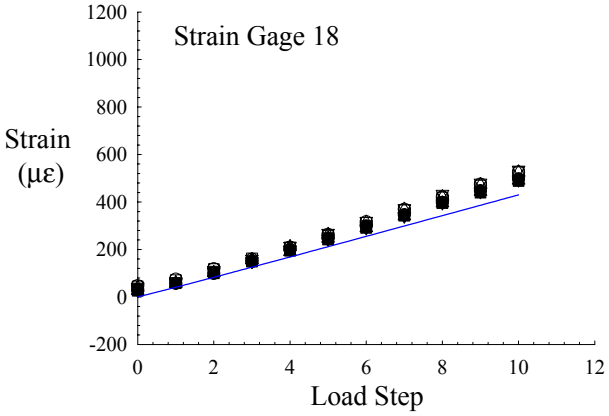
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |



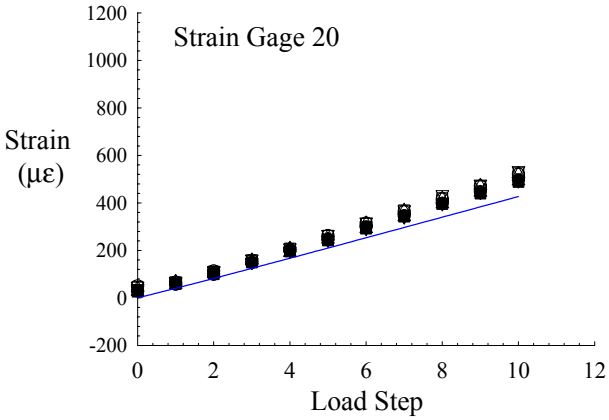
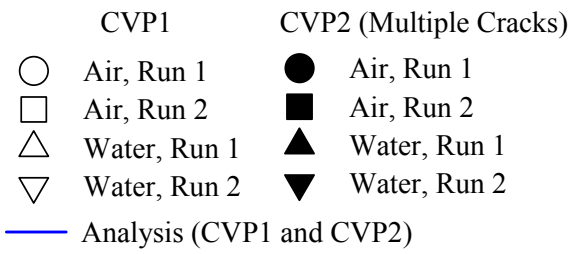
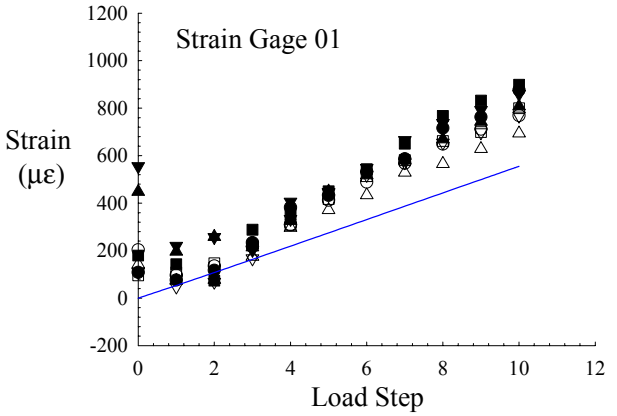
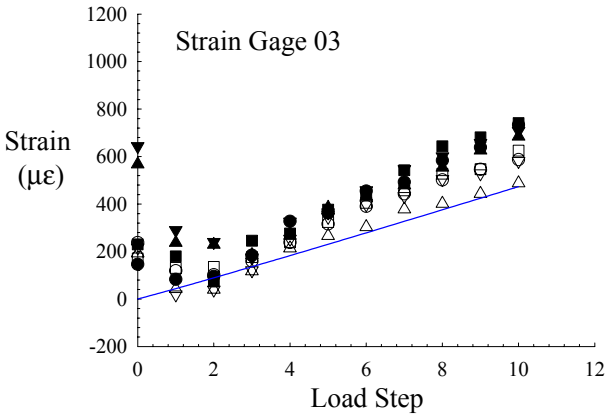



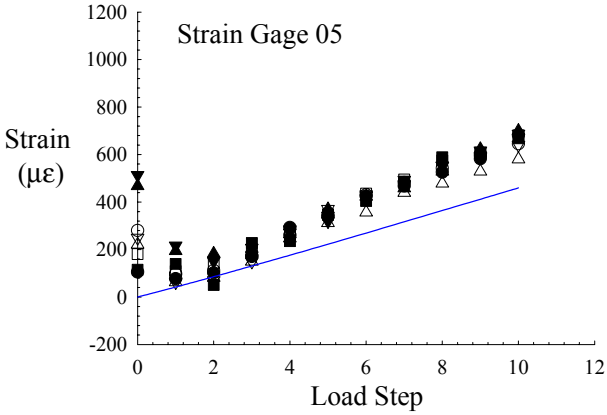

FIGURE D-28. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1c (Continued)

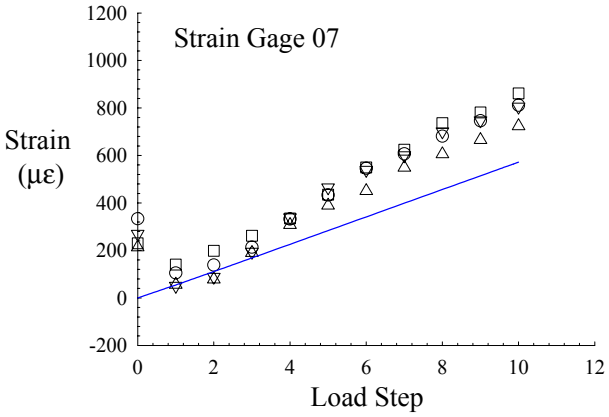
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |



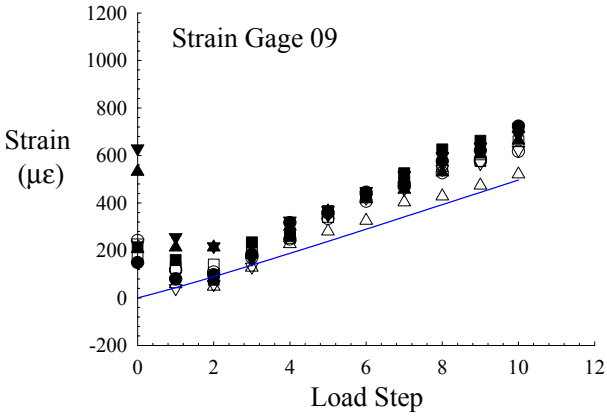
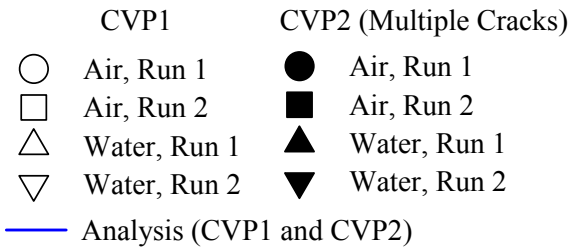
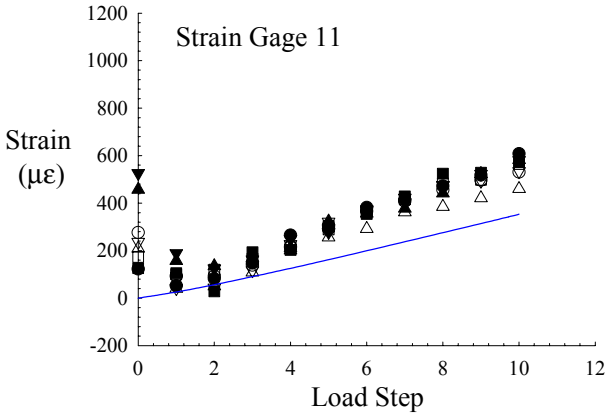
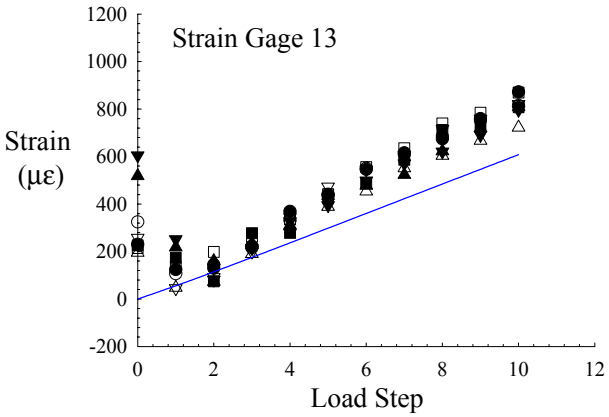



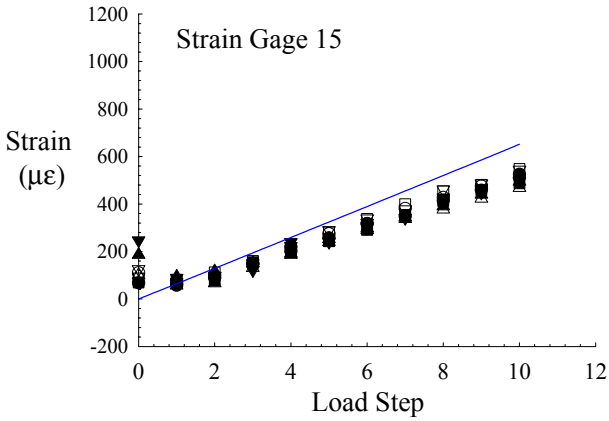

FIGURE D-29. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1c

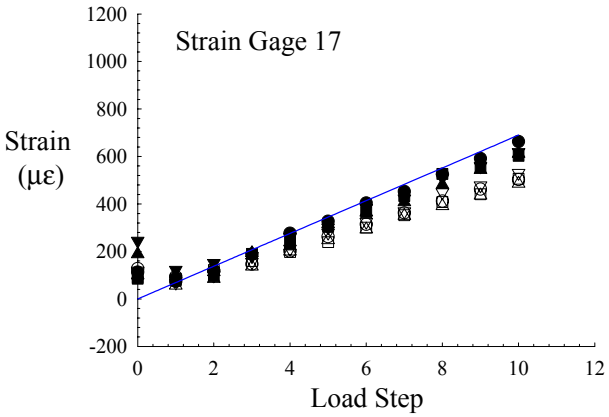
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |



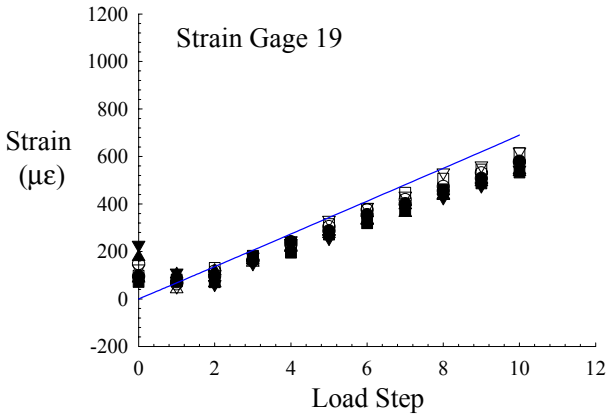




FIGURE D-29. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP1 AND CVP2, LOAD CONDITION 1c (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |

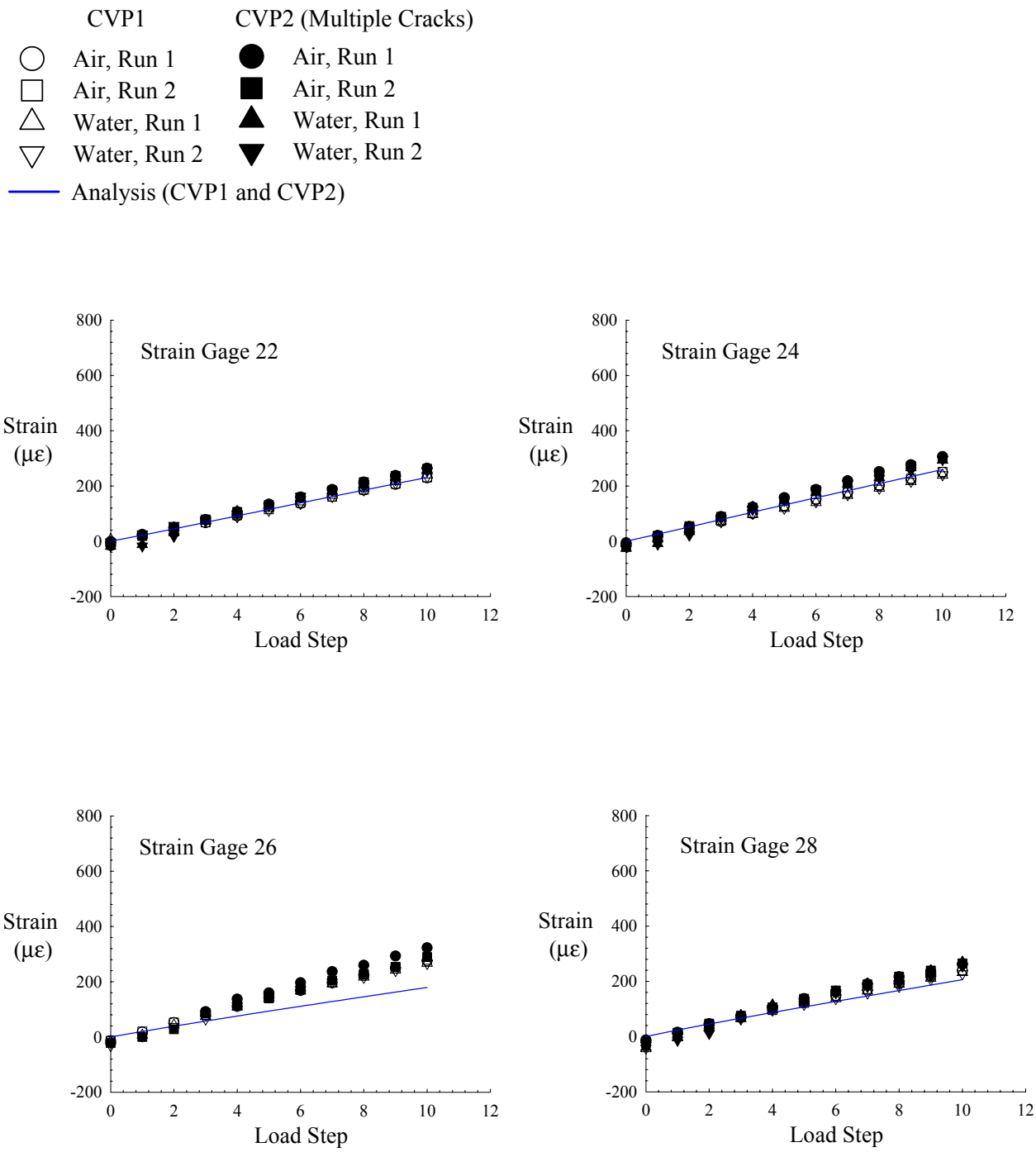



FIGURE D-30. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP1 AND CVP2, LOAD CONDITION 1c

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |

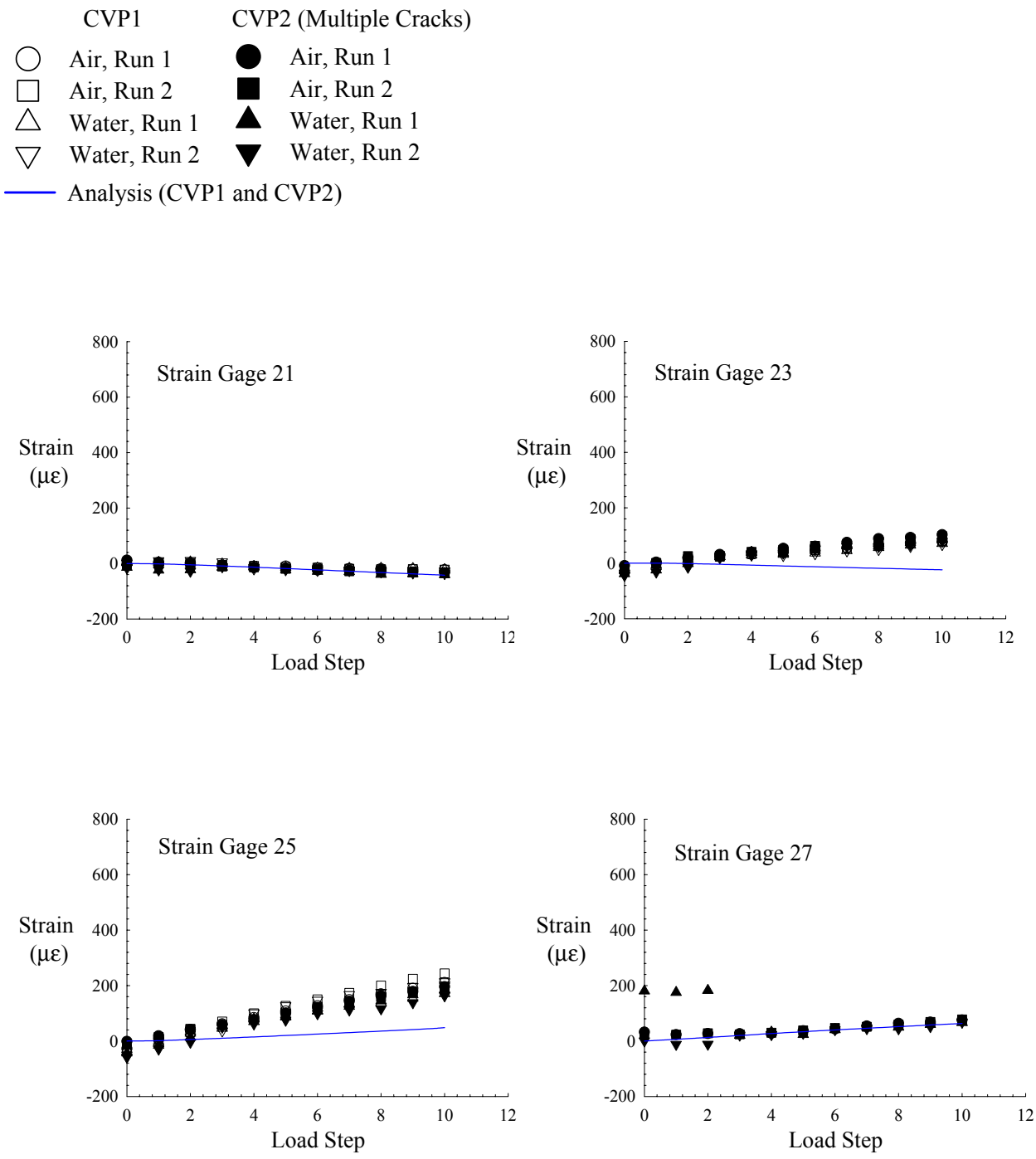



FIGURE D-31. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP1 AND CVP2, LOAD CONDITION 1c

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |

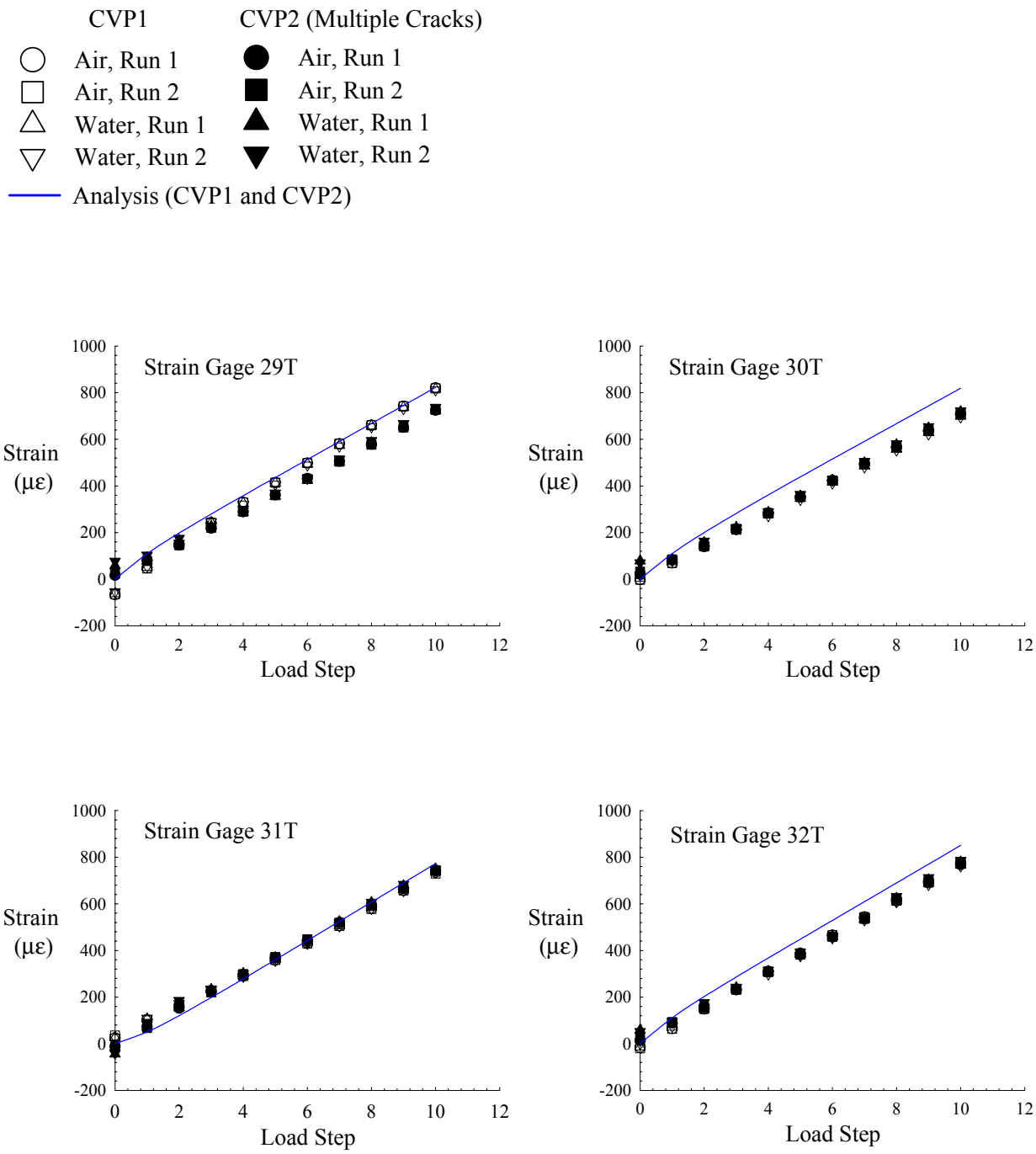
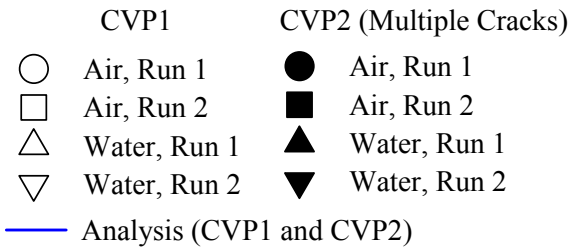
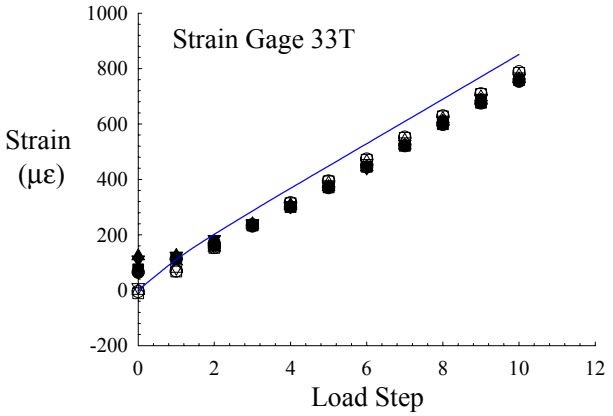
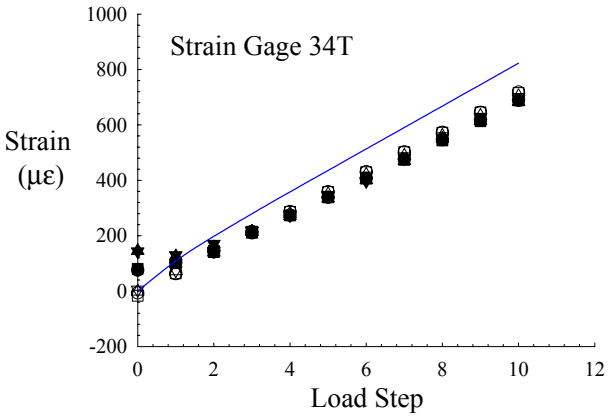


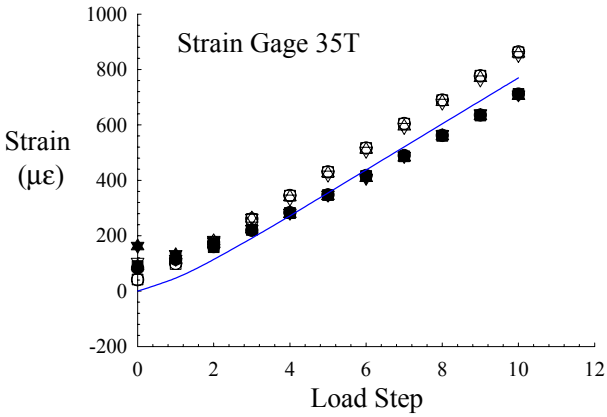

FIGURE D-32. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1c

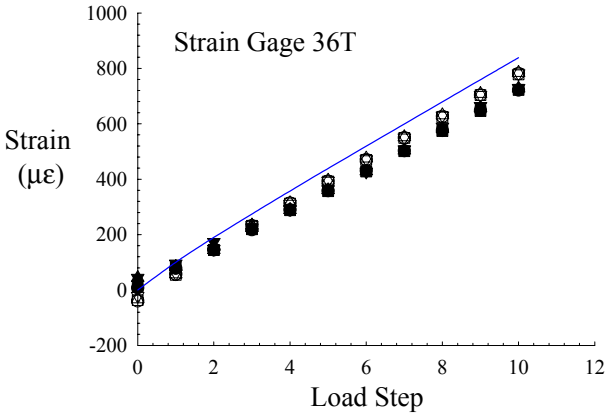
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |



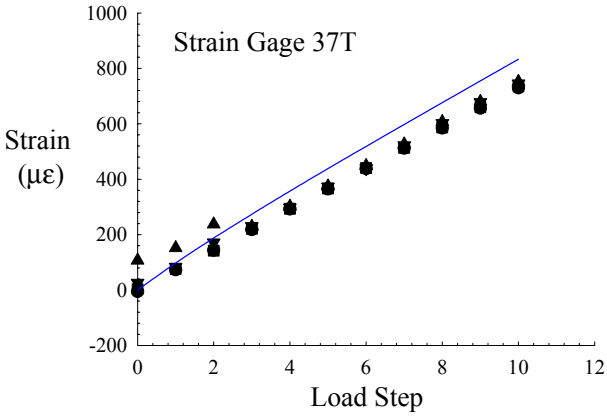




FIGURE D-32. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1c (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |

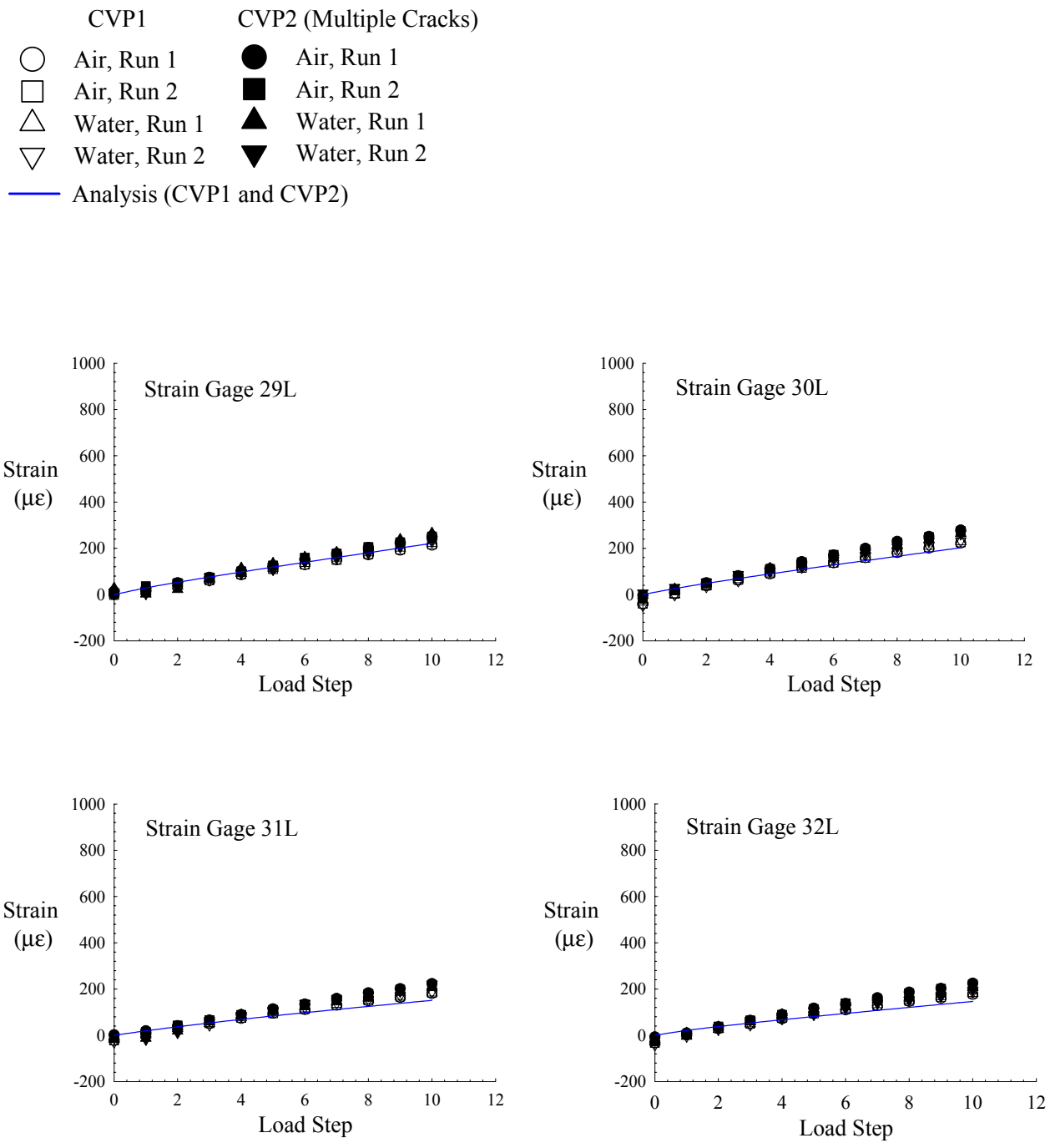
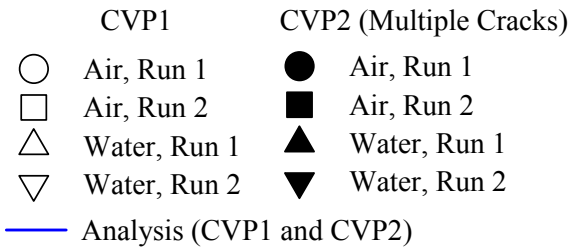
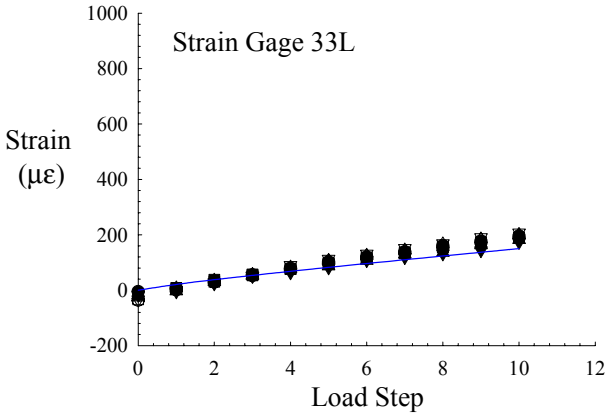
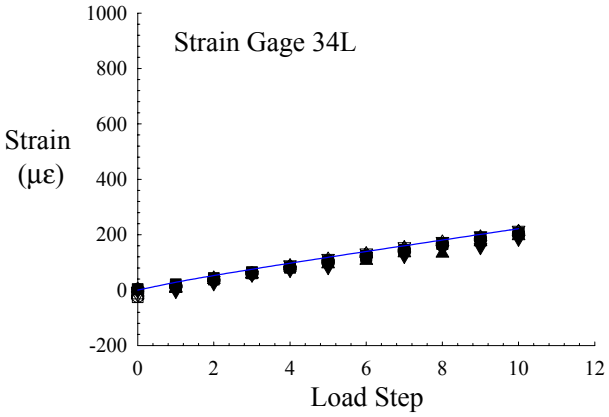


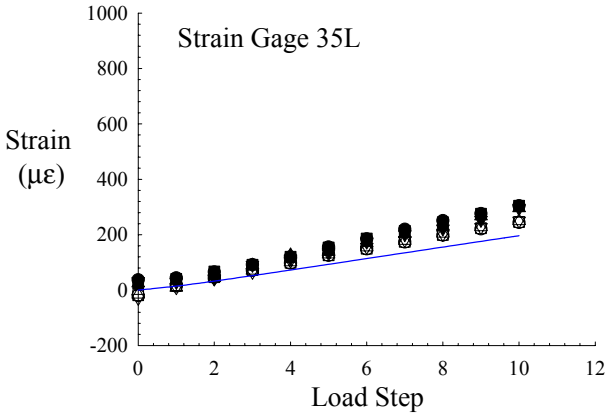

FIGURE D-33. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1c

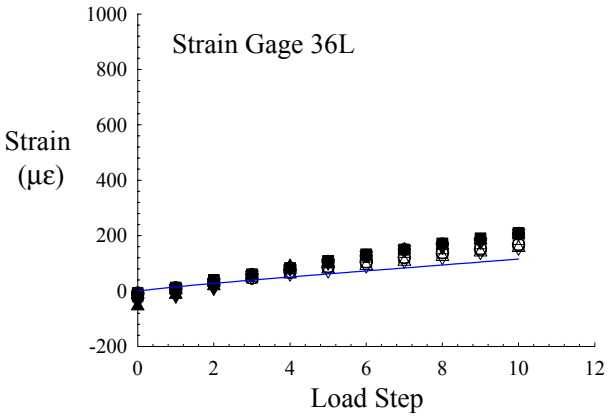
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |



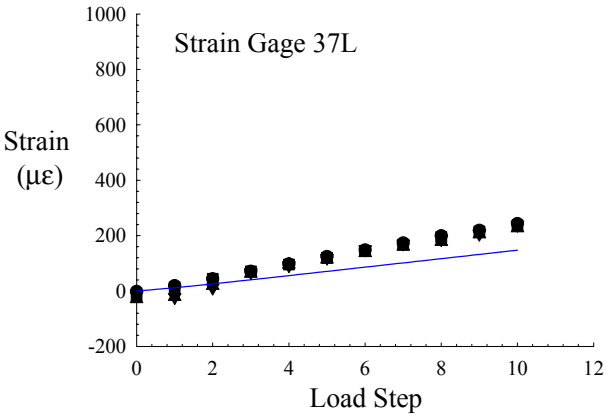




FIGURE D-33. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1c (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |

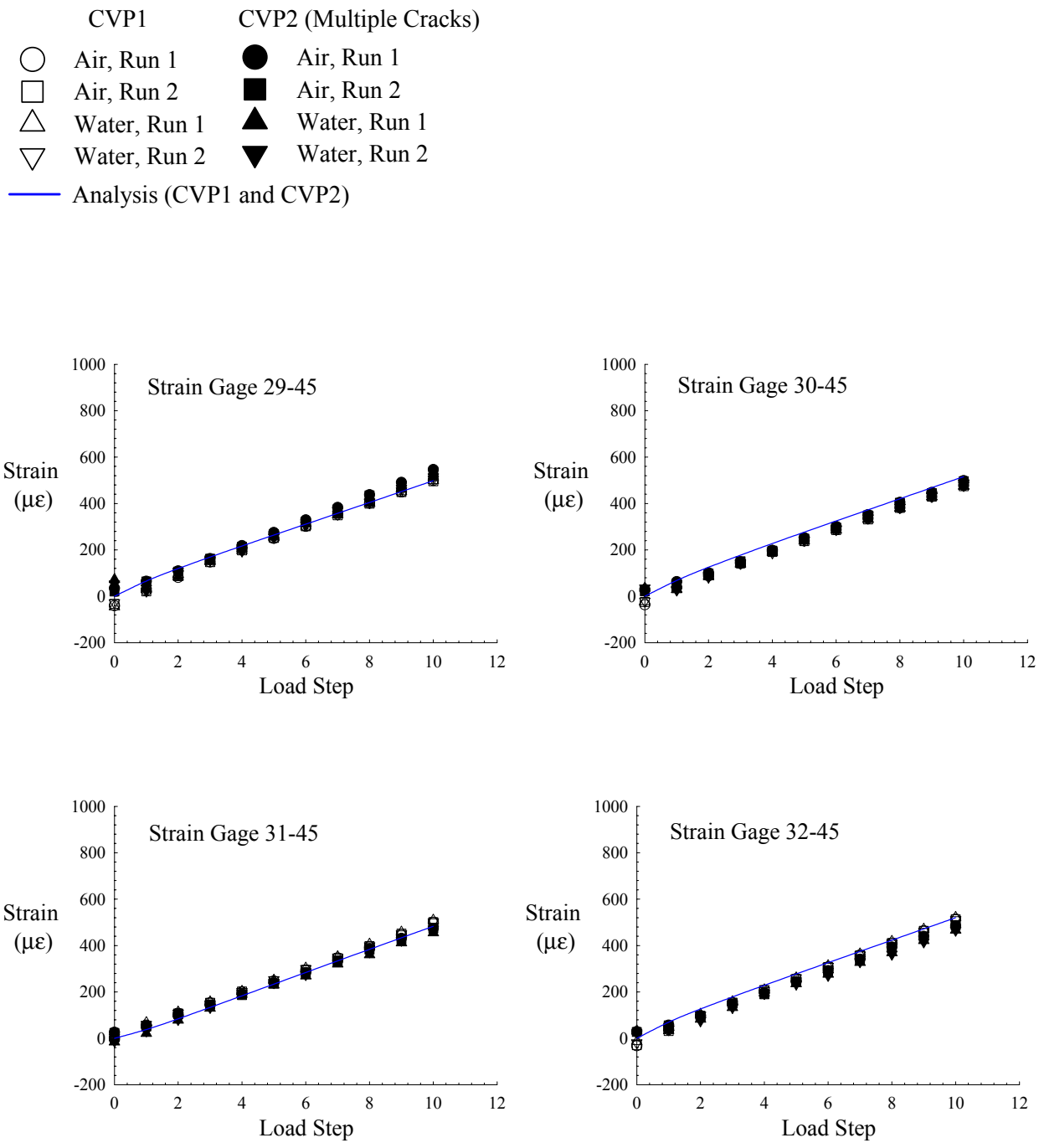
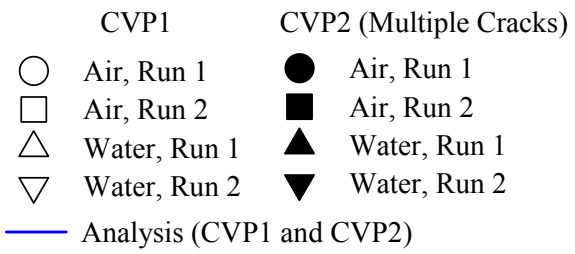
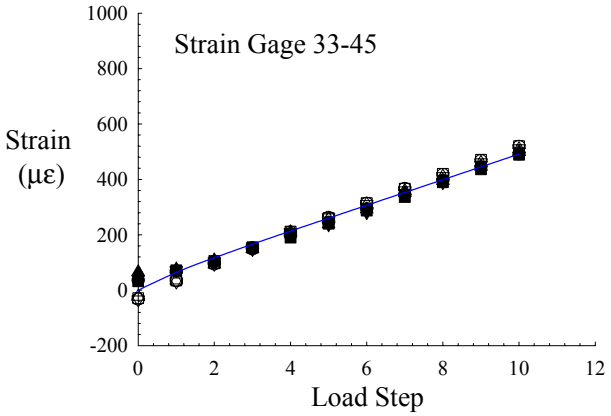
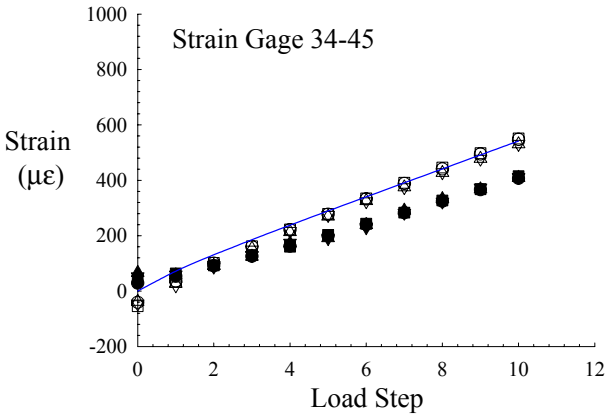


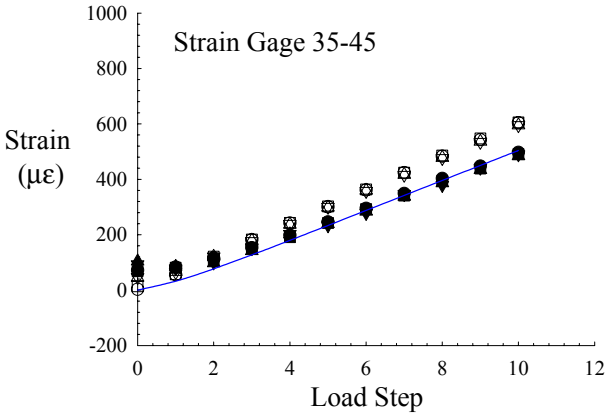

FIGURE D-34. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1c

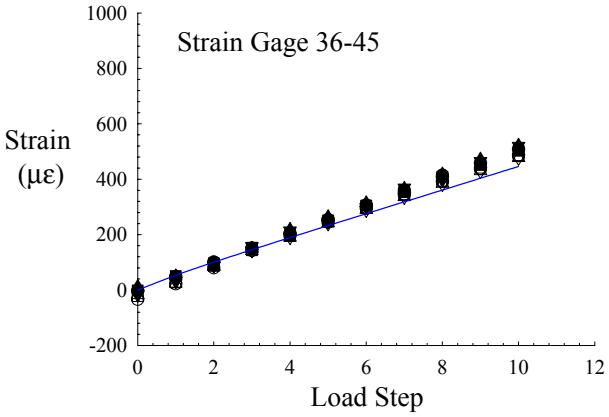
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 10.1 psi |
| Hoop Load | 554.6 lb/in |
| Frame Load | 111.9 lb/in |
| Long. Load | 333.3 lb/in |



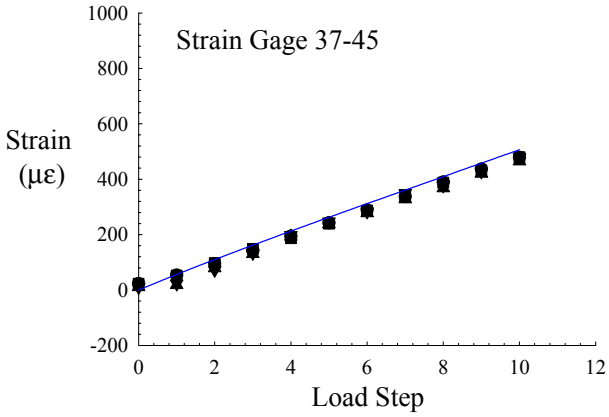




FIGURE D-34. MEASURED AND PREDICTED 45° STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP1 AND CVP2, LOAD CONDITION 1c (Continued)

| Load Cond. 1a | Max. |
|---|---|
| Pressur | 8.8 |
| Hoop Load | 483.2 |
| Frame | 97.6 |
| Long. Load | 0 |

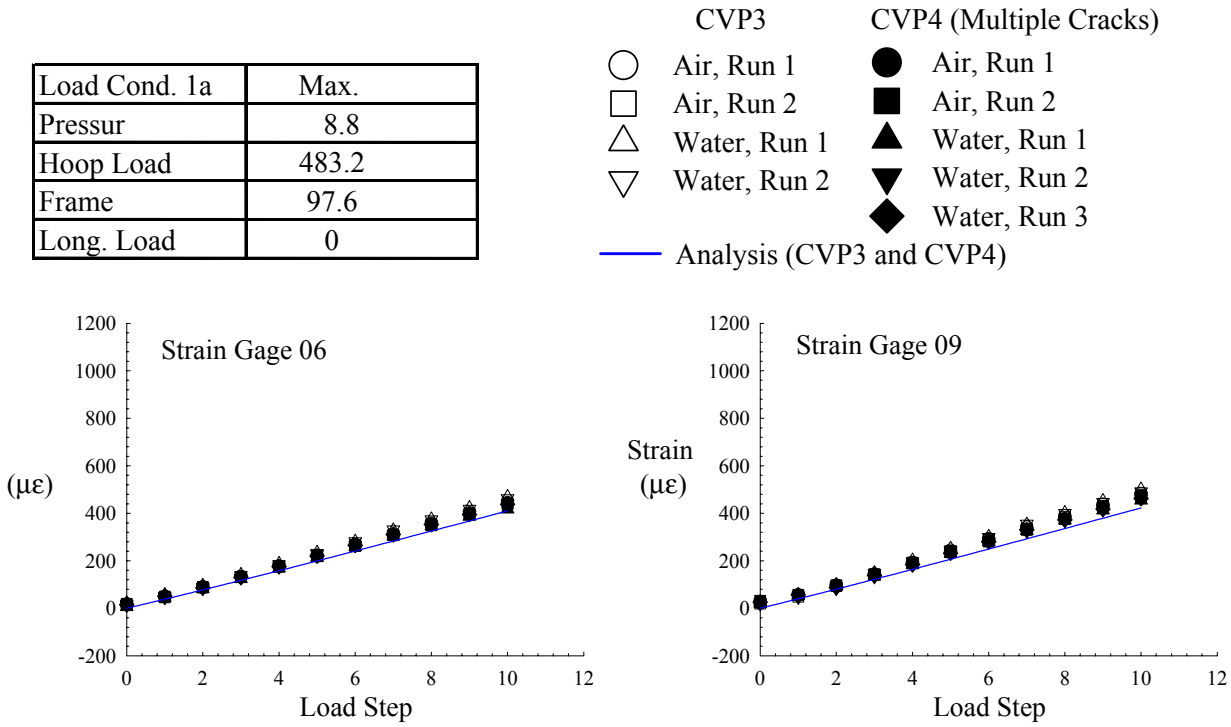



FIGURE D-35. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1a

| Load Cond. 1a | Max. |
|---|---|
| Pressur | 8.8 |
| Hoop Load | 483.2 |
| Frame | 97.6 |
| Long. Load | 0 |

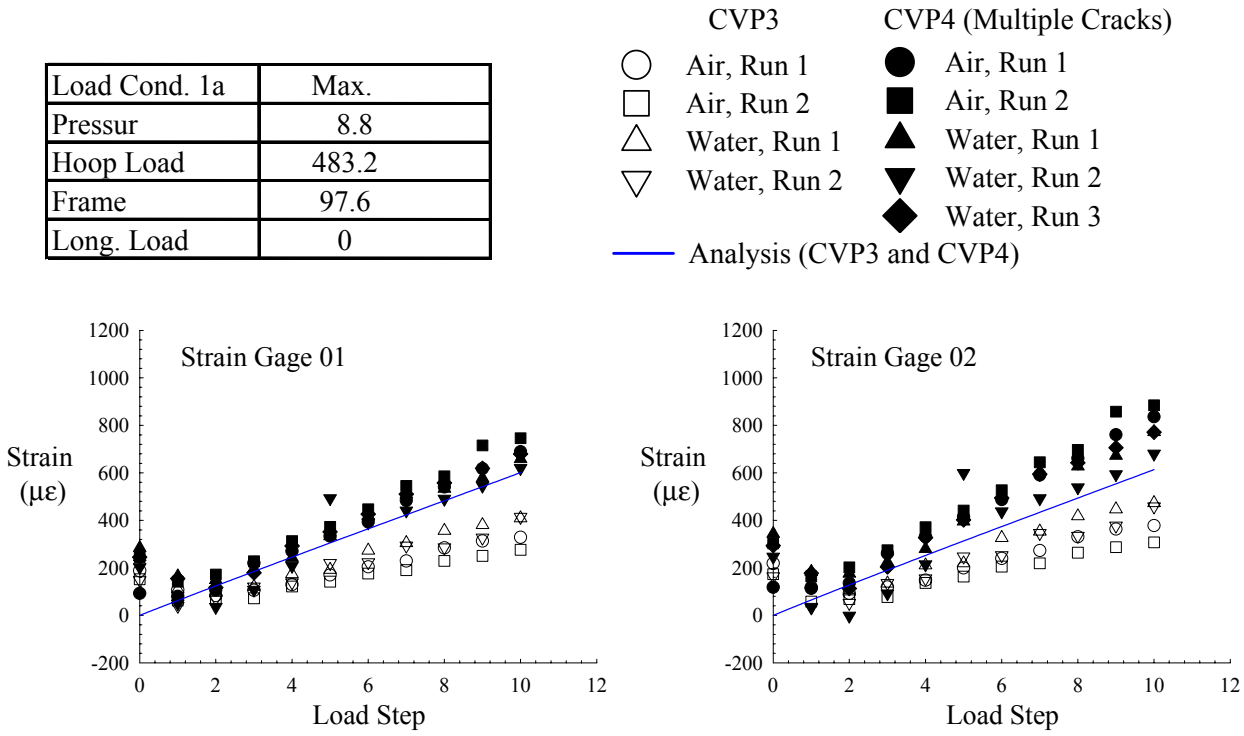
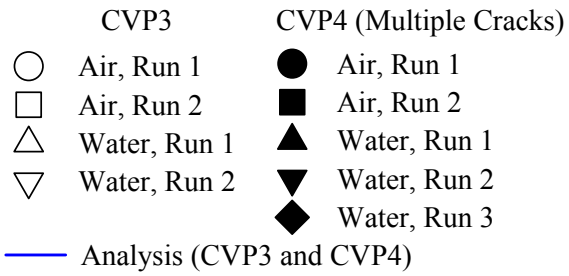
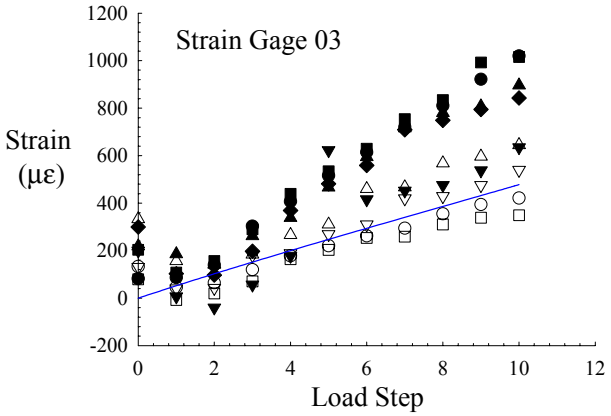
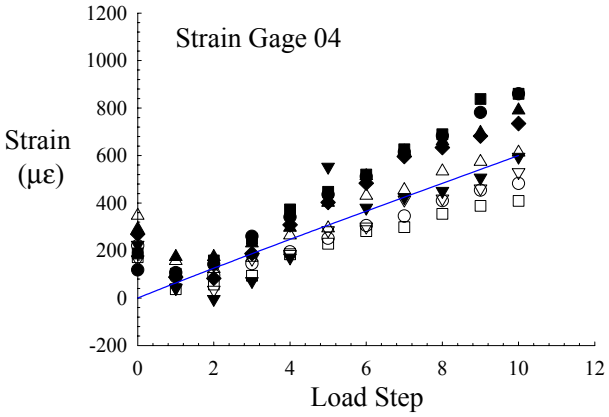


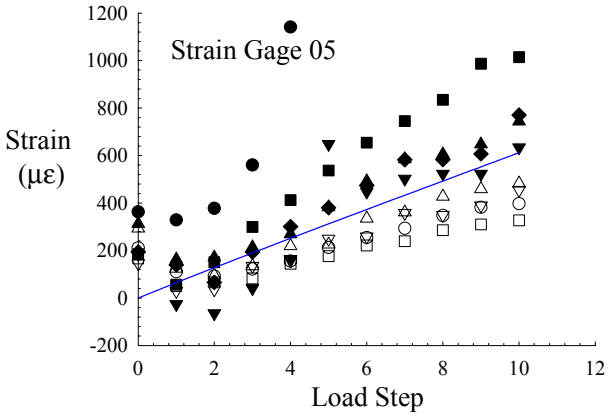

FIGURE D-36. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1a

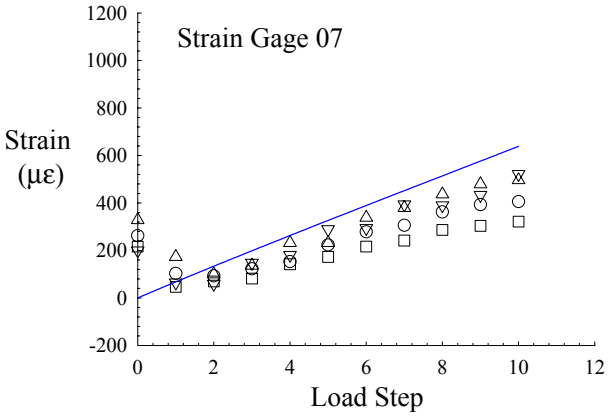
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |



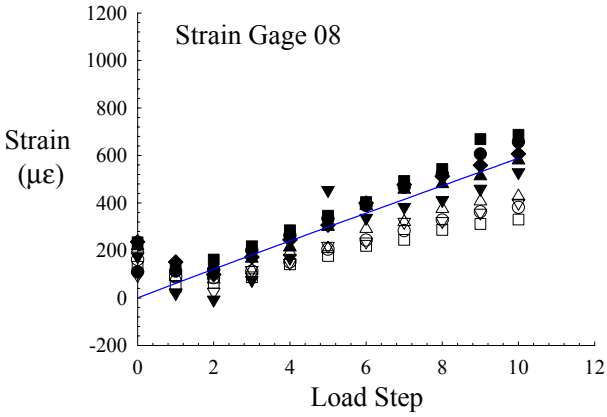
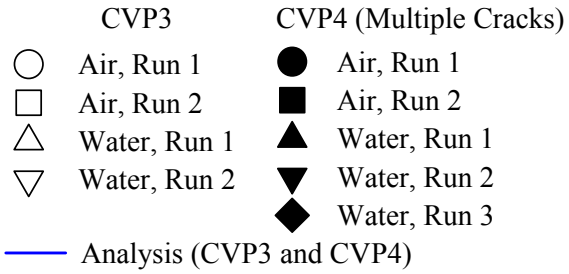
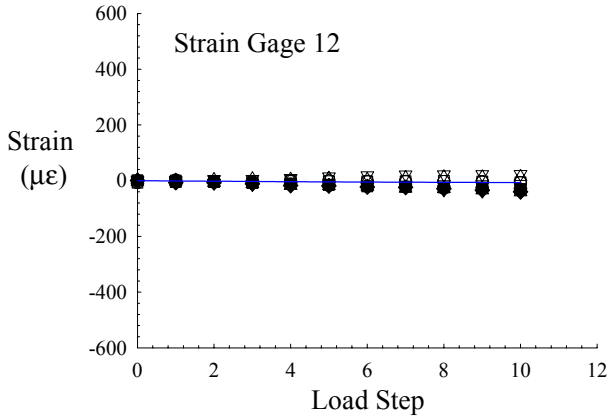
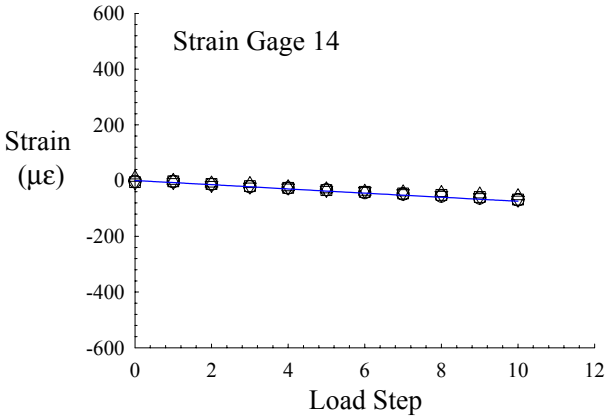



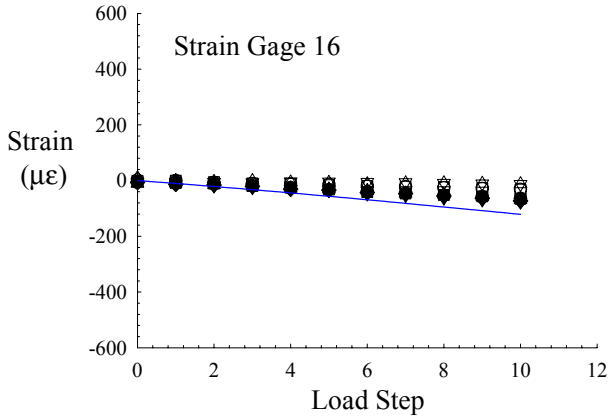

FIGURE D-36. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1a (Continued)

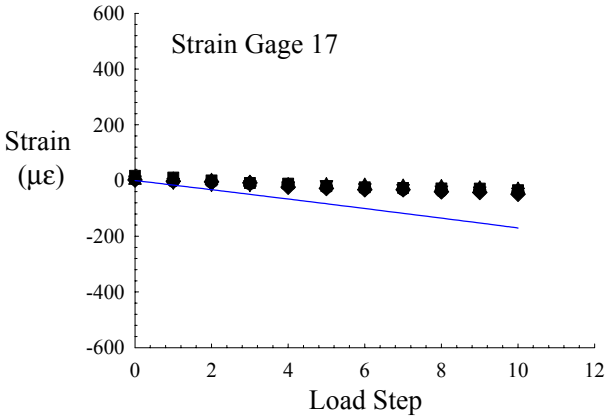
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |



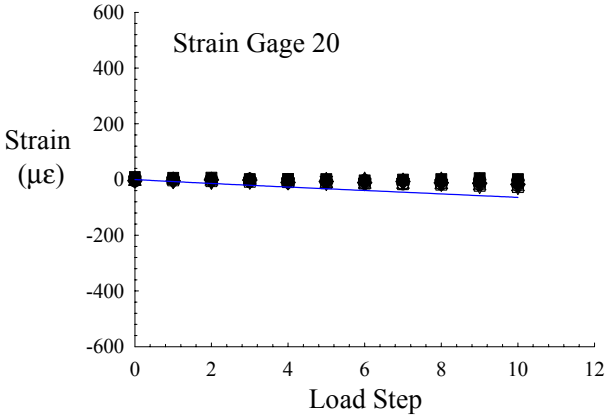
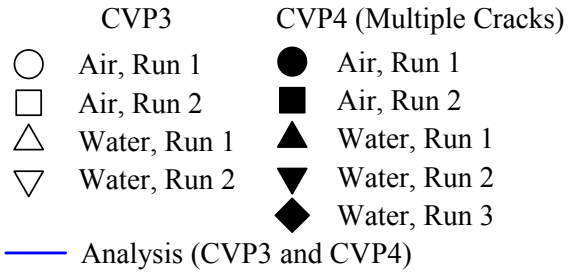
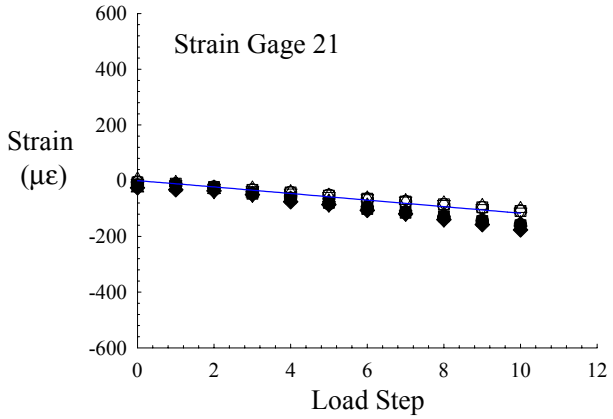
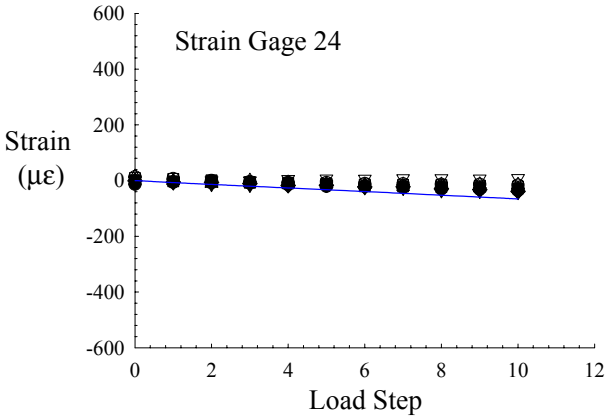



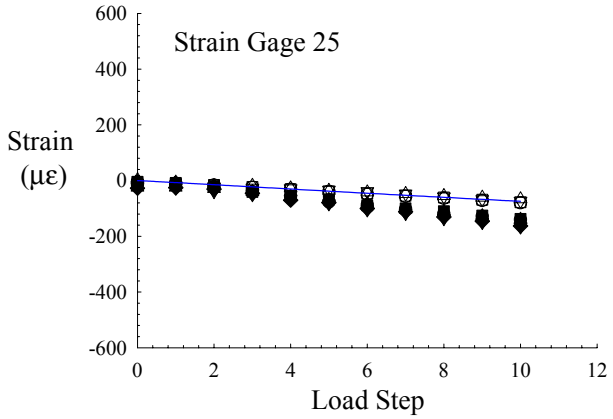

FIGURE D-37. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP3 AND CVP4, LOAD CONDITION 1a

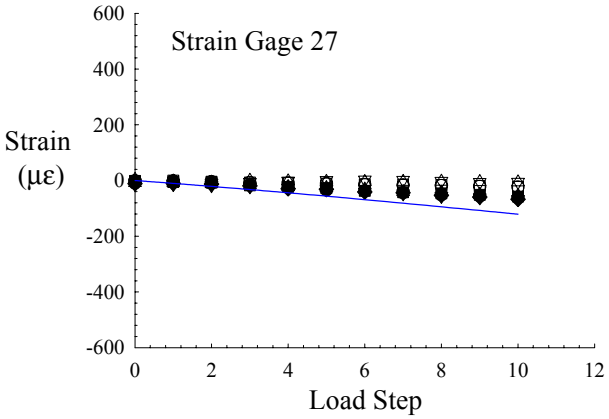
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |



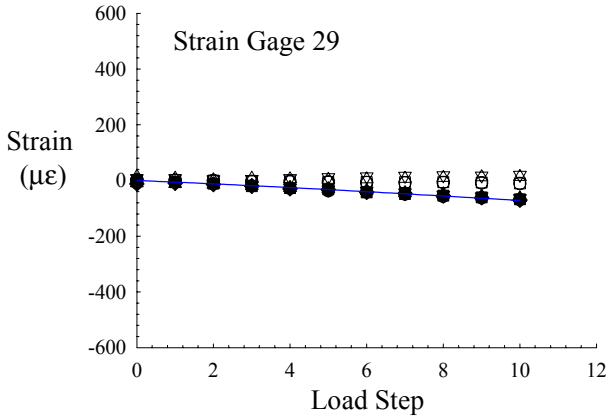




FIGURE D-37. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP3 AND CVP4, LOAD CONDITION 1a (Continued)

| Load Cond. 1a | Max. |
|---|---|
| Pressur | 8.8 |
| Hoop Load | 483.2 |
| Frame | 97.6 |
| Long. Load | 0 |

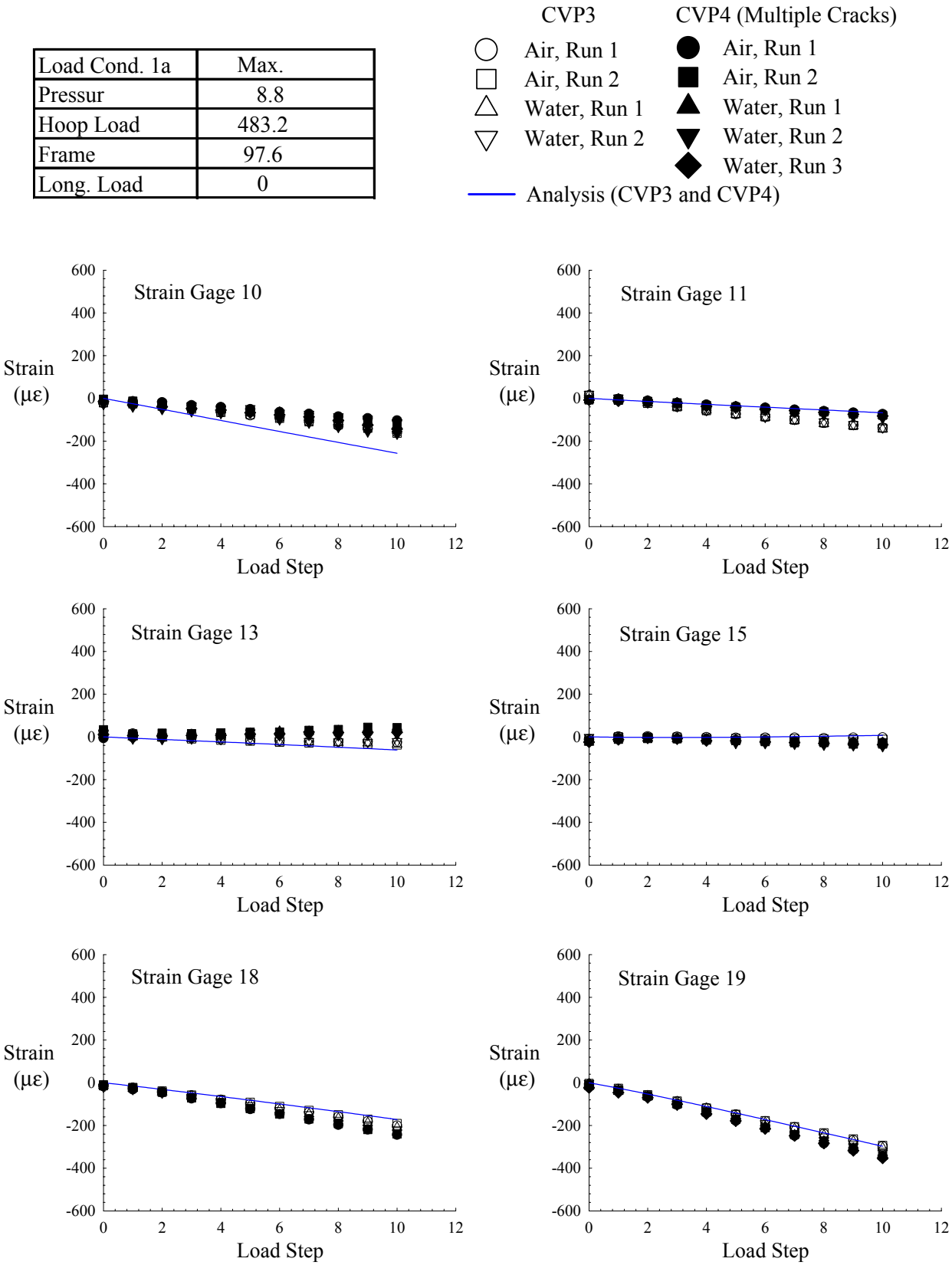



FIGURE D-38. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP3 AND CVP4, LOAD CONDITION 1a

| Load Cond. 1a | Max. |
|---|---|
| Pressur | 8.8 |
| Hoop Load | 483.2 |
| Frame | 97.6 |
| Long. Load | 0 |

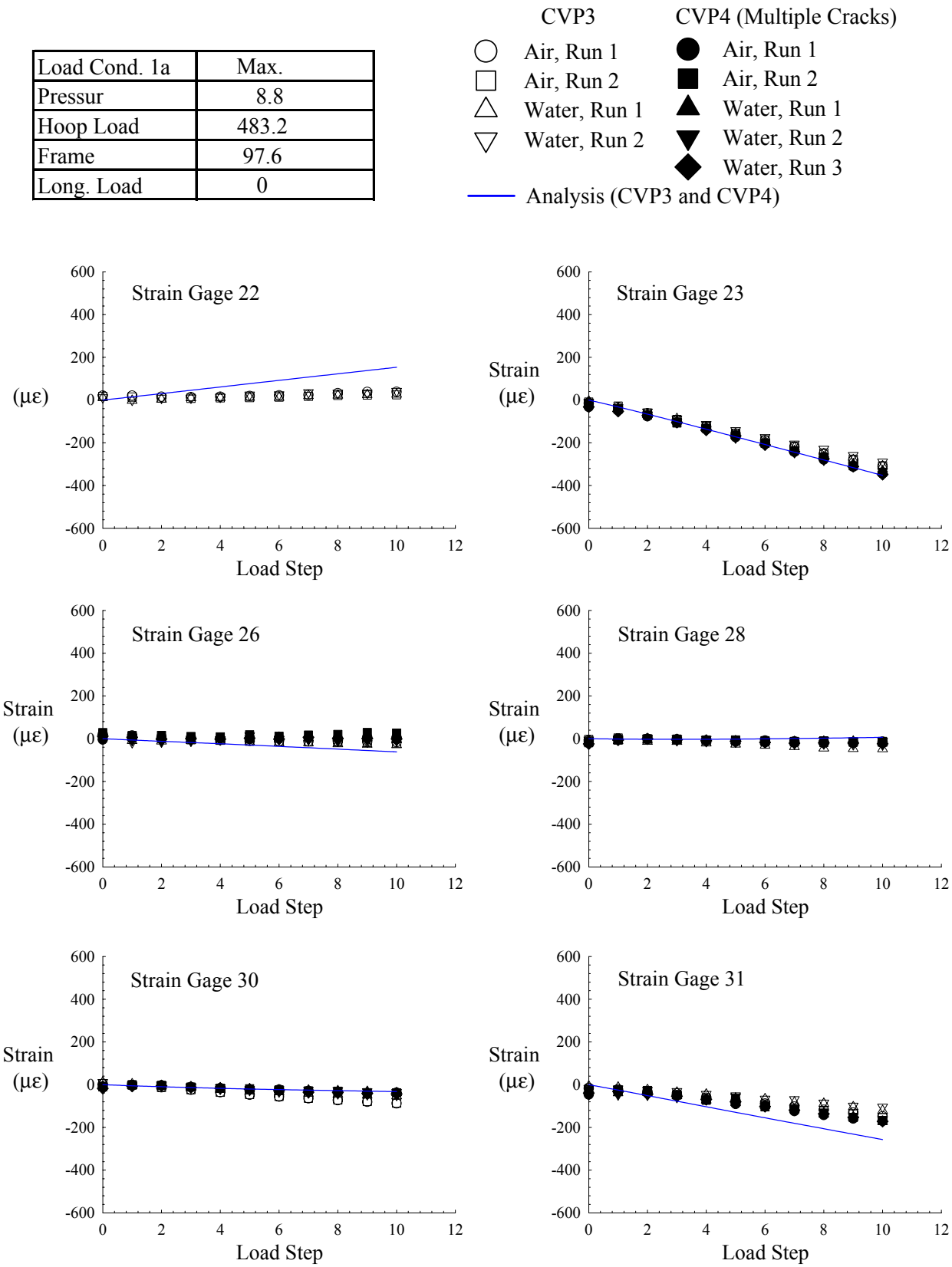



FIGURE D-38. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP3 AND CVP4, LOAD CONDITION 1a (Continued)

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |

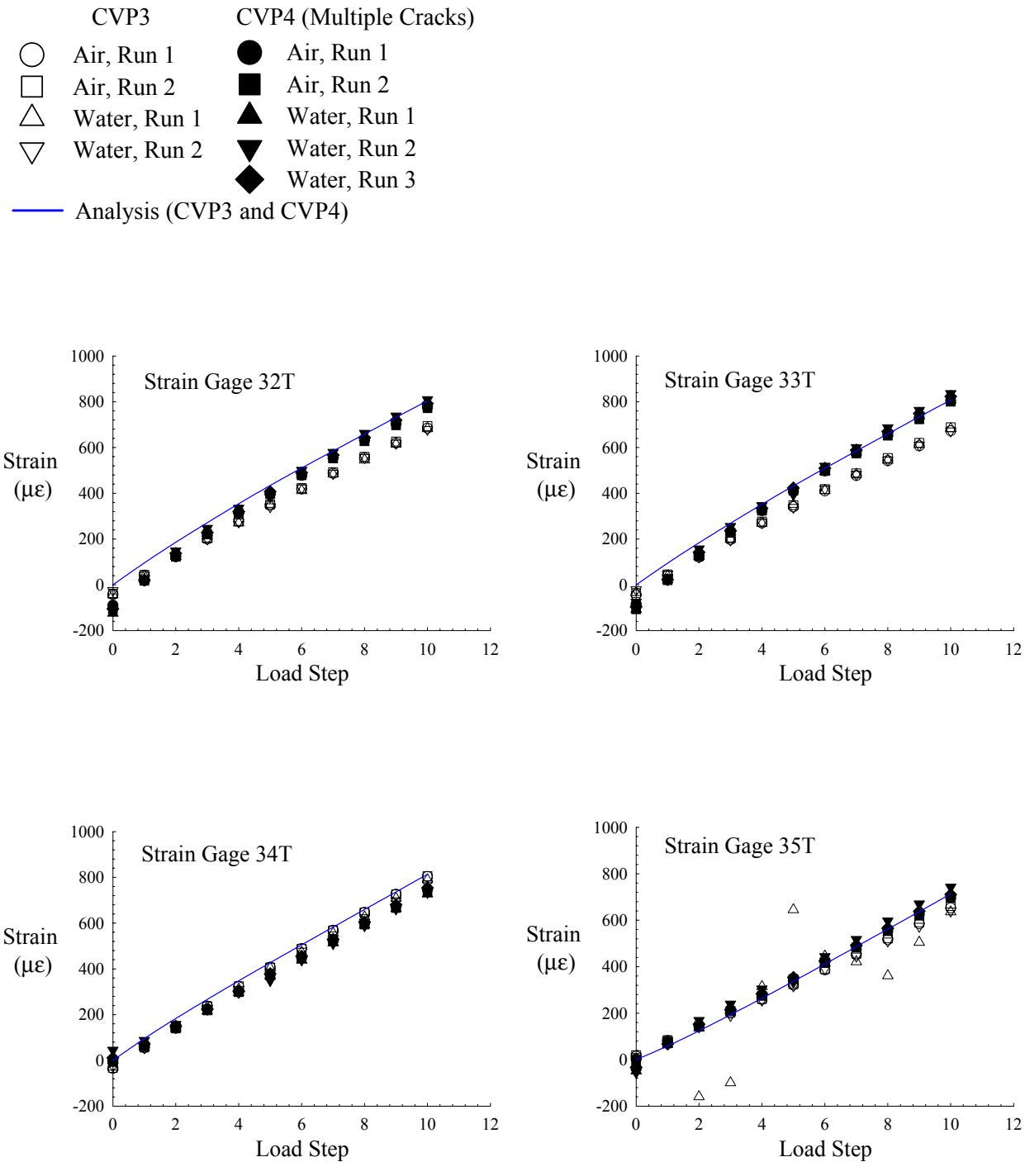
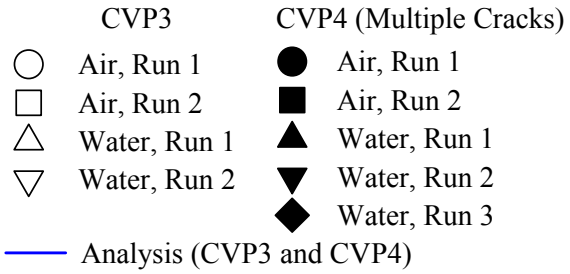
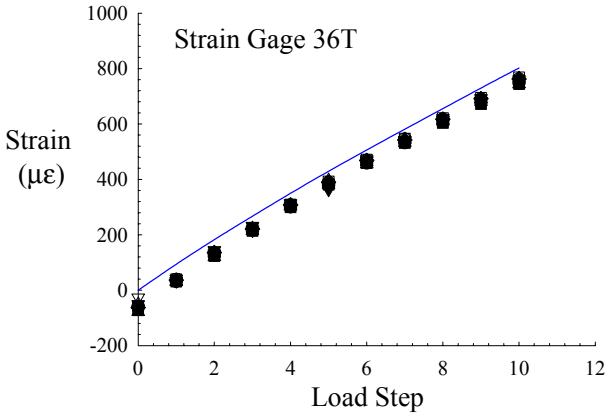
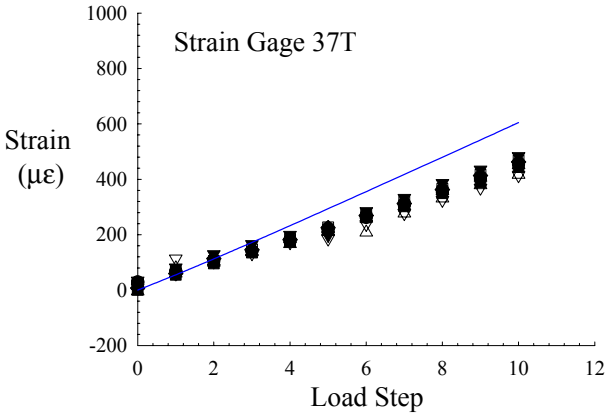


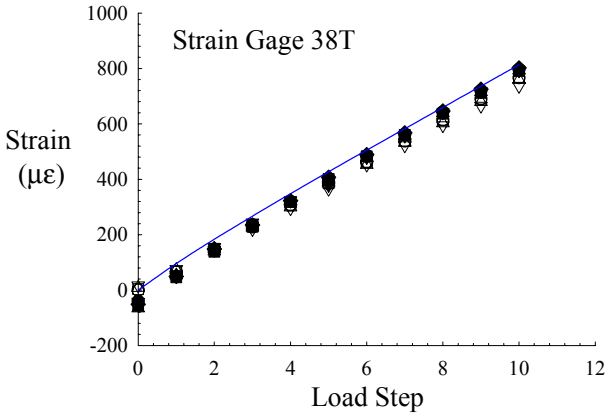

FIGURE D-39. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1a

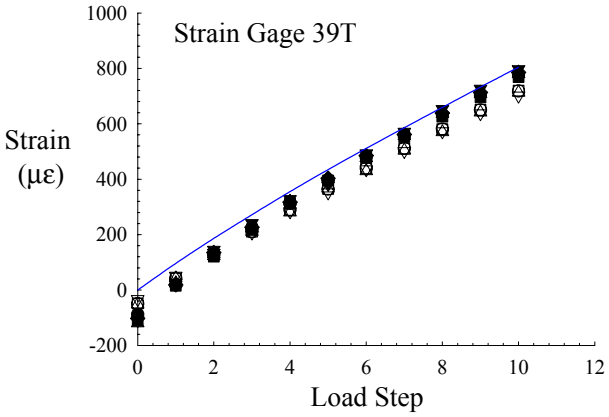
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |



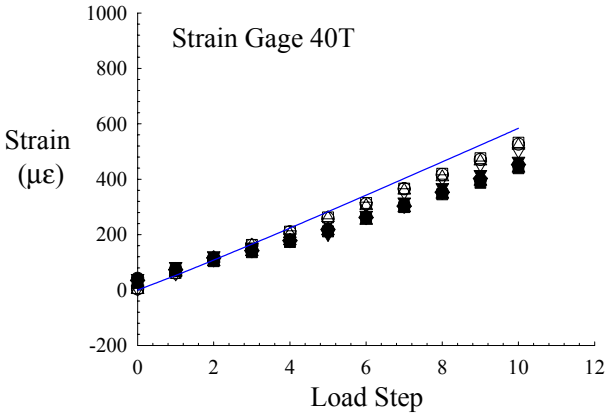




FIGURE D-39. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1a (Continued)

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |

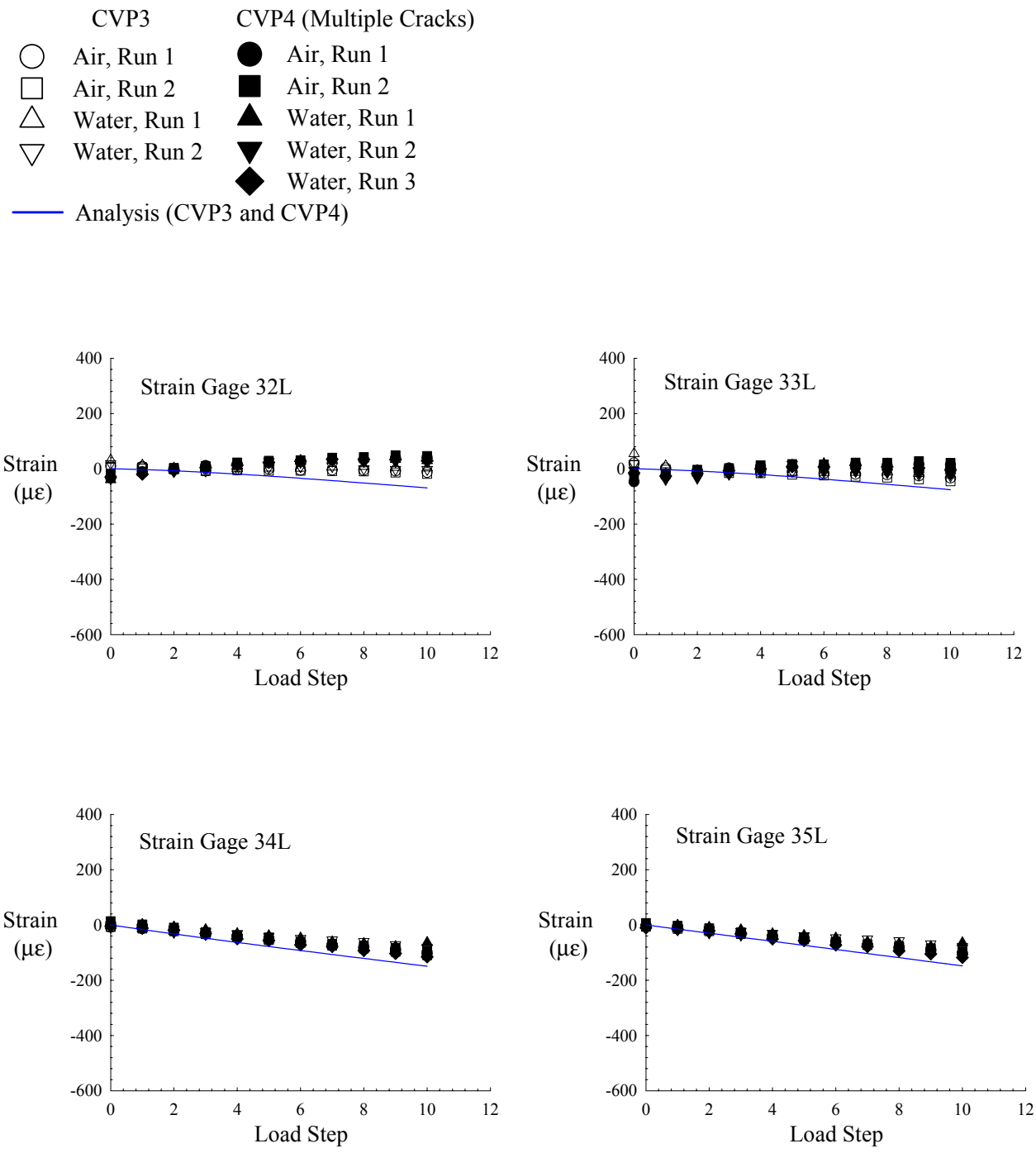
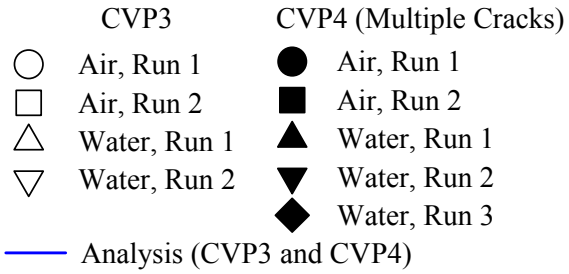
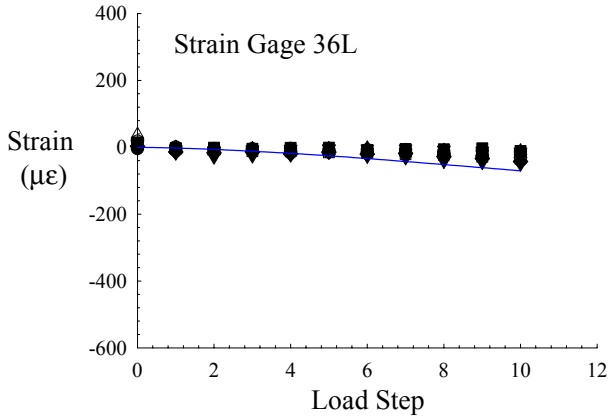
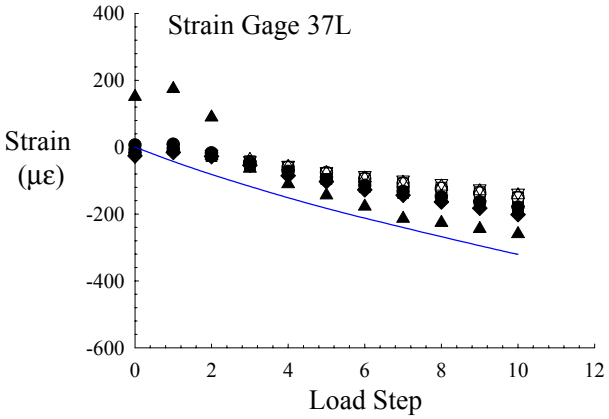


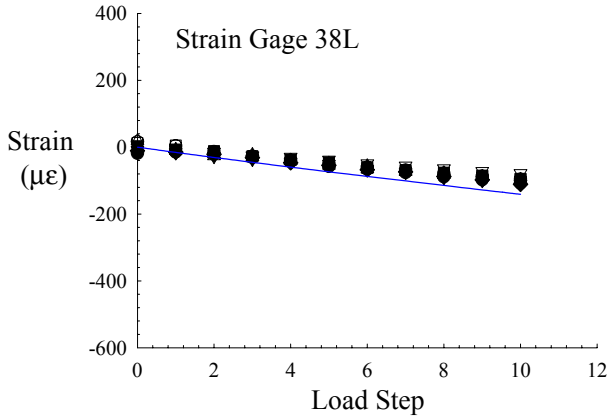

FIGURE D-40. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1a

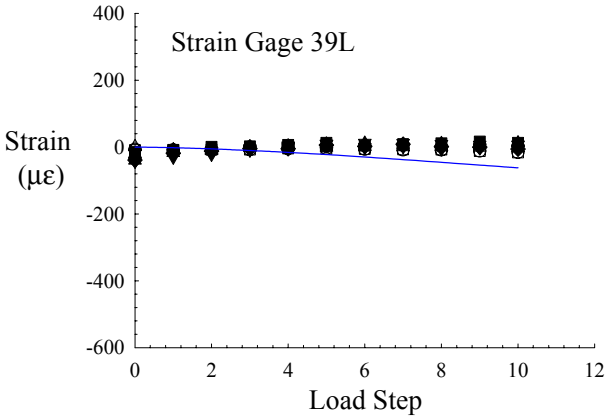
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |



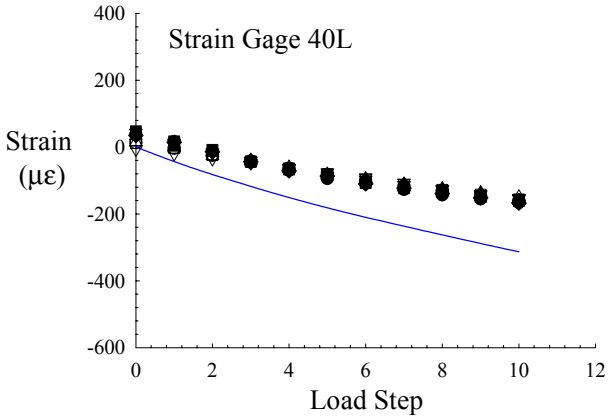




FIGURE D-40. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1a (Continued)

| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |

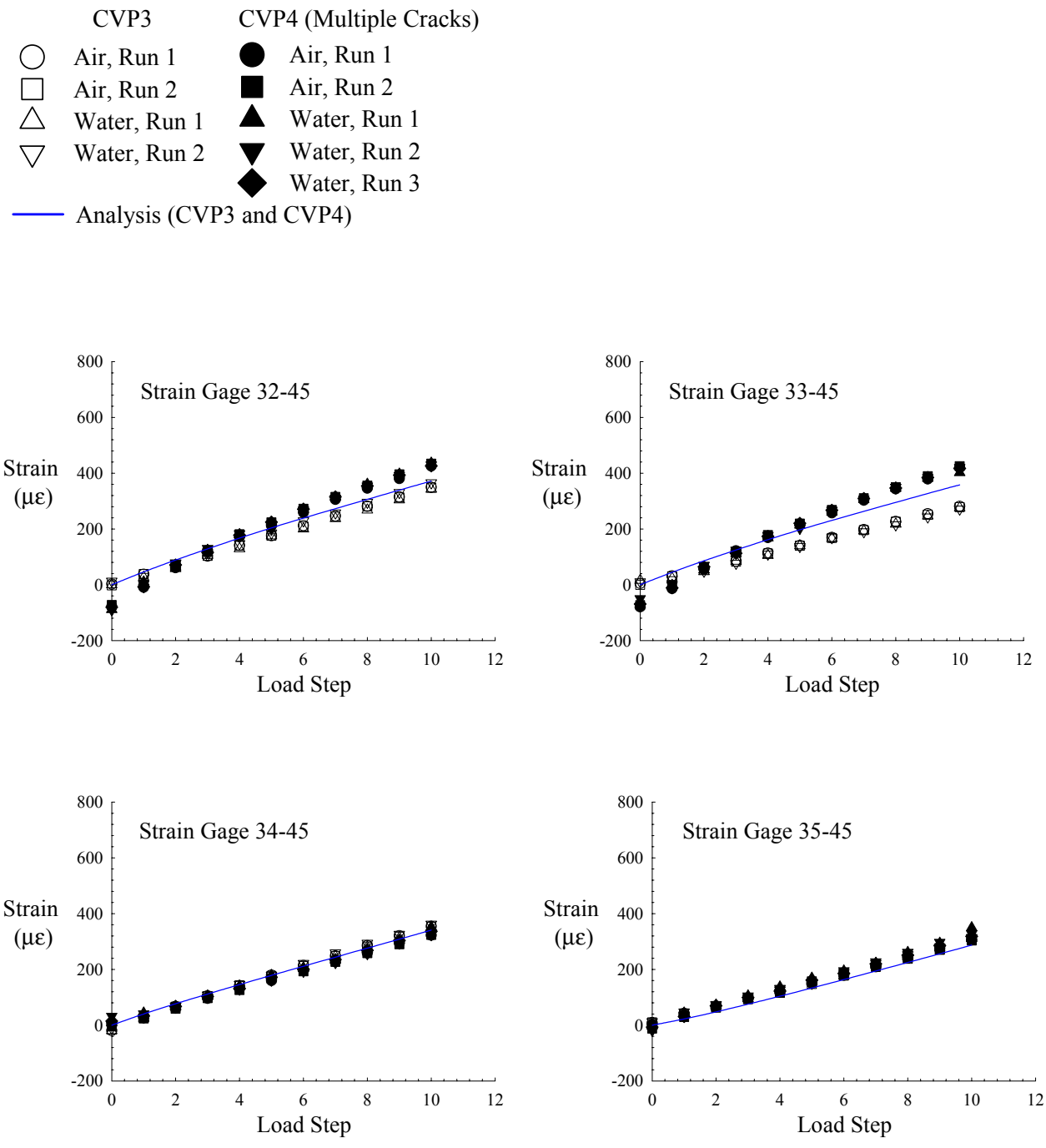
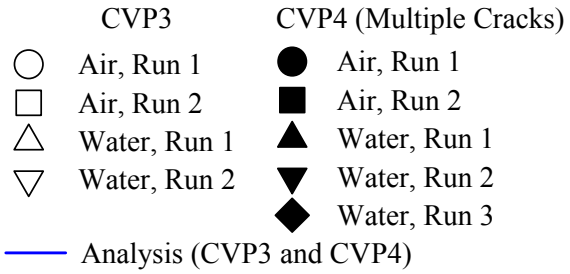
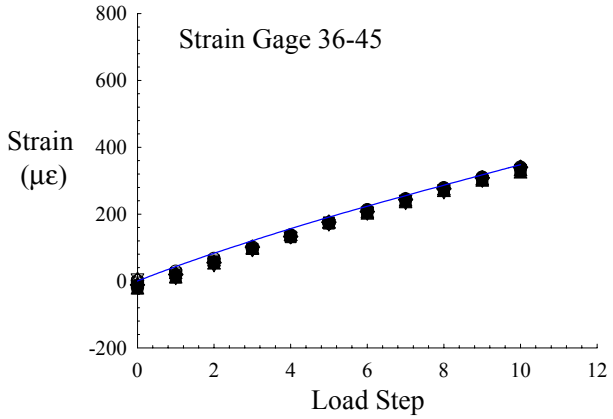
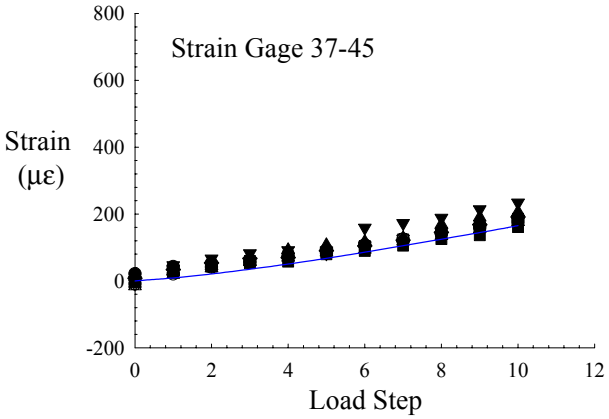


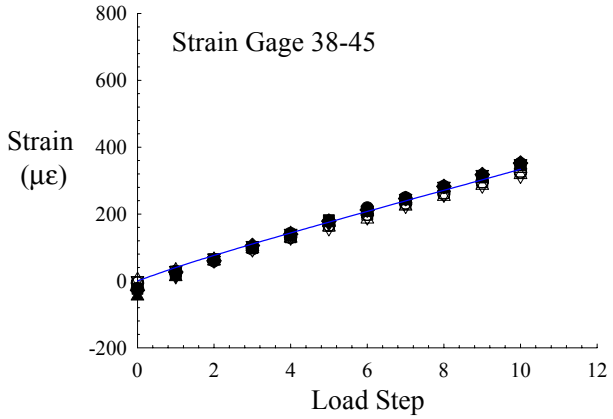

FIGURE D-41. MEASURED AND PREDICTED 45° STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1a

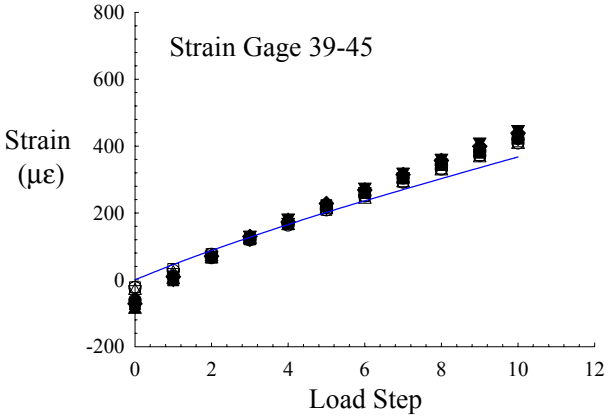
| Load Cond. 1a | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 0 lb/in |



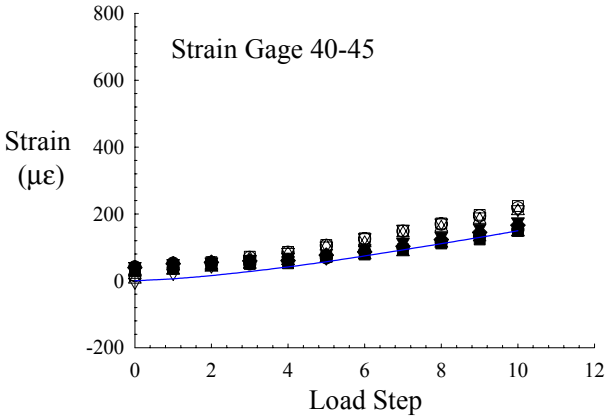




FIGURE D-41. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1a (Continued)

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |

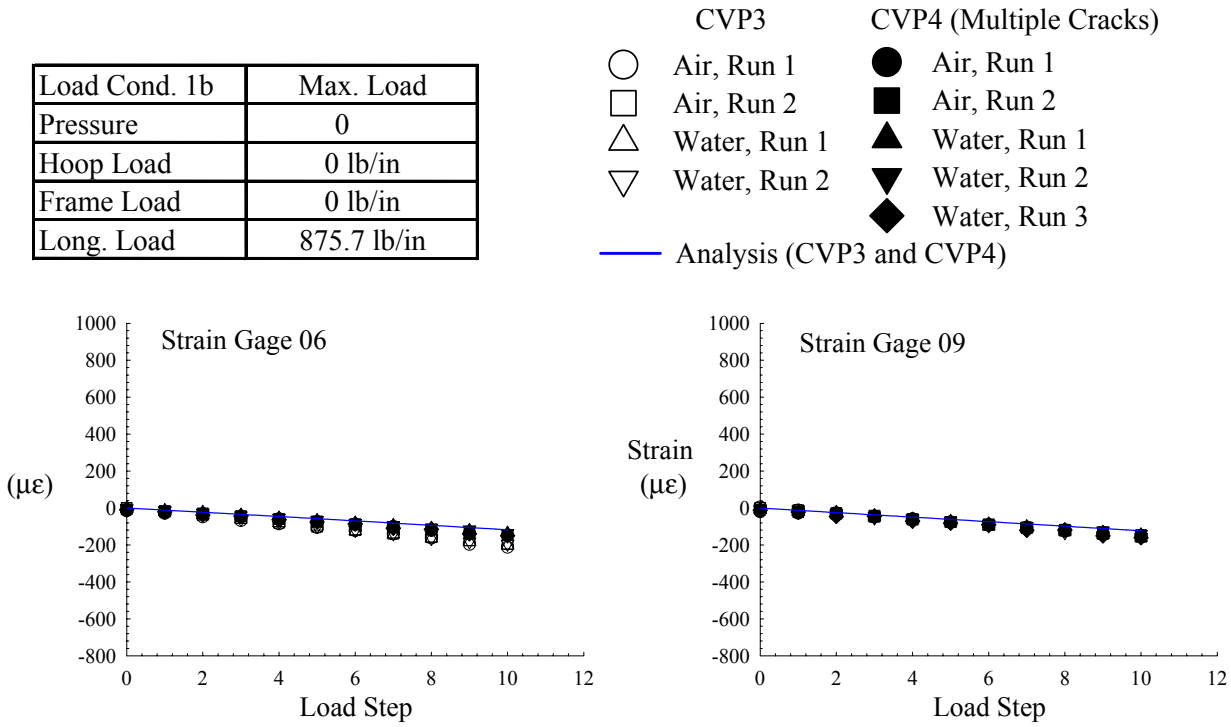



FIGURE D-42. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1b

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |

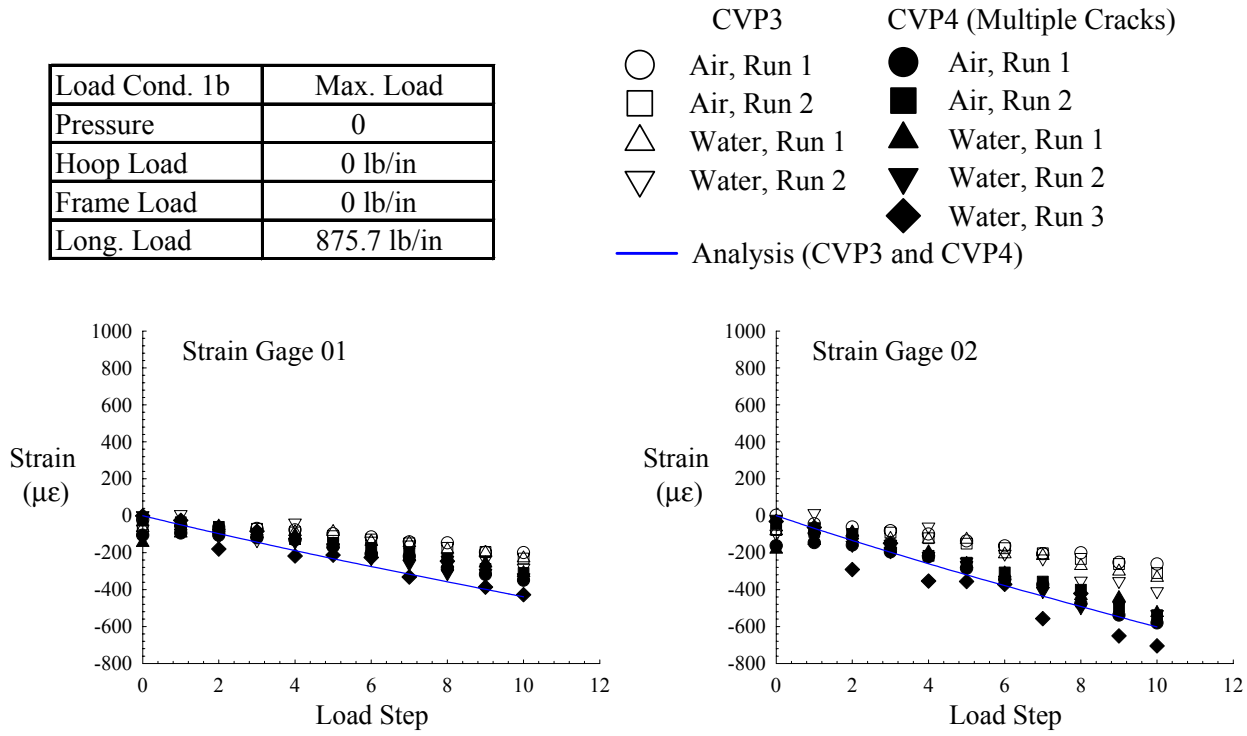
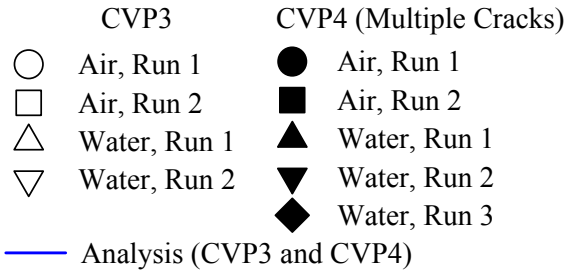
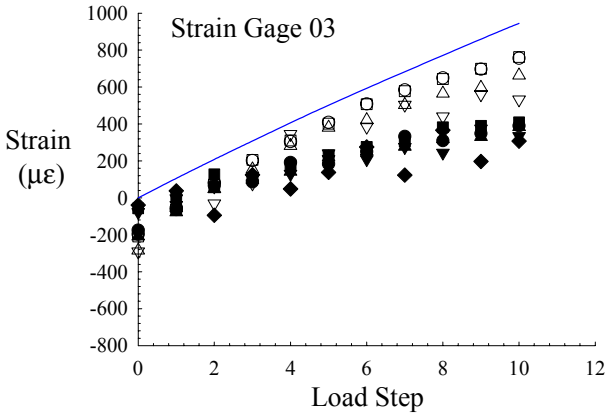
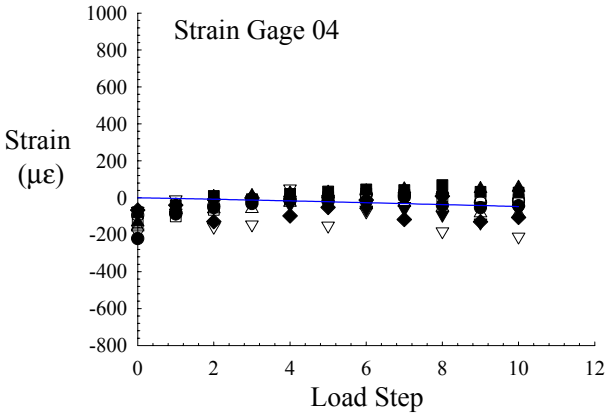


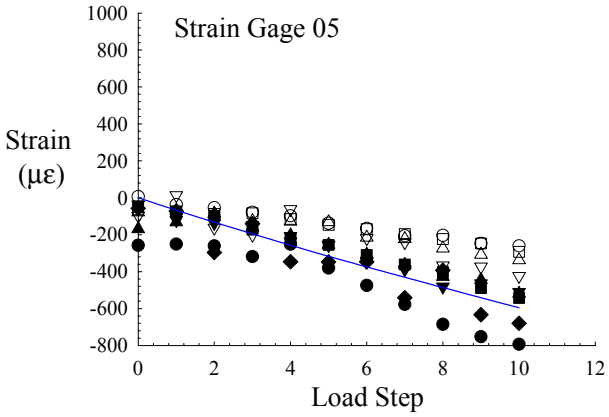

FIGURE D-43. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1b

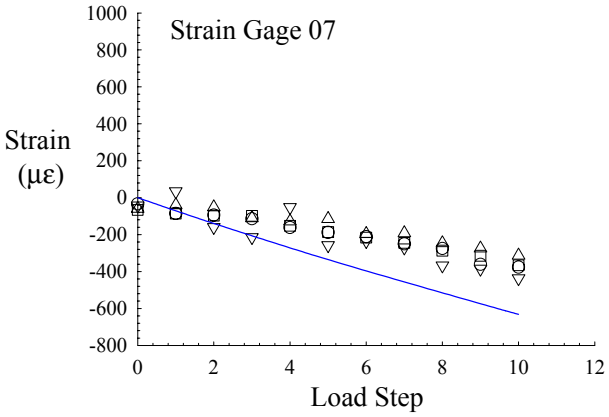
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |



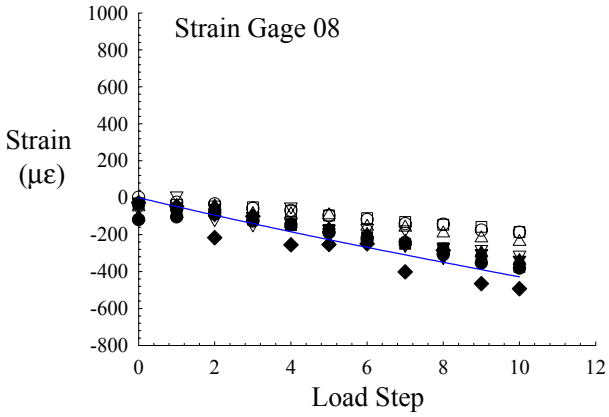
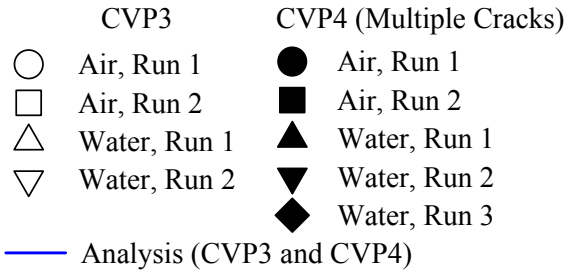
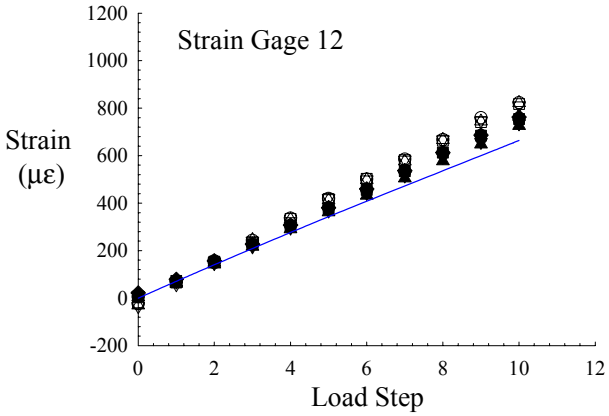
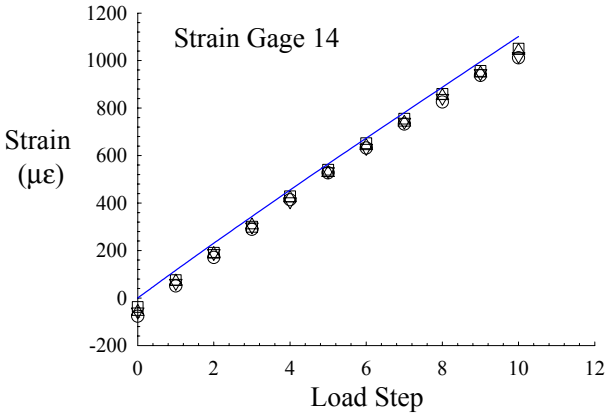



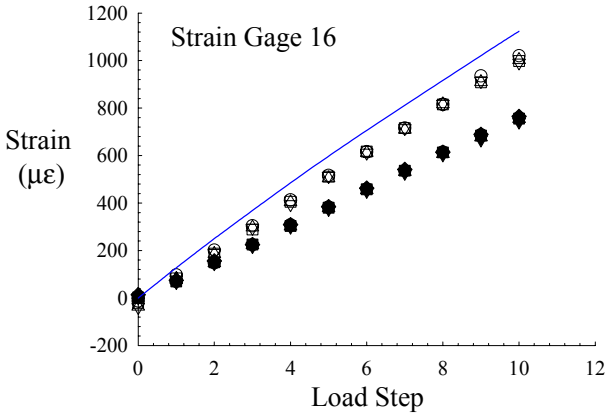

FIGURE D-43. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1b (Continued)

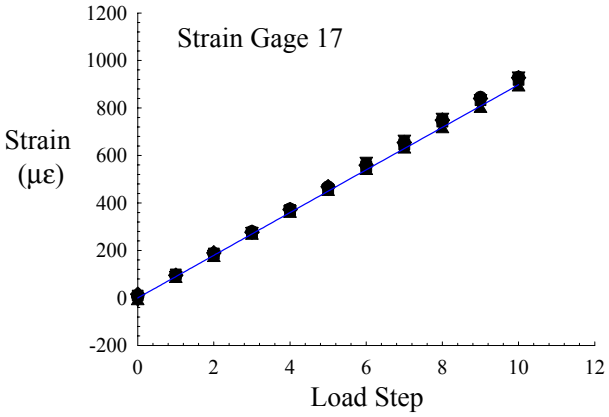
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |



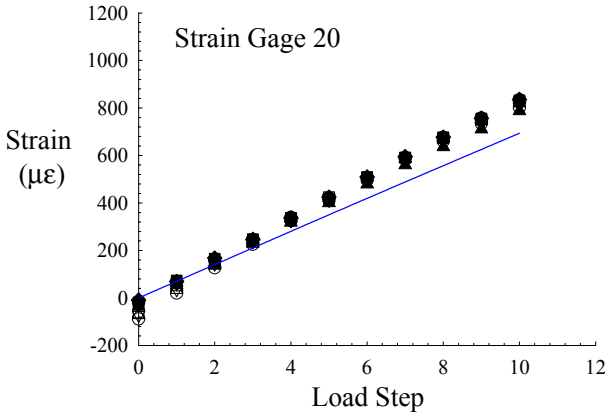



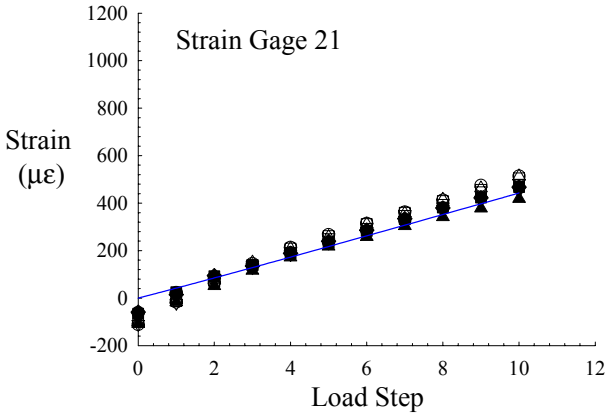

FIGURE D-44. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP3 AND CVP4, LOAD CONDITION 1b

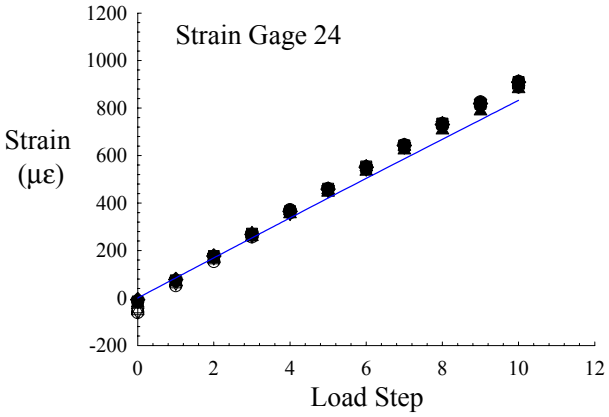
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |

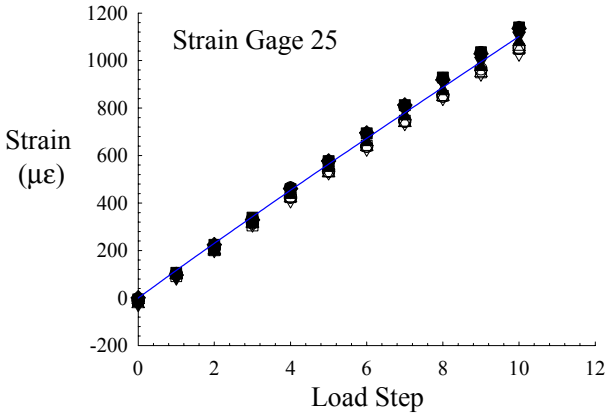
CVP3
- Air, Run 1
- Air, Run 2
- Water, Run 1
- Water, Run 2

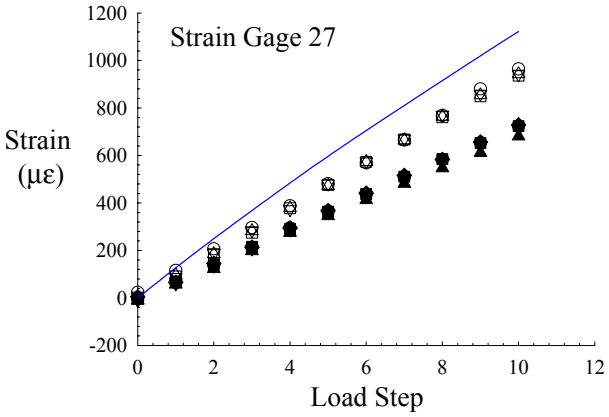
CVP4 (Multiple Cracks)
- Air, Run 1
- Air, Run 2
- Water, Run 1
- Water, Run 2
- Water, Run 3

Analysis (CVP3 and CVP4)



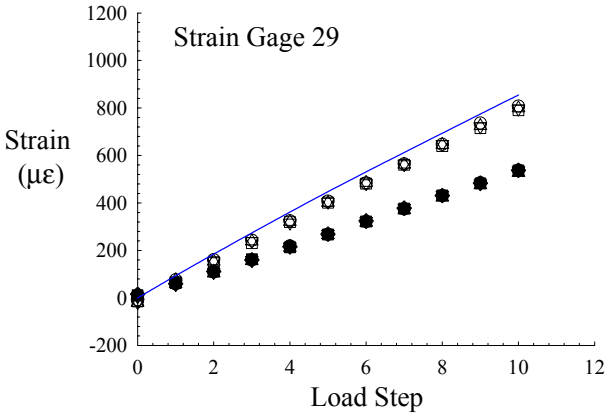




FIGURE D-44. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP3 AND CVP4, LOAD CONDITION 1b (Continued)

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |

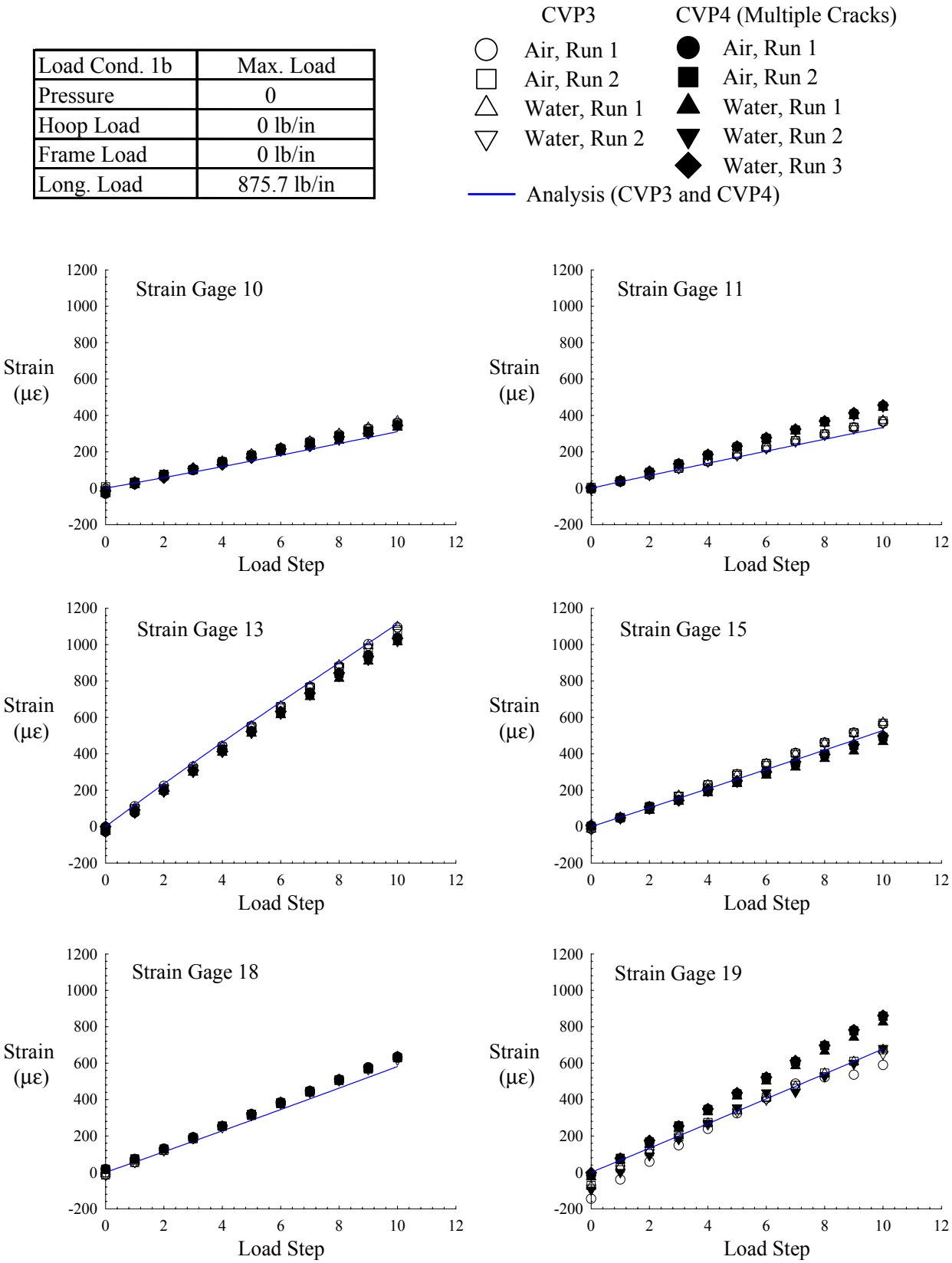



FIGURE D-45. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP3 AND CVP4, LOAD CONDITION 1b

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |

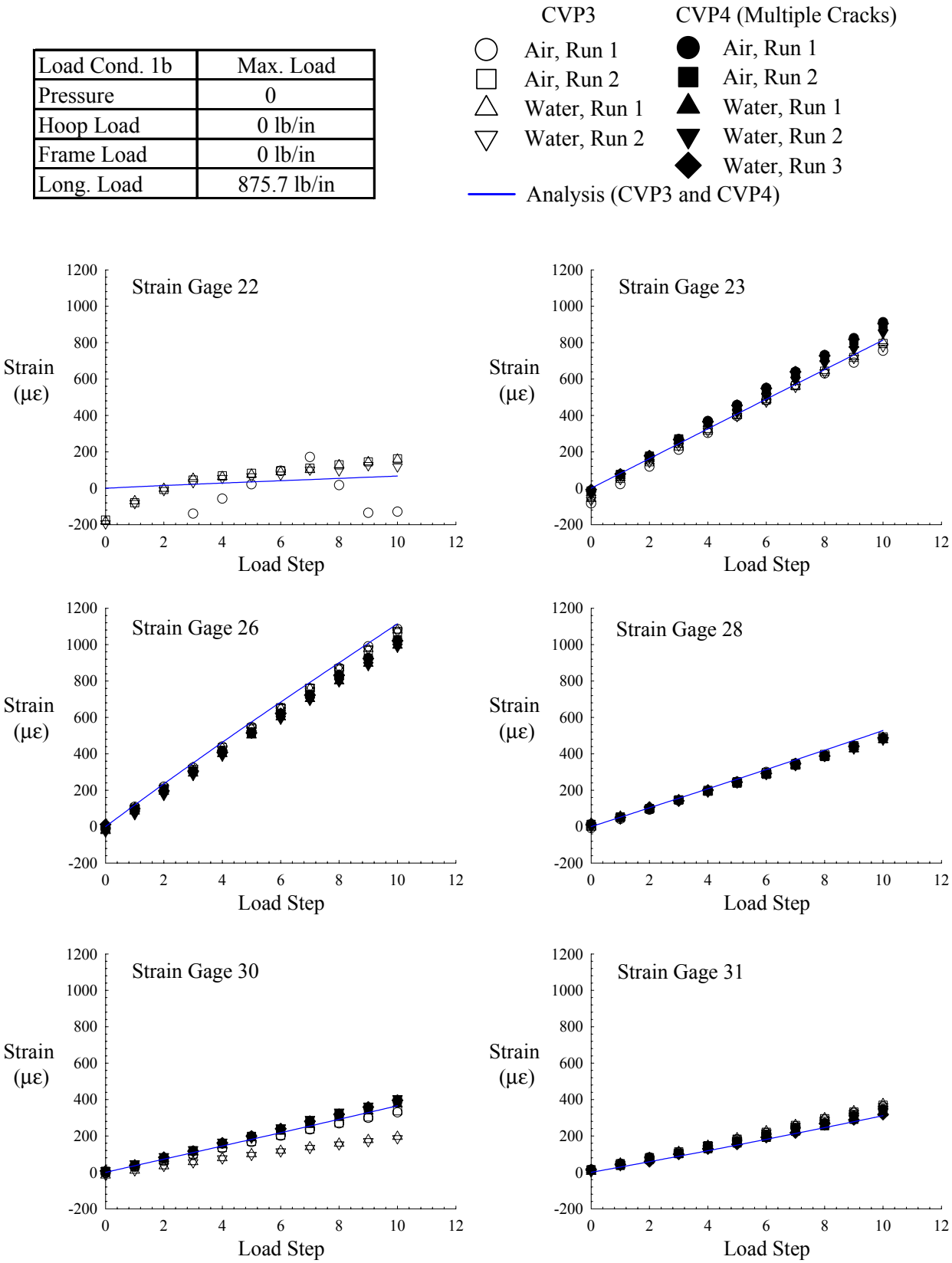



FIGURE D-45. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP3 AND CVP4, LOAD CONDITION 1b (Continued)

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |

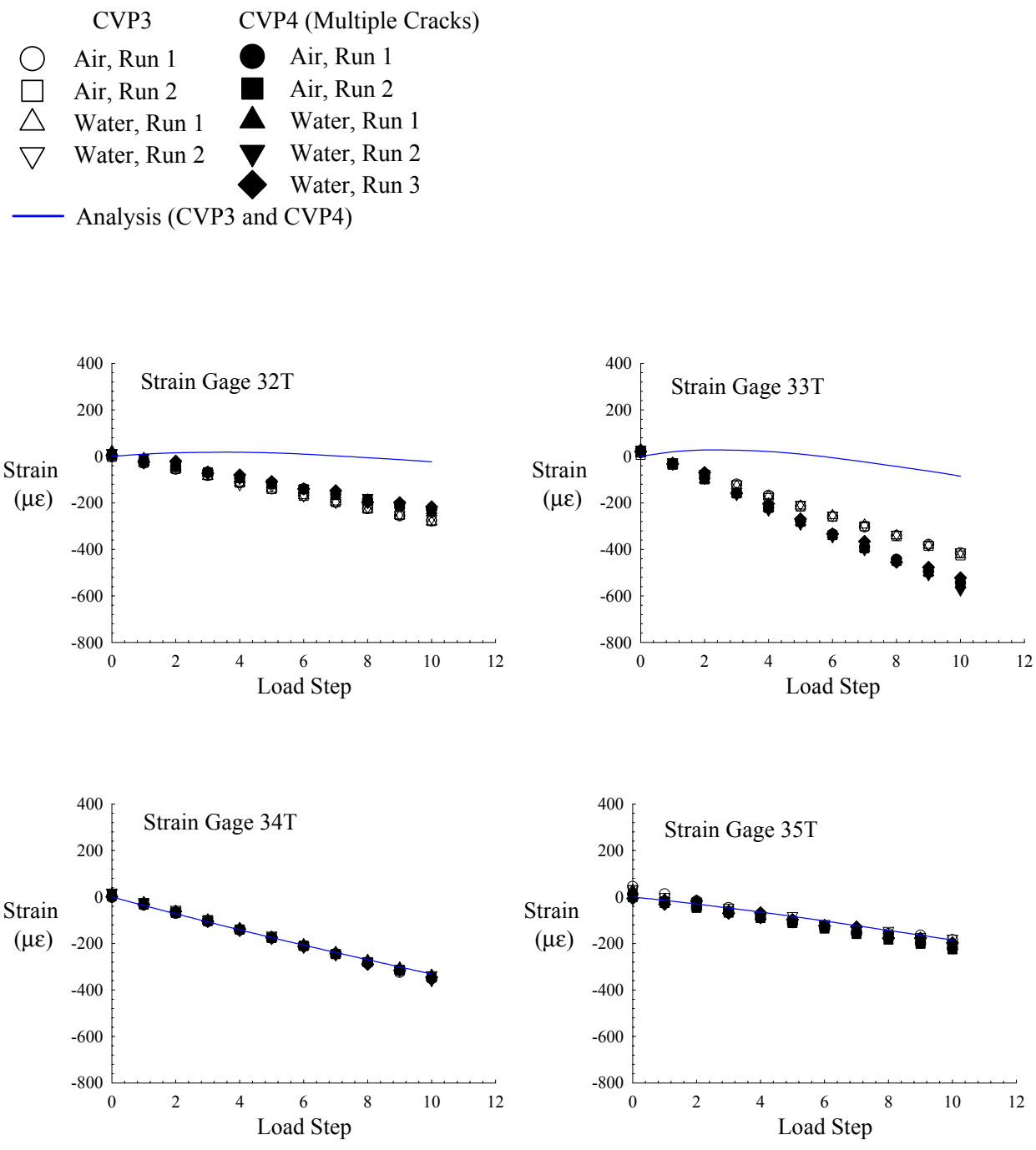
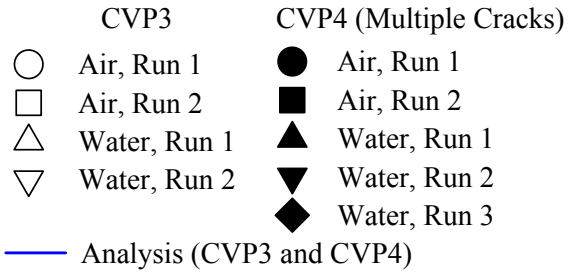
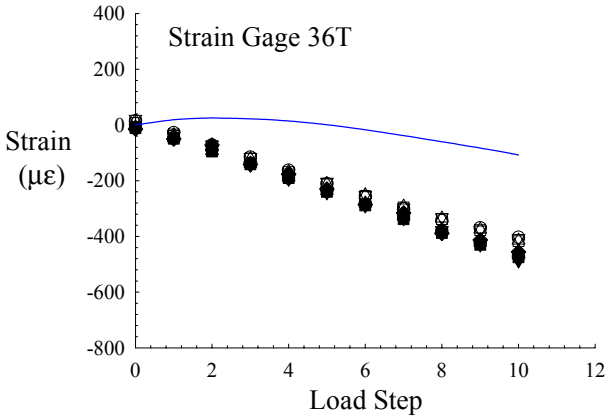
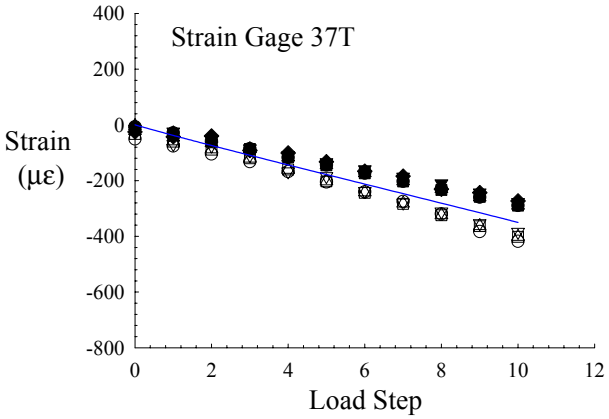


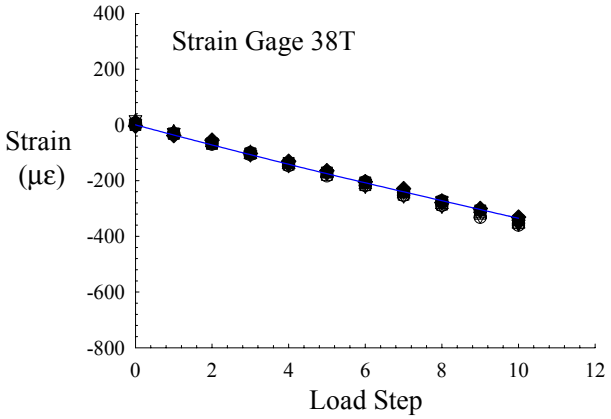

FIGURE D-46. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1b

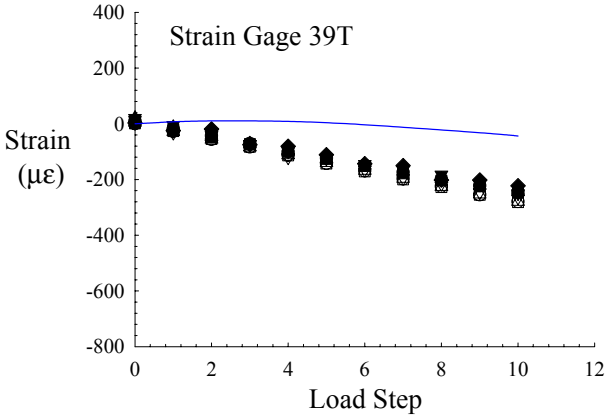
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |



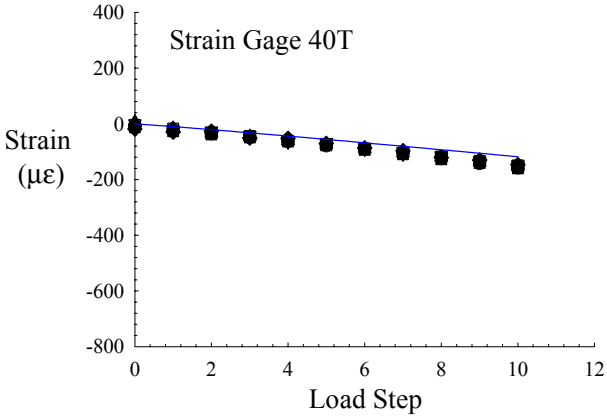
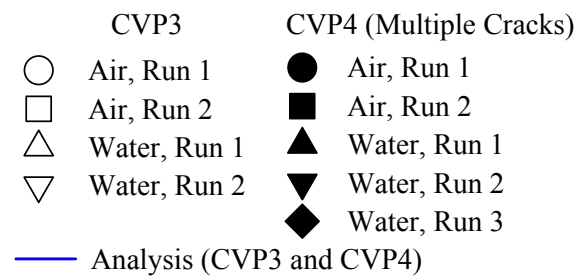
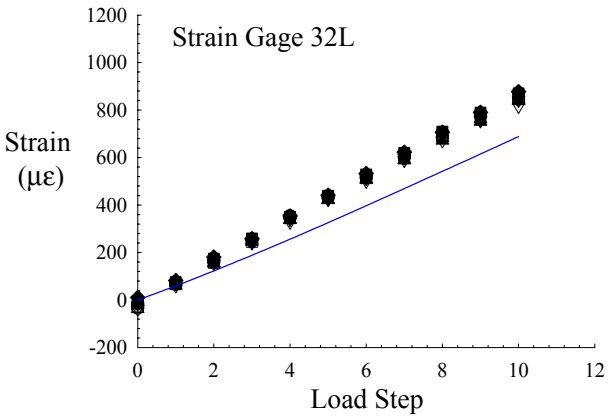
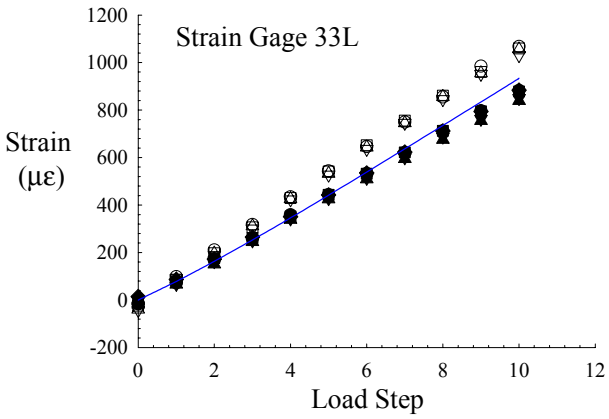



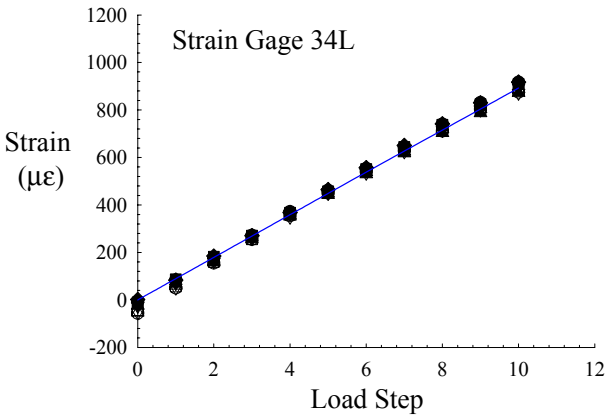

FIGURE D-46. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1b (Continued)

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |



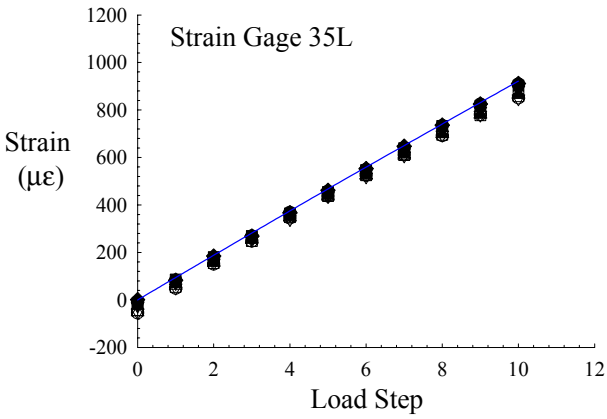
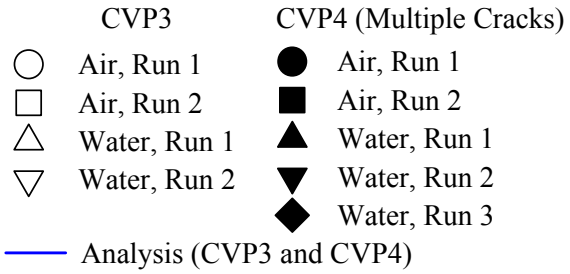
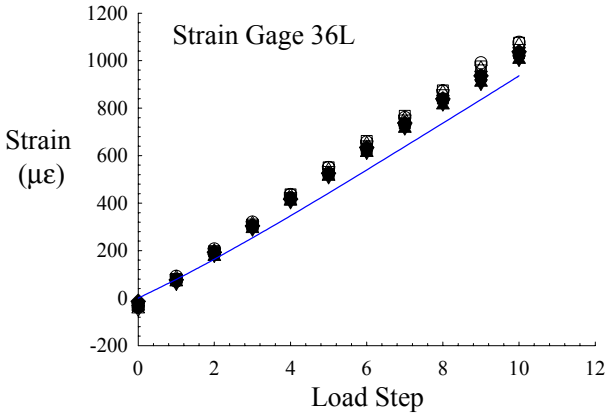
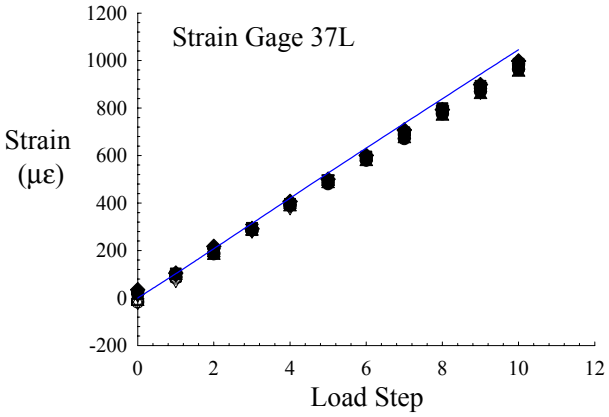



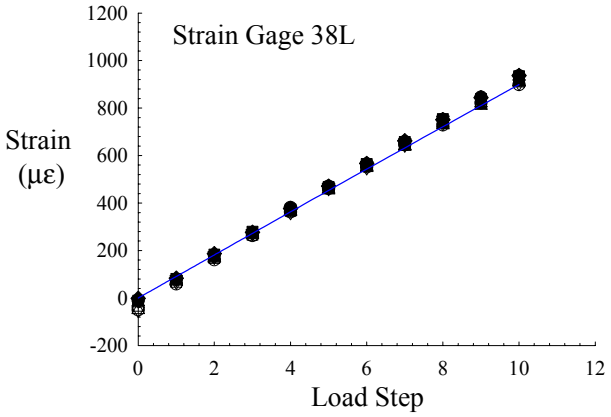

FIGURE D-47. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1b

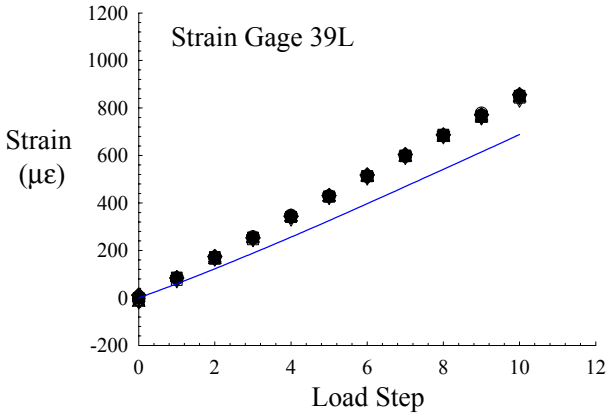
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |



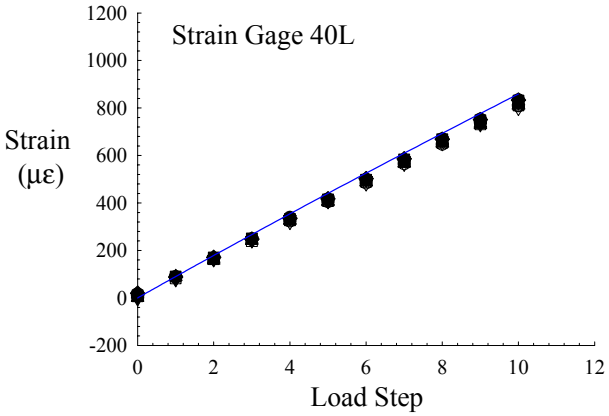
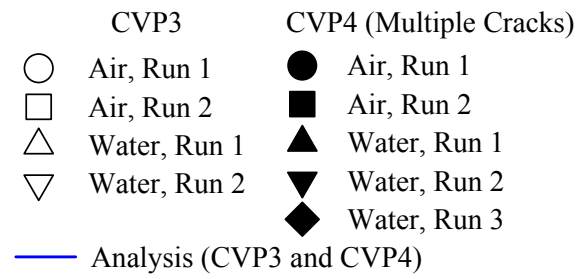
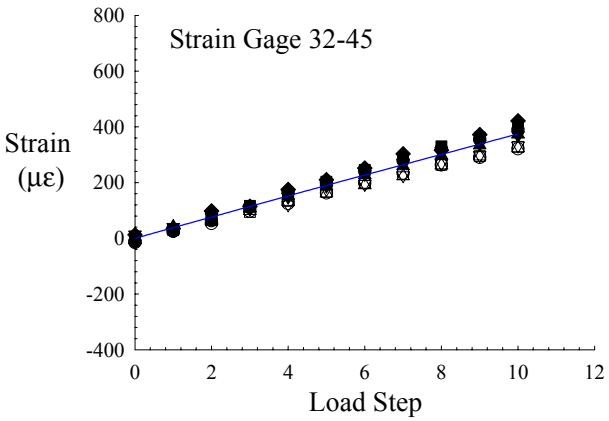
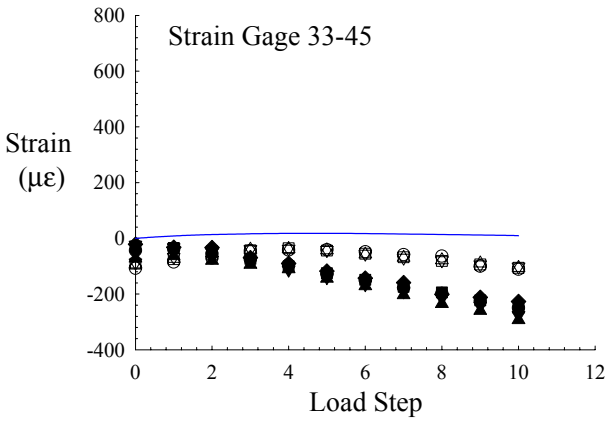



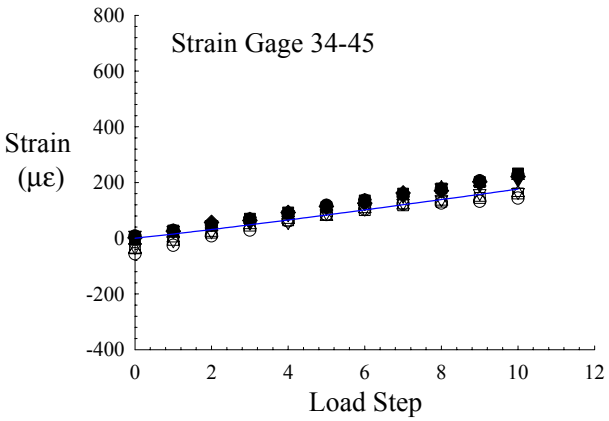

FIGURE D-47. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1b (Continued)

| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |



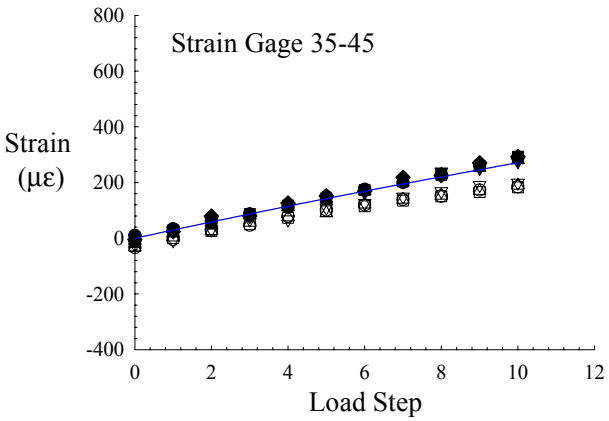
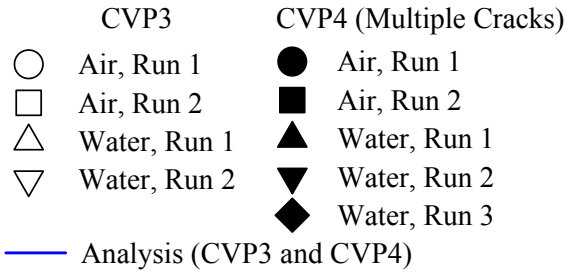
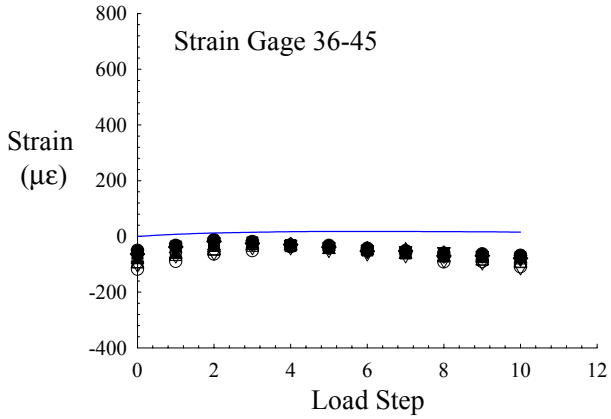
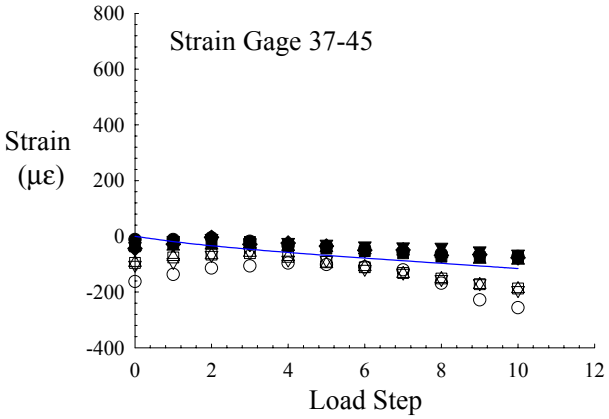



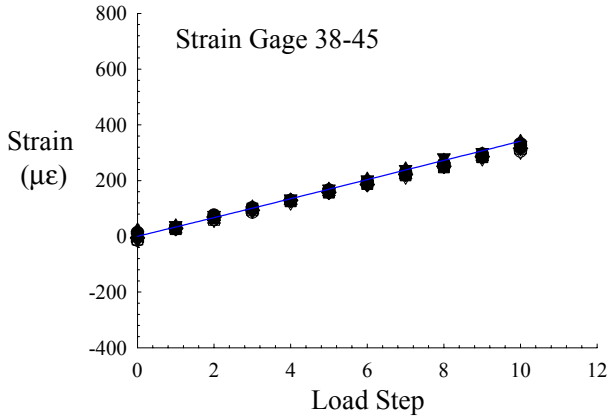

FIGURE D-48. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1b

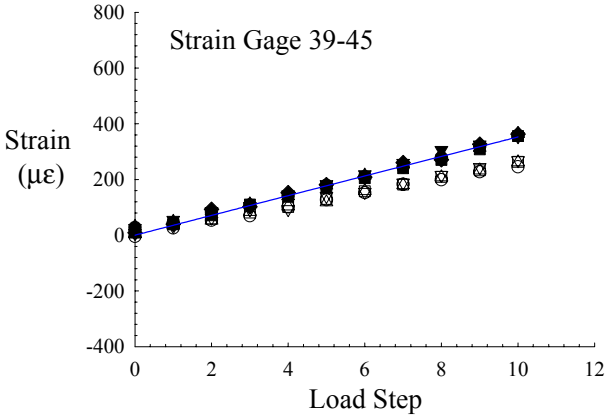
| Load Cond. 1b | Max. Load |
|---|---|
| Pressure | 0 |
| Hoop Load | 0 lb/in |
| Frame Load | 0 lb/in |
| Long. Load | 875.7 lb/in |



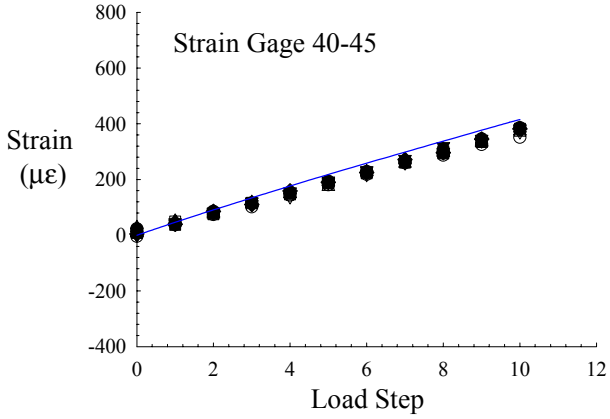




FIGURE D-48. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1b (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |

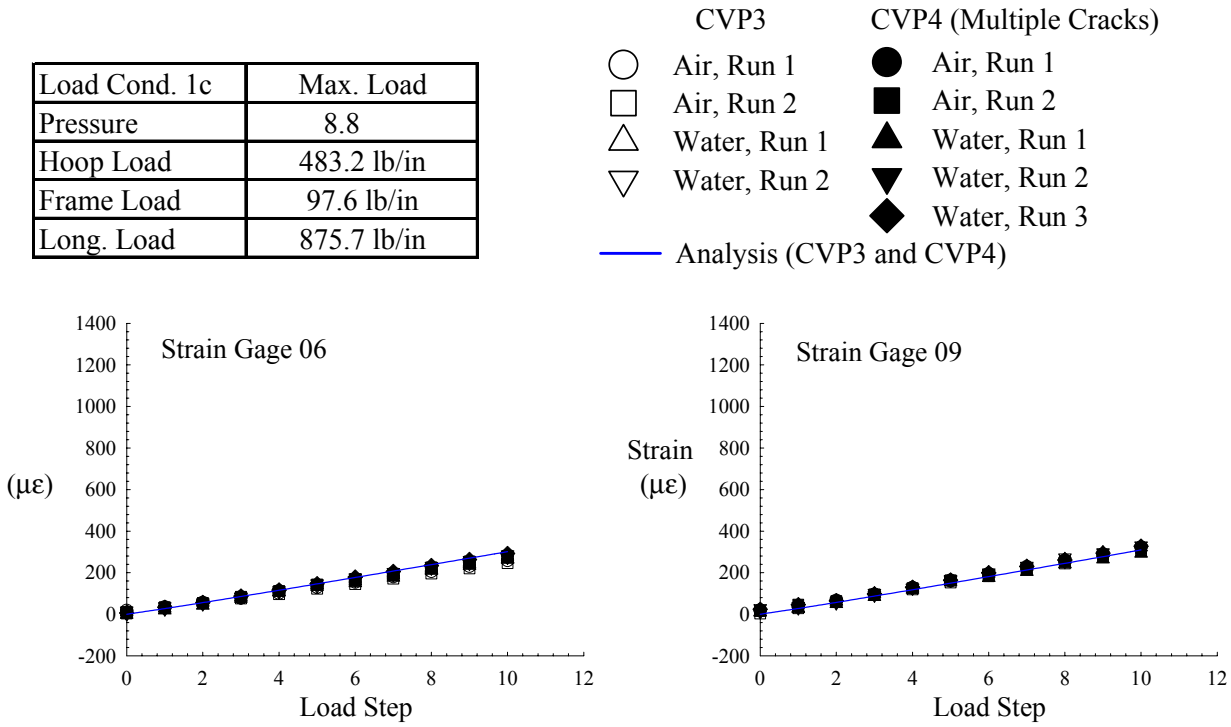



FIGURE D-49. MEASURED AND PREDICTED STRAINS FOR GROUP 1 GAGES IN FRAME OUTER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1c

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |

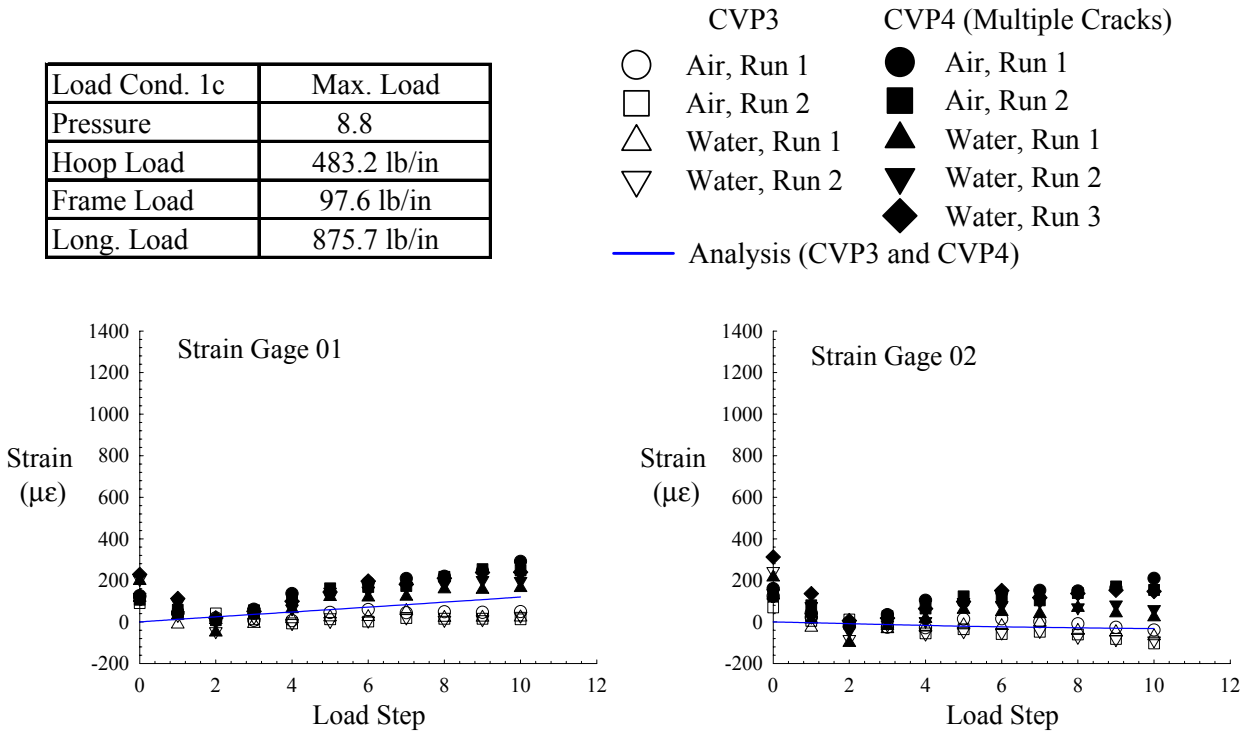
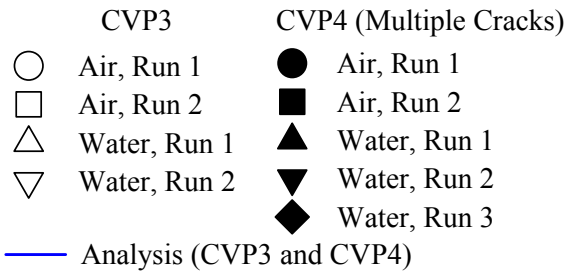
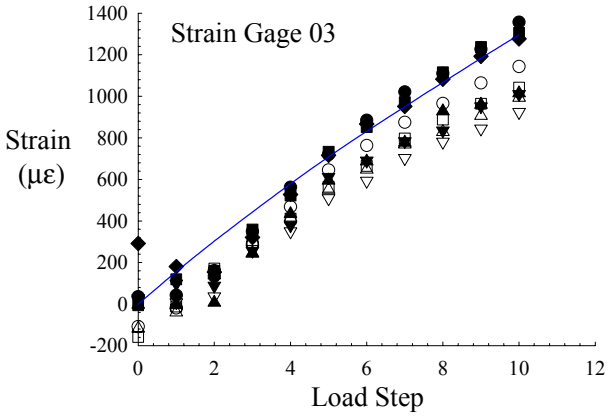
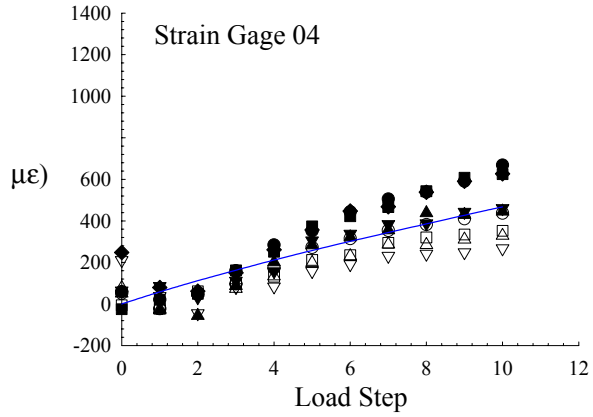


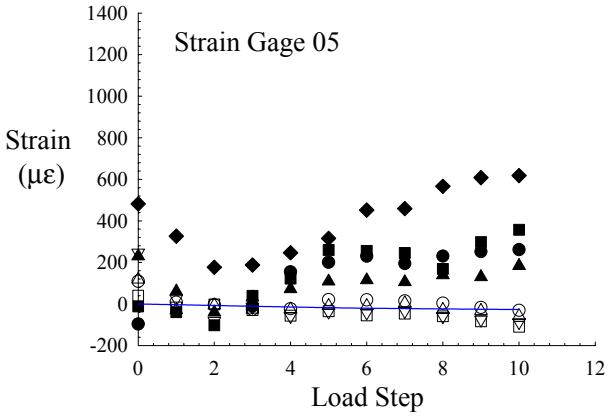

FIGURE D-50. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1c

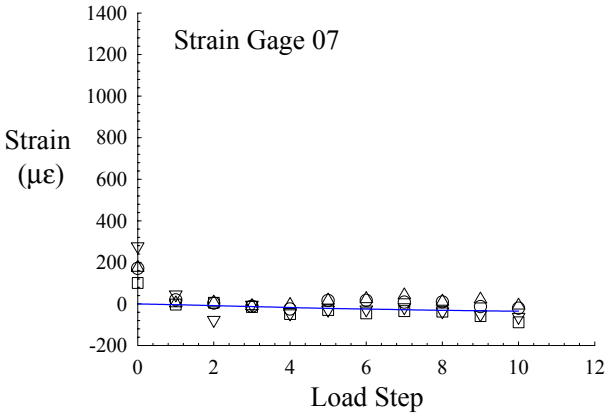
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |



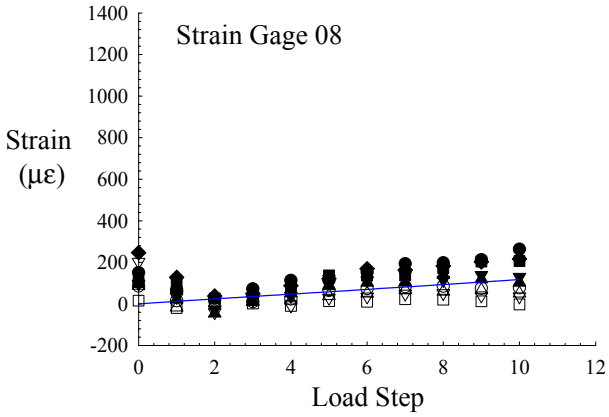
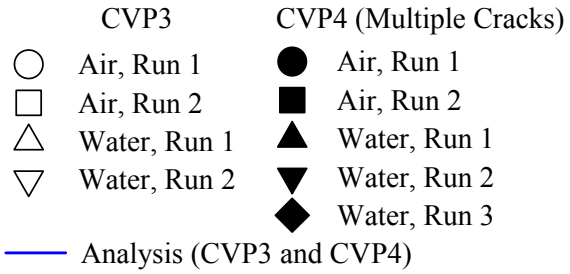
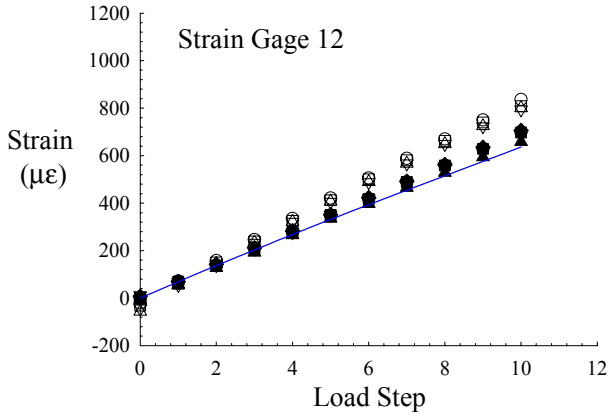
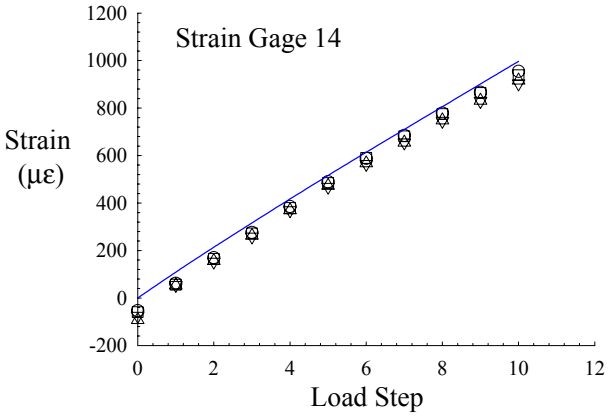



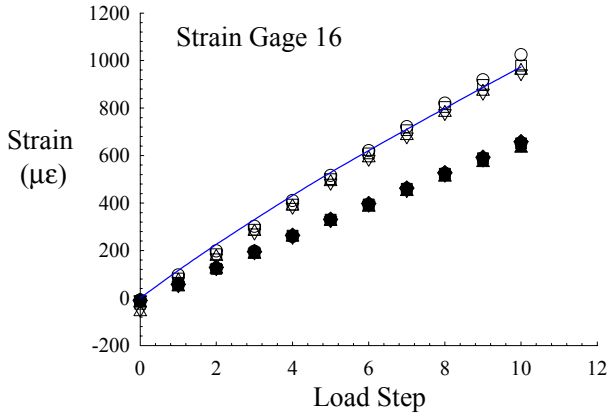

FIGURE D-50. MEASURED AND PREDICTED STRAINS FOR GROUP 2 GAGES IN FRAME INNER CAPS OF CVP3 AND CVP4, LOAD CONDITION 1c (Continued)

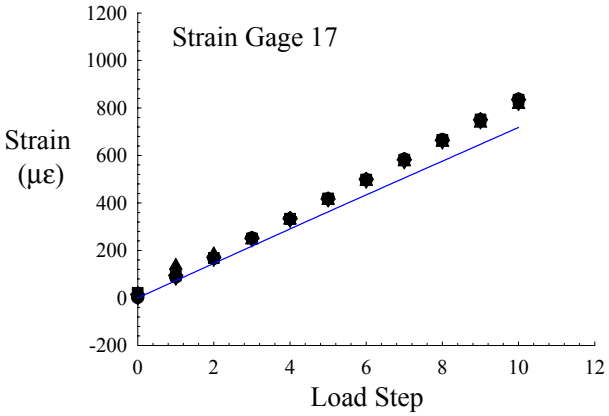
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |



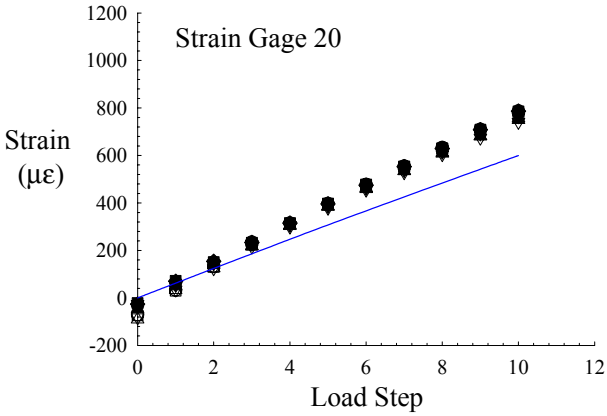
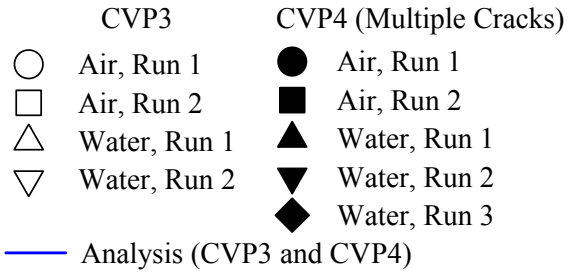
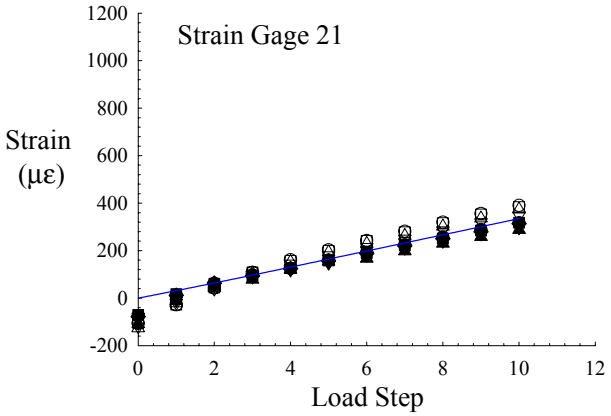
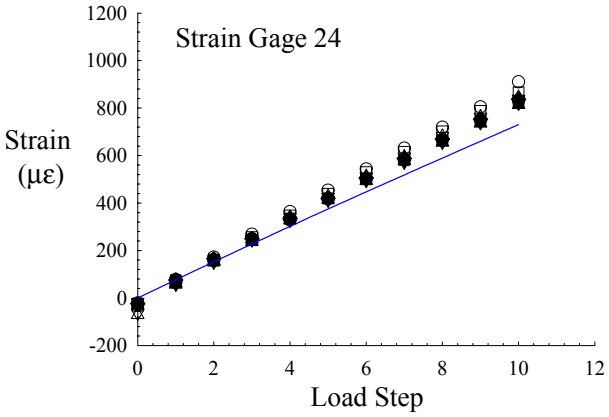



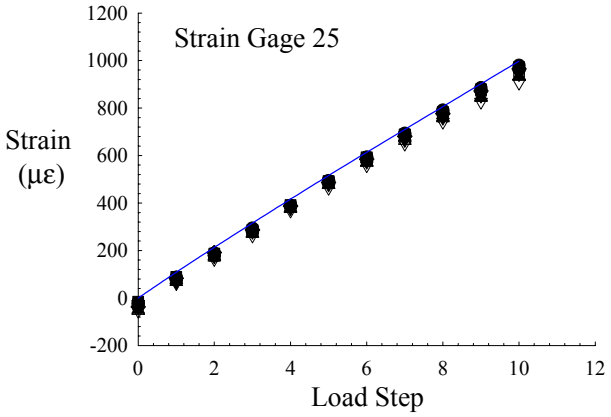

FIGURE D-51. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP3 AND CVP4, LOAD CONDITION 1c

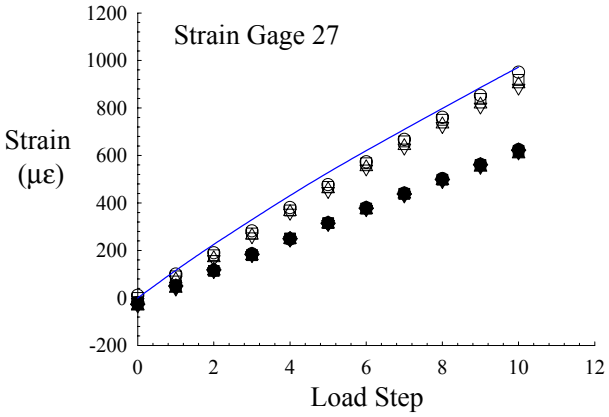
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |



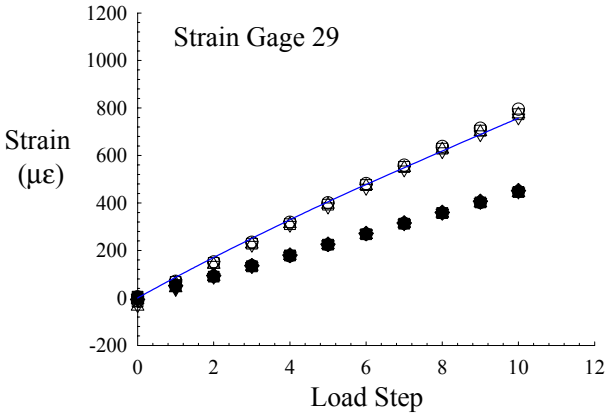




FIGURE D-51. MEASURED AND PREDICTED STRAINS FOR GROUP 3 GAGES IN STRINGER HATS OF CVP3 AND CVP4, LOAD CONDITION 1c (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |

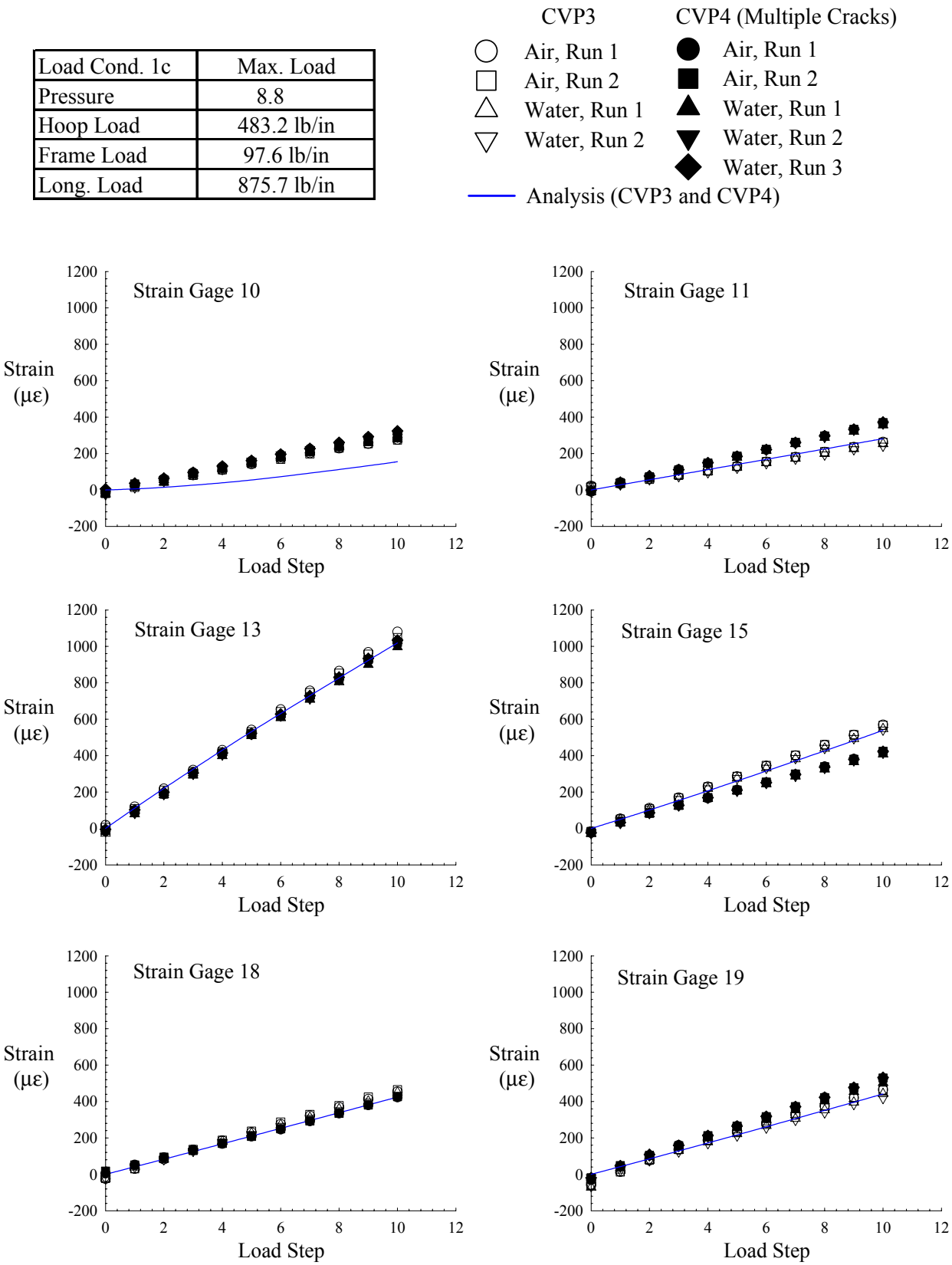



FIGURE D-52. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP3 AND CVP4, LOAD CONDITION 1c

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |

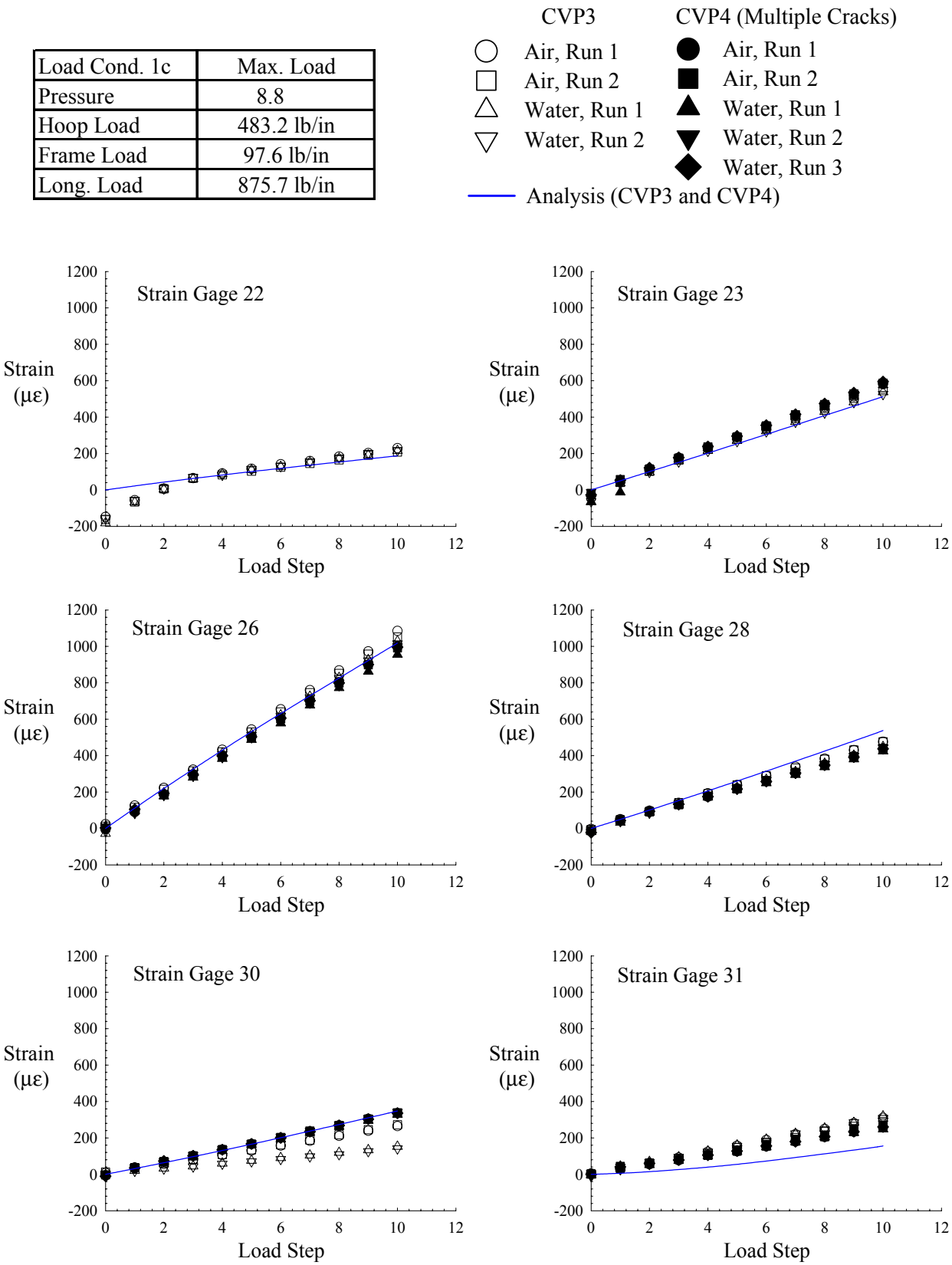



FIGURE D-52. MEASURED AND PREDICTED STRAINS FOR GROUP 4 GAGES IN STRINGER FLANGES OF CVP3 AND CVP4, LOAD CONDITION 1c (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |

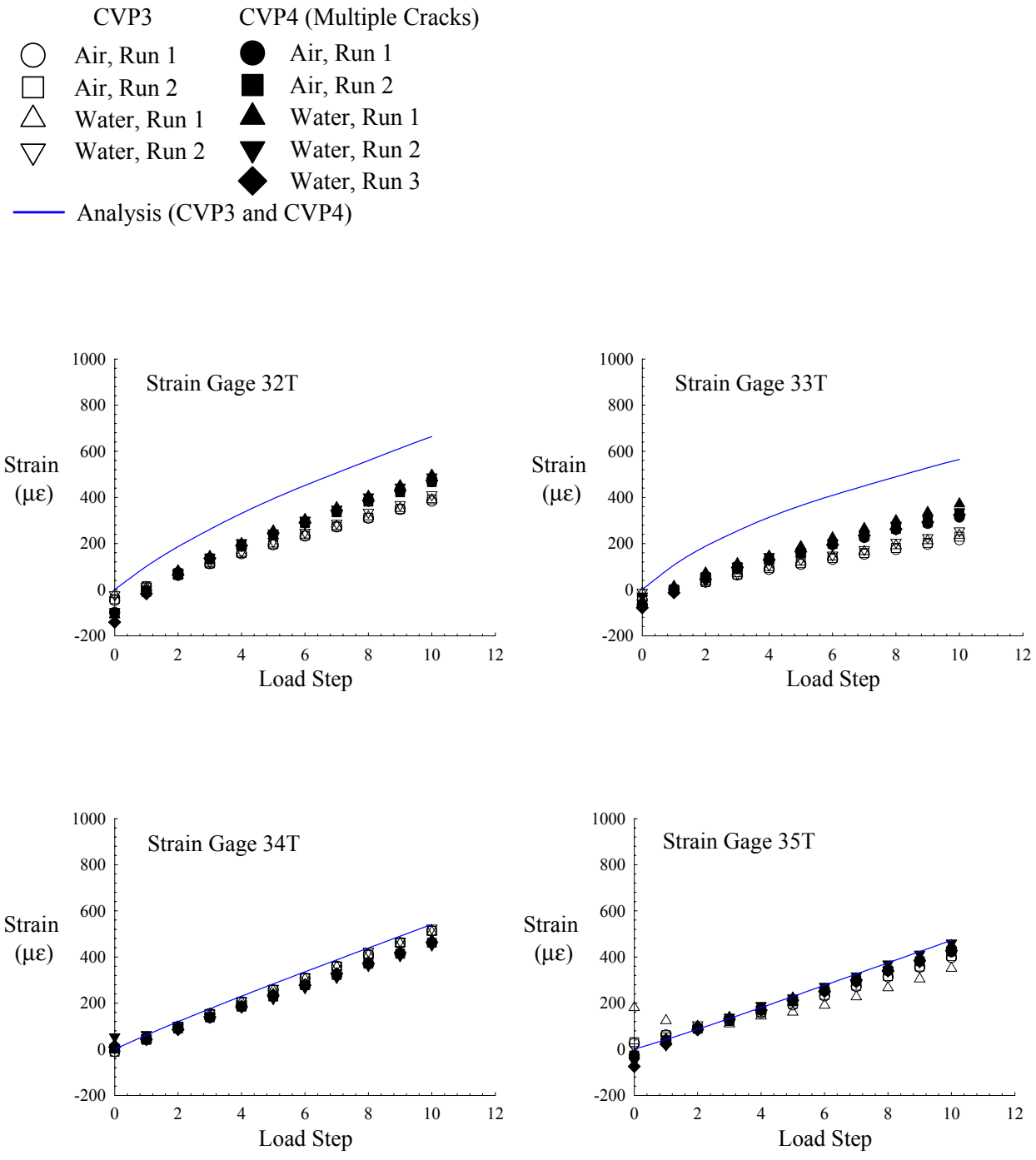
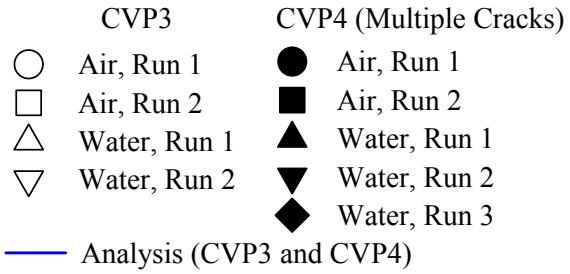
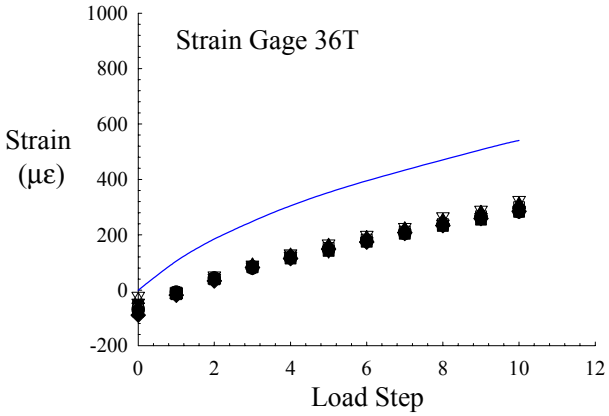
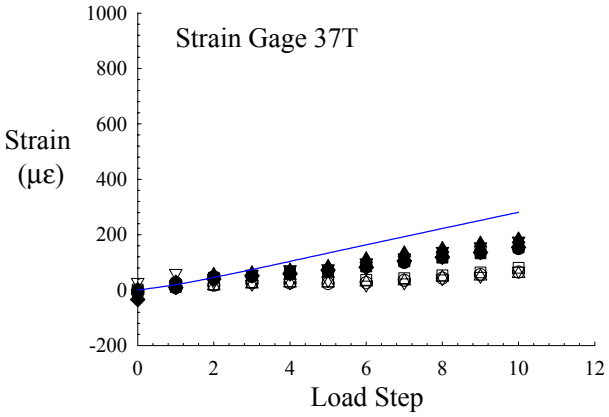


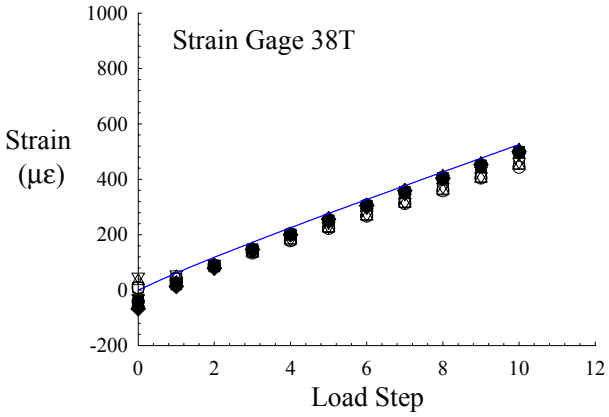

FIGURE D-53. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1c

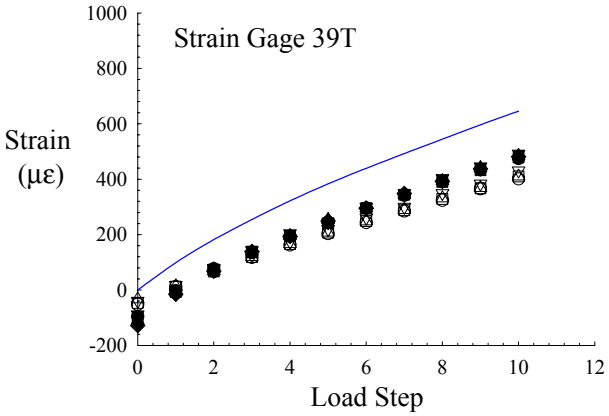
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |



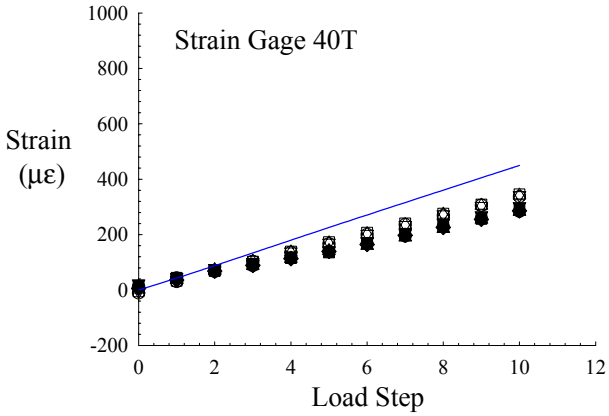




FIGURE D-53. MEASURED AND PREDICTED HOOP STRAINS FOR GROUP 5 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1c (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |

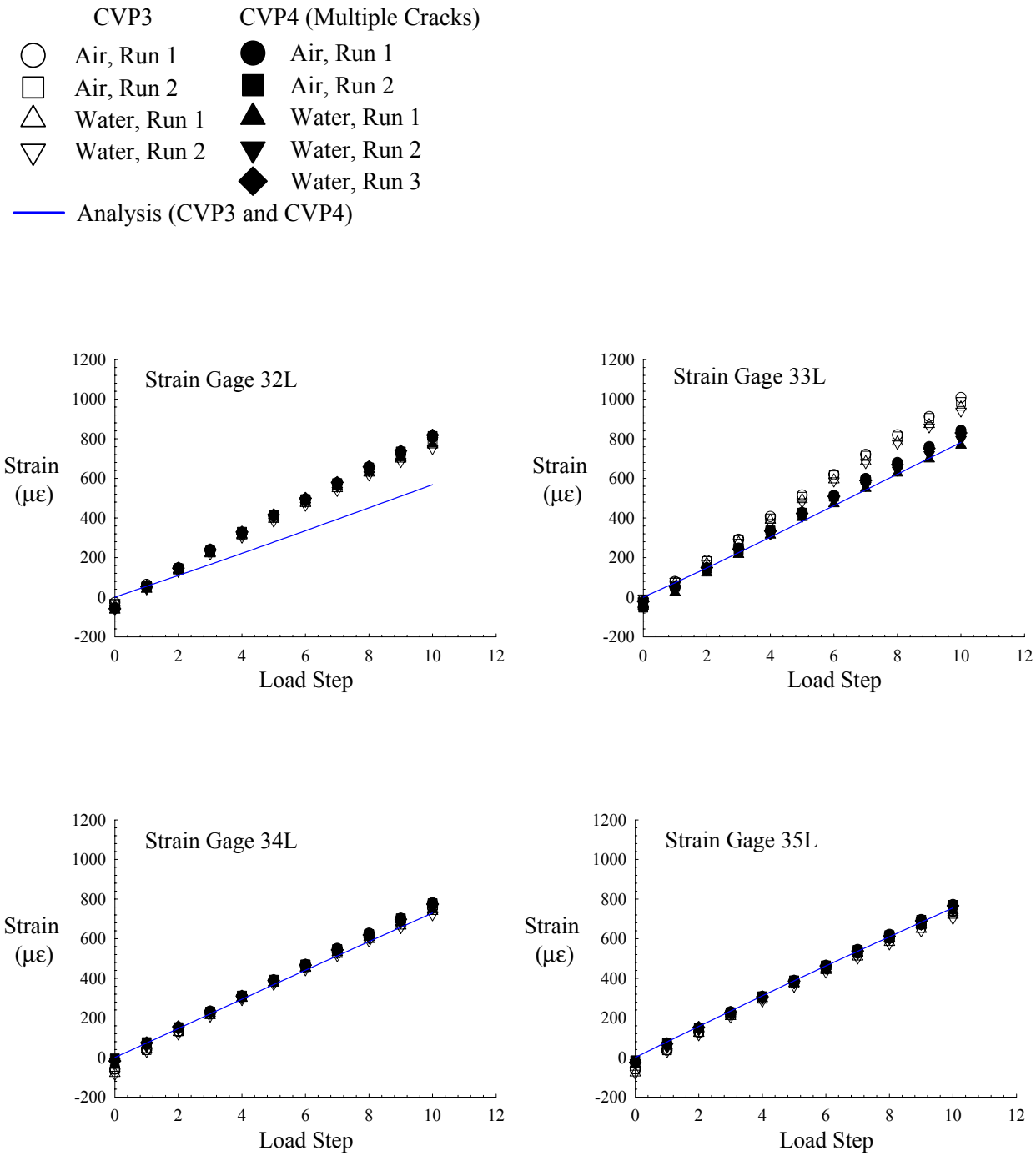



FIGURE D-54. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1c

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |

CVP3
- Air, Run 1
- Air, Run 2
- Water, Run 1
- Water, Run 2

CVP4 (Multiple Cracks)
- Air, Run 1
- Air, Run 2
- Water, Run 1
- Water, Run 2
- Water, Run 3

Analysis (CVP3 and CVP4)

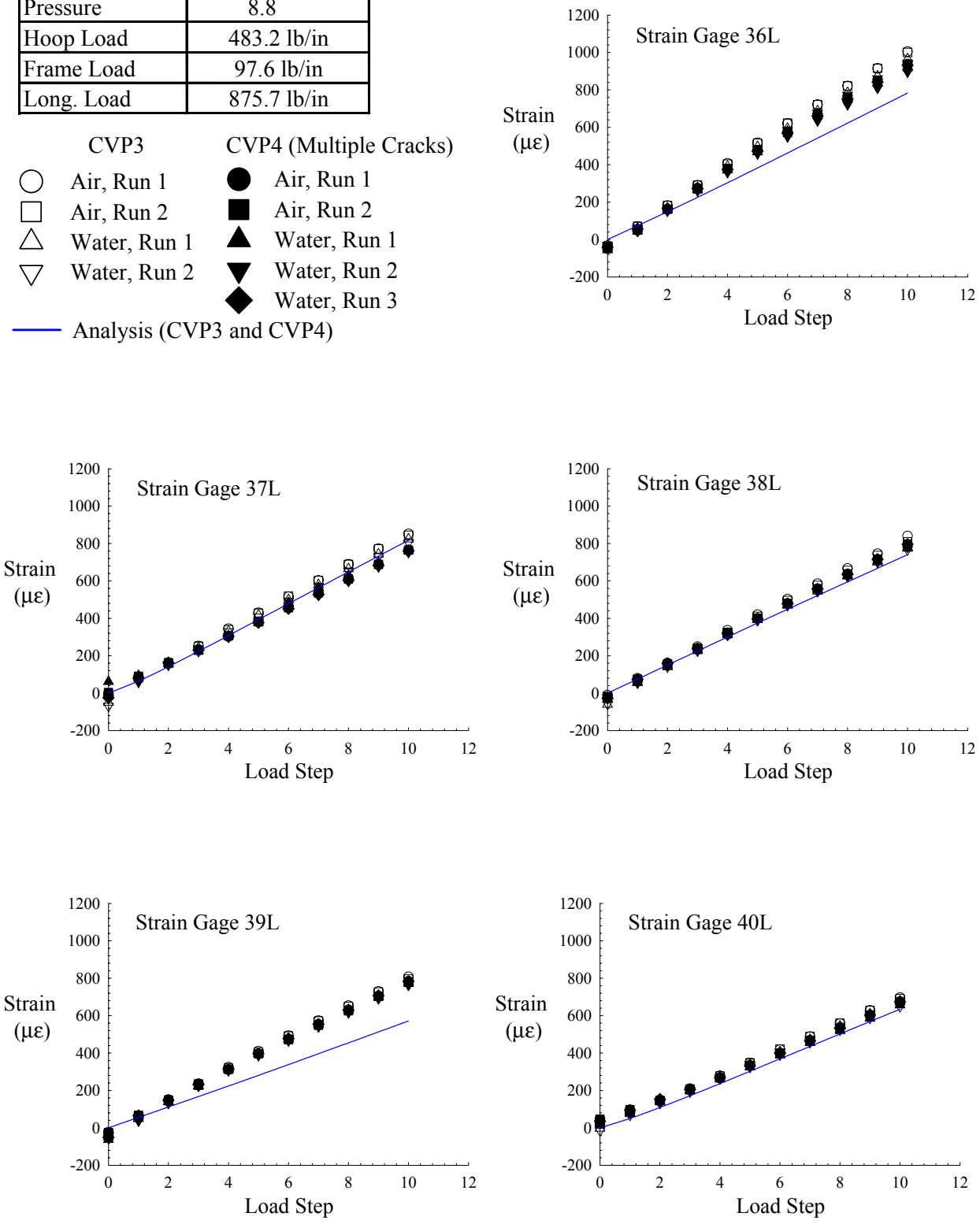



FIGURE D-54. MEASURED AND PREDICTED LONGITUDINAL STRAINS FOR GROUP 6 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4. LOAD CONDITION 1c (Continued)

| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |

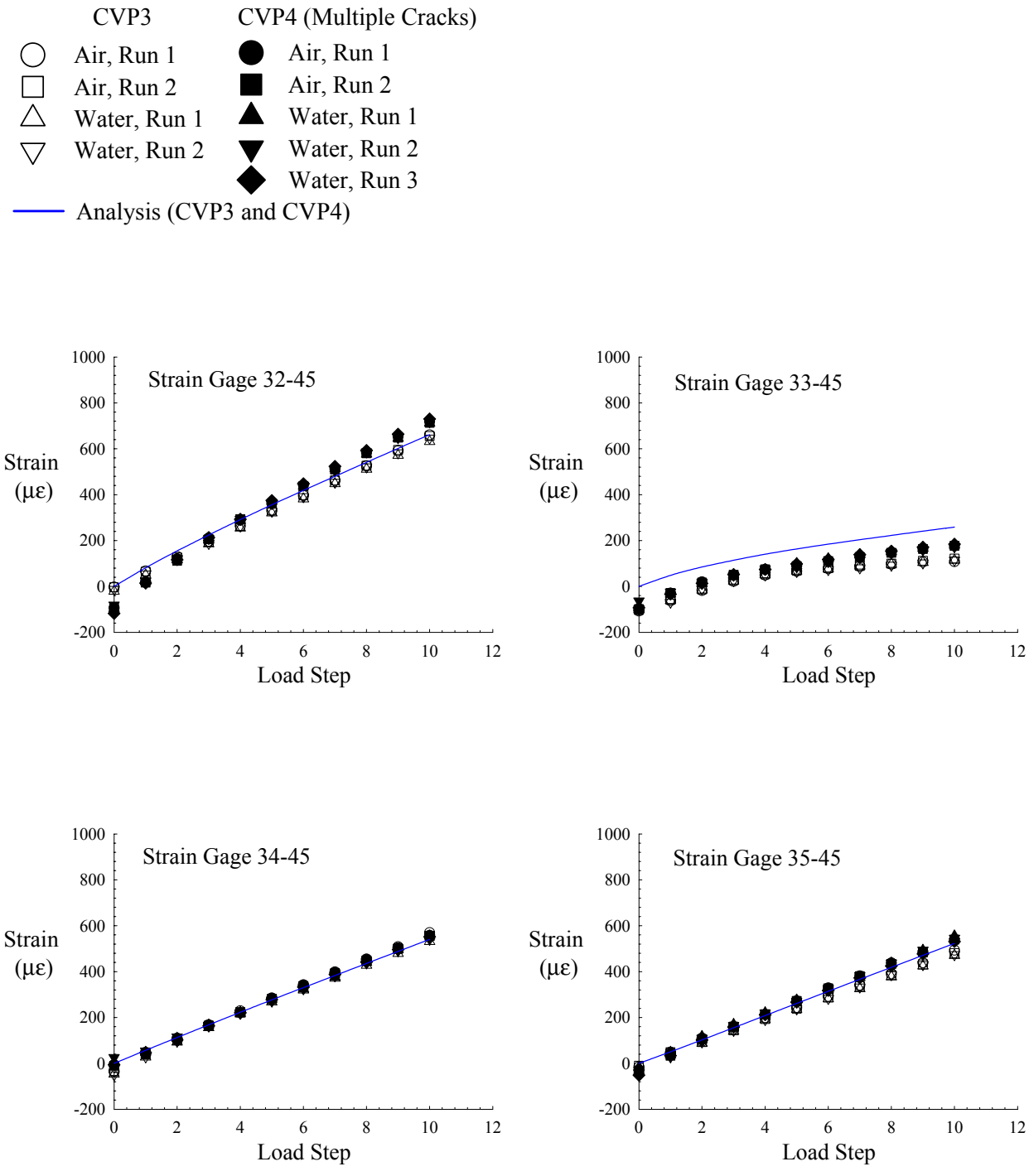
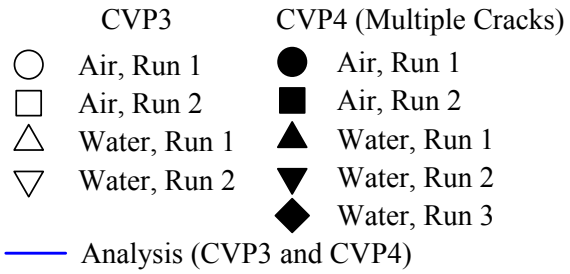
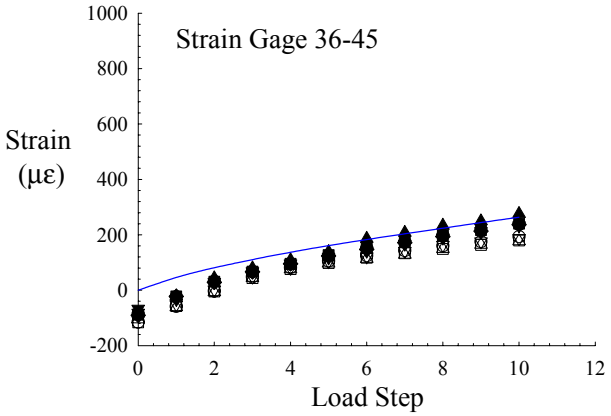
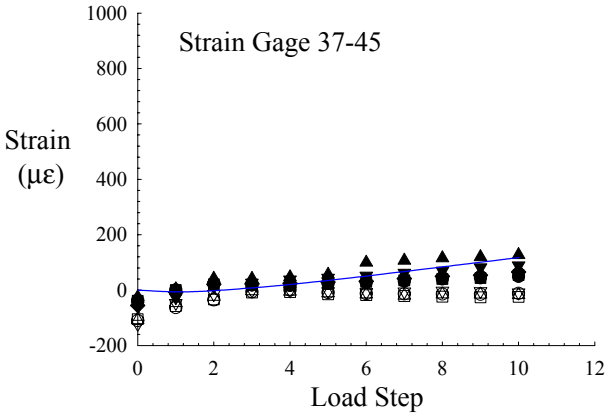


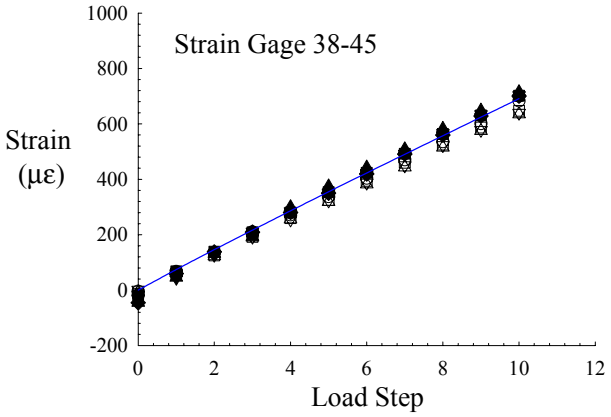

FIGURE D-55. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1c

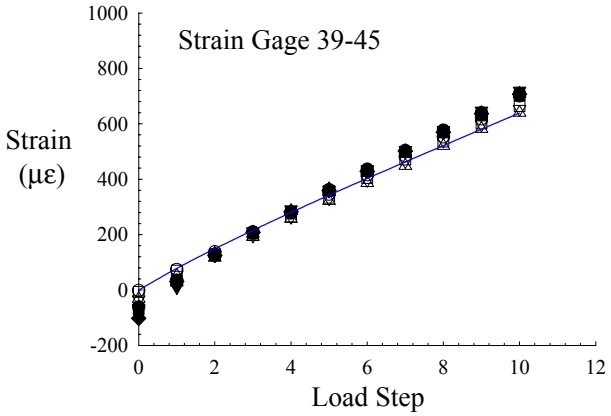
| Load Cond. 1c | Max. Load |
|---|---|
| Pressure | 8.8 |
| Hoop Load | 483.2 lb/in |
| Frame Load | 97.6 lb/in |
| Long. Load | 875.7 lb/in |



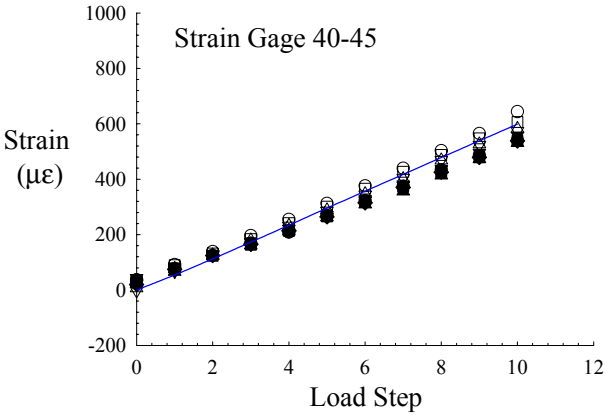




FIGURE D-55. MEASURED AND PREDICTED 45º STRAINS FOR GROUP 7 GAGES IN SKIN MID-BAY OF CVP3 AND CVP4, LOAD CONDITION 1c (Continued)

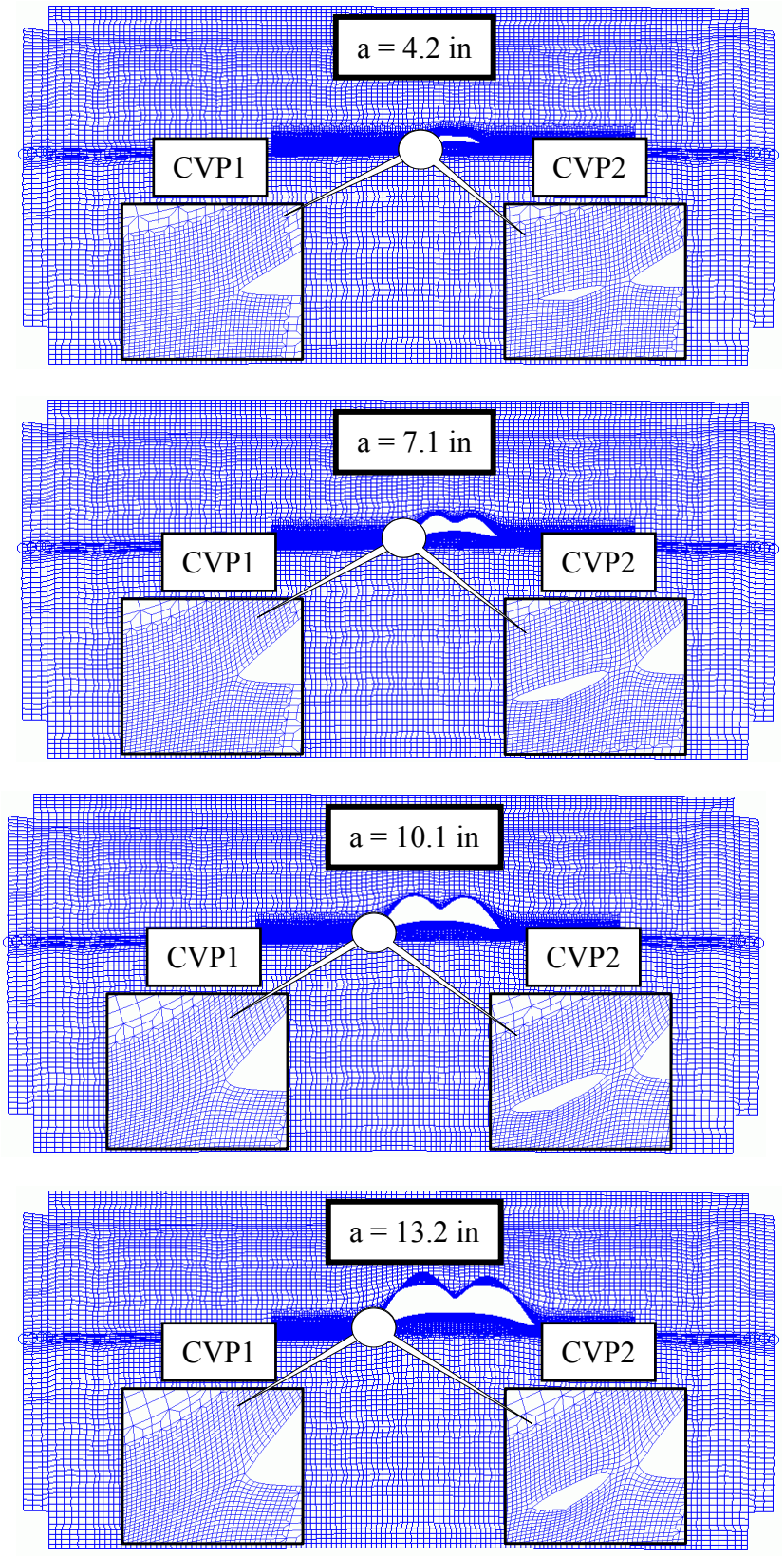



FIGURE D-56. FINITE ELEMENT SIMULATIONS OF DEFORMATION PROCESSES AT CRACK TIPS FOR CVP1 AND CVP2 DISPLACEMENTS SCALED BY 25

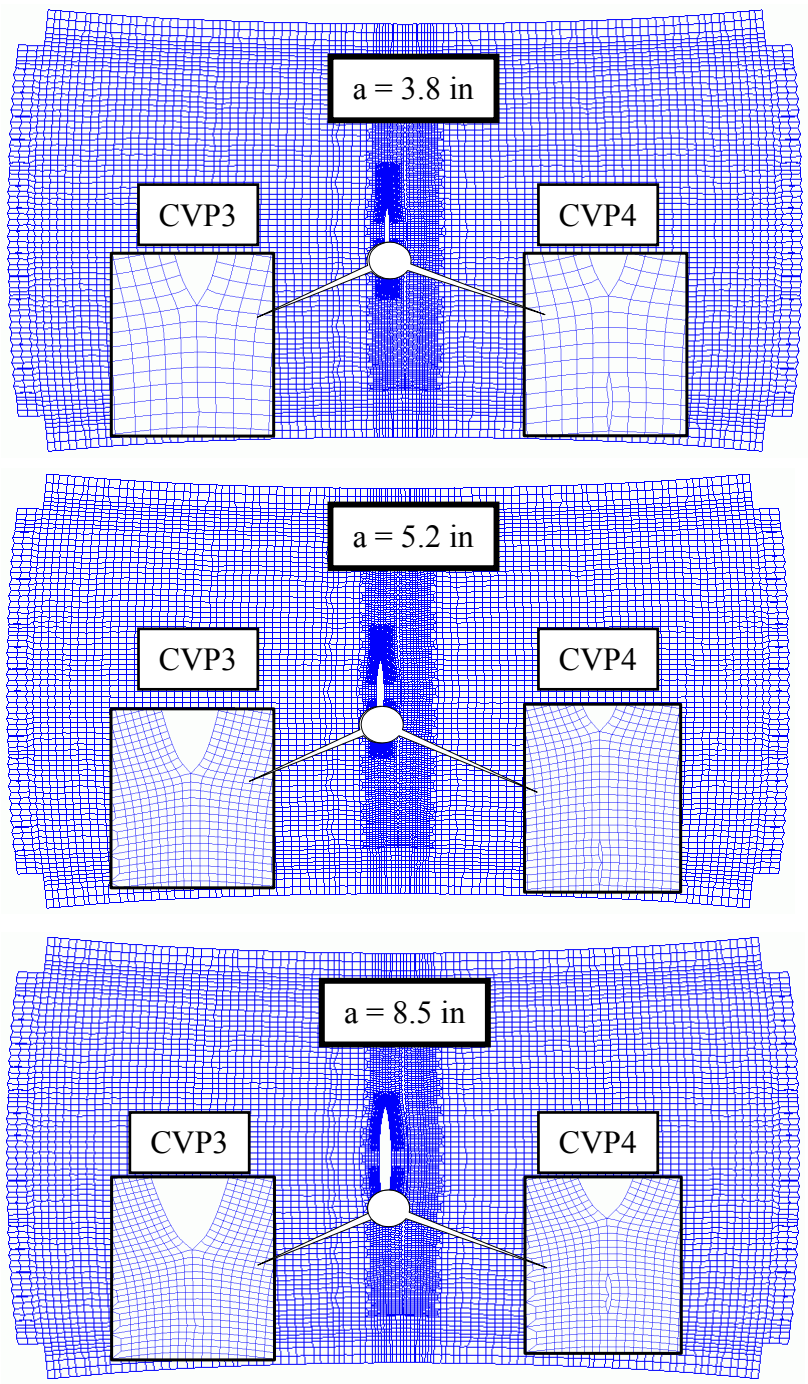



FIGURE D-57. FINITE ELEMENT SIMULATIONS OF DEFORMATION PROCESSES AT CRACK TIPS FOR CVP3 AND CVP4 DISPLACEMENTS SCALED BY 40

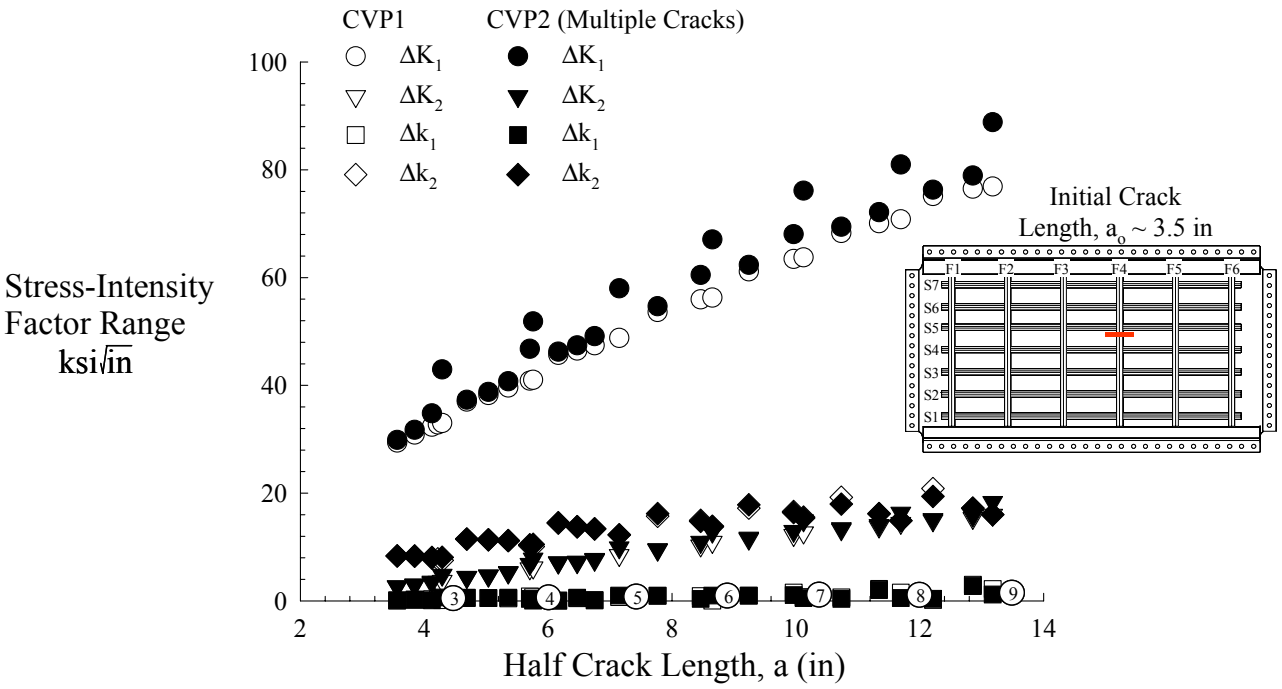



FIGURE D-58. MIXED-MODE STRESS-INTENSITY FACTOR RANGES AS A FUNCTION OF HALF CRACK LENGTH FOR PANELS CVP1 AND CVP2

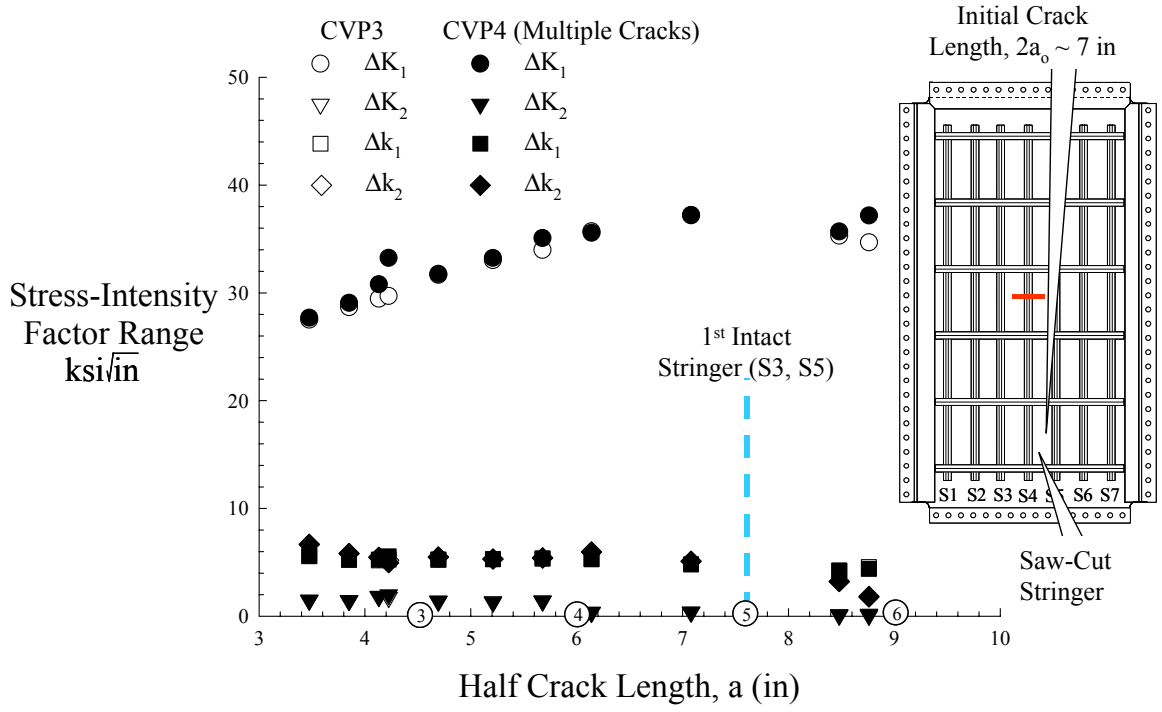



FIGURE D-59. MIXED-MODE STRESS-INTENSITY FACTOR RANGES AS A FUNCTION OF HALF CRACK LENGTH FOR PANELS CVP3 AND CVP4

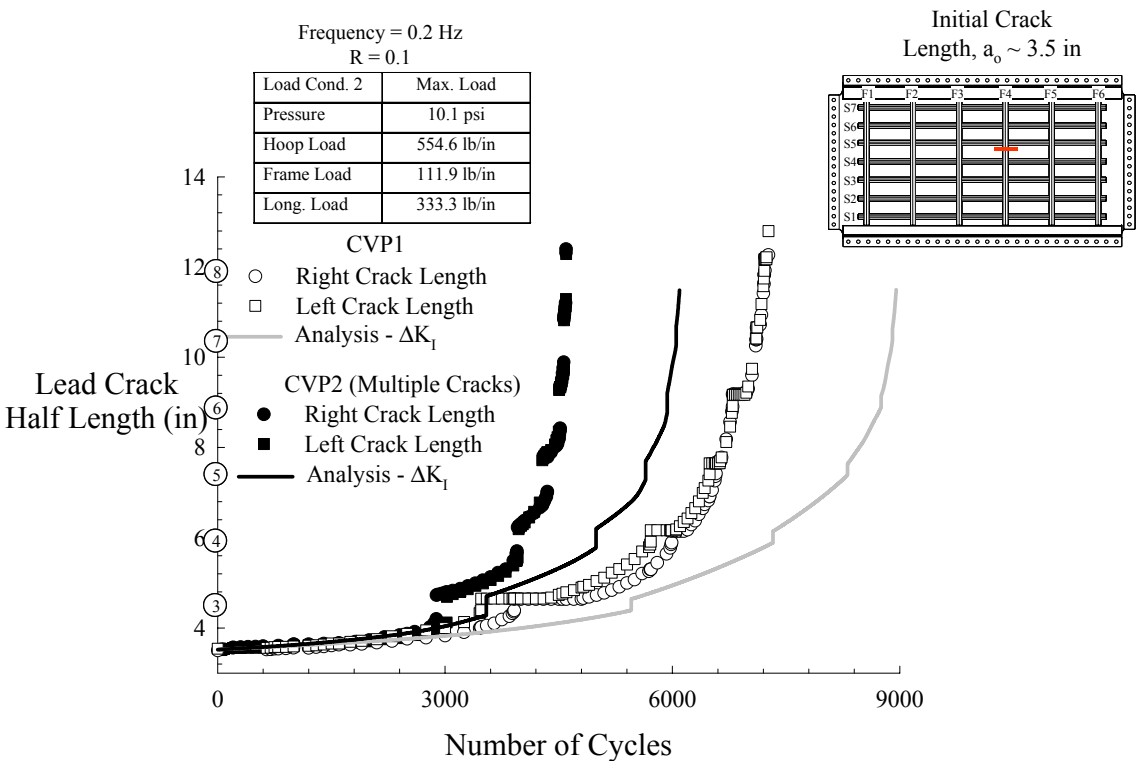



FIGURE D-60. HALF LENGTH OF THE LEAD CRACK AS A FUNCTION OF NUMBER OF FATIGUE CYCLES FOR PANELS CVP1 AND CVP2

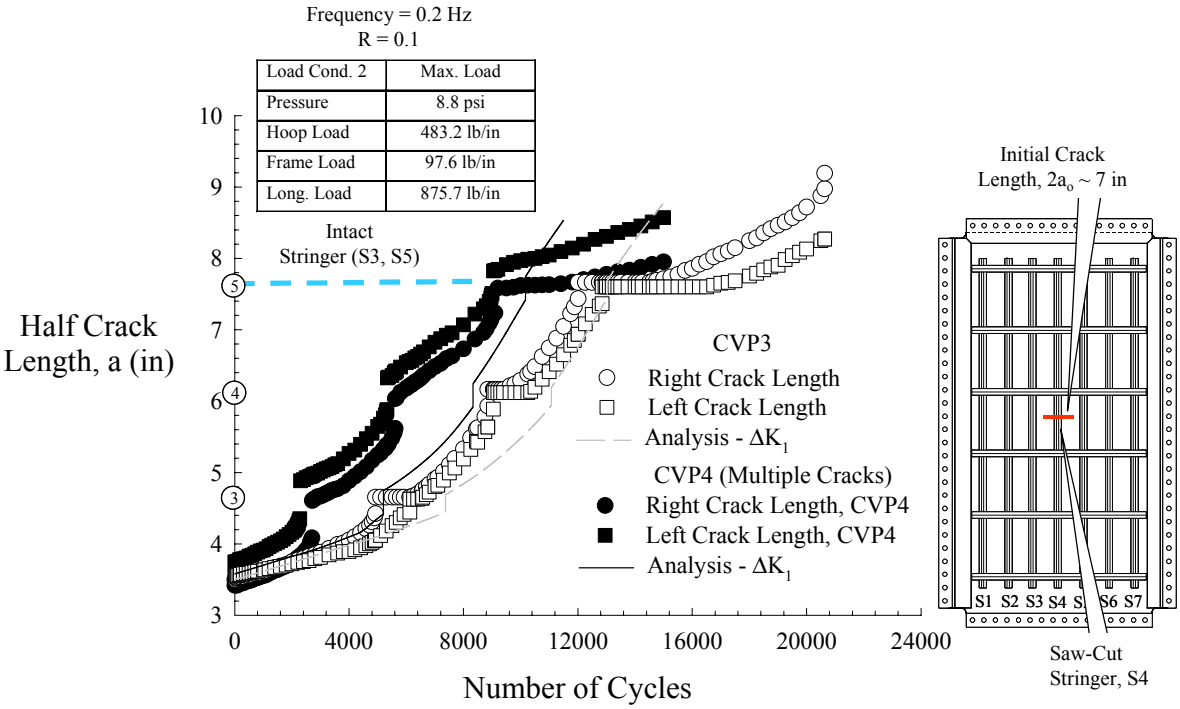



FIGURE D-61. HALF LENGTH OF THE LEAD CRACK AS A FUNCTION OF NUMBER OF FATIGUE CYCLES FOR PANELS CVP3 AND CVP4

# APPENDIX E—RAW STRAIN GAGE DATA

SUMMARY.

The strain distribution was measured and predicted at ten equal load increments up to the maximum values for load sequences 1a through 1c in tables E-1 and E-2 for the longitudinal lap joint and circumferential butt joint panels, respectively. In general, for each panel, the strain survey test was repeated twice using water and twice using air to determine the repeatability of the results and the effect of the pressurizing media. For panel CVP1, load condition 1b was conducted twice only using water.

The raw data from the strain survey for the strain gages in each panel is provided in the tables of this appendix. In these tables, for each test condition (1a, 1b, and 1c) and run (Air 1 and 2, Water 1 and 2), applied loads and strains were measured at each gage at each of the ten equal load increments up to the maximum loads listed. For the applied loads, the pressure is in units of psi, the 12 frame load assemblies, frames 1-12, are in units of lbs., the 14 hoop load assemblies, hoops 1-14, are in units of lbs., and the 8 longitudinal load assembles, long. 1-8, are in units of lbs. The strains measured at the gages are in units of με.

For all tests, the applied loads were within ±2% of the prescribed values listed in table E-1 and E-2. Valid strain readings were obtained from all gages in CVP1, tables E-3 through E-12. For CVP2, tables E-13 through E-24, bad strain readings were obtained for gages 7 and 26; for CVP3, tables E-25 through E-36, bad strain readings were obtained for gage 17; and for CVP4, tables E-37 through E-48, bad strain readings were obtained for gages 7 and 22. These gages short-circuited due to moisture absorption during panel pressurization using water. Apparently, the coating of these gages was not sufficient to protect the gages from the environment.

TABLE E-1. LOADING CONDITIONS OF PANELS CVP1 AND CVP2 FOR THE STRAIN SURVEY

| Load Condition | Maximum Load | | | |
|---|---|---|---|---|
| | Pressure (psi) | Hoop (lb.) | Frame (lb.) | Long. (lb.) |
| 1a | 10.1 | 8874 | 2089 | 0 |
| 1b | 0 | 0 | 0 | 4667 |
| 1c | 10.1 | 8874 | 2089 | 4667 |

TABLE E-2. LOADING CONDITIONS OF PANELS CVP3 AND CVP4 FOR THE STRAIN SURVEY

| Load Condition | Maximum Load | | | |
|---|---|---|---|---|
| | Pressure (psi) | Hoop (lb.) | Frame (lb.) | Long. (lb.) |
| 1a | 8.8 | 7731 | 1822 | 0 |
| 1b | 0 | 0 | 0 | 12260 |
| 1c | 8.8 | 7731 | 1822 | 12260 |

TABLE E-3. CVP1, AIR 1, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.01 | 1.00 | 2.03 | 3.07 | 4.04 | 5.06 | 6.06 | 7.05 | 8.10 | 9.09 | 10.10 |
| Frame-1 | -12.26 | 214.37 | 412.52 | 624.79 | 825.34 | 1043.59 | 1279.62 | 1464.69 | 1668.99 | 1904.09 | 2098.13 |
| Frame-2 | -91.70 | 202.82 | 407.85 | 620.18 | 862.31 | 1058.06 | 1278.67 | 1460.01 | 1676.50 | 1899.61 | 2081.36 |
| Frame-3 | -12.19 | 192.44 | 554.02 | 617.31 | 838.88 | 1042.00 | 1283.46 | 1455.26 | 1670.20 | 1891.87 | 2079.47 |
| Frame-4 | 3.53 | 213.32 | 423.92 | 619.33 | 825.43 | 1045.79 | 1271.89 | 1469.38 | 1674.07 | 1890.61 | 2086.75 |
| Frame-5 | 36.05 | 208.19 | 417.38 | 621.72 | 822.94 | 1041.90 | 1249.34 | 1438.50 | 1659.02 | 1881.05 | 2091.29 |
| Frame-6 | -17.20 | 190.24 | 427.25 | 625.51 | 824.26 | 1062.41 | 1270.62 | 1442.19 | 1686.87 | 1890.82 | 2091.56 |
| Frame-7 | -80.41 | 189.50 | 420.62 | 622.67 | 838.93 | 1065.95 | 1243.55 | 1451.10 | 1687.53 | 1904.88 | 2081.34 |
| Frame-8 | -40.96 | 206.30 | 423.40 | 630.39 | 837.80 | 1059.42 | 1266.08 | 1457.91 | 1673.43 | 1880.21 | 2077.11 |
| Frame-9 | 27.35 | 196.53 | 415.47 | 627.67 | 838.42 | 1096.81 | 1270.21 | 1454.71 | 1722.71 | 1894.46 | 2071.95 |
| Frame-10 | 29.97 | 198.11 | 415.30 | 674.01 | 805.74 | 1058.43 | 1265.17 | 1451.90 | 1658.89 | 1907.07 | 2095.45 |
| Frame-11 | -54.76 | 225.91 | 414.23 | 624.72 | 830.75 | 1064.13 | 1269.34 | 1451.56 | 1672.07 | 1924.81 | 2106.88 |
| Frame-12 | -45.96 | 217.10 | 444.70 | 636.19 | 829.80 | 1020.42 | 1280.74 | 1455.24 | 1669.16 | 1875.97 | 2110.94 |
| Hoop-1 | 17.07 | 910.35 | 1807.35 | 2648.63 | 3547.13 | 4425.91 | 5334.58 | 6199.47 | 7122.46 | 8000.89 | 8909.92 |
| Hoop-2 | 16.59 | 900.40 | 1795.26 | 2690.11 | 3562.52 | 4443.00 | 5312.61 | 6186.68 | 7105.48 | 7976.40 | 8879.50 |
| Hoop-3 | 51.59 | 880.40 | 1769.54 | 2655.14 | 3543.94 | 4463.61 | 5321.35 | 6192.22 | 7109.76 | 8000.68 | 8876.52 |
| Hoop-4 | -30.01 | 892.05 | 1812.25 | 2656.23 | 3535.18 | 4422.28 | 5313.26 | 6180.88 | 7162.43 | 7998.98 | 8907.05 |
| Hoop-5 | -16.17 | 764.98 | 1789.06 | 2672.99 | 3549.09 | 4446.45 | 5315.96 | 6186.28 | 7122.53 | 7997.11 | 8872.58 |
| Hoop-6 | 186.80 | 900.23 | 1792.50 | 2681.05 | 3550.62 | 4433.93 | 5326.74 | 6164.47 | 7131.25 | 7995.59 | 8892.48 |
| Hoop-7 | -50.80 | 894.19 | 1791.74 | 2751.31 | 3542.70 | 4433.30 | 5305.84 | 6188.27 | 7120.48 | 7990.66 | 8885.45 |
| Hoop-8 | 5.81 | 871.58 | 1788.78 | 2669.17 | 3541.81 | 4466.94 | 5273.35 | 6167.92 | 7130.30 | 8011.49 | 8883.68 |
| Hoop-9 | 9.75 | 874.63 | 1773.75 | 2663.94 | 3551.96 | 4458.89 | 5287.19 | 6173.12 | 7111.26 | 8004.07 | 8889.83 |
| Hoop-10 | -1.13 | 887.03 | 1787.53 | 2659.21 | 3543.21 | 4449.68 | 5317.73 | 6201.47 | 7122.69 | 8007.86 | 8876.92 |
| Hoop-11 | -39.94 | 899.85 | 1782.06 | 2664.45 | 3546.48 | 4431.07 | 5309.77 | 6167.55 | 7122.55 | 8007.58 | 8887.33 |
| Hoop-12 | 44.86 | 888.31 | 1786.99 | 2646.94 | 3551.01 | 4440.96 | 5323.15 | 6197.30 | 7117.17 | 8000.16 | 8896.37 |
| Hoop-13 | 76.73 | 907.53 | 1760.22 | 2620.51 | 3547.18 | 4430.07 | 5327.44 | 6164.86 | 7122.17 | 8020.34 | 8909.49 |
| Hoop-14 | -67.07 | 902.15 | 1781.56 | 2676.07 | 3540.40 | 4457.62 | 5337.21 | 6186.37 | 7133.67 | 8028.97 | 8900.31 |
| Long-1 | 2.74 | -10.99 | -7.24 | 5.24 | -7.24 | -7.24 | 31.47 | 2.74 | 7.74 | 8.99 | 2.74 |
| Long-2 | -1.46 | 108.13 | 11.79 | -18.32 | 34.67 | -12.30 | -15.92 | 3.36 | 51.53 | -14.71 | -15.91 |
| Long-3 | 10.28 | -1.24 | -14.05 | -19.17 | 7.72 | 17.97 | 17.97 | -21.73 | 1.32 | 14.13 | -34.53 |
| Long-4 | -18.09 | -15.56 | -18.09 | 91.79 | -5.46 | 141.03 | -7.99 | -28.19 | -20.61 | 17.27 | -0.41 |
| Long-5 | -48.59 | -1.41 | -37.15 | 31.47 | -22.86 | 60.06 | 100.11 | -52.88 | -47.16 | 14.31 | 128.68 |
| Long-6 | -28.79 | 26.49 | -28.79 | 130.80 | -13.71 | -26.28 | 51.64 | 83.04 | -23.77 | -23.77 | 22.73 |
| Long-7 | 85.01 | 157.31 | -35.10 | -24.07 | 103.39 | 35.98 | 206.38 | 89.91 | 21.28 | 9.02 | -27.75 |
| Long-8 | -48.48 | 17.97 | 32.74 | -16.49 | 8.13 | -18.95 | -2.95 | -0.49 | 19.20 | 4.44 | -20.18 |
| SG1 | -97.46 | -196.03 | -163.27 | -141.63 | -58.45 | 33.52 | 149.71 | 196.44 | 313.35 | 378.00 | 474.51 |
| SG2 | 8.06 | 50.20 | 102.61 | 154.27 | 209.42 | 269.10 | 331.11 | 386.09 | 450.04 | 507.16 | 569.76 |
| SG3 | -74.91 | -167.83 | -148.95 | -132.59 | -70.34 | 13.59 | 111.12 | 155.38 | 268.88 | 325.23 | 413.16 |
| SG4 | 5.13 | 57.86 | 110.98 | 167.55 | 221.57 | 281.21 | 341.55 | 397.59 | 461.14 | 519.32 | 580.79 |
| SG5 | -24.99 | -200.18 | -156.64 | -118.00 | -60.28 | 34.60 | 107.30 | 154.99 | 273.87 | 331.33 | 419.17 |
| SG6 | 3.30 | 47.42 | 104.57 | 161.70 | 218.83 | 283.60 | 345.58 | 407.30 | 479.09 | 543.68 | 612.84 |
| SG7 | -10.16 | -228.65 | -172.99 | -122.67 | -82.85 | 5.49 | 85.69 | 142.27 | 258.54 | 321.68 | 405.13 |
| SG8 | 8.78 | 54.13 | 112.18 | 169.69 | 223.10 | 282.07 | 338.95 | 395.34 | 458.45 | 514.64 | 574.49 |
| SG9 | -67.58 | -162.92 | -131.35 | -123.44 | -49.41 | 38.20 | 133.56 | 178.20 | 297.79 | 352.69 | 447.61 |
| SG10 | 463.35 | 1593.65 | 6315.49 | 4973.32 | 5092.95 | 5435.31 | 5018.59 | 5784.11 | 6184.11 | 6413.93 | 5956.13 |

TABLE E3. CVP1, AIR 1, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | -31.76 | -212.99 | -183.10 | -157.01 | -111.65 | -38.00 | 26.81 | 58.40 | 163.63 | 207.51 | 282.95 |
| SG12 | 35.01 | 118.25 | 202.67 | 285.85 | 370.37 | 462.65 | 555.11 | 647.76 | 751.32 | 846.59 | 947.15 |
| SG13 | 25.69 | -181.45 | -131.79 | -80.02 | -36.46 | 50.19 | 129.45 | 180.52 | 298.98 | 360.83 | 446.16 |
| SG14 | 22.16 | 82.11 | 151.28 | 217.67 | 278.63 | 342.86 | 403.60 | 461.72 | 529.33 | 587.53 | 648.65 |
| SG15 | -49.75 | -79.49 | -19.66 | -9.21 | 45.04 | 115.08 | 171.89 | 205.48 | 287.65 | 323.77 | 395.62 |
| SG16 | -119.00 | -102.16 | -34.43 | -1.65 | 59.14 | 118.08 | 175.43 | 228.72 | 288.97 | 340.95 | 399.13 |
| SG17 | -49.93 | -87.94 | -51.78 | -12.49 | 26.81 | 72.69 | 124.50 | 162.87 | 240.18 | 282.02 | 348.45 |
| SG18 | 281.67 | 313.60 | 362.02 | 412.50 | 461.18 | 513.33 | 567.26 | 619.75 | 683.88 | 735.70 | 795.58 |
| SG19 | 33.65 | -37.52 | 1.66 | 52.24 | 99.69 | 163.66 | 219.63 | 259.36 | 339.38 | 386.07 | 455.73 |
| SG20 | 84.75 | 105.54 | 147.49 | 198.05 | 249.17 | 305.56 | 357.70 | 407.90 | 468.41 | 520.58 | 577.16 |
| SG21 | 8.28 | -8.47 | -45.30 | -72.91 | -100.71 | -134.37 | -161.30 | -191.49 | -223.71 | -250.76 | -280.92 |
| SG22 | 9.53 | 22.54 | 12.83 | 11.18 | 8.98 | 5.86 | 8.43 | 6.23 | 1.83 | -0.92 | -3.48 |
| SG23 | 68.94 | 71.14 | 43.47 | 24.57 | 3.30 | -22.92 | -42.18 | -64.56 | -92.43 | -113.33 | -137.70 |
| SG24 | -14.68 | -11.38 | -26.06 | -31.01 | -37.43 | -44.40 | -44.96 | -51.75 | -60.56 | -67.16 | -73.94 |
| SG25 | 1574.13 | 1575.20 | 1550.68 | 1536.36 | 1515.58 | 1490.26 | 1471.39 | 1446.92 | 1414.91 | 1390.12 | 1361.29 |
| SG26 | 535.12 | 535.36 | 522.44 | 521.28 | 516.70 | 512.93 | 514.73 | 509.23 | 502.25 | 498.17 | 490.41 |
| SG27 | 2140.69 | 602.48 | 1048.64 | 136.25 | 2595.56 | 438.19 | 599.30 | 32.79 | 397.73 | 860.63 | 594.49 |
| SG28 | -11.63 | -14.58 | -30.03 | -30.03 | -35.18 | -41.06 | -44.75 | -52.11 | -63.15 | -69.77 | -74.91 |
| SG29T | 14.27 | 132.66 | 247.81 | 352.28 | 445.43 | 541.58 | 630.15 | 718.00 | 808.78 | 894.71 | 981.72 |
| SG29-45 | 34.88 | 91.00 | 147.51 | 198.86 | 243.54 | 290.81 | 327.71 | 364.84 | 409.07 | 447.66 | 481.44 |
| SG29L | -64.23 | -61.99 | -72.76 | -82.77 | -89.22 | -100.55 | -109.46 | -119.89 | -131.20 | -144.45 | -157.61 |
| SG30T | 25.05 | 104.94 | 194.21 | 276.47 | 355.28 | 438.20 | 516.60 | 596.33 | 681.18 | 760.10 | 842.30 |
| SG30-45 | 7.05 | 58.14 | 98.79 | 139.15 | 174.66 | 213.10 | 243.22 | 277.59 | 314.20 | 348.58 | 378.32 |
| SG30L | 6.73 | 17.59 | 8.06 | 3.57 | -3.53 | -12.05 | -18.97 | -28.59 | -40.00 | -51.00 | -63.54 |
| SG31T | 96.38 | 180.95 | 252.49 | 328.97 | 404.60 | 482.66 | 560.09 | 644.44 | 730.62 | 816.35 | 901.70 |
| SG31-45 | 99.91 | 139.94 | 171.37 | 205.41 | 243.04 | 278.93 | 309.82 | 348.69 | 385.55 | 424.02 | 458.63 |
| SG31L | 105.06 | 100.30 | 77.95 | 66.94 | 53.18 | 38.87 | 30.26 | 15.22 | -3.30 | -18.52 | -35.21 |
| SG32T | 11.22 | 102.06 | 206.54 | 299.06 | 386.10 | 476.72 | 560.25 | 646.20 | 737.47 | 822.42 | 910.10 |
| SG32-45 | 8.04 | 56.45 | 102.70 | 143.80 | 186.74 | 227.44 | 258.94 | 297.86 | 334.05 | 371.11 | 405.23 |
| SG32L | -0.18 | 1.60 | -18.88 | -28.54 | -42.15 | -57.21 | -65.57 | -81.19 | -100.48 | -116.42 | -134.13 |
| SG33T | 14.02 | 95.61 | 198.46 | 291.40 | 379.19 | 470.91 | 555.55 | 643.90 | 737.01 | 824.54 | 914.07 |
| SG33-45 | 3.99 | 46.92 | 92.85 | 131.00 | 174.67 | 213.07 | 250.61 | 289.15 | 325.80 | 361.64 | 394.67 |
| SG33L | 4.95 | 9.31 | -9.63 | -18.58 | -31.19 | -45.91 | -51.66 | -67.95 | -87.08 | -102.89 | -119.40 |
| SG34T | 22.96 | 105.52 | 204.58 | 290.33 | 368.86 | 453.58 | 529.00 | 610.15 | 694.83 | 773.66 | 854.35 |
| SG34-45 | 41.59 | 98.82 | 144.39 | 183.18 | 232.43 | 269.03 | 307.15 | 339.64 | 375.19 | 407.83 | 438.89 |
| SG34L | 10.68 | 13.80 | -12.01 | -22.47 | -26.96 | -44.38 | -47.28 | -66.72 | -85.89 | -101.88 | -118.33 |
| SG35T | 16.34 | 80.77 | 174.30 | 267.28 | 359.82 | 457.40 | 549.59 | 644.80 | 745.41 | 838.20 | 933.85 |
| SG35-45 | 18.65 | 54.04 | 104.84 | 153.51 | 205.58 | 258.24 | 304.89 | 354.40 | 403.91 | 452.64 | 498.42 |
| SG35L | 25.72 | 31.81 | 24.95 | 26.82 | 22.88 | 20.41 | 21.24 | 18.26 | 11.12 | 8.51 | 2.79 |
| SG36T | 0.92 | 105.31 | 212.48 | 307.70 | 396.54 | 487.47 | 571.88 | 658.15 | 747.72 | 831.17 | 916.06 |
| SG36-45 | 20.53 | 66.64 | 117.07 | 161.43 | 203.37 | 247.50 | 286.45 | 323.40 | 360.39 | 397.43 | 433.14 |
| SG36L | 40.14 | 25.84 | 9.40 | 2.15 | -10.77 | -20.34 | -28.28 | -41.16 | -55.23 | -66.40 | -78.67 |

TABLE E-4. CVP1, AIR 1, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.01 | 1.01 | 2.03 | 3.03 | 4.03 | 5.04 | 6.06 | 7.08 | 8.07 | 9.09 | 10.10 |
| Frame-1 | 18.69 | 206.26 | 411.63 | 632.16 | 846.95 | 1043.93 | 1256.16 | 1469.55 | 1683.16 | 1883.61 | 2085.73 |
| Frame-2 | 3.79 | 210.29 | 415.63 | 627.57 | 835.43 | 1047.94 | 1256.73 | 1468.44 | 1671.64 | 1898.06 | 2060.16 |
| Frame-3 | 68.43 | 215.24 | 415.84 | 628.11 | 826.10 | 1042.35 | 1270.38 | 1475.53 | 1677.49 | 1883.48 | 2091.13 |
| Frame-4 | 20.71 | 206.92 | 416.12 | 618.09 | 817.75 | 1042.68 | 1269.09 | 1458.74 | 1665.84 | 1892.52 | 2089.85 |
| Frame-5 | -24.39 | 187.99 | 483.76 | 642.90 | 832.51 | 1047.41 | 1265.52 | 1477.89 | 1678.39 | 1889.87 | 2090.94 |
| Frame-6 | 3.17 | 205.99 | 404.30 | 636.25 | 826.93 | 1054.31 | 1249.19 | 1458.80 | 1663.57 | 1887.62 | 2104.79 |
| Frame-7 | 75.39 | 224.55 | 416.63 | 626.69 | 834.79 | 1052.63 | 1253.25 | 1466.57 | 1651.93 | 1881.09 | 2093.72 |
| Frame-8 | 40.72 | 217.23 | 421.14 | 615.48 | 844.00 | 1047.84 | 1268.89 | 1463.03 | 1667.11 | 1882.26 | 2089.49 |
| Frame-9 | 14.13 | 207.62 | 402.70 | 635.16 | 835.94 | 1034.42 | 1246.87 | 1444.27 | 1669.13 | 1891.31 | 2103.70 |
| Frame-10 | -24.83 | 205.60 | 409.59 | 624.66 | 839.49 | 1029.63 | 1259.37 | 1450.14 | 1673.24 | 1867.80 | 2099.22 |
| Frame-11 | 42.04 | 206.18 | 418.80 | 637.24 | 819.97 | 1044.35 | 1241.66 | 1442.96 | 1667.66 | 1882.84 | 2091.95 |
| Frame-12 | 25.23 | 224.63 | 419.94 | 621.19 | 816.99 | 1046.81 | 1264.53 | 1458.67 | 1680.09 | 1898.79 | 2085.33 |
| Hoop-1 | 5.93 | 884.18 | 1773.92 | 2657.92 | 3523.34 | 4421.75 | 5316.00 | 6209.37 | 7103.89 | 7984.97 | 8865.34 |
| Hoop-2 | 3.70 | 879.97 | 1778.69 | 2642.24 | 3527.89 | 4424.15 | 5318.14 | 6202.03 | 7079.70 | 7999.29 | 8888.71 |
| Hoop-3 | -47.80 | 885.54 | 1767.77 | 2678.22 | 3546.07 | 4415.25 | 5347.97 | 6212.36 | 7092.01 | 7987.28 | 8897.82 |
| Hoop-4 | -30.01 | 689.28 | 1756.48 | 2672.96 | 3533.68 | 4453.43 | 5333.71 | 6207.53 | 7086.21 | 7994.20 | 8892.18 |
| Hoop-5 | 49.24 | 1302.92 | 1779.72 | 2652.44 | 3547.57 | 4410.50 | 5325.31 | 6226.14 | 7094.50 | 7984.83 | 8883.79 |
| Hoop-6 | 225.90 | 808.79 | 1786.91 | 2654.97 | 3541.66 | 4418.59 | 5324.88 | 6211.66 | 7095.86 | 8001.97 | 8879.43 |
| Hoop-7 | 24.00 | 864.83 | 1786.26 | 2649.15 | 3555.82 | 4443.80 | 5327.74 | 6219.90 | 7105.88 | 7989.63 | 8883.62 |
| Hoop-8 | -8.98 | 915.70 | 1781.56 | 2654.11 | 3549.56 | 4444.75 | 5325.14 | 6227.72 | 7085.92 | 7988.50 | 8877.17 |
| Hoop-9 | -101.30 | 958.10 | 1764.83 | 2652.76 | 3537.75 | 4431.58 | 5321.78 | 6211.97 | 7102.16 | 7994.17 | 8885.25 |
| Hoop-10 | 11.56 | 901.26 | 1773.21 | 2649.88 | 3543.57 | 4429.74 | 5310.48 | 6223.84 | 7093.70 | 7985.31 | 8870.56 |
| Hoop-11 | 144.67 | 940.19 | 1771.16 | 2643.88 | 3552.38 | 4444.00 | 5335.61 | 6223.54 | 7083.78 | 7990.17 | 8878.98 |
| Hoop-12 | 35.60 | 875.07 | 1764.93 | 2661.50 | 3521.71 | 4433.55 | 5308.32 | 6197.92 | 7087.52 | 7999.36 | 8882.43 |
| Hoop-13 | 24.82 | 885.02 | 1767.81 | 2664.74 | 3451.13 | 4422.66 | 5320.02 | 6224.80 | 7085.09 | 7982.46 | 8895.54 |
| Hoop-14 | 29.83 | 886.97 | 1796.65 | 2660.89 | 3563.11 | 4435.25 | 5337.21 | 6224.26 | 7118.76 | 7975.99 | 8863.92 |
| Long-1 | -4.75 | 474.68 | 1313.41 | 1398.85 | 1876.75 | 2577.16 | 2800.92 | 3261.99 | 3752.01 | 4205.21 | 4674.65 |
| Long-2 | 114.15 | 467.02 | 1001.53 | 1398.23 | 1886.91 | 2442.10 | 2803.67 | 3268.91 | 3723.49 | 4189.56 | 4655.63 |
| Long-3 | -47.34 | 471.27 | 929.52 | 1392.25 | 1870.89 | 2319.08 | 2803.40 | 3262.20 | 3743.03 | 4192.50 | 4668.85 |
| Long-4 | 56.42 | 537.56 | 928.86 | 1409.21 | 1869.87 | 2330.81 | 2793.29 | 3259.65 | 3711.10 | 4190.98 | 4646.87 |
| Long-5 | 55.77 | 520.40 | 936.23 | 1405.62 | 1869.96 | 2324.58 | 2800.93 | 3265.93 | 3738.48 | 4198.82 | 4664.88 |
| Long-6 | -28.79 | 467.53 | 942.31 | 1397.63 | 1863.52 | 2327.18 | 2797.39 | 3261.42 | 3730.71 | 4206.93 | 4668.07 |
| Long-7 | 2.89 | 540.91 | 947.61 | 1402.76 | 1879.23 | 2353.52 | 2777.84 | 3256.18 | 3744.53 | 4196.76 | 4656.35 |
| Long-8 | 42.58 | 464.67 | 928.41 | 1387.88 | 1879.83 | 2327.76 | 2801.82 | 3251.35 | 3719.55 | 4198.24 | 4656.02 |
| SG1 | -99.68 | -206.33 | -167.14 | -85.21 | 5.86 | 110.12 | 185.96 | 265.34 | 346.33 | 409.00 | 466.31 |
| SG2 | 15.39 | 52.77 | 99.88 | 151.91 | 203.95 | 257.79 | 312.73 | 367.95 | 422.92 | 476.42 | 530.98 |
| SG3 | -61.34 | -179.62 | -196.72 | -139.40 | -60.61 | 17.08 | 90.71 | 143.81 | 202.40 | 247.21 | 287.95 |
| SG4 | 15.57 | 60.07 | 104.03 | 155.30 | 206.94 | 258.93 | 313.65 | 366.64 | 419.75 | 473.04 | 526.10 |
| SG5 | -14.10 | -197.29 | -182.61 | -120.11 | -33.55 | 50.12 | 136.15 | 187.86 | 247.87 | 300.56 | 350.97 |
| SG6 | 13.55 | 47.98 | 94.33 | 146.88 | 199.44 | 254.54 | 312.55 | 370.49 | 429.28 | 488.80 | 548.99 |
| SG7 | 11.72 | -216.25 | -183.03 | -107.85 | 10.99 | 111.50 | 224.44 | 285.28 | 359.80 | 424.62 | 489.94 |
| SG8 | 20.35 | 56.20 | 103.22 | 155.62 | 208.71 | 262.51 | 318.95 | 372.70 | 426.25 | 480.26 | 535.04 |
| SG9 | -51.81 | -175.44 | -184.65 | -122.72 | -45.74 | 40.78 | 113.51 | 173.79 | 233.31 | 282.91 | 324.03 |
| SG10 | 5607.23 | 5679.15 | 5856.62 | 5477.32 | 5530.16 | 5200.09 | 5840.92 | 5362.08 | 5972.00 | 5682.09 | 5319.72 |

TABLE E-4. CVP1, AIR 1, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | -33.61 | -217.08 | -217.47 | -171.35 | -94.76 | -18.73 | 56.19 | 97.34 | 145.45 | 186.41 | 221.10 |
| SG12 | 62.03 | 130.24 | 199.02 | 276.07 | 352.07 | 433.63 | 519.48 | 605.40 | 693.70 | 783.09 | 872.17 |
| SG13 | 48.23 | -169.35 | -131.57 | -59.78 | 55.29 | 159.62 | 274.05 | 333.61 | 408.55 | 475.70 | 538.91 |
| SG14 | 37.05 | 86.34 | 145.75 | 205.01 | 264.37 | 323.88 | 385.02 | 441.21 | 497.63 | 553.88 | 609.69 |
| SG15 | -38.54 | -83.22 | -60.17 | 0.78 | 52.33 | 125.55 | 168.97 | 232.06 | 278.80 | 326.32 | 362.17 |
| SG16 | -110.24 | -99.99 | -63.73 | -10.62 | 40.65 | 93.20 | 146.47 | 199.97 | 247.77 | 298.86 | 346.07 |
| SG17 | -47.93 | -81.71 | -56.19 | -29.38 | 25.16 | 86.48 | 138.79 | 186.56 | 236.51 | 286.64 | 327.18 |
| SG18 | 285.51 | 313.48 | 356.97 | 396.86 | 447.47 | 501.65 | 555.00 | 607.78 | 658.94 | 713.04 | 763.57 |
| SG19 | 44.52 | -39.55 | 13.80 | 58.50 | 124.72 | 200.67 | 271.82 | 314.92 | 370.10 | 427.12 | 471.41 |
| SG20 | 89.93 | 105.19 | 153.58 | 197.15 | 245.33 | 301.39 | 354.87 | 403.67 | 456.08 | 510.34 | 559.93 |
| SG21 | 11.05 | 14.36 | 14.92 | 7.18 | 4.05 | 4.42 | -2.21 | -4.42 | -5.34 | -7.00 | -8.84 |
| SG22 | 11.55 | 48.93 | 75.33 | 94.20 | 118.39 | 144.95 | 163.99 | 188.22 | 212.23 | 232.75 | 256.00 |
| SG23 | 68.59 | 100.87 | 117.39 | 123.98 | 132.05 | 142.85 | 147.42 | 156.07 | 165.06 | 172.39 | 181.00 |
| SG24 | -15.05 | 18.54 | 48.64 | 71.02 | 99.28 | 128.08 | 150.27 | 175.63 | 200.58 | 223.34 | 248.09 |
| SG25 | 1586.37 | 1622.98 | 1654.98 | 1676.15 | 1698.41 | 1722.15 | 1741.11 | 1763.35 | 1784.51 | 1803.83 | 1824.80 |
| SG26 | 539.68 | 571.43 | 605.98 | 634.18 | 664.82 | 697.42 | 722.48 | 750.33 | 777.67 | 803.72 | 830.06 |
| SG27 | 606.65 | 2752.89 | 335.76 | 1237.13 | 6854.88 | 490.36 | 587.15 | 924.09 | 1095.12 | 4536.32 | 868.52 |
| SG28 | -7.95 | 20.75 | 53.87 | 78.15 | 106.86 | 134.08 | 158.35 | 178.25 | 201.80 | 229.77 | 248.88 |
| SG29T | 6.95 | 121.71 | 221.48 | 316.08 | 403.38 | 487.16 | 571.28 | 654.31 | 733.92 | 814.63 | 894.16 |
| SG29-45 | 22.80 | 87.90 | 144.46 | 211.38 | 265.13 | 312.94 | 365.22 | 416.34 | 464.97 | 513.27 | 563.11 |
| SG29L | -62.46 | -50.02 | -26.32 | -2.93 | 22.06 | 49.74 | 66.02 | 88.36 | 108.64 | 128.68 | 150.08 |
| SG30T | 19.57 | 90.34 | 160.03 | 234.62 | 303.93 | 372.65 | 444.10 | 515.87 | 585.91 | 658.14 | 729.20 |
| SG30-45 | -4.72 | 69.79 | 119.88 | 173.62 | 224.71 | 270.69 | 319.31 | 367.77 | 413.77 | 461.15 | 509.90 |
| SG30L | 6.69 | 51.37 | 86.80 | 110.16 | 137.20 | 165.73 | 184.91 | 207.58 | 229.21 | 248.82 | 270.38 |
| SG31T | 98.79 | 176.90 | 239.41 | 301.91 | 365.08 | 433.57 | 505.80 | 580.31 | 654.71 | 731.90 | 809.02 |
| SG31-45 | 96.23 | 158.03 | 208.71 | 254.07 | 300.83 | 348.29 | 396.29 | 447.90 | 497.41 | 549.13 | 601.88 |
| SG31L | 104.54 | 132.60 | 159.03 | 176.99 | 199.91 | 222.81 | 238.56 | 257.13 | 275.47 | 290.70 | 307.36 |
| SG32T | 10.31 | 91.50 | 174.95 | 258.41 | 336.66 | 413.41 | 491.79 | 569.96 | 645.83 | 724.27 | 802.26 |
| SG32-45 | 3.84 | 72.91 | 133.78 | 189.32 | 243.04 | 293.45 | 343.85 | 395.45 | 446.25 | 499.24 | 550.35 |
| SG32L | -3.34 | 31.20 | 59.48 | 78.76 | 101.49 | 124.75 | 140.04 | 158.67 | 176.31 | 190.42 | 206.76 |
| SG33T | 10.59 | 84.86 | 169.42 | 251.34 | 330.66 | 409.06 | 488.19 | 567.28 | 644.45 | 724.00 | 803.46 |
| SG33-45 | -4.77 | 61.75 | 121.63 | 179.42 | 236.71 | 289.49 | 340.55 | 394.25 | 444.39 | 494.48 | 545.99 |
| SG33L | 0.64 | 38.08 | 65.61 | 89.23 | 112.36 | 135.14 | 152.06 | 172.09 | 191.08 | 206.77 | 223.54 |
| SG34T | 23.61 | 92.98 | 171.54 | 244.88 | 317.41 | 388.71 | 460.91 | 532.39 | 602.86 | 675.35 | 748.08 |
| SG34-45 | 34.46 | 111.35 | 175.66 | 235.07 | 296.56 | 352.66 | 407.28 | 463.22 | 515.96 | 569.67 | 622.57 |
| SG34L | 0.64 | 38.38 | 59.71 | 82.68 | 104.14 | 127.10 | 144.33 | 166.64 | 187.19 | 206.31 | 225.04 |
| SG35T | 6.92 | 65.90 | 141.61 | 226.50 | 310.90 | 396.09 | 482.31 | 570.38 | 655.51 | 742.71 | 829.36 |
| SG35-45 | 8.30 | 61.01 | 121.49 | 186.85 | 247.31 | 305.96 | 366.61 | 429.21 | 488.44 | 548.40 | 609.03 |
| SG35L | 26.69 | 60.28 | 92.20 | 117.18 | 143.36 | 171.86 | 194.96 | 219.67 | 244.15 | 266.77 | 289.81 |
| SG36T | -0.37 | 96.53 | 185.76 | 271.83 | 352.80 | 432.25 | 510.04 | 589.09 | 665.84 | 743.51 | 820.73 |
| SG36-45 | 14.03 | 70.27 | 128.55 | 190.60 | 244.00 | 292.75 | 342.76 | 392.98 | 439.65 | 486.03 | 533.10 |
| SG36L | 42.44 | 54.72 | 77.78 | 96.06 | 116.82 | 137.02 | 154.60 | 170.49 | 187.26 | 200.60 | 215.61 |
| SG37T | -66.94 | 11.63 | 81.96 | 156.81 | 231.36 | 303.25 | 376.84 | 450.48 | 523.19 | 595.01 | 668.51 |
| SG37-45 | 35.00 | 65.68 | 106.84 | 154.32 | 206.02 | 254.54 | 300.59 | 348.95 | 401.60 | 448.34 | 490.58 |
| SG37L | 10.83 | 32.01 | 56.71 | 83.83 | 110.10 | 137.18 | 160.44 | 186.23 | 212.12 | 231.67 | 255.77 |

TABLE E-5. CVP1, AIR 2, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.02 | 1.02 | 2.04 | 3.05 | 4.04 | 5.05 | 6.06 | 7.06 | 8.08 | 9.08 | 10.08 |
| Frame-1 | 9.50 | 206.90 | 420.22 | 614.65 | 827.89 | 1062.64 | 1251.99 | 1406.03 | 1675.71 | 1869.98 | 2096.62 |
| Frame-2 | 41.49 | 205.73 | 426.06 | 622.09 | 837.07 | 1058.15 | 1249.06 | 1449.49 | 1678.03 | 1870.39 | 2107.60 |
| Frame-3 | -103.78 | 202.15 | 405.52 | 620.95 | 837.99 | 1076.44 | 1230.19 | 1472.31 | 1675.20 | 1866.47 | 2083.12 |
| Frame-4 | 6.35 | 209.29 | 416.11 | 628.15 | 831.43 | 1059.69 | 1240.79 | 1460.66 | 1703.20 | 1868.53 | 2074.89 |
| Frame-5 | -47.39 | 185.18 | 395.76 | 616.73 | 846.19 | 1047.18 | 1257.89 | 1464.28 | 1674.38 | 1967.65 | 2079.42 |
| Frame-6 | -7.66 | 201.52 | 411.05 | 610.47 | 847.16 | 1064.24 | 1224.70 | 1469.24 | 1671.50 | 1877.60 | 2093.51 |
| Frame-7 | 83.17 | 218.67 | 437.32 | 615.01 | 833.54 | 1052.49 | 1237.42 | 1463.67 | 1655.66 | 1864.41 | 2092.91 |
| Frame-8 | 22.67 | 202.75 | 410.83 | 612.41 | 818.65 | 1044.25 | 1239.29 | 1479.07 | 1674.28 | 1881.08 | 2095.56 |
| Frame-9 | -14.55 | 219.12 | 413.21 | 598.92 | 824.22 | 1076.17 | 1244.79 | 1467.45 | 1664.18 | 1874.38 | 2087.12 |
| Frame-10 | 14.41 | 198.00 | 442.32 | 604.37 | 843.41 | 1051.86 | 1253.87 | 1466.18 | 1694.19 | 1873.51 | 2089.79 |
| Frame-11 | -36.24 | 215.62 | 396.79 | 627.43 | 810.26 | 1035.72 | 1268.40 | 1462.18 | 1669.63 | 1866.49 | 2045.54 |
| Frame-12 | -25.25 | 218.73 | 392.29 | 612.92 | 822.66 | 1088.18 | 1271.11 | 1474.77 | 1675.18 | 1880.30 | 2079.30 |
| Hoop-1 | -38.64 | 884.35 | 1783.21 | 2658.18 | 3573.13 | 4429.18 | 5341.47 | 6190.18 | 7115.03 | 7988.15 | 8870.91 |
| Hoop-2 | 27.64 | 874.62 | 1789.73 | 2666.44 | 3529.38 | 4431.51 | 5319.45 | 6236.40 | 7088.91 | 8007.94 | 8861.09 |
| Hoop-3 | 9.00 | 839.58 | 1810.36 | 2671.38 | 3554.59 | 4431.22 | 5342.11 | 6224.16 | 7113.31 | 7988.44 | 8851.67 |
| Hoop-4 | 14.61 | 1109.55 | 1808.53 | 2667.65 | 3533.32 | 4432.99 | 5318.31 | 6229.22 | 7088.07 | 7980.65 | 8845.70 |
| Hoop-5 | 58.59 | 854.68 | 1802.15 | 2678.87 | 3547.22 | 4444.14 | 5339.72 | 6218.04 | 7103.84 | 7969.36 | 8870.71 |
| Hoop-6 | -8.82 | 855.52 | 1816.72 | 2677.59 | 3537.58 | 4442.80 | 5318.76 | 6199.86 | 7097.72 | 7993.99 | 8858.94 |
| Hoop-7 | 36.77 | 894.19 | 1799.03 | 2676.78 | 3540.87 | 4425.56 | 5310.78 | 6195.56 | 7082.17 | 7992.71 | 8883.62 |
| Hoop-8 | 28.00 | 908.40 | 1788.78 | 2668.91 | 3519.27 | 4407.76 | 5308.75 | 6204.91 | 7077.10 | 7988.50 | 8891.08 |
| Hoop-9 | 244.56 | 894.48 | 1788.32 | 2665.50 | 3529.77 | 4429.76 | 5305.62 | 6156.74 | 7089.82 | 7990.53 | 8867.98 |
| Hoop-10 | 4.31 | 894.11 | 1787.53 | 2660.75 | 3533.80 | 4438.80 | 5330.63 | 6223.21 | 7114.03 | 7978.06 | 8869.67 |
| Hoop-11 | -34.41 | 892.28 | 1979.58 | 2653.11 | 3531.36 | 4495.68 | 5321.10 | 6202.62 | 7093.44 | 7964.32 | 8861.48 |
| Hoop-12 | -116.36 | 880.72 | 1772.17 | 2683.74 | 3521.01 | 4440.96 | 5328.97 | 6212.13 | 7108.34 | 7984.53 | 8859.30 |
| Hoop-13 | 24.82 | 870.27 | 1752.81 | 2627.66 | 3554.24 | 4430.07 | 5318.43 | 6164.86 | 7098.50 | 7982.46 | 8864.99 |
| Hoop-14 | -52.16 | 879.61 | 1796.47 | 2690.71 | 3540.04 | 4457.62 | 5343.06 | 6216.18 | 7117.34 | 7975.99 | 8863.04 |
| Long-1 | -3.50 | 2.74 | 0.25 | -3.50 | -2.25 | 1.49 | 2.74 | 1.49 | -4.75 | 2.74 | -3.50 |
| Long-2 | -5.07 | -15.91 | 3.36 | 82.83 | 134.63 | -2.67 | -1.46 | -8.69 | -12.30 | -9.89 | -5.07 |
| Long-3 | 20.53 | -19.17 | -19.17 | -6.36 | 3.88 | -2.52 | -33.25 | 25.65 | -26.85 | -39.65 | -34.53 |
| Long-4 | 40.00 | 22.32 | 159.97 | 156.17 | -24.40 | -28.19 | -28.19 | 109.46 | -18.09 | 130.91 | -7.99 |
| Long-5 | 1.45 | -65.75 | -61.46 | 68.63 | 127.25 | 197.30 | -19.99 | 70.07 | -30.01 | -28.57 | -24.28 |
| Long-6 | -18.74 | 3.88 | -26.28 | 20.21 | 78.01 | -37.59 | 162.17 | 134.56 | 85.55 | -32.56 | -35.07 |
| Long-7 | 103.39 | -25.30 | -35.10 | 31.08 | -22.84 | 72.75 | 24.95 | -13.04 | 108.29 | 131.56 | 4.12 |
| Long-8 | -22.64 | -5.41 | 16.74 | -5.41 | 1.97 | -16.48 | 0.74 | 8.13 | -12.79 | 6.90 | -10.33 |
| SG1 | -182.69 | -212.18 | -186.03 | -130.47 | -28.77 | 41.23 | 112.88 | 188.70 | 299.76 | 378.84 | 440.20 |
| SG2 | 8.80 | 55.33 | 105.38 | 158.50 | 215.12 | 272.45 | 329.65 | 386.19 | 449.44 | 509.51 | 566.63 |
| SG3 | -104.87 | -170.24 | -172.13 | -131.87 | -48.49 | 14.51 | 80.44 | 149.10 | 246.82 | 315.41 | 375.08 |
| SG4 | 11.17 | 62.08 | 114.67 | 166.84 | 222.51 | 280.54 | 338.44 | 395.31 | 455.96 | 515.08 | 572.91 |
| SG5 | -77.45 | -187.93 | -161.94 | -97.96 | -19.13 | 41.10 | 105.05 | 176.47 | 271.92 | 342.19 | 403.78 |
| SG6 | 5.68 | 51.64 | 106.06 | 161.34 | 218.85 | 280.91 | 342.47 | 405.75 | 473.37 | 539.45 | 606.07 |
| SG7 | -46.87 | -214.39 | -182.09 | -126.89 | -55.21 | 24.53 | 90.64 | 165.49 | 268.04 | 336.98 | 400.31 |
| SG8 | 47.19 | 91.04 | 144.49 | 197.69 | 252.16 | 311.85 | 368.50 | 425.12 | 485.84 | 543.07 | 601.55 |
| SG9 | -106.37 | -172.30 | -175.48 | -126.21 | -39.68 | 31.23 | 96.81 | 167.51 | 272.60 | 339.20 | 405.49 |
| SG10 | 6261.91 | 6259.82 | 7083.16 | 6965.77 | 7925.05 | 9034.62 | 7452.39 | 8996.29 | 8499.62 | 8690.10 | 7681.41 |

TABLE E-5. CVP1, AIR 2, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | -88.70 | -204.75 | -191.22 | -139.58 | -72.54 | -19.65 | 25.53 | 82.81 | 168.03 | 219.88 | 269.08 |
| SG12 | 46.30 | 129.86 | 208.76 | 289.54 | 372.79 | 462.83 | 553.69 | 646.81 | 745.33 | 842.76 | 940.06 |
| SG13 | -9.53 | -167.77 | -132.77 | -77.09 | -3.66 | 74.98 | 137.15 | 208.97 | 313.15 | 384.53 | 444.87 |
| SG14 | 30.09 | 87.06 | 152.60 | 214.03 | 275.22 | 339.72 | 400.08 | 459.25 | 523.78 | 584.22 | 643.16 |
| SG15 | -72.40 | -85.09 | -71.64 | -16.73 | 41.06 | 98.24 | 143.11 | 195.91 | 275.52 | 312.59 | 365.68 |
| SG16 | -118.48 | -96.31 | -54.40 | 2.56 | 60.80 | 123.23 | 181.29 | 236.00 | 295.17 | 345.99 | 403.65 |
| SG17 | -61.70 | -78.03 | -40.41 | 7.90 | 48.29 | 99.88 | 131.29 | 180.28 | 247.13 | 292.57 | 349.10 |
| SG18 | 292.07 | 323.34 | 374.20 | 426.66 | 474.38 | 529.02 | 577.11 | 630.26 | 691.33 | 743.62 | 801.50 |
| SG19 | 6.25 | -39.91 | 0.74 | 51.32 | 115.52 | 174.18 | 222.21 | 273.47 | 345.97 | 412.67 | 453.47 |
| SG20 | 83.31 | 102.24 | 144.21 | 194.57 | 249.38 | 302.31 | 354.94 | 407.64 | 465.23 | 526.63 | 573.29 |
| SG21 | 5.52 | -19.52 | -49.36 | -76.60 | -106.43 | -139.74 | -167.92 | -197.34 | -227.74 | -257.09 | -285.79 |
| SG22 | 13.56 | 15.39 | 8.62 | 11.73 | 10.45 | 3.12 | 2.93 | 0.55 | 0.37 | -0.73 | -6.05 |
| SG23 | 69.87 | 60.15 | 40.54 | 23.47 | 1.28 | -24.76 | -44.93 | -67.84 | -91.51 | -114.46 | -137.75 |
| SG24 | -16.15 | -22.75 | -31.20 | -31.75 | -35.97 | -46.79 | -51.02 | -57.80 | -61.66 | -67.36 | -76.90 |
| SG25 | 1645.24 | 1629.81 | 1613.56 | 1599.80 | 1579.38 | 1553.65 | 1534.49 | 1511.01 | 1484.86 | 1460.83 | 1432.35 |
| SG26 | 538.58 | 529.17 | 523.83 | 524.27 | 521.89 | 514.50 | 512.71 | 509.31 | 506.06 | 500.15 | 492.21 |
| SG27 | 1783.29 | 1518.60 | 1259.98 | 1821.50 | 1337.98 | 664.08 | 11269.7 | 13292.2 | 9066.53 | 8665.02 | 90.53 |
| SG28 | 11.92 | 3.08 | -1.33 | 0.14 | -7.95 | -16.05 | -16.79 | -23.41 | -30.77 | -39.61 | -49.17 |
| SG29T | 3.48 | 128.84 | 240.54 | 341.89 | 435.41 | 532.73 | 623.01 | 710.90 | 799.36 | 886.37 | 973.23 |
| SG29-45 | 29.16 | 89.31 | 147.63 | 193.80 | 236.88 | 283.73 | 323.96 | 363.90 | 401.38 | 439.69 | 479.16 |
| SG29L | -69.88 | -73.35 | -79.50 | -83.70 | -89.78 | -105.97 | -115.82 | -126.60 | -137.77 | -149.67 | -162.15 |
| SG30T | 13.72 | 99.65 | 184.92 | 266.80 | 346.17 | 429.88 | 510.02 | 589.63 | 671.24 | 752.28 | 834.51 |
| SG30-45 | 3.62 | 50.08 | 97.39 | 133.85 | 167.25 | 203.80 | 240.01 | 275.20 | 306.15 | 341.76 | 375.41 |
| SG30L | 4.90 | 7.06 | 4.54 | 3.57 | -2.11 | -15.07 | -22.64 | -31.61 | -41.97 | -51.29 | -64.11 |
| SG31T | 97.46 | 177.11 | 250.07 | 321.30 | 393.50 | 475.97 | 557.39 | 639.18 | 722.11 | 807.80 | 895.37 |
| SG31-45 | 105.95 | 136.79 | 174.02 | 208.78 | 239.13 | 275.68 | 314.59 | 352.66 | 388.26 | 429.47 | 466.47 |
| SG31L | 105.27 | 91.33 | 76.86 | 68.78 | 56.67 | 39.06 | 27.14 | 13.02 | -1.47 | -15.59 | -34.67 |
| SG32T | -0.73 | 97.03 | 196.09 | 287.73 | 374.78 | 465.27 | 551.63 | 637.46 | 724.56 | 811.48 | 899.38 |
| SG32-45 | 16.08 | 60.66 | 110.94 | 154.60 | 191.14 | 230.59 | 270.27 | 308.40 | 344.43 | 384.19 | 420.52 |
| SG32L | -7.15 | -14.16 | -27.08 | -34.04 | -45.41 | -63.04 | -75.37 | -90.34 | -104.82 | -120.39 | -139.90 |
| SG33T | 0.18 | 90.67 | 189.97 | 281.35 | 369.33 | 461.29 | 548.95 | 636.62 | 725.21 | 814.34 | 904.99 |
| SG33-45 | -0.46 | 39.95 | 85.99 | 129.82 | 169.09 | 210.82 | 249.97 | 288.54 | 327.01 | 366.47 | 399.93 |
| SG33L | 1.38 | -5.37 | -18.13 | -24.09 | -35.60 | -51.56 | -61.75 | -76.65 | -89.36 | -105.40 | -124.30 |
| SG34T | 11.92 | 100.67 | 194.16 | 279.40 | 361.24 | 443.22 | 523.27 | 603.61 | 682.43 | 762.89 | 844.80 |
| SG34-45 | 36.06 | 82.29 | 131.72 | 178.57 | 216.05 | 258.87 | 290.88 | 327.06 | 366.31 | 405.75 | 436.14 |
| SG34L | 6.97 | -9.72 | -20.41 | -26.60 | -40.95 | -49.75 | -63.60 | -80.60 | -87.48 | -101.87 | -122.36 |
| SG35T | 3.11 | 73.17 | 162.88 | 255.90 | 348.41 | 447.65 | 542.49 | 636.98 | 733.48 | 829.15 | 925.25 |
| SG35-45 | 15.08 | 44.65 | 95.32 | 147.24 | 194.37 | 246.37 | 300.67 | 350.85 | 400.57 | 450.39 | 497.11 |
| SG35L | 21.10 | 20.69 | 20.14 | 22.29 | 20.46 | 15.74 | 14.01 | 11.58 | 7.37 | 4.40 | -3.11 |
| SG36T | -3.30 | 103.48 | 206.30 | 300.96 | 389.25 | 479.87 | 566.38 | 651.06 | 737.94 | 823.17 | 908.83 |
| SG36-45 | 21.59 | 59.81 | 107.01 | 154.25 | 195.05 | 238.07 | 282.23 | 320.77 | 359.21 | 396.45 | 430.57 |
| SG36L | 35.20 | 13.79 | 3.80 | -3.57 | -13.15 | -26.12 | -35.61 | -45.96 | -58.98 | -70.00 | -85.12 |

TABLE E-6. CVP1, AIR 2, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.02 | 1.00 | 2.02 | 3.02 | 4.04 | 5.05 | 6.05 | 7.08 | 8.07 | 9.10 | 10.08 |
| Frame-1 | 25.65 | 222.10 | 419.94 | 631.03 | 831.25 | 1061.91 | 1248.22 | 1462.87 | 1665.65 | 1862.74 | 2095.94 |
| Frame-2 | -77.76 | 203.67 | 437.91 | 643.79 | 821.34 | 1040.03 | 1253.93 | 1456.48 | 1673.08 | 1880.48 | 2091.27 |
| Frame-3 | -73.96 | 210.44 | 412.11 | 613.27 | 827.60 | 1029.38 | 1255.60 | 1472.31 | 1656.60 | 1897.01 | 2080.73 |
| Frame-4 | -5.06 | 191.75 | 415.83 | 627.30 | 834.79 | 1034.83 | 1262.87 | 1464.12 | 1669.00 | 1871.63 | 2089.72 |
| Frame-5 | 29.18 | 207.31 | 447.23 | 640.04 | 846.11 | 1049.90 | 1247.21 | 1459.11 | 1669.47 | 1886.21 | 2087.36 |
| Frame-6 | 13.37 | 235.23 | 426.10 | 653.85 | 836.88 | 1044.87 | 1249.87 | 1470.89 | 1666.68 | 1867.04 | 2087.77 |
| Frame-7 | -47.22 | 220.03 | 417.97 | 622.45 | 826.41 | 1036.52 | 1261.05 | 1472.46 | 1674.95 | 1877.81 | 2066.74 |
| Frame-8 | -6.07 | 207.55 | 419.04 | 631.90 | 837.34 | 1042.07 | 1247.42 | 1451.70 | 1688.40 | 1892.75 | 2095.23 |
| Frame-9 | -54.16 | 222.21 | 412.76 | 615.13 | 844.91 | 1035.56 | 1244.29 | 1474.65 | 1676.74 | 1884.49 | 2078.04 |
| Frame-10 | 76.92 | 288.90 | 421.26 | 616.98 | 831.11 | 1046.24 | 1234.45 | 1462.92 | 1675.59 | 1883.46 | 2106.68 |
| Frame-11 | -12.03 | 213.63 | 421.83 | 602.66 | 838.78 | 1025.13 | 1273.03 | 1467.38 | 1653.06 | 1881.31 | 2089.23 |
| Frame-12 | 37.53 | 225.27 | 431.65 | 603.08 | 829.33 | 1032.37 | 1261.98 | 1469.78 | 1672.07 | 1874.74 | 2080.69 |
| Hoop-1 | -47.92 | 882.41 | 1770.03 | 2650.22 | 3541.56 | 4410.61 | 5334.04 | 6215.56 | 7088.33 | 7977.80 | 8858.88 |
| Hoop-2 | 25.80 | 870.85 | 1793.24 | 2676.96 | 3538.59 | 4392.85 | 5328.65 | 6184.22 | 7075.31 | 7990.33 | 8862.05 |
| Hoop-3 | 10.77 | 873.21 | 1765.82 | 2658.43 | 3543.94 | 4406.38 | 5345.66 | 6204.02 | 7087.76 | 7989.24 | 8866.76 |
| Hoop-4 | 3.45 | 912.41 | 1760.02 | 2655.97 | 3538.90 | 4416.26 | 5312.73 | 6241.60 | 7094.80 | 7985.17 | 8874.56 |
| Hoop-5 | -25.51 | 940.55 | 1772.07 | 2648.43 | 3526.67 | 4414.24 | 5321.04 | 6208.08 | 7101.26 | 7970.15 | 8854.88 |
| Hoop-6 | 4.22 | 874.06 | 1766.25 | 2658.43 | 3541.31 | 4424.18 | 5328.07 | 6210.41 | 7087.70 | 7992.92 | 8852.47 |
| Hoop-7 | 34.95 | 859.44 | 1780.61 | 2678.07 | 3544.52 | 4421.92 | 5318.08 | 6224.13 | 7088.75 | 7978.92 | 8869.97 |
| Hoop-8 | -38.58 | 893.60 | 1788.78 | 2676.30 | 3549.21 | 4429.51 | 5338.87 | 6204.29 | 7091.90 | 7972.91 | 8861.49 |
| Hoop-9 | 144.46 | 885.38 | 1757.37 | 2658.22 | 3541.04 | 4416.58 | 5327.99 | 6210.73 | 7084.36 | 7986.09 | 8864.34 |
| Hoop-10 | 16.99 | 874.17 | 1774.84 | 2662.56 | 3541.40 | 4411.18 | 5323.91 | 6215.35 | 7085.04 | 7991.76 | 8869.67 |
| Hoop-11 | -54.71 | 871.98 | 1796.83 | 2664.18 | 3540.95 | 4417.71 | 5310.56 | 6200.15 | 7093.44 | 8017.06 | 8857.79 |
| Hoop-12 | -51.51 | 882.57 | 1779.58 | 2668.91 | 3528.77 | 4455.35 | 5329.50 | 6204.10 | 7086.10 | 7991.15 | 8881.54 |
| Hoop-13 | 32.24 | 877.69 | 1797.30 | 2664.74 | 3554.60 | 4399.97 | 5341.20 | 6216.15 | 7091.09 | 7974.24 | 8872.41 |
| Hoop-14 | -29.80 | 887.06 | 1811.38 | 2675.80 | 3540.40 | 4434.81 | 5336.14 | 6223.01 | 7109.89 | 7997.55 | 8870.49 |
| Long-1 | 2.74 | 474.68 | 947.67 | 1402.04 | 1875.69 | 2328.71 | 2802.86 | 3265.09 | 3728.42 | 4184.41 | 4669.19 |
| Long-2 | -1.46 | 463.41 | 944.94 | 1403.70 | 1938.89 | 2331.30 | 2787.46 | 3250.19 | 3741.64 | 4198.41 | 4676.84 |
| Long-3 | -1.24 | 469.99 | 932.08 | 1390.42 | 1872.36 | 2344.69 | 2811.80 | 3252.59 | 3722.71 | 4196.76 | 4663.27 |
| Long-4 | 58.94 | 522.41 | 925.07 | 1417.48 | 1873.84 | 2310.60 | 2793.99 | 3284.26 | 3736.50 | 4193.92 | 4659.03 |
| Long-5 | -2.84 | 639.06 | 919.08 | 1399.34 | 1854.42 | 2336.02 | 2800.37 | 3263.85 | 3735.93 | 4200.67 | 4665.84 |
| Long-6 | 139.58 | 457.48 | 923.46 | 1402.10 | 1858.68 | 2333.46 | 2798.09 | 3259.51 | 3720.80 | 4199.81 | 4667.60 |
| Long-7 | -37.55 | 451.45 | 935.36 | 1403.43 | 1863.48 | 2343.71 | 2807.92 | 3272.69 | 3739.73 | 4188.60 | 4673.04 |
| Long-8 | 6.90 | 462.21 | 937.03 | 1384.87 | 1884.94 | 2326.53 | 2808.64 | 3280.23 | 3730.74 | 4220.81 | 4666.63 |
| SG1 | -182.71 | -170.43 | -132.50 | -56.26 | 29.69 | 138.18 | 234.58 | 302.14 | 382.43 | 420.14 | 520.60 |
| SG2 | 11.91 | 56.81 | 102.44 | 154.10 | 206.37 | 262.06 | 317.77 | 371.94 | 426.22 | 478.21 | 535.06 |
| SG3 | -127.84 | -167.33 | -163.29 | -121.77 | -59.70 | 25.72 | 106.72 | 159.22 | 228.66 | 247.92 | 326.00 |
| SG4 | 14.65 | 58.79 | 104.03 | 153.47 | 204.05 | 258.25 | 312.46 | 365.14 | 418.10 | 470.61 | 524.68 |
| SG5 | -114.40 | -186.51 | -152.45 | -93.93 | -34.48 | 53.84 | 140.45 | 199.60 | 280.10 | 310.83 | 385.79 |
| SG6 | 6.59 | 46.16 | 92.68 | 143.58 | 195.45 | 251.47 | 308.99 | 366.97 | 426.35 | 485.82 | 545.20 |
| SG7 | -102.00 | -191.59 | -133.54 | -70.40 | 2.93 | 102.92 | 217.18 | 292.02 | 404.11 | 448.93 | 529.17 |
| SG8 | 49.03 | 90.60 | 139.49 | 190.15 | 241.18 | 294.67 | 350.33 | 403.67 | 459.96 | 513.27 | 567.93 |
| SG9 | -130.08 | -172.52 | -158.56 | -111.14 | -47.04 | 41.16 | 124.57 | 184.24 | 255.36 | 277.37 | 360.44 |
| SG10 | 8704.65 | 8361.12 | 9243.42 | 9521.40 | 10589.9 | 9875.42 | 9128.92 | 7999.85 | 7139.72 | 6279.63 | 6453.47 |

TABLE E-6. CVP1, AIR 2, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | -132.43 | -206.26 | -186.24 | -140.31 | -91.66 | -17.08 | 61.16 | 110.18 | 177.04 | 192.45 | 258.58 |
| SG12 | 53.37 | 127.46 | 197.37 | 271.71 | 347.51 | 430.46 | 514.32 | 601.58 | 689.66 | 778.24 | 867.49 |
| SG13 | -68.26 | -145.36 | -84.06 | -20.43 | 52.83 | 159.42 | 272.90 | 352.58 | 457.38 | 502.13 | 586.74 |
| SG14 | 30.19 | 87.72 | 149.24 | 208.99 | 265.61 | 325.82 | 385.69 | 442.81 | 500.93 | 556.02 | 611.95 |
| SG15 | -75.67 | -84.65 | -50.14 | -2.20 | 50.23 | 117.46 | 174.61 | 236.94 | 291.45 | 318.59 | 385.30 |
| SG16 | -113.92 | -100.55 | -62.45 | -11.90 | 39.56 | 95.05 | 147.61 | 200.50 | 252.16 | 299.93 | 350.50 |
| SG17 | -69.42 | -75.66 | -36.54 | 0.92 | 39.30 | 81.17 | 142.32 | 194.62 | 249.91 | 282.94 | 348.33 |
| SG18 | 294.20 | 320.98 | 367.06 | 412.27 | 458.11 | 507.12 | 561.86 | 616.02 | 669.16 | 719.38 | 775.56 |
| SG19 | -11.96 | -34.40 | 20.42 | 71.19 | 126.76 | 205.12 | 267.49 | 336.59 | 396.40 | 434.07 | 504.01 |
| SG20 | 81.85 | 100.97 | 145.67 | 194.02 | 243.35 | 297.04 | 347.25 | 404.37 | 454.98 | 505.14 | 560.36 |
| SG21 | 5.71 | 10.31 | 9.21 | 4.23 | 1.10 | -3.68 | -5.52 | -9.21 | -11.23 | -10.31 | -12.70 |
| SG22 | 13.20 | 47.47 | 72.40 | 94.57 | 120.25 | 141.68 | 165.33 | 187.28 | 212.59 | 234.20 | 256.95 |
| SG23 | 69.51 | 97.21 | 112.62 | 121.59 | 131.34 | 138.11 | 145.27 | 152.75 | 161.57 | 171.28 | 178.26 |
| SG24 | -19.09 | 16.33 | 45.15 | 70.10 | 98.75 | 123.70 | 149.03 | 172.67 | 199.85 | 223.13 | 247.75 |
| SG25 | 1659.39 | 1696.74 | 1731.51 | 1758.20 | 1787.99 | 1814.86 | 1838.23 | 1861.77 | 1887.72 | 1912.18 | 1932.05 |
| SG26 | 538.64 | 572.40 | 604.88 | 633.63 | 665.69 | 695.35 | 723.25 | 749.89 | 779.69 | 805.66 | 831.98 |
| SG27 | 1205.65 | 3138.44 | 1398.38 | 2640.65 | 3658.38 | 812.85 | 1044.16 | 2294.31 | 2425.16 | 2746.00 | 2919.70 |
| SG28 | 15.60 | 50.93 | 78.90 | 107.59 | 133.38 | 159.13 | 184.89 | 209.14 | 233.45 | 253.29 | 277.61 |
| SG29T | 1.28 | 112.02 | 212.14 | 307.30 | 394.31 | 479.93 | 563.77 | 646.55 | 725.50 | 807.23 | 883.82 |
| SG29-45 | 30.63 | 84.25 | 149.63 | 210.32 | 260.97 | 314.65 | 364.78 | 412.27 | 462.49 | 512.07 | 559.14 |
| SG29L | -72.54 | -57.30 | -29.75 | -8.01 | 17.85 | 39.45 | 59.82 | 79.52 | 104.01 | 123.86 | 146.16 |
| SG30T | 11.70 | 83.21 | 153.81 | 226.57 | 295.94 | 367.23 | 437.28 | 508.87 | 578.59 | 650.76 | 720.32 |
| SG30-45 | 2.02 | 62.19 | 117.82 | 168.62 | 217.93 | 264.42 | 312.49 | 358.25 | 407.72 | 456.11 | 501.38 |
| SG30L | 3.80 | 47.11 | 81.85 | 107.14 | 135.53 | 158.75 | 181.30 | 202.29 | 226.55 | 247.29 | 268.39 |
| SG31T | 101.55 | 166.10 | 228.04 | 291.87 | 356.63 | 425.40 | 496.19 | 571.22 | 644.12 | 723.95 | 796.27 |
| SG31-45 | 106.83 | 154.24 | 207.51 | 254.07 | 301.99 | 346.53 | 395.31 | 445.47 | 497.96 | 552.01 | 601.21 |
| SG31L | 103.45 | 133.72 | 158.11 | 177.90 | 201.05 | 220.29 | 238.82 | 256.56 | 276.94 | 292.87 | 309.59 |
| SG32T | -3.16 | 79.68 | 165.14 | 247.23 | 325.18 | 403.59 | 480.94 | 558.91 | 634.65 | 713.57 | 788.96 |
| SG32-45 | 16.45 | 77.49 | 142.73 | 199.19 | 253.33 | 300.64 | 352.54 | 403.26 | 456.12 | 508.69 | 558.82 |
| SG32L | -10.40 | 26.07 | 52.19 | 72.76 | 96.42 | 116.21 | 134.86 | 151.88 | 171.46 | 187.11 | 203.07 |
| SG33T | -3.90 | 74.61 | 160.21 | 242.63 | 321.01 | 399.61 | 478.07 | 557.33 | 634.55 | 714.94 | 791.45 |
| SG33-45 | -10.09 | 53.54 | 116.12 | 172.67 | 230.11 | 278.81 | 332.99 | 384.85 | 438.56 | 489.20 | 538.70 |
| SG33L | -1.51 | 34.92 | 62.08 | 85.10 | 108.94 | 129.67 | 149.26 | 168.04 | 187.96 | 204.28 | 221.27 |
| SG34T | 4.72 | 85.15 | 162.18 | 235.84 | 307.38 | 379.25 | 450.78 | 522.62 | 593.05 | 666.43 | 736.10 |
| SG34-45 | 11.96 | 98.89 | 167.64 | 227.88 | 288.46 | 344.57 | 400.62 | 456.99 | 511.97 | 563.93 | 616.95 |
| SG34L | -8.99 | 28.98 | 54.85 | 77.13 | 99.25 | 120.34 | 139.83 | 161.21 | 182.65 | 201.06 | 222.04 |
| SG35T | -0.50 | 55.46 | 133.23 | 217.48 | 302.03 | 387.28 | 473.62 | 561.58 | 646.77 | 735.03 | 819.05 |
| SG35-45 | 10.32 | 53.73 | 117.37 | 179.24 | 239.48 | 298.50 | 359.57 | 420.55 | 482.39 | 543.94 | 602.13 |
| SG35L | 19.27 | 55.02 | 84.37 | 110.22 | 136.57 | 163.75 | 187.28 | 212.05 | 237.06 | 261.34 | 283.84 |
| SG36T | -3.66 | 87.75 | 178.06 | 264.69 | 345.36 | 424.83 | 502.87 | 581.89 | 657.97 | 736.66 | 811.29 |
| SG36-45 | 19.39 | 68.67 | 127.90 | 184.60 | 236.76 | 287.85 | 337.82 | 386.52 | 435.47 | 482.78 | 527.61 |
| SG36L | 35.84 | 52.66 | 73.29 | 91.25 | 110.70 | 131.23 | 148.05 | 164.38 | 181.81 | 196.27 | 211.42 |

TABLE E-7. CVP1, WATER 1, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.01 | 1.01 | 1.96 | 3.03 | 4.09 | 5.04 | 6.04 | 7.09 | 8.06 | 9.09 | 10.15 |
| Frame-1 | 4.33 | 222.62 | 427.83 | 626.41 | 820.57 | 1013.93 | 1271.95 | 1454.84 | 1670.20 | 1868.20 | 2105.03 |
| Frame-2 | 67.51 | 207.67 | 426.67 | 635.66 | 852.35 | 1031.56 | 1250.04 | 1465.78 | 1698.50 | 1885.99 | 2107.51 |
| Frame-3 | 199.98 | 207.52 | 406.28 | 673.87 | 840.96 | 1050.22 | 1268.97 | 1466.01 | 1683.45 | 1873.27 | 2096.61 |
| Frame-4 | 56.33 | 209.51 | 406.47 | 626.12 | 849.96 | 1040.23 | 1262.48 | 1456.09 | 1675.27 | 1878.82 | 2086.77 |
| Frame-5 | 66.47 | 202.65 | 405.08 | 642.31 | 826.80 | 1043.23 | 1258.90 | 1452.80 | 1665.40 | 1876.15 | 2115.47 |
| Frame-6 | -67.06 | 196.66 | 411.94 | 640.79 | 838.12 | 1048.52 | 1256.33 | 1449.35 | 1671.20 | 1869.02 | 2120.32 |
| Frame-7 | -208.34 | 228.89 | 408.67 | 631.58 | 837.82 | 1041.84 | 1265.60 | 1471.10 | 1672.16 | 1885.26 | 2097.83 |
| Frame-8 | 44.65 | 212.96 | 428.68 | 632.41 | 847.02 | 1035.33 | 1253.68 | 1452.06 | 1682.16 | 1888.15 | 2093.59 |
| Frame-9 | -27.21 | 243.41 | 413.68 | 654.05 | 858.33 | 1061.86 | 1226.18 | 1447.14 | 1668.64 | 1865.86 | 2107.96 |
| Frame-10 | -13.54 | 191.00 | 396.46 | 629.55 | 856.29 | 1029.17 | 1244.16 | 1468.44 | 1660.74 | 1890.91 | 2101.60 |
| Frame-11 | -4.43 | 232.46 | 402.70 | 628.53 | 836.29 | 1043.93 | 1242.01 | 1464.29 | 1680.81 | 1863.26 | 2106.00 |
| Frame-12 | 62.53 | 209.96 | 444.75 | 620.90 | 837.37 | 1016.95 | 1266.53 | 1435.56 | 1724.59 | 1870.11 | 2117.16 |
| Hoop-1 | 37.49 | 901.16 | 1753.32 | 2696.65 | 3586.12 | 4425.91 | 5326.08 | 6214.95 | 7108.75 | 7951.54 | 8936.95 |
| Hoop-2 | -53.36 | 885.76 | 1750.89 | 2673.28 | 3580.93 | 4395.13 | 5329.96 | 6218.61 | 7101.08 | 7973.51 | 8893.41 |
| Hoop-3 | 156.27 | 882.26 | 1756.95 | 2686.82 | 3577.66 | 4426.34 | 5329.16 | 6219.46 | 7101.95 | 7969.53 | 8928.87 |
| Hoop-4 | 66.65 | 858.67 | 1780.47 | 2659.69 | 3583.51 | 4429.71 | 5338.23 | 6250.29 | 7091.08 | 7997.92 | 8917.39 |
| Hoop-5 | 23.07 | 963.17 | 1744.04 | 2685.80 | 3586.46 | 4424.03 | 5346.66 | 6229.88 | 7105.00 | 7986.70 | 8924.11 |
| Hoop-6 | 371.12 | 872.37 | 1727.13 | 2701.27 | 3587.87 | 4420.90 | 5325.68 | 6222.83 | 7108.90 | 7998.25 | 8951.27 |
| Hoop-7 | -65.37 | 890.63 | 1769.67 | 2670.78 | 3548.17 | 4449.72 | 5333.97 | 6221.72 | 7100.41 | 8011.53 | 8917.44 |
| Hoop-8 | -16.38 | 915.79 | 1759.02 | 2683.43 | 3571.40 | 4428.63 | 5338.87 | 6270.86 | 7108.11 | 7987.70 | 8935.47 |
| Hoop-9 | 384.72 | 890.84 | 1742.63 | 2668.87 | 3568.34 | 4402.96 | 5318.89 | 6232.57 | 7107.62 | 7976.99 | 8938.98 |
| Hoop-10 | -26.50 | 892.29 | 1783.73 | 2669.55 | 3563.15 | 4424.79 | 5345.65 | 6244.33 | 7115.45 | 7970.02 | 8913.17 |
| Hoop-11 | 87.42 | 888.59 | 1759.73 | 2673.14 | 3566.79 | 4426.06 | 5327.17 | 6231.53 | 7094.86 | 7978.29 | 8933.48 |
| Hoop-12 | -18.15 | 886.28 | 1771.99 | 2668.65 | 3551.01 | 4417.40 | 5336.91 | 6226.33 | 7109.76 | 7998.56 | 8903.78 |
| Hoop-13 | -19.68 | 959.27 | 1752.63 | 2679.30 | 3591.68 | 4399.09 | 5348.62 | 6216.15 | 7099.92 | 7952.00 | 8931.74 |
| Hoop-14 | -7.44 | 916.88 | 1759.03 | 2675.53 | 3577.67 | 4396.67 | 5343.60 | 6230.47 | 7111.31 | 7945.38 | 8922.67 |
| Long-1 | -6.00 | -1.00 | -2.25 | -2.25 | 2.74 | -7.24 | 0.25 | 2.74 | 0.25 | -13.49 | 1.49 |
| Long-2 | -31.57 | 98.50 | -18.32 | 32.26 | -13.50 | 25.03 | 127.40 | 10.58 | -33.98 | 120.19 | 74.40 |
| Long-3 | 0.04 | -11.49 | -10.20 | -3.80 | -8.92 | 73.02 | -11.49 | 62.78 | 5.16 | 41.02 | -3.80 |
| Long-4 | -26.93 | -43.35 | 79.13 | 50.10 | -34.51 | -39.55 | -40.82 | -33.24 | -38.29 | -39.56 | -15.56 |
| Long-5 | -20.00 | 35.76 | 8.59 | 34.33 | 110.10 | -17.14 | -2.84 | 12.88 | -20.00 | -14.28 | 11.45 |
| Long-6 | 6.39 | 57.91 | -2.40 | 1.36 | -6.17 | 2.62 | -1.15 | 6.39 | 0.11 | 5.13 | 10.16 |
| Long-7 | 4.12 | -0.78 | -4.46 | -5.69 | 29.86 | 5.34 | 0.44 | 70.29 | -6.91 | -3.24 | 55.58 |
| Long-8 | 49.96 | 80.73 | -7.87 | 8.13 | 0.74 | -7.87 | -7.87 | -0.49 | 84.42 | -2.95 | -7.87 |
| SG1 | 205.38 | 38.15 | 89.83 | 148.64 | 217.92 | 307.27 | 409.92 | 441.25 | 531.05 | 611.98 | 674.89 |
| SG2 | 15.02 | 50.44 | 100.64 | 158.72 | 217.37 | 270.58 | 333.50 | 389.17 | 448.52 | 510.76 | 576.84 |
| SG3 | 249.00 | 16.73 | 56.04 | 114.26 | 178.56 | 256.68 | 351.53 | 378.13 | 459.48 | 530.32 | 590.66 |
| SG4 | 8.61 | 51.51 | 106.08 | 166.50 | 226.58 | 280.51 | 342.10 | 399.76 | 458.34 | 520.00 | 586.58 |
| SG5 | 262.42 | 34.36 | 76.47 | 112.03 | 182.22 | 273.62 | 364.78 | 396.94 | 480.52 | 548.25 | 618.42 |
| SG6 | 8.06 | 46.38 | 100.22 | 157.90 | 218.89 | 275.93 | 342.84 | 405.08 | 469.71 | 540.53 | 617.54 |
| SG7 | 342.15 | 71.66 | 97.45 | 147.43 | 219.59 | 316.57 | 414.55 | 446.41 | 527.90 | 593.37 | 669.62 |
| SG8 | 16.60 | 56.71 | 108.70 | 167.91 | 227.37 | 283.75 | 345.81 | 402.50 | 460.92 | 521.91 | 587.86 |
| SG9 | 271.84 | 41.19 | 78.11 | 139.10 | 203.77 | 283.96 | 383.40 | 414.80 | 500.04 | 573.64 | 636.74 |
| SG10 | 3277.73 | 28278.1 | 18831.0 | 13092.5 | 12758.4 | 35893.0 | 5015.66 | 17051.9 | 24541.3 | 24445.3 | 10814.6 |

TABLE E-7. CVP1, WATER 1, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 258.53 | 27.21 | 55.49 | 80.82 | 141.81 | 224.12 | 301.92 | 321.70 | 394.58 | 448.89 | 497.88 |
| SG12 | 29.06 | 116.04 | 197.98 | 285.80 | 373.56 | 459.85 | 554.52 | 648.16 | 741.89 | 844.30 | 953.90 |
| SG13 | 373.25 | 111.04 | 134.04 | 186.15 | 257.99 | 350.39 | 445.52 | 479.10 | 557.26 | 623.51 | 697.59 |
| SG14 | 26.28 | 78.99 | 141.40 | 210.64 | 277.84 | 338.20 | 405.39 | 465.39 | 526.40 | 588.80 | 655.56 |
| SG15 | 67.49 | -5.27 | 17.01 | 77.60 | 126.37 | 179.56 | 240.72 | 281.99 | 334.39 | 401.22 | 441.30 |
| SG16 | -100.15 | -90.18 | -48.36 | 15.02 | 74.18 | 125.40 | 187.52 | 240.17 | 294.12 | 348.11 | 405.81 |
| SG17 | 38.00 | -33.08 | 1.65 | 40.59 | 95.50 | 151.66 | 213.92 | 251.48 | 310.91 | 372.21 | 420.31 |
| SG18 | 276.33 | 293.25 | 340.06 | 396.71 | 454.26 | 505.10 | 562.12 | 616.01 | 672.29 | 729.17 | 785.10 |
| SG19 | 166.44 | 75.85 | 101.40 | 156.57 | 210.66 | 272.17 | 337.36 | 377.79 | 431.66 | 493.04 | 544.30 |
| SG20 | 98.19 | 117.62 | 156.01 | 206.57 | 260.09 | 308.93 | 367.07 | 419.29 | 471.49 | 527.70 | 584.45 |
| SG21 | 2.95 | -17.88 | -44.76 | -76.61 | -107.37 | -137.33 | -162.77 | -193.04 | -223.32 | -252.56 | -278.22 |
| SG22 | 6.96 | 4.04 | 2.38 | 4.77 | 2.20 | 0.18 | 2.38 | -0.55 | -2.20 | -2.20 | -1.28 |
| SG23 | 58.87 | 60.03 | 39.26 | 16.14 | -9.17 | -31.21 | -52.64 | -74.49 | -99.10 | -122.02 | -142.50 |
| SG24 | -10.83 | -13.96 | -21.85 | -27.17 | -34.88 | -41.15 | -43.13 | -52.32 | -60.05 | -64.81 | -69.37 |
| SG25 | 1257.43 | 1250.84 | 1233.46 | 1210.76 | 1178.56 | 1152.55 | 1126.26 | 1100.58 | 1072.38 | 1051.18 | 1030.60 |
| SG26 | 546.66 | 542.56 | 536.23 | 533.37 | 524.19 | 518.42 | 514.36 | 508.88 | 501.32 | 497.55 | 493.08 |
| SG27 | 2492.21 | 17296.1 | 1528.36 | 2504.10 | 8171.85 | 3723.29 | 5327.91 | 1749.63 | 2985.54 | 3101.10 | 3837.13 |
| SG28 | -95.54 | -93.41 | -98.52 | -99.24 | -107.33 | -117.01 | -113.20 | -125.76 | -135.37 | -138.29 | -143.38 |
| SG29T | 1.28 | 117.42 | 225.76 | 334.45 | 435.86 | 520.54 | 612.21 | 705.47 | 789.93 | 877.67 | 973.86 |
| SG29-45 | 11.90 | 73.73 | 130.30 | 183.49 | 233.12 | 280.63 | 316.45 | 364.07 | 395.97 | 438.08 | 475.08 |
| SG29L | -48.28 | -49.88 | -58.51 | -62.71 | -73.28 | -80.90 | -88.91 | -102.96 | -116.86 | -125.36 | -145.38 |
| SG30T | 24.69 | 96.09 | 176.35 | 263.20 | 347.88 | 420.14 | 501.24 | 583.58 | 661.53 | 743.36 | 833.14 |
| SG30-45 | 5.64 | 44.58 | 88.66 | 131.58 | 168.47 | 205.78 | 237.40 | 277.24 | 307.13 | 343.24 | 376.98 |
| SG30L | 15.72 | 23.80 | 19.99 | 16.77 | 6.97 | 2.02 | -6.87 | -15.54 | -28.16 | -38.79 | -56.64 |
| SG31T | 70.32 | 160.45 | 228.61 | 304.45 | 382.94 | 456.12 | 537.63 | 626.31 | 708.75 | 797.03 | 894.73 |
| SG31-45 | 90.18 | 126.55 | 157.86 | 191.07 | 221.06 | 257.10 | 294.96 | 336.54 | 372.43 | 411.25 | 454.14 |
| SG31T | 118.66 | 108.31 | 94.31 | 84.38 | 67.87 | 53.98 | 43.28 | 28.62 | 10.64 | -7.89 | -30.26 |
| SG32T | 6.51 | 94.33 | 186.69 | 283.94 | 377.61 | 458.67 | 545.59 | 635.09 | 718.54 | 808.25 | 905.16 |
| SG32-45 | -26.13 | 15.91 | 61.79 | 107.11 | 143.48 | 181.66 | 221.66 | 261.06 | 296.24 | 334.58 | 373.34 |
| SG32L | 13.75 | 15.27 | 4.22 | -4.26 | -19.43 | -33.12 | -44.67 | -59.22 | -77.72 | -98.15 | -123.16 |
| SG33T | 15.17 | 91.22 | 181.71 | 278.84 | 371.24 | 452.31 | 541.26 | 631.87 | 717.72 | 809.45 | 907.65 |
| SG33-45 | 8.03 | 58.18 | 100.05 | 148.53 | 187.57 | 224.67 | 262.40 | 302.57 | 338.10 | 372.92 | 408.79 |
| SG33L | 15.74 | 18.37 | 7.39 | -1.74 | -12.66 | -20.94 | -34.23 | -46.91 | -64.55 | -84.78 | -108.82 |
| SG34T | 33.42 | 107.52 | 192.78 | 283.08 | 367.46 | 443.57 | 523.22 | 604.30 | 682.25 | 764.49 | 850.31 |
| SG34-45 | 50.18 | 100.26 | 147.52 | 197.63 | 236.67 | 267.30 | 302.25 | 341.15 | 373.07 | 407.43 | 443.93 |
| SG34L | 17.52 | 13.22 | 6.65 | -4.04 | -13.03 | -27.54 | -40.35 | -51.15 | -69.11 | -86.02 | -102.58 |
| SG35T | 50.33 | 67.79 | 147.34 | 242.81 | 341.29 | 430.90 | 525.18 | 625.22 | 718.21 | 815.11 | 917.00 |
| SG35-45 | 47.31 | 56.21 | 100.94 | 152.77 | 201.01 | 246.12 | 296.09 | 349.41 | 397.04 | 445.76 | 499.62 |
| SG35L | 44.67 | 51.08 | 50.65 | 50.59 | 48.39 | 45.14 | 42.02 | 39.93 | 35.36 | 31.83 | 27.24 |
| SG36T | 3.48 | 91.67 | 191.31 | 296.62 | 392.81 | 473.67 | 562.90 | 652.37 | 734.68 | 821.22 | 912.22 |
| SG36-45 | 20.99 | 65.93 | 110.01 | 159.46 | 203.34 | 240.28 | 280.26 | 322.56 | 358.67 | 393.96 | 434.97 |
| SG36L | 40.24 | 42.52 | 26.96 | 11.18 | -0.50 | -7.39 | -20.07 | -31.18 | -44.26 | -55.67 | -69.25 |

TABLE E-8. CVP1, WATER 1, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.09 | 0.02 | -0.02 | -0.03 | 0.00 | 0.03 | 0.03 | 0.00 | 0.04 | -0.01 | 0.01 |
| Frame-1 | 28.98 | 10.55 | -29.98 | -4.13 | 2.49 | -0.41 | -5.36 | 11.61 | -5.38 | 0.87 | 13.92 |
| Frame-2 | 50.82 | 37.32 | 8.52 | -252.12 | -69.89 | 26.28 | 2.17 | -36.36 | 7.38 | 93.54 | -13.16 |
| Frame-3 | 193.61 | 192.44 | -242.63 | 117.79 | 38.56 | -10.70 | 137.11 | 121.43 | -1.92 | -96.91 | 56.80 |
| Frame-4 | 24.14 | 138.41 | 82.33 | 80.62 | 70.01 | 48.15 | 50.09 | 13.63 | 122.47 | -33.32 | 2.15 |
| Frame-5 | 58.41 | 129.64 | -204.27 | -111.09 | 43.92 | 137.64 | 41.24 | 3.02 | 110.24 | -16.36 | 122.66 |
| Frame-6 | 6.29 | -118.69 | 33.34 | -15.86 | 2.48 | 62.36 | -56.30 | 30.13 | -12.19 | 39.96 | 66.36 |
| Frame-7 | 152.40 | 46.10 | -189.17 | 19.27 | -41.32 | 74.76 | 90.44 | -99.25 | 78.49 | 41.68 | -140.22 |
| Frame-8 | 121.12 | -38.47 | 32.83 | -25.69 | -15.67 | -47.71 | -25.15 | 55.55 | 66.20 | -153.07 | -42.21 |
| Frame-9 | 160.38 | -27.68 | -18.33 | -37.53 | -140.70 | -173.08 | -73.47 | 95.47 | 101.12 | 2.65 | 106.34 |
| Frame-10 | -76.53 | 85.84 | -120.07 | -216.47 | 7.06 | 59.38 | -55.81 | -166.22 | 80.33 | 59.03 | -40.15 |
| Frame-11 | 75.55 | -133.55 | 6.04 | -154.67 | 83.52 | 46.85 | 150.24 | -15.71 | -12.12 | -175.02 | -33.98 |
| Frame-12 | 47.76 | 87.99 | 81.76 | -89.45 | 17.49 | 121.96 | 84.09 | 44.07 | 113.61 | -136.12 | -116.39 |
| Hoop-1 | 2.22 | 78.34 | 89.50 | 4.07 | 28.22 | 20.79 | -33.07 | -12.64 | 98.80 | 69.07 | -14.50 |
| Hoop-2 | -95.71 | -64.40 | -79.15 | 82.88 | -44.17 | -27.60 | 57.10 | -69.94 | 64.47 | -27.59 | -16.55 |
| Hoop-3 | 149.19 | 150.93 | 135.00 | 76.44 | -47.80 | 88.86 | 32.07 | 56.91 | 28.52 | 32.06 | -38.92 |
| Hoop-4 | 142.86 | -28.14 | 111.27 | 163.33 | 310.19 | 100.12 | -28.15 | -2.12 | 25.76 | -70.90 | -57.89 |
| Hoop-5 | 99.69 | 13.73 | -44.20 | 8.13 | 8.13 | -59.15 | -23.64 | -59.14 | -42.33 | 23.08 | -18.03 |
| Hoop-6 | -3.23 | -49.78 | 253.84 | -55.39 | 69.42 | 235.21 | 171.87 | -3.23 | -92.65 | -103.81 | 192.35 |
| Hoop-7 | -103.69 | -28.89 | -41.67 | -74.51 | -36.20 | -7.01 | 76.91 | -47.14 | 9.41 | -61.73 | 177.23 |
| Hoop-8 | 20.61 | 20.61 | -8.98 | -8.98 | 20.61 | 72.39 | 79.79 | 72.39 | -68.17 | 42.80 | 5.81 |
| Hoop-9 | -101.28 | 47.98 | 166.29 | 78.92 | -39.39 | 291.89 | -103.11 | -101.28 | 266.43 | 138.99 | 2.47 |
| Hoop-10 | -26.50 | 24.24 | -4.75 | -39.18 | 24.24 | 0.68 | 33.30 | 9.74 | -2.94 | 22.43 | 6.12 |
| Hoop-11 | 139.10 | -67.64 | -99.01 | 179.71 | 122.49 | -65.78 | -17.79 | -80.55 | -4.87 | -51.02 | 246.18 |
| Hoop-12 | 59.68 | -105.26 | -45.94 | -83.01 | -90.42 | -64.48 | -16.30 | 59.68 | 46.72 | 154.19 | -12.59 |
| Hoop-13 | 69.31 | 32.24 | 24.82 | -41.92 | 17.40 | -4.84 | -79.01 | -79.00 | 24.82 | -93.83 | -41.93 |
| Hoop-14 | -14.89 | 164.01 | 74.55 | 89.46 | -37.25 | 104.36 | -37.26 | -14.89 | -52.16 | 0.01 | 96.92 |
| Long-1 | -15.99 | 454.75 | 946.61 | 1389.97 | 1869.45 | 2315.21 | 2797.46 | 3308.20 | 3708.68 | 4159.43 | 4676.83 |
| Long-2 | 50.33 | 458.63 | 917.43 | 1406.53 | 1859.39 | 2312.26 | 2803.95 | 3273.73 | 3734.70 | 4189.98 | 4673.42 |
| Long-3 | 0.04 | 475.16 | 941.23 | 1447.18 | 1862.12 | 2320.59 | 2813.93 | 3281.41 | 3745.96 | 4208.28 | 4665.94 |
| Long-4 | 137.25 | 374.69 | 906.31 | 1481.06 | 1854.90 | 2272.94 | 2830.20 | 3317.75 | 3774.62 | 4212.87 | 4638.95 |
| Long-5 | 15.74 | 664.86 | 945.00 | 1392.61 | 1854.42 | 2330.54 | 2786.91 | 3303.11 | 3737.43 | 4210.68 | 4658.66 |
| Long-6 | 12.67 | 461.30 | 921.14 | 1412.57 | 1829.78 | 2322.38 | 2785.11 | 3286.56 | 3759.98 | 4199.81 | 4631.30 |
| Long-7 | -2.01 | 283.57 | 924.51 | 1402.62 | 1847.55 | 2332.92 | 2833.28 | 3286.83 | 3722.84 | 4211.89 | 4660.96 |
| Long-8 | 75.82 | 472.10 | 891.68 | 1402.51 | 1867.72 | 2348.92 | 2825.48 | 3304.27 | 3746.99 | 4212.20 | 4628.64 |
| SG1 | 184.62 | 202.65 | 240.17 | 247.45 | 225.92 | 201.51 | 190.23 | 200.33 | 193.56 | 207.21 | 204.22 |
| SG2 | 16.32 | 13.02 | 9.72 | 6.42 | 3.48 | 1.47 | -3.67 | -7.15 | -11.37 | -15.95 | -19.27 |
| SG3 | 196.62 | 203.29 | 228.96 | 218.07 | 181.95 | 138.20 | 105.62 | 92.77 | 78.15 | 79.77 | 72.27 |
| SG4 | 9.34 | 0.92 | -2.93 | -10.08 | -12.46 | -15.94 | -22.53 | -28.39 | -32.27 | -36.65 | -42.18 |
| SG5 | 196.15 | 211.60 | 240.71 | 235.22 | 207.69 | 180.55 | 155.47 | 138.36 | 136.67 | 132.34 | 143.87 |
| SG6 | 9.89 | 0.00 | -6.96 | -11.72 | -16.68 | -21.62 | -29.31 | -36.64 | -42.54 | -48.20 | -53.18 |
| SG7 | 243.10 | 286.24 | 350.64 | 361.74 | 363.35 | 380.17 | 363.87 | 352.36 | 359.32 | 394.32 | 438.19 |
| SG8 | 13.22 | 6.45 | 2.97 | -2.65 | -5.22 | -9.15 | -15.73 | -21.31 | -24.54 | -29.93 | -32.24 |
| SG9 | 220.75 | 224.12 | 239.68 | 243.30 | 198.91 | 158.64 | 124.57 | 113.37 | 92.70 | 92.65 | 86.27 |
| SG10 | 14978.5 | 23165.8 | 20950.0 | 12444.8 | 22631.7 | 16631.6 | 11761.1 | 10208.2 | 35488.0 | 24749.9 | 31567.1 |

TABLE E-8. CVP1, WATER 1, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 194.40 | 209.53 | 233.72 | 227.61 | 200.51 | 175.68 | 148.22 | 133.91 | 134.23 | 128.83 | 140.68 |
| SG12 | 34.31 | 20.46 | 10.50 | 3.26 | 1.74 | -1.70 | -10.96 | -19.95 | -22.21 | -33.72 | -38.83 |
| SG13 | 279.29 | 320.49 | 376.63 | 390.48 | 395.36 | 413.88 | 394.71 | 381.37 | 389.50 | 424.97 | 468.30 |
| SG14 | 23.55 | 14.94 | 9.67 | 5.68 | 4.90 | 2.43 | -4.99 | -11.32 | -14.31 | -19.89 | -21.46 |
| SG15 | 62.17 | 54.39 | 34.20 | 82.88 | 51.31 | 34.48 | 35.56 | 35.38 | 24.22 | 12.89 | 21.52 |
| SG16 | -104.80 | -113.26 | -136.68 | -126.03 | -136.52 | -139.99 | -139.37 | -143.60 | -149.06 | -158.47 | -154.99 |
| SG17 | 21.49 | 21.13 | 29.21 | 29.94 | 18.56 | 8.64 | 1.47 | -0.92 | -3.86 | -4.59 | -2.02 |
| SG18 | 276.34 | 269.64 | 267.72 | 265.24 | 261.26 | 255.96 | 251.71 | 248.34 | 245.01 | 241.44 | 238.93 |
| SG19 | 134.90 | 147.46 | 139.87 | 156.22 | 160.70 | 177.43 | 164.10 | 153.26 | 166.30 | 171.19 | 188.05 |
| SG20 | 96.05 | 94.05 | 78.93 | 87.01 | 89.07 | 95.32 | 89.75 | 85.90 | 89.49 | 82.82 | 83.97 |
| SG21 | 2.95 | 29.30 | 57.84 | 84.17 | 106.13 | 137.81 | 165.36 | 194.11 | 216.06 | 246.90 | 270.47 |
| SG22 | 8.43 | 37.60 | 66.19 | 88.73 | 114.44 | 148.54 | 172.66 | 199.99 | 224.59 | 251.26 | 277.10 |
| SG23 | 58.35 | 98.01 | 134.86 | 166.57 | 196.01 | 233.79 | 264.67 | 296.61 | 322.98 | 355.67 | 384.35 |
| SG24 | -10.65 | 29.20 | 67.75 | 99.31 | 130.02 | 170.59 | 200.97 | 232.93 | 260.36 | 292.00 | 323.60 |
| SG25 | 1276.10 | 1326.01 | 1373.47 | 1420.49 | 1467.64 | 1526.03 | 1580.64 | 1636.74 | 1689.40 | 1748.57 | 1807.65 |
| SG26 | 543.63 | 585.11 | 622.75 | 654.38 | 685.86 | 726.73 | 758.85 | 791.96 | 821.23 | 853.68 | 886.90 |
| SG27 | 6588.50 | 4023.14 | 3526.04 | 1715.83 | 4903.68 | 1423.34 | 1639.06 | 904.43 | 1299.86 | 3027.63 | 1527.17 |
| SG28 | -83.07 | -44.79 | -6.49 | 25.17 | 53.17 | 95.14 | 126.74 | 160.62 | 182.88 | 215.20 | 249.23 |
| SG29T | 11.54 | -15.02 | -33.33 | -49.98 | -56.78 | -65.56 | -80.72 | -96.29 | -103.90 | -123.08 | -136.53 |
| SG29-45 | 19.65 | 8.84 | 12.41 | 20.01 | 26.62 | 32.20 | 42.76 | 48.40 | 62.84 | 66.80 | 71.28 |
| SG29L | -49.17 | -36.68 | -13.51 | 16.85 | 43.18 | 74.96 | 106.82 | 137.13 | 169.11 | 200.48 | 234.65 |
| SG30T | 32.75 | 6.04 | -10.06 | -21.40 | -30.19 | -44.28 | -56.33 | -71.33 | -81.29 | -96.44 | -109.68 |
| SG30-45 | 8.76 | 21.00 | 34.20 | 53.40 | 62.32 | 77.07 | 92.11 | 105.04 | 122.86 | 135.32 | 142.23 |
| SG30L | 12.01 | 57.00 | 93.21 | 124.95 | 156.83 | 197.76 | 229.46 | 263.04 | 296.10 | 327.23 | 362.57 |
| SG31T | 73.98 | 64.09 | 53.52 | 41.87 | 39.45 | 35.78 | 27.65 | 18.52 | 12.85 | 1.51 | -8.03 |
| SG31-45 | 87.42 | 105.85 | 122.01 | 138.91 | 149.74 | 171.88 | 185.32 | 199.97 | 215.64 | 229.80 | 236.41 |
| SG31T | 113.40 | 155.65 | 193.41 | 224.37 | 256.21 | 298.76 | 330.53 | 364.50 | 394.61 | 427.45 | 460.95 |
| SG32T | 18.34 | -5.96 | -23.38 | -31.21 | -40.81 | -54.14 | -65.89 | -80.93 | -88.58 | -104.17 | -114.37 |
| SG32-45 | -15.54 | -5.85 | 7.68 | 27.78 | 35.48 | 55.95 | 67.25 | 80.79 | 95.50 | 106.43 | 114.73 |
| SG32L | 11.28 | 52.51 | 88.48 | 117.97 | 151.63 | 193.98 | 225.96 | 260.35 | 292.17 | 323.21 | 357.35 |
| SG33T | 18.70 | -0.96 | -16.41 | -28.19 | -36.68 | -47.32 | -60.86 | -76.63 | -83.50 | -100.01 | -107.64 |
| SG33-45 | 8.72 | 20.43 | 32.27 | 52.45 | 64.36 | 88.96 | 102.40 | 116.54 | 133.24 | 144.47 | 152.55 |
| SG33L | 16.85 | 51.20 | 89.28 | 122.35 | 156.05 | 197.07 | 231.62 | 266.19 | 299.35 | 331.93 | 364.52 |
| SG34T | 35.28 | 24.32 | 3.76 | -12.93 | -22.62 | -33.58 | -52.73 | -73.65 | -83.27 | -103.97 | -113.39 |
| SG34-45 | 54.42 | 64.11 | 79.18 | 101.99 | 119.45 | 144.61 | 162.37 | 177.55 | 192.36 | 206.48 | 218.81 |
| SG34L | 16.75 | 43.32 | 86.48 | 123.25 | 156.16 | 195.92 | 234.03 | 271.25 | 303.66 | 339.25 | 371.00 |
| SG35T | 45.13 | 36.53 | 27.31 | 19.24 | -0.82 | -23.87 | -36.04 | -45.53 | -63.69 | -68.42 | -83.18 |
| SG35-45 | 44.12 | 55.79 | 68.06 | 87.45 | 87.25 | 98.66 | 109.76 | 123.25 | 131.72 | 147.16 | 148.08 |
| SG35L | 42.50 | 77.56 | 108.45 | 131.87 | 161.74 | 198.27 | 227.29 | 256.15 | 286.70 | 314.27 | 346.08 |
| SG36T | 9.16 | -14.48 | -34.09 | -39.94 | -49.31 | -61.03 | -72.18 | -85.19 | -93.90 | -108.52 | -118.85 |
| SG36-45 | 27.79 | 32.39 | 33.71 | 52.23 | 54.59 | 69.72 | 80.91 | 90.92 | 102.80 | 108.72 | 110.80 |
| SG36L | 39.30 | 80.45 | 112.07 | 136.94 | 165.24 | 202.10 | 231.56 | 259.86 | 291.88 | 318.47 | 349.18 |

TABLE E-9. CVP1, WATER 1, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.01 | 1.01 | 2.00 | 3.02 | 4.03 | 5.05 | 6.06 | 7.05 | 8.08 | 9.08 | 10.10 |
| Frame-1 | -28.40 | 212.10 | 412.13 | 636.46 | 832.98 | 1052.87 | 1248.44 | 1465.41 | 1664.77 | 1897.64 | 2098.75 |
| Frame-2 | 83.15 | 216.18 | 403.94 | 640.57 | 826.54 | 1050.02 | 1262.86 | 1460.74 | 1670.47 | 1882.66 | 2080.23 |
| Frame-3 | 148.50 | 214.20 | 428.37 | 654.72 | 834.48 | 1077.00 | 1257.54 | 1464.56 | 1679.74 | 1888.88 | 2073.22 |
| Frame-4 | 63.23 | 228.29 | 416.62 | 634.45 | 831.34 | 1041.29 | 1244.13 | 1466.66 | 1690.53 | 1885.87 | 2101.16 |
| Frame-5 | -14.62 | 235.25 | 410.07 | 642.02 | 851.29 | 1046.01 | 1262.96 | 1458.20 | 1670.32 | 1879.76 | 2116.06 |
| Frame-6 | 16.15 | 213.46 | 416.74 | 633.74 | 833.52 | 1047.82 | 1248.37 | 1458.17 | 1664.10 | 1898.08 | 2081.98 |
| Frame-7 | 65.72 | 218.36 | 412.05 | 634.11 | 832.07 | 1056.80 | 1250.04 | 1464.54 | 1677.26 | 1909.06 | 2087.92 |
| Frame-8 | -161.75 | 217.93 | 423.45 | 624.61 | 846.45 | 1043.39 | 1251.91 | 1461.01 | 1666.60 | 1896.44 | 2090.58 |
| Frame-9 | -204.98 | 213.55 | 415.45 | 626.94 | 820.96 | 1033.42 | 1255.83 | 1454.37 | 1663.39 | 1900.41 | 2097.81 |
| Frame-10 | 12.46 | 204.57 | 415.34 | 645.85 | 853.99 | 1068.23 | 1250.99 | 1465.34 | 1665.84 | 1866.49 | 2095.14 |
| Frame-11 | -127.78 | 206.87 | 405.90 | 631.03 | 820.69 | 1029.81 | 1262.20 | 1457.98 | 1655.30 | 1891.74 | 2096.42 |
| Frame-12 | 80.00 | 230.51 | 408.40 | 621.71 | 847.12 | 1042.35 | 1261.31 | 1453.17 | 1674.39 | 1894.00 | 2089.88 |
| Hoop-1 | 54.21 | 899.12 | 1779.31 | 2659.51 | 3560.84 | 4452.35 | 5321.58 | 6227.33 | 7094.61 | 8020.51 | 8869.14 |
| Hoop-2 | -64.42 | 854.28 | 1769.30 | 2662.23 | 3533.77 | 4439.76 | 5318.14 | 6214.30 | 7125.73 | 7982.96 | 8859.32 |
| Hoop-3 | 51.58 | 835.94 | 1762.27 | 2660.20 | 3546.42 | 4435.66 | 5312.47 | 6241.91 | 7097.34 | 7996.34 | 8896.04 |
| Hoop-4 | -46.74 | 743.26 | 1771.18 | 2642.96 | 3556.34 | 4424.58 | 5309.55 | 6197.61 | 7110.38 | 7981.45 | 8877.39 |
| Hoop-5 | -29.24 | 1482.44 | 1773.94 | 2670.86 | 3562.88 | 4428.21 | 5325.31 | 6208.70 | 7109.45 | 7988.84 | 8880.15 |
| Hoop-6 | -74.01 | 747.40 | 1784.87 | 2684.51 | 3558.78 | 4441.83 | 5319.29 | 6211.04 | 7105.17 | 8004.10 | 8853.45 |
| Hoop-7 | -58.08 | 843.02 | 1758.72 | 2659.83 | 3536.11 | 4441.04 | 5300.37 | 6210.16 | 7109.53 | 8011.75 | 8867.26 |
| Hoop-8 | 35.41 | 937.90 | 1773.81 | 2676.57 | 3556.61 | 4430.39 | 5368.99 | 6212.92 | 7122.20 | 8003.29 | 8868.89 |
| Hoop-9 | 171.77 | 925.34 | 1786.32 | 2667.59 | 3550.14 | 4437.49 | 5310.32 | 6210.15 | 7121.47 | 8005.10 | 8869.80 |
| Hoop-10 | -2.94 | 901.26 | 1771.04 | 2670.08 | 3555.90 | 4441.06 | 5302.70 | 6209.34 | 7114.74 | 7992.56 | 8869.67 |
| Hoop-11 | -78.71 | 899.58 | 1774.50 | 2666.29 | 3550.18 | 4448.13 | 5309.24 | 6214.31 | 7105.22 | 8006.78 | 8863.33 |
| Hoop-12 | -114.52 | 882.48 | 1831.29 | 2676.59 | 3551.01 | 4433.99 | 5330.03 | 6205.33 | 7109.05 | 7999.36 | 8881.54 |
| Hoop-13 | 24.82 | 907.26 | 1767.46 | 2672.42 | 3554.60 | 4445.35 | 5304.66 | 6209.97 | 7128.88 | 8012.12 | 8879.82 |
| Hoop-14 | 82.01 | 894.43 | 1773.93 | 2668.61 | 3540.40 | 4458.06 | 5314.32 | 6216.80 | 7110.60 | 7998.35 | 8863.04 |
| Long-1 | 0.25 | 459.70 | 932.97 | 1402.60 | 1860.71 | 2349.93 | 2796.90 | 3269.16 | 3756.50 | 4196.47 | 4628.13 |
| Long-2 | 90.09 | 467.02 | 930.77 | 1406.67 | 1897.94 | 2324.07 | 2791.35 | 3266.18 | 3755.55 | 4214.85 | 4662.58 |
| Long-3 | 3.88 | 458.47 | 934.92 | 1401.22 | 1876.20 | 2358.78 | 2791.60 | 3265.72 | 3745.06 | 4198.90 | 4658.26 |
| Long-4 | -31.99 | 440.32 | 931.66 | 1407.95 | 1878.89 | 2334.59 | 2799.32 | 3251.75 | 3734.58 | 4188.45 | 4671.79 |
| Long-5 | 17.18 | 388.87 | 933.65 | 1398.47 | 1867.29 | 2336.02 | 2793.50 | 3271.32 | 3740.66 | 4195.96 | 4670.10 |
| Long-6 | 7.65 | 468.79 | 932.54 | 1400.15 | 1862.45 | 2333.46 | 2793.35 | 3259.84 | 3737.74 | 4198.13 | 4665.23 |
| Long-7 | 5.34 | 365.66 | 930.74 | 1403.99 | 1869.61 | 2347.39 | 2798.40 | 3261.99 | 3734.25 | 4197.99 | 4673.21 |
| Long-8 | 11.82 | 465.90 | 927.46 | 1421.11 | 1870.18 | 2338.84 | 2797.84 | 3262.10 | 3723.98 | 4182.24 | 4654.48 |
| SG1 | 111.39 | 42.37 | 46.40 | 143.75 | 265.68 | 340.49 | 402.81 | 497.81 | 534.37 | 597.56 | 662.73 |
| SG2 | 6.42 | 52.27 | 96.64 | 149.61 | 203.15 | 257.79 | 311.09 | 367.62 | 420.70 | 475.28 | 530.83 |
| SG3 | 146.40 | -3.31 | -6.25 | 71.30 | 167.78 | 220.34 | 257.57 | 331.71 | 355.35 | 397.57 | 441.97 |
| SG4 | 2.38 | 49.67 | 99.52 | 152.64 | 204.32 | 256.73 | 308.16 | 363.38 | 416.80 | 470.07 | 524.84 |
| SG5 | 162.04 | 4.35 | 22.36 | 90.92 | 188.80 | 253.47 | 297.47 | 380.66 | 419.37 | 469.79 | 521.26 |
| SG6 | 4.77 | 48.03 | 95.31 | 146.05 | 196.08 | 249.77 | 305.41 | 366.13 | 424.68 | 484.18 | 544.47 |
| SG7 | 225.72 | 67.81 | 90.16 | 201.35 | 319.34 | 401.06 | 462.07 | 561.00 | 617.13 | 677.14 | 735.17 |
| SG8 | 8.11 | 55.20 | 102.84 | 156.68 | 209.25 | 263.15 | 317.14 | 373.61 | 429.40 | 484.80 | 540.80 |
| SG9 | 172.75 | 23.90 | 14.16 | 93.75 | 193.19 | 246.32 | 291.66 | 369.11 | 394.03 | 440.12 | 486.58 |
| SG10 | 40190.2 | 27943.1 | 24488.0 | 21895.0 | 19771.2 | 23554.8 | 30875.8 | 19859.3 | 17126.8 | 20320.3 | 29618.1 |

TABLE E-9. CVP1, WATER 1, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 165.52 | -3.86 | 6.25 | 65.05 | 157.85 | 212.43 | 248.73 | 318.28 | 341.36 | 377.89 | 416.76 |
| SG12 | 32.59 | 115.77 | 191.46 | 269.31 | 344.44 | 421.55 | 506.02 | 593.38 | 682.92 | 773.42 | 864.09 |
| SG13 | 254.40 | 106.69 | 131.39 | 248.65 | 364.98 | 447.48 | 512.54 | 610.37 | 662.49 | 726.02 | 781.19 |
| SG14 | 16.92 | 79.90 | 138.20 | 202.29 | 260.86 | 320.48 | 378.97 | 439.45 | 497.83 | 556.06 | 612.02 |
| SG15 | 51.86 | 8.49 | 18.25 | 82.12 | 143.06 | 190.57 | 241.33 | 295.25 | 328.15 | 374.41 | 419.54 |
| SG16 | -118.10 | -98.79 | -62.31 | -9.89 | 42.69 | 93.08 | 146.28 | 197.89 | 246.77 | 299.13 | 349.94 |
| SG17 | 6.25 | -37.31 | -9.00 | 42.81 | 106.57 | 154.52 | 199.43 | 256.31 | 297.77 | 342.56 | 391.69 |
| SG18 | 268.97 | 289.49 | 332.67 | 387.19 | 441.78 | 493.06 | 544.97 | 598.61 | 651.13 | 702.79 | 756.33 |
| SG19 | 118.63 | 73.46 | 98.12 | 184.79 | 251.61 | 305.90 | 364.40 | 426.83 | 466.31 | 523.85 | 567.12 |
| SG20 | 86.00 | 113.20 | 150.00 | 203.71 | 253.02 | 303.44 | 359.53 | 413.11 | 462.89 | 517.30 | 566.99 |
| SG21 | 12.17 | 11.79 | 13.27 | 5.71 | -2.76 | -5.71 | -9.22 | -9.76 | -9.58 | -10.87 | -14.19 |
| SG22 | 18.17 | 33.20 | 59.98 | 83.99 | 106.73 | 131.85 | 153.73 | 177.88 | 203.88 | 227.14 | 250.78 |
| SG23 | 72.73 | 91.41 | 112.70 | 122.58 | 129.19 | 131.02 | 135.85 | 144.42 | 155.40 | 163.64 | 170.18 |
| SG24 | -1.10 | 18.92 | 50.69 | 79.69 | 103.93 | 126.15 | 147.33 | 172.79 | 199.20 | 223.04 | 245.98 |
| SG25 | 1367.71 | 1390.41 | 1425.99 | 1443.74 | 1467.67 | 1487.19 | 1506.01 | 1523.08 | 1535.66 | 1551.70 | 1568.81 |
| SG26 | 546.69 | 569.01 | 605.68 | 636.40 | 671.10 | 702.13 | 729.22 | 755.19 | 779.27 | 804.15 | 829.14 |
| SG27 | 1018.66 | 2588.42 | 3362.18 | 2782.12 | 16052.8 | 22501.8 | 1767.97 | 557.24 | 4551.00 | 6913.54 | 3148.81 |
| SG28 | -82.40 | -42.58 | 0.88 | 26.65 | 58.32 | 83.36 | 98.12 | 126.07 | 150.34 | 173.15 | 193.16 |
| SG29T | -0.55 | 113.03 | 210.64 | 304.18 | 386.96 | 473.22 | 555.85 | 635.65 | 718.29 | 798.22 | 876.64 |
| SG29-45 | 8.80 | 82.30 | 147.08 | 203.30 | 251.31 | 306.01 | 356.18 | 404.41 | 455.67 | 504.44 | 552.73 |
| SG29L | -49.26 | -43.28 | -18.82 | 6.69 | 34.02 | 57.01 | 77.73 | 101.01 | 123.92 | 144.33 | 163.99 |
| SG30T | 17.03 | 88.04 | 154.46 | 225.98 | 290.20 | 359.73 | 429.25 | 498.25 | 570.41 | 641.33 | 712.07 |
| SG30-45 | 4.59 | 57.79 | 117.03 | 170.33 | 216.96 | 266.02 | 313.55 | 359.46 | 408.85 | 455.97 | 502.39 |
| SG30L | 17.53 | 49.67 | 85.90 | 114.81 | 143.29 | 169.65 | 191.83 | 214.45 | 238.47 | 259.12 | 278.57 |
| SG31T | 77.35 | 157.01 | 219.02 | 280.86 | 341.95 | 411.63 | 485.76 | 557.08 | 635.07 | 711.58 | 789.17 |
| SG31-45 | 94.34 | 142.11 | 187.38 | 231.33 | 276.98 | 325.05 | 376.76 | 425.79 | 480.19 | 532.05 | 583.64 |
| SG31T | 116.63 | 132.72 | 160.79 | 182.78 | 207.92 | 229.21 | 246.74 | 265.91 | 284.39 | 301.06 | 315.22 |
| SG32T | 5.55 | 91.03 | 169.61 | 251.23 | 324.03 | 401.60 | 478.26 | 552.52 | 631.61 | 708.17 | 785.90 |
| SG32-45 | -17.93 | 42.25 | 99.31 | 153.04 | 204.24 | 255.99 | 308.41 | 359.11 | 413.34 | 465.58 | 516.94 |
| SG32L | 14.68 | 38.11 | 68.14 | 91.92 | 117.14 | 139.15 | 156.22 | 174.95 | 193.34 | 209.46 | 223.09 |
| SG33T | 8.86 | 88.15 | 164.50 | 245.62 | 317.83 | 396.51 | 474.10 | 550.20 | 628.94 | 707.16 | 785.45 |
| SG33-45 | 11.53 | 70.25 | 127.82 | 184.11 | 239.70 | 291.85 | 344.82 | 393.20 | 445.12 | 494.72 | 543.84 |
| SG33L | 16.03 | 37.70 | 71.21 | 96.68 | 123.76 | 148.05 | 165.97 | 185.23 | 207.13 | 225.38 | 241.38 |
| SG34T | 30.99 | 103.94 | 172.16 | 246.86 | 311.09 | 381.83 | 452.06 | 520.65 | 592.97 | 664.77 | 736.38 |
| SG34-45 | 49.19 | 114.16 | 178.85 | 240.90 | 300.64 | 356.81 | 412.68 | 462.26 | 514.06 | 565.07 | 617.76 |
| SG34L | 11.62 | 35.02 | 66.77 | 87.82 | 117.32 | 141.05 | 161.03 | 182.62 | 203.09 | 221.55 | 241.12 |
| SG35T | 40.63 | 64.68 | 131.40 | 213.03 | 290.61 | 376.11 | 461.85 | 545.38 | 634.20 | 720.62 | 808.96 |
| SG35-45 | 43.15 | 64.14 | 118.92 | 176.64 | 234.80 | 296.08 | 357.32 | 414.79 | 475.79 | 534.26 | 593.19 |
| SG35L | 44.46 | 69.59 | 104.77 | 131.36 | 161.31 | 189.52 | 214.89 | 238.85 | 264.22 | 287.77 | 309.42 |
| SG36T | -7.34 | 82.87 | 170.49 | 258.80 | 339.45 | 420.82 | 500.57 | 577.90 | 656.77 | 733.66 | 809.72 |
| SG36-45 | 25.94 | 67.54 | 129.46 | 185.30 | 233.33 | 285.02 | 333.72 | 379.96 | 427.81 | 473.34 | 520.57 |
| SG36L | 51.82 | 66.88 | 93.71 | 111.85 | 123.91 | 142.02 | 154.92 | 169.77 | 187.06 | 203.55 | 219.33 |

TABLE E-10. CVP1, WATER 2, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.02 | 0.98 | 2.03 | 3.03 | 4.02 | 5.03 | 6.03 | 7.08 | 8.06 | 9.09 | 10.08 |
| Frame-1 | 8.33 | 199.64 | 402.10 | 648.83 | 831.08 | 1040.67 | 1239.44 | 1473.12 | 1677.14 | 1882.15 | 2077.76 |
| Frame-2 | 0.27 | 224.42 | 399.08 | 621.79 | 814.19 | 1020.31 | 1267.62 | 1484.20 | 1663.80 | 1872.26 | 2081.62 |
| Frame-3 | -87.77 | 191.51 | 390.90 | 644.72 | 846.33 | 1037.40 | 1228.00 | 1458.50 | 1656.05 | 1890.60 | 2096.94 |
| Frame-4 | 98.26 | 205.47 | 413.49 | 627.87 | 843.24 | 1029.07 | 1254.08 | 1472.65 | 1666.71 | 1889.34 | 2087.04 |
| Frame-5 | -112.41 | 210.68 | 425.91 | 621.63 | 825.23 | 1028.61 | 1248.76 | 1452.13 | 1670.63 | 1914.28 | 2063.98 |
| Frame-6 | -136.07 | 202.95 | 405.08 | 622.14 | 838.46 | 1029.05 | 1251.47 | 1484.39 | 1664.46 | 1891.27 | 2078.31 |
| Frame-7 | -212.39 | 187.21 | 415.76 | 619.53 | 831.39 | 1019.20 | 1244.87 | 1490.99 | 1656.83 | 1899.42 | 2069.70 |
| Frame-8 | 23.39 | 205.74 | 404.77 | 627.25 | 838.88 | 1024.75 | 1251.90 | 1468.50 | 1668.57 | 1904.02 | 2074.10 |
| Frame-9 | 55.86 | 206.36 | 414.03 | 613.93 | 818.51 | 1033.67 | 1229.58 | 1484.71 | 1637.41 | 1885.43 | 2081.05 |
| Frame-10 | 90.89 | 218.21 | 406.99 | 633.00 | 832.65 | 1037.53 | 1257.87 | 1495.22 | 1666.08 | 1879.24 | 2080.37 |
| Frame-11 | -121.70 | 213.59 | 406.07 | 638.69 | 860.65 | 1038.63 | 1255.52 | 1480.50 | 1672.52 | 1889.02 | 2075.22 |
| Frame-12 | 106.88 | 219.97 | 410.41 | 639.93 | 822.22 | 1046.09 | 1243.98 | 1526.44 | 1669.42 | 1872.22 | 2059.46 |
| Hoop-1 | -1.50 | 886.21 | 1796.21 | 2660.04 | 3523.34 | 4414.23 | 5295.04 | 6212.47 | 7096.02 | 8003.54 | 8833.76 |
| Hoop-2 | -60.74 | 859.89 | 1775.00 | 2688.54 | 3524.21 | 4420.39 | 5282.62 | 6236.40 | 7088.48 | 7986.40 | 8864.77 |
| Hoop-3 | 168.72 | 821.83 | 1774.87 | 2674.93 | 3533.64 | 4429.44 | 5313.72 | 6236.58 | 7081.00 | 8003.26 | 8865.87 |
| Hoop-4 | -54.18 | 765.64 | 1771.35 | 2667.65 | 3533.68 | 4445.92 | 5307.16 | 6223.64 | 7104.36 | 7988.62 | 8856.86 |
| Hoop-5 | -49.80 | 1405.97 | 1768.51 | 2658.31 | 3549.44 | 4423.48 | 5306.09 | 6231.13 | 7079.09 | 7997.91 | 8852.02 |
| Hoop-6 | 125.31 | 764.24 | 1773.87 | 2655.24 | 3545.38 | 4405.45 | 5303.86 | 6225.94 | 7069.33 | 8003.84 | 8853.35 |
| Hoop-7 | 109.75 | 837.64 | 1771.67 | 2684.08 | 3566.77 | 4414.56 | 5319.91 | 6226.58 | 7089.06 | 7980.51 | 8878.15 |
| Hoop-8 | 42.80 | 893.60 | 1766.59 | 2654.91 | 3527.02 | 4393.40 | 5488.99 | 6243.14 | 7085.92 | 8011.49 | 8876.29 |
| Hoop-9 | 62.55 | 885.38 | 1771.93 | 2660.83 | 3531.94 | 4410.18 | 5271.86 | 6228.97 | 7063.93 | 8004.07 | 8866.16 |
| Hoop-10 | -2.94 | 881.42 | 1776.66 | 2659.74 | 3537.78 | 4421.12 | 5289.79 | 6231.71 | 7093.70 | 7986.11 | 8855.17 |
| Hoop-11 | 20.97 | 873.82 | 1772.83 | 2657.59 | 3533.56 | 4433.36 | 5297.91 | 6218.63 | 7067.17 | 7990.97 | 8850.41 |
| Hoop-12 | 33.74 | 897.40 | 1764.75 | 2677.13 | 3551.01 | 4411.75 | 5309.38 | 6220.78 | 7065.28 | 7992.74 | 8859.30 |
| Hoop-13 | -116.09 | 788.69 | 1760.22 | 2650.70 | 3532.35 | 4393.43 | 5276.58 | 6218.01 | 7085.09 | 8005.50 | 8857.57 |
| Hoop-14 | 7.47 | 872.15 | 1796.47 | 2669.15 | 3532.94 | 4405.88 | 5308.45 | 6239.79 | 7066.58 | 7984.24 | 8885.40 |
| Long-1 | -29.72 | -3.50 | -1.00 | 1.50 | -4.75 | 5.24 | 1.49 | 3.99 | -3.50 | -3.50 | -6.00 |
| Long-2 | -26.75 | -17.12 | 8.17 | 15.40 | 115.37 | 15.40 | -23.14 | 21.42 | -7.48 | -21.94 | -21.94 |
| Long-3 | -5.08 | -2.52 | 3.88 | -1.24 | -7.64 | 23.09 | 76.86 | -5.08 | -11.49 | 5.16 | 17.97 |
| Long-4 | -28.19 | -23.14 | 3.38 | 139.79 | -28.19 | 100.63 | -21.88 | 139.78 | -25.67 | 84.21 | 134.74 |
| Long-5 | -21.43 | -15.71 | -30.01 | -31.44 | -30.01 | 1.45 | -14.28 | 5.74 | -32.87 | 98.67 | 25.76 |
| Long-6 | -9.95 | 0.11 | 169.74 | 227.58 | -20.00 | 171.01 | 3.88 | -4.92 | -13.72 | -6.18 | -8.69 |
| Long-7 | -8.14 | -8.14 | 23.73 | -3.24 | -9.36 | 172.04 | -5.69 | -14.27 | -14.27 | -11.82 | -16.72 |
| Long-8 | 6.90 | 1.97 | -14.02 | 22.90 | 5.67 | -20.18 | -7.87 | 4.44 | -2.95 | 15.51 | -7.87 |
| SG1 | 160.32 | 55.02 | 41.63 | 160.75 | 351.57 | 424.97 | 539.37 | 576.84 | 636.11 | 695.69 | 766.58 |
| SG2 | 13.39 | 57.96 | 107.45 | 165.70 | 223.80 | 280.86 | 341.18 | 401.42 | 458.65 | 518.78 | 577.30 |
| SG3 | 225.21 | 29.96 | 28.30 | 131.36 | 306.99 | 376.70 | 487.87 | 522.31 | 571.79 | 620.66 | 684.69 |
| SG4 | 6.97 | 55.91 | 112.16 | 171.10 | 224.59 | 283.45 | 344.29 | 406.32 | 463.34 | 523.25 | 581.74 |
| SG5 | 256.50 | 60.11 | 62.48 | 156.83 | 302.02 | 377.15 | 494.57 | 531.79 | 579.93 | 635.93 | 701.93 |
| SG6 | 8.25 | 55.91 | 110.69 | 169.45 | 220.93 | 280.71 | 346.67 | 411.64 | 475.25 | 543.04 | 609.61 |
| SG7 | 293.99 | 93.47 | 83.00 | 182.43 | 323.83 | 411.83 | 543.54 | 572.92 | 615.30 | 675.75 | 736.49 |
| SG8 | 10.80 | 60.19 | 114.27 | 172.41 | 223.05 | 282.21 | 343.79 | 404.88 | 461.24 | 521.63 | 580.10 |
| SG9 | 233.91 | 51.67 | 45.78 | 152.16 | 324.90 | 396.64 | 511.34 | 549.27 | 602.07 | 654.08 | 719.98 |
| SG10 | 30050.1 | 25113.4 | 18962.3 | 16002.6 | 16029.7 | 15680.5 | 15105.5 | 12510.8 | 18748.1 | 16148.8 | 21291.2 |

TABLE E-10. CVP1, WATER 2, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 241.75 | 47.79 | 38.23 | 121.80 | 256.46 | 323.76 | 431.25 | 453.21 | 490.36 | 528.76 | 580.99 |
| SG12 | 28.45 | 123.47 | 208.36 | 292.24 | 370.02 | 454.44 | 551.72 | 644.70 | 740.89 | 840.18 | 936.27 |
| SG13 | 329.63 | 138.00 | 126.74 | 226.77 | 371.10 | 459.49 | 590.15 | 617.89 | 660.11 | 717.67 | 775.72 |
| SG14 | 20.59 | 85.91 | 150.88 | 218.72 | 274.85 | 340.38 | 407.79 | 473.59 | 532.11 | 594.05 | 652.60 |
| SG15 | 43.12 | -2.80 | 16.46 | 85.54 | 162.04 | 216.50 | 283.62 | 331.19 | 378.99 | 420.57 | 470.50 |
| SG16 | -126.12 | -97.14 | -47.83 | 12.27 | 76.20 | 131.37 | 189.63 | 246.74 | 301.00 | 354.12 | 405.58 |
| SG17 | 31.25 | -15.62 | 2.39 | 62.63 | 132.07 | 184.63 | 259.04 | 298.48 | 341.86 | 383.93 | 441.23 |
| SG18 | 269.55 | 295.91 | 343.15 | 399.00 | 456.27 | 510.26 | 568.83 | 625.48 | 679.43 | 733.50 | 789.22 |
| SG19 | 146.38 | 96.29 | 116.70 | 186.58 | 261.65 | 327.77 | 410.77 | 450.07 | 495.01 | 537.89 | 582.11 |
| SG20 | 81.55 | 115.04 | 153.12 | 204.38 | 253.31 | 307.46 | 365.23 | 419.98 | 473.01 | 527.10 | 575.35 |
| SG21 | 6.45 | -15.11 | -40.72 | -69.99 | -121.38 | -147.74 | -176.11 | -205.92 | -234.67 | -261.56 | -290.97 |
| SG22 | 14.49 | 10.09 | 15.59 | 12.28 | -2.02 | -2.20 | -0.55 | -3.12 | -5.13 | -5.13 | -7.52 |
| SG23 | 61.68 | 51.21 | 40.38 | 18.71 | -9.54 | -34.68 | -59.82 | -83.65 | -106.41 | -126.59 | -149.96 |
| SG24 | -10.29 | -19.84 | -19.10 | -24.60 | -31.39 | -38.19 | -43.70 | -52.32 | -61.14 | -66.28 | -73.65 |
| SG25 | 1372.69 | 1358.19 | 1351.29 | 1333.63 | 1337.86 | 1321.93 | 1287.88 | 1255.60 | 1229.41 | 1208.98 | 1186.45 |
| SG26 | 542.98 | 531.91 | 532.54 | 528.47 | 536.36 | 537.75 | 526.37 | 514.70 | 507.41 | 504.47 | 498.80 |
| SG27 | 2300.89 | 1367.32 | 925.47 | 2295.97 | 743.18 | 833.02 | 6739.95 | 1169.69 | 1180.65 | 1190.76 | 1140.12 |
| SG28 | -61.74 | -63.21 | -53.62 | -52.87 | -58.02 | -61.71 | -66.87 | -77.16 | -87.48 | -91.89 | -100.77 |
| SG29T | -2.56 | 119.99 | 233.70 | 334.85 | 417.05 | 510.34 | 595.67 | 693.13 | 779.62 | 868.79 | 953.58 |
| SG29-45 | 13.24 | 79.64 | 134.56 | 186.21 | 219.73 | 265.44 | 309.05 | 351.21 | 390.08 | 430.16 | 469.10 |
| SG29L | -54.14 | -61.38 | -65.44 | -72.69 | -70.81 | -80.49 | -90.56 | -104.09 | -116.83 | -129.88 | -142.20 |
| SG30T | 21.42 | 100.85 | 184.09 | 266.34 | 334.57 | 412.76 | 488.32 | 576.75 | 654.75 | 737.07 | 816.79 |
| SG30-45 | 5.64 | 38.25 | 88.91 | 127.93 | 160.65 | 199.15 | 234.31 | 272.17 | 302.36 | 338.94 | 373.84 |
| SG30L | 6.61 | 7.57 | 11.14 | 4.77 | 7.56 | 1.38 | -7.24 | -20.67 | -32.46 | -41.58 | -53.11 |
| SG31T | 63.97 | 152.47 | 227.21 | 296.27 | 360.01 | 437.04 | 512.99 | 605.33 | 691.11 | 782.09 | 867.74 |
| SG31-45 | 83.47 | 118.62 | 154.60 | 184.72 | 216.13 | 251.63 | 288.87 | 328.07 | 362.78 | 406.62 | 445.88 |
| SG31L | 105.93 | 90.50 | 83.69 | 70.26 | 68.80 | 58.72 | 42.02 | 23.85 | 7.16 | -7.52 | -25.70 |
| SG32T | 4.40 | 98.96 | 194.45 | 286.17 | 362.06 | 447.21 | 529.72 | 623.66 | 707.69 | 796.61 | 882.59 |
| SG32-45 | -12.80 | 32.01 | 81.56 | 123.39 | 158.66 | 199.10 | 238.05 | 276.75 | 308.95 | 350.45 | 387.72 |
| SG32L | -0.09 | -4.68 | -8.53 | -21.17 | -24.29 | -34.43 | -51.66 | -68.80 | -85.67 | -101.81 | -120.33 |
| SG33T | 10.96 | 96.31 | 188.33 | 278.50 | 355.14 | 440.85 | 525.39 | 620.44 | 706.13 | 797.45 | 885.27 |
| SG33-45 | -9.32 | 45.18 | 92.69 | 132.30 | 172.08 | 210.03 | 250.10 | 288.04 | 321.57 | 360.49 | 395.66 |
| SG33L | 2.57 | -3.21 | -3.90 | -13.22 | -16.75 | -22.86 | -40.94 | -53.46 | -68.75 | -84.50 | -101.43 |
| SG34T | 29.83 | 112.43 | 199.08 | 283.15 | 355.75 | 431.10 | 510.69 | 596.44 | 673.56 | 755.02 | 833.46 |
| SG34-45 | 39.77 | 95.53 | 144.03 | 183.76 | 232.11 | 269.75 | 301.89 | 335.11 | 365.81 | 402.71 | 436.81 |
| SG34L | 8.08 | 2.89 | -0.14 | -13.35 | -18.71 | -18.31 | -43.08 | -59.17 | -73.12 | -87.53 | -101.88 |
| SG35T | 65.05 | 76.73 | 159.39 | 249.93 | 328.95 | 422.31 | 513.35 | 618.51 | 712.22 | 809.25 | 903.12 |
| SG35-45 | 51.07 | 52.95 | 102.25 | 151.28 | 194.84 | 246.15 | 293.49 | 345.52 | 391.05 | 443.51 | 491.58 |
| SG35L | 33.68 | 33.86 | 38.25 | 37.04 | 42.31 | 43.87 | 37.09 | 30.31 | 25.37 | 23.95 | 18.55 |
| SG36T | -4.77 | 90.57 | 194.30 | 288.41 | 374.52 | 461.83 | 544.67 | 638.19 | 722.55 | 809.78 | 893.33 |
| SG36-45 | 26.80 | 61.34 | 119.86 | 166.86 | 197.67 | 240.55 | 276.09 | 319.64 | 354.76 | 394.42 | 430.41 |
| SG36L | 42.85 | 32.25 | 28.39 | 19.35 | -2.89 | -11.74 | -22.74 | -34.52 | -48.10 | -58.27 | -71.23 |

TABLE E-11. CVP1, WATER 2, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.02 | 0.01 | 0.02 | 0.00 | 0.01 | -0.01 | -0.03 | -0.01 | 0.00 | 0.00 | 0.00 |
| Frame-1 | -19.95 | 11.81 | -11.32 | 13.33 | 3.37 | 6.52 | 26.44 | -0.43 | 5.59 | 7.57 | 1.19 |
| Frame-2 | 27.33 | 80.28 | 53.48 | -13.77 | -42.92 | -187.48 | -7.55 | 1.87 | 37.50 | 56.87 | -29.49 |
| Frame-3 | -26.70 | -225.04 | 174.09 | 232.98 | 211.04 | -38.08 | -282.52 | 81.98 | 190.95 | -105.69 | 35.53 |
| Frame-4 | 9.62 | -134.43 | 33.78 | 32.59 | 91.58 | -0.09 | -159.44 | -27.73 | -11.36 | -155.91 | 77.32 |
| Frame-5 | -142.47 | -146.87 | 88.75 | 104.81 | -24.20 | -34.86 | -180.54 | 118.63 | -134.13 | -101.09 | 18.46 |
| Frame-6 | 70.40 | 45.59 | -121.57 | -131.19 | -98.58 | -119.18 | 77.10 | 18.28 | -35.23 | -121.57 | -109.20 |
| Frame-7 | -17.00 | 75.23 | 122.54 | -81.81 | 39.27 | 7.70 | -185.93 | -42.31 | 68.66 | -5.15 | 61.03 |
| Frame-8 | -46.45 | -55.85 | 34.48 | -2.77 | 52.83 | 98.75 | 55.01 | -35.59 | -98.56 | 73.85 | -44.21 |
| Frame-9 | -178.92 | -73.22 | 0.88 | -171.23 | -181.17 | 125.25 | 147.18 | 106.02 | -137.47 | -140.70 | 25.78 |
| Frame-10 | -178.70 | -129.55 | -27.15 | 40.62 | 97.95 | 69.84 | -204.64 | 111.10 | -84.46 | -20.49 | -114.47 |
| Frame-11 | -0.82 | 99.83 | 49.85 | 150.34 | 118.66 | 60.66 | 102.32 | -135.71 | 110.33 | 137.67 | 82.52 |
| Frame-12 | -48.04 | -54.00 | 112.85 | 85.80 | 60.37 | -78.57 | -62.00 | 9.58 | 72.57 | 105.69 | 96.05 |
| Hoop-1 | -7.07 | 7.79 | 15.22 | -49.79 | 15.22 | 0.36 | -51.64 | -31.22 | -57.21 | 20.79 | -5.21 |
| Hoop-2 | -66.27 | -27.60 | -64.43 | 108.67 | -58.90 | 75.52 | 95.76 | 1.86 | 101.29 | 3.70 | -60.75 |
| Hoop-3 | 145.67 | -47.80 | 138.57 | -95.72 | -10.53 | -49.58 | 44.49 | 115.49 | 85.31 | -60.22 | 158.11 |
| Hoop-4 | 265.60 | -39.30 | -57.90 | 196.81 | 61.09 | -13.28 | 27.62 | 3.45 | -52.32 | 75.95 | 23.91 |
| Hoop-5 | -34.86 | -21.77 | -4.95 | 4.39 | -14.30 | 112.79 | -31.11 | 77.28 | -6.82 | 15.60 | 34.30 |
| Hoop-6 | -79.61 | 250.11 | 214.74 | -72.16 | 41.48 | -87.06 | 115.98 | -42.35 | 140.21 | 67.56 | -46.08 |
| Hoop-7 | 18.53 | 45.90 | -38.03 | 18.53 | 69.62 | -79.99 | -78.15 | 20.36 | -90.93 | -21.60 | -43.50 |
| Hoop-8 | 94.58 | -38.58 | 57.60 | 94.59 | 64.99 | -1.59 | 35.40 | 5.81 | 28.01 | 42.81 | -23.78 |
| Hoop-9 | -124.95 | 75.30 | 46.16 | 195.44 | 7.93 | 55.26 | -75.80 | -57.60 | 22.50 | -106.77 | -46.69 |
| Hoop-10 | -4.75 | -19.25 | -8.38 | -12.00 | 53.23 | 85.86 | -1.13 | -6.57 | 75.00 | 51.43 | 22.43 |
| Hoop-11 | 246.16 | -28.87 | -39.95 | -41.79 | -69.48 | -54.71 | -71.32 | -21.49 | -71.34 | 57.90 | 212.98 |
| Hoop-12 | -97.83 | 24.48 | -5.18 | -71.90 | -88.57 | -107.11 | 169.02 | 0.38 | 119.02 | -75.61 | -32.98 |
| Hoop-13 | -86.42 | -86.43 | 24.82 | 84.15 | 61.89 | 61.90 | -79.00 | 32.24 | 24.82 | 61.91 | -130.93 |
| Hoop-14 | 29.83 | -7.44 | -52.16 | 0.01 | -14.89 | 29.83 | -74.52 | -22.35 | -59.63 | 29.83 | 22.38 |
| Long-1 | 5.24 | 479.72 | 927.98 | 1382.62 | 1879.44 | 2338.93 | 2800.64 | 3275.73 | 3750.26 | 4201.89 | 4669.81 |
| Long-2 | -12.30 | 481.52 | 936.80 | 1427.14 | 1858.19 | 2305.04 | 2793.76 | 3268.91 | 3743.51 | 4192.39 | 4641.37 |
| Long-3 | 2.60 | 461.08 | 951.57 | 1383.29 | 1855.71 | 2312.91 | 2808.24 | 3245.55 | 3784.76 | 4177.55 | 4694.59 |
| Long-4 | 154.95 | 449.21 | 932.93 | 1414.26 | 1871.32 | 2344.93 | 2796.80 | 3243.23 | 3788.89 | 4193.92 | 4684.89 |
| Long-5 | 151.59 | 504.72 | 929.36 | 1425.64 | 1888.74 | 2327.68 | 2806.37 | 3293.10 | 3743.52 | 4223.55 | 4683.44 |
| Long-6 | 197.42 | 478.89 | 925.00 | 1410.20 | 1864.97 | 2343.75 | 2785.81 | 3262.68 | 3744.02 | 4217.40 | 4689.58 |
| Long-7 | -11.82 | 395.11 | 935.64 | 1418.70 | 1869.61 | 2339.05 | 2798.40 | 3303.99 | 3750.18 | 4191.05 | 4682.26 |
| Long-8 | -53.41 | 489.33 | 942.23 | 1434.65 | 1866.48 | 2312.00 | 2805.23 | 3263.65 | 3747.37 | 4177.74 | 4643.87 |
| SG1 | 294.28 | 231.42 | 248.84 | 241.82 | 223.19 | 227.41 | 218.99 | 205.91 | 210.60 | 225.82 | 203.10 |
| SG2 | 18.33 | 12.84 | 11.55 | 8.80 | 4.03 | 2.02 | -3.85 | -5.50 | -9.54 | -9.35 | -14.48 |
| SG3 | 329.14 | 256.57 | 265.03 | 234.65 | 186.75 | 182.16 | 168.02 | 137.83 | 124.66 | 95.72 | 64.85 |
| SG4 | 7.33 | 1.28 | -4.95 | -9.53 | -15.40 | -19.43 | -23.83 | -28.59 | -34.28 | -35.91 | -41.22 |
| SG5 | 332.25 | 284.10 | 294.13 | 261.41 | 213.39 | 208.90 | 200.72 | 174.23 | 177.21 | 129.12 | 119.97 |
| SG6 | 5.13 | -2.02 | -6.05 | -11.18 | -17.60 | -24.01 | -30.61 | -35.73 | -41.25 | -46.90 | -51.84 |
| SG7 | 381.82 | 370.13 | 397.43 | 394.06 | 373.83 | 371.82 | 382.30 | 372.66 | 396.31 | 368.15 | 376.21 |
| SG8 | 8.10 | 2.33 | -0.78 | -4.16 | -10.39 | -14.28 | -19.00 | -22.74 | -26.37 | -31.24 | -34.95 |
| SG9 | 339.70 | 258.29 | 275.39 | 252.36 | 201.51 | 194.15 | 169.17 | 150.18 | 139.22 | 106.40 | 77.73 |
| SG10 | 18858.3 | 21997.1 | 23501.3 | 15559.3 | 23688.8 | 24549.7 | 26088.9 | 21319.3 | 30482.2 | 10402.3 | 11316.3 |

TABLE E-11. CVP1, WATER 2, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 329.85 | 274.20 | 283.39 | 257.79 | 206.04 | 200.34 | 188.96 | 165.75 | 167.49 | 121.25 | 111.14 |
| SG12 | 15.18 | 11.97 | 8.53 | 5.14 | 0.18 | -8.81 | -17.25 | -20.18 | -26.94 | -33.75 | -39.62 |
| SG13 | 418.97 | 410.85 | 441.06 | 438.82 | 414.29 | 414.65 | 420.24 | 416.40 | 436.10 | 405.51 | 415.41 |
| SG14 | 16.13 | 11.92 | 10.54 | 7.97 | 1.74 | -2.06 | -7.38 | -9.12 | -13.71 | -17.82 | -20.98 |
| SG15 | 76.71 | 39.85 | 80.48 | 88.49 | 72.88 | 60.72 | 33.62 | 56.26 | 62.71 | 24.66 | 25.67 |
| SG16 | -117.82 | -135.97 | -121.68 | -122.57 | -131.77 | -139.65 | -154.01 | -142.37 | -141.16 | -158.08 | -156.16 |
| SG17 | 70.00 | 47.41 | 48.69 | 44.46 | 18.93 | 21.68 | 14.70 | 9.74 | 7.72 | -3.49 | -7.35 |
| SG18 | 282.66 | 275.53 | 273.10 | 271.16 | 262.48 | 261.15 | 255.67 | 253.39 | 249.53 | 246.48 | 243.09 |
| SG19 | 165.47 | 170.64 | 197.15 | 199.68 | 180.96 | 184.09 | 166.44 | 179.09 | 177.70 | 161.55 | 173.15 |
| SG20 | 79.68 | 80.42 | 90.36 | 92.37 | 84.66 | 84.48 | 71.79 | 81.70 | 73.09 | 73.03 | 77.26 |
| SG21 | -1.84 | 26.72 | 52.51 | 82.35 | 110.75 | 136.92 | 163.47 | 189.95 | 216.03 | 244.59 | 270.20 |
| SG22 | 7.52 | 39.43 | 67.67 | 97.55 | 126.74 | 151.32 | 175.92 | 204.10 | 230.26 | 257.21 | 279.94 |
| SG23 | 58.36 | 98.37 | 130.12 | 163.49 | 196.03 | 225.39 | 255.70 | 288.11 | 318.18 | 350.94 | 381.03 |
| SG24 | -11.38 | 30.30 | 63.91 | 98.23 | 131.50 | 159.97 | 189.38 | 223.11 | 254.08 | 288.21 | 317.76 |
| SG25 | 1433.99 | 1483.47 | 1525.63 | 1572.44 | 1625.94 | 1674.18 | 1727.56 | 1780.43 | 1837.49 | 1898.59 | 1955.08 |
| SG26 | 552.13 | 592.39 | 625.26 | 659.10 | 692.17 | 721.92 | 752.29 | 785.30 | 818.39 | 851.69 | 883.07 |
| SG27 | 1532.71 | 2463.26 | 3460.57 | 3923.41 | 2020.05 | 2237.73 | 2135.36 | 2470.73 | 2632.34 | 3040.57 | 2170.46 |
| SG28 | -39.63 | 1.61 | 33.28 | 70.09 | 102.52 | 129.78 | 160.73 | 196.03 | 228.55 | 266.65 | 296.09 |
| SG29T | -11.72 | -28.57 | -40.48 | -53.47 | -63.74 | -79.68 | -94.89 | -102.92 | -116.16 | -126.14 | -138.22 |
| SG29-45 | 4.21 | 5.82 | 12.74 | 15.34 | 22.73 | 29.19 | 38.77 | 41.23 | 56.60 | 61.92 | 73.37 |
| SG29L | -53.07 | -38.65 | -15.20 | 14.06 | 42.91 | 71.58 | 101.86 | 133.75 | 166.30 | 196.83 | 230.25 |
| SG30T | 22.32 | 2.38 | -6.04 | -18.30 | -33.13 | -48.13 | -60.22 | -69.90 | -81.28 | -93.84 | -105.73 |
| SG30-45 | 0.09 | 19.85 | 36.09 | 48.37 | 61.91 | 74.93 | 87.97 | 99.08 | 117.89 | 125.59 | 142.14 |
| SG30L | 7.93 | 55.67 | 88.46 | 122.50 | 158.77 | 190.41 | 220.84 | 255.53 | 288.96 | 322.51 | 355.20 |
| SG31T | 50.96 | 51.61 | 39.41 | 33.89 | 28.49 | 19.50 | 11.84 | 4.45 | -4.18 | -7.52 | -15.36 |
| SG31-45 | 79.59 | 102.49 | 116.21 | 132.47 | 147.97 | 162.47 | 174.14 | 187.02 | 204.74 | 220.21 | 236.22 |
| SG31L | 113.96 | 155.64 | 188.49 | 224.05 | 258.07 | 288.18 | 319.78 | 354.37 | 387.23 | 423.06 | 454.25 |
| SG32T | -6.42 | -21.14 | -27.65 | -39.61 | -50.94 | -63.14 | -76.72 | -83.44 | -94.99 | -108.21 | -116.46 |
| SG32-45 | -10.61 | 7.50 | 24.69 | 39.31 | 54.13 | 67.30 | 76.09 | 91.42 | 109.03 | 121.01 | 137.46 |
| SG32L | 3.58 | 47.14 | 79.55 | 114.97 | 150.87 | 180.17 | 212.01 | 246.89 | 280.04 | 315.38 | 346.36 |
| SG33T | -1.74 | -11.51 | -19.44 | -32.60 | -44.02 | -55.49 | -70.17 | -78.91 | -91.10 | -103.04 | -111.79 |
| SG33-45 | -16.85 | 3.49 | 24.24 | 42.13 | 57.66 | 69.37 | 78.98 | 98.55 | 114.49 | 129.86 | 145.47 |
| SG33L | 13.63 | 50.32 | 85.03 | 120.45 | 155.47 | 185.45 | 220.28 | 256.52 | 290.59 | 324.87 | 358.14 |
| SG34T | 19.96 | 19.36 | 5.83 | -11.06 | -25.60 | -44.37 | -62.96 | -76.11 | -91.06 | -109.52 | -124.15 |
| SG34-45 | 33.15 | 58.46 | 79.83 | 98.29 | 115.98 | 129.37 | 143.32 | 166.07 | 182.48 | 197.10 | 214.10 |
| SG34L | 12.30 | 46.94 | 84.11 | 119.84 | 155.35 | 189.91 | 225.91 | 263.88 | 298.44 | 334.39 | 371.18 |
| SG35T | 87.02 | 55.31 | 44.09 | 27.99 | 6.55 | -2.34 | -14.81 | -32.08 | -44.24 | -60.83 | -73.84 |
| SG35-45 | 63.99 | 64.18 | 78.67 | 88.98 | 93.36 | 104.46 | 112.92 | 121.60 | 136.12 | 142.56 | 155.72 |
| SG35L | 39.25 | 76.82 | 102.05 | 131.02 | 161.39 | 187.00 | 214.64 | 244.90 | 274.21 | 306.18 | 333.88 |
| SG36T | -11.36 | -27.50 | -33.18 | -43.07 | -56.28 | -69.11 | -84.15 | -89.63 | -99.57 | -111.95 | -119.83 |
| SG36-45 | 24.40 | 26.51 | 43.07 | 54.48 | 61.43 | 66.98 | 73.13 | 86.32 | 101.37 | 103.35 | 118.26 |
| SG36L | 39.39 | 81.04 | 108.51 | 136.14 | 168.52 | 194.71 | 223.21 | 252.68 | 283.31 | 311.74 | 340.21 |

TABLE E-12. CVP1, WATER 2, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.02 | 1.03 | 2.03 | 3.01 | 4.03 | 5.06 | 6.07 | 7.07 | 8.08 | 9.08 | 10.10 |
| Frame-1 | 9.39 | 224.52 | 411.72 | 624.48 | 843.16 | 1051.91 | 1245.63 | 1450.91 | 1645.72 | 1889.39 | 2098.39 |
| Frame-2 | 50.05 | 220.05 | 426.15 | 645.85 | 833.35 | 1040.38 | 1254.82 | 1480.90 | 1668.63 | 1862.17 | 2114.63 |
| Frame-3 | 52.28 | 200.82 | 409.07 | 637.64 | 832.62 | 1048.58 | 1246.15 | 1448.38 | 1665.92 | 1896.11 | 2100.32 |
| Frame-4 | -48.93 | 218.31 | 393.81 | 627.63 | 838.09 | 1052.40 | 1248.22 | 1455.60 | 1661.12 | 1886.24 | 2080.11 |
| Frame-5 | 35.31 | 211.46 | 425.20 | 642.10 | 823.53 | 1045.06 | 1246.35 | 1454.04 | 1685.75 | 1871.50 | 2100.18 |
| Frame-6 | 72.06 | 247.74 | 429.87 | 618.55 | 829.98 | 1050.26 | 1262.56 | 1457.40 | 1674.19 | 1889.95 | 2074.84 |
| Frame-7 | 82.88 | 205.31 | 406.40 | 619.27 | 829.65 | 1048.82 | 1246.07 | 1463.86 | 1661.47 | 1863.25 | 2098.96 |
| Frame-8 | 105.02 | 213.49 | 407.47 | 626.99 | 842.31 | 1062.96 | 1241.05 | 1468.93 | 1674.93 | 1867.87 | 2079.23 |
| Frame-9 | 53.17 | 292.83 | 406.29 | 618.86 | 827.25 | 1049.78 | 1244.85 | 1458.97 | 1675.32 | 1876.69 | 2095.02 |
| Frame-10 | 24.46 | 189.81 | 387.31 | 710.22 | 825.75 | 1058.53 | 1229.80 | 1468.10 | 1658.67 | 1856.85 | 2088.95 |
| Frame-11 | -65.26 | 207.55 | 423.97 | 621.57 | 843.69 | 1049.03 | 1239.64 | 1482.62 | 1668.56 | 1889.05 | 2078.51 |
| Frame-12 | -13.44 | 224.34 | 416.58 | 643.11 | 842.97 | 1053.37 | 1259.05 | 1469.79 | 1667.19 | 1877.40 | 2094.04 |
| Hoop-1 | -68.35 | 890.01 | 1764.81 | 2647.30 | 3558.63 | 4470.92 | 5319.72 | 6218.66 | 7095.31 | 7961.89 | 8865.34 |
| Hoop-2 | -62.58 | 880.24 | 1771.50 | 2657.50 | 3524.21 | 4450.81 | 5314.45 | 6207.56 | 7098.82 | 7972.71 | 8864.77 |
| Hoop-3 | 95.96 | 896.46 | 1748.42 | 2643.25 | 3554.94 | 4471.16 | 5321.35 | 6221.23 | 7130.00 | 7981.16 | 8848.12 |
| Hoop-4 | 176.34 | 955.35 | 1756.66 | 2658.62 | 3550.41 | 4452.46 | 5311.40 | 6198.23 | 7101.79 | 7969.23 | 8860.57 |
| Hoop-5 | 138.94 | 849.16 | 1757.47 | 2652.97 | 3532.62 | 4450.63 | 5336.52 | 6214.93 | 7097.07 | 7982.16 | 8881.93 |
| Hoop-6 | 88.05 | 907.77 | 1801.99 | 2642.46 | 3543.52 | 4449.28 | 5326.74 | 6217.24 | 7122.65 | 7967.64 | 8881.30 |
| Hoop-7 | -63.56 | 888.80 | 1770.02 | 2684.35 | 3557.65 | 4433.75 | 5331.38 | 6219.90 | 7099.29 | 7985.19 | 8876.33 |
| Hoop-8 | 50.21 | 878.80 | 1789.32 | 2669.44 | 3550.27 | 4459.99 | 5325.67 | 6212.92 | 7094.02 | 7958.91 | 8868.00 |
| Hoop-9 | 15.22 | 887.20 | 1774.28 | 2658.75 | 3547.56 | 4446.59 | 5322.31 | 6208.33 | 7099.23 | 7988.71 | 8867.09 |
| Hoop-10 | 58.69 | 886.86 | 1782.63 | 2652.22 | 3547.90 | 4477.31 | 5332.76 | 6209.34 | 7101.66 | 7985.31 | 8883.28 |
| Hoop-11 | 56.06 | 888.59 | 1777.05 | 2648.10 | 3551.24 | 4453.67 | 5328.76 | 6210.62 | 7115.87 | 7984.63 | 8867.98 |
| Hoop-12 | 198.73 | 899.25 | 1780.11 | 2684.27 | 3552.07 | 4456.23 | 5338.51 | 6220.16 | 7103.06 | 7984.53 | 8873.24 |
| Hoop-13 | -79.02 | 885.10 | 1790.42 | 2665.27 | 3563.08 | 4452.77 | 5313.14 | 6224.80 | 7085.80 | 7967.62 | 8908.60 |
| Hoop-14 | -7.44 | 916.88 | 1797.01 | 2653.97 | 3534.00 | 4472.97 | 5315.38 | 6231.71 | 7104.56 | 7998.35 | 8869.61 |
| Long-1 | -19.73 | 477.18 | 914.34 | 1391.36 | 1856.96 | 2342.44 | 2782.89 | 3278.82 | 3737.02 | 4200.22 | 4679.33 |
| Long-2 | -1.46 | 469.43 | 935.68 | 1393.42 | 1895.53 | 2336.12 | 2813.95 | 3287.53 | 3742.76 | 4184.74 | 4685.47 |
| Long-3 | 51.26 | 445.66 | 920.92 | 1392.25 | 1854.43 | 2335.73 | 2800.28 | 3284.60 | 3721.26 | 4204.02 | 4673.63 |
| Long-4 | 110.72 | 484.52 | 921.65 | 1382.68 | 1875.11 | 2351.01 | 2881.12 | 3253.95 | 3742.67 | 4217.50 | 4655.37 |
| Long-5 | -2.84 | 713.40 | 932.32 | 1395.61 | 1855.85 | 2336.02 | 2806.09 | 3270.99 | 3742.77 | 4194.53 | 4662.95 |
| Long-6 | 145.86 | 463.76 | 925.09 | 1391.35 | 1867.48 | 2328.43 | 2808.14 | 3279.62 | 3730.71 | 4195.62 | 4662.72 |
| Long-7 | 66.62 | 309.28 | 933.28 | 1386.83 | 1873.29 | 2353.52 | 2803.02 | 3277.59 | 3738.40 | 4210.24 | 4662.18 |
| Long-8 | -26.33 | 476.98 | 915.24 | 1380.50 | 1865.25 | 2326.53 | 2806.18 | 3270.39 | 3726.93 | 4213.01 | 4656.95 |
| SG1 | 93.85 | 31.90 | 52.06 | 150.86 | 316.68 | 428.64 | 502.26 | 555.25 | 638.01 | 681.58 | 751.42 |
| SG2 | 10.08 | 55.91 | 101.00 | 152.13 | 205.92 | 260.15 | 315.03 | 369.30 | 426.98 | 478.81 | 535.27 |
| SG3 | 180.78 | -17.27 | 3.31 | 84.88 | 217.24 | 309.63 | 362.07 | 397.36 | 468.76 | 492.78 | 544.78 |
| SG4 | 8.24 | 49.83 | 100.57 | 154.25 | 199.76 | 254.50 | 308.80 | 362.50 | 419.23 | 470.67 | 525.44 |
| SG5 | 210.67 | 24.00 | 31.46 | 111.17 | 231.92 | 332.49 | 393.12 | 436.08 | 514.72 | 550.34 | 602.23 |
| SG6 | 11.72 | 49.83 | 97.09 | 148.75 | 192.25 | 247.91 | 304.96 | 362.69 | 424.54 | 481.30 | 542.31 |
| SG7 | 276.57 | 57.70 | 95.79 | 200.93 | 346.31 | 472.28 | 546.22 | 607.42 | 708.24 | 754.88 | 812.03 |
| SG8 | 11.21 | 54.40 | 102.70 | 156.81 | 202.91 | 260.75 | 316.63 | 371.68 | 429.94 | 483.47 | 539.51 |
| SG9 | 194.24 | 1.65 | 18.93 | 92.98 | 233.84 | 330.84 | 382.93 | 421.17 | 504.17 | 528.19 | 584.43 |
| SG10 | 15357.2 | 12512.8 | 11966.8 | 14606.9 | 19084.2 | 16001.4 | 25443.2 | 22431.9 | 16160.0 | 18159.9 | 17444.0 |

TABLE E-12. CVP1, WATER 2, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 203.00 | 7.90 | 10.29 | 83.40 | 193.71 | 287.56 | 336.69 | 369.58 | 441.35 | 460.42 | 500.65 |
| SG12 | 35.45 | 115.71 | 190.95 | 268.03 | 337.64 | 416.97 | 501.51 | 587.16 | 679.55 | 767.17 | 858.16 |
| SG13 | 310.80 | 98.34 | 145.07 | 252.84 | 397.70 | 526.35 | 598.15 | 660.49 | 769.25 | 812.61 | 873.47 |
| SG14 | 24.33 | 80.78 | 142.35 | 205.62 | 257.17 | 321.23 | 381.01 | 440.23 | 502.83 | 559.05 | 616.60 |
| SG15 | 51.02 | -2.80 | 23.38 | 75.45 | 147.48 | 214.57 | 264.32 | 302.57 | 385.72 | 411.26 | 469.62 |
| SG16 | -120.53 | -99.84 | -62.46 | -11.36 | 44.71 | 100.04 | 148.62 | 198.28 | 257.60 | 301.91 | 356.69 |
| SG17 | 22.41 | -27.92 | 2.76 | 59.51 | 114.66 | 182.43 | 228.22 | 272.14 | 352.18 | 381.91 | 434.26 |
| SG18 | 277.30 | 295.21 | 341.59 | 394.55 | 448.70 | 503.70 | 554.12 | 607.02 | 668.17 | 715.16 | 769.64 |
| SG19 | 140.39 | 64.59 | 117.39 | 190.44 | 258.99 | 345.26 | 400.18 | 447.49 | 544.57 | 573.96 | 633.21 |
| SG20 | 82.41 | 103.03 | 148.82 | 195.92 | 243.11 | 300.10 | 352.42 | 403.40 | 467.90 | 512.38 | 568.86 |
| SG21 | 4.97 | 13.63 | 14.55 | 9.58 | -15.29 | -18.61 | -20.64 | -19.35 | -22.84 | -21.00 | -22.29 |
| SG22 | 12.47 | 41.07 | 72.05 | 92.95 | 103.44 | 126.15 | 151.49 | 176.98 | 200.78 | 225.15 | 248.61 |
| SG23 | 61.46 | 90.27 | 109.34 | 116.49 | 131.04 | 125.14 | 131.40 | 142.05 | 146.42 | 157.79 | 164.94 |
| SG24 | -13.03 | 18.18 | 51.03 | 75.08 | 105.78 | 124.49 | 148.20 | 173.55 | 197.01 | 221.96 | 245.64 |
| SG25 | 1496.31 | 1533.82 | 1568.45 | 1591.08 | 1655.79 | 1681.22 | 1701.44 | 1721.88 | 1729.82 | 1750.81 | 1768.29 |
| SG26 | 538.01 | 572.58 | 607.21 | 634.00 | 682.55 | 713.44 | 740.57 | 767.75 | 784.67 | 809.74 | 834.89 |
| SG27 | 1774.45 | 1773.16 | 1634.98 | 22844.9 | 1454.00 | 1338.47 | 1352.34 | 1398.30 | 1077.84 | 916.19 | 744.72 |
| SG28 | -31.52 | 11.19 | 42.10 | 73.76 | 106.20 | 126.79 | 147.44 | 168.06 | 191.59 | 217.34 | 237.22 |
| SG29T | 1.10 | 109.67 | 208.89 | 300.43 | 376.74 | 462.18 | 544.87 | 626.38 | 708.65 | 786.58 | 866.78 |
| SG29-45 | 20.79 | 83.59 | 146.00 | 203.66 | 244.37 | 303.19 | 354.56 | 403.03 | 453.43 | 503.21 | 553.68 |
| SG29L | -55.71 | -43.58 | -19.50 | 3.39 | 34.99 | 62.72 | 83.53 | 105.92 | 126.36 | 147.50 | 170.30 |
| SG30T | 27.07 | 87.08 | 155.12 | 226.09 | 282.36 | 352.01 | 421.81 | 491.53 | 564.06 | 632.43 | 705.42 |
| SG30-45 | 6.23 | 56.11 | 116.88 | 169.41 | 215.24 | 270.44 | 318.18 | 364.04 | 410.04 | 457.44 | 504.56 |
| SG30L | 4.68 | 50.84 | 86.82 | 111.66 | 150.73 | 178.48 | 199.89 | 222.08 | 241.93 | 264.33 | 284.86 |
| SG31T | 64.33 | 146.61 | 209.01 | 267.84 | 326.71 | 395.03 | 467.41 | 542.73 | 617.75 | 693.86 | 772.37 |
| SG31-45 | 81.99 | 137.45 | 186.55 | 226.40 | 279.39 | 329.97 | 378.30 | 427.66 | 476.38 | 527.88 | 579.98 |
| SG31L | 104.39 | 133.02 | 160.53 | 178.14 | 217.30 | 238.18 | 254.38 | 272.91 | 287.72 | 306.04 | 322.37 |
| SG32T | 11.23 | 86.12 | 166.04 | 247.12 | 311.04 | 389.27 | 466.19 | 542.67 | 621.04 | 695.04 | 774.61 |
| SG32-45 | -0.73 | 59.05 | 118.27 | 168.17 | 224.56 | 279.73 | 328.98 | 378.17 | 429.29 | 479.70 | 530.34 |
| SG32L | -1.83 | 35.98 | 65.27 | 84.42 | 121.92 | 143.26 | 160.07 | 178.36 | 192.90 | 211.36 | 226.62 |
| SG33T | 13.93 | 84.03 | 162.08 | 241.33 | 306.13 | 385.47 | 462.58 | 539.98 | 618.91 | 694.40 | 774.71 |
| SG33-45 | -6.01 | 58.19 | 122.43 | 175.94 | 233.99 | 289.61 | 337.78 | 387.64 | 439.10 | 488.39 | 539.47 |
| SG33L | 6.33 | 35.89 | 68.98 | 91.78 | 130.57 | 152.99 | 171.52 | 191.63 | 209.03 | 231.04 | 247.93 |
| SG34T | 30.91 | 101.00 | 171.25 | 241.92 | 300.89 | 372.66 | 442.15 | 511.71 | 584.27 | 653.14 | 726.03 |
| SG34-45 | 39.60 | 104.98 | 178.07 | 234.32 | 301.72 | 359.29 | 408.43 | 459.56 | 513.56 | 562.01 | 615.55 |
| SG34L | 11.70 | 30.64 | 64.54 | 84.72 | 121.10 | 144.34 | 164.01 | 186.12 | 205.13 | 225.89 | 245.80 |
| SG35T | 53.83 | 63.82 | 132.53 | 212.55 | 281.70 | 368.10 | 454.20 | 540.17 | 627.76 | 711.76 | 799.59 |
| SG35-45 | 43.75 | 61.96 | 118.40 | 173.84 | 236.11 | 297.71 | 355.20 | 413.00 | 473.82 | 532.11 | 592.46 |
| SG35L | 28.66 | 67.04 | 98.85 | 123.03 | 163.71 | 190.19 | 213.36 | 238.14 | 259.30 | 284.82 | 307.81 |
| SG36T | -2.02 | 79.53 | 167.84 | 253.23 | 330.31 | 413.82 | 491.26 | 569.71 | 648.58 | 722.92 | 801.17 |
| SG36-45 | 25.95 | 74.52 | 132.01 | 185.89 | 233.99 | 283.52 | 331.97 | 378.90 | 425.65 | 472.75 | 520.12 |
| SG36L | 39.75 | 71.11 | 93.02 | 110.30 | 122.64 | 134.17 | 152.22 | 168.91 | 182.54 | 200.40 | 215.99 |

TABLE E-13. CVP2, AIR 1, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.03 | 1.01 | 2.04 | 3.02 | 4.04 | 5.04 | 6.05 | 7.06 | 8.07 | 9.08 | 10.10 |
| Frame-1 | 9.49 | 176.05 | 423.10 | 643.32 | 832.49 | 1048.36 | 1254.45 | 1457.43 | 1655.31 | 1872.60 | 2093.19 |
| Frame-2 | 493.82 | 209.90 | 434.71 | 632.39 | 847.44 | 1059.86 | 1253.74 | 1458.40 | 1656.17 | 1838.75 | 2071.60 |
| Frame-3 | 56.75 | 196.39 | 433.37 | 636.77 | 828.09 | 1035.72 | 1250.77 | 1462.73 | 1676.46 | 1859.76 | 2087.54 |
| Frame-4 | 19.49 | 198.46 | 425.24 | 644.13 | 825.04 | 1049.92 | 1261.55 | 1478.71 | 1680.41 | 1875.68 | 2086.32 |
| Frame-5 | 71.82 | 207.93 | 422.97 | 654.24 | 835.44 | 1039.93 | 1262.23 | 1460.72 | 1659.27 | 1856.56 | 2091.67 |
| Frame-6 | 18.96 | 263.99 | 416.79 | 646.80 | 834.24 | 1046.34 | 1241.99 | 1446.48 | 1577.98 | 1861.10 | 2067.64 |
| Frame-7 | 58.16 | 252.40 | 442.68 | 557.97 | 838.30 | 1037.28 | 1229.54 | 1458.49 | 1684.95 | 1897.58 | 2074.54 |
| Frame-8 | -9.86 | 206.54 | 413.81 | 623.62 | 829.65 | 1037.01 | 1237.66 | 1471.53 | 1666.77 | 1886.05 | 2097.22 |
| Frame-9 | -74.29 | 269.44 | 433.03 | 593.88 | 819.00 | 1034.98 | 1251.15 | 1453.88 | 1791.91 | 1866.46 | 2067.15 |
| Frame-10 | -24.05 | 214.82 | 417.00 | 623.43 | 829.54 | 1021.48 | 1248.04 | 1457.89 | 1649.75 | 1831.23 | 2047.65 |
| Frame-11 | 42.33 | 201.33 | 402.02 | 622.21 | 828.46 | 1037.76 | 1257.35 | 1470.69 | 1671.42 | 1868.72 | 2093.55 |
| Frame-12 | -42.05 | 196.91 | 418.08 | 612.36 | 828.82 | 1034.50 | 1252.46 | 1438.08 | 1648.88 | 1878.64 | 2074.33 |
| Hoop-1 | 49.72 | 880.39 | 1822.98 | 2685.07 | 3542.59 | 4415.79 | 5304.65 | 6193.94 | 7060.06 | 7972.29 | 8852.58 |
| Hoop-2 | -70.50 | 870.95 | 1832.10 | 2755.67 | 3515.73 | 4437.56 | 5324.19 | 6200.42 | 7079.16 | 7959.89 | 8865.21 |
| Hoop-3 | 23.21 | 882.75 | 1789.48 | 2721.12 | 3518.56 | 4430.99 | 5323.24 | 6193.13 | 7068.99 | 7962.57 | 8822.11 |
| Hoop-4 | 12.79 | 915.70 | 1794.38 | 2680.82 | 3536.77 | 4423.29 | 5310.78 | 6191.32 | 7061.46 | 7959.52 | 8836.53 |
| Hoop-5 | 171.64 | 897.68 | 1795.00 | 2707.26 | 3532.91 | 4428.84 | 5373.13 | 6195.67 | 7051.74 | 7880.62 | 8849.25 |
| Hoop-6 | -73.51 | 872.46 | 1786.85 | 2694.20 | 3552.63 | 4436.05 | 5333.37 | 6194.18 | 7079.71 | 7959.88 | 8848.58 |
| Hoop-7 | 321.94 | 893.60 | 1799.25 | 2714.40 | 3489.87 | 4428.83 | 5348.65 | 6194.05 | 7098.59 | 7961.30 | 8863.48 |
| Hoop-8 | 95.85 | 890.38 | 1766.19 | 2633.94 | 3568.61 | 4429.00 | 5319.17 | 6201.37 | 7077.45 | 7960.26 | 8866.04 |
| Hoop-9 | -20.51 | 889.81 | 1756.95 | 2543.61 | 3610.24 | 4431.34 | 5283.63 | 6191.51 | 7084.31 | 7936.60 | 8815.16 |
| Hoop-10 | 29.39 | 881.90 | 1767.27 | 2633.87 | 3537.31 | 4470.74 | 5267.25 | 6162.49 | 7109.53 | 8084.86 | 8880.46 |
| Hoop-11 | -91.46 | 875.81 | 1767.88 | 2567.13 | 3529.22 | 4426.12 | 5179.66 | 6166.57 | 7036.81 | 7911.95 | 8865.36 |
| Hoop-12 | -37.82 | 918.97 | 1765.06 | 2630.81 | 3541.68 | 4429.64 | 5303.14 | 6242.64 | 7064.95 | 7975.47 | 8849.86 |
| Hoop-13 | 37.84 | 875.66 | 1780.56 | 2603.19 | 3530.33 | 4412.28 | 5309.41 | 6191.10 | 7066.60 | 7956.32 | 8854.34 |
| Hoop-14 | 90.25 | 859.81 | 1762.91 | 2650.51 | 3487.01 | 4322.81 | 5314.36 | 6231.29 | 7082.86 | 7941.22 | 8859.65 |
| Long-1 | 118.31 | 120.69 | 79.17 | 0.82 | -2.74 | -0.36 | -21.72 | 2.01 | 6.76 | -3.92 | -5.11 |
| Long-2 | 26.89 | -37.52 | -48.47 | -13.22 | 12.30 | -8.35 | -21.72 | -1.06 | -3.49 | -12.00 | 7.44 |
| Long-3 | -7.72 | -46.25 | 49.46 | -36.30 | -45.00 | -46.24 | -42.51 | 3.47 | 54.42 | 2.22 | 2.22 |
| Long-4 | 1.75 | 82.51 | -39.86 | 64.16 | 77.62 | 104.53 | 13.99 | -44.75 | 119.22 | -15.38 | -19.05 |
| Long-5 | 379.99 | 296.07 | 272.14 | 270.89 | 267.29 | 299.63 | 321.21 | 334.43 | 372.80 | 369.20 | 385.98 |
| Long-6 | -31.41 | -37.53 | -3.30 | 85.94 | 76.16 | -42.41 | -41.19 | 48.05 | 7.71 | 8.93 | 27.27 |
| Long-7 | 100.44 | 104.05 | 113.69 | 105.25 | 106.45 | 107.65 | 113.65 | 117.27 | 167.75 | 160.54 | 165.35 |
| Long-8 | 20.21 | 58.37 | 17.75 | -26.57 | -19.19 | 54.67 | -17.95 | 12.82 | 0.51 | 9.13 | 1.74 |
| SG1 | 62.18 | -27.01 | 38.05 | 144.93 | 185.12 | 258.10 | 338.20 | 424.98 | 491.84 | 605.94 | 699.32 |
| SG2 | 15.48 | 63.54 | 124.00 | 184.67 | 242.89 | 302.84 | 364.00 | 426.23 | 486.97 | 552.04 | 616.13 |
| SG3 | 116.71 | 39.81 | 87.03 | 192.91 | 254.55 | 334.43 | 416.81 | 499.83 | 568.23 | 678.56 | 775.71 |
| SG4 | 15.80 | 67.21 | 126.08 | 186.82 | 245.57 | 306.60 | 367.14 | 428.52 | 488.09 | 553.00 | 616.88 |
| SG5 | 38.81 | -33.24 | 5.76 | 112.75 | 172.35 | 261.16 | 346.41 | 413.29 | 492.22 | 566.22 | 654.20 |
| SG6 | 22.36 | 76.35 | 138.80 | 205.66 | 272.19 | 343.31 | 414.34 | 485.08 | 557.26 | 629.31 | 703.12 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -52.71 | 6.91 | 65.80 | 128.35 | 188.73 | 251.29 | 313.07 | 374.30 | 435.37 | 498.68 | 559.72 |
| SG9 | 49.62 | -28.09 | 15.48 | 108.88 | 178.30 | 254.72 | 333.85 | 416.33 | 487.18 | 586.69 | 677.27 |
| SG10 | 3.72 | 63.86 | 126.96 | 188.01 | 252.05 | 313.49 | 374.67 | 437.01 | 498.78 | 562.62 | 625.85 |

TABLE E-13. CVP2, AIR 1, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 31.04 | -60.45 | -21.65 | 78.88 | 137.31 | 213.76 | 290.02 | 353.27 | 416.18 | 481.89 | 558.99 |
| SG12 | 33.70 | 117.64 | 208.88 | 300.45 | 395.32 | 503.26 | 609.52 | 716.11 | 819.94 | 927.80 | 1033.44 |
| SG13 | 104.83 | -35.34 | -23.69 | 90.89 | 187.52 | 281.15 | 370.20 | 451.88 | 521.66 | 608.62 | 712.28 |
| SG14 | 30.92 | 92.01 | 153.05 | 217.89 | 283.00 | 347.13 | 408.87 | 472.11 | 535.59 | 597.51 | 662.22 |
| SG15 | -52.13 | -68.53 | -33.99 | 10.74 | 70.80 | 113.64 | 161.28 | 226.31 | 284.24 | 340.94 | 400.38 |
| SG16 | -19.81 | 22.56 | 76.03 | 126.87 | 184.23 | 236.23 | 291.58 | 352.55 | 412.03 | 469.01 | 527.32 |
| SG17 | -393.79 | -420.08 | -377.57 | -302.77 | -231.49 | -172.65 | -107.04 | -29.06 | 49.96 | 108.86 | 182.79 |
| SG18 | -2.14 | 31.12 | 75.09 | 125.46 | 179.61 | 230.41 | 282.64 | 337.82 | 393.40 | 444.58 | 497.55 |
| SG19 | -340.28 | -379.70 | -353.81 | -283.44 | -211.24 | -165.18 | -110.41 | -51.07 | 7.39 | 59.19 | 128.92 |
| SG20 | 30.08 | 59.48 | 111.61 | 172.03 | 234.89 | 288.68 | 345.18 | 404.29 | 463.96 | 519.60 | 580.73 |
| SG21 | 24.42 | -14.06 | -50.32 | -89.17 | -122.48 | -154.86 | -187.57 | -216.88 | -250.17 | -281.44 | -313.98 |
| SG22 | 54.24 | 43.36 | 40.45 | 37.95 | 37.08 | 35.14 | 36.42 | 35.79 | 33.94 | 31.77 | 31.08 |
| SG23 | -34.24 | -56.98 | -79.07 | -106.36 | -127.54 | -150.69 | -172.24 | -192.51 | -217.35 | -241.38 | -266.21 |
| SG24 | 32.63 | 15.79 | 13.12 | 9.52 | 7.63 | 3.48 | 2.83 | 1.12 | -5.89 | -9.99 | -13.45 |
| SG25 | 229.54 | 220.70 | 218.40 | 209.40 | 202.70 | 196.21 | 190.88 | 185.11 | 175.83 | 166.35 | 156.89 |
| SG26 | 24852.0 | 24833.4 | 24777.6 | 24831.0 | 24848.2 | 24859.9 | 24825.5 | 24847.3 | 24853.6 | 24924.2 | 25004.1 |
| SG27 | -141.91 | -179.17 | -205.60 | -234.03 | -260.48 | -282.33 | -303.33 | -325.22 | -349.90 | -372.91 | -395.79 |
| SG28 | 48.26 | 38.66 | 37.92 | 34.96 | 32.74 | 28.31 | 25.34 | 19.44 | 12.78 | 4.65 | -0.52 |
| SG29T | 7.85 | 82.32 | 163.34 | 242.57 | 322.78 | 402.68 | 481.74 | 562.23 | 644.55 | 725.02 | 807.54 |
| SG29-45 | 31.20 | 40.11 | 70.85 | 108.40 | 143.52 | 174.82 | 215.58 | 252.77 | 287.20 | 321.19 | 359.51 |
| SG29L | 26.62 | 5.68 | -1.89 | -10.48 | -19.49 | -30.55 | -38.81 | -46.54 | -56.43 | -68.36 | -78.25 |
| SG30T | 15.24 | 86.52 | 165.08 | 243.70 | 323.97 | 404.25 | 483.79 | 565.41 | 648.92 | 731.17 | 814.24 |
| SG30-45 | 8.90 | 23.38 | 60.42 | 94.02 | 129.40 | 163.24 | 204.74 | 241.27 | 273.46 | 309.25 | 347.98 |
| SG30L | 10.56 | -8.25 | -13.77 | -22.68 | -28.77 | -38.01 | -43.05 | -49.34 | -58.48 | -70.17 | -78.51 |
| SG31T | 18.63 | 113.45 | 197.47 | 273.13 | 360.11 | 443.62 | 524.28 | 608.20 | 692.36 | 775.27 | 858.09 |
| SG31-45 | 35.96 | 13.58 | 2.44 | -8.76 | -17.12 | -27.15 | -33.13 | -40.81 | -52.51 | -61.98 | -71.08 |
| SG31L | 40.27 | 66.23 | 103.72 | 136.45 | 171.35 | 207.58 | 246.92 | 286.61 | 313.32 | 357.14 | 396.13 |
| SG32T | 1.55 | 82.04 | 165.64 | 248.48 | 333.64 | 419.06 | 503.96 | 590.94 | 681.29 | 768.67 | 858.66 |
| SG32-45 | 58.50 | 77.25 | 119.17 | 157.93 | 192.45 | 227.32 | 267.70 | 306.96 | 337.17 | 378.91 | 419.68 |
| SG32L | 38.86 | 16.57 | 8.09 | -4.94 | -16.78 | -30.99 | -42.82 | -55.47 | -72.83 | -88.22 | -104.39 |
| SG33T | -5.31 | 45.89 | 112.24 | 186.76 | 266.49 | 347.80 | 431.24 | 517.55 | 607.95 | 696.14 | 787.13 |
| SG33-45 | 19.35 | 32.45 | 59.62 | 93.34 | 126.42 | 157.30 | 192.52 | 229.86 | 266.06 | 303.69 | 344.40 |
| SG33L | 13.91 | -3.60 | -11.75 | -25.82 | -41.01 | -58.43 | -75.04 | -89.80 | -111.50 | -127.52 | -144.32 |
| SG34T | 19.49 | 51.93 | 113.98 | 182.99 | 257.29 | 330.88 | 405.97 | 482.72 | 562.04 | 640.24 | 720.38 |
| SG34-45 | -13.13 | 3.48 | 33.19 | 62.75 | 90.83 | 118.45 | 149.43 | 183.33 | 213.30 | 247.27 | 281.83 |
| SG34L | 19.14 | 10.53 | 1.36 | -10.51 | -23.92 | -37.05 | -49.84 | -62.30 | -76.73 | -91.16 | -104.74 |
| SG35T | 0.27 | 33.42 | 85.96 | 148.44 | 220.11 | 293.62 | 370.04 | 450.59 | 535.51 | 619.49 | 706.05 |
| SG35-45 | 34.07 | 27.58 | 51.59 | 79.04 | 109.14 | 140.22 | 181.62 | 218.11 | 251.73 | 289.63 | 333.45 |
| SG35L | 32.66 | 6.97 | -1.77 | -8.74 | -13.25 | -16.04 | -15.76 | -15.90 | -22.27 | -26.13 | -29.19 |
| SG36T | -8.48 | 66.29 | 145.98 | 225.19 | 307.00 | 387.21 | 466.95 | 549.46 | 631.89 | 714.48 | 798.85 |
| SG36-45 | -8.71 | 13.99 | 57.29 | 97.18 | 135.93 | 173.63 | 219.60 | 259.83 | 300.68 | 336.72 | 381.20 |
| SG36L | 6.98 | -9.25 | -13.91 | -22.72 | -30.46 | -39.04 | -45.69 | -55.13 | -65.48 | -76.90 | -86.91 |
| SG37T | -64.60 | 18.79 | 105.78 | 188.80 | 272.69 | 355.77 | 437.09 | 519.39 | 604.01 | 686.44 | 770.29 |
| SG37-45 | 33.79 | 58.47 | 101.12 | 140.51 | 176.81 | 214.72 | 255.93 | 296.65 | 325.62 | 369.90 | 410.52 |
| SG37L | 22.30 | 2.76 | -5.09 | -13.36 | -18.98 | -26.31 | -29.79 | -35.09 | -44.24 | -51.53 | -57.98 |

TABLE E-14. CVP2, AIR 1, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.05 | 0.04 | 0.06 | 0.09 | 0.11 | 0.12 | 0.11 | 0.10 | 0.10 | 0.10 | 0.09 |
| Frame-1 | 30.80 | 31.64 | -3.97 | 21.04 | -1.95 | 0.32 | -5.13 | -12.35 | 4.19 | 3.06 | 8.33 |
| Frame-2 | 113.96 | -52.03 | -352.04 | 45.09 | 6.29 | -34.85 | 56.95 | 60.08 | -555.74 | 56.51 | 1125.26 |
| Frame-3 | 110.58 | 137.17 | -28.76 | -177.19 | 74.47 | 66.44 | 105.63 | 69.26 | -103.02 | -14.91 | -86.88 |
| Frame-4 | 318.37 | 258.88 | -56.04 | 475.83 | -86.77 | 56.87 | -79.60 | -57.53 | -37.52 | 7.89 | 16.62 |
| Frame-5 | -8.62 | 54.33 | 22.11 | 197.28 | -70.74 | 100.62 | 3.71 | -38.03 | -12.83 | -34.67 | -56.99 |
| Frame-6 | 165.56 | 186.81 | 83.71 | -17.35 | 87.28 | -12.39 | -70.38 | 71.95 | -42.47 | 2.24 | 80.49 |
| Frame-7 | -137.57 | 31.69 | -18.82 | 90.52 | -63.56 | -71.45 | -49.43 | 57.03 | -15.29 | -51.58 | -34.16 |
| Frame-8 | -91.85 | -12.21 | -36.87 | -39.50 | -62.65 | -36.11 | -65.75 | -2.38 | 32.07 | 83.60 | 68.30 |
| Frame-9 | 69.47 | 0.12 | 31.01 | 14.45 | -5.47 | 1090.86 | -123.76 | -47.35 | 60.81 | -33.48 | 80.09 |
| Frame-10 | 21.36 | 47.64 | 10.93 | -5.48 | 112.55 | 34.07 | -30.01 | -7.96 | 69.54 | 62.55 | 81.68 |
| Frame-11 | -72.18 | 39.98 | 8.91 | 63.78 | 22.33 | 38.25 | 26.06 | -26.69 | -8.03 | -6.47 | -28.25 |
| Frame-12 | 67.57 | 52.45 | 34.61 | -14.71 | 81.38 | -26.85 | -87.76 | -101.93 | 3.58 | 25.96 | -8.44 |
| Hoop-1 | -20.11 | -23.79 | -1.73 | -29.30 | 51.56 | 14.80 | -32.97 | -9.08 | -16.43 | 0.10 | 14.80 |
| Hoop-2 | 45.14 | 23.46 | 19.85 | 34.30 | 7.20 | -72.31 | 59.59 | 9.00 | 131.85 | 28.88 | 77.66 |
| Hoop-3 | -13.62 | 16.20 | 116.18 | -57.48 | -59.23 | 137.22 | -34.67 | -106.60 | 151.24 | 81.09 | -64.49 |
| Hoop-4 | 33.14 | -100.07 | 92.35 | -113.02 | -0.16 | -63.06 | -81.55 | -111.17 | -138.90 | -88.96 | 158.94 |
| Hoop-5 | -14.40 | 180.78 | -50.89 | 350.43 | -34.47 | 166.17 | -1.64 | 144.30 | -50.88 | -38.11 | -83.71 |
| Hoop-6 | -80.90 | 129.72 | -34.71 | -18.09 | 9.63 | 22.56 | -77.19 | -21.78 | -1.46 | -128.93 | 65.05 |
| Hoop-7 | -143.71 | 312.84 | -140.07 | -132.77 | 318.32 | 13.33 | 157.58 | -156.51 | -74.31 | -21.36 | -161.97 |
| Hoop-8 | 66.43 | 22.28 | 7.56 | 117.92 | -21.86 | 73.78 | -36.58 | -21.86 | 22.28 | -7.15 | -7.15 |
| Hoop-9 | 70.17 | 99.17 | -35.01 | -15.07 | 445.48 | 200.72 | 122.75 | -24.14 | -15.07 | 256.96 | 322.22 |
| Hoop-10 | -113.31 | 123.31 | 119.69 | 31.20 | -75.36 | -109.68 | -97.04 | -22.98 | 25.78 | 51.07 | -77.17 |
| Hoop-11 | 41.20 | 30.14 | 177.52 | 37.51 | -39.86 | 63.31 | -28.81 | 89.09 | -104.34 | 85.42 | 89.10 |
| Hoop-12 | -50.77 | 23.26 | 63.96 | -30.41 | -58.17 | 8.45 | 1.05 | -56.32 | 60.26 | -21.16 | -69.28 |
| Hoop-13 | -43.72 | -36.30 | 30.42 | -36.30 | -43.71 | 0.77 | -21.48 | 8.18 | 67.49 | -80.80 | -43.72 |
| Hoop-14 | 60.66 | 53.25 | -50.34 | -35.55 | 260.41 | -28.15 | 260.44 | -42.94 | 23.65 | 201.26 | 16.25 |
| Long-1 | 2.01 | 486.17 | 922.86 | 1396.48 | 1869.01 | 2334.05 | 2764.85 | 3188.85 | 3448.78 | 3862.63 | 4370.57 |
| Long-2 | -35.10 | 478.93 | 950.42 | 1403.83 | 1913.23 | 2349.33 | 2794.13 | 3257.49 | 3724.21 | 4169.85 | 4558.75 |
| Long-3 | -69.87 | 443.37 | 935.48 | 1423.99 | 1831.81 | 2354.85 | 2787.35 | 3281.07 | 3723.55 | 4161.89 | 4804.42 |
| Long-4 | 31.12 | 423.86 | 952.42 | 1416.28 | 1842.29 | 2323.00 | 2779.41 | 3281.44 | 3737.90 | 4242.89 | 4687.07 |
| Long-5 | 329.67 | 694.02 | 1060.84 | 1527.31 | 2032.24 | 2450.44 | 2964.75 | 3459.03 | 3787.56 | 4218.77 | 4747.48 |
| Long-6 | 41.94 | 412.31 | 953.81 | 1402.55 | 1814.71 | 2374.42 | 2787.62 | 3285.50 | 3725.64 | 4227.70 | 4715.47 |
| Long-7 | 101.66 | 450.17 | 948.92 | 1403.35 | 1841.05 | 2340.87 | 2820.45 | 3279.92 | 3730.69 | 4203.89 | 4678.66 |
| Long-8 | 2.97 | 436.23 | 950.73 | 1384.13 | 1832.38 | 2338.13 | 2786.20 | 3297.39 | 3744.28 | 4273.22 | 4707.75 |
| SG1 | 54.82 | 120.80 | 132.41 | 114.71 | 143.27 | 134.25 | 150.65 | 153.59 | 171.85 | 202.97 | 216.45 |
| SG2 | 13.27 | 12.07 | 8.57 | 5.53 | 4.84 | 2.99 | 0.14 | -2.81 | -4.10 | -5.16 | -7.47 |
| SG3 | 91.10 | 155.85 | 117.47 | 61.57 | 72.08 | 60.65 | 44.23 | 42.20 | 35.56 | 41.65 | 47.74 |
| SG4 | 13.13 | 12.30 | 5.53 | -3.63 | -9.67 | -13.54 | -20.91 | -26.25 | -30.40 | -36.98 | -41.08 |
| SG5 | 11.15 | 31.22 | 0.60 | -16.67 | 15.01 | -9.58 | -24.86 | -28.36 | -24.17 | 0.05 | -9.99 |
| SG6 | 21.63 | 16.66 | 10.76 | 3.21 | 0.81 | -6.93 | -14.85 | -21.29 | -27.19 | -31.24 | -38.25 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ###### | ####### | ####### |
| SG8 | -54.20 | -53.45 | -59.34 | -60.82 | -65.23 | -65.97 | -68.91 | -72.59 | -76.27 | -79.21 | -83.64 |
| SG9 | 37.45 | 88.03 | 56.28 | 6.62 | 23.05 | 6.80 | -5.93 | -7.04 | -25.50 | -9.62 | -15.35 |
| SG10 | 4.45 | -1.63 | -7.91 | -15.84 | -20.27 | -25.07 | -32.63 | -38.35 | -46.65 | -51.08 | -58.83 |

TABLE E-14. CVP2, AIR 1, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 6.59 | 27.40 | -1.95 | -25.75 | 3.45 | -15.23 | -26.17 | -31.06 | -25.34 | 4.79 | -14.82 |
| SG12 | 30.94 | 26.97 | 17.87 | 8.87 | 5.03 | -3.78 | -12.74 | -21.42 | -28.95 | -34.44 | -44.28 |
| SG13 | 39.41 | 123.83 | 65.71 | 71.33 | 77.26 | 83.58 | 72.34 | 87.67 | 94.26 | 120.18 | 143.03 |
| SG14 | 27.15 | 26.09 | 19.04 | 16.14 | 11.94 | 10.29 | 4.11 | 0.98 | -3.81 | -7.82 | -10.86 |
| SG15 | -35.47 | -17.41 | -25.60 | -48.91 | -26.34 | -34.72 | -33.76 | -30.39 | -59.97 | -42.41 | -60.34 |
| SG16 | -11.02 | -16.46 | -21.29 | -30.13 | -23.22 | -27.00 | -29.90 | -31.65 | -45.10 | -41.60 | -52.38 |
| SG17 | -389.98 | -399.96 | -394.79 | -405.82 | -401.39 | -399.64 | -408.13 | -409.24 | -406.79 | -387.41 | -407.76 |
| SG18 | 0.22 | -6.52 | -4.58 | -8.79 | -11.42 | -12.34 | -17.65 | -20.93 | -23.94 | -22.55 | -30.40 |
| SG19 | -356.94 | -323.29 | -327.68 | -315.70 | -323.44 | -312.93 | -329.20 | -324.50 | -322.82 | -312.62 | -308.58 |
| SG20 | 27.88 | 30.83 | 29.72 | 32.49 | 25.65 | 28.61 | 19.18 | 18.07 | 15.12 | 14.38 | 11.98 |
| SG21 | 22.02 | 47.18 | 74.38 | 105.65 | 135.61 | 161.16 | 192.43 | 217.75 | 242.57 | 270.11 | 297.33 |
| SG22 | 50.98 | 75.72 | 102.81 | 138.59 | 174.95 | 198.70 | 230.69 | 253.97 | 283.08 | 311.35 | 339.82 |
| SG23 | -38.26 | -6.43 | 27.14 | 65.42 | 104.33 | 134.27 | 172.78 | 203.43 | 235.59 | 269.00 | 302.83 |
| SG24 | 26.68 | 61.46 | 94.86 | 138.41 | 182.49 | 212.59 | 254.11 | 285.26 | 320.17 | 356.30 | 392.13 |
| SG25 | 225.42 | 252.88 | 281.01 | 314.67 | 348.47 | 373.78 | 406.97 | 433.68 | 461.57 | 490.07 | 519.76 |
| SG26 | 25112.5 | 25048.2 | 25101.2 | 25101.2 | 25107.5 | 25051.2 | 25010.0 | 25001.6 | 25077.6 | 25033.9 | 25092.3 |
| SG27 | -147.77 | -113.90 | -86.41 | -53.98 | -16.38 | 11.20 | 47.65 | 77.49 | 107.66 | 138.55 | 171.36 |
| SG28 | 33.49 | 72.66 | 103.71 | 141.42 | 185.76 | 214.61 | 255.27 | 287.03 | 321.06 | 354.30 | 388.34 |
| SG29T | 12.41 | -9.20 | -23.94 | -42.02 | -57.68 | -74.42 | -89.90 | -107.08 | -120.16 | -135.16 | -152.00 |
| SG29-45 | 29.22 | 40.53 | 52.17 | 69.09 | 93.24 | 102.57 | 123.95 | 133.25 | 149.17 | 160.98 | 169.99 |
| SG29L | 21.52 | 56.40 | 88.31 | 124.91 | 163.91 | 198.53 | 234.39 | 271.20 | 305.50 | 340.34 | 375.36 |
| SG30T | 18.89 | 5.30 | -6.94 | -25.11 | -39.35 | -50.00 | -65.42 | -77.69 | -91.24 | -104.28 | -119.13 |
| SG30-45 | -0.99 | 12.43 | 16.33 | 37.49 | 58.42 | 66.18 | 85.63 | 92.44 | 97.09 | 110.60 | 119.33 |
| SG30L | 3.06 | 44.56 | 78.89 | 123.40 | 168.94 | 200.97 | 242.28 | 276.63 | 311.88 | 351.30 | 389.54 |
| SG31T | 21.99 | 14.40 | 9.55 | -1.43 | -10.51 | -22.80 | -33.55 | -42.72 | -49.66 | -57.29 | -68.97 |
| SG31-45 | 30.86 | 60.91 | 91.00 | 130.43 | 170.68 | 196.89 | 234.36 | 261.04 | 293.58 | 326.23 | 358.13 |
| SG31L | 30.42 | 48.19 | 50.28 | 57.82 | 72.60 | 81.35 | 98.70 | 103.90 | 114.09 | 119.58 | 128.88 |
| SG32T | 5.87 | -8.03 | -18.59 | -33.88 | -47.97 | -55.88 | -74.43 | -84.56 | -99.17 | -111.49 | -124.79 |
| SG32-45 | 42.38 | 65.01 | 63.52 | 71.50 | 89.48 | 100.81 | 116.58 | 123.43 | 130.86 | 138.47 | 149.78 |
| SG32L | 30.98 | 70.05 | 104.78 | 150.76 | 197.12 | 229.10 | 274.49 | 308.01 | 345.73 | 384.80 | 423.68 |
| SG33T | -3.99 | -15.24 | -30.82 | -44.32 | -59.70 | -71.19 | -90.34 | -102.95 | -116.65 | -128.79 | -141.87 |
| SG33-45 | 10.86 | 25.25 | 29.48 | 38.63 | 53.16 | 58.88 | 68.31 | 76.94 | 84.43 | 94.18 | 108.07 |
| SG33L | 8.14 | 40.56 | 76.19 | 115.09 | 154.57 | 188.92 | 230.51 | 264.21 | 299.64 | 334.48 | 370.77 |
| SG34T | 13.25 | 4.73 | -24.08 | -41.76 | -57.31 | -77.28 | -99.48 | -116.74 | -134.44 | -149.01 | -164.92 |
| SG34-45 | -16.94 | -12.34 | -16.10 | -13.32 | -12.62 | -9.51 | -6.59 | -4.36 | -4.36 | -1.39 | 3.48 |
| SG34L | 16.68 | 39.07 | 73.89 | 106.62 | 138.40 | 173.24 | 210.02 | 242.59 | 276.27 | 309.47 | 343.50 |
| SG35T | 6.83 | -5.31 | -15.59 | -31.26 | -43.81 | -52.69 | -68.22 | -77.93 | -89.52 | -99.79 | -111.70 |
| SG35-45 | 22.28 | 49.87 | 49.18 | 63.85 | 83.87 | 93.35 | 111.14 | 118.47 | 128.14 | 139.85 | 153.78 |
| SG35L | 23.60 | 64.64 | 96.84 | 140.99 | 185.68 | 216.65 | 261.40 | 294.97 | 331.44 | 369.55 | 406.21 |
| SG36T | -2.76 | -16.01 | -24.06 | -38.98 | -47.30 | -56.09 | -71.25 | -80.87 | -92.13 | -101.15 | -112.82 |
| SG36-45 | -19.85 | 4.43 | 4.34 | 22.61 | 38.27 | 45.36 | 57.20 | 64.56 | 69.60 | 80.04 | 93.04 |
| SG36L | 0.08 | 36.02 | 61.80 | 98.16 | 138.43 | 163.99 | 202.73 | 232.03 | 261.47 | 293.87 | 325.52 |
| SG37T | -64.11 | -74.80 | -84.29 | -93.88 | -105.59 | -109.46 | -123.37 | -131.68 | -144.91 | -156.77 | -166.63 |
| SG37-45 | 22.09 | 36.68 | 36.68 | 45.78 | 58.74 | 71.52 | 86.53 | 92.05 | 98.29 | 101.35 | 111.20 |
| SG37L | 17.52 | 48.03 | 78.67 | 118.88 | 160.01 | 186.95 | 224.66 | 251.56 | 284.04 | 317.10 | 349.19 |

TABLE E-15. CVP2, AIR 1, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.05 | 1.02 | 2.01 | 3.03 | 4.04 | 5.06 | 6.05 | 7.06 | 8.09 | 9.08 | 10.09 |
| Frame-1 | -14.47 | 214.70 | 418.54 | 622.91 | 840.60 | 1028.35 | 1257.24 | 1459.70 | 1680.62 | 1847.43 | 2091.14 |
| Frame-2 | 12.52 | 248.90 | 360.56 | 632.65 | 822.60 | 1025.80 | 1253.10 | 1471.12 | 1666.10 | 1834.20 | 2208.53 |
| Frame-3 | -28.86 | 195.42 | 411.67 | 630.15 | 825.86 | 1048.39 | 1246.69 | 1466.70 | 1682.78 | 1844.98 | 2107.81 |
| Frame-4 | 9.28 | 225.07 | 422.39 | 632.31 | 853.84 | 1040.24 | 1240.22 | 1449.95 | 1676.44 | 1860.83 | 2096.33 |
| Frame-5 | 56.42 | 206.97 | 427.01 | 642.42 | 829.76 | 1042.32 | 1252.96 | 1459.55 | 1667.38 | 1865.85 | 2075.80 |
| Frame-6 | -87.68 | 256.23 | 425.93 | 628.35 | 859.21 | 1038.47 | 1254.93 | 1445.30 | 1687.78 | 1878.74 | 2097.90 |
| Frame-7 | 30.53 | 289.12 | 439.73 | 622.01 | 848.42 | 1030.79 | 1249.58 | 1483.25 | 1645.47 | 1848.65 | 2104.01 |
| Frame-8 | -58.12 | 184.71 | 422.92 | 623.92 | 829.44 | 1032.24 | 1228.43 | 1461.85 | 1692.72 | 1888.79 | 2083.64 |
| Frame-9 | -139.09 | 198.49 | 409.06 | 625.60 | 785.65 | 1030.19 | 1217.37 | 1452.79 | 1668.23 | 1820.41 | 2074.30 |
| Frame-10 | 10.32 | 217.08 | 420.94 | 627.18 | 836.22 | 1028.77 | 1266.35 | 1446.47 | 1648.16 | 1976.89 | 2066.78 |
| Frame-11 | 40.81 | 239.07 | 434.73 | 620.80 | 850.25 | 1039.79 | 1251.65 | 1478.07 | 1717.19 | 1866.33 | 2078.55 |
| Frame-12 | -24.89 | 244.16 | 422.02 | 631.69 | 832.07 | 1036.64 | 1255.29 | 1466.40 | 1683.62 | 1864.11 | 2121.21 |
| Hoop-1 | 7.46 | 885.73 | 1762.34 | 2666.42 | 3544.78 | 4444.75 | 5325.92 | 6215.99 | 7125.09 | 7946.81 | 8888.38 |
| Hoop-2 | -70.51 | 912.33 | 1779.70 | 2645.18 | 3564.86 | 4437.12 | 5310.80 | 6211.26 | 7114.20 | 7969.14 | 8844.41 |
| Hoop-3 | -41.69 | 917.65 | 1766.68 | 2675.24 | 3564.52 | 4435.81 | 5354.12 | 6200.15 | 7118.81 | 7962.73 | 8903.69 |
| Hoop-4 | 234.82 | 954.37 | 1762.93 | 2663.90 | 3570.42 | 4439.50 | 5324.80 | 6206.12 | 7104.72 | 7991.23 | 8852.22 |
| Hoop-5 | -74.60 | 904.80 | 1787.70 | 2675.98 | 3582.51 | 4428.40 | 5334.07 | 6248.56 | 7127.23 | 7926.46 | 8892.10 |
| Hoop-6 | -114.16 | 922.16 | 1781.31 | 2658.83 | 3547.44 | 4430.07 | 5334.43 | 6208.96 | 7134.00 | 7961.99 | 8875.34 |
| Hoop-7 | 46.21 | 975.59 | 1813.86 | 2664.82 | 3543.18 | 4424.74 | 5335.11 | 6272.56 | 7022.59 | 7976.14 | 8895.42 |
| Hoop-8 | 29.64 | 838.88 | 1780.55 | 2670.19 | 3560.54 | 4466.23 | 5312.35 | 6201.99 | 7114.23 | 7974.98 | 8910.18 |
| Hoop-9 | -25.95 | 862.61 | 1783.80 | 2655.51 | 3569.63 | 4433.60 | 5271.46 | 6192.13 | 7091.57 | 7874.95 | 8969.31 |
| Hoop-10 | -71.75 | 860.23 | 1792.20 | 2662.24 | 3489.64 | 4442.28 | 5303.90 | 6206.45 | 7058.96 | 7969.26 | 8880.46 |
| Hoop-11 | -93.30 | 757.89 | 1802.54 | 2656.88 | 3557.99 | 4404.45 | 5294.42 | 6198.51 | 7357.38 | 7956.17 | 8817.45 |
| Hoop-12 | 217.57 | 869.00 | 1846.14 | 2667.29 | 3548.38 | 4422.68 | 5311.07 | 6191.45 | 7131.58 | 7975.47 | 8849.86 |
| Hoop-13 | -80.79 | 846.00 | 1772.79 | 2654.56 | 3551.87 | 4375.65 | 5324.77 | 6199.13 | 7162.99 | 7897.01 | 8846.92 |
| Hoop-14 | 53.25 | 874.60 | 1784.75 | 2679.57 | 3575.10 | 4582.26 | 5322.29 | 6209.71 | 7393.65 | 7896.82 | 8867.05 |
| Long-1 | 175.30 | 594.16 | 934.92 | 1404.93 | 1885.63 | 2318.62 | 2800.73 | 3269.56 | 3775.18 | 4175.94 | 4672.95 |
| Long-2 | 25.68 | 459.49 | 940.89 | 1394.24 | 1884.06 | 2305.58 | 2789.55 | 3262.35 | 3687.75 | 4172.28 | 4655.69 |
| Long-3 | 30.81 | 448.34 | 923.23 | 1420.40 | 1867.86 | 2287.74 | 2767.74 | 3264.91 | 3903.77 | 4145.73 | 4700.96 |
| Long-4 | -21.50 | 404.29 | 958.73 | 1394.39 | 1872.88 | 2316.88 | 2785.81 | 3247.17 | 3715.87 | 4158.46 | 4662.31 |
| Long-5 | 347.65 | 636.48 | 953.14 | 1412.36 | 1899.15 | 2308.97 | 2782.80 | 3289.98 | 3749.19 | 4199.59 | 4662.09 |
| Long-6 | 136.08 | 433.09 | 936.88 | 1400.25 | 1858.72 | 2324.30 | 2801.35 | 3270.83 | 3735.42 | 4198.36 | 4646.72 |
| Long-7 | 118.49 | 454.97 | 931.08 | 1390.27 | 1857.87 | 2358.90 | 2806.30 | 3289.53 | 3770.36 | 4184.66 | 4660.36 |
| Long-8 | -4.41 | 431.31 | 922.60 | 1397.81 | 1911.17 | 2333.21 | 2791.41 | 3262.92 | 3750.43 | 4198.13 | 4666.83 |
| SG1 | 98.86 | 66.62 | 107.71 | 224.37 | 372.15 | 423.23 | 522.57 | 576.81 | 706.69 | 752.76 | 866.66 |
| SG2 | 21.33 | 70.51 | 124.78 | 182.84 | 245.12 | 300.35 | 359.01 | 415.27 | 477.52 | 530.98 | 590.70 |
| SG3 | 165.81 | 102.54 | 115.44 | 204.00 | 347.12 | 381.84 | 474.27 | 512.14 | 603.04 | 658.01 | 753.02 |
| SG4 | 23.45 | 71.32 | 120.37 | 174.54 | 233.38 | 284.63 | 340.55 | 394.02 | 451.14 | 505.78 | 562.89 |
| SG5 | 48.95 | 21.09 | 45.17 | 114.38 | 236.55 | 282.11 | 367.94 | 410.99 | 469.33 | 525.60 | 625.47 |
| SG6 | 24.58 | 81.70 | 135.86 | 194.26 | 258.90 | 319.54 | 385.13 | 448.00 | 511.15 | 574.34 | 640.67 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -46.83 | 10.59 | 65.06 | 120.27 | 179.87 | 235.84 | 291.04 | 349.97 | 404.41 | 460.35 | 522.18 |
| SG9 | 94.86 | 26.19 | 43.36 | 129.93 | 262.82 | 304.38 | 391.33 | 429.40 | 522.21 | 566.88 | 669.33 |
| SG10 | 9.07 | 64.98 | 119.03 | 176.59 | 236.53 | 290.24 | 346.33 | 400.06 | 458.51 | 509.80 | 569.58 |

TABLE E-15. CVP2, AIR 1, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 57.53 | -12.97 | 16.97 | 82.08 | 200.04 | 239.65 | 316.47 | 348.81 | 407.09 | 453.05 | 542.93 |
| SG12 | 38.00 | 121.90 | 201.86 | 283.44 | 373.81 | 466.74 | 563.70 | 661.46 | 759.79 | 852.82 | 951.16 |
| SG13 | 122.36 | 16.98 | 22.00 | 114.62 | 261.78 | 334.03 | 438.16 | 508.03 | 566.74 | 652.22 | 764.41 |
| SG14 | 34.75 | 95.43 | 150.93 | 211.00 | 273.02 | 329.07 | 388.50 | 445.43 | 502.10 | 558.67 | 619.89 |
| SG15 | -38.59 | -48.27 | -15.52 | 41.55 | 112.29 | 150.86 | 210.23 | 241.90 | 307.65 | 351.46 | 418.85 |
| SG16 | -20.65 | 18.14 | 69.03 | 124.12 | 180.43 | 232.22 | 287.35 | 336.99 | 394.07 | 445.29 | 503.65 |
| SG17 | -371.07 | -410.29 | -364.88 | -296.02 | -207.75 | -157.05 | -79.83 | -31.97 | 40.87 | 106.87 | 178.45 |
| SG18 | -1.17 | 26.46 | 68.58 | 118.27 | 169.61 | 216.37 | 268.28 | 315.61 | 367.31 | 416.82 | 466.52 |
| SG19 | -330.92 | -353.47 | -330.31 | -265.71 | -184.59 | -140.03 | -70.85 | -25.16 | 29.22 | 81.75 | 153.89 |
| SG20 | 29.91 | 62.07 | 111.05 | 169.09 | 228.77 | 280.74 | 338.96 | 392.79 | 448.76 | 502.18 | 561.32 |
| SG21 | 15.73 | 8.33 | 4.63 | -3.14 | -11.47 | -13.69 | -20.35 | -20.35 | -19.24 | -27.56 | -29.41 |
| SG22 | 42.39 | 68.48 | 92.98 | 121.65 | 150.21 | 177.83 | 203.87 | 230.94 | 258.02 | 281.79 | 308.33 |
| SG23 | -40.51 | -28.07 | -11.78 | -0.39 | 7.77 | 21.51 | 28.85 | 43.24 | 56.38 | 60.71 | 70.91 |
| SG24 | 25.11 | 51.64 | 83.98 | 119.96 | 154.26 | 188.05 | 218.13 | 249.70 | 282.53 | 307.62 | 337.33 |
| SG25 | 233.04 | 252.68 | 275.35 | 293.07 | 310.81 | 334.92 | 354.44 | 377.45 | 397.30 | 412.45 | 429.85 |
| SG26 | 25115.9 | 25186.1 | 25071.7 | 25060.0 | 25010.4 | 25010.0 | 25048.2 | 25150.8 | 25192.4 | 25239.4 | 25110.0 |
| SG27 | -135.01 | -143.94 | -140.37 | -140.83 | -139.62 | -130.02 | -123.92 | -112.94 | -103.46 | -99.21 | -91.26 |
| SG28 | 55.66 | 83.02 | 114.06 | 141.42 | 173.93 | 205.00 | 229.39 | 258.25 | 284.10 | 304.06 | 329.93 |
| SG29T | 0.93 | 64.94 | 130.71 | 203.04 | 273.71 | 345.51 | 416.76 | 490.16 | 563.46 | 635.46 | 708.81 |
| SG29-45 | 31.07 | 61.26 | 105.40 | 158.77 | 214.63 | 271.45 | 325.38 | 379.44 | 434.39 | 487.21 | 542.67 |
| SG29L | 25.89 | 37.04 | 62.95 | 86.55 | 114.87 | 136.85 | 164.02 | 189.73 | 215.53 | 238.71 | 264.16 |
| SG30T | 11.79 | 73.26 | 133.55 | 203.79 | 274.48 | 342.88 | 413.60 | 485.01 | 556.33 | 627.27 | 698.73 |
| SG30-45 | 7.46 | 41.49 | 79.46 | 126.62 | 176.54 | 230.54 | 279.37 | 330.00 | 382.84 | 425.87 | 476.69 |
| SG30L | 9.48 | 32.87 | 63.70 | 93.88 | 124.66 | 154.81 | 183.34 | 212.59 | 242.33 | 263.78 | 291.37 |
| SG31T | 12.72 | 97.26 | 177.32 | 249.56 | 319.35 | 394.61 | 467.08 | 545.25 | 620.23 | 690.38 | 765.69 |
| SG31-45 | 24.87 | 42.52 | 64.34 | 88.49 | 112.30 | 137.16 | 158.29 | 182.14 | 206.41 | 224.29 | 246.49 |
| SG31L | 41.03 | 69.54 | 113.02 | 157.72 | 205.74 | 254.09 | 298.60 | 348.16 | 401.43 | 445.57 | 488.54 |
| SG32T | -6.91 | 68.23 | 137.37 | 211.40 | 286.60 | 360.47 | 436.92 | 514.34 | 591.85 | 668.85 | 747.39 |
| SG32-45 | 67.05 | 95.07 | 135.13 | 182.61 | 234.72 | 282.41 | 329.71 | 378.72 | 431.55 | 477.93 | 523.19 |
| SG32L | 38.48 | 54.86 | 81.89 | 110.11 | 135.55 | 162.21 | 182.73 | 207.42 | 231.47 | 248.05 | 270.15 |
| SG33T | -15.71 | 33.04 | 86.50 | 151.15 | 220.02 | 289.45 | 363.90 | 440.74 | 517.54 | 594.81 | 673.39 |
| SG33-45 | 2.40 | 34.55 | 69.38 | 115.04 | 164.58 | 211.23 | 259.54 | 310.98 | 362.65 | 411.05 | 458.15 |
| SG33L | 9.25 | 18.99 | 44.56 | 69.90 | 93.46 | 116.39 | 133.81 | 153.02 | 175.08 | 191.48 | 209.88 |
| SG34T | 7.62 | 35.09 | 82.19 | 142.28 | 206.26 | 270.84 | 338.89 | 408.70 | 477.97 | 548.02 | 620.02 |
| SG34-45 | -31.98 | -6.63 | 30.45 | 65.08 | 101.27 | 139.20 | 179.72 | 222.35 | 263.68 | 305.50 | 346.11 |
| SG34L | 15.74 | 26.59 | 50.66 | 73.47 | 94.79 | 117.93 | 136.93 | 157.34 | 180.41 | 198.43 | 217.19 |
| SG35T | -21.58 | 10.55 | 56.25 | 115.30 | 178.89 | 243.26 | 313.15 | 385.12 | 457.80 | 531.22 | 606.97 |
| SG35-45 | 28.55 | 40.40 | 70.82 | 109.89 | 155.44 | 203.02 | 252.63 | 306.17 | 360.21 | 404.99 | 454.41 |
| SG35L | 49.12 | 56.23 | 77.88 | 104.42 | 131.92 | 168.04 | 196.95 | 231.78 | 263.22 | 288.50 | 316.71 |
| SG36T | -15.83 | 54.62 | 121.11 | 193.83 | 265.55 | 334.53 | 406.79 | 478.86 | 552.00 | 624.21 | 698.04 |
| SG36-45 | -26.24 | 25.04 | 77.75 | 127.63 | 180.93 | 230.78 | 282.80 | 335.74 | 390.94 | 433.45 | 483.93 |
| SG36L | -1.46 | 21.66 | 47.35 | 69.12 | 91.86 | 116.48 | 136.20 | 159.39 | 179.46 | 194.57 | 215.36 |
| SG37T | -66.94 | 11.63 | 81.96 | 156.81 | 231.36 | 303.25 | 376.84 | 450.48 | 523.19 | 595.01 | 668.51 |
| SG37-45 | 35.00 | 65.68 | 106.84 | 154.32 | 206.02 | 254.54 | 300.59 | 348.95 | 401.60 | 448.34 | 490.58 |
| SG37L | 10.83 | 32.01 | 56.71 | 83.83 | 110.10 | 137.18 | 160.44 | 186.23 | 212.12 | 231.67 | 255.77 |

TABLE E-16. CVP2, AIR 2, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.03 | 1.01 | 2.02 | 3.06 | 4.07 | 5.06 | 6.07 | 7.10 | 8.07 | 9.11 | 10.11 |
| Frame-1 | 0.99 | 183.22 | 405.19 | 629.21 | 820.09 | 1057.72 | 1264.62 | 1471.92 | 1684.41 | 1872.50 | 2107.76 |
| Frame-2 | -55.26 | 246.67 | 303.66 | 625.16 | 848.88 | 1045.00 | 1262.30 | 1457.44 | 1718.54 | 1878.65 | 2114.13 |
| Frame-3 | -42.64 | 200.10 | 417.24 | 631.26 | 836.31 | 1053.62 | 1262.61 | 1458.25 | 1676.27 | 1892.26 | 2108.91 |
| Frame-4 | 45.45 | 210.80 | 398.68 | 631.73 | 836.77 | 1059.29 | 1242.43 | 1460.46 | 1657.82 | 1873.86 | 2116.42 |
| Frame-5 | 49.48 | 228.92 | 510.25 | 622.86 | 857.53 | 1054.49 | 1282.78 | 1470.07 | 1709.12 | 1878.90 | 2097.64 |
| Frame-6 | -23.24 | 281.25 | 382.18 | 634.49 | 842.32 | 1050.44 | 1257.07 | 1447.06 | 1662.70 | 1876.23 | 2087.05 |
| Frame-7 | -3.83 | 250.68 | 381.55 | 543.58 | 882.85 | 1136.12 | 1215.60 | 1454.24 | 1683.31 | 1863.67 | 2086.10 |
| Frame-8 | -2.94 | 211.71 | 430.19 | 610.96 | 825.97 | 1049.72 | 1258.16 | 1465.56 | 1672.01 | 1893.47 | 2095.00 |
| Frame-9 | 30.27 | 276.42 | 409.47 | 554.98 | 848.50 | 1098.49 | 1216.14 | 1451.41 | 1666.38 | 1888.01 | 2094.59 |
| Frame-10 | -99.78 | 221.70 | 469.54 | 617.66 | 839.64 | 1042.80 | 1347.74 | 1457.08 | 1670.49 | 1859.32 | 2083.31 |
| Frame-11 | -23.46 | 201.33 | 416.46 | 618.10 | 843.37 | 1046.82 | 1248.67 | 1468.08 | 1681.65 | 1870.86 | 2121.79 |
| Frame-12 | -9.21 | 209.01 | 432.79 | 646.37 | 847.63 | 1036.90 | 1252.32 | 1452.87 | 1674.90 | 1870.56 | 2098.05 |
| Hoop-1 | 35.02 | 883.98 | 1773.54 | 2675.88 | 3572.35 | 4451.15 | 5349.81 | 6220.91 | 7086.49 | 7975.17 | 8912.28 |
| Hoop-2 | -41.59 | 888.93 | 1750.97 | 2685.20 | 3563.05 | 4447.04 | 5336.10 | 6232.38 | 7094.33 | 7978.97 | 8905.85 |
| Hoop-3 | 88.11 | 942.30 | 1761.59 | 2719.37 | 3596.09 | 4487.56 | 5340.09 | 6231.21 | 7083.73 | 7968.79 | 8894.92 |
| Hoop-4 | -61.21 | 904.51 | 1761.26 | 2697.47 | 3566.72 | 4425.59 | 5356.25 | 6231.41 | 7093.62 | 8056.78 | 8907.73 |
| Hoop-5 | 20.25 | 839.22 | 1780.58 | 2723.68 | 3562.44 | 4454.82 | 5332.25 | 6220.62 | 7083.45 | 7991.09 | 8893.92 |
| Hoop-6 | 63.20 | 861.29 | 1768.55 | 2649.86 | 3565.92 | 4453.12 | 5327.04 | 6224.98 | 7100.75 | 7968.32 | 8890.12 |
| Hoop-7 | -132.76 | 882.55 | 1810.39 | 2701.62 | 3570.57 | 4427.45 | 5331.46 | 6215.38 | 7141.30 | 8009.81 | 8884.46 |
| Hoop-8 | 103.20 | 831.53 | 1802.80 | 2619.49 | 3561.25 | 4443.71 | 5327.60 | 6238.77 | 7122.30 | 7969.21 | 8880.75 |
| Hoop-9 | -38.64 | 855.35 | 1890.98 | 2643.61 | 3626.56 | 4440.41 | 5315.52 | 6282.80 | 7108.60 | 7976.28 | 8916.72 |
| Hoop-10 | 31.20 | 889.12 | 1781.54 | 2657.62 | 3568.01 | 4450.87 | 5326.11 | 6228.13 | 7103.02 | 7985.31 | 8887.68 |
| Hoop-11 | -61.98 | 1032.41 | 1880.10 | 2633.72 | 3571.60 | 4424.28 | 5333.65 | 6274.05 | 7245.72 | 7937.49 | 9088.31 |
| Hoop-12 | -74.83 | 992.99 | 1787.10 | 2668.09 | 3556.49 | 4429.64 | 5326.41 | 6228.46 | 7110.08 | 7984.47 | 8864.66 |
| Hoop-13 | -58.55 | 801.51 | 1780.38 | 2647.94 | 3530.33 | 4449.35 | 5288.23 | 6258.44 | 7104.39 | 7980.16 | 8884.00 |
| Hoop-14 | 112.45 | 1030.00 | 1762.73 | 2665.57 | 3575.81 | 4522.60 | 5300.62 | 6209.71 | 7179.78 | 8039.02 | 8830.05 |
| Long-1 | 44.74 | 134.93 | 18.63 | 10.32 | -2.74 | 7.94 | -1.55 | 2.01 | 2.01 | 15.07 | 5.57 |
| Long-2 | 70.65 | 19.60 | 65.79 | -18.08 | -4.71 | 6.23 | 41.48 | 3.80 | -15.65 | -10.79 | -8.36 |
| Long-3 | -12.69 | -12.69 | 42.00 | -40.04 | -31.34 | 85.49 | 2.22 | 9.68 | 90.47 | 27.08 | 25.84 |
| Long-4 | 40.91 | 16.43 | -15.38 | -17.83 | -14.16 | 23.78 | 25.00 | -12.94 | 9.09 | 9.09 | -5.59 |
| Long-5 | 335.66 | 348.82 | 316.51 | 300.89 | 242.14 | 332.03 | 334.46 | 350.09 | 366.84 | 400.41 | 365.67 |
| Long-6 | 82.29 | 16.26 | -46.09 | 89.62 | 67.61 | 39.49 | 30.94 | -16.75 | 103.07 | 0.37 | 7.71 |
| Long-7 | 111.27 | 113.67 | 116.09 | 111.27 | 111.27 | 113.67 | 120.89 | 125.71 | 144.93 | 160.56 | 173.80 |
| Long-8 | -1.95 | 58.37 | 4.20 | -6.88 | -31.50 | 11.59 | -6.88 | -9.34 | 2.97 | 11.59 | 18.98 |
| SG1 | 152.14 | 32.33 | 44.32 | 105.14 | 182.94 | 290.57 | 390.84 | 492.77 | 581.79 | 635.36 | 773.12 |
| SG2 | 18.94 | 69.17 | 125.03 | 185.21 | 244.41 | 306.32 | 368.58 | 433.15 | 493.79 | 554.38 | 621.72 |
| SG3 | 211.95 | 86.12 | 113.80 | 154.20 | 256.81 | 367.30 | 475.42 | 565.64 | 647.75 | 701.18 | 837.78 |
| SG4 | 21.43 | 71.50 | 127.84 | 188.70 | 248.98 | 309.39 | 372.55 | 434.05 | 494.03 | 554.05 | 620.44 |
| SG5 | 48.91 | 9.44 | 63.50 | 88.23 | 202.91 | 300.19 | 387.41 | 483.47 | 570.32 | 623.99 | 745.26 |
| SG6 | 21.63 | 86.31 | 149.14 | 213.63 | 282.20 | 351.27 | 423.68 | 497.38 | 568.32 | 638.64 | 714.62 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -49.04 | 10.59 | 67.27 | 130.59 | 193.92 | 253.53 | 316.10 | 379.42 | 438.31 | 500.10 | 560.52 |
| SG9 | 138.25 | 21.39 | 41.51 | 80.47 | 182.21 | 290.01 | 384.17 | 482.20 | 555.86 | 606.39 | 741.77 |
| SG10 | 7.96 | 70.70 | 130.67 | 194.69 | 258.01 | 321.09 | 382.35 | 447.67 | 506.53 | 566.44 | 633.48 |

TABLE E-16. CVP2, AIR 2, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 59.75 | -18.79 | 37.46 | 56.52 | 170.24 | 256.98 | 341.61 | 425.04 | 494.63 | 534.81 | 645.24 |
| SG12 | 33.52 | 129.38 | 219.61 | 311.27 | 410.59 | 512.32 | 618.66 | 728.19 | 833.74 | 939.44 | 1047.54 |
| SG13 | 142.96 | 3.26 | 76.03 | 89.71 | 230.72 | 324.99 | 430.28 | 525.35 | 605.12 | 651.30 | 768.73 |
| SG14 | 33.32 | 97.87 | 163.01 | 224.52 | 289.92 | 352.51 | 416.08 | 481.60 | 542.46 | 603.35 | 669.16 |
| SG15 | -19.30 | -45.65 | -18.84 | 10.51 | 69.34 | 134.29 | 191.73 | 263.28 | 300.17 | 342.29 | 432.43 |
| SG16 | -16.87 | 25.83 | 77.65 | 127.95 | 183.71 | 243.25 | 300.56 | 364.22 | 414.89 | 469.66 | 535.39 |
| SG17 | -365.61 | -400.78 | -346.27 | -303.94 | -222.12 | -145.24 | -53.57 | 18.48 | 72.91 | 123.35 | 220.71 |
| SG18 | -4.03 | 28.03 | 73.43 | 121.61 | 173.73 | 227.85 | 283.09 | 337.97 | 387.85 | 439.17 | 497.05 |
| SG19 | -321.38 | -362.49 | -286.41 | -284.56 | -204.44 | -146.70 | -68.27 | -12.03 | 45.69 | 77.50 | 149.10 |
| SG20 | 28.98 | 58.93 | 127.88 | 168.00 | 230.50 | 287.60 | 351.93 | 410.17 | 468.21 | 518.44 | 580.05 |
| SG21 | 15.92 | -9.62 | -45.89 | -82.15 | -113.07 | -145.07 | -181.89 | -213.90 | -242.77 | -274.38 | -309.94 |
| SG22 | 46.45 | 40.59 | 37.45 | 37.77 | 38.84 | 40.87 | 37.91 | 36.80 | 37.22 | 38.55 | 33.66 |
| SG23 | -35.35 | -48.64 | -71.97 | -94.94 | -115.48 | -138.44 | -167.59 | -191.57 | -211.40 | -234.58 | -264.26 |
| SG24 | 31.94 | 23.22 | 18.56 | 16.53 | 17.23 | 16.12 | 8.83 | 3.89 | 2.56 | -2.15 | -10.41 |
| SG25 | 218.42 | 214.83 | 206.04 | 199.41 | 194.27 | 189.00 | 177.91 | 169.11 | 164.18 | 155.65 | 141.03 |
| SG26 | 24168.1 | 24168.1 | 24168.1 | 24103.3 | 23949.8 | 23932.7 | 23847.4 | 23915.0 | 23879.7 | 23868.5 | 23797.3 |
| SG27 | -144.54 | -181.59 | -214.54 | -243.18 | -267.37 | -289.57 | -318.44 | -343.34 | -361.50 | -382.99 | -412.23 |
| SG28 | 62.32 | 54.93 | 50.49 | 48.27 | 49.76 | 46.79 | 38.66 | 32.01 | 28.31 | 18.70 | 8.35 |
| SG29T | 2.51 | 72.57 | 151.46 | 238.43 | 316.94 | 395.89 | 477.10 | 559.38 | 637.95 | 721.04 | 801.86 |
| SG29-45 | 36.73 | 43.73 | 70.72 | 109.45 | 144.89 | 178.59 | 213.28 | 249.22 | 281.49 | 320.46 | 351.47 |
| SG29L | 29.56 | 8.14 | 2.66 | -12.81 | -19.78 | -26.79 | -36.36 | -47.74 | -57.91 | -69.47 | -79.98 |
| SG30T | 13.14 | 77.51 | 153.97 | 238.71 | 316.46 | 396.21 | 479.87 | 562.97 | 642.10 | 726.57 | 809.27 |
| SG30-45 | -0.66 | 20.46 | 46.41 | 87.08 | 120.84 | 157.82 | 191.48 | 231.17 | 266.08 | 305.32 | 334.88 |
| SG30L | 8.58 | -3.73 | -10.94 | -21.60 | -24.90 | -28.96 | -41.55 | -50.13 | -56.03 | -66.07 | -78.80 |
| SG31T | 8.44 | 107.46 | 195.30 | 279.94 | 362.56 | 441.11 | 522.95 | 607.95 | 688.82 | 772.91 | 856.55 |
| SG31-45 | 31.79 | 15.63 | 3.74 | -4.67 | -10.85 | -17.63 | -30.17 | -39.69 | -46.24 | -54.50 | -67.88 |
| SG31L | 36.75 | 62.71 | 97.50 | 136.43 | 171.29 | 203.60 | 242.44 | 278.07 | 313.74 | 351.99 | 384.91 |
| SG32T | -8.68 | 73.02 | 156.26 | 243.64 | 326.78 | 411.57 | 500.25 | 588.65 | 673.06 | 763.61 | 853.16 |
| SG32-45 | 61.49 | 81.15 | 116.22 | 157.22 | 192.11 | 227.90 | 267.04 | 302.85 | 339.39 | 377.20 | 411.74 |
| SG32L | 38.28 | 21.51 | 8.28 | -2.37 | -11.65 | -24.08 | -42.83 | -59.01 | -69.67 | -86.83 | -106.77 |
| SG33T | -15.90 | 36.29 | 107.68 | 184.11 | 261.37 | 342.52 | 428.46 | 516.51 | 600.56 | 691.32 | 780.62 |
| SG33-45 | 6.02 | 35.15 | 63.90 | 98.23 | 129.83 | 163.45 | 198.24 | 234.80 | 273.92 | 311.46 | 350.10 |
| SG33L | 14.10 | -2.86 | -19.91 | -32.25 | -43.95 | -58.53 | -78.42 | -97.01 | -109.82 | -126.90 | -144.85 |
| SG34T | 10.83 | 43.14 | 110.45 | 180.93 | 254.74 | 328.49 | 405.72 | 483.74 | 558.69 | 638.69 | 717.84 |
| SG34-45 | -23.07 | -1.62 | 23.91 | 58.12 | 87.88 | 117.77 | 151.84 | 184.24 | 219.79 | 250.59 | 284.41 |
| SG34L | 17.51 | 3.31 | -12.75 | -22.25 | -33.57 | -45.67 | -59.68 | -73.00 | -82.73 | -97.06 | -110.30 |
| SG35T | -7.68 | 27.47 | 83.46 | 150.98 | 221.08 | 295.88 | 375.45 | 457.80 | 537.65 | 624.64 | 710.17 |
| SG35-45 | 24.93 | 18.38 | 38.91 | 65.02 | 95.46 | 129.46 | 166.62 | 203.41 | 241.13 | 280.87 | 314.16 |
| SG35L | 32.34 | 0.88 | -18.27 | -27.19 | -31.20 | -33.98 | -41.32 | -45.04 | -44.67 | -50.75 | -59.17 |
| SG36T | -14.57 | 62.06 | 143.91 | 226.07 | 303.86 | 383.16 | 465.70 | 548.52 | 626.50 | 711.62 | 795.21 |
| SG36-45 | -20.46 | 14.41 | 60.28 | 99.06 | 139.12 | 181.53 | 222.18 | 263.48 | 304.09 | 344.37 | 378.86 |
| SG36L | -0.34 | -10.04 | -20.02 | -27.06 | -31.21 | -37.08 | -49.02 | -60.07 | -65.43 | -78.29 | -92.38 |
| SG37T | -73.70 | 11.40 | 95.28 | 183.67 | 265.25 | 347.85 | 433.13 | 516.91 | 597.31 | 680.98 | 764.79 |
| SG37-45 | 27.85 | 53.97 | 90.44 | 134.26 | 171.22 | 207.31 | 249.60 | 286.35 | 323.39 | 363.22 | 397.74 |
| SG37L | 17.01 | 3.82 | -4.77 | -10.48 | -13.92 | -18.14 | -28.40 | -35.18 | -39.41 | -45.21 | -56.31 |

TABLE E-17. CVP2, AIR 2, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.06 | 0.02 | -0.01 | 0.00 | -0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Frame-1 | 43.75 | -21.47 | -19.89 | -17.64 | -9.05 | -25.48 | 35.60 | 5.71 | 7.17 | -7.61 | 19.62 |
| Frame-2 | -19.11 | 0.37 | -83.24 | 51.12 | 1604.54 | -43.67 | 49.21 | 10.37 | 55.29 | 5.63 | 163.41 |
| Frame-3 | -15.45 | 43.07 | -34.28 | -33.76 | 0.54 | 20.20 | 110.25 | 87.33 | -50.23 | 84.35 | 63.43 |
| Frame-4 | -37.60 | -4.60 | 43.52 | -19.74 | 497.41 | -20.69 | -28.51 | -80.84 | -25.94 | -39.00 | -66.92 |
| Frame-5 | -78.49 | -29.93 | 23.40 | 4.95 | 4.93 | -4.63 | 30.67 | -59.65 | -65.09 | -17.78 | -78.50 |
| Frame-6 | -81.20 | -23.45 | 61.41 | 66.98 | 24.53 | -17.18 | 85.53 | 3.41 | -27.42 | 66.68 | 47.69 |
| Frame-7 | 43.93 | 42.22 | 54.44 | 25.55 | 56.71 | 12.54 | -43.50 | 44.39 | 11.05 | 21.80 | 28.23 |
| Frame-8 | 62.01 | -61.94 | -13.57 | -21.78 | 9.35 | -38.23 | 57.25 | 19.42 | -98.25 | -8.31 | -60.42 |
| Frame-9 | -45.28 | 22.97 | -22.32 | -14.89 | -13.02 | -26.32 | 93.09 | -44.69 | -31.34 | 2.25 | 12.23 |
| Frame-10 | 66.77 | 65.06 | -98.36 | -10.15 | 58.88 | -107.53 | -67.12 | 144.71 | -91.79 | 30.87 | -84.95 |
| Frame-11 | 20.16 | -56.24 | 86.17 | -59.01 | -38.52 | -65.04 | 50.85 | 59.36 | -30.93 | 21.91 | -19.13 |
| Frame-12 | -30.46 | 37.07 | 54.50 | 13.40 | -81.58 | 67.79 | 27.07 | 49.60 | -54.78 | 47.69 | -56.55 |
| Hoop-1 | -67.89 | 58.91 | -32.97 | 27.67 | -77.07 | 150.79 | 27.67 | -60.54 | 9.29 | -58.70 | 31.34 |
| Hoop-2 | -81.34 | 27.07 | 220.40 | -56.05 | 93.92 | 140.90 | -47.02 | 52.37 | -72.31 | 70.43 | -21.71 |
| Hoop-3 | -57.47 | -43.45 | -78.52 | -20.64 | -43.44 | -78.52 | -43.45 | 145.99 | -46.95 | -13.62 | 21.46 |
| Hoop-4 | 245.90 | 240.37 | 108.99 | 94.20 | -92.66 | 34.99 | -100.08 | -127.81 | -125.97 | 5.39 | -94.51 |
| Hoop-5 | -76.42 | 100.52 | 49.44 | 20.25 | 399.64 | 120.57 | -16.23 | 27.55 | -49.06 | -118.37 | -50.88 |
| Hoop-6 | 44.73 | 159.28 | -73.51 | -29.17 | -31.02 | -31.02 | 168.54 | -69.81 | -18.09 | -101.22 | -43.95 |
| Hoop-7 | 33.42 | -138.25 | 139.33 | 9.68 | 163.07 | -161.97 | 42.56 | -138.23 | 276.32 | 115.59 | -90.76 |
| Hoop-8 | -21.86 | -51.29 | -73.37 | -29.22 | 88.49 | -43.94 | -43.94 | -29.22 | 22.28 | -51.29 | -51.29 |
| Hoop-9 | 374.77 | 342.17 | 278.75 | -54.98 | -18.70 | -15.07 | 71.98 | 97.37 | 48.40 | 44.78 | 242.45 |
| Hoop-10 | -102.45 | -41.05 | 72.75 | 117.92 | -50.08 | 121.52 | 74.55 | 49.27 | -88.02 | 128.74 | 83.59 |
| Hoop-11 | 48.56 | 30.14 | 81.75 | 262.34 | 13.56 | 302.85 | 240.20 | -91.47 | -102.52 | -89.62 | -50.93 |
| Hoop-12 | 112.08 | 169.46 | 45.47 | 199.11 | 54.72 | 4.75 | 245.36 | 32.51 | -63.73 | -39.67 | -54.48 |
| Hoop-13 | -36.30 | 156.47 | 104.59 | 0.77 | 149.05 | 297.37 | -103.04 | 37.84 | 45.26 | -36.31 | -36.31 |
| Hoop-14 | -5.95 | -57.74 | -5.95 | -5.95 | -5.95 | -42.95 | -42.95 | 90.26 | 216.06 | 238.26 | 275.26 |
| Long-1 | -30.04 | 468.46 | 958.75 | 1421.41 | 1914.31 | 2331.90 | 2819.10 | 3205.47 | 3736.01 | 4113.45 | 4467.59 |
| Long-2 | -38.75 | 463.23 | 950.71 | 1423.27 | 1890.32 | 2310.67 | 2831.44 | 3312.18 | 3731.50 | 4164.19 | 4573.03 |
| Long-3 | 7.20 | 475.78 | 958.13 | 1432.69 | 1874.26 | 2331.47 | 2785.70 | 3295.98 | 3660.16 | 4180.95 | 4662.43 |
| Long-4 | 2.97 | 470.45 | 958.83 | 1396.70 | 1837.58 | 2370.96 | 2801.06 | 3308.36 | 3673.04 | 4180.90 | 4703.92 |
| Long-5 | 270.95 | 724.14 | 1088.74 | 1510.52 | 2028.84 | 2438.69 | 2939.26 | 3496.20 | 3953.02 | 4437.41 | 4821.57 |
| Long-6 | -42.42 | 477.19 | 943.09 | 1436.78 | 1835.68 | 2388.11 | 2811.69 | 3252.49 | 3709.74 | 4197.56 | 4704.19 |
| Long-7 | 101.67 | 485.12 | 925.16 | 1397.34 | 1836.42 | 2379.57 | 2811.67 | 3297.95 | 3727.09 | 4194.69 | 4686.80 |
| Long-8 | 5.44 | 470.79 | 928.85 | 1414.90 | 1838.72 | 2335.90 | 2810.44 | 3288.77 | 3692.57 | 4182.55 | 4701.31 |
| SG1 | 126.89 | 132.03 | 194.15 | 193.43 | 192.12 | 252.02 | 225.32 | 223.45 | 207.79 | 245.80 | 261.44 |
| SG2 | 19.45 | 18.48 | 15.48 | 12.53 | 8.89 | 11.06 | 5.62 | 2.44 | -1.11 | -1.38 | -3.18 |
| SG3 | 229.48 | 176.86 | 220.97 | 181.32 | 168.21 | 195.33 | 157.15 | 111.94 | 82.97 | 101.81 | 97.01 |
| SG4 | 25.89 | 20.22 | 16.08 | 9.49 | 0.74 | 0.60 | -9.90 | -20.26 | -27.86 | -32.48 | -38.00 |
| SG5 | 69.81 | 42.50 | 44.62 | 15.06 | 50.19 | 20.86 | 31.45 | 20.40 | 23.16 | 30.67 | 26.85 |
| SG6 | 25.32 | 23.47 | 15.92 | 9.47 | 5.97 | -1.03 | -7.48 | -14.85 | -22.22 | -26.46 | -32.91 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -46.10 | -47.56 | -51.98 | -56.40 | -59.34 | -63.02 | -65.24 | -72.59 | -74.07 | -78.50 | -82.17 |
| SG9 | 149.33 | 104.82 | 142.12 | 102.99 | 98.37 | 116.64 | 86.56 | 52.95 | 22.50 | 45.76 | 42.99 |
| SG10 | 9.99 | 6.11 | -1.45 | -8.65 | -15.10 | -18.24 | -27.47 | -34.48 | -43.15 | -46.66 | -52.56 |

TABLE E-17. CVP2, AIR 2, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 79.45 | 43.50 | 46.87 | 15.64 | 36.40 | 21.08 | 20.57 | 10.47 | 15.13 | 21.36 | 21.86 |
| SG12 | 39.16 | 36.98 | 26.00 | 17.04 | 11.87 | 3.19 | -6.42 | -15.79 | -24.79 | -31.17 | -38.97 |
| SG13 | 179.34 | 119.58 | 162.75 | 133.61 | 177.53 | 153.81 | 189.52 | 150.82 | 167.58 | 183.65 | 177.27 |
| SG14 | 38.11 | 35.80 | 29.59 | 24.20 | 22.08 | 17.20 | 13.51 | 6.19 | 1.67 | -1.88 | -6.81 |
| SG15 | -19.20 | -23.53 | -7.55 | -21.37 | -10.31 | -14.83 | -8.65 | -19.80 | -41.13 | -16.26 | -16.95 |
| SG16 | -16.41 | -17.79 | -20.83 | -26.78 | -23.73 | -30.13 | -29.17 | -33.59 | -43.54 | -37.10 | -40.69 |
| SG17 | -368.43 | -379.84 | -380.07 | -390.12 | -407.80 | -392.11 | -405.35 | -403.74 | -400.60 | -400.92 | -395.29 |
| SG18 | -3.61 | -3.75 | -8.69 | -11.97 | -22.60 | -19.23 | -26.20 | -28.28 | -30.54 | -33.64 | -35.02 |
| SG19 | -320.96 | -328.48 | -302.25 | -305.65 | -289.85 | -294.71 | -281.83 | -297.48 | -298.87 | -289.31 | -295.11 |
| SG20 | 28.43 | 28.61 | 29.72 | 27.51 | 27.87 | 24.91 | 24.18 | 17.89 | 13.09 | 13.46 | 9.57 |
| SG21 | 10.37 | 37.00 | 66.06 | 94.93 | 123.23 | 148.76 | 178.75 | 208.89 | 241.09 | 264.82 | 290.70 |
| SG22 | 36.57 | 66.57 | 98.11 | 123.51 | 161.12 | 183.05 | 214.32 | 251.97 | 285.39 | 310.01 | 337.13 |
| SG23 | -35.86 | -4.50 | 31.06 | 64.18 | 100.05 | 129.80 | 166.29 | 203.91 | 242.09 | 271.76 | 303.65 |
| SG24 | 28.99 | 61.27 | 101.32 | 134.18 | 176.42 | 206.13 | 245.46 | 287.51 | 329.58 | 360.65 | 394.39 |
| SG25 | 218.93 | 246.78 | 278.11 | 306.04 | 338.01 | 362.45 | 394.21 | 426.77 | 459.91 | 485.47 | 513.14 |
| SG26 | 24591.7 | 24413.2 | 24480.4 | 24503.5 | 24465.7 | 24409.8 | 24365.2 | 24430.4 | 24415.7 | 24500.0 | 24485.8 |
| SG27 | -149.11 | -121.14 | -84.52 | -55.70 | -20.49 | 7.37 | 41.33 | 75.18 | 109.83 | 139.19 | 169.90 |
| SG28 | 53.45 | 84.48 | 126.63 | 159.92 | 196.86 | 227.17 | 266.38 | 300.36 | 342.50 | 372.89 | 404.64 |
| SG29T | 4.18 | -13.20 | -30.58 | -48.30 | -67.07 | -76.32 | -98.60 | -114.53 | -132.34 | -146.40 | -159.87 |
| SG29-45 | 26.67 | 37.19 | 54.44 | 65.67 | 90.52 | 101.13 | 117.75 | 141.10 | 160.02 | 171.14 | 179.28 |
| SG29L | 24.68 | 50.92 | 88.13 | 122.83 | 158.91 | 190.96 | 232.46 | 268.81 | 303.88 | 339.34 | 371.22 |
| SG30T | 15.71 | 2.91 | -10.72 | -25.21 | -40.10 | -49.68 | -67.66 | -83.12 | -100.82 | -110.79 | -123.86 |
| SG30-45 | -6.65 | 3.38 | 15.08 | 25.75 | 47.52 | 48.26 | 65.54 | 82.80 | 106.05 | 112.99 | 118.41 |
| SG30L | 4.48 | 40.31 | 83.89 | 119.64 | 160.70 | 192.15 | 235.70 | 275.95 | 318.43 | 353.40 | 388.50 |
| SG31T | 11.05 | 14.12 | 2.11 | -4.55 | -19.63 | -22.38 | -34.62 | -46.44 | -58.83 | -67.40 | -74.52 |
| SG31-45 | 23.94 | 54.82 | 91.56 | 120.64 | 161.22 | 187.41 | 222.50 | 262.46 | 301.05 | 328.43 | 358.77 |
| SG31L | 37.87 | 44.88 | 57.40 | 69.31 | 81.12 | 91.30 | 99.73 | 105.35 | 124.05 | 128.35 | 132.38 |
| SG32T | -6.08 | -14.07 | -30.12 | -42.49 | -56.44 | -67.32 | -81.83 | -97.59 | -114.93 | -123.09 | -135.82 |
| SG32-45 | 62.42 | 65.37 | 80.22 | 91.36 | 104.15 | 110.64 | 122.52 | 126.22 | 144.96 | 152.78 | 155.73 |
| SG32L | 33.94 | 68.27 | 112.48 | 148.21 | 191.81 | 225.16 | 267.81 | 311.20 | 356.98 | 390.21 | 426.48 |
| SG33T | -13.60 | -25.73 | -42.72 | -57.65 | -72.56 | -86.25 | -99.58 | -116.93 | -132.79 | -143.74 | -157.13 |
| SG33-45 | 4.26 | 15.17 | 28.13 | 42.12 | 56.19 | 62.36 | 78.68 | 82.15 | 98.45 | 107.72 | 111.89 |
| SG33L | 9.11 | 41.81 | 82.90 | 118.59 | 159.43 | 193.20 | 230.77 | 271.37 | 312.26 | 345.22 | 378.87 |
| SG34T | 14.18 | -11.04 | -26.50 | -50.75 | -65.88 | -87.94 | -101.77 | -125.27 | -142.30 | -158.44 | -176.02 |
| SG34-45 | -26.36 | -29.75 | -23.34 | -20.84 | -23.11 | -18.05 | -10.95 | -18.52 | -8.91 | -6.08 | -5.33 |
| SG34L | 11.60 | 38.64 | 71.05 | 105.56 | 139.35 | 174.45 | 206.78 | 243.78 | 278.46 | 312.09 | 346.09 |
| SG35T | -6.85 | -17.68 | -30.28 | -41.63 | -54.04 | -62.87 | -75.20 | -88.73 | -104.12 | -111.30 | -122.12 |
| SG35-45 | 22.51 | 30.96 | 48.62 | 61.63 | 75.33 | 83.97 | 100.51 | 105.89 | 128.14 | 136.34 | 143.02 |
| SG35L | 28.58 | 61.61 | 106.37 | 141.38 | 182.07 | 215.81 | 256.22 | 296.63 | 340.73 | 373.34 | 407.69 |
| SG36T | -10.06 | -17.08 | -30.10 | -40.06 | -53.07 | -59.58 | -71.58 | -85.80 | -100.87 | -106.66 | -116.83 |
| SG36-45 | -25.78 | -10.16 | 1.92 | 14.27 | 25.13 | 32.77 | 47.27 | 49.69 | 70.85 | 75.44 | 82.38 |
| SG36L | -8.92 | 20.17 | 59.14 | 88.57 | 123.48 | 153.22 | 189.27 | 221.47 | 260.95 | 288.94 | 319.49 |
| SG37T | -69.88 | -76.98 | -91.27 | -100.40 | -111.09 | -121.69 | -132.64 | -146.16 | -157.75 | -165.83 | -177.63 |
| SG37-45 | 29.43 | 31.84 | 42.02 | 52.81 | 67.30 | 71.94 | 81.29 | 86.39 | 105.68 | 109.55 | 110.94 |
| SG37L | 8.42 | 40.41 | 77.79 | 107.66 | 148.60 | 175.25 | 210.98 | 251.40 | 290.26 | 318.10 | 348.76 |

TABLE E-18. CVP2, AIR 2, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.03 | 1.00 | 2.01 | 3.05 | 4.06 | 5.06 | 6.06 | 7.07 | 8.09 | 9.09 | 10.13 |
| Frame-1 | -27.09 | 281.69 | 424.33 | 629.15 | 837.58 | 1040.32 | 1264.33 | 1441.24 | 1666.41 | 1879.44 | 2110.14 |
| Frame-2 | -340.76 | 253.91 | 474.13 | 637.25 | 824.80 | 1056.99 | 1255.05 | 1455.98 | 1716.06 | 1840.46 | 2093.96 |
| Frame-3 | -56.89 | 208.99 | 403.72 | 629.49 | 836.58 | 1036.28 | 1258.90 | 1465.46 | 1680.63 | 1871.72 | 2094.11 |
| Frame-4 | -24.03 | 242.14 | 454.05 | 626.50 | 828.42 | 1043.60 | 1269.73 | 1471.12 | 1669.11 | 1839.43 | 2099.84 |
| Frame-5 | -23.50 | 208.51 | 403.49 | 653.86 | 804.31 | 1047.41 | 1272.14 | 1468.66 | 1665.22 | 1872.04 | 2112.10 |
| Frame-6 | -20.37 | 257.80 | 453.73 | 685.39 | 810.34 | 1053.66 | 1248.31 | 1461.04 | 1697.53 | 1825.36 | 2111.44 |
| Frame-7 | 43.62 | 292.41 | 476.62 | 633.70 | 993.48 | 1023.81 | 1229.39 | 1432.00 | 1732.39 | 1778.61 | 1976.52 |
| Frame-8 | 99.56 | 193.16 | 382.33 | 632.16 | 845.29 | 1056.25 | 1251.28 | 1460.56 | 1688.35 | 1875.60 | 2092.22 |
| Frame-9 | -76.93 | 262.84 | 413.28 | 623.54 | 929.11 | 1038.82 | 1258.00 | 1437.55 | 1751.03 | 1894.28 | 2056.91 |
| Frame-10 | -62.68 | 318.52 | 440.60 | 638.86 | 815.92 | 1044.18 | 1256.50 | 1453.79 | 1702.33 | 1851.77 | 2102.90 |
| Frame-11 | -29.31 | 215.29 | 425.29 | 640.67 | 820.09 | 1051.54 | 1245.33 | 1427.71 | 1682.41 | 1919.33 | 2058.09 |
| Frame-12 | -84.36 | 238.80 | 400.26 | 631.34 | 858.39 | 1053.84 | 1260.97 | 1454.74 | 1713.81 | 1878.53 | 2076.24 |
| Hoop-1 | -51.35 | 928.26 | 1742.47 | 2666.42 | 3539.98 | 4440.12 | 5338.79 | 6204.99 | 7104.87 | 7976.77 | 8910.44 |
| Hoop-2 | -9.07 | 907.18 | 1736.69 | 2661.44 | 3542.08 | 4438.01 | 5328.87 | 6164.33 | 7126.85 | 7985.99 | 8987.18 |
| Hoop-3 | 219.68 | 944.24 | 1723.17 | 2745.40 | 3575.76 | 4422.66 | 5331.32 | 6226.57 | 7136.36 | 7991.43 | 8912.46 |
| Hoop-4 | 101.60 | 1032.37 | 1580.09 | 2671.30 | 3523.03 | 4458.89 | 5317.40 | 6248.69 | 7076.96 | 7951.07 | 8794.86 |
| Hoop-5 | 346.78 | 945.21 | 1691.37 | 2710.64 | 3499.30 | 4535.08 | 5341.37 | 6250.43 | 7183.78 | 7947.08 | 8893.92 |
| Hoop-6 | -116.01 | 976.02 | 1781.66 | 2712.41 | 3513.04 | 4480.84 | 5332.58 | 6207.12 | 7128.46 | 7969.92 | 8910.44 |
| Hoop-7 | 168.57 | 1027.02 | 1785.00 | 2736.04 | 3416.03 | 4469.45 | 5316.85 | 6248.88 | 7172.35 | 8044.29 | 8939.25 |
| Hoop-8 | -29.22 | 868.40 | 1795.81 | 2641.56 | 3568.97 | 4422.53 | 5333.89 | 6188.51 | 7086.22 | 8020.72 | 8881.64 |
| Hoop-9 | -40.46 | 811.91 | 1757.13 | 2614.59 | 3556.19 | 4410.46 | 5325.34 | 6175.23 | 7134.70 | 7856.57 | 8904.92 |
| Hoop-10 | -24.79 | 851.28 | 1769.25 | 2650.39 | 3525.01 | 4422.85 | 5325.05 | 6186.02 | 7110.95 | 7920.28 | 8881.34 |
| Hoop-11 | 295.45 | 1084.11 | 1723.83 | 2653.99 | 3516.67 | 4417.79 | 5363.90 | 6196.07 | 7157.99 | 8129.13 | 8888.36 |
| Hoop-12 | 63.97 | 832.07 | 1735.62 | 2653.28 | 3542.04 | 4445.33 | 5340.15 | 6200.09 | 7118.19 | 7969.66 | 8872.95 |
| Hoop-13 | 23.01 | 771.93 | 1877.15 | 2640.53 | 3530.68 | 4420.58 | 5331.66 | 6200.37 | 7171.84 | 8039.49 | 8877.47 |
| Hoop-14 | 75.45 | 845.09 | 1711.27 | 2813.58 | 3546.57 | 4427.29 | 5351.36 | 6144.34 | 7247.10 | 7883.60 | 8838.33 |
| Long-1 | 44.74 | 455.41 | 927.89 | 1402.42 | 1942.79 | 2329.76 | 2789.77 | 3258.55 | 3770.81 | 4164.90 | 4668.92 |
| Long-2 | -120.19 | 630.96 | 917.89 | 1377.09 | 1839.27 | 2309.69 | 2912.02 | 3223.13 | 3804.81 | 4141.51 | 4672.24 |
| Long-3 | 37.03 | 468.32 | 888.52 | 1402.86 | 1941.39 | 2326.73 | 2901.68 | 3270.80 | 3745.05 | 4279.57 | 4658.23 |
| Long-4 | -8.04 | 493.70 | 920.89 | 1416.28 | 1826.56 | 2332.03 | 2798.99 | 3259.08 | 3754.18 | 4247.41 | 4659.39 |
| Long-5 | 275.74 | 624.62 | 953.24 | 1409.82 | 1918.52 | 2338.21 | 2788.52 | 3275.26 | 3712.39 | 4201.63 | 4690.40 |
| Long-6 | 98.19 | 472.30 | 930.86 | 1400.11 | 1862.58 | 2329.66 | 2793.73 | 3268.06 | 3727.23 | 4197.98 | 4671.93 |
| Long-7 | 101.67 | 458.67 | 920.36 | 1422.58 | 1793.14 | 2348.55 | 2774.77 | 3251.95 | 3740.68 | 4255.22 | 4668.30 |
| Long-8 | -10.57 | 467.10 | 916.54 | 1422.29 | 1848.57 | 2334.90 | 2791.13 | 3241.66 | 3745.88 | 4202.66 | 4689.76 |
| SG1 | 163.96 | 126.90 | 57.96 | 272.66 | 337.94 | 434.70 | 527.34 | 634.94 | 751.89 | 816.59 | 883.15 |
| SG2 | 27.05 | 71.34 | 119.13 | 186.39 | 241.02 | 300.15 | 357.96 | 419.69 | 480.25 | 537.22 | 594.07 |
| SG3 | 251.83 | 201.45 | 94.98 | 267.27 | 297.38 | 398.11 | 467.03 | 563.85 | 664.30 | 702.13 | 761.95 |
| SG4 | 31.93 | 75.70 | 120.06 | 179.19 | 228.87 | 285.81 | 340.33 | 398.90 | 456.12 | 509.43 | 565.90 |
| SG5 | 66.92 | 91.33 | 2.58 | 179.11 | 187.05 | 297.71 | 355.98 | 437.23 | 540.08 | 559.51 | 620.00 |
| SG6 | 29.01 | 87.24 | 134.95 | 200.71 | 255.45 | 320.86 | 383.40 | 449.70 | 516.83 | 577.65 | 642.39 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -43.16 | 12.80 | 59.18 | 123.21 | 174.76 | 234.39 | 288.92 | 349.27 | 408.95 | 461.96 | 522.97 |
| SG9 | 162.45 | 108.54 | 25.64 | 183.10 | 222.07 | 314.38 | 380.36 | 474.31 | 574.44 | 611.18 | 664.79 |
| SG10 | 15.90 | 67.38 | 119.41 | 180.84 | 236.03 | 292.67 | 347.54 | 406.75 | 464.18 | 516.97 | 571.66 |

TABLE E-18. CVP2, AIR 2, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 76.05 | 55.00 | -21.56 | 142.98 | 153.06 | 253.79 | 304.57 | 377.82 | 474.05 | 477.74 | 523.60 |
| SG12 | 44.98 | 127.69 | 202.30 | 290.28 | 370.74 | 468.03 | 565.99 | 665.13 | 764.08 | 856.77 | 954.77 |
| SG13 | 165.36 | 112.94 | 13.71 | 216.31 | 217.71 | 362.98 | 426.82 | 525.40 | 651.68 | 673.98 | 746.62 |
| SG14 | 40.61 | 99.81 | 147.72 | 214.50 | 267.00 | 328.64 | 385.16 | 445.20 | 506.72 | 560.03 | 617.51 |
| SG15 | -29.94 | -27.41 | -21.65 | 55.69 | 99.46 | 144.33 | 191.59 | 252.29 | 313.78 | 359.67 | 388.21 |
| SG16 | -18.16 | 21.41 | 66.46 | 126.61 | 178.81 | 229.29 | 280.67 | 337.81 | 392.49 | 446.44 | 494.53 |
| SG17 | -375.53 | -383.79 | -365.06 | -270.91 | -219.84 | -157.61 | -96.10 | -27.63 | 65.44 | 95.54 | 141.27 |
| SG18 | -6.76 | 24.84 | 66.55 | 115.87 | 162.26 | 208.82 | 258.39 | 309.18 | 362.80 | 406.60 | 455.29 |
| SG19 | -331.21 | -320.76 | -332.01 | -223.17 | -207.75 | -131.90 | -83.82 | -25.35 | 57.17 | 83.81 | 130.04 |
| SG20 | 25.84 | 63.93 | 106.07 | 173.16 | 216.62 | 277.07 | 329.45 | 385.99 | 447.60 | 496.22 | 550.10 |
| SG21 | 9.26 | 9.26 | 9.63 | -2.96 | -6.10 | -11.47 | -11.66 | -20.35 | -20.91 | -24.80 | -27.38 |
| SG22 | 33.02 | 65.20 | 96.13 | 124.79 | 152.04 | 176.83 | 204.76 | 229.99 | 260.17 | 282.52 | 308.27 |
| SG23 | -46.20 | -24.61 | 0.07 | 0.85 | 15.24 | 22.99 | 36.65 | 41.17 | 52.38 | 61.75 | 71.56 |
| SG24 | 17.00 | 54.65 | 91.92 | 126.05 | 158.36 | 189.73 | 222.07 | 250.10 | 283.16 | 309.93 | 337.55 |
| SG25 | 212.14 | 239.35 | 268.38 | 282.07 | 303.60 | 324.83 | 348.38 | 364.64 | 384.07 | 402.99 | 421.01 |
| SG26 | 23761.5 | 23767.4 | 23806.2 | 23839.1 | 23879.7 | 23906.2 | 23955.1 | 23970.4 | 24002.2 | 24022.8 | 24029.8 |
| SG27 | -150.05 | -149.87 | -144.54 | -148.41 | -142.65 | -134.56 | -125.16 | -121.08 | -113.56 | -103.72 | -94.51 |
| SG28 | 57.15 | 94.12 | 127.38 | 156.20 | 186.53 | 217.59 | 247.21 | 269.37 | 297.50 | 319.68 | 345.49 |
| SG29T | 4.74 | 58.30 | 126.49 | 200.34 | 269.58 | 340.15 | 409.68 | 483.80 | 556.80 | 630.45 | 706.47 |
| SG29-45 | 21.06 | 64.05 | 106.99 | 162.25 | 213.69 | 267.81 | 322.14 | 375.39 | 435.22 | 478.49 | 537.94 |
| SG29L | 15.67 | 47.82 | 60.77 | 85.34 | 112.01 | 137.24 | 170.81 | 188.58 | 217.22 | 238.04 | 262.56 |
| SG30T | 17.30 | 70.00 | 127.63 | 201.13 | 268.41 | 337.55 | 407.79 | 479.73 | 551.50 | 622.84 | 697.12 |
| SG30-45 | -5.35 | 28.03 | 71.11 | 124.16 | 169.66 | 221.65 | 269.94 | 322.00 | 376.45 | 418.06 | 469.50 |
| SG30L | -1.75 | 35.32 | 65.93 | 96.29 | 127.14 | 156.29 | 188.30 | 211.62 | 241.36 | 265.23 | 290.74 |
| SG31T | 9.37 | 88.52 | 179.01 | 241.60 | 319.74 | 393.06 | 468.76 | 540.09 | 613.38 | 687.70 | 765.21 |
| SG31-45 | 16.37 | 42.06 | 70.06 | 93.14 | 115.86 | 137.87 | 161.45 | 181.88 | 207.07 | 225.84 | 246.65 |
| SG31L | 38.24 | 65.04 | 119.03 | 160.14 | 200.57 | 250.95 | 298.27 | 347.87 | 397.22 | 441.14 | 488.22 |
| SG32T | -3.75 | 64.89 | 128.55 | 206.61 | 279.64 | 353.95 | 430.35 | 507.56 | 585.24 | 663.14 | 744.67 |
| SG32-45 | 70.59 | 98.97 | 136.99 | 193.19 | 233.28 | 286.34 | 333.71 | 383.96 | 435.58 | 480.11 | 529.92 |
| SG32L | 24.47 | 55.26 | 88.41 | 115.24 | 139.53 | 164.39 | 188.90 | 207.64 | 232.53 | 252.07 | 271.76 |
| SG33T | -11.71 | 29.47 | 75.73 | 147.06 | 213.34 | 284.45 | 358.69 | 434.48 | 512.14 | 589.39 | 671.67 |
| SG33-45 | 4.82 | 44.31 | 77.61 | 126.60 | 162.48 | 212.55 | 260.12 | 309.02 | 362.53 | 409.31 | 461.58 |
| SG33L | 2.64 | 27.19 | 57.05 | 75.96 | 95.07 | 115.42 | 134.46 | 151.68 | 173.41 | 192.70 | 208.64 |
| SG34T | 11.39 | 33.46 | 76.42 | 141.91 | 203.88 | 269.33 | 337.36 | 405.39 | 475.08 | 544.55 | 619.57 |
| SG34-45 | -23.44 | -4.08 | 25.58 | 62.38 | 92.70 | 135.08 | 175.55 | 215.68 | 259.49 | 300.20 | 346.70 |
| SG34L | 10.34 | 27.43 | 50.53 | 71.42 | 87.49 | 110.64 | 130.12 | 150.65 | 173.85 | 196.72 | 212.74 |
| SG35T | -12.33 | 16.50 | 56.49 | 118.37 | 179.53 | 244.27 | 312.73 | 384.09 | 458.08 | 531.52 | 609.35 |
| SG35-45 | 21.59 | 34.36 | 60.65 | 106.45 | 144.32 | 195.61 | 245.64 | 294.49 | 347.31 | 392.10 | 444.42 |
| SG35L | 22.17 | 38.85 | 65.67 | 90.24 | 118.65 | 152.25 | 184.92 | 212.51 | 243.86 | 274.64 | 302.93 |
| SG36T | -13.88 | 53.23 | 116.56 | 191.46 | 260.53 | 329.17 | 400.35 | 473.18 | 546.35 | 618.44 | 694.58 |
| SG36-45 | -23.40 | 28.40 | 74.36 | 130.42 | 175.98 | 229.13 | 282.93 | 331.34 | 386.63 | 429.24 | 480.62 |
| SG36L | -8.83 | 21.99 | 49.68 | 70.05 | 92.44 | 118.17 | 141.79 | 159.12 | 180.92 | 199.99 | 219.11 |
| SG37T | -65.14 | 7.21 | 73.69 | 152.76 | 224.89 | 298.26 | 371.88 | 445.13 | 517.95 | 591.66 | 666.90 |
| SG37-45 | 33.11 | 62.48 | 107.64 | 159.06 | 197.60 | 249.60 | 296.78 | 348.14 | 398.28 | 442.20 | 489.88 |
| SG37L | 1.41 | 30.99 | 61.78 | 87.87 | 112.90 | 136.96 | 162.58 | 184.99 | 211.95 | 232.34 | 254.77 |

TABLE E-19. CVP2, WATER 1, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.02 | 1.02 | 2.06 | 3.08 | 4.17 | 5.07 | 6.04 | 7.08 | 8.02 | 9.06 | 10.05 |
| Frame-1 | -172.91 | 158.93 | 465.84 | 616.31 | 759.48 | 1044.99 | 1247.88 | 1442.25 | 1664.90 | 1844.26 | 2158.95 |
| Frame-2 | -70.78 | 244.75 | 529.99 | 594.79 | 836.54 | 1030.45 | 1254.05 | 1441.36 | 1684.87 | 1841.39 | 2169.15 |
| Frame-3 | -39.20 | 206.78 | 465.64 | 640.71 | 827.33 | 1034.07 | 1252.81 | 1468.18 | 1675.74 | 1883.02 | 2153.10 |
| Frame-4 | -108.02 | 193.30 | 533.45 | 584.26 | 808.79 | 998.20 | 1275.58 | 1466.87 | 1677.84 | 1898.94 | 2150.33 |
| Frame-5 | 42.63 | 187.33 | 365.72 | 575.44 | 831.35 | 960.66 | 1250.47 | 1474.84 | 1687.84 | 1876.47 | 2209.28 |
| Frame-6 | -1279.20 | 185.00 | 541.12 | 559.63 | 832.29 | 1028.40 | 1278.73 | 1495.02 | 1710.56 | 1918.85 | 2168.99 |
| Frame-7 | -107.27 | 209.22 | 326.82 | 603.27 | 844.37 | 1075.03 | 1164.41 | 1429.22 | 1705.16 | 1840.87 | 2157.97 |
| Frame-8 | 129.52 | 228.81 | 415.08 | 589.69 | 818.49 | 1055.80 | 1229.38 | 1464.65 | 1668.04 | 1893.07 | 2066.99 |
| Frame-9 | -144.16 | 215.25 | 481.47 | 648.60 | 872.56 | 1062.82 | 1309.02 | 1434.74 | 1688.39 | 1875.28 | 2093.96 |
| Frame-10 | -996.96 | 188.87 | 485.42 | 577.45 | 866.60 | 1088.49 | 1310.35 | 1454.45 | 1671.68 | 1852.03 | 2084.56 |
| Frame-11 | 121.82 | 219.83 | 416.73 | 592.08 | 791.71 | 1052.76 | 1296.62 | 1441.88 | 1664.38 | 1838.45 | 2102.91 |
| Frame-12 | -26.56 | 203.71 | 381.32 | 567.94 | 793.50 | 1110.48 | 1354.82 | 1406.97 | 1580.93 | 1897.79 | 2135.57 |
| Hoop-1 | 22.66 | 897.17 | 1742.11 | 2705.80 | 3578.01 | 4461.35 | 5299.65 | 6273.46 | 7065.38 | 8049.19 | 8763.13 |
| Hoop-2 | -104.71 | 932.21 | 1645.61 | 2557.00 | 3481.50 | 4290.46 | 5235.77 | 6301.69 | 7037.00 | 8078.45 | 8850.89 |
| Hoop-3 | 756.04 | 784.10 | 1676.53 | 2933.19 | 3877.91 | 4556.18 | 5296.74 | 6070.17 | 7127.73 | 8052.79 | 8860.49 |
| Hoop-4 | 343.16 | 1229.16 | 2235.15 | 2874.38 | 3506.45 | 4294.06 | 5441.41 | 6388.53 | 7119.23 | 7551.00 | 8865.49 |
| Hoop-5 | 40.82 | 859.63 | 1700.15 | 2545.42 | 3303.62 | 4649.12 | 5251.44 | 6159.70 | 6956.70 | 7885.81 | 8858.94 |
| Hoop-6 | -68.46 | 792.27 | 1987.11 | 2767.60 | 3531.80 | 4672.93 | 5484.33 | 6199.21 | 6925.18 | 8148.86 | 8600.62 |
| Hoop-7 | 234.35 | 1024.89 | 1744.05 | 2765.64 | 3566.66 | 4407.97 | 5116.86 | 6057.21 | 6930.00 | 7715.91 | 8701.13 |
| Hoop-8 | 375.58 | 964.06 | 1787.94 | 2670.67 | 3774.46 | 4399.35 | 5481.23 | 6378.13 | 7011.45 | 7958.88 | 8739.42 |
| Hoop-9 | 94.83 | 1102.97 | 1739.40 | 2731.22 | 3386.13 | 4611.51 | 5551.30 | 6303.23 | 7212.36 | 8115.61 | 8700.28 |
| Hoop-10 | -32.31 | 505.87 | 1795.34 | 2759.73 | 3641.41 | 4327.32 | 5236.25 | 6109.82 | 7172.45 | 8001.68 | 9093.29 |
| Hoop-11 | 4.04 | 925.15 | 1901.53 | 3008.70 | 3841.77 | 4436.42 | 5280.69 | 6440.76 | 7065.98 | 7908.22 | 8767.48 |
| Hoop-12 | 676.27 | 591.15 | 1773.59 | 3327.97 | 4038.95 | 4504.86 | 5245.57 | 6310.91 | 6940.76 | 7953.32 | 8857.14 |
| Hoop-13 | -165.93 | 1116.62 | 2206.41 | 2591.92 | 3652.42 | 4267.38 | 5253.91 | 6194.91 | 6944.38 | 8003.02 | 8745.18 |
| Hoop-14 | 690.47 | 853.25 | 1637.52 | 2695.56 | 3428.39 | 4338.11 | 5359.68 | 6224.81 | 6773.01 | 7903.56 | 8858.81 |
| Long-1 | 211.35 | 7.22 | -11.77 | -20.08 | 6.03 | 15.52 | 3.66 | 14.34 | -5.84 | 4.84 | 10.78 |
| Long-2 | 195.20 | -87.95 | 42.08 | 91.90 | -60.00 | -61.22 | 84.60 | 66.37 | 78.52 | 91.90 | 50.57 |
| Long-3 | -58.16 | 143.16 | 77.31 | 342.03 | 277.37 | 304.71 | -4.71 | 139.44 | -22.11 | -13.41 | 110.84 |
| Long-4 | -47.47 | -20.55 | 205.83 | -49.91 | 49.20 | -43.79 | -19.32 | -41.35 | -46.23 | 77.34 | 67.54 |
| Long-5 | 418.09 | 319.75 | 397.70 | 353.35 | 305.36 | 314.95 | 277.79 | 348.52 | 252.59 | 311.39 | 396.43 |
| Long-6 | 100.07 | -19.73 | -25.85 | 65.84 | -14.84 | -18.51 | 175.85 | -16.06 | -16.06 | 164.86 | 8.38 |
| Long-7 | 128.56 | 51.63 | 105.72 | 111.73 | 118.93 | 110.52 | 73.26 | 118.93 | 120.12 | 117.74 | 122.52 |
| Long-8 | -31.50 | 102.67 | 20.21 | 37.44 | 79.28 | 65.75 | -51.19 | 75.59 | -52.41 | -19.19 | 145.74 |
| SG1 | 608.89 | 298.99 | 339.31 | 410.48 | 437.52 | 586.96 | 662.02 | 757.85 | 802.63 | 906.47 | 1005.34 |
| SG2 | 26.35 | 67.41 | 128.26 | 191.95 | 245.60 | 311.76 | 371.41 | 437.21 | 492.96 | 561.39 | 623.07 |
| SG3 | 692.74 | 381.99 | 423.26 | 470.53 | 499.26 | 652.16 | 731.73 | 820.65 | 889.08 | 968.87 | 1062.67 |
| SG4 | 26.53 | 72.59 | 135.77 | 194.05 | 249.15 | 314.51 | 373.68 | 439.17 | 496.93 | 556.26 | 618.29 |
| SG5 | 409.53 | 204.14 | 247.81 | 296.86 | 322.38 | 465.18 | 551.97 | 618.22 | 697.78 | 761.94 | 852.10 |
| SG6 | 24.20 | 71.55 | 140.07 | 203.27 | 262.01 | 336.79 | 404.43 | 477.94 | 549.23 | 623.16 | 699.74 |
| SG7 | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## |
| SG8 | -60.80 | -5.61 | 60.63 | 118.05 | 176.91 | 248.30 | 307.94 | 369.04 | 430.86 | 492.00 | 551.57 |
| SG9 | 597.96 | 286.63 | 324.62 | 377.44 | 406.01 | 544.80 | 631.06 | 715.04 | 773.56 | 856.89 | 950.20 |
| SG10 | 8.14 | 60.35 | 128.04 | 191.15 | 249.05 | 315.27 | 379.87 | 445.73 | 502.55 | 562.38 | 622.28 |

TABLE E-19. CVP2, WATER 1, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 432.66 | 205.07 | 251.87 | 295.59 | 308.66 | 443.18 | 529.22 | 585.14 | 641.24 | 700.55 | 770.79 |
| SG12 | 25.90 | 110.34 | 206.62 | 294.59 | 379.08 | 484.74 | 588.48 | 700.90 | 805.78 | 915.94 | 1030.20 |
| SG13 | 548.40 | 312.81 | 294.45 | 341.36 | 398.88 | 558.53 | 658.79 | 724.00 | 809.47 | 877.34 | 948.91 |
| SG14 | 24.19 | 85.46 | 152.51 | 214.48 | 278.62 | 349.96 | 413.65 | 477.54 | 538.39 | 601.00 | 662.71 |
| SG15 | 164.32 | 35.15 | 78.34 | 126.62 | 164.51 | 220.69 | 282.84 | 341.20 | 372.65 | 439.39 | 489.41 |
| SG16 | 0.49 | 23.20 | 77.72 | 133.78 | 191.28 | 240.42 | 303.81 | 362.67 | 413.93 | 473.89 | 528.19 |
| SG17 | -224.29 | -281.04 | -205.88 | -174.34 | -131.50 | -54.39 | 34.49 | 101.55 | 156.79 | 241.41 | 293.63 |
| SG18 | -12.16 | 22.39 | 79.46 | 118.44 | 169.97 | 218.54 | 279.53 | 333.28 | 383.16 | 439.54 | 488.64 |
| SG19 | 185.67 | 108.19 | 108.18 | 166.45 | 223.21 | 285.72 | 368.79 | 419.09 | 479.20 | 539.00 | 606.63 |
| SG20 | 84.42 | 112.15 | 158.52 | 223.04 | 284.01 | 334.09 | 400.84 | 459.43 | 516.17 | 574.63 | 636.68 |
| SG21 | 7.40 | -23.86 | -63.82 | -97.86 | -130.59 | -157.05 | -187.22 | -218.11 | -249.38 | -275.12 | -306.36 |
| SG22 | 74.13 | 72.75 | 62.59 | 49.95 | 58.76 | 73.25 | 75.89 | 68.28 | 64.21 | 66.58 | 63.57 |
| SG23 | -21.10 | -34.70 | -66.56 | -85.29 | -113.63 | -130.60 | -154.04 | -177.10 | -197.71 | -213.92 | -241.84 |
| SG24 | 21.97 | 16.21 | 0.71 | -4.04 | -6.49 | 4.49 | 3.62 | -4.04 | -6.67 | -8.10 | -12.39 |
| SG25 | 190.88 | 196.70 | 188.62 | 189.61 | 178.73 | 168.19 | 156.83 | 145.23 | 129.90 | 117.58 | 104.72 |
| SG26 | 619.31 | 617.72 | 610.31 | 615.52 | 615.09 | 609.94 | 605.59 | 596.95 | 585.36 | 591.49 | 585.55 |
| SG27 | 27.32 | -2.89 | -37.11 | -58.32 | -103.99 | -119.65 | -144.93 | -171.95 | -198.46 | -216.08 | -240.17 |
| SG28 | 88.91 | 90.40 | 84.48 | 88.92 | 75.61 | 82.26 | 79.31 | 70.44 | 58.61 | 62.31 | 54.92 |
| SG29T | 18.92 | 70.28 | 151.36 | 224.49 | 305.93 | 377.64 | 453.21 | 537.47 | 613.32 | 695.61 | 774.83 |
| SG29-45 | 70.89 | 45.35 | 72.88 | 91.76 | 122.72 | 160.13 | 211.80 | 232.89 | 263.77 | 308.27 | 341.34 |
| SG29L | 10.93 | -18.98 | -29.57 | -32.17 | -44.20 | -50.37 | -57.44 | -70.25 | -82.98 | -91.07 | -101.09 |
| SG30T | 41.34 | 72.40 | 153.37 | 224.79 | 303.59 | 375.17 | 453.76 | 539.83 | 617.17 | 699.85 | 779.08 |
| SG30-45 | 19.16 | 18.88 | 50.67 | 79.35 | 109.60 | 146.96 | 188.75 | 214.23 | 240.55 | 288.10 | 322.74 |
| SG30L | 2.21 | -5.71 | -22.30 | -24.14 | -29.00 | -35.97 | -45.88 | -59.83 | -73.32 | -76.53 | -82.47 |
| SG31T | -47.23 | 70.29 | 163.74 | 257.45 | 345.33 | 409.70 | 485.84 | 579.16 | 661.96 | 748.10 | 829.43 |
| SG31-45 | 36.28 | 26.49 | 5.17 | -8.76 | -13.17 | -8.52 | -14.70 | -27.66 | -35.46 | -37.32 | -53.94 |
| SG31L | 27.90 | 60.37 | 98.03 | 138.22 | 173.59 | 204.65 | 240.16 | 282.80 | 313.03 | 356.50 | 390.27 |
| SG32T | 7.82 | 57.81 | 149.80 | 230.62 | 311.12 | 390.71 | 471.37 | 561.99 | 646.84 | 732.88 | 824.82 |
| SG32-45 | 96.34 | 99.32 | 139.55 | 175.73 | 207.80 | 238.96 | 274.59 | 307.24 | 322.63 | 378.50 | 415.19 |
| SG32L | 35.51 | 29.79 | 7.30 | -5.53 | -6.12 | -24.86 | -34.93 | -55.45 | -80.71 | -83.28 | -108.13 |
| SG33T | -0.32 | 32.90 | 102.05 | 171.09 | 244.09 | 322.19 | 401.46 | 490.39 | 573.39 | 663.56 | 752.56 |
| SG33-45 | 10.48 | 17.12 | 46.19 | 80.24 | 118.22 | 143.90 | 178.70 | 216.55 | 252.03 | 300.36 | 335.35 |
| SG33L | 16.94 | 1.10 | -18.60 | -30.85 | -30.06 | -58.88 | -72.16 | -89.49 | -109.75 | -120.52 | -139.75 |
| SG34T | 45.27 | 56.77 | 112.05 | 174.10 | 247.38 | 315.04 | 385.95 | 465.35 | 537.44 | 616.81 | 694.75 |
| SG34-45 | -3.01 | -16.33 | 17.40 | 47.62 | 71.56 | 104.55 | 138.53 | 167.17 | 203.28 | 242.79 | 265.74 |
| SG34L | 22.02 | -0.41 | -14.10 | -24.53 | -39.79 | -54.87 | -66.47 | -81.74 | -95.61 | -105.82 | -121.45 |
| SG35T | 32.16 | 23.75 | 77.16 | 137.47 | 206.26 | 279.34 | 355.15 | 438.23 | 516.20 | 599.25 | 682.13 |
| SG35-45 | 50.42 | 34.45 | 55.30 | 81.91 | 108.19 | 145.39 | 172.72 | 206.34 | 230.50 | 276.78 | 313.73 |
| SG35L | 36.84 | 21.42 | 1.48 | -1.59 | -1.07 | -21.66 | -32.67 | -42.29 | -56.00 | -50.34 | -52.28 |
| SG36T | 3.42 | 57.40 | 140.56 | 215.75 | 303.41 | 369.00 | 445.05 | 529.76 | 607.31 | 687.63 | 769.76 |
| SG36-45 | 28.06 | 28.85 | 20.65 | 17.06 | -2.51 | 4.94 | -2.42 | -13.70 | -28.24 | -29.03 | -40.59 |
| SG36L | 21.75 | 58.25 | 105.51 | 141.97 | 177.15 | 236.15 | 271.74 | 312.11 | 340.92 | 392.93 | 436.29 |
| SG37T | -64.23 | -1.68 | 92.50 | 174.14 | 261.01 | 331.56 | 410.39 | 497.74 | 573.56 | 658.46 | 748.63 |
| SG37-45 | 56.18 | 67.52 | 109.97 | 146.36 | 182.54 | 218.68 | 257.54 | 298.51 | 326.90 | 367.45 | 402.07 |
| SG37L | 16.68 | 8.56 | -9.92 | -21.67 | -25.19 | -16.70 | -19.67 | -31.14 | -38.61 | -42.24 | -50.03 |

TABLE E-20. CVP2, WATER 1, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.05 | 0.11 | 0.02 | 0.00 | -0.02 | -0.02 | 0.06 | -0.01 | 0.01 | 0.00 | -0.02 |
| Frame-1 | -21.23 | -49.25 | 236.19 | 89.38 | 99.35 | 354.15 | -133.72 | 78.10 | 382.72 | 17.63 | 44.33 |
| Frame-2 | 96.05 | -90.10 | 220.36 | -1382.23 | 110.03 | -472.17 | -432.58 | 236.31 | 2114.54 | 72.79 | 645.32 |
| Frame-3 | -140.28 | -219.79 | -120.64 | -570.68 | -143.70 | -52.83 | -1115.68 | 126.87 | -46.69 | 39.14 | 65.76 |
| Frame-4 | -1573.22 | -1227.15 | -120.87 | 47.65 | -368.17 | 226.49 | 34.65 | 429.41 | 710.20 | 198.22 | 273.21 |
| Frame-5 | 46.19 | 125.14 | 212.65 | -455.46 | -580.04 | 287.69 | 106.06 | -92.37 | 2084.73 | -27.00 | -134.83 |
| Frame-6 | -609.84 | 99.12 | 430.03 | -991.65 | 133.90 | 181.36 | 66.89 | -116.34 | 1398.13 | 189.11 | 512.66 |
| Frame-7 | -107.15 | -42.02 | 217.42 | 25.75 | -3.89 | 87.66 | 138.59 | -88.58 | -21.65 | -105.86 | -1308.70 |
| Frame-8 | -70.04 | -120.31 | -0.47 | 157.45 | 124.38 | 136.70 | -29.33 | 53.52 | -34.53 | 106.83 | 140.75 |
| Frame-9 | -220.95 | 70.42 | 148.06 | -0.77 | 40.70 | 197.97 | -57.31 | 232.35 | 198.99 | 153.80 | 93.91 |
| Frame-10 | 5.29 | -170.68 | -219.55 | -44.39 | -53.35 | 187.96 | 44.30 | -51.91 | 200.94 | -151.84 | -128.25 |
| Frame-11 | 633.18 | -924.38 | -114.25 | 161.19 | -82.77 | 51.17 | 116.16 | 153.81 | -665.48 | 30.20 | 16.24 |
| Frame-12 | -35.13 | -166.79 | -112.18 | 164.05 | -95.74 | 414.72 | 203.03 | -78.72 | 140.69 | 104.55 | -22.23 |
| Hoop-1 | 683.99 | -63.69 | 502.22 | 6.13 | -148.21 | 9.81 | -161.06 | 406.72 | 55.74 | 386.47 | 261.53 |
| Hoop-2 | -122.76 | 121.10 | -130.01 | -37.87 | 184.35 | 283.74 | 278.27 | 63.31 | 648.73 | -66.78 | -41.48 |
| Hoop-3 | 21.26 | 1203.22 | 521.10 | 493.04 | 799.96 | 45.82 | 689.40 | -41.88 | 165.09 | 343.97 | -61.16 |
| Hoop-4 | 280.24 | -69.32 | 13.92 | 108.26 | 69.42 | -87.83 | 435.65 | 972.24 | -122.98 | 289.55 | -98.92 |
| Hoop-5 | 6.17 | 1264.47 | 349.05 | -54.02 | -97.79 | 927.29 | -163.43 | 20.76 | -77.73 | -154.33 | 622.62 |
| Hoop-6 | 485.61 | -219.92 | -74.01 | -201.47 | 151.35 | -197.79 | -197.75 | 295.47 | -179.32 | -144.20 | -120.19 |
| Hoop-7 | -222.06 | 475.34 | 364.01 | 953.78 | -189.24 | 351.26 | 668.87 | -258.65 | 811.44 | 842.40 | 75.52 |
| Hoop-8 | -146.72 | -117.27 | -73.14 | 353.48 | 552.12 | -124.62 | 22.49 | 309.37 | -14.29 | 15.13 | -131.99 |
| Hoop-9 | 1142.97 | 352.27 | -48.41 | -86.48 | -44.79 | -6.71 | 111.14 | -48.41 | 887.20 | 794.73 | -37.53 |
| Hoop-10 | -109.98 | 1368.99 | -5.22 | 411.92 | -126.22 | 276.48 | 1233.55 | 253.03 | -43.15 | -144.28 | 1123.51 |
| Hoop-11 | -124.93 | -137.79 | 645.14 | -152.53 | 315.38 | 1184.79 | 269.30 | 431.44 | 9.57 | 993.31 | -108.33 |
| Hoop-12 | 78.58 | 444.91 | 393.15 | -119.42 | 71.17 | -136.07 | 98.91 | 4.55 | -112.03 | -89.82 | 124.83 |
| Hoop-13 | 390.13 | 493.83 | 1035.07 | 1049.79 | -47.31 | -91.78 | 93.54 | 108.37 | 397.50 | -136.27 | 264.06 |
| Hoop-14 | 1016.12 | -115.99 | -167.80 | -152.98 | 209.55 | 76.36 | 76.36 | 742.26 | -27.22 | 609.08 | -49.41 |
| Long-1 | 142.50 | 619.54 | 1369.51 | 1579.71 | 1853.67 | 2269.01 | 2803.91 | 3122.53 | 3845.70 | 4229.38 | 4289.90 |
| Long-2 | -63.65 | 114.98 | 1179.48 | 1376.48 | 2160.13 | 2258.56 | 2745.57 | 3086.41 | 3783.23 | 4067.96 | 4719.30 |
| Long-3 | 123.28 | 359.39 | 1083.87 | 1436.94 | 1787.23 | 2371.29 | 2755.00 | 3557.16 | 3583.79 | 3995.47 | 4465.20 |
| Long-4 | -45.02 | 741.71 | 653.61 | 1051.36 | 2154.87 | 2289.46 | 2543.69 | 3390.96 | 3588.47 | 4231.18 | 4680.21 |
| Long-5 | 312.55 | 487.57 | 818.43 | 1348.41 | 1890.11 | 2333.65 | 2887.18 | 3179.09 | 3438.55 | 3869.25 | 4559.73 |
| Long-6 | 238.19 | 669.68 | 1384.76 | 1345.77 | 1829.69 | 2224.51 | 2452.85 | 3287.07 | 3921.98 | 4073.94 | 4518.88 |
| Long-7 | 60.04 | 477.07 | 1333.97 | 1159.83 | 2112.76 | 2515.37 | 3167.64 | 3479.58 | 3720.43 | 4325.32 | 4520.01 |
| Long-8 | 209.75 | 347.61 | 1279.36 | 1755.88 | 2027.72 | 2273.89 | 2549.35 | 3267.52 | 3730.85 | 4219.87 | 4819.29 |
| SG1 | 775.43 | 655.02 | 731.05 | 681.26 | 709.82 | 724.31 | 718.30 | 833.59 | 707.54 | 778.49 | 715.76 |
| SG2 | 35.25 | 29.90 | 31.28 | 20.14 | 15.21 | 15.53 | 18.15 | 21.70 | 8.94 | 10.60 | 5.44 |
| SG3 | 822.57 | 815.67 | 762.28 | 721.84 | 717.05 | 766.60 | 716.86 | 738.56 | 620.87 | 678.79 | 599.78 |
| SG4 | 25.06 | 34.87 | 21.97 | 9.77 | 2.77 | 5.12 | 1.25 | -7.41 | -17.77 | -20.31 | -26.66 |
| SG5 | 509.80 | 562.37 | 453.58 | 458.00 | 434.61 | 500.91 | 456.02 | 418.59 | 368.00 | 414.96 | 336.29 |
| SG6 | 18.13 | 33.97 | 13.34 | 6.34 | -3.24 | -1.03 | -2.87 | -19.27 | -27.37 | -28.29 | -37.13 |
| SG7 | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## |
| SG8 | -64.50 | -46.09 | -66.69 | -70.39 | -77.01 | -72.59 | -69.65 | -82.15 | -82.89 | -83.63 | -88.03 |
| SG9 | 724.90 | 693.26 | 640.59 | 615.43 | 610.45 | 639.55 | 608.79 | 627.55 | 513.48 | 571.07 | 493.86 |
| SG10 | -0.16 | 7.59 | -9.75 | -17.87 | -23.04 | -29.12 | -25.07 | -36.69 | -46.46 | -49.41 | -56.42 |

TABLE E-20. CVP2, WATER 1, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 544.41 | 572.22 | 470.67 | 481.10 | 463.94 | 516.30 | 466.89 | 449.68 | 389.70 | 430.67 | 356.27 |
| SG12 | 9.10 | 33.01 | 6.33 | -2.17 | -11.96 | -16.76 | -14.68 | -33.33 | -42.52 | -46.35 | -56.92 |
| SG13 | 656.46 | 735.23 | 615.44 | 696.07 | 670.64 | 750.89 | 711.73 | 668.74 | 689.92 | 731.55 | 649.70 |
| SG14 | 18.35 | 36.63 | 16.27 | 10.56 | 3.56 | 8.99 | 8.95 | -4.04 | -9.43 | -8.60 | -13.44 |
| SG15 | 190.66 | 156.51 | 152.72 | 165.51 | 149.57 | 150.94 | 155.74 | 156.23 | 120.45 | 158.58 | 125.59 |
| SG16 | -4.62 | -9.13 | -18.02 | -15.21 | -24.65 | -29.49 | -22.72 | -31.19 | -37.55 | -31.01 | -40.12 |
| SG17 | -164.80 | -184.17 | -217.97 | -203.11 | -207.86 | -186.75 | -216.82 | -208.16 | -237.19 | -233.18 | -252.26 |
| SG18 | -7.49 | -9.76 | -19.27 | -16.41 | -22.00 | -23.84 | -26.61 | -27.95 | -34.05 | -38.11 | -44.34 |
| SG19 | 229.36 | 244.69 | 218.03 | 245.82 | 244.71 | 275.76 | 254.14 | 248.01 | 250.60 | 262.07 | 235.78 |
| SG20 | 92.75 | 96.25 | 87.93 | 83.51 | 81.85 | 87.75 | 79.26 | 75.92 | 70.93 | 69.82 | 66.86 |
| SG21 | 12.40 | 8.51 | 69.74 | 86.41 | 115.09 | 129.69 | 158.20 | 193.70 | 226.26 | 248.09 | 266.94 |
| SG22 | 86.20 | 77.32 | 133.49 | 161.16 | 187.29 | 188.43 | 227.27 | 265.74 | 308.07 | 317.86 | 340.12 |
| SG23 | -14.97 | -18.15 | 54.94 | 77.09 | 114.21 | 128.31 | 166.46 | 212.33 | 253.23 | 275.09 | 301.66 |
| SG24 | 35.63 | 23.36 | 100.19 | 129.37 | 167.01 | 176.41 | 218.31 | 269.03 | 316.81 | 335.45 | 359.58 |
| SG25 | 194.28 | 195.04 | 252.56 | 272.08 | 305.64 | 316.29 | 348.96 | 388.47 | 425.11 | 441.64 | 465.58 |
| SG26 | 636.72 | 629.30 | 701.49 | 726.45 | 763.96 | 776.39 | 813.61 | 861.88 | 904.90 | 923.28 | 946.54 |
| SG27 | 42.94 | 40.35 | 96.69 | 117.27 | 154.41 | 170.19 | 199.41 | 244.65 | 278.19 | 298.84 | 324.99 |
| SG28 | 111.85 | 104.44 | 169.48 | 194.65 | 231.61 | 245.63 | 281.14 | 326.21 | 369.08 | 389.04 | 413.39 |
| SG29T | 30.59 | 16.36 | -20.73 | -36.63 | -56.80 | -72.69 | -83.81 | -100.90 | -123.03 | -137.57 | -156.20 |
| SG29-45 | 67.89 | 44.10 | 69.73 | 85.51 | 116.30 | 99.32 | 129.65 | 140.81 | 167.10 | 166.82 | 172.83 |
| SG29L | 3.68 | 6.10 | 75.66 | 94.16 | 146.14 | 165.86 | 201.09 | 238.96 | 281.14 | 306.96 | 347.56 |
| SG30T | 30.56 | 41.77 | 12.30 | -2.46 | -17.40 | -29.50 | -42.30 | -64.06 | -82.97 | -91.66 | -108.32 |
| SG30-45 | 14.38 | -1.87 | 28.16 | 42.28 | 50.44 | 40.88 | 62.19 | 78.38 | 97.08 | 94.44 | 98.75 |
| SG30L | 19.47 | 10.04 | 84.72 | 113.31 | 155.99 | 178.23 | 217.81 | 266.02 | 308.22 | 334.58 | 364.48 |
| SG31T | -62.74 | -37.69 | -63.65 | -74.61 | -90.66 | -89.31 | -86.80 | -110.53 | -108.16 | -121.70 | -116.99 |
| SG31-45 | 49.90 | 35.87 | 106.12 | 134.47 | 166.42 | 171.09 | 209.98 | 255.24 | 301.95 | 315.70 | 338.56 |
| SG31L | 10.28 | 14.47 | 61.01 | 57.68 | 53.30 | 53.90 | 66.05 | 80.69 | 110.27 | 103.20 | 109.42 |
| SG32T | -1.10 | 17.82 | -23.42 | -38.81 | -51.83 | -49.78 | -63.27 | -87.63 | -114.36 | -114.27 | -127.69 |
| SG32-45 | 91.35 | 92.27 | 125.46 | 124.74 | 122.88 | 134.93 | 141.06 | 153.10 | 167.20 | 171.47 | 173.86 |
| SG32L | 50.32 | 36.89 | 119.95 | 149.97 | 192.20 | 203.82 | 246.27 | 300.90 | 352.40 | 372.73 | 399.52 |
| SG33T | 6.83 | 16.52 | -32.50 | -41.45 | -58.67 | -50.62 | -70.96 | -95.46 | -118.05 | -123.27 | -134.79 |
| SG33-45 | 7.14 | 26.92 | 50.28 | 39.42 | 32.87 | 69.74 | 71.70 | 68.86 | 88.69 | 96.49 | 102.24 |
| SG33L | 18.38 | 21.50 | 103.14 | 120.91 | 165.67 | 174.97 | 213.74 | 263.14 | 308.18 | 329.37 | 352.39 |
| SG34T | 55.24 | 42.48 | -10.16 | -0.43 | -33.11 | -37.94 | -61.17 | -93.19 | -102.68 | -119.76 | -138.09 |
| SG34-45 | 3.39 | 15.13 | 6.82 | -3.94 | -18.42 | 15.78 | 13.93 | -7.00 | 16.57 | 17.41 | 15.55 |
| SG34L | 22.45 | 30.87 | 99.43 | 93.91 | 149.73 | 170.94 | 207.55 | 245.85 | 274.47 | 305.76 | 324.48 |
| SG35T | 39.23 | 35.70 | 9.89 | 1.15 | -14.56 | -9.12 | -28.75 | -46.13 | -68.08 | -67.84 | -79.92 |
| SG35-45 | 71.05 | 49.91 | 86.83 | 92.79 | 90.28 | 113.92 | 113.28 | 134.45 | 145.78 | 152.84 | 165.45 |
| SG35L | 59.76 | 45.16 | 123.08 | 152.15 | 192.34 | 206.59 | 244.16 | 297.62 | 345.86 | 365.56 | 391.45 |
| SG36T | 0.45 | 5.56 | -15.27 | -27.08 | -47.03 | -39.77 | -49.96 | -73.48 | -85.80 | -86.12 | -96.67 |
| SG36-45 | 46.29 | 36.08 | 97.68 | 119.80 | 154.94 | 173.01 | 202.72 | 245.39 | 288.27 | 303.84 | 329.11 |
| SG36L | 43.15 | 26.51 | 55.64 | 56.35 | 50.19 | 85.94 | 77.00 | 100.25 | 104.17 | 110.46 | 133.01 |
| SG37T | -78.67 | -67.08 | -94.79 | -106.30 | -114.62 | -116.89 | -128.25 | -144.94 | -165.59 | -166.99 | -180.04 |
| SG37-45 | 38.07 | 36.39 | 81.27 | 77.43 | 76.64 | 75.84 | 79.93 | 96.93 | 114.86 | 113.80 | 110.44 |
| SG37L | 30.75 | 15.89 | 87.85 | 116.47 | 149.57 | 154.90 | 193.64 | 239.58 | 285.78 | 300.77 | 322.38 |

TABLE E-21. CVP2, WATER 1, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.04 | 0.91 | 2.05 | 3.08 | 4.04 | 5.02 | 6.00 | 7.07 | 8.13 | 9.15 | 10.13 |
| Frame-1 | 36.24 | 154.75 | 456.06 | 662.74 | 813.31 | 1068.21 | 1255.10 | 1571.65 | 1691.15 | 1851.34 | 2091.28 |
| Frame-2 | 37.77 | 233.43 | 504.46 | 669.44 | 803.76 | 1076.38 | 1224.78 | 1493.71 | 1694.14 | 1845.20 | 2067.99 |
| Frame-3 | 174.36 | 206.12 | 397.56 | 657.80 | 815.84 | 1021.20 | 1241.16 | 1478.72 | 1694.97 | 1883.16 | 2049.58 |
| Frame-4 | -941.61 | 216.68 | 356.44 | 663.49 | 793.69 | 1036.95 | 1220.75 | 1487.80 | 1673.11 | 1881.91 | 2023.99 |
| Frame-5 | 421.25 | 205.54 | 487.04 | 653.01 | 845.56 | 989.08 | 1254.25 | 1442.29 | 1690.01 | 1881.87 | 1970.72 |
| Frame-6 | 149.62 | 216.81 | 404.15 | 744.66 | 883.99 | 939.35 | 1291.05 | 1451.13 | 1688.64 | 1895.06 | 1998.49 |
| Frame-7 | 67.61 | 231.29 | 384.03 | 618.94 | 883.03 | 1146.49 | 1274.87 | 1481.39 | 1691.85 | 1898.46 | 2110.79 |
| Frame-8 | 68.44 | 211.28 | 398.23 | 472.80 | 893.29 | 1118.61 | 1241.65 | 1490.97 | 1646.11 | 1907.57 | 2193.70 |
| Frame-9 | 27.78 | 249.57 | 453.91 | 626.09 | 864.31 | 1042.60 | 1272.52 | 1443.93 | 1563.49 | 1893.66 | 2144.05 |
| Frame-10 | 104.20 | 176.50 | 423.80 | 556.96 | 800.22 | 1118.60 | 1243.42 | 1408.46 | 1627.37 | 1885.48 | 2099.38 |
| Frame-11 | 38.03 | 235.07 | 425.59 | 597.34 | 813.18 | 1079.12 | 1254.66 | 1425.48 | 1684.82 | 1901.53 | 2068.16 |
| Frame-12 | 71.21 | 220.60 | 412.81 | 658.05 | 787.26 | 1016.15 | 1209.73 | 1388.44 | 1650.65 | 1900.32 | 2109.02 |
| Hoop-1 | -161.06 | 818.26 | 1799.42 | 2662.99 | 3641.96 | 4557.34 | 5233.50 | 6188.94 | 7362.30 | 8097.77 | 8865.96 |
| Hoop-2 | -66.77 | 775.13 | 1869.96 | 2668.50 | 3529.93 | 4339.66 | 5385.72 | 6316.15 | 7233.21 | 8086.48 | 8867.12 |
| Hoop-3 | 419.34 | 433.41 | 2020.61 | 2709.86 | 3365.45 | 4267.25 | 5247.63 | 5886.02 | 6823.63 | 8025.53 | 8700.88 |
| Hoop-4 | -24.92 | 870.41 | 2004.37 | 2342.89 | 3446.91 | 4091.01 | 5025.19 | 6264.59 | 6931.70 | 7986.56 | 8793.26 |
| Hoop-5 | 1403.07 | 1186.17 | 1631.18 | 2668.93 | 3520.30 | 4521.92 | 5342.63 | 6152.40 | 7131.08 | 8133.06 | 9039.48 |
| Hoop-6 | -59.22 | 784.96 | 1669.78 | 2765.20 | 3487.12 | 4760.21 | 5550.83 | 6206.60 | 7227.40 | 8242.26 | 8933.06 |
| Hoop-7 | -251.30 | 657.98 | 1592.85 | 2535.02 | 3741.58 | 4435.80 | 4983.57 | 6115.64 | 7080.84 | 7821.04 | 9122.92 |
| Hoop-8 | 522.70 | 772.81 | 1868.86 | 2803.08 | 3383.87 | 4487.62 | 5274.72 | 6150.09 | 7150.51 | 8041.40 | 9153.19 |
| Hoop-9 | -52.04 | 747.58 | 1806.49 | 3139.19 | 3376.39 | 4160.02 | 5302.34 | 6049.38 | 7253.34 | 8088.22 | 8767.30 |
| Hoop-10 | 359.58 | 865.26 | 1714.07 | 2678.46 | 3660.54 | 4542.23 | 5228.50 | 6254.29 | 7251.19 | 8089.98 | 8965.05 |
| Hoop-11 | -132.28 | 809.09 | 1663.88 | 2669.74 | 3430.23 | 4309.31 | 5401.75 | 6166.27 | 7240.28 | 8038.77 | 8957.18 |
| Hoop-12 | 6.40 | 937.18 | 1818.00 | 2602.59 | 3616.28 | 4401.24 | 5171.03 | 6140.67 | 6866.05 | 8051.15 | 8918.14 |
| Hoop-13 | 871.97 | 745.94 | 1909.87 | 2777.26 | 3681.34 | 4734.44 | 5394.25 | 6283.87 | 7217.98 | 8063.94 | 8910.06 |
| Hoop-14 | -153.00 | 653.48 | 1829.89 | 2702.96 | 3597.86 | 4574.87 | 5558.92 | 6143.43 | 7075.68 | 7971.74 | 8786.57 |
| Long-1 | -3.46 | 193.56 | 1128.51 | 1630.58 | 2100.71 | 2288.95 | 2653.49 | 3310.90 | 3873.77 | 4215.14 | 4515.37 |
| Long-2 | 536.60 | 91.91 | 383.50 | 1217.15 | 1952.53 | 2439.38 | 2991.31 | 3251.36 | 3444.92 | 4399.71 | 4931.96 |
| Long-3 | -45.72 | 757.20 | 1132.22 | 1114.94 | 1953.94 | 2142.42 | 2572.60 | 3437.51 | 3782.11 | 4368.28 | 4738.59 |
| Long-4 | -29.11 | 435.91 | 884.77 | 1582.26 | 1710.90 | 1748.49 | 3056.60 | 3269.49 | 3870.63 | 4088.03 | 4641.06 |
| Long-5 | 441.97 | 642.34 | 881.87 | 1264.36 | 1830.36 | 1931.87 | 3022.93 | 3443.69 | 3674.22 | 4118.59 | 4619.67 |
| Long-6 | 18.16 | 184.44 | 877.39 | 1571.78 | 2048.70 | 2110.62 | 2777.02 | 3433.42 | 4024.23 | 4342.86 | 4539.66 |
| Long-7 | 114.11 | 471.16 | 1238.91 | 1562.32 | 2067.29 | 2587.22 | 2776.17 | 3350.64 | 3293.28 | 4328.92 | 4967.09 |
| Long-8 | -37.64 | 255.35 | 612.18 | 1479.99 | 2007.00 | 2412.74 | 2696.07 | 3134.26 | 3735.29 | 4361.42 | 4628.51 |
| SG1 | 683.77 | 432.04 | 494.32 | 450.65 | 561.77 | 685.06 | 753.43 | 816.61 | 905.46 | 978.99 | 1043.59 |
| SG2 | 16.26 | 54.69 | 124.40 | 178.31 | 238.30 | 299.07 | 356.62 | 416.60 | 480.98 | 537.00 | 592.54 |
| SG3 | 824.34 | 493.96 | 485.84 | 442.86 | 523.84 | 641.71 | 688.01 | 735.75 | 810.68 | 882.63 | 941.57 |
| SG4 | 10.28 | 45.88 | 111.79 | 164.39 | 221.73 | 281.33 | 334.76 | 390.29 | 449.49 | 506.28 | 561.23 |
| SG5 | 539.82 | 266.66 | 254.60 | 276.15 | 337.29 | 441.80 | 495.11 | 530.39 | 601.09 | 695.20 | 771.89 |
| SG6 | 14.44 | 50.73 | 121.84 | 182.45 | 241.58 | 306.61 | 367.41 | 434.18 | 503.91 | 572.44 | 638.46 |
| SG7 | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## |
| SG8 | -71.11 | -24.01 | 42.24 | 105.53 | 163.68 | 222.56 | 279.24 | 339.66 | 402.89 | 463.25 | 525.13 |
| SG9 | 711.91 | 392.76 | 393.32 | 366.92 | 433.56 | 545.41 | 596.54 | 636.17 | 708.77 | 784.45 | 843.04 |
| SG10 | -12.33 | 29.91 | 107.95 | 166.80 | 222.33 | 283.21 | 339.29 | 394.34 | 451.82 | 507.72 | 561.09 |

TABLE E-21. CVP2, WATER 1, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 577.02 | 277.50 | 254.89 | 289.31 | 331.94 | 443.22 | 476.63 | 497.39 | 561.70 | 643.27 | 702.39 |
| SG12 | 8.54 | 82.36 | 188.68 | 272.98 | 356.45 | 454.46 | 548.96 | 646.09 | 751.68 | 853.01 | 948.81 |
| SG13 | 723.81 | 423.56 | 365.77 | 440.32 | 515.85 | 640.00 | 683.10 | 728.93 | 828.26 | 925.70 | 1014.22 |
| SG14 | 20.92 | 68.97 | 139.31 | 204.76 | 261.51 | 326.64 | 382.10 | 439.77 | 505.45 | 568.51 | 628.69 |
| SG15 | 169.08 | 76.78 | 98.66 | 134.22 | 169.08 | 235.08 | 280.72 | 319.89 | 373.58 | 422.81 | 477.21 |
| SG16 | -9.32 | 13.53 | 70.45 | 127.47 | 173.52 | 231.37 | 281.52 | 335.79 | 393.20 | 446.17 | 499.59 |
| SG17 | -162.75 | -248.04 | -238.53 | -158.09 | -129.43 | -36.25 | 13.40 | 56.15 | 129.24 | 192.56 | 259.96 |
| SG18 | -11.74 | 16.29 | 61.96 | 115.67 | 151.51 | 207.67 | 252.37 | 302.12 | 356.19 | 404.96 | 452.66 |
| SG19 | 239.88 | 166.45 | 181.06 | 225.64 | 279.09 | 346.78 | 393.20 | 426.39 | 500.66 | 563.36 | 606.14 |
| SG20 | 92.56 | 113.07 | 170.74 | 226.00 | 275.90 | 331.53 | 383.84 | 433.83 | 497.32 | 554.98 | 602.17 |
| SG21 | -4.62 | -14.43 | -13.13 | -3.88 | -3.33 | -14.06 | -18.87 | -19.98 | -29.60 | -27.56 | -30.89 |
| SG22 | 66.06 | 71.88 | 114.85 | 157.87 | 191.47 | 213.82 | 238.88 | 265.70 | 287.53 | 317.67 | 342.54 |
| SG23 | -33.87 | -20.36 | 2.37 | 27.41 | 43.09 | 40.42 | 50.15 | 68.15 | 66.43 | 78.88 | 88.11 |
| SG24 | 14.41 | 31.94 | 75.30 | 124.19 | 163.67 | 186.00 | 216.26 | 246.94 | 270.69 | 305.93 | 333.64 |
| SG25 | 156.33 | 184.08 | 212.39 | 254.05 | 278.45 | 286.05 | 307.82 | 333.85 | 343.96 | 365.96 | 385.06 |
| SG26 | 606.69 | 633.72 | 671.04 | -850.70 | -805.11 | -782.68 | -745.91 | -705.79 | -682.66 | -649.02 | -619.48 |
| SG27 | 11.75 | 6.86 | 13.93 | -148.07 | -137.03 | -144.97 | -127.74 | -117.84 | -118.46 | -108.71 | -101.61 |
| SG28 | 87.44 | 124.40 | 157.67 | 203.50 | 241.20 | 254.50 | 288.51 | 317.40 | 337.29 | 365.38 | 396.47 |
| SG29T | 17.15 | 50.99 | 125.44 | 186.05 | 246.19 | 315.35 | 384.09 | 462.13 | 544.07 | 612.25 | 683.20 |
| SG29-45 | 79.94 | 40.15 | 90.92 | 160.38 | 212.45 | 264.75 | 320.34 | 361.12 | 407.92 | 470.98 | 522.08 |
| SG29L | 30.95 | 6.33 | 25.51 | 71.86 | 117.79 | 138.51 | 164.93 | 185.78 | 196.56 | 241.66 | 268.67 |
| SG30T | 34.30 | 39.85 | 112.15 | 177.20 | 241.13 | 311.75 | 379.51 | 453.85 | 531.75 | 603.67 | 674.21 |
| SG30-45 | 16.56 | 10.90 | 66.22 | 120.38 | 176.22 | 221.75 | 268.16 | 314.92 | 360.85 | 411.53 | 457.43 |
| SG30L | 15.65 | 43.14 | 64.83 | 92.93 | 132.16 | 149.37 | 178.51 | 208.63 | 229.01 | 257.11 | 283.49 |
| SG31T | -49.70 | 65.55 | 148.86 | 226.87 | 295.20 | 362.82 | 436.78 | 517.73 | 599.97 | 672.20 | 744.42 |
| SG31-45 | 27.60 | 32.43 | 63.31 | 102.51 | 132.27 | 148.43 | 169.00 | 190.03 | 205.36 | 231.18 | 251.41 |
| SG31L | 22.70 | 59.90 | 116.69 | 168.12 | 228.34 | 268.15 | 307.63 | 358.77 | 398.55 | 449.61 | 493.00 |
| SG32T | 2.25 | 28.61 | 108.16 | 183.57 | 253.22 | 329.14 | 403.35 | 479.00 | 566.12 | 645.68 | 722.60 |
| SG32-45 | 102.65 | 105.07 | 154.03 | 204.11 | 266.80 | 306.87 | 348.23 | 398.76 | 440.41 | 492.72 | 538.03 |
| SG32L | 39.06 | 73.00 | 98.85 | 121.35 | 152.52 | 163.18 | 185.47 | 219.26 | 228.29 | 249.01 | 269.36 |
| SG33T | 8.52 | 9.46 | 61.08 | 123.89 | 188.17 | 257.71 | 329.00 | 408.13 | 494.29 | 569.76 | 647.04 |
| SG33-45 | 20.00 | 29.57 | 62.59 | 102.72 | 164.44 | 192.86 | 246.64 | 305.87 | 349.52 | 400.60 | 454.24 |
| SG33L | 17.03 | 40.92 | 68.64 | 85.40 | 110.65 | 120.71 | 140.74 | 162.85 | 169.10 | 196.44 | 215.28 |
| SG34T | 59.93 | 40.06 | 72.50 | 128.30 | 186.24 | 249.12 | 315.54 | 384.35 | 465.31 | 529.30 | 598.01 |
| SG34-45 | -4.59 | -12.99 | 19.87 | 53.79 | 101.82 | 120.67 | 167.91 | 220.17 | 261.56 | 296.98 | 338.22 |
| SG34L | 16.95 | 21.51 | 56.99 | 70.86 | 95.53 | 108.05 | 120.39 | 147.51 | 146.78 | 187.47 | 209.09 |
| SG35T | 44.25 | 12.73 | 51.78 | 104.88 | 160.67 | 225.76 | 291.03 | 364.71 | 441.95 | 514.57 | 587.53 |
| SG35-45 | 72.11 | 53.07 | 65.61 | 109.69 | 169.93 | 207.27 | 252.60 | 306.17 | 354.41 | 402.35 | 452.00 |
| SG35L | 37.68 | 49.20 | 65.24 | 102.04 | 138.65 | 151.48 | 183.36 | 215.51 | 243.44 | 279.59 | 308.53 |
| SG36T | -6.43 | 33.27 | 106.91 | 174.14 | 238.67 | 310.04 | 378.15 | 453.47 | 531.95 | 606.01 | 677.21 |
| SG36-45 | 8.53 | 50.25 | 81.33 | 119.97 | 152.74 | 160.66 | 189.00 | 211.92 | 227.68 | 246.42 | 267.46 |
| SG36L | 34.39 | 72.00 | 105.98 | 171.29 | 239.95 | 285.59 | 336.40 | 388.12 | 439.79 | 493.95 | 544.21 |
| SG37T | -59.26 | -14.14 | 71.44 | 62.56 | 135.26 | 208.89 | 281.87 | 359.95 | 441.04 | 513.83 | 585.90 |
| SG37-45 | 41.70 | 49.03 | 109.89 | 161.46 | 224.55 | 268.83 | 308.64 | 358.56 | 398.40 | 451.41 | 495.46 |
| SG37L | 3.68 | 12.27 | 51.50 | 95.75 | 128.16 | 147.10 | 169.94 | 193.24 | 210.75 | 237.73 | 259.53 |

TABLE E-22. CVP2, WATER 2, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.01 | 0.98 | 2.07 | 3.08 | 4.13 | 5.15 | 6.20 | 6.98 | 8.03 | 9.08 | 10.03 |
| Frame-1 | -175.05 | 212.92 | 479.34 | 614.74 | 815.77 | 1028.96 | 1304.92 | 1506.37 | 1661.44 | 1890.08 | 2068.65 |
| Frame-2 | 147.73 | 314.81 | 498.45 | 806.94 | 994.05 | 1101.28 | 1242.36 | 1340.84 | 1712.68 | 1845.96 | 2111.03 |
| Frame-3 | -101.39 | 217.70 | 322.92 | 524.16 | 806.21 | 1121.01 | 1311.27 | 1588.76 | 1691.16 | 1844.58 | 2052.83 |
| Frame-4 | 312.20 | 231.82 | 353.89 | 822.31 | 1146.12 | 1028.71 | 1217.21 | 1522.43 | 1636.46 | 1848.27 | 2085.79 |
| Frame-5 | 35.31 | 189.65 | 506.92 | 610.09 | 920.51 | 1011.90 | 1167.92 | 1570.11 | 1746.48 | 1853.37 | 2098.11 |
| Frame-6 | -111.28 | 272.28 | 355.72 | 547.90 | 731.65 | 1109.19 | 1146.08 | 1380.17 | 1671.44 | 1885.86 | 2103.77 |
| Frame-7 | -88.44 | 332.23 | 369.11 | 663.73 | 743.68 | 875.17 | 1308.11 | 1491.82 | 1615.75 | 1892.27 | 2083.50 |
| Frame-8 | 22.67 | 327.64 | 357.50 | 534.78 | 759.18 | 1093.62 | 1242.15 | 1479.03 | 1781.81 | 1804.99 | 2095.86 |
| Frame-9 | -27.41 | 276.95 | 449.32 | 695.88 | 849.00 | 994.90 | 1212.44 | 1520.62 | 1751.40 | 1979.71 | 2133.64 |
| Frame-10 | -27.67 | 136.21 | 364.12 | 615.51 | 886.48 | 1002.34 | 1348.95 | 1300.08 | 1709.72 | 1913.73 | 2037.67 |
| Frame-11 | -25.47 | 254.47 | 351.63 | 561.80 | 855.35 | 1018.62 | 1246.08 | 1501.97 | 1693.24 | 1853.34 | 2109.34 |
| Frame-12 | -128.72 | 178.46 | 401.31 | 677.08 | 745.99 | 1015.36 | 1123.92 | 1359.08 | 1684.87 | 1866.39 | 2098.84 |
| Hoop-1 | -80.24 | 924.82 | 1869.06 | 2528.86 | 3676.87 | 4448.05 | 5224.31 | 6271.58 | 7238.48 | 8014.51 | 8914.74 |
| Hoop-2 | 95.83 | 634.21 | 1851.71 | 2796.78 | 3701.54 | 4560.97 | 5264.67 | 6373.86 | 7060.89 | 7843.80 | 8866.26 |
| Hoop-3 | 771.98 | 864.85 | 1587.26 | 2690.57 | 3688.12 | 4382.13 | 5470.37 | 5998.22 | 7056.16 | 7860.03 | 8677.23 |
| Hoop-4 | 321.03 | 324.70 | 2076.31 | 3047.69 | 2823.57 | 4430.50 | 5271.22 | 5700.53 | 6877.37 | 8126.59 | 8986.69 |
| Hoop-5 | -106.92 | 775.82 | 1959.27 | 2612.39 | 3485.65 | 4444.43 | 5455.71 | 6088.57 | 7318.18 | 7948.06 | 8847.11 |
| Hoop-6 | 844.15 | 770.18 | 1941.13 | 2427.15 | 3897.16 | 4384.35 | 5517.58 | 6243.52 | 6977.35 | 8077.05 | 8886.05 |
| Hoop-7 | -207.52 | 1466.86 | 1654.77 | 2345.13 | 3770.79 | 4664.93 | 5587.95 | 6084.60 | 6822.73 | 7971.80 | 8671.05 |
| Hoop-8 | -43.72 | 552.12 | 2000.87 | 2545.62 | 3516.27 | 4685.76 | 5443.36 | 6407.55 | 6980.63 | 8040.60 | 8937.14 |
| Hoop-9 | 105.71 | 994.18 | 1856.89 | 2818.26 | 3856.83 | 4328.22 | 5044.36 | 5619.65 | 6953.47 | 8109.17 | 8926.03 |
| Hoop-10 | 272.90 | 1230.06 | 1753.45 | 2427.43 | 3926.00 | 4585.11 | 5394.11 | 5885.88 | 7004.88 | 7619.61 | 8211.15 |
| Hoop-11 | 77.73 | 348.54 | 1215.98 | 3021.60 | 3638.38 | 4518.87 | 5242.79 | 6262.06 | 6773.52 | 7923.75 | 8877.13 |
| Hoop-12 | 480.12 | 496.77 | 2061.85 | 2706.22 | 3727.30 | 4393.40 | 5429.55 | 6214.69 | 7124.40 | 7746.87 | 8774.84 |
| Hoop-13 | 723.70 | 664.39 | 1739.01 | 2436.23 | 3555.33 | 4748.79 | 5453.01 | 6024.40 | 7083.83 | 7870.38 | 8803.61 |
| Hoop-14 | -79.01 | 934.63 | 1910.90 | 2843.54 | 3782.81 | 4677.99 | 5299.43 | 6224.81 | 6867.83 | 8207.71 | 8902.31 |
| Long-1 | 6.03 | 33.33 | 13.15 | 4.84 | 38.07 | 45.19 | 44.00 | 32.14 | 26.20 | 21.46 | 30.95 |
| Long-2 | -51.50 | 43.29 | 96.74 | 339.72 | 67.58 | 74.88 | 110.11 | 8.05 | -15.04 | 10.48 | 67.60 |
| Long-3 | 155.59 | 240.12 | 144.39 | -38.26 | -15.90 | 135.71 | 143.15 | -61.88 | 182.93 | -33.29 | 102.17 |
| Long-4 | 49.20 | 10.04 | 260.84 | 125.03 | 100.57 | 229.05 | 103.02 | -59.70 | -41.35 | -22.99 | -40.13 |
| Long-5 | 314.95 | 276.62 | 266.97 | 257.36 | 245.40 | 352.11 | 326.91 | 330.53 | 396.47 | 403.62 | 456.45 |
| Long-6 | 12.05 | 251.66 | 67.05 | 205.14 | 106.16 | 103.73 | 172.16 | -35.62 | -33.18 | -29.51 | -14.84 |
| Long-7 | 13.17 | 17.98 | 52.82 | 129.72 | 62.44 | 118.93 | 116.51 | 123.74 | 126.14 | 124.93 | 136.97 |
| Long-8 | 155.60 | 209.78 | 288.50 | 154.34 | 188.81 | 209.75 | 74.35 | -63.49 | 145.75 | -68.41 | -67.19 |
| SG1 | 632.72 | 191.16 | 307.52 | 374.99 | 466.31 | 511.88 | 539.11 | 689.55 | 783.73 | 820.22 | 961.49 |
| SG2 | 22.12 | 49.39 | 122.49 | 180.10 | 246.55 | 309.24 | 369.38 | 429.78 | 493.01 | 552.36 | 614.90 |
| SG3 | 757.19 | 287.51 | 349.96 | 413.80 | 533.06 | 556.18 | 607.96 | 724.80 | 834.93 | 878.10 | 994.43 |
| SG4 | 17.92 | 47.16 | 117.38 | 178.33 | 245.91 | 302.59 | 369.07 | 418.12 | 482.42 | 541.70 | 604.23 |
| SG5 | 486.46 | 167.89 | 206.35 | 247.51 | 376.70 | 392.53 | 433.19 | 541.16 | 635.23 | 699.32 | 788.91 |
| SG6 | 15.00 | 49.99 | 127.21 | 192.44 | 267.93 | 337.23 | 412.91 | 473.19 | 550.39 | 623.72 | 692.87 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -71.11 | -21.06 | 43.72 | 105.56 | 179.87 | 239.52 | 302.79 | 353.61 | 420.60 | 481.70 | 540.64 |
| SG9 | 639.73 | 188.60 | 250.69 | 316.59 | 421.74 | 470.89 | 498.34 | 625.58 | 711.24 | 762.93 | 877.47 |
| SG10 | -8.09 | 33.60 | 112.95 | 179.56 | 245.20 | 312.02 | 373.97 | 430.46 | 490.06 | 549.28 | 611.34 |

TABLE E-22. CVP2, WATER 2, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 501.91 | 155.18 | 193.16 | 268.10 | 379.74 | 364.83 | 389.34 | 495.31 | 566.56 | 622.85 | 700.80 |
| SG12 | 9.33 | 83.51 | 198.65 | 283.98 | 389.37 | 495.60 | 608.89 | 696.30 | 810.90 | 919.40 | 1022.88 |
| SG13 | 618.26 | 324.70 | 261.84 | 248.48 | 462.80 | 470.40 | 517.69 | 639.51 | 701.96 | 792.23 | 865.45 |
| SG14 | 19.31 | 67.81 | 148.92 | 212.68 | 288.69 | 345.61 | 411.72 | 464.78 | 530.38 | 596.26 | 654.69 |
| SG15 | 137.58 | -10.72 | 25.16 | 65.24 | 139.79 | 226.86 | 241.30 | 317.42 | 342.38 | 391.58 | 456.43 |
| SG16 | -10.28 | 8.32 | 66.83 | 123.95 | 181.35 | 250.18 | 297.87 | 354.88 | 401.35 | 455.28 | 512.17 |
| SG17 | -310.53 | -409.34 | -359.19 | -188.91 | -132.52 | -170.29 | -130.82 | -24.49 | 17.65 | 89.56 | 154.33 |
| SG18 | -23.89 | 7.61 | 58.10 | 138.61 | 191.23 | 211.38 | 261.61 | 317.98 | 361.58 | 417.93 | 467.30 |
| SG19 | 193.27 | 92.28 | 127.45 | 130.97 | 261.33 | 261.91 | 296.47 | 407.67 | 448.36 | 488.50 | 548.49 |
| SG20 | 79.44 | 95.14 | 163.38 | 204.42 | 283.85 | 324.54 | 378.29 | 449.87 | 505.69 | 554.49 | 611.85 |
| SG21 | -19.61 | -24.60 | -66.98 | -105.10 | -133.94 | -160.41 | -197.76 | -224.43 | -260.32 | -291.03 | -319.93 |
| SG22 | 19.63 | 44.27 | 39.39 | 25.86 | 31.49 | 43.31 | 39.70 | 35.09 | 35.78 | 40.17 | 38.47 |
| SG23 | -44.38 | -23.86 | -57.91 | -90.10 | -110.37 | -124.17 | -152.29 | -174.67 | -203.54 | -223.83 | -245.67 |
| SG24 | -6.90 | 27.46 | 9.38 | -8.29 | -3.12 | 6.98 | -4.04 | -7.78 | -10.50 | -7.23 | -10.22 |
| SG25 | 165.72 | 201.79 | 179.98 | 169.71 | 157.29 | 160.07 | 148.45 | 133.55 | 118.77 | 110.67 | 100.14 |
| SG26 | -876.81 | -839.22 | -863.19 | -880.85 | -874.79 | -865.87 | -872.95 | -876.35 | -882.60 | -883.15 | -884.53 |
| SG27 | -168.76 | -173.36 | -217.72 | -257.87 | -283.13 | -294.85 | -320.32 | -345.57 | -370.93 | -390.57 | -411.35 |
| SG28 | 131.79 | 171.69 | 146.61 | 128.12 | 139.19 | 140.68 | 130.32 | 124.41 | 113.32 | 109.63 | 103.72 |
| SG29T | 18.45 | 47.26 | 138.49 | 213.01 | 299.69 | 378.74 | 462.83 | 526.46 | 611.39 | 693.75 | 769.97 |
| SG29-45 | 25.87 | 40.57 | 70.54 | 116.12 | 130.89 | 172.08 | 201.87 | 232.96 | 258.79 | 319.35 | 345.68 |
| SG29L | 20.87 | 28.16 | 9.49 | 8.75 | -14.94 | -23.91 | -35.89 | -47.08 | -58.88 | -66.36 | -74.96 |
| SG30T | 39.25 | 43.26 | 135.71 | 216.57 | 298.62 | 378.15 | 465.58 | 529.28 | 611.63 | 694.02 | 775.36 |
| SG30-45 | -13.52 | 8.81 | 38.10 | 69.62 | 104.93 | 150.06 | 184.71 | 215.46 | 242.75 | 294.37 | 328.33 |
| SG30L | -13.91 | 19.99 | -7.50 | -26.41 | -33.57 | -36.07 | -52.20 | -59.37 | -63.80 | -68.42 | -81.45 |
| SG31T | -38.11 | 74.29 | 167.65 | 250.42 | 339.51 | 419.09 | 504.83 | 571.07 | 658.26 | 738.79 | 819.21 |
| SG31-45 | -2.44 | 20.40 | 1.83 | -21.25 | -22.36 | -18.04 | -33.83 | -42.94 | -52.83 | -53.15 | -60.27 |
| SG31L | 14.42 | 54.27 | 89.27 | 116.10 | 167.14 | 207.72 | 254.80 | 275.57 | 304.69 | 348.03 | 388.30 |
| SG32T | -4.91 | 23.44 | 125.29 | 216.35 | 303.48 | 388.65 | 479.55 | 544.51 | 640.25 | 731.16 | 814.61 |
| SG32-45 | 105.62 | 120.26 | 145.71 | 179.66 | 227.67 | 259.04 | 309.46 | 330.46 | 359.39 | 403.36 | 436.98 |
| SG32L | 18.15 | 58.59 | 29.80 | 0.59 | -9.87 | -20.33 | -41.05 | -46.38 | -70.65 | -85.45 | -97.89 |
| SG33T | -5.45 | 4.24 | 78.74 | 158.75 | 240.96 | 319.15 | 409.31 | 477.12 | 569.35 | 659.79 | 744.62 |
| SG33-45 | 5.65 | 19.86 | 35.15 | 68.27 | 113.54 | 144.30 | 189.66 | 212.99 | 246.11 | 292.61 | 325.90 |
| SG33L | 3.80 | 23.13 | 2.59 | -27.32 | -45.66 | -53.72 | -75.33 | -91.69 | -113.95 | -125.51 | -139.12 |
| SG34T | 42.15 | 43.36 | 97.42 | 159.98 | 240.98 | 312.45 | 390.84 | 451.81 | 533.54 | 613.00 | 687.45 |
| SG34-45 | -11.09 | -6.63 | -5.20 | 30.22 | 80.20 | 101.09 | 137.05 | 157.07 | 191.37 | 223.53 | 253.73 |
| SG34L | 7.46 | 2.29 | -15.82 | -29.89 | -49.90 | -57.40 | -70.57 | -83.47 | -100.74 | -111.36 | -123.05 |
| SG35T | 30.40 | -0.75 | 63.51 | 136.01 | 207.95 | 279.63 | 362.87 | 426.05 | 511.18 | 595.62 | 675.57 |
| SG35-45 | 50.01 | 40.34 | 40.49 | 62.00 | 106.07 | 133.90 | 175.69 | 203.76 | 236.65 | 280.13 | 315.09 |
| SG35L | 31.13 | 49.66 | 1.71 | -32.03 | -28.82 | -24.59 | -37.41 | -44.85 | -49.03 | -44.43 | -45.46 |
| SG36T | -22.24 | 20.58 | 113.21 | 201.66 | 279.82 | 358.20 | 444.26 | 507.54 | 594.87 | 679.07 | 756.70 |
| SG36-45 | -30.24 | 12.82 | 58.55 | 100.32 | 157.35 | 185.19 | 232.16 | 265.60 | 307.78 | 357.66 | 397.09 |
| SG36L | -21.13 | 14.85 | -8.27 | -33.17 | -21.69 | -26.17 | -39.13 | -45.89 | -61.37 | -68.78 | -75.17 |
| SG37T | -75.91 | -25.91 | 75.50 | 166.22 | 251.26 | 331.44 | 420.57 | 485.23 | 571.94 | 654.18 | 733.34 |
| SG37-45 | 26.59 | 42.57 | 86.22 | 120.70 | 170.80 | 213.89 | 265.02 | 286.23 | 317.13 | 363.96 | 403.45 |
| SG37L | -14.70 | 11.57 | -4.21 | -24.41 | -24.03 | -15.63 | -28.72 | -35.78 | -43.17 | -40.61 | -46.93 |

TABLE E-23. CVP2, WATER 2, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.10 | -0.04 | -0.04 | 0.06 | -0.09 | 0.05 | -0.01 | -0.02 | 0.11 | 0.09 | -0.11 |
| Frame-1 | -77.39 | -308.77 | 22.48 | -32.12 | 76.13 | 401.16 | 85.37 | 40.71 | -149.14 | -4.22 | 76.96 |
| Frame-2 | -61.46 | -385.20 | -652.19 | -62.46 | -810.13 | 46.28 | 179.36 | -98.57 | -57.08 | -32.53 | -435.74 |
| Frame-3 | -131.00 | 81.17 | 267.10 | 456.33 | 75.18 | 74.63 | 32.84 | 106.77 | 30.77 | 271.30 | -1.21 |
| Frame-4 | 92.75 | -47.49 | 342.70 | -27.41 | 87.82 | 273.55 | 55.70 | 157.53 | 38.19 | -42.58 | 7.61 |
| Frame-5 | -96.34 | -141.79 | -34.23 | -38.86 | 150.62 | -34.41 | -47.14 | 151.39 | 125.14 | 49.47 | -65.95 |
| Frame-6 | 143.20 | -112.25 | 12.28 | 294.44 | 43.23 | 57.71 | 28.35 | 74.37 | 58.37 | -39.82 | 54.29 |
| Frame-7 | -101.08 | -222.58 | -30.83 | -219.79 | 152.15 | -22.55 | 90.68 | 507.61 | -94.35 | 30.14 | -81.60 |
| Frame-8 | 37.59 | -27.03 | -102.23 | -136.15 | -17.47 | -19.94 | -264.84 | 57.16 | -107.19 | -12.04 | 144.86 |
| Frame-9 | -49.17 | 780.43 | 214.02 | -306.87 | 13.68 | -56.52 | -1.29 | 73.76 | -116.90 | 108.57 | -17.26 |
| Frame-10 | -107.45 | -1293.00 | 45.42 | 37.32 | 292.04 | -166.71 | 6.74 | -53.44 | 50.79 | -3.84 | 65.27 |
| Frame-11 | 158.72 | -449.82 | -49.96 | -68.36 | -25.73 | 223.55 | -3.47 | -77.78 | 20.86 | 34.93 | 155.90 |
| Frame-12 | -937.06 | -50.71 | -152.20 | -84.16 | -25.58 | -107.50 | -90.71 | 23.51 | -103.45 | -21.71 | -80.43 |
| Hoop-1 | 336.76 | 379.08 | -72.87 | 101.67 | -63.68 | 59.41 | -78.39 | -113.29 | 241.29 | -36.13 | 171.48 |
| Hoop-2 | 202.36 | -50.51 | 498.66 | 75.95 | 812.90 | -59.54 | 175.32 | 570.92 | -59.54 | 827.52 | 52.46 |
| Hoop-3 | -5.04 | -13.81 | 198.38 | 258.03 | 536.78 | 10.74 | 973.59 | 438.63 | 61.60 | 417.63 | -34.85 |
| Hoop-4 | -8.27 | 446.74 | 208.14 | 287.70 | -37.87 | -0.88 | 71.27 | -71.17 | -48.97 | -13.83 | -41.57 |
| Hoop-5 | 905.04 | -179.84 | -134.25 | -88.67 | -33.95 | 197.65 | 155.72 | 1062.05 | -63.13 | -137.91 | 855.98 |
| Hoop-6 | 293.50 | 1233.71 | 755.33 | -27.83 | 520.70 | -96.17 | 22.05 | -153.42 | -33.37 | -72.16 | -116.48 |
| Hoop-7 | -54.11 | 60.90 | -165.49 | 382.27 | -150.87 | 931.78 | 248.98 | 358.50 | 513.68 | 597.73 | 743.73 |
| Hoop-8 | -117.28 | 235.79 | 588.85 | 0.42 | 412.32 | 279.95 | 294.60 | 0.42 | 301.99 | 66.62 | -21.65 |
| Hoop-9 | 568.08 | -73.79 | -62.91 | 354.12 | -37.53 | 747.58 | 997.61 | 1137.42 | -55.66 | -13.96 | 912.49 |
| Hoop-10 | 296.37 | 563.60 | 16.45 | -26.90 | 294.54 | 310.82 | -37.72 | -135.25 | -8.84 | 38.12 | -43.15 |
| Hoop-11 | -1.48 | -80.69 | -14.38 | 85.10 | 969.27 | -14.38 | -93.58 | 309.85 | 683.75 | 9.57 | -51.22 |
| Hoop-12 | -69.47 | 966.69 | 567.03 | 1207.35 | -13.95 | -1.00 | 58.20 | 631.86 | -58.36 | -21.36 | 24.90 |
| Hoop-13 | 849.73 | -32.48 | 12.00 | -39.90 | 19.41 | 34.24 | 308.48 | 219.58 | -62.13 | 212.16 | 56.47 |
| Hoop-14 | 653.48 | 357.49 | 964.13 | 98.56 | 683.00 | 68.97 | 520.19 | 9.78 | -12.42 | 586.89 | 372.28 |
| Long-1 | 6.03 | 696.74 | 415.47 | 1339.85 | 1928.24 | 2404.29 | 2796.79 | 3466.35 | 3893.17 | 4389.14 | 4536.73 |
| Long-2 | -16.26 | 344.69 | 1331.51 | 1687.43 | 1875.59 | 2240.33 | 2927.83 | 3326.70 | 3650.79 | 4169.62 | 4704.72 |
| Long-3 | -65.60 | 627.87 | 816.78 | 1021.74 | 1334.76 | 2342.71 | 2788.55 | 3305.78 | 3484.38 | 4487.12 | 4660.31 |
| Long-4 | 154.40 | 198.48 | 657.35 | 1024.34 | 1968.70 | 1943.20 | 3034.28 | 3442.01 | 3806.24 | 3998.31 | 4676.54 |
| Long-5 | 398.82 | 623.09 | 1035.50 | 1462.16 | 1834.78 | 2301.28 | 2830.85 | 3117.63 | 3764.58 | 4342.32 | 4670.01 |
| Long-6 | -33.17 | 680.75 | 787.10 | 1328.53 | 1714.62 | 2201.29 | 2986.97 | 3576.44 | 3662.86 | 4138.31 | 4727.90 |
| Long-7 | 11.97 | 318.46 | 1218.72 | 1083.99 | 1774.87 | 2432.44 | 2887.65 | 3466.01 | 3535.37 | 4409.00 | 4417.86 |
| Long-8 | 27.59 | 487.98 | 463.36 | 1377.83 | 1938.91 | 2032.65 | 2681.04 | 3472.74 | 3995.45 | 4214.52 | 4613.74 |
| SG1 | 538.87 | 515.89 | 511.09 | 379.11 | 653.18 | 293.27 | 533.63 | 557.66 | 291.98 | 404.76 | 580.75 |
| SG2 | 27.04 | 22.25 | 17.42 | 11.15 | 19.95 | -1.34 | 8.11 | 7.51 | -6.50 | -0.42 | -3.50 |
| SG3 | 624.31 | 590.43 | 525.32 | 390.25 | 641.34 | 281.45 | 459.32 | 503.87 | 187.19 | 218.36 | 457.80 |
| SG4 | 24.32 | 20.13 | 9.63 | 7.33 | 6.68 | -12.66 | -12.71 | -12.38 | -30.21 | -36.34 | -36.20 |
| SG5 | 349.73 | 343.18 | 257.09 | 151.04 | 341.89 | 118.00 | 212.17 | 268.11 | 40.24 | 83.01 | 236.65 |
| SG6 | 22.92 | 21.44 | 8.92 | 6.52 | 3.94 | -10.98 | -15.40 | -16.50 | -29.58 | -34.19 | -43.03 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -61.54 | -60.81 | -70.38 | -70.37 | -72.59 | -72.59 | -77.01 | -76.26 | -90.99 | -98.35 | -89.52 |
| SG9 | 517.30 | 473.61 | 430.60 | 288.63 | 536.74 | 194.15 | 373.60 | 401.03 | 102.79 | 132.69 | 351.23 |
| SG10 | 1.69 | -7.17 | -9.75 | -15.28 | -15.10 | -34.10 | -30.42 | -35.94 | -52.37 | -56.61 | -63.99 |

TABLE E-23. CVP2, WATER 2, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 371.58 | 358.15 | 286.17 | 171.88 | 359.44 | 133.05 | 242.79 | 287.25 | 51.99 | 79.85 | 257.57 |
| SG12 | 30.56 | 27.70 | 17.27 | 14.40 | 3.74 | -6.00 | -13.25 | -15.56 | -29.64 | -37.58 | -52.07 |
| SG13 | 496.64 | 515.29 | 439.77 | 318.35 | 525.98 | 433.32 | 470.40 | 554.11 | 290.34 | 264.36 | 596.71 |
| SG14 | 31.98 | 30.00 | 20.19 | 17.05 | 16.00 | 10.93 | 4.25 | 8.16 | -7.59 | -15.19 | -11.55 |
| SG15 | 112.93 | 111.69 | 112.94 | 59.55 | 141.86 | 32.84 | 95.68 | 90.82 | 0.10 | -19.94 | 62.60 |
| SG16 | -9.50 | -14.24 | -9.32 | -18.80 | -11.94 | -27.92 | -20.88 | -25.94 | -41.42 | -52.56 | -48.46 |
| SG17 | -323.37 | -338.35 | -349.85 | -378.93 | -326.63 | -409.79 | -362.48 | -372.42 | -430.61 | -450.82 | -387.87 |
| SG18 | -13.03 | -14.10 | -14.93 | -12.71 | -21.16 | -26.01 | -26.61 | -35.94 | -33.12 | -47.07 | -50.67 |
| SG19 | 154.97 | 170.89 | 155.72 | 119.46 | 186.43 | 155.72 | 169.98 | 203.05 | 120.21 | 93.95 | 202.89 |
| SG20 | 81.09 | 81.47 | 76.11 | 70.74 | 72.04 | 69.27 | 65.40 | 73.51 | 60.95 | 47.83 | 57.26 |
| SG21 | -2.77 | 25.35 | 53.28 | 73.26 | 101.76 | 136.72 | 164.86 | 193.31 | 223.67 | 258.64 | 272.33 |
| SG22 | 37.99 | 62.60 | 96.30 | 111.15 | 134.47 | 183.40 | 218.78 | 237.70 | 264.91 | 314.07 | 324.18 |
| SG23 | -31.10 | 6.20 | 45.07 | 68.36 | 95.34 | 150.17 | 183.20 | 212.03 | 255.95 | 303.08 | 312.76 |
| SG24 | 10.44 | 45.50 | 89.87 | 106.47 | 138.77 | 199.28 | 238.24 | 263.28 | 304.27 | 359.80 | 375.12 |
| SG25 | 197.09 | 225.56 | 237.67 | 265.35 | 254.93 | 350.40 | 376.13 | 398.51 | 427.32 | 398.87 | 419.31 |
| SG26 | -877.27 | -841.51 | -800.88 | -784.62 | -753.26 | -695.90 | -660.67 | -634.80 | -594.60 | -543.85 | -528.96 |
| SG27 | -163.20 | -132.04 | -98.14 | -83.67 | -50.83 | -7.00 | 29.22 | 55.35 | 88.25 | 132.55 | 153.24 |
| SG28 | 127.35 | 165.06 | 201.28 | 216.78 | 248.59 | 303.29 | 335.85 | 361.65 | 406.04 | 453.35 | 469.61 |
| SG29T | 25.79 | 0.47 | -28.03 | -40.48 | -45.45 | -81.52 | -90.36 | -109.91 | -127.44 | -141.11 | -165.09 |
| SG29-45 | 46.50 | 37.28 | 86.24 | 76.96 | 103.40 | 98.53 | 139.39 | 132.64 | 141.46 | 177.53 | 183.19 |
| SG29L | 23.28 | 43.39 | 108.55 | 123.17 | 144.87 | 187.83 | 232.02 | 264.34 | 293.44 | 339.93 | 375.83 |
| SG30T | 33.59 | 21.22 | 6.88 | -6.47 | -12.36 | -53.83 | -53.23 | -65.22 | -94.13 | -109.96 | -118.98 |
| SG30-45 | -5.67 | 1.85 | 27.51 | 18.88 | 28.90 | 45.61 | 68.41 | 67.23 | 77.64 | 108.87 | 109.48 |
| SG30L | -9.67 | 30.36 | 73.84 | 93.25 | 128.15 | 188.36 | 224.64 | 254.82 | 296.62 | 350.84 | 374.75 |
| SG31T | -23.82 | -23.21 | -38.71 | -16.18 | -61.47 | -34.52 | -65.90 | -74.40 | -53.19 | -73.67 | -107.41 |
| SG31-45 | 15.44 | 44.46 | 83.70 | 99.76 | 127.44 | 182.66 | 219.50 | 241.19 | 277.02 | 329.35 | 341.93 |
| SG31L | 21.21 | 46.23 | 54.14 | 72.45 | 46.65 | 83.53 | 86.23 | 97.42 | 118.17 | 133.71 | 127.29 |
| SG32T | 0.90 | -9.70 | -28.07 | -34.81 | -39.51 | -75.63 | -82.10 | -89.80 | -112.78 | -133.47 | -144.12 |
| SG32-45 | 99.31 | 120.09 | 125.84 | 127.87 | 129.92 | 141.60 | 152.19 | 164.40 | 167.02 | 184.26 | 198.73 |
| SG32L | 20.32 | 57.02 | 104.18 | 121.93 | 156.07 | 221.98 | 261.66 | 288.44 | 334.84 | 393.84 | 411.40 |
| SG33T | 3.02 | -13.45 | -37.59 | -50.66 | -54.81 | -80.60 | -95.19 | -102.09 | -130.85 | -151.55 | -147.46 |
| SG33-45 | 5.19 | 29.62 | 18.84 | 34.86 | 35.75 | 49.91 | 46.90 | 67.60 | 82.05 | 98.31 | 98.44 |
| SG33L | -3.09 | 36.59 | 81.73 | 97.13 | 133.29 | 181.35 | 224.09 | 254.31 | 293.14 | 347.58 | 356.11 |
| SG34T | 42.80 | 19.81 | -11.51 | -29.14 | -42.51 | -56.61 | -83.70 | -98.76 | -126.14 | -156.81 | -138.01 |
| SG34-45 | -9.42 | -0.32 | -23.90 | -15.17 | -16.75 | -4.41 | -15.22 | -0.04 | -9.60 | -10.21 | 14.67 |
| SG34L | 3.45 | 20.72 | 77.56 | 74.62 | 118.06 | 156.19 | 197.31 | 232.04 | 254.27 | 313.53 | 314.37 |
| SG35T | 14.87 | 7.24 | -10.84 | -19.12 | -19.86 | -55.71 | -59.67 | -68.25 | -92.25 | -109.83 | -107.50 |
| SG35-45 | 39.46 | 59.25 | 61.99 | 65.65 | 68.49 | 91.34 | 96.46 | 109.35 | 120.14 | 137.05 | 163.61 |
| SG35L | 16.07 | 54.87 | 96.60 | 113.09 | 147.30 | 210.82 | 246.49 | 274.13 | 319.28 | 374.20 | 393.72 |
| SG36T | -16.94 | -20.99 | -39.63 | -36.23 | -50.14 | -69.43 | -82.55 | -91.55 | -100.49 | -123.36 | -132.24 |
| SG36-45 | -2.75 | 12.73 | 5.92 | 15.15 | 8.35 | 38.73 | 30.44 | 46.33 | 66.28 | 71.50 | 96.57 |
| SG36L | -3.93 | 28.93 | 60.02 | 75.58 | 106.87 | 157.21 | 186.13 | 211.22 | 253.70 | 297.38 | 314.58 |
| SG37T | -71.91 | -79.87 | -88.94 | -96.32 | -103.68 | -127.40 | -134.49 | -143.06 | -156.34 | -172.80 | -186.34 |
| SG37-45 | 29.14 | 49.59 | 60.55 | 64.26 | 56.14 | 69.24 | 81.93 | 92.41 | 98.79 | 115.47 | 116.58 |
| SG37L | 2.80 | 31.35 | 72.58 | 88.27 | 117.76 | 172.49 | 210.12 | 231.57 | 267.58 | 320.37 | 333.60 |

TABLE E-24. CVP2, WATER 1, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.11 | 1.07 | 2.24 | 3.12 | 4.02 | 5.07 | 6.00 | 7.11 | 8.17 | 9.18 | 10.14 |
| Frame-1 | 660.51 | 165.10 | 460.14 | 576.09 | 859.98 | 938.83 | 1218.89 | 1414.63 | 1667.56 | 1892.49 | 2130.27 |
| Frame-2 | 674.69 | 249.32 | 567.96 | 439.59 | 650.98 | 883.36 | 1238.64 | 1562.98 | 1640.87 | 1812.06 | 2088.23 |
| Frame-3 | 221.49 | 204.31 | 387.77 | 595.45 | 943.02 | 1026.09 | 1321.78 | 1452.65 | 1659.42 | 1831.46 | 2088.43 |
| Frame-4 | -120.19 | 227.06 | 450.20 | 612.96 | 857.64 | 1005.70 | 1272.42 | 1439.24 | 1637.43 | 1823.11 | 2090.61 |
| Frame-5 | 644.66 | 217.68 | 332.46 | 593.82 | 852.62 | 971.62 | 1249.03 | 1414.40 | 1614.63 | 1828.20 | 2071.89 |
| Frame-6 | 401.60 | 243.60 | 402.60 | 665.91 | 816.28 | 1066.37 | 1294.40 | 1396.40 | 1685.64 | 1845.52 | 2035.20 |
| Frame-7 | 840.26 | 219.03 | 355.90 | 656.08 | 769.44 | 1072.59 | 1266.37 | 1352.00 | 1811.86 | 1912.60 | 2076.59 |
| Frame-8 | 651.27 | 193.85 | 299.53 | 620.09 | 809.04 | 1060.25 | 1258.98 | 1409.86 | 1659.31 | 1863.17 | 2181.90 |
| Frame-9 | 2748.67 | 281.13 | 431.08 | 698.70 | 829.47 | 917.28 | 1316.24 | 1394.97 | 1674.66 | 1857.48 | 2228.06 |
| Frame-10 | 227.41 | 272.72 | 480.05 | 614.75 | 789.98 | 1110.16 | 1314.13 | 1523.62 | 1578.59 | 1865.17 | 2118.57 |
| Frame-11 | 607.33 | 249.61 | 372.00 | 640.45 | 850.56 | 1055.45 | 1285.23 | 1443.77 | 1679.05 | 1862.85 | 2132.68 |
| Frame-12 | 492.49 | 253.38 | 388.17 | 723.04 | 716.43 | 1066.51 | 1296.32 | 1415.94 | 1688.16 | 1907.63 | 2162.89 |
| Hoop-1 | -23.27 | 1027.72 | 2190.79 | 2637.01 | 3840.38 | 4643.70 | 5165.52 | 6342.65 | 7061.00 | 8127.39 | 8946.87 |
| Hoop-2 | 113.88 | 863.65 | 2310.79 | 2675.46 | 3325.80 | 4545.62 | 5371.27 | 6519.65 | 7291.01 | 7846.39 | 8789.46 |
| Hoop-3 | 724.47 | 840.30 | 2069.72 | 2627.17 | 3223.41 | 4272.51 | 5049.45 | 5950.32 | 7235.74 | 8076.54 | 8806.13 |
| Hoop-4 | 393.10 | 946.25 | 1516.01 | 2779.18 | 3609.68 | 4745.86 | 5561.65 | 5945.82 | 7449.61 | 8229.14 | 8761.90 |
| Hoop-5 | -57.66 | 1239.06 | 2005.06 | 2668.66 | 3551.30 | 4148.04 | 5183.96 | 6624.11 | 7085.49 | 8030.93 | 9176.28 |
| Hoop-6 | 988.05 | 1158.10 | 2007.83 | 3093.70 | 3612.72 | 4496.06 | 5406.75 | 6466.41 | 6904.17 | 8112.95 | 9064.28 |
| Hoop-7 | -172.79 | 783.97 | 1841.17 | 2604.15 | 3571.78 | 4559.96 | 5073.04 | 6359.68 | 7057.10 | 8109.54 | 9048.06 |
| Hoop-8 | 868.44 | 883.15 | 2052.56 | 2788.09 | 3325.36 | 4568.08 | 5392.95 | 6400.19 | 7156.44 | 7776.56 | 9291.13 |
| Hoop-9 | 684.12 | 937.97 | 2098.21 | 2451.75 | 3443.81 | 4527.65 | 4994.60 | 6286.91 | 7231.95 | 7961.29 | 8671.26 |
| Hoop-10 | -117.19 | 1293.27 | 2349.54 | 2855.16 | 3810.81 | 3904.33 | 5864.79 | 6001.46 | 6996.96 | 8429.53 | 8537.05 |
| Hoop-11 | 136.68 | 1321.23 | 2126.07 | 2562.63 | 3375.31 | 4638.60 | 4436.87 | 6184.69 | 7693.77 | 8309.60 | 9522.79 |
| Hoop-12 | -63.92 | 716.98 | 1758.61 | 2417.31 | 3631.45 | 4245.38 | 5438.04 | 6177.68 | 7034.88 | 7910.50 | 8649.89 |
| Hoop-13 | 560.60 | 1175.93 | 2280.32 | 2562.01 | 3948.60 | 4526.41 | 5179.77 | 6120.78 | 6964.53 | 8049.11 | 8292.95 |
| Hoop-14 | 535.09 | 327.93 | 1800.12 | 2569.52 | 3627.82 | 4322.88 | 5248.69 | 6365.39 | 7296.19 | 7897.74 | 9065.97 |
| Long-1 | -3.46 | 657.51 | 499.63 | 1334.97 | 1879.97 | 2381.98 | 2797.98 | 3489.25 | 3671.28 | 4219.47 | 4581.82 |
| Long-2 | 51.79 | 202.47 | 1247.41 | 1652.02 | 1920.93 | 2363.30 | 2908.39 | 3226.17 | 3599.76 | 4280.19 | 4608.72 |
| Long-3 | 115.81 | 775.69 | 515.92 | 1338.49 | 1953.94 | 1999.93 | 2761.21 | 3112.24 | 3844.72 | 4109.39 | 4739.84 |
| Long-4 | 1.48 | 275.55 | 577.70 | 1615.14 | 1453.94 | 2275.00 | 2957.20 | 3078.93 | 3631.29 | 4185.49 | 4724.26 |
| Long-5 | 276.56 | 672.18 | 768.00 | 1506.36 | 2085.71 | 2381.84 | 2875.20 | 3424.85 | 3865.27 | 4300.37 | 4665.22 |
| Long-6 | -23.40 | 322.53 | 609.72 | 1426.17 | 1893.44 | 2201.51 | 2666.74 | 3221.06 | 3601.75 | 4127.31 | 4841.58 |
| Long-7 | 22.78 | 382.13 | 1027.41 | 1649.89 | 2061.28 | 2269.22 | 3278.20 | 3239.19 | 3887.47 | 3990.81 | 4596.93 |
| Long-8 | -45.03 | 638.09 | 713.10 | 1237.39 | 1696.79 | 2526.47 | 2729.03 | 3106.26 | 3588.08 | 4325.29 | 4578.04 |
| SG1 | 682.36 | 347.49 | 383.94 | 330.50 | 533.39 | 572.65 | 675.54 | 792.84 | 864.45 | 919.19 | 987.01 |
| SG2 | 16.40 | 51.75 | 119.52 | 169.74 | 237.52 | 294.47 | 348.68 | 416.00 | 477.52 | 533.00 | 584.98 |
| SG3 | 801.91 | 448.81 | 398.59 | 332.73 | 484.55 | 523.10 | 616.32 | 705.13 | 759.11 | 815.75 | 866.30 |
| SG4 | 0.05 | 44.92 | 107.00 | 150.43 | 211.18 | 271.98 | 323.32 | 387.16 | 440.96 | 497.67 | 550.18 |
| SG5 | 532.69 | 235.43 | 169.66 | 225.73 | 303.40 | 338.44 | 445.80 | 512.06 | 571.46 | 635.60 | 706.32 |
| SG6 | 10.21 | 53.32 | 124.24 | 176.92 | 237.53 | 302.38 | 363.57 | 436.39 | 504.70 | 572.13 | 633.85 |
| SG7 | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## |
| SG8 | -71.86 | -21.80 | 42.97 | 98.17 | 154.85 | 214.47 | 270.43 | 334.51 | 396.31 | 452.99 | 514.09 |
| SG9 | 704.22 | 330.78 | 292.17 | 240.11 | 400.33 | 424.88 | 524.61 | 591.12 | 671.00 | 712.16 | 762.19 |
| SG10 | -14.36 | 31.39 | 105.00 | 150.56 | 216.24 | 275.27 | 328.99 | 389.18 | 452.79 | 501.87 | 550.57 |

TABLE E-24. CVP2, WATER 1, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG11 | 570.62 | 233.56 | 169.22 | 207.01 | 293.56 | 322.53 | 417.80 | 467.49 | 520.97 | 567.85 | 625.80 |
| SG12 | 5.50 | 89.06 | 197.45 | 265.64 | 350.91 | 452.61 | 543.75 | 652.83 | 754.48 | 852.91 | 945.21 |
| SG13 | 717.44 | 363.69 | 193.81 | 326.30 | 440.14 | 507.37 | 610.96 | 682.87 | 733.10 | 803.10 | 908.47 |
| SG14 | 20.88 | 73.54 | 146.58 | 198.96 | 259.16 | 319.64 | 376.10 | 441.70 | 501.64 | 560.92 | 618.60 |
| SG15 | 187.80 | 30.27 | 37.17 | 62.78 | 180.14 | 181.89 | 261.13 | 282.81 | 368.27 | 389.92 | 437.45 |
| SG16 | 4.32 | 13.07 | 65.48 | 110.47 | 181.35 | 219.62 | 277.77 | 325.25 | 392.37 | 435.99 | 487.43 |
| SG17 | -250.23 | -372.45 | -343.43 | -314.17 | -234.05 | -193.67 | -112.92 | -71.94 | 15.80 | 63.94 | 123.07 |
| SG18 | -12.71 | 12.00 | 60.26 | 96.65 | 145.78 | 190.30 | 239.09 | 287.90 | 343.48 | 391.14 | 439.73 |
| SG19 | 245.64 | 128.55 | 79.71 | 167.56 | 253.01 | 273.72 | 352.36 | 399.20 | 445.03 | 494.60 | 561.93 |
| SG20 | 91.46 | 108.46 | 144.86 | 204.56 | 266.85 | 308.06 | 367.98 | 424.03 | 481.29 | 534.52 | 591.45 |
| SG21 | -19.42 | -26.27 | -31.26 | -14.98 | -17.20 | -23.31 | -22.20 | -28.86 | -33.85 | -37.19 | -39.59 |
| SG22 | 34.54 | 33.61 | 68.97 | 123.67 | 149.75 | 178.37 | 213.05 | 234.36 | 248.41 | 274.63 | 305.38 |
| SG23 | -38.76 | -26.36 | -9.06 | 28.80 | 34.98 | 41.85 | 56.56 | 64.69 | 65.42 | 71.14 | 84.93 |
| SG24 | 18.05 | 25.76 | 58.51 | 120.13 | 151.68 | 183.79 | 219.97 | 246.01 | 264.81 | 291.38 | 331.98 |
| SG25 | 151.65 | 179.68 | 205.03 | 259.16 | 270.90 | 284.02 | 307.44 | 320.87 | 325.48 | 347.49 | 372.35 |
| SG26 | -864.58 | -842.88 | -814.85 | -757.12 | -727.89 | -702.89 | -668.76 | -639.03 | -617.09 | -590.06 | -553.47 |
| SG27 | -168.59 | -181.02 | -180.63 | -147.38 | -145.48 | -141.05 | -128.27 | -123.89 | -124.43 | -117.32 | -100.87 |
| SG28 | 139.20 | 157.68 | 182.80 | 240.46 | 273.72 | 297.38 | 329.93 | 352.15 | 363.94 | 389.08 | 426.78 |
| SG29T | 25.47 | 51.13 | 123.35 | 175.18 | 242.01 | 317.49 | 380.65 | 463.66 | 542.59 | 615.24 | 685.43 |
| SG29-45 | 60.61 | 30.33 | 115.78 | 168.17 | 206.33 | 262.24 | 314.85 | 375.96 | 414.31 | 471.81 | 522.22 |
| SG29L | 36.89 | 30.02 | 77.67 | 102.51 | 119.05 | 134.65 | 168.39 | 183.50 | 205.59 | 236.62 | 262.77 |
| SG30T | 24.49 | 39.53 | 117.80 | 174.17 | 243.10 | 318.14 | 379.64 | 459.37 | 534.84 | 608.36 | 676.17 |
| SG30-45 | 9.69 | 1.20 | 56.98 | 118.20 | 170.65 | 214.83 | 262.11 | 324.62 | 358.56 | 407.62 | 460.40 |
| SG30L | 25.23 | 49.04 | 72.42 | 105.10 | 118.20 | 136.31 | 174.99 | 198.12 | 223.70 | 248.32 | 280.19 |
| SG31T | -44.58 | 87.76 | 182.23 | 230.78 | 296.68 | 366.59 | 431.52 | 516.90 | 603.19 | 680.04 | 742.19 |
| SG31-45 | 18.97 | 11.68 | 40.70 | 92.75 | 115.18 | 138.36 | 166.51 | 186.41 | 202.23 | 219.04 | 250.62 |
| SG31L | 12.10 | 56.14 | 105.06 | 156.82 | 220.02 | 263.97 | 298.55 | 365.98 | 396.59 | 446.31 | 494.68 |
| SG32T | -13.33 | 29.35 | 110.81 | 176.92 | 248.43 | 326.59 | 395.67 | 478.35 | 565.90 | 646.53 | 720.42 |
| SG32-45 | 108.23 | 122.70 | 161.08 | 218.21 | 278.86 | 318.92 | 356.43 | 415.64 | 447.50 | 500.74 | 551.20 |
| SG32L | 56.04 | 75.77 | 103.78 | 135.16 | 143.05 | 160.61 | 188.85 | 212.94 | 223.38 | 239.36 | 266.40 |
| SG33T | -11.34 | 2.12 | 62.54 | 119.61 | 183.23 | 254.42 | 320.51 | 406.67 | 490.29 | 572.31 | 643.70 |
| SG33-45 | -1.45 | 30.87 | 63.15 | 113.31 | 169.08 | 196.81 | 240.82 | 309.13 | 348.90 | 411.14 | 459.40 |
| SG33L | 23.93 | 41.07 | 65.05 | 92.81 | 104.69 | 122.76 | 148.53 | 159.87 | 172.89 | 184.31 | 214.72 |
| SG34T | 48.63 | 34.66 | 75.34 | 124.30 | 180.66 | 248.80 | 303.05 | 384.96 | 457.49 | 533.77 | 598.75 |
| SG34-45 | -23.67 | -17.22 | 11.42 | 53.33 | 97.88 | 114.08 | 153.40 | 205.96 | 246.04 | 297.24 | 334.55 |
| SG34L | 10.71 | 9.74 | 37.48 | 68.76 | 85.10 | 95.86 | 135.90 | 136.20 | 161.04 | 167.84 | 198.34 |
| SG35T | 38.54 | 8.50 | 54.90 | 99.90 | 157.97 | 223.20 | 283.62 | 362.85 | 441.72 | 516.58 | 584.88 |
| SG35-45 | 57.26 | 42.35 | 63.89 | 115.50 | 167.14 | 198.17 | 242.41 | 310.63 | 343.49 | 405.73 | 454.41 |
| SG35L | 49.12 | 46.19 | 58.92 | 108.13 | 130.89 | 155.34 | 191.69 | 218.11 | 239.28 | 270.05 | 312.48 |
| SG36T | -19.69 | 31.88 | 109.84 | 162.85 | 229.14 | 300.14 | 364.10 | 444.21 | 525.96 | 600.45 | 665.68 |
| SG36-45 | -26.05 | 20.56 | 75.18 | 145.75 | 202.33 | 234.49 | 286.95 | 356.95 | 385.53 | 453.07 | 507.80 |
| SG36L | -19.92 | 1.06 | 29.21 | 78.25 | 100.30 | 121.13 | 149.40 | 170.53 | 177.23 | 195.78 | 229.77 |
| SG37T | -70.94 | -12.94 | 74.28 | 133.31 | 200.61 | 276.06 | 342.09 | 424.61 | 504.95 | 581.06 | 648.04 |
| SG37-45 | 27.76 | 40.16 | 89.96 | 150.96 | 215.35 | 264.55 | 300.50 | 367.35 | 394.17 | 445.37 | 496.85 |
| SG37L | 3.78 | -2.17 | 31.49 | 87.44 | 112.28 | 139.44 | 169.49 | 190.69 | 206.50 | 225.91 | 258.50 |

TABLE E-25. CVP3, AIR 1 LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.01 | 0.89 | 1.76 | 2.64 | 3.52 | 4.40 | 5.28 | 6.17 | 7.04 | 7.92 | 8.80 |
| Frame-1 | -34.94 | 190.83 | 378.58 | 542.26 | 735.18 | 912.58 | 1087.25 | 1271.65 | 1458.09 | 1627.97 | 1812.27 |
| Frame-2 | -38.75 | 160.93 | 369.12 | 540.88 | 723.03 | 906.88 | 1074.10 | 1285.89 | 1468.44 | 1656.88 | 1823.36 |
| Frame-3 | -48.53 | 179.28 | 379.54 | 538.63 | 726.87 | 915.08 | 1097.14 | 1311.21 | 1456.95 | 1642.82 | 1824.19 |
| Frame-4 | 11.48 | 168.67 | 379.18 | 538.00 | 751.95 | 919.33 | 1089.17 | 1267.01 | 1441.72 | 1646.40 | 1810.35 |
| Frame-5 | 22.09 | 181.26 | 373.07 | 537.32 | 715.34 | 903.68 | 1096.20 | 1272.59 | 1445.84 | 1652.53 | 1818.46 |
| Frame-6 | 16.51 | 179.17 | 372.35 | 540.04 | 714.52 | 905.94 | 1116.75 | 1259.03 | 1455.98 | 1629.80 | 1833.16 |
| Frame-7 | 27.23 | 182.08 | 352.85 | 537.36 | 737.40 | 915.01 | 1115.82 | 1265.15 | 1465.90 | 1650.68 | 1787.09 |
| Frame-8 | -33.03 | 147.46 | 386.89 | 548.82 | 726.27 | 905.40 | 1088.78 | 1279.25 | 1441.91 | 1638.54 | 1814.37 |
| Frame-9 | 43.19 | 179.37 | 364.75 | 564.09 | 730.29 | 901.68 | 1107.05 | 1260.31 | 1448.15 | 1618.09 | 1815.79 |
| Frame-10 | -2.05 | 175.07 | 352.59 | 580.01 | 709.32 | 904.01 | 1115.01 | 1238.39 | 1449.33 | 1661.53 | 1785.77 |
| Frame-11 | -13.84 | 184.55 | 358.06 | 539.93 | 708.33 | 908.83 | 1103.34 | 1274.33 | 1458.66 | 1623.92 | 1839.79 |
| Frame-12 | 16.96 | 185.19 | 345.16 | 539.69 | 744.63 | 906.29 | 1117.18 | 1266.02 | 1433.61 | 1642.26 | 1830.00 |
| Hoop-1 | 45.47 | 768.14 | 1540.31 | 2367.47 | 3088.47 | 3850.07 | 4612.28 | 5417.33 | 6198.30 | 6966.25 | 7748.17 |
| Hoop-2 | 36.28 | 771.11 | 1547.31 | 2326.97 | 3069.18 | 3851.27 | 4648.42 | 5402.72 | 6194.79 | 6975.86 | 7723.77 |
| Hoop-3 | -73.01 | 760.53 | 1546.52 | 2335.86 | 3087.08 | 3885.82 | 4657.10 | 5390.22 | 6191.62 | 6980.58 | 7744.41 |
| Hoop-4 | 5.60 | 772.19 | 1547.88 | 2375.26 | 3067.95 | 3842.25 | 4635.70 | 5579.68 | 6203.13 | 6959.77 | 7723.04 |
| Hoop-5 | -70.94 | 787.30 | 1554.08 | 2324.35 | 3091.44 | 3855.03 | 4646.63 | 5398.56 | 6197.82 | 6995.79 | 7729.58 |
| Hoop-6 | -41.42 | 768.37 | 1553.97 | 2324.62 | 3082.80 | 3855.92 | 4637.05 | 5392.83 | 6200.23 | 6982.29 | 7736.31 |
| Hoop-7 | 59.09 | 791.41 | 1552.81 | 2319.53 | 3094.02 | 3866.83 | 4636.62 | 5408.74 | 6198.97 | 6967.82 | 7761.97 |
| Hoop-8 | 10.42 | 760.81 | 1555.33 | 2305.48 | 3085.21 | 3879.65 | 4652.03 | 5424.40 | 6160.62 | 6955.14 | 7734.17 |
| Hoop-9 | -245.47 | 768.85 | 1552.76 | 2334.62 | 3085.79 | 3860.55 | 4637.13 | 5395.56 | 6187.27 | 6869.56 | 7445.86 |
| Hoop-10 | 40.08 | 767.14 | 1564.72 | 2327.71 | 3085.43 | 3857.62 | 4653.31 | 5405.61 | 6194.69 | 6990.47 | 7698.66 |
| Hoop-11 | -85.18 | 794.54 | 1558.09 | 2349.07 | 3097.78 | 3863.10 | 4650.54 | 5399.26 | 6183.63 | 6998.82 | 7721.02 |
| Hoop-12 | 242.19 | 781.65 | 1539.79 | 2325.49 | 3022.39 | 3860.15 | 4646.01 | 5402.22 | 6151.63 | 6982.05 | 7744.97 |
| Hoop-13 | -32.30 | 761.77 | 1541.00 | 2320.00 | 3091.74 | 3841.22 | 4650.05 | 5399.53 | 6194.15 | 6995.64 | 7714.74 |
| Hoop-14 | -25.41 | 773.57 | 1550.35 | 2319.51 | 3088.82 | 3865.53 | 4642.24 | 5396.76 | 6122.30 | 6965.67 | 7734.28 |
| Long-1 | 9.41 | 12.95 | 5.87 | 5.87 | 3.50 | 8.23 | 3.50 | 3.51 | 4.69 | 7.05 | 7.05 |
| Long-2 | 24.61 | 29.47 | 30.69 | 30.69 | 27.04 | 25.83 | 28.26 | 30.69 | 27.04 | 28.26 | 25.83 |
| Long-3 | -7.40 | -7.40 | -3.67 | -2.42 | -1.18 | 0.07 | -2.42 | 2.56 | 2.56 | 3.80 | -4.91 |
| Long-4 | -15.12 | -12.67 | 2.03 | -10.22 | -5.32 | 0.80 | 21.62 | -2.87 | 9.37 | 6.92 | -10.22 |
| Long-5 | 29.48 | -7.72 | -10.12 | 23.48 | 10.28 | -64.12 | -62.92 | -35.32 | 136.28 | -18.52 | -34.12 |
| Long-6 | -52.16 | -2.01 | -2.01 | 10.23 | 1.66 | 2.89 | 2.89 | 0.44 | -4.45 | 1.66 | 4.11 |
| Long-7 | -2.52 | -1.32 | 5.89 | -6.12 | -6.12 | 37.13 | 32.33 | 41.95 | -9.73 | 37.14 | -13.33 |
| Long-8 | 11.33 | 17.49 | -5.90 | -7.13 | 1.48 | -12.06 | 1.48 | -7.13 | -9.60 | 12.57 | 8.87 |
| SG1 | -27.68 | -108.01 | -132.40 | -109.83 | -86.19 | -45.29 | -11.18 | 13.39 | 68.78 | 97.57 | 113.17 |
| SG2 | 26.57 | -74.14 | -100.09 | -72.52 | -44.24 | 7.31 | 47.30 | 80.49 | 138.84 | 170.94 | 185.81 |
| SG3 | 427.80 | 340.09 | 359.55 | 414.21 | 472.82 | 515.09 | 556.90 | 588.97 | 649.61 | 688.71 | 715.96 |
| SG4 | 338.59 | 207.75 | 213.43 | 263.05 | 312.45 | 369.56 | 423.39 | 463.41 | 527.73 | 572.29 | 600.77 |
| SG5 | 53.48 | -45.96 | -64.24 | -34.45 | -0.87 | 55.92 | 97.75 | 136.55 | 190.55 | 224.96 | 240.61 |
| SG6 | 17.16 | 48.98 | 89.69 | 132.77 | 176.24 | 222.48 | 267.20 | 311.91 | 356.69 | 401.07 | 444.02 |
| SG7 | 238.98 | 79.79 | 69.58 | 99.39 | 129.76 | 199.68 | 255.04 | 282.72 | 338.67 | 369.86 | 381.99 |
| SG8 | 47.70 | -25.42 | -29.04 | -0.70 | 37.36 | 91.31 | 129.68 | 169.22 | 214.12 | 248.74 | 267.22 |
| SG9 | 20.41 | 51.82 | 94.81 | 141.83 | 190.15 | 241.43 | 289.91 | 339.11 | 387.27 | 435.40 | 480.46 |
| SG10 | 3.98 | -1.30 | -10.85 | -22.88 | -39.18 | -54.01 | -66.63 | -84.02 | -102.71 | -115.66 | -134.45 |
| SG11 | 7.67 | -8.50 | -26.33 | -43.41 | -61.61 | -79.07 | -92.11 | -106.06 | -120.41 | -130.88 | -142.65 |

TABLE E-25. CVP3, AIR 1 LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -20.19 | -15.42 | -17.71 | -18.17 | -15.74 | -14.68 | -17.62 | -17.53 | -18.17 | -18.72 | -21.25 |
| SG13 | -13.19 | -24.57 | -37.13 | -45.47 | -50.88 | -55.33 | -57.39 | -62.29 | -62.48 | -62.02 | -65.51 |
| SG14 | -31.62 | -32.17 | -42.08 | -50.47 | -55.33 | -61.44 | -71.84 | -76.97 | -84.36 | -91.20 | -97.72 |
| SG15 | 4.96 | 17.02 | 17.62 | 15.97 | 13.95 | 10.93 | 11.38 | 11.29 | 9.37 | 11.61 | 12.44 |
| SG16 | 153.61 | 151.60 | 145.37 | 141.32 | 139.82 | 138.14 | 132.76 | 130.09 | 126.35 | 123.55 | 120.35 |
| SG17 | 33909.4 | 34007.0 | 34315.9 | 34630.2 | 34792.6 | 34390.0 | 34621.9 | 34650.8 | 34766.1 | 35257.5 | 36031.9 |
| SG18 | 14.75 | 3.10 | -14.11 | -32.74 | -52.25 | -72.26 | -92.49 | -111.16 | -132.33 | -152.61 | -172.91 |
| SG19 | 22.14 | 0.98 | -28.11 | -58.29 | -88.29 | -118.68 | -149.77 | -178.10 | -209.22 | -238.12 | -266.86 |
| SG20 | 81.40 | 81.04 | 77.72 | 74.77 | 74.23 | 72.02 | 67.78 | 66.12 | 66.13 | 64.10 | 60.79 |
| SG21 | 31.12 | 23.95 | 13.27 | 2.95 | -6.44 | -16.38 | -29.83 | -39.21 | -50.27 | -60.58 | -72.00 |
| SG22 | -47.49 | -47.45 | -52.59 | -54.24 | -52.91 | -49.43 | -46.67 | -43.91 | -35.83 | -30.46 | -29.45 |
| SG23 | -16.23 | -36.43 | -65.82 | -96.10 | -127.15 | -160.03 | -191.60 | -222.61 | -255.69 | -284.15 | -313.93 |
| SG24 | 3.43 | -2.81 | -9.61 | -14.20 | -17.32 | -17.32 | -20.81 | -21.91 | -23.56 | -23.56 | -26.32 |
| SG25 | 6.58 | 2.26 | -4.55 | -12.56 | -19.65 | -27.94 | -37.65 | -45.15 | -52.15 | -60.20 | -68.31 |
| SG26 | 41.02 | 34.96 | 23.93 | 16.94 | 13.08 | 10.32 | 7.75 | 7.01 | 7.20 | 6.09 | 3.70 |
| SG27 | 28.37 | 27.18 | 24.29 | 21.16 | 19.92 | 17.85 | 14.08 | 11.96 | 10.22 | 7.55 | 4.75 |
| SG28 | -18.61 | -9.78 | -11.99 | -14.20 | -19.35 | -25.24 | -28.18 | -28.91 | -31.86 | -31.12 | -31.12 |
| SG29 | 39.26 | 38.53 | 36.51 | 33.93 | 33.38 | 32.10 | 30.08 | 28.60 | 29.71 | 28.06 | 26.41 |
| SG30 | -30.80 | -35.35 | -46.79 | -57.81 | -69.66 | -81.52 | -90.10 | -97.99 | -106.96 | -114.63 | -121.72 |
| SG31 | -22.92 | -28.94 | -37.98 | -48.45 | -68.61 | -83.27 | -95.75 | -109.88 | -125.00 | -138.36 | -155.46 |
| SG32-T | 10.59 | 93.66 | 175.53 | 253.53 | 329.16 | 400.86 | 472.44 | 540.57 | 607.16 | 672.41 | 738.06 |
| SG32-45 | -23.44 | 11.47 | 42.39 | 77.16 | 115.24 | 149.81 | 186.26 | 220.56 | 255.12 | 289.12 | 323.84 |
| SG32-L | 9.37 | 7.13 | -3.88 | -7.96 | -3.97 | -1.49 | -5.44 | -5.07 | -6.26 | -8.69 | -13.83 |
| SG33-T | 27.17 | 111.63 | 192.73 | 268.81 | 341.82 | 412.36 | 481.77 | 548.96 | 613.46 | 678.50 | 744.44 |
| SG33-45 | -22.00 | 5.03 | 29.17 | 57.26 | 87.01 | 114.33 | 143.10 | 170.99 | 200.20 | 228.29 | 254.39 |
| SG33-T | 38.43 | 19.54 | 9.64 | 4.68 | 4.87 | 5.97 | 0.46 | -2.29 | -4.49 | -8.53 | -16.23 |
| SG34-T | 7.00 | 97.62 | 189.51 | 278.63 | 364.32 | 448.19 | 530.33 | 609.87 | 688.81 | 767.50 | 845.17 |
| SG34-45 | 2.84 | 48.35 | 88.91 | 127.45 | 164.04 | 201.83 | 236.09 | 270.35 | 307.23 | 342.80 | 376.39 |
| SG34-L | 32.93 | 27.99 | 18.63 | 7.44 | -1.55 | -12.74 | -24.84 | -35.48 | -45.02 | -56.40 | -67.78 |
| SG35-T | 46.91 | 113.40 | 174.19 | 231.80 | 291.28 | 352.94 | 418.14 | 483.43 | 547.90 | 616.12 | 684.78 |
| SG35-45 | 59.59 | 93.57 | 119.83 | 145.16 | 172.72 | 201.76 | 230.39 | 260.67 | 292.28 | 324.79 | 356.41 |
| SG35-L | 76.52 | 70.46 | 61.27 | 51.16 | 43.45 | 33.53 | 21.58 | 11.65 | 2.83 | -8.01 | -19.22 |
| SG36-T | 0.67 | 100.55 | 195.47 | 283.57 | 369.16 | 450.54 | 530.18 | 606.87 | 679.27 | 752.53 | 824.03 |
| SG36-45 | 25.18 | 53.12 | 91.38 | 125.77 | 160.78 | 198.00 | 233.12 | 270.25 | 303.16 | 334.91 | 365.03 |
| SG36-L | 29.59 | 12.51 | 6.95 | 2.45 | 0.11 | -2.69 | -6.55 | -7.70 | -8.85 | -14.22 | -19.32 |
| SG37-T | 418.69 | 458.17 | 495.78 | 532.55 | 570.90 | 610.54 | 653.50 | 698.92 | 744.44 | 793.74 | 844.32 |
| SG37-45 | 129.57 | 158.95 | 179.51 | 194.72 | 211.63 | 230.37 | 246.13 | 263.18 | 281.01 | 303.21 | 323.80 |
| SG37-L | 89.52 | 89.52 | 70.64 | 53.23 | 37.65 | 21.52 | 3.01 | -11.47 | -26.14 | -39.70 | -52.91 |
| SG38-T | 36.92 | 103.00 | 184.85 | 265.40 | 345.08 | 422.76 | 499.61 | 575.72 | 652.13 | 727.93 | 803.99 |
| SG38-45 | -12.65 | 21.13 | 55.84 | 89.07 | 123.60 | 160.34 | 192.28 | 226.04 | 253.98 | 289.24 | 319.02 |
| SG38-L | -2.90 | -15.24 | -32.09 | -45.71 | -57.65 | -68.03 | -79.26 | -87.65 | -96.70 | -105.70 | -114.66 |
| SG39-T | -13.27 | 78.61 | 165.18 | 247.13 | 325.84 | 401.07 | 475.68 | 548.06 | 616.89 | 686.59 | 754.70 |
| SG39-45 | -4.03 | 47.13 | 95.53 | 139.60 | 183.61 | 229.14 | 270.31 | 311.65 | 350.95 | 390.99 | 429.11 |
| SG39-L | 45.81 | 44.53 | 45.17 | 45.67 | 48.01 | 48.70 | 46.55 | 44.44 | 44.53 | 41.19 | 37.03 |
| SG40-T | 38.47 | 95.05 | 146.54 | 195.28 | 243.53 | 293.14 | 345.39 | 399.24 | 450.63 | 505.31 | 560.39 |
| SG40-45 | 45.86 | 67.59 | 85.12 | 99.73 | 115.25 | 135.70 | 155.24 | 178.45 | 199.61 | 224.47 | 248.00 |
| SG40-L | 50.09 | 33.46 | 12.26 | -8.21 | -27.03 | -46.04 | -64.32 | -79.68 | -94.11 | -108.92 | -122.80 |

TABLE E-26. CVP3, AIR 1 LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.01 | -0.02 | -0.02 | -0.03 | -0.02 | -0.03 | -0.04 | -0.03 | -0.02 | -0.02 | -0.03 |
| Frame-1 | -6.90 | 8.75 | 3.32 | -3.20 | -8.98 | 8.68 | 0.53 | 11.06 | -17.72 | 3.54 | 3.95 |
| Frame-2 | -8.73 | -8.59 | 1.57 | 764.76 | -23.01 | 19.13 | 902.30 | 428.13 | -125.66 | 64.35 | -296.69 |
| Frame-3 | 12.01 | 31.04 | 46.22 | -71.81 | 16.81 | 0.09 | -20.04 | 28.20 | -7.34 | -23.92 | -33.80 |
| Frame-4 | 3.34 | -1.68 | 4.95 | 10.49 | 1.26 | -1.75 | -8.19 | 2.35 | -9.21 | 1.72 | 2.13 |
| Frame-5 | 7.04 | 34.79 | -27.58 | 14.20 | 36.01 | 14.02 | -2.78 | -12.93 | 18.63 | -35.99 | 42.06 |
| Frame-6 | -23.77 | -28.69 | 25.39 | 18.99 | -32.56 | 25.61 | -18.06 | -36.57 | 6.37 | 27.31 | 10.76 |
| Frame-7 | 22.63 | 1.84 | 14.47 | -4.50 | 34.20 | 39.93 | -38.59 | -33.27 | 10.08 | 27.86 | -0.89 |
| Frame-8 | 1.97 | 7.02 | -21.68 | -6.21 | 13.54 | 3.77 | -0.67 | 2.92 | 1.49 | -3.13 | -14.64 |
| Frame-9 | -55.69 | 15.71 | 31.97 | -20.41 | -0.39 | -1.57 | -39.25 | 32.45 | -9.11 | -38.20 | 23.38 |
| Frame-10 | 5.41 | 22.52 | 36.86 | 33.39 | 44.53 | -47.89 | -4.12 | 9.81 | -26.07 | 24.41 | 12.90 |
| Frame-11 | -16.65 | 12.03 | -6.02 | -24.62 | 3.23 | 8.87 | 26.54 | -15.64 | -28.92 | 13.90 | 38.16 |
| Frame-12 | -4.96 | 5.30 | -2.78 | -9.73 | -7.19 | 5.49 | -2.45 | 1.17 | -15.83 | 0.29 | 11.20 |
| Hoop-1 | 16.04 | -9.70 | 10.53 | 14.21 | -13.38 | 23.40 | -6.02 | 16.04 | 5.01 | 25.23 | 28.92 |
| Hoop-2 | -10.67 | 34.47 | 65.16 | 9.19 | -12.47 | -28.72 | -32.33 | -21.50 | -17.89 | -19.69 | -3.45 |
| Hoop-3 | 30.53 | -76.50 | -81.77 | -123.90 | 139.33 | -2.81 | 83.17 | 39.30 | -39.67 | -74.74 | -97.57 |
| Hoop-4 | -81.43 | 51.88 | -25.88 | 51.90 | -53.65 | -31.43 | -44.40 | -74.02 | 51.90 | -42.54 | -27.73 |
| Hoop-5 | 301.58 | -16.15 | -69.10 | -12.50 | -112.93 | -111.10 | 55.07 | -85.53 | 228.56 | -105.60 | -83.71 |
| Hoop-6 | 36.24 | 12.20 | 1.11 | 137.94 | 6.66 | -32.17 | -82.09 | 26.99 | -15.53 | -17.38 | 161.96 |
| Hoop-7 | 37.17 | -85.18 | -48.66 | 163.20 | 11.60 | 75.52 | 77.34 | 84.64 | 31.69 | -21.27 | 18.90 |
| Hoop-8 | -33.71 | 32.49 | -41.07 | 17.78 | -4.29 | 3.07 | 10.42 | 3.07 | 3.07 | -19.00 | -11.64 |
| Hoop-9 | 347.79 | -240.05 | 311.53 | -143.89 | 273.40 | -5.99 | 52.07 | -9.62 | 115.58 | 131.89 | -232.77 |
| Hoop-10 | -126.28 | 85.29 | -90.12 | 14.76 | 11.15 | 32.84 | 0.30 | 27.42 | -5.13 | -5.13 | -43.10 |
| Hoop-11 | 471.69 | -192.15 | 82.63 | -205.06 | -127.59 | -111.00 | -182.93 | -168.17 | -99.94 | -153.41 | 322.33 |
| Hoop-12 | 197.72 | 134.72 | 201.44 | 561.01 | -189.62 | 88.37 | 219.98 | 105.06 | 342.30 | 82.81 | 188.45 |
| Hoop-13 | -54.56 | 12.22 | -32.31 | -32.31 | 27.06 | -10.04 | -24.88 | 4.80 | -2.62 | -17.46 | -32.30 |
| Hoop-14 | -40.20 | 11.57 | -18.02 | -25.41 | 4.17 | -10.62 | -18.02 | -18.02 | -3.22 | -18.01 | -32.81 |
| Long-1 | 3.50 | 1234.77 | 2437.95 | 3704.39 | 4874.27 | 6140.39 | 7340.80 | 8603.81 | 9817.06 | 11022.3 | 12034.0 |
| Long-2 | 17.32 | 1221.36 | 2475.47 | 3702.34 | 4907.60 | 6137.77 | 7356.26 | 8594.19 | 9817.32 | 10994.6 | 12020.0 |
| Long-3 | 2.56 | 1205.84 | 2477.81 | 3652.23 | 4881.64 | 6137.80 | 7345.96 | 8585.20 | 9776.90 | 11001.3 | 12067.7 |
| Long-4 | -1.65 | 1227.68 | 2490.31 | 3607.97 | 4935.25 | 6139.47 | 7331.94 | 8588.08 | 9797.45 | 11037.8 | 12223.0 |
| Long-5 | 27.08 | 1230.55 | 2458.27 | 3709.50 | 4903.37 | 6137.46 | 7344.38 | 8602.93 | 9826.46 | 11038.3 | 12193.8 |
| Long-6 | -2.01 | 1230.84 | 2463.94 | 3667.19 | 4895.15 | 6146.96 | 7345.44 | 8590.39 | 9803.31 | 11045.9 | 12262.9 |
| Long-7 | -3.72 | 1221.79 | 2463.17 | 3663.21 | 4898.34 | 6144.89 | 7354.64 | 8595.65 | 9817.21 | 10952.6 | 11851.3 |
| Long-8 | -0.98 | 1219.03 | 2484.83 | 3646.73 | 4911.06 | 6136.60 | 7344.18 | 8534.52 | 9644.58 | 10752.5 | 11658.5 |
| SG1 | 15.23 | -16.68 | -25.48 | -32.27 | -39.79 | -60.88 | -77.93 | -105.08 | -109.85 | -161.19 | -162.48 |
| SG2 | 84.00 | 38.31 | 20.70 | 0.52 | -17.45 | -54.69 | -81.98 | -124.26 | -119.46 | -170.95 | -180.12 |
| SG3 | 456.89 | 599.98 | 736.74 | 855.31 | 957.85 | 1062.31 | 1161.81 | 1237.81 | 1302.93 | 1350.17 | 1409.47 |
| SG4 | 398.22 | 412.48 | 449.25 | 477.44 | 480.23 | 495.18 | 509.76 | 507.51 | 508.89 | 466.02 | 477.71 |
| SG5 | 113.71 | 71.12 | 54.53 | 29.06 | 10.27 | -29.78 | -57.92 | -98.06 | -95.78 | -139.49 | -152.78 |
| SG6 | 25.87 | 7.76 | -11.31 | -31.35 | -49.55 | -68.98 | -85.72 | -103.18 | -125.29 | -160.08 | -176.45 |
| SG7 | 300.46 | 247.91 | 239.62 | 219.65 | 172.04 | 145.43 | 122.53 | 83.32 | 58.50 | -27.11 | -42.50 |
| SG8 | 93.74 | 66.48 | 57.59 | 33.61 | 22.48 | -5.82 | -26.71 | -49.56 | -52.08 | -84.63 | -95.58 |
| SG9 | 27.94 | 12.33 | -2.74 | -21.11 | -34.89 | -52.71 | -68.32 | -83.38 | -95.89 | -113.70 | -126.19 |
| SG10 | 6.69 | 41.80 | 76.27 | 112.97 | 155.20 | 192.98 | 228.42 | 265.42 | 302.77 | 336.53 | 367.70 |
| SG11 | 4.73 | 40.37 | 78.59 | 114.62 | 151.17 | 189.39 | 226.88 | 264.91 | 300.96 | 338.23 | 369.65 |

TABLE E-26. CVP3, AIR 1 LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -33.56 | 59.42 | 147.01 | 233.18 | 326.50 | 409.97 | 491.42 | 574.89 | 657.14 | 749.82 | 813.36 |
| SG13 | -17.69 | 95.08 | 207.47 | 312.73 | 426.39 | 535.68 | 642.22 | 751.15 | 864.74 | 986.42 | 1078.29 |
| SG14 | -30.89 | 96.05 | 216.61 | 334.53 | 459.38 | 572.66 | 676.95 | 777.85 | 870.76 | 982.58 | 1057.06 |
| SG15 | 4.28 | 64.16 | 126.19 | 183.26 | 245.79 | 304.85 | 362.81 | 421.69 | 479.15 | 533.58 | 581.08 |
| SG16 | 145.93 | 255.96 | 360.38 | 462.79 | 571.89 | 674.76 | 773.65 | 874.09 | 974.12 | 1093.77 | 1178.85 |
| SG17 | 42396.7 | 46586.4 | 46268.7 | 46169.1 | 45737.8 | 45281.8 | 44619.8 | 44396.2 | 43906.3 | 44231.4 | 43722.4 |
| SG18 | 14.71 | 83.58 | 151.03 | 214.26 | 281.79 | 348.43 | 412.31 | 475.63 | 538.47 | 604.13 | 657.55 |
| SG19 | 34.85 | 140.66 | 238.21 | 328.64 | 418.43 | 504.20 | 585.56 | 667.28 | 701.95 | 716.24 | 769.80 |
| SG20 | 81.23 | 190.17 | 296.37 | 395.47 | 495.38 | 587.79 | 674.12 | 760.45 | 830.29 | 904.02 | 970.47 |
| SG21 | 9.03 | 104.04 | 186.53 | 266.13 | 333.50 | 387.83 | 434.78 | 482.66 | 532.99 | 595.36 | 634.03 |
| SG22 | -22.79 | 89.95 | 198.65 | 291.70 | 373.47 | 452.18 | 526.91 | 602.36 | 448.00 | 295.90 | 302.37 |
| SG23 | -16.42 | 89.89 | 186.10 | 279.06 | 371.40 | 463.58 | 549.52 | 636.37 | 697.77 | 757.20 | 822.75 |
| SG24 | -1.71 | 110.85 | 213.31 | 316.75 | 417.72 | 517.62 | 609.99 | 704.56 | 786.36 | 872.77 | 947.70 |
| SG25 | 1.15 | 112.86 | 222.31 | 329.33 | 437.93 | 547.67 | 651.88 | 757.20 | 863.15 | 979.06 | 1066.52 |
| SG26 | 31.28 | 144.88 | 255.54 | 360.76 | 475.62 | 583.72 | 687.96 | 796.79 | 907.55 | 1026.96 | 1121.45 |
| SG27 | 11.23 | 104.08 | 195.14 | 284.41 | 376.51 | 468.82 | 557.08 | 653.30 | 756.35 | 868.44 | 952.66 |
| SG28 | -33.33 | 15.97 | 67.47 | 117.52 | 169.75 | 220.52 | 274.23 | 321.32 | 365.51 | 417.71 | 460.39 |
| SG29 | 27.14 | 110.89 | 195.75 | 277.91 | 359.81 | 442.11 | 519.44 | 599.54 | 681.53 | 771.48 | 842.38 |
| SG30 | -28.28 | 3.83 | 37.26 | 71.49 | 107.27 | 140.57 | 176.07 | 210.06 | 243.02 | 273.13 | 303.62 |
| SG31 | -20.26 | 12.11 | 47.42 | 74.98 | 108.87 | 145.55 | 181.23 | 218.66 | 254.87 | 291.85 | 326.34 |
| SG32-T | 11.92 | -15.28 | -42.02 | -68.95 | -100.31 | -127.06 | -154.39 | -183.33 | -210.51 | -242.50 | -263.70 |
| SG32-45 | -31.20 | 9.13 | 36.84 | 81.30 | 108.96 | 147.08 | 181.63 | 217.55 | 247.21 | 274.53 | 305.31 |
| SG32-L | 1.30 | 101.77 | 193.75 | 282.58 | 382.01 | 466.39 | 550.04 | 636.84 | 719.14 | 815.18 | 879.57 |
| SG33-T | 26.39 | -18.64 | -63.25 | -107.88 | -156.62 | -203.25 | -247.13 | -292.16 | -329.19 | -368.13 | -403.52 |
| SG33-45 | -22.97 | -0.80 | 13.38 | 38.86 | 42.16 | 43.95 | 36.01 | 25.59 | 20.73 | -15.58 | -26.41 |
| SG33-T | 34.40 | 148.12 | 260.38 | 367.02 | 483.84 | 593.17 | 695.90 | 799.00 | 904.75 | 1034.72 | 1117.09 |
| SG34-T | 13.33 | -24.45 | -61.55 | -97.06 | -133.78 | -168.45 | -201.24 | -234.85 | -271.97 | -315.37 | -342.84 |
| SG34-45 | 0.73 | 31.11 | 64.57 | 85.30 | 118.39 | 141.40 | 160.88 | 179.62 | 182.58 | 188.77 | 200.52 |
| SG34-L | 28.91 | 135.10 | 240.01 | 339.86 | 438.70 | 534.27 | 623.79 | 712.94 | 795.75 | 887.85 | 959.66 |
| SG35-T | 41.00 | 9.61 | -21.26 | -49.81 | -77.47 | -104.31 | -128.81 | -152.72 | -161.59 | -168.67 | -187.40 |
| SG35-45 | 54.64 | 83.64 | 115.41 | 135.09 | 167.21 | 189.43 | 207.98 | 227.27 | 239.60 | 261.22 | 273.00 |
| SG35-L | 74.33 | 177.58 | 279.75 | 376.48 | 473.30 | 565.73 | 653.21 | 739.77 | 820.16 | 909.12 | 979.41 |
| SG36-T | -4.66 | -47.61 | -91.49 | -135.03 | -182.57 | -230.35 | -275.89 | -319.95 | -362.67 | -389.31 | -422.77 |
| SG36-45 | 23.17 | 51.00 | 77.47 | 89.23 | 103.85 | 102.29 | 95.41 | 84.54 | 49.32 | 50.41 | 31.56 |
| SG36-L | 34.69 | 152.23 | 267.33 | 380.68 | 496.04 | 609.92 | 717.92 | 821.52 | 932.19 | 1051.19 | 1137.45 |
| SG37-T | 417.54 | 392.14 | 363.57 | 335.94 | 300.50 | 263.08 | 227.86 | 193.33 | 148.49 | 84.90 | 50.01 |
| SG37-45 | 136.02 | 161.87 | 184.26 | 191.82 | 202.27 | 197.13 | 188.87 | 178.04 | 129.97 | 70.48 | 42.04 |
| SG37-L | 86.60 | 187.94 | 289.30 | 390.00 | 493.53 | 596.18 | 695.34 | 791.76 | 888.08 | 992.19 | 1069.28 |
| SG38-T | 48.50 | 9.03 | -26.76 | -64.39 | -104.21 | -140.36 | -175.05 | -210.66 | -246.47 | -289.36 | -317.66 |
| SG38-45 | -13.76 | 27.19 | 60.98 | 87.07 | 128.37 | 159.23 | 191.36 | 222.03 | 253.27 | 285.90 | 305.76 |
| SG38-L | -10.01 | 99.57 | 201.03 | 302.83 | 402.29 | 500.92 | 592.11 | 685.73 | 768.78 | 861.51 | 938.69 |
| SG39-T | -12.36 | -40.23 | -68.83 | -95.81 | -125.15 | -154.12 | -181.27 | -210.34 | -237.14 | -267.25 | -291.99 |
| SG39-45 | -8.44 | 22.19 | 49.47 | 65.64 | 97.55 | 123.13 | 148.66 | 178.88 | 194.93 | 223.63 | 241.84 |
| SG39-L | 38.49 | 127.45 | 217.02 | 302.52 | 387.67 | 474.90 | 557.34 | 643.02 | 728.22 | 823.59 | 897.36 |
| SG40-T | 41.44 | 28.07 | 12.71 | -0.56 | -15.88 | -31.43 | -43.09 | -58.32 | -72.46 | -95.21 | -111.00 |
| SG40-45 | 42.39 | 83.65 | 120.55 | 148.29 | 190.28 | 227.19 | 264.57 | 305.83 | 333.79 | 372.50 | 398.28 |
| SG40-L | 49.18 | 128.67 | 207.82 | 287.29 | 365.32 | 446.51 | 525.54 | 606.30 | 688.24 | 780.16 | 849.87 |

TABLE E-27. CVP3, AIR 1 LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.02 | 0.88 | 1.75 | 2.64 | 3.52 | 4.40 | 5.27 | 6.15 | 7.05 | 7.92 | 8.80 |
| Frame-1 | -8.39 | 176.45 | 373.92 | 546.43 | 724.53 | 892.66 | 1112.71 | 1250.70 | 1450.42 | 1622.65 | 1836.71 |
| Frame-2 | -51.95 | 181.16 | 383.52 | 571.15 | 727.92 | 916.32 | 1103.25 | 1280.36 | 1443.32 | 1646.30 | 1825.43 |
| Frame-3 | 36.27 | 173.54 | 364.60 | 547.94 | 726.55 | 912.40 | 1096.78 | 1278.33 | 1463.03 | 1632.37 | 1819.37 |
| Frame-4 | 27.71 | 190.48 | 365.89 | 545.63 | 717.15 | 913.19 | 1083.62 | 1263.27 | 1444.38 | 1629.01 | 1827.92 |
| Frame-5 | 40.06 | 172.03 | 370.13 | 563.94 | 713.30 | 904.43 | 1087.20 | 1255.05 | 1460.58 | 1642.03 | 1813.61 |
| Frame-6 | 47.82 | 170.10 | 369.46 | 542.47 | 726.08 | 906.69 | 1087.53 | 1267.28 | 1450.10 | 1639.84 | 1792.74 |
| Frame-7 | 21.01 | 181.81 | 351.75 | 536.42 | 714.62 | 912.50 | 1086.08 | 1303.30 | 1477.34 | 1642.21 | 1813.10 |
| Frame-8 | 38.23 | 197.12 | 373.75 | 565.10 | 725.88 | 913.23 | 1093.49 | 1267.45 | 1420.64 | 1628.35 | 1835.20 |
| Frame-9 | 14.18 | 175.59 | 375.84 | 570.11 | 712.45 | 918.32 | 1066.45 | 1264.01 | 1468.47 | 1623.46 | 1821.20 |
| Frame-10 | 50.28 | 173.08 | 365.27 | 584.24 | 724.42 | 913.56 | 1197.20 | 1248.98 | 1443.55 | 1634.12 | 1820.38 |
| Frame-11 | -19.90 | 175.85 | 360.38 | 540.72 | 718.09 | 901.31 | 1099.53 | 1259.42 | 1452.97 | 1656.21 | 1823.04 |
| Frame-12 | -1.40 | 167.62 | 333.68 | 531.83 | 723.48 | 915.87 | 1104.61 | 1271.45 | 1429.55 | 1649.31 | 1828.44 |
| Hoop-1 | 1.33 | 770.05 | 1538.78 | 2318.53 | 3101.66 | 3870.69 | 4627.00 | 5420.46 | 6174.40 | 6967.64 | 7751.08 |
| Hoop-2 | 38.08 | 783.82 | 1545.82 | 2331.28 | 3091.16 | 3853.46 | 4644.80 | 5398.57 | 6178.54 | 6950.17 | 7762.72 |
| Hoop-3 | -29.14 | 767.62 | 1527.52 | 2340.08 | 3080.37 | 3889.72 | 4627.27 | 5403.71 | 6184.60 | 6932.84 | 7752.41 |
| Hoop-4 | -44.40 | 794.49 | 1542.64 | 2305.60 | 3073.81 | 3848.19 | 4613.47 | 5408.77 | 6179.06 | 6959.31 | 7794.49 |
| Hoop-5 | 45.94 | 626.68 | 1545.26 | 2325.05 | 3080.79 | 3870.02 | 4637.50 | 5412.63 | 6190.52 | 6958.14 | 7739.76 |
| Hoop-6 | -13.68 | 772.15 | 1545.04 | 2310.53 | 3079.41 | 3860.00 | 4638.90 | 5407.09 | 6172.50 | 6962.65 | 7680.07 |
| Hoop-7 | 55.44 | 786.01 | 1551.29 | 2322.05 | 3087.02 | 3854.44 | 4618.35 | 5406.37 | 6173.40 | 6946.60 | 7680.83 |
| Hoop-8 | -33.71 | 760.73 | 1540.31 | 2305.25 | 3099.92 | 3864.17 | 4659.38 | 5409.69 | 6190.04 | 6939.73 | 7550.27 |
| Hoop-9 | -13.25 | 765.14 | 1537.93 | 2325.32 | 3091.24 | 3852.53 | 4638.94 | 5404.63 | 6138.28 | 6819.89 | 7511.18 |
| Hoop-10 | -15.98 | 776.10 | 1537.28 | 2327.48 | 3089.05 | 3853.23 | 4646.08 | 5405.61 | 6187.46 | 6953.60 | 7749.30 |
| Hoop-11 | 43.90 | 770.49 | 1539.34 | 2323.02 | 3097.78 | 3864.17 | 4628.41 | 5412.17 | 6192.86 | 6963.08 | 7678.61 |
| Hoop-12 | -4.29 | 759.33 | 1546.89 | 2310.44 | 3081.70 | 3866.79 | 4623.77 | 5409.63 | 6166.45 | 6944.29 | 7744.97 |
| Hoop-13 | -10.04 | 746.85 | 1533.27 | 2282.67 | 3076.90 | 3892.38 | 4598.11 | 5488.57 | 6149.62 | 6965.26 | 7699.89 |
| Hoop-14 | 4.18 | 773.49 | 1535.25 | 2319.28 | 3088.82 | 3872.15 | 4671.83 | 5418.95 | 6181.48 | 6787.44 | 7512.37 |
| Long-1 | 10.59 | 1221.91 | 2443.86 | 3684.32 | 4891.78 | 6126.79 | 7365.88 | 8583.43 | 9775.54 | 10983.2 | 12013.9 |
| Long-2 | 31.90 | 1215.41 | 2466.96 | 3674.40 | 4911.01 | 6122.58 | 7340.72 | 8542.81 | 9783.06 | 10989.5 | 11992.1 |
| Long-3 | 1.31 | 1229.61 | 2436.74 | 3672.14 | 4905.02 | 6119.77 | 7256.58 | 8373.28 | 9618.59 | 10901.4 | 11943.3 |
| Long-4 | 2.03 | 1216.78 | 2440.11 | 3686.33 | 4900.72 | 6132.74 | 7371.37 | 8586.49 | 9819.25 | 11025.3 | 12285.4 |
| Long-5 | 30.68 | 1215.08 | 2451.07 | 3678.30 | 4905.55 | 6130.85 | 7353.05 | 8580.99 | 9804.65 | 11035.7 | 11506.2 |
| Long-6 | -17.91 | 1199.16 | 2449.26 | 3685.54 | 4908.36 | 6130.45 | 7354.25 | 8575.35 | 9804.29 | 11033.4 | 12508.7 |
| Long-7 | -1.32 | 1229.13 | 2445.15 | 3678.83 | 4906.53 | 6123.85 | 7346.50 | 8570.07 | 9794.16 | 11037.7 | 13556.2 |
| Long-8 | -3.44 | 1206.84 | 2428.20 | 3671.35 | 4898.49 | 6133.52 | 7365.35 | 8573.54 | 9810.53 | 10922.1 | 11689.4 |
| SG1 | -26.40 | -105.08 | -127.66 | -139.57 | -141.01 | -101.77 | -87.64 | -102.86 | -98.12 | -100.86 | -97.38 |
| SG2 | 21.80 | -80.92 | -104.93 | -128.91 | -130.94 | -89.13 | -88.07 | -101.60 | -111.80 | -129.12 | -141.93 |
| SG3 | 386.90 | 476.86 | 656.53 | 784.07 | 963.99 | 1140.70 | 1258.98 | 1370.59 | 1460.65 | 1559.82 | 1638.74 |
| SG4 | 313.09 | 238.69 | 310.50 | 357.96 | 434.62 | 533.96 | 576.26 | 615.68 | 643.68 | 671.49 | 698.70 |
| SG5 | 42.71 | -58.29 | -71.22 | -92.30 | -89.44 | -45.64 | -46.50 | -52.09 | -63.06 | -83.35 | -97.06 |
| SG6 | 16.75 | 33.21 | 54.86 | 76.12 | 99.58 | 127.46 | 152.39 | 178.79 | 203.77 | 228.51 | 256.41 |
| SG7 | 219.08 | 67.93 | 51.63 | 36.79 | 23.68 | 64.22 | 64.99 | 56.66 | 57.77 | 35.09 | 27.63 |
| SG8 | 33.88 | -37.15 | -34.27 | -41.55 | -28.35 | 14.10 | 21.42 | 30.94 | 33.38 | 23.21 | 25.64 |
| SG9 | 16.92 | 36.76 | 66.53 | 94.82 | 126.76 | 163.70 | 195.10 | 228.53 | 259.99 | 288.44 | 321.54 |
| SG10 | 6.78 | 36.25 | 66.98 | 94.84 | 123.74 | 155.15 | 185.11 | 215.54 | 241.53 | 266.43 | 289.46 |
| SG11 | 8.40 | 27.33 | 46.81 | 67.02 | 91.45 | 114.79 | 140.50 | 166.96 | 194.56 | 221.73 | 249.87 |

TABLE E-27. CVP3, AIR 1 LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -22.30 | 70.44 | 156.97 | 245.07 | 334.09 | 420.16 | 504.55 | 587.00 | 669.08 | 749.09 | 835.12 |
| SG13 | -11.00 | 89.95 | 188.92 | 291.46 | 400.68 | 511.66 | 624.01 | 726.69 | 835.22 | 938.01 | 1050.33 |
| SG14 | -20.89 | 94.87 | 202.50 | 309.12 | 418.34 | 522.12 | 620.85 | 717.24 | 811.32 | 898.56 | 987.45 |
| SG15 | 10.33 | 80.94 | 139.12 | 196.66 | 256.40 | 312.01 | 369.75 | 427.88 | 484.83 | 540.36 | 596.55 |
| SG16 | 152.89 | 257.59 | 359.30 | 462.51 | 571.19 | 677.01 | 781.04 | 882.20 | 981.46 | 1079.28 | 1185.20 |
| SG17 | 30908.8 | 31903.3 | 32633.6 | 33310.1 | 33915.3 | 34824.9 | 35524.6 | 35962.9 | 36332.1 | 35910.6 | 36396.8 |
| SG18 | 14.85 | 70.56 | 121.66 | 173.60 | 223.35 | 269.31 | 315.54 | 360.87 | 408.68 | 453.06 | 493.49 |
| SG19 | 20.30 | 94.48 | 156.17 | 215.80 | 267.65 | 314.06 | 360.60 | 406.61 | 454.55 | 499.60 | 543.64 |
| SG20 | 81.04 | 185.22 | 283.57 | 378.17 | 468.46 | 550.42 | 630.06 | 706.63 | 785.56 | 859.66 | 931.36 |
| SG21 | 24.50 | 102.58 | 173.33 | 239.24 | 292.22 | 334.05 | 372.87 | 411.91 | 450.30 | 486.90 | 521.02 |
| SG22 | -42.86 | 49.55 | 112.44 | 171.09 | 196.31 | 222.14 | 246.87 | 264.09 | 288.21 | 307.88 | 334.60 |
| SG23 | -18.99 | 58.87 | 122.61 | 185.96 | 247.06 | 301.62 | 356.86 | 413.41 | 468.40 | 526.20 | 599.34 |
| SG24 | 3.43 | 102.60 | 196.66 | 293.06 | 387.75 | 478.69 | 568.24 | 655.65 | 743.93 | 829.43 | 934.94 |
| SG25 | 5.80 | 109.00 | 211.51 | 313.87 | 422.06 | 524.47 | 624.94 | 721.96 | 817.67 | 907.99 | 996.84 |
| SG26 | 41.02 | 143.61 | 239.99 | 340.90 | 450.21 | 560.55 | 671.89 | 777.22 | 885.86 | 989.64 | 1102.44 |
| SG27 | 21.76 | 111.22 | 200.85 | 292.78 | 390.95 | 487.44 | 583.82 | 677.82 | 770.88 | 863.29 | 961.03 |
| SG28 | -12.73 | 40.99 | 87.36 | 130.77 | 182.98 | 228.61 | 279.35 | 328.65 | 373.60 | 420.65 | 466.32 |
| SG29 | 34.85 | 115.86 | 197.65 | 280.48 | 364.74 | 446.70 | 527.29 | 604.80 | 683.92 | 760.64 | 840.45 |
| SG30 | -29.80 | -4.53 | 19.36 | 43.29 | 68.86 | 93.53 | 120.25 | 146.98 | 173.47 | 201.98 | 227.17 |
| SG31 | -20.90 | 7.06 | 37.33 | 66.81 | 98.66 | 131.69 | 163.36 | 194.44 | 223.64 | 256.13 | 284.77 |
| SG32-T | 11.37 | 70.94 | 122.21 | 171.06 | 214.43 | 252.83 | 290.53 | 330.68 | 367.84 | 406.87 | 441.76 |
| SG32-45 | -16.15 | 53.68 | 116.51 | 183.12 | 250.65 | 317.11 | 382.49 | 448.45 | 512.23 | 577.69 | 646.94 |
| SG32-L | 9.60 | 100.91 | 184.50 | 270.93 | 360.97 | 446.90 | 530.03 | 611.24 | 690.34 | 764.19 | 841.87 |
| SG33-T | 28.96 | 71.92 | 106.46 | 137.34 | 161.73 | 183.55 | 205.43 | 227.60 | 248.25 | 270.90 | 289.84 |
| SG33-45 | -18.56 | 26.74 | 71.05 | 110.61 | 137.94 | 154.67 | 165.48 | 175.76 | 184.98 | 195.06 | 196.91 |
| SG33-T | 36.79 | 131.99 | 237.89 | 344.64 | 459.58 | 568.04 | 671.62 | 772.87 | 872.46 | 964.65 | 1060.51 |
| SG34-T | 12.60 | 67.90 | 121.67 | 176.33 | 228.01 | 279.58 | 330.90 | 382.44 | 433.15 | 484.65 | 535.51 |
| SG34-45 | 8.56 | 84.56 | 145.96 | 210.63 | 271.45 | 327.40 | 384.75 | 440.84 | 497.04 | 550.71 | 612.19 |
| SG34-L | 31.29 | 129.06 | 221.92 | 310.33 | 397.39 | 476.67 | 554.76 | 630.33 | 706.40 | 778.97 | 846.75 |
| SG35-T | 44.39 | 81.14 | 111.68 | 143.60 | 177.20 | 211.45 | 250.19 | 291.48 | 332.65 | 374.92 | 416.03 |
| SG35-45 | 61.24 | 124.79 | 172.21 | 224.72 | 274.81 | 319.09 | 368.64 | 416.94 | 466.62 | 515.05 | 570.02 |
| SG35-L | 75.24 | 169.52 | 260.54 | 347.26 | 432.27 | 509.87 | 586.07 | 659.76 | 733.96 | 804.46 | 871.62 |
| SG36-T | 7.46 | 66.77 | 115.44 | 158.58 | 192.33 | 222.46 | 252.36 | 282.47 | 309.70 | 339.05 | 366.08 |
| SG36-45 | 26.84 | 83.30 | 138.70 | 189.70 | 223.46 | 247.29 | 266.44 | 284.56 | 301.91 | 317.02 | 334.80 |
| SG36-L | 27.61 | 130.06 | 241.51 | 350.37 | 467.02 | 577.04 | 679.83 | 781.03 | 881.12 | 974.71 | 1065.00 |
| SG37-T | 405.11 | 418.87 | 428.04 | 436.80 | 436.30 | 433.68 | 436.94 | 445.52 | 453.40 | 465.83 | 475.47 |
| SG37-45 | 128.48 | 174.92 | 203.41 | 232.39 | 238.58 | 229.43 | 225.74 | 224.82 | 224.13 | 223.37 | 226.70 |
| SG37-L | 86.78 | 180.26 | 264.08 | 353.88 | 446.55 | 531.65 | 616.83 | 704.62 | 790.92 | 874.25 | 953.16 |
| SG38-T | 42.07 | 75.47 | 121.56 | 167.25 | 211.81 | 256.43 | 300.82 | 346.51 | 391.92 | 438.31 | 476.54 |
| SG38-45 | -9.90 | 61.53 | 129.32 | 197.44 | 266.07 | 332.02 | 398.09 | 464.93 | 530.03 | 595.35 | 676.95 |
| SG38-L | -5.93 | 83.38 | 166.07 | 252.52 | 340.17 | 423.68 | 506.92 | 589.48 | 671.02 | 749.84 | 844.24 |
| SG39-T | -5.20 | 58.81 | 114.03 | 164.64 | 209.36 | 250.46 | 290.41 | 331.86 | 370.81 | 411.85 | 447.84 |
| SG39-45 | 0.01 | 75.83 | 139.87 | 210.77 | 280.29 | 347.23 | 417.26 | 485.82 | 554.07 | 619.00 | 701.73 |
| SG39-L | 43.71 | 130.08 | 217.31 | 302.98 | 391.70 | 476.74 | 559.98 | 640.11 | 719.80 | 795.89 | 874.29 |
| SG40-T | 36.88 | 78.46 | 114.49 | 150.58 | 183.40 | 214.41 | 248.13 | 283.40 | 316.99 | 353.13 | 384.71 |
| SG40-45 | 42.03 | 99.36 | 146.11 | 203.61 | 262.09 | 319.73 | 383.31 | 446.63 | 510.22 | 572.00 | 650.94 |
| SG40-L | 44.79 | 105.29 | 167.43 | 233.20 | 302.70 | 370.62 | 441.94 | 511.16 | 581.57 | 650.90 | 720.03 |

TABLE E-28. CVP3, AIR 2 LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.01 | 0.87 | 1.75 | 2.63 | 3.52 | 4.40 | 5.27 | 6.16 | 7.04 | 7.92 | 8.82 |
| Frame-1 | -10.67 | 178.52 | 355.46 | 530.78 | 726.81 | 921.12 | 1098.49 | 1253.69 | 1455.21 | 1640.61 | 1815.09 |
| Frame-2 | -33.36 | 171.07 | 373.58 | 557.08 | 751.07 | 903.34 | 1108.00 | 1264.28 | 1449.89 | 1643.56 | 1843.60 |
| Frame-3 | 87.18 | 185.91 | 392.53 | 568.38 | 721.96 | 913.29 | 1089.47 | 1274.44 | 1466.10 | 1622.81 | 1818.41 |
| Frame-4 | 9.91 | 182.21 | 368.09 | 538.57 | 733.23 | 907.20 | 1098.69 | 1259.37 | 1457.80 | 1634.91 | 1818.34 |
| Frame-5 | -1.91 | 196.53 | 355.08 | 551.70 | 755.27 | 903.62 | 1109.18 | 1263.22 | 1468.83 | 1646.21 | 1814.38 |
| Frame-6 | -36.00 | 178.97 | 358.05 | 544.04 | 736.83 | 922.85 | 1090.51 | 1275.29 | 1451.45 | 1630.38 | 1803.64 |
| Frame-7 | 8.30 | 178.63 | 355.60 | 546.69 | 729.07 | 899.50 | 1088.89 | 1250.98 | 1462.53 | 1634.33 | 1827.37 |
| Frame-8 | -33.01 | 183.61 | 344.89 | 544.37 | 733.44 | 919.16 | 1096.30 | 1258.19 | 1464.37 | 1625.64 | 1828.80 |
| Frame-9 | 34.51 | 153.16 | 384.97 | 528.15 | 730.57 | 913.89 | 1088.47 | 1272.10 | 1458.70 | 1622.45 | 1809.51 |
| Frame-10 | 3.14 | 175.07 | 365.68 | 553.18 | 728.54 | 947.05 | 1093.26 | 1251.77 | 1482.12 | 1638.29 | 1822.58 |
| Frame-11 | -23.99 | 184.61 | 359.09 | 535.60 | 725.53 | 898.67 | 1097.23 | 1282.43 | 1458.74 | 1631.55 | 1826.85 |
| Frame-12 | -21.06 | 173.06 | 290.85 | 536.94 | 737.99 | 909.74 | 1098.78 | 1265.62 | 1490.77 | 1670.80 | 1841.04 |
| Hoop-1 | 30.75 | 757.26 | 1597.63 | 2316.69 | 3075.91 | 3845.33 | 4644.46 | 5398.39 | 6135.78 | 6951.79 | 7757.37 |
| Hoop-2 | -30.53 | 764.04 | 1603.60 | 2325.86 | 3092.96 | 3964.00 | 4663.73 | 5382.32 | 6183.95 | 6959.90 | 7718.35 |
| Hoop-3 | -48.44 | 799.29 | 1538.05 | 2297.96 | 3078.61 | 3846.23 | 4650.91 | 5391.43 | 6168.81 | 6973.90 | 7744.41 |
| Hoop-4 | -51.80 | 805.68 | 1513.01 | 2333.38 | 3099.74 | 3859.69 | 4645.88 | 5380.99 | 6188.32 | 6960.00 | 7728.60 |
| Hoop-5 | 106.19 | 460.54 | 1539.78 | 2306.79 | 3088.10 | 3857.63 | 4649.35 | 5398.02 | 6177.73 | 6947.88 | 7749.67 |
| Hoop-6 | -24.78 | 824.00 | 1543.19 | 2308.68 | 3097.90 | 3864.09 | 4658.31 | 5386.75 | 6178.05 | 6950.40 | 7734.46 |
| Hoop-7 | 22.56 | 778.78 | 1549.47 | 2329.36 | 3245.91 | 3865.78 | 4611.95 | 5377.15 | 6184.36 | 6938.17 | 7738.23 |
| Hoop-8 | 3.07 | 753.45 | 1518.39 | 2305.48 | 3084.90 | 3923.40 | 4637.32 | 5395.52 | 6189.42 | 6947.78 | 7726.82 |
| Hoop-9 | 64.77 | 765.22 | 1541.72 | 2316.48 | 3090.93 | 3836.58 | 4655.27 | 5399.73 | 6121.33 | 6742.54 | 7395.06 |
| Hoop-10 | -61.19 | 756.28 | 1537.44 | 2313.24 | 3094.16 | 3853.61 | 4653.31 | 5398.92 | 6143.44 | 6976.00 | 7742.06 |
| Hoop-11 | 512.31 | 746.59 | 1528.43 | 2321.40 | 3075.35 | 3838.74 | 4650.54 | 5394.27 | 6164.57 | 6960.09 | 7745.00 |
| Hoop-12 | -45.07 | 776.09 | 1532.22 | 2325.49 | 3081.39 | 3837.52 | 4631.18 | 5387.93 | 6195.49 | 6937.57 | 7730.15 |
| Hoop-13 | -24.88 | 761.77 | 1474.06 | 2312.58 | 3098.85 | 3974.39 | 4635.21 | 5385.23 | 6245.47 | 6958.54 | 7685.05 |
| Hoop-14 | -10.62 | 766.17 | 1542.80 | 2304.72 | 3081.12 | 3865.14 | 4657.04 | 5404.70 | 6180.87 | 6958.27 | 7571.55 |
| Long-1 | 30.66 | 40.11 | 27.12 | 23.57 | 15.31 | 7.05 | 4.69 | 2.32 | 4.69 | 5.87 | 4.69 |
| Long-2 | 36.76 | 36.77 | 34.33 | 30.69 | 35.55 | 41.62 | 34.34 | 37.98 | 40.41 | 39.20 | 34.33 |
| Long-3 | 12.51 | 0.07 | -9.89 | 2.56 | -8.64 | -1.18 | 5.05 | -3.67 | 2.56 | -4.91 | -3.67 |
| Long-4 | 0.80 | 13.05 | -4.10 | -7.77 | 2.03 | -2.87 | 8.15 | -1.65 | 9.37 | -2.87 | -9.00 |
| Long-5 | -47.32 | 135.09 | 108.68 | -62.91 | -61.72 | 89.47 | 84.69 | -24.52 | 46.27 | -6.52 | -50.92 |
| Long-6 | -19.13 | -16.69 | -9.34 | -0.78 | -2.01 | -48.48 | -0.78 | -14.24 | -8.12 | 7.78 | 7.78 |
| Long-7 | 4.69 | -2.52 | -1.32 | 7.09 | 10.70 | -0.11 | -6.12 | -3.72 | 7.09 | 4.69 | 2.29 |
| Long-8 | -12.06 | -15.75 | -13.29 | 15.03 | 5.18 | -12.06 | -8.37 | -9.60 | -2.21 | 3.95 | -5.90 |
| SG1 | -13.38 | -103.24 | -95.53 | -93.70 | -44.01 | -23.47 | 10.64 | 25.13 | 64.01 | 85.10 | 110.79 |
| SG2 | 49.13 | -66.43 | -55.79 | -46.98 | 12.08 | 38.68 | 80.69 | 94.99 | 139.75 | 162.87 | 182.88 |
| SG3 | 452.58 | 365.42 | 393.10 | 443.58 | 537.49 | 576.36 | 626.48 | 631.80 | 683.76 | 711.48 | 722.01 |
| SG4 | 362.70 | 227.96 | 247.65 | 284.46 | 375.11 | 419.26 | 472.35 | 489.22 | 545.15 | 578.52 | 599.67 |
| SG5 | 76.48 | -39.50 | -24.24 | -7.74 | 53.95 | 86.11 | 131.29 | 149.03 | 195.13 | 219.65 | 237.04 |
| SG6 | 20.09 | 50.08 | 91.88 | 135.88 | 181.58 | 225.21 | 270.87 | 313.04 | 358.52 | 402.35 | 445.49 |
| SG7 | 263.94 | 94.08 | 117.34 | 129.11 | 189.46 | 220.59 | 263.74 | 288.93 | 333.77 | 350.90 | 368.98 |
| SG8 | 67.35 | -18.78 | -0.65 | 22.75 | 77.71 | 112.27 | 155.04 | 180.46 | 222.22 | 247.22 | 265.89 |
| SG9 | 21.88 | 50.54 | 95.17 | 143.11 | 194.22 | 241.78 | 291.19 | 337.67 | 386.90 | 433.57 | 478.25 |
| SG10 | 7.46 | 2.65 | -8.46 | -21.22 | -37.34 | -46.93 | -64.75 | -81.37 | -94.49 | -111.66 | -134.54 |
| SG11 | 6.20 | -11.26 | -31.65 | -47.45 | -65.10 | -79.80 | -94.31 | -108.65 | -122.61 | -134.37 | -147.43 |

TABLE E-28. CVP3, AIR 2 LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -11.19 | -3.76 | -4.86 | -6.00 | -5.27 | -6.28 | -6.42 | -6.24 | -5.00 | -6.97 | -10.05 |
| SG13 | -1.23 | -15.85 | -26.67 | -35.15 | -40.89 | -45.33 | -50.33 | -54.04 | -54.78 | -59.27 | -62.99 |
| SG14 | -39.28 | -36.80 | -46.29 | -53.95 | -60.43 | -68.63 | -74.73 | -80.10 | -85.51 | -93.08 | -102.40 |
| SG15 | 6.84 | 16.47 | 14.27 | 15.23 | 10.83 | 9.50 | 7.99 | 7.72 | 6.48 | 6.43 | 5.38 |
| SG16 | 168.18 | 169.21 | 163.97 | 159.70 | 157.58 | 153.35 | 150.09 | 147.43 | 146.01 | 141.98 | 137.09 |
| SG17 | -1066.93 | -1157.51 | -1291.25 | -1232.42 | -1337.86 | 23894.4 | 27604.6 | 28054.8 | 27481.0 | 28084.2 | 28802.1 |
| SG18 | 5.48 | -7.46 | -24.34 | -43.16 | -64.69 | -77.26 | -96.44 | -114.93 | -135.77 | -156.01 | -176.58 |
| SG19 | 23.43 | 0.42 | -29.94 | -59.57 | -91.98 | -121.24 | -151.24 | -179.41 | -208.12 | -237.02 | -267.05 |
| SG20 | 83.42 | 81.77 | 79.19 | 76.43 | 75.52 | 71.46 | 70.18 | 68.15 | 66.49 | 62.44 | 57.85 |
| SG21 | 30.39 | 25.97 | 14.00 | 3.87 | -5.70 | -17.12 | -27.80 | -38.30 | -47.69 | -58.92 | -72.00 |
| SG22 | -42.81 | -45.61 | -49.33 | -51.16 | -48.79 | -47.77 | -45.20 | -42.26 | -37.48 | -35.97 | -34.64 |
| SG23 | -16.05 | -35.33 | -67.46 | -97.39 | -130.46 | -162.22 | -193.62 | -224.47 | -254.58 | -283.96 | -314.66 |
| SG24 | 5.27 | 2.15 | -4.65 | -9.42 | -11.63 | -15.12 | -17.69 | -19.34 | -19.71 | -21.91 | -25.22 |
| SG25 | 4.79 | 1.57 | -6.03 | -13.48 | -20.62 | -29.09 | -36.78 | -44.32 | -50.63 | -59.01 | -67.94 |
| SG26 | 46.72 | 39.37 | 29.07 | 22.82 | 20.07 | 15.84 | 13.63 | 12.90 | 12.90 | 10.14 | 7.01 |
| SG27 | 38.49 | 40.05 | 36.46 | 33.66 | 32.29 | 29.76 | 27.41 | 25.76 | 24.84 | 21.39 | 17.94 |
| SG28 | 0.52 | 7.88 | 2.73 | 1.99 | -3.90 | -5.37 | -9.05 | -11.25 | -12.73 | -11.25 | -11.99 |
| SG29 | 45.50 | 47.16 | 44.77 | 42.20 | 42.20 | 40.36 | 39.63 | 39.26 | 39.26 | 37.98 | 35.04 |
| SG30 | -31.90 | -38.66 | -49.36 | -59.92 | -72.20 | -82.16 | -91.62 | -100.44 | -107.93 | -115.04 | -122.96 |
| SG31 | -27.15 | -31.23 | -37.61 | -54.46 | -70.64 | -81.84 | -98.19 | -117.01 | -130.93 | -144.47 | -162.49 |
| SG32-T | 10.64 | 92.33 | 172.35 | 252.53 | 327.41 | 400.18 | 471.34 | 540.62 | 608.21 | 674.79 | 742.45 |
| SG32-45 | -21.61 | 19.04 | 47.30 | 83.95 | 120.44 | 155.94 | 189.24 | 224.71 | 261.87 | 293.66 | 328.61 |
| SG32-L | 14.14 | 13.78 | 6.03 | 0.07 | 3.60 | 1.53 | 1.40 | -0.07 | -0.76 | -5.16 | -10.16 |
| SG33-T | 27.99 | 109.74 | 189.04 | 267.25 | 340.38 | 412.09 | 482.55 | 551.13 | 617.82 | 684.93 | 752.89 |
| SG33-45 | -23.70 | 6.45 | 30.59 | 59.19 | 88.67 | 116.57 | 144.38 | 172.48 | 202.40 | 227.92 | 254.75 |
| SG33-T | 38.07 | 20.64 | 14.77 | 8.17 | 7.80 | 2.30 | -0.64 | -5.04 | -8.16 | -14.40 | -21.74 |
| SG34-T | 6.64 | 95.78 | 187.11 | 276.62 | 363.44 | 445.76 | 527.02 | 607.18 | 686.06 | 764.93 | 844.62 |
| SG34-45 | 14.02 | 56.33 | 95.87 | 133.55 | 172.31 | 206.39 | 242.14 | 277.53 | 311.26 | 346.47 | 382.62 |
| SG34-L | 35.14 | 29.27 | 19.91 | 9.64 | -0.45 | -12.00 | -22.28 | -32.73 | -42.27 | -54.74 | -67.23 |
| SG35-T | 41.27 | 106.15 | 165.18 | 225.46 | 283.33 | 347.07 | 411.44 | 477.93 | 544.23 | 612.96 | 682.95 |
| SG35-45 | 62.52 | 94.12 | 119.63 | 145.53 | 173.11 | 199.54 | 229.84 | 260.69 | 290.08 | 322.22 | 355.68 |
| SG35-L | 77.80 | 70.46 | 61.45 | 51.53 | 42.53 | 31.68 | 21.94 | 11.47 | 1.91 | -10.03 | -22.53 |
| SG36-T | 6.73 | 103.85 | 197.29 | 287.80 | 373.60 | 456.74 | 535.87 | 611.89 | 685.51 | 758.77 | 832.66 |
| SG36-45 | 27.02 | 54.31 | 92.47 | 127.33 | 164.56 | 202.75 | 237.06 | 270.14 | 301.01 | 332.38 | 364.12 |
| SG36-L | 29.68 | 14.57 | 9.93 | 5.02 | 4.88 | 1.76 | -0.40 | -3.93 | -5.72 | -11.46 | -17.16 |
| SG37-T | 399.98 | 442.67 | 480.28 | 521.23 | 559.20 | 601.58 | 646.30 | 693.12 | 740.82 | 791.26 | 842.62 |
| SG37-45 | 128.47 | 158.22 | 175.82 | 192.15 | 206.47 | 219.34 | 236.77 | 256.59 | 274.76 | 296.42 | 318.48 |
| SG37-L | 84.75 | 87.51 | 67.34 | 51.58 | 33.80 | 15.65 | 0.07 | -14.04 | -27.42 | -40.99 | -56.76 |
| SG38-T | 40.41 | 103.00 | 185.75 | 265.40 | 345.04 | 422.35 | 499.80 | 576.15 | 651.76 | 727.93 | 805.83 |
| SG38-45 | -10.63 | 21.13 | 57.12 | 91.64 | 123.40 | 158.49 | 191.18 | 223.86 | 256.37 | 289.05 | 320.85 |
| SG38-L | -5.24 | -12.86 | -31.67 | -44.66 | -56.31 | -67.24 | -77.70 | -87.07 | -94.36 | -104.09 | -113.33 |
| SG39-T | -10.52 | 79.90 | 166.08 | 248.78 | 327.09 | 402.87 | 477.14 | 548.49 | 618.18 | 688.05 | 757.45 |
| SG39-45 | -3.29 | 51.08 | 95.98 | 140.93 | 185.20 | 228.38 | 269.99 | 312.65 | 351.87 | 392.10 | 433.10 |
| SG39-L | 49.61 | 48.97 | 50.25 | 50.52 | 53.91 | 52.95 | 52.59 | 51.31 | 50.57 | 46.50 | 42.16 |
| SG40-T | 32.32 | 87.59 | 138.15 | 188.61 | 236.32 | 287.64 | 339.96 | 392.00 | 445.57 | 501.21 | 557.79 |
| SG40-45 | 38.74 | 65.04 | 78.18 | 94.24 | 108.86 | 129.48 | 149.60 | 172.02 | 193.93 | 219.54 | 245.99 |
| SG40-L | 46.26 | 30.91 | 10.25 | -10.22 | -29.77 | -47.31 | -63.77 | -80.21 | -93.91 | -108.37 | -122.80 |

TABLE E-29. CVP3, AIR 2 LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.00 | -0.01 | -0.02 | -0.03 | -0.03 | -0.03 | -0.03 | -0.01 | -0.02 | -0.03 | -0.04 |
| Frame-1 | 13.11 | 9.42 | 25.29 | 19.01 | 8.22 | -0.28 | 3.30 | -8.82 | 4.41 | -0.48 | -9.90 |
| Frame-2 | 49.70 | 23.38 | -24.92 | -20.84 | -69.97 | 22.26 | -21.06 | -8.94 | -33.83 | 8.14 | -32.65 |
| Frame-3 | -74.45 | -64.39 | 52.68 | -65.12 | 82.00 | 6.61 | 68.51 | -19.07 | -36.77 | 42.45 | 67.39 |
| Frame-4 | 4.41 | -16.52 | 13.16 | -3.47 | -10.83 | 6.52 | 1.48 | -2.03 | 4.32 | 2.87 | 10.68 |
| Frame-5 | 21.92 | 4.42 | -26.27 | 3.67 | -1.97 | -3.58 | 1.73 | -0.06 | 6.29 | -7.23 | 10.94 |
| Frame-6 | 6.15 | 0.84 | 30.10 | -27.03 | 25.18 | 4.89 | -27.25 | 25.31 | 4.41 | -15.67 | 27.70 |
| Frame-7 | -35.31 | -21.72 | 3.06 | 43.03 | 20.35 | 13.44 | 39.76 | -1.86 | -26.66 | -19.57 | 19.54 |
| Frame-8 | -21.50 | 42.00 | -17.58 | 20.64 | -22.68 | -2.04 | 32.86 | 3.32 | -30.07 | 23.49 | -6.27 |
| Frame-9 | -49.80 | -18.62 | -0.52 | 53.91 | -52.82 | 15.23 | 33.15 | -14.21 | 25.21 | 62.02 | -25.73 |
| Frame-10 | -0.85 | -26.87 | 20.29 | 44.74 | -0.31 | 34.11 | -25.68 | -15.63 | -30.08 | 6.27 | -8.00 |
| Frame-11 | -7.59 | -24.68 | 20.02 | -21.94 | -20.50 | -23.93 | -20.07 | 18.54 | 0.97 | 13.04 | 31.18 |
| Frame-12 | -7.78 | 0.67 | -5.59 | 10.33 | -3.80 | 3.11 | -5.06 | 6.77 | 4.36 | 14.92 | -2.89 |
| Hoop-1 | 39.94 | -11.54 | 6.85 | -9.70 | 6.85 | -13.38 | -4.18 | -9.70 | -0.51 | 6.85 | -9.70 |
| Hoop-2 | -26.91 | 11.00 | -3.45 | 12.81 | 32.66 | 9.20 | 29.05 | 50.72 | -17.89 | -25.11 | 7.39 |
| Hoop-3 | -62.46 | 18.25 | -73.01 | 177.95 | -9.83 | 58.63 | 25.27 | 4.21 | 12.98 | -41.42 | 105.99 |
| Hoop-4 | -38.83 | 25.96 | 5.60 | 113.01 | -62.91 | -25.89 | 150.03 | 33.38 | 127.80 | 90.78 | -57.36 |
| Hoop-5 | -49.01 | -58.14 | -85.55 | -23.46 | 151.85 | -78.26 | -74.58 | 42.29 | -16.15 | 128.11 | 53.24 |
| Hoop-6 | -34.01 | -22.92 | 1.11 | -41.42 | -63.60 | 4.81 | -26.62 | 47.33 | -26.62 | -63.60 | -43.26 |
| Hoop-7 | 190.53 | -66.92 | -8.49 | -24.93 | 13.43 | 44.49 | -17.62 | -21.28 | 88.29 | 66.39 | -32.23 |
| Hoop-8 | -19.00 | -11.64 | 17.78 | -11.64 | 25.14 | -26.36 | -11.64 | -4.29 | 3.07 | 3.07 | 10.42 |
| Hoop-9 | 345.97 | -4.18 | -33.21 | -36.84 | 13.97 | -5.99 | -7.80 | -11.43 | -4.18 | 52.07 | 13.97 |
| Hoop-10 | -43.10 | 20.19 | -52.15 | -111.82 | 32.85 | -28.64 | -21.40 | -61.20 | -41.30 | 5.72 | 23.81 |
| Hoop-11 | 217.23 | -133.14 | 176.70 | 512.31 | -136.84 | 174.85 | 62.34 | 296.58 | 241.22 | 255.98 | -153.42 |
| Hoop-12 | -232.24 | 10.54 | -35.80 | -58.04 | 14.25 | -22.83 | -8.00 | -8.00 | -4.29 | -24.68 | 12.39 |
| Hoop-13 | 86.41 | -2.62 | -32.31 | -24.88 | 41.90 | -10.04 | -2.62 | -2.62 | -2.62 | -2.62 | 12.22 |
| Hoop-14 | 159.50 | -18.02 | -25.42 | -10.62 | 18.97 | -18.02 | -10.62 | -3.22 | -10.62 | -3.22 | 26.37 |
| Long-1 | 100.32 | 1211.28 | 2434.65 | 3669.71 | 4917.27 | 6128.59 | 7335.92 | 8474.49 | 9640.94 | 10811.0 | 11827.4 |
| Long-2 | 35.55 | 1219.05 | 2459.92 | 3672.70 | 4892.29 | 6136.56 | 7375.48 | 8565.54 | 9813.44 | 10961.8 | 12105.1 |
| Long-3 | -23.58 | 1222.14 | 2448.19 | 3697.76 | 4918.22 | 6142.78 | 7323.27 | 8433.85 | 9660.90 | 10844.5 | 11960.6 |
| Long-4 | -29.81 | 1264.54 | 2445.25 | 3728.71 | 4917.37 | 6135.80 | 7367.21 | 8578.78 | 9791.08 | 10999.8 | 12285.5 |
| Long-5 | -37.72 | 1205.48 | 2435.71 | 3664.63 | 4917.06 | 6137.46 | 7336.99 | 8581.85 | 9808.25 | 11017.9 | 12265.8 |
| Long-6 | -42.37 | 1228.52 | 2461.74 | 3688.72 | 4898.08 | 6127.39 | 7369.66 | 8576.21 | 9809.18 | 11014.1 | 12270.2 |
| Long-7 | -4.92 | 1212.30 | 2463.42 | 3685.58 | 4904.83 | 6140.08 | 7370.06 | 8575.74 | 9794.16 | 10951.4 | 11927.0 |
| Long-8 | -12.06 | 1222.84 | 2448.14 | 3684.40 | 4889.38 | 6132.91 | 7368.55 | 8574.39 | 9657.86 | 10821.5 | 11853.0 |
| SG1 | -23.65 | -25.85 | -30.26 | -18.88 | -38.69 | -57.75 | -76.47 | -97.38 | -121.40 | -144.15 | -179.53 |
| SG2 | 35.74 | 25.29 | 13.55 | 20.52 | -9.20 | -38.55 | -63.50 | -90.84 | -121.46 | -149.18 | -197.87 |
| SG3 | 438.86 | 582.97 | 717.68 | 853.11 | 958.40 | 1049.54 | 1154.58 | 1225.27 | 1291.05 | 1346.45 | 1410.20 |
| SG4 | 348.81 | 381.35 | 416.55 | 473.73 | 473.40 | 485.50 | 504.40 | 497.98 | 487.43 | 484.91 | 471.07 |
| SG5 | 65.12 | 53.16 | 40.43 | 43.40 | 12.51 | -18.83 | -41.79 | -69.47 | -95.86 | -119.66 | -165.43 |
| SG6 | 19.27 | 2.12 | -17.96 | -36.44 | -61.05 | -82.04 | -101.13 | -120.39 | -138.94 | -156.75 | -176.58 |
| SG7 | 234.97 | 215.23 | 203.82 | 202.70 | 148.64 | 114.64 | 84.84 | 55.98 | 14.25 | -13.46 | -64.90 |
| SG8 | 59.48 | 50.73 | 42.08 | 38.23 | 16.84 | -6.28 | -20.75 | -41.68 | -56.61 | -68.38 | -96.54 |
| SG9 | 21.14 | 7.92 | -7.33 | -21.48 | -39.48 | -54.90 | -68.33 | -84.13 | -97.71 | -110.95 | -126.37 |
| SG10 | 18.76 | 43.46 | 77.35 | 114.12 | 157.03 | 192.22 | 228.26 | 263.29 | 299.12 | 335.69 | 367.06 |
| SG11 | 7.12 | 41.29 | 76.22 | 111.86 | 150.62 | 188.46 | 225.62 | 262.92 | 300.19 | 337.35 | 371.49 |

TABLE E-29. CVP3, AIR 2 LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -4.17 | 79.71 | 165.70 | 249.11 | 347.53 | 431.46 | 516.59 | 595.61 | 677.09 | 755.41 | 831.55 |
| SG13 | 3.90 | 112.05 | 223.08 | 330.34 | 449.32 | 561.85 | 672.73 | 779.28 | 889.41 | 994.77 | 1093.14 |
| SG14 | -33.78 | 79.27 | 194.47 | 303.98 | 431.82 | 544.17 | 655.37 | 759.21 | 863.15 | 959.93 | 1053.94 |
| SG15 | 9.96 | 66.78 | 126.18 | 182.35 | 245.79 | 305.56 | 363.03 | 419.35 | 477.45 | 531.79 | 584.38 |
| SG16 | 175.40 | 278.31 | 383.05 | 484.01 | 601.14 | 706.97 | 812.56 | 911.22 | 1010.70 | 1104.33 | 1194.07 |
| SG17 | -263.80 | -358.68 | -341.10 | -408.74 | -483.00 | -284.36 | -312.37 | -644.88 | -1009.66 | 18.66 | -154.20 |
| SG18 | 3.60 | 71.25 | 137.45 | 202.01 | 271.10 | 336.64 | 400.69 | 462.46 | 525.93 | 586.93 | 646.72 |
| SG19 | 23.43 | 120.25 | 209.56 | 291.09 | 369.84 | 439.18 | 507.38 | 573.28 | 641.33 | 706.19 | 769.80 |
| SG20 | 85.82 | 187.80 | 290.20 | 384.24 | 483.23 | 570.80 | 655.41 | 736.96 | 819.53 | 897.67 | 973.60 |
| SG21 | 35.36 | 115.28 | 196.72 | 266.68 | 336.82 | 389.26 | 439.62 | 487.50 | 536.80 | 583.45 | 632.01 |
| SG22 | -40.79 | 54.19 | 127.10 | 178.89 | 202.07 | 215.87 | 230.11 | 244.16 | 262.37 | 278.61 | 295.53 |
| SG23 | -14.95 | 83.84 | 175.69 | 262.72 | 350.47 | 434.16 | 515.23 | 593.10 | 673.10 | 749.01 | 825.33 |
| SG24 | 7.47 | 112.15 | 213.37 | 310.69 | 412.21 | 507.47 | 601.23 | 689.39 | 780.59 | 865.70 | 952.10 |
| SG25 | 6.31 | 110.84 | 220.35 | 324.36 | 443.64 | 552.95 | 660.97 | 765.93 | 870.43 | 969.40 | 1067.81 |
| SG26 | 48.19 | 158.87 | 267.57 | 371.60 | 490.14 | 600.02 | 710.27 | 816.54 | 924.37 | 1027.61 | 1129.17 |
| SG27 | 39.64 | 128.64 | 222.00 | 311.91 | 415.13 | 513.40 | 610.65 | 704.90 | 798.38 | 886.73 | 973.62 |
| SG28 | -2.42 | 43.93 | 90.30 | 140.33 | 193.30 | 240.36 | 290.45 | 339.75 | 390.49 | 438.36 | 486.88 |
| SG29 | 47.34 | 127.80 | 212.35 | 292.61 | 380.94 | 462.82 | 542.83 | 622.38 | 701.12 | 776.33 | 851.75 |
| SG30 | -32.09 | 0.34 | 33.32 | 67.31 | 103.50 | 136.51 | 170.58 | 204.48 | 238.40 | 271.82 | 305.42 |
| SG31 | -26.96 | 7.29 | 40.68 | 72.50 | 106.48 | 142.42 | 180.20 | 217.72 | 254.66 | 291.38 | 329.19 |
| SG32-T | 9.68 | -15.88 | -42.40 | -69.82 | -101.69 | -129.47 | -158.81 | -185.27 | -213.56 | -239.91 | -266.95 |
| SG32-45 | -16.38 | 14.04 | 46.71 | 76.12 | 115.89 | 147.76 | 180.59 | 212.34 | 245.58 | 276.76 | 310.04 |
| SG32-L | 20.06 | 110.22 | 200.64 | 288.22 | 389.72 | 476.20 | 565.09 | 647.41 | 731.54 | 812.15 | 893.14 |
| SG33-T | 27.40 | -14.88 | -58.77 | -102.97 | -151.61 | -194.28 | -237.47 | -278.74 | -322.00 | -363.53 | -404.48 |
| SG33-45 | -19.80 | -4.06 | 15.13 | 27.71 | 35.32 | 26.88 | 15.41 | 2.87 | -9.98 | -22.74 | -34.77 |
| SG33-T | 40.09 | 150.89 | 261.92 | 370.51 | 493.93 | 605.95 | 715.97 | 819.99 | 925.39 | 1024.92 | 1123.88 |
| SG34-T | 7.32 | -27.48 | -64.82 | -99.76 | -140.84 | -176.59 | -211.34 | -246.15 | -280.61 | -313.16 | -344.45 |
| SG34-45 | 10.72 | 41.11 | 67.16 | 92.09 | 111.05 | 131.30 | 147.87 | 165.02 | 178.34 | 191.74 | 207.86 |
| SG34-L | 35.87 | 136.40 | 239.72 | 335.46 | 439.07 | 531.10 | 621.46 | 709.16 | 797.68 | 881.79 | 963.70 |
| SG35-T | 44.39 | 12.27 | -16.31 | -43.06 | -66.37 | -87.19 | -108.73 | -128.32 | -148.54 | -168.19 | -189.15 |
| SG35-45 | 63.26 | 92.28 | 117.83 | 142.07 | 165.19 | 188.13 | 206.54 | 226.37 | 241.96 | 257.05 | 274.28 |
| SG35-L | 79.83 | 177.60 | 278.18 | 370.97 | 471.46 | 560.53 | 648.13 | 733.04 | 818.43 | 900.30 | 980.51 |
| SG36-T | 7.65 | -34.22 | -77.01 | -119.97 | -168.80 | -212.89 | -255.35 | -295.84 | -337.44 | -377.23 | -416.62 |
| SG36-45 | 27.85 | 54.31 | 73.27 | 87.26 | 86.28 | 81.05 | 71.52 | 59.96 | 49.36 | 37.57 | 28.99 |
| SG36-L | 30.23 | 143.79 | 260.85 | 372.69 | 499.99 | 614.08 | 724.79 | 830.79 | 937.60 | 1038.91 | 1138.73 |
| SG37-T | 401.58 | 374.43 | 345.47 | 314.43 | 274.00 | 231.60 | 190.32 | 150.83 | 110.09 | 70.84 | 32.63 |
| SG37-45 | 129.95 | 149.22 | 159.72 | 165.02 | 151.79 | 134.34 | 114.18 | 93.80 | 73.97 | 53.42 | 38.37 |
| SG37-L | 87.87 | 181.73 | 280.95 | 377.17 | 487.48 | 587.68 | 685.88 | 783.77 | 881.58 | 975.53 | 1069.10 |
| SG38-T | 39.50 | 3.71 | -31.35 | -67.88 | -108.61 | -145.31 | -181.86 | -216.18 | -251.95 | -284.47 | -318.76 |
| SG38-45 | -10.82 | 30.87 | 60.08 | 94.23 | 126.35 | 158.29 | 194.50 | 223.89 | 254.53 | 284.86 | 314.95 |
| SG38-L | -3.17 | 98.02 | 198.48 | 295.76 | 396.97 | 492.61 | 585.69 | 675.10 | 767.14 | 852.87 | 941.08 |
| SG39-T | -7.77 | -35.65 | -63.72 | -91.96 | -123.13 | -152.09 | -180.46 | -208.80 | -236.88 | -264.14 | -290.89 |
| SG39-45 | 0.56 | 27.15 | 47.14 | 68.81 | 88.64 | 117.24 | 144.87 | 169.44 | 197.02 | 220.14 | 250.70 |
| SG39-L | 50.71 | 134.88 | 223.86 | 305.77 | 399.71 | 486.02 | 570.99 | 655.67 | 739.91 | 820.73 | 901.71 |
| SG40-T | 33.64 | 20.42 | 5.14 | -5.67 | -22.95 | -37.36 | -51.27 | -65.63 | -79.72 | -95.62 | -111.55 |
| SG40-45 | 41.11 | 78.55 | 109.42 | 143.57 | 175.14 | 215.50 | 254.78 | 291.10 | 330.54 | 363.37 | 403.80 |
| SG40-L | 47.72 | 123.02 | 203.45 | 280.22 | 367.37 | 449.07 | 530.27 | 611.91 | 694.15 | 771.93 | 851.23 |

TABLE E-30. CVP3, AIR 2 LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.00 | 0.88 | 1.75 | 2.64 | 3.52 | 4.39 | 5.29 | 6.16 | 7.03 | 7.93 | 8.81 |
| Frame-1 | 1.60 | 183.05 | 367.86 | 539.03 | 735.41 | 922.23 | 1079.84 | 1282.31 | 1509.19 | 1614.04 | 1818.19 |
| Frame-2 | -3.61 | 184.33 | 363.50 | 548.05 | 733.68 | 907.93 | 1085.74 | 1284.46 | 1452.20 | 1623.71 | 1813.69 |
| Frame-3 | 44.50 | 181.84 | 363.71 | 538.84 | 727.09 | 916.12 | 1098.34 | 1289.23 | 1468.41 | 1632.37 | 1806.05 |
| Frame-4 | -7.11 | 179.85 | 358.10 | 546.83 | 733.22 | 923.83 | 1088.64 | 1281.13 | 1468.73 | 1642.80 | 1812.82 |
| Frame-5 | -20.67 | 178.64 | 364.05 | 546.16 | 722.47 | 920.26 | 1083.61 | 1274.64 | 1452.17 | 1652.38 | 1815.76 |
| Frame-6 | -25.59 | 273.43 | 370.28 | 550.44 | 741.91 | 935.86 | 1083.96 | 1274.66 | 1463.96 | 1621.16 | 1820.30 |
| Frame-7 | 22.21 | 172.83 | 375.09 | 530.81 | 737.94 | 926.26 | 1099.79 | 1289.89 | 1482.94 | 1622.95 | 1797.62 |
| Frame-8 | -25.99 | 179.53 | 366.08 | 540.56 | 738.86 | 918.37 | 1084.82 | 1302.26 | 1546.74 | 1628.04 | 1804.23 |
| Frame-9 | -40.38 | 194.39 | 368.06 | 555.71 | 732.58 | 927.02 | 1092.58 | 1276.62 | 1472.34 | 1616.17 | 1826.47 |
| Frame-10 | -26.00 | 186.48 | 376.54 | 564.86 | 728.80 | 929.03 | 1078.33 | 1287.23 | 1485.30 | 1630.36 | 1825.56 |
| Frame-11 | -10.33 | 187.36 | 366.40 | 550.43 | 730.87 | 908.05 | 1094.36 | 1266.53 | 1453.46 | 1630.51 | 1816.26 |
| Frame-12 | 1.56 | 170.70 | 374.40 | 548.68 | 712.31 | 915.85 | 1069.96 | 1285.67 | 1455.90 | 1638.62 | 1830.19 |
| Hoop-1 | 12.37 | 771.89 | 1538.78 | 2349.56 | 3081.74 | 3870.30 | 4641.71 | 5413.65 | 6204.44 | 6962.12 | 7701.42 |
| Hoop-2 | -35.95 | 778.41 | 1538.59 | 2318.41 | 3100.18 | 3910.85 | 4632.16 | 5409.94 | 6211.66 | 6955.59 | 7728.42 |
| Hoop-3 | 21.76 | 788.68 | 1564.38 | 2313.52 | 3083.88 | 3877.04 | 4648.33 | 5428.82 | 6183.46 | 6952.14 | 7726.08 |
| Hoop-4 | 44.49 | 851.90 | 1722.27 | 2323.89 | 3103.44 | 3871.88 | 4613.47 | 5405.60 | 6198.20 | 6951.90 | 7759.31 |
| Hoop-5 | -32.59 | 637.63 | 1559.87 | 2304.73 | 3102.71 | 3876.94 | 4635.67 | 5418.65 | 6213.05 | 6947.19 | 7739.76 |
| Hoop-6 | -6.29 | 803.58 | 1563.53 | 2302.90 | 3088.65 | 3859.62 | 4640.75 | 5418.72 | 6200.85 | 6964.50 | 7731.84 |
| Hoop-7 | 51.78 | 778.71 | 1628.00 | 2309.03 | 3092.50 | 3883.27 | 4634.79 | 5414.22 | 6177.67 | 6963.04 | 7717.36 |
| Hoop-8 | -19.00 | 760.73 | 1533.26 | 2349.85 | 3077.55 | 3835.52 | 4725.59 | 5329.84 | 6189.42 | 6844.79 | 7566.50 |
| Hoop-9 | 1.27 | 772.40 | 1552.76 | 2320.34 | 3096.37 | 3871.44 | 4635.32 | 5407.53 | 6105.00 | 6717.14 | 7389.28 |
| Hoop-10 | -64.81 | 776.10 | 1557.49 | 2311.67 | 3086.93 | 3864.85 | 4646.08 | 5413.93 | 6172.37 | 6961.53 | 7743.61 |
| Hoop-11 | 220.94 | 772.33 | 1537.80 | 2308.73 | 3103.01 | 3872.32 | 4633.94 | 5418.79 | 6192.24 | 6958.25 | 7731.79 |
| Hoop-12 | -2.44 | 776.01 | 1539.79 | 2310.90 | 3073.98 | 3882.39 | 4631.18 | 5410.71 | 6173.25 | 6944.98 | 7716.86 |
| Hoop-13 | 4.80 | 776.53 | 1548.42 | 2357.34 | 3098.85 | 4026.73 | 4635.21 | 5422.87 | 6171.26 | 6958.54 | 7731.12 |
| Hoop-14 | -3.22 | 766.09 | 1550.35 | 2312.34 | 3103.31 | 3865.53 | 4634.84 | 5405.24 | 6173.47 | 6817.71 | 7432.48 |
| Long-1 | 79.06 | 1217.07 | 2448.82 | 3688.23 | 4903.10 | 6128.59 | 7340.64 | 8457.96 | 9700.40 | 10872.3 | 11892.4 |
| Long-2 | 44.05 | 1228.65 | 2463.56 | 3663.83 | 4904.45 | 6137.77 | 7381.55 | 8569.18 | 9805.40 | 11026.1 | 12089.3 |
| Long-3 | 3.80 | 1200.86 | 2474.32 | 3679.97 | 4903.28 | 6078.07 | 7273.49 | 8428.87 | 9723.67 | 10942.7 | 12076.4 |
| Long-4 | -1.65 | 1239.92 | 2446.47 | 3681.80 | 4899.00 | 6132.13 | 7346.39 | 8587.35 | 9796.47 | 11022.9 | 12247.5 |
| Long-5 | 13.88 | 1225.75 | 2452.52 | 3669.07 | 4900.26 | 6141.06 | 7357.39 | 8577.05 | 9806.28 | 11035.8 | 12259.8 |
| Long-6 | 0.44 | 1221.06 | 2462.96 | 3681.01 | 4907.87 | 6143.29 | 7358.65 | 8588.44 | 9812.11 | 11036.0 | 12259.2 |
| Long-7 | 1.09 | 1229.00 | 2452.61 | 3669.59 | 4902.43 | 6140.08 | 7360.45 | 8590.16 | 9810.23 | 11040.2 | 12142.1 |
| Long-8 | -7.13 | 1226.41 | 2450.60 | 3659.41 | 4896.77 | 6132.91 | 7363.62 | 8576.86 | 9806.10 | 11023.2 | 11951.6 |
| SG1 | -33.01 | -86.35 | -82.52 | -110.77 | -130.40 | -110.76 | -121.58 | -104.51 | -108.00 | -108.00 | -111.14 |
| SG2 | 13.73 | -50.10 | -44.05 | -80.47 | -110.42 | -90.37 | -113.30 | -103.02 | -116.22 | -137.41 | -159.13 |
| SG3 | 392.82 | 538.80 | 721.76 | 846.13 | 962.53 | 1115.73 | 1216.15 | 1347.46 | 1439.06 | 1515.43 | 1592.29 |
| SG4 | 314.91 | 297.86 | 381.86 | 416.83 | 452.04 | 532.50 | 555.78 | 614.77 | 640.80 | 654.74 | 672.84 |
| SG5 | 34.70 | -22.31 | -7.47 | -34.83 | -61.68 | -39.77 | -59.84 | -51.45 | -64.37 | -88.93 | -115.26 |
| SG6 | 15.92 | 35.22 | 57.78 | 80.71 | 101.43 | 127.65 | 150.39 | 176.41 | 200.80 | 225.55 | 251.27 |
| SG7 | 202.89 | 99.29 | 108.15 | 87.36 | 53.42 | 72.42 | 56.75 | 67.60 | 64.72 | 43.38 | 13.70 |
| SG8 | 31.09 | -3.95 | 18.12 | 17.30 | 5.44 | 28.84 | 26.00 | 37.95 | 35.57 | 27.78 | 12.81 |
| SG9 | 15.27 | 40.24 | 72.03 | 103.82 | 131.38 | 164.62 | 194.56 | 226.32 | 255.90 | 286.20 | 315.11 |
| SG10 | 13.48 | 37.11 | 70.54 | 102.46 | 133.22 | 167.73 | 191.28 | 220.50 | 252.86 | 276.96 | 296.67 |
| SG11 | 2.89 | 23.65 | 41.84 | 64.08 | 88.16 | 113.51 | 139.78 | 165.12 | 194.34 | 220.06 | 245.28 |

TABLE E-30. CVP3, AIR 2 LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -11.61 | 81.03 | 169.61 | 257.70 | 344.76 | 431.87 | 519.84 | 599.71 | 681.25 | 759.48 | 827.77 |
| SG13 | -7.88 | 94.06 | 196.40 | 298.80 | 406.26 | 516.80 | 627.74 | 732.55 | 838.72 | 942.86 | 1034.20 |
| SG14 | -25.85 | 89.62 | 198.47 | 305.36 | 412.14 | 517.49 | 623.06 | 714.31 | 808.04 | 897.00 | 971.49 |
| SG15 | 5.65 | 73.64 | 130.51 | 189.69 | 250.77 | 308.52 | 368.50 | 423.85 | 482.54 | 537.74 | 588.48 |
| SG16 | 168.35 | 274.13 | 376.83 | 479.89 | 585.61 | 692.78 | 801.15 | 898.75 | 996.48 | 1089.26 | 1170.72 |
| SG17 | -1672.58 | -1686.05 | 10963.9 | 8526.36 | 6960.18 | 19563.4 | 19610.5 | 23359.5 | 23877.3 | 24136.2 | 25479.9 |
| SG18 | 4.66 | 58.25 | 113.79 | 163.78 | 214.40 | 264.72 | 314.19 | 356.47 | 404.74 | 451.54 | 492.02 |
| SG19 | 19.57 | 92.80 | 156.88 | 215.43 | 266.42 | 313.70 | 362.84 | 406.98 | 455.56 | 501.57 | 540.88 |
| SG20 | 80.12 | 184.08 | 284.44 | 377.80 | 465.24 | 547.84 | 631.23 | 706.08 | 783.19 | 857.74 | 924.36 |
| SG21 | 24.69 | 102.74 | 174.95 | 238.14 | 287.12 | 329.08 | 371.25 | 407.49 | 446.16 | 482.06 | 513.10 |
| SG22 | -47.13 | 48.62 | 121.05 | 178.48 | 197.54 | 218.24 | 239.64 | 259.96 | 279.93 | 305.14 | 322.89 |
| SG23 | -16.97 | 60.88 | 122.59 | 184.49 | 242.89 | 298.50 | 356.71 | 411.02 | 467.02 | 523.02 | 574.00 |
| SG24 | 6.55 | 107.35 | 200.84 | 296.36 | 387.09 | 478.32 | 569.59 | 655.28 | 741.21 | 827.88 | 905.37 |
| SG25 | 6.40 | 111.05 | 212.20 | 313.13 | 417.72 | 522.44 | 626.47 | 721.41 | 816.22 | 907.16 | 987.08 |
| SG26 | 43.79 | 147.81 | 246.92 | 347.70 | 452.32 | 560.92 | 672.15 | 777.59 | 882.92 | 988.62 | 1083.32 |
| SG27 | 34.36 | 125.81 | 214.60 | 306.02 | 402.80 | 501.87 | 601.81 | 694.00 | 784.88 | 872.95 | 952.57 |
| SG28 | 2.73 | 56.43 | 102.06 | 149.90 | 199.94 | 247.74 | 297.04 | 340.42 | 388.24 | 439.74 | 484.72 |
| SG29 | 43.49 | 125.94 | 206.24 | 287.28 | 369.59 | 451.48 | 533.96 | 610.31 | 687.27 | 763.13 | 832.55 |
| SG30 | -31.59 | -6.83 | 17.93 | 39.29 | 65.29 | 91.33 | 118.01 | 144.73 | 173.90 | 201.68 | 228.36 |
| SG31 | -28.39 | 1.55 | 31.95 | 56.71 | 85.00 | 117.18 | 143.21 | 171.62 | 205.41 | 232.82 | 258.96 |
| SG32-T | 15.68 | 71.80 | 120.12 | 170.51 | 215.48 | 254.61 | 292.53 | 330.64 | 369.19 | 406.51 | 448.49 |
| SG32-45 | -10.41 | 57.75 | 119.83 | 188.30 | 256.39 | 324.03 | 391.43 | 455.24 | 519.46 | 588.09 | 648.96 |
| SG32-L | 11.90 | 105.52 | 193.77 | 278.95 | 365.54 | 453.14 | 541.09 | 619.72 | 698.27 | 773.28 | 837.46 |
| SG33-T | 34.15 | 71.36 | 103.00 | 135.42 | 163.24 | 184.84 | 207.33 | 228.70 | 250.41 | 272.44 | 299.57 |
| SG33-45 | -16.04 | 27.93 | 73.70 | 113.32 | 139.62 | 155.77 | 166.60 | 175.95 | 185.86 | 198.16 | 207.93 |
| SG33-T | 33.30 | 135.27 | 242.61 | 348.13 | 457.65 | 567.31 | 675.36 | 774.34 | 872.10 | 964.92 | 1046.20 |
| SG34-T | 11.22 | 65.87 | 118.34 | 174.49 | 226.77 | 278.29 | 329.65 | 380.43 | 430.31 | 482.22 | 534.96 |
| SG34-45 | 12.37 | 88.03 | 147.49 | 211.55 | 269.67 | 325.38 | 381.48 | 438.46 | 492.91 | 546.07 | 602.47 |
| SG34-L | 30.92 | 128.30 | 223.53 | 311.43 | 396.73 | 477.95 | 559.77 | 634.55 | 710.66 | 783.11 | 848.58 |
| SG35-T | 44.40 | 73.51 | 102.07 | 136.26 | 174.16 | 210.76 | 249.57 | 289.00 | 330.89 | 371.81 | 416.49 |
| SG35-45 | 61.98 | 121.09 | 165.56 | 216.64 | 265.31 | 310.65 | 359.68 | 408.86 | 457.16 | 503.62 | 552.76 |
| SG35-L | 71.57 | 166.36 | 258.65 | 344.32 | 426.66 | 505.64 | 585.03 | 657.74 | 731.24 | 801.44 | 865.01 |
| SG36-T | 14.07 | 67.49 | 115.05 | 159.87 | 197.69 | 228.52 | 258.45 | 286.88 | 314.42 | 342.69 | 375.26 |
| SG36-45 | 24.82 | 83.70 | 136.47 | 184.88 | 217.36 | 239.08 | 257.84 | 274.37 | 289.88 | 304.37 | 320.35 |
| SG36-L | 26.19 | 132.88 | 244.58 | 352.62 | 465.83 | 577.41 | 684.86 | 783.97 | 883.33 | 977.91 | 1062.24 |
| SG37-T | 401.21 | 410.95 | 418.96 | 428.13 | 431.11 | 431.30 | 436.44 | 442.72 | 452.86 | 463.49 | 480.28 |
| SG37-45 | 126.84 | 173.78 | 198.05 | 223.03 | 224.68 | 216.58 | 213.83 | 210.32 | 208.30 | 205.92 | 207.24 |
| SG37-L | 87.33 | 179.49 | 261.65 | 349.30 | 438.39 | 526.52 | 617.44 | 700.95 | 786.92 | 869.76 | 942.71 |
| SG38-T | 39.87 | 73.25 | 119.88 | 168.54 | 213.69 | 258.45 | 303.60 | 348.71 | 394.04 | 439.92 | 488.28 |
| SG38-45 | -8.98 | 61.34 | 129.66 | 196.89 | 264.11 | 330.00 | 398.68 | 464.01 | 529.37 | 591.07 | 651.24 |
| SG38-L | -5.47 | 85.34 | 167.32 | 252.02 | 336.98 | 422.49 | 507.48 | 588.01 | 668.22 | 748.48 | 821.29 |
| SG39-T | -2.45 | 56.78 | 111.26 | 163.36 | 210.32 | 251.74 | 293.37 | 332.77 | 373.30 | 411.99 | 454.45 |
| SG39-45 | 2.77 | 79.26 | 138.28 | 207.74 | 275.16 | 342.50 | 413.31 | 480.63 | 545.28 | 610.30 | 673.44 |
| SG39-L | 47.15 | 136.41 | 222.67 | 308.24 | 393.29 | 479.12 | 564.84 | 644.60 | 723.32 | 799.84 | 869.11 |
| SG40-T | 33.78 | 72.07 | 107.02 | 140.61 | 177.41 | 211.20 | 245.74 | 278.64 | 313.96 | 347.13 | 383.97 |
| SG40-45 | 39.47 | 97.16 | 139.00 | 191.58 | 249.10 | 308.63 | 373.30 | 434.26 | 494.78 | 554.96 | 614.12 |
| SG40-L | 43.70 | 105.10 | 166.53 | 228.47 | 297.19 | 368.29 | 441.43 | 509.93 | 580.36 | 649.01 | 711.88 |

TABLE E-31. CVP3, WATER 1, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.05 | 0.88 | 1.78 | 2.68 | 3.49 | 4.49 | 5.24 | 6.18 | 7.00 | 7.91 | 8.84 |
| Frame-1 | -207.76 | 198.55 | 392.91 | 547.37 | 693.27 | 898.86 | 1081.08 | 1262.80 | 1471.60 | 1662.58 | 1810.62 |
| Frame-2 | -134.99 | 208.66 | 322.78 | 553.03 | 701.53 | 938.36 | 1104.30 | 1282.19 | 1428.12 | 1657.03 | 1891.25 |
| Frame-3 | -225.85 | 180.12 | 385.22 | 541.98 | 729.75 | 921.95 | 1094.46 | 1276.64 | 1461.86 | 1632.70 | 1837.96 |
| Frame-4 | -99.46 | 176.40 | 341.80 | 555.18 | 720.34 | 903.90 | 1093.33 | 1258.16 | 1450.06 | 1634.50 | 1832.83 |
| Frame-5 | -218.34 | 190.72 | 304.62 | 533.82 | 721.65 | 907.23 | 1090.01 | 1274.08 | 1436.93 | 1642.34 | 1821.99 |
| Frame-6 | 123.01 | 181.73 | 367.75 | 546.70 | 729.31 | 932.96 | 1093.79 | 1275.75 | 1443.95 | 1638.48 | 1833.13 |
| Frame-7 | -193.73 | 175.12 | 305.57 | 547.99 | 742.22 | 909.96 | 1095.89 | 1274.31 | 1438.37 | 1635.40 | 1819.84 |
| Frame-8 | -217.70 | 174.93 | 313.82 | 543.95 | 781.02 | 910.67 | 1105.02 | 1314.22 | 1452.27 | 1659.42 | 1835.04 |
| Frame-9 | -91.73 | 172.28 | 350.05 | 541.77 | 733.34 | 902.00 | 1107.71 | 1320.19 | 1455.05 | 1639.22 | 1842.06 |
| Frame-10 | -38.67 | 311.02 | 406.93 | 549.31 | 717.58 | 909.29 | 1070.99 | 1378.41 | 1442.48 | 1637.64 | 1844.32 |
| Frame-11 | 82.29 | 184.54 | 355.57 | 555.37 | 714.87 | 912.06 | 1117.74 | 1291.77 | 1445.31 | 1664.78 | 1856.60 |
| Frame-12 | -222.22 | 186.83 | 315.00 | 540.01 | 730.42 | 913.38 | 1097.14 | 1252.74 | 1438.80 | 1633.82 | 1833.50 |
| Hoop-1 | 4.90 | 755.01 | 1519.67 | 2315.89 | 3078.56 | 3863.91 | 4637.45 | 5425.33 | 6260.68 | 6962.91 | 7767.03 |
| Hoop-2 | 7.19 | 777.98 | 1539.58 | 2333.99 | 3075.59 | 3866.54 | 4618.82 | 5421.30 | 6178.29 | 6979.68 | 7769.22 |
| Hoop-3 | 57.91 | 943.91 | 1540.27 | 2324.66 | 3055.95 | 3858.04 | 4611.99 | 5406.00 | 6148.73 | 6953.94 | 7765.19 |
| Hoop-4 | -40.07 | 752.28 | 1542.63 | 2316.63 | 3054.99 | 3869.87 | 4633.99 | 5408.84 | 6151.90 | 6962.69 | 7761.30 |
| Hoop-5 | 52.21 | 769.70 | 1550.93 | 2337.95 | 3051.47 | 3844.12 | 4621.39 | 5423.86 | 6147.49 | 6952.52 | 7785.72 |
| Hoop-6 | -189.88 | 741.73 | 1556.74 | 2316.61 | 3059.39 | 3863.78 | 4624.88 | 5413.33 | 6155.25 | 6959.25 | 7762.18 |
| Hoop-7 | 52.06 | 864.59 | 1465.17 | 2266.88 | 3102.83 | 3877.32 | 4632.78 | 5417.09 | 6153.59 | 6945.95 | 7914.37 |
| Hoop-8 | -28.49 | 670.11 | 1523.15 | 2273.46 | 3368.94 | 3876.73 | 4634.25 | 5413.82 | 6149.27 | 6980.32 | 7693.71 |
| Hoop-9 | 0.65 | 762.48 | 1551.52 | 2291.81 | 3160.43 | 3860.98 | 4622.88 | 5392.05 | 6137.63 | 6970.28 | 7641.49 |
| Hoop-10 | -74.23 | 753.77 | 1558.27 | 2272.60 | 3017.21 | 3867.29 | 4624.86 | 5413.17 | 6150.85 | 7004.24 | 7763.62 |
| Hoop-11 | -62.63 | 768.82 | 1550.50 | 2308.44 | 3095.42 | 3870.11 | 4673.99 | 5396.75 | 6145.31 | 6978.69 | 7756.76 |
| Hoop-12 | -105.99 | 768.57 | 1463.40 | 2264.08 | 3056.89 | 3872.55 | 4606.37 | 5421.72 | 6140.72 | 6941.25 | 7741.77 |
| Hoop-13 | 15.10 | 786.60 | 1506.18 | 2478.22 | 3064.02 | 3902.68 | 4592.65 | 5401.33 | 6158.07 | 6966.75 | 7775.43 |
| Hoop-14 | 255.03 | 765.29 | 1578.74 | 2311.08 | 3065.14 | 3842.00 | 4633.35 | 5402.50 | 6134.68 | 6992.59 | 7717.38 |
| Long-1 | 41.60 | 2.65 | 3.83 | 5.01 | -24.49 | -6.79 | -20.95 | 8.56 | 6.19 | -0.89 | -2.07 |
| Long-2 | 0.01 | 0.01 | 2.44 | -1.21 | -1.21 | 2.44 | 3.65 | 3.65 | 1.22 | -2.42 | -2.42 |
| Long-3 | -0.85 | -3.34 | -4.58 | -0.85 | -2.10 | -3.34 | 0.39 | 20.30 | 2.88 | 5.37 | 12.83 |
| Long-4 | 14.20 | 11.75 | 6.85 | 15.42 | 4.40 | 6.85 | 4.40 | 9.30 | 16.64 | 17.87 | 10.52 |
| Long-5 | -17.38 | -1.79 | -34.18 | -4.19 | -34.17 | -34.18 | -17.38 | -17.38 | -7.79 | -4.19 | 1.81 |
| Long-6 | 20.21 | -11.58 | -22.59 | 11.65 | 18.98 | 7.98 | 22.65 | 7.98 | 18.99 | 14.09 | 20.21 |
| Long-7 | -27.48 | -26.28 | -20.27 | 55.40 | 18.16 | 68.62 | 16.96 | -21.48 | -25.08 | 98.65 | -19.08 |
| Long-8 | -25.75 | 19.79 | 25.94 | -30.68 | -29.44 | 16.10 | -29.44 | 18.56 | 16.10 | -3.60 | 12.41 |
| SG1 | 202.66 | 65.84 | 51.90 | 77.39 | 131.12 | 149.27 | 230.16 | 261.50 | 313.15 | 337.41 | 366.02 |
| SG2 | 333.65 | 161.75 | 132.95 | 165.97 | 242.45 | 251.44 | 358.23 | 384.97 | 449.63 | 478.70 | 504.75 |
| SG3 | 784.73 | 608.24 | 594.84 | 635.78 | 718.20 | 762.07 | 911.77 | 918.65 | 1019.78 | 1048.07 | 1096.34 |
| SG4 | 731.27 | 540.14 | 506.36 | 553.89 | 647.95 | 677.84 | 814.88 | 839.00 | 917.66 | 957.45 | 996.69 |
| SG5 | 355.98 | 187.32 | 158.73 | 196.85 | 281.62 | 288.22 | 397.82 | 423.85 | 490.24 | 521.95 | 545.37 |
| SG6 | 21.19 | 54.84 | 94.08 | 139.92 | 186.13 | 233.07 | 280.22 | 327.50 | 373.45 | 421.56 | 468.14 |
| SG7 | 596.73 | 441.36 | 368.27 | 404.36 | 500.49 | 500.12 | 606.44 | 647.78 | 704.79 | 747.62 | 764.65 |
| SG8 | 292.42 | 173.21 | 162.58 | 201.18 | 277.56 | 291.43 | 375.76 | 404.57 | 460.11 | 491.20 | 512.27 |
| SG9 | 60.83 | 90.58 | 133.01 | 182.97 | 236.06 | 286.20 | 336.20 | 387.23 | 436.37 | 486.79 | 535.29 |
| SG10 | 40.66 | 26.51 | 22.98 | 14.03 | 1.27 | -16.68 | -22.37 | -37.70 | -48.62 | -58.18 | -76.26 |
| SG11 | 17.59 | -2.81 | -21.36 | -41.39 | -54.25 | -74.46 | -88.62 | -102.94 | -117.43 | -128.85 | -142.81 |

TABLE E-31. CVP3, WATER 1, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -4.77 | -7.52 | -5.13 | -2.06 | -4.08 | -0.31 | -4.44 | 2.08 | 4.64 | 4.60 | 5.47 |
| SG13 | 0.74 | -20.35 | -25.20 | -28.00 | -31.71 | -37.81 | -44.97 | -42.12 | -46.05 | -49.09 | -53.90 |
| SG14 | -16.76 | -27.72 | -37.58 | -39.28 | -50.79 | -57.89 | -66.71 | -68.85 | -71.36 | -76.65 | -82.75 |
| SG15 | 10.47 | 19.13 | 21.06 | 19.13 | 15.55 | 12.62 | 6.11 | 5.19 | 2.07 | 1.07 | -0.36 |
| SG16 | 189.33 | 179.50 | 175.38 | 178.82 | 174.10 | 172.81 | 167.65 | 170.61 | 170.72 | 169.19 | 167.27 |
| SG17 | 24171.0 | 23977.3 | 23803.8 | 23912.6 | 23747.9 | 23839.1 | 23897.4 | 23918.5 | 23996.1 | 23953.8 | 23962.6 |
| SG18 | 25.35 | 11.72 | -5.12 | -23.56 | -43.62 | -65.41 | -87.35 | -106.89 | -126.92 | -148.05 | -170.35 |
| SG19 | 33.00 | 2.63 | -25.16 | -52.77 | -84.60 | -119.39 | -150.14 | -179.02 | -208.61 | -237.54 | -268.83 |
| SG20 | 138.65 | 130.91 | 126.67 | 127.04 | 123.73 | 118.57 | 116.19 | 115.45 | 114.13 | 110.29 | 106.43 |
| SG21 | 95.58 | 82.68 | 66.66 | 62.80 | 49.35 | 37.02 | 27.26 | 17.32 | 9.40 | 0.38 | -10.86 |
| SG22 | -15.53 | -28.62 | -23.43 | -16.63 | -15.35 | -14.93 | -14.93 | -6.94 | -4.37 | -1.89 | -0.10 |
| SG23 | -9.26 | -40.84 | -71.32 | -91.33 | -129.70 | -162.57 | -195.64 | -225.92 | -255.61 | -283.75 | -312.39 |
| SG24 | 23.08 | 6.74 | -2.81 | 8.94 | 1.60 | -2.63 | -7.04 | -4.83 | -5.75 | -4.28 | -6.12 |
| SG25 | 27.62 | 18.09 | 5.89 | 6.54 | -2.39 | -11.18 | -16.89 | -22.78 | -30.05 | -35.85 | -41.74 |
| SG26 | 48.75 | 29.07 | 26.87 | 29.99 | 27.78 | 23.01 | 19.70 | 18.59 | 14.55 | 11.79 | 9.40 |
| SG27 | 52.47 | 46.07 | 41.84 | 48.69 | 46.39 | 44.46 | 43.87 | 44.88 | 45.28 | 44.00 | 42.85 |
| SG28 | -84.83 | -83.35 | -85.56 | -86.30 | -93.65 | -98.80 | -103.96 | -110.57 | -117.17 | -119.40 | -120.87 |
| SG29 | 40.36 | 33.93 | 27.87 | 33.75 | 31.36 | 29.89 | 31.36 | 33.20 | 36.50 | 38.71 | 39.81 |
| SG30 | 663.41 | 655.30 | 645.93 | 639.00 | 629.49 | 621.69 | 617.75 | 610.85 | 606.55 | 602.30 | 599.14 |
| SG31 | -10.98 | -16.03 | -28.29 | -39.77 | -48.86 | -68.70 | -70.63 | -87.02 | -92.23 | -108.14 | -125.54 |
| SG32-T | -36.53 | 45.94 | 130.46 | 207.24 | 276.98 | 358.16 | 418.59 | 490.57 | 552.32 | 621.56 | 689.37 |
| SG32-45 | -39.50 | -12.84 | 18.35 | 66.01 | 89.68 | 135.74 | 160.53 | 197.85 | 228.58 | 264.78 | 302.81 |
| SG32-L | 4.24 | -14.19 | -24.65 | -24.47 | -26.80 | -24.24 | -24.70 | -20.80 | -18.18 | -21.81 | -23.87 |
| SG33-T | -18.23 | 54.61 | 139.57 | 215.94 | 284.74 | 367.44 | 427.56 | 499.62 | 560.14 | 628.96 | 698.08 |
| SG33-45 | -19.02 | -11.49 | 12.24 | 49.50 | 70.43 | 105.31 | 131.21 | 157.96 | 182.52 | 212.11 | 241.12 |
| SG33-T | 52.38 | 7.98 | -8.71 | -7.24 | -9.81 | -14.94 | -15.68 | -14.94 | -13.66 | -19.53 | -24.48 |
| SG34-T | -19.09 | 68.44 | 156.66 | 244.34 | 321.55 | 413.81 | 482.45 | 565.49 | 637.44 | 718.45 | 800.07 |
| SG34-45 | -34.75 | 9.76 | 51.60 | 88.13 | 124.52 | 163.66 | 190.81 | 232.04 | 265.16 | 298.40 | 334.51 |
| SG34-L | 28.54 | 18.99 | 8.91 | 1.94 | -9.25 | -22.27 | -31.82 | -41.35 | -49.59 | -61.34 | -72.90 |
| SG35-T | 17.73 | 99.67 | 164.13 | 224.23 | 638.31 | 968.76 | 768.95 | 744.84 | 684.83 | 828.33 | 959.40 |
| SG35-45 | 54.63 | 95.95 | 127.16 | 150.48 | 178.40 | 210.53 | 232.23 | 270.22 | 300.82 | 332.10 | 366.26 |
| SG35-L | 84.06 | 72.66 | 62.37 | 56.67 | 46.75 | 34.44 | 25.25 | 16.61 | 9.26 | -1.76 | -13.34 |
| SG36-T | -36.24 | 45.28 | 147.17 | 237.68 | 316.62 | 410.80 | 476.75 | 558.40 | 627.85 | 703.80 | 778.52 |
| SG36-45 | 34.77 | 47.98 | 85.59 | 122.83 | 161.45 | 199.38 | 225.87 | 264.70 | 293.21 | 324.37 | 355.24 |
| SG36-L | 44.79 | 6.12 | -5.03 | 1.39 | -0.44 | -4.71 | -3.29 | -5.49 | -6.32 | -9.49 | -13.07 |
| SG37-T | 527.10 | 590.47 | 615.92 | 648.89 | 677.87 | 724.10 | 719.63 | 788.20 | 842.51 | 890.60 | 928.07 |
| SG37-45 | 143.35 | 187.38 | 203.90 | 215.28 | 228.67 | 244.46 | 252.74 | 277.31 | 294.13 | 313.83 | 335.67 |
| SG37-L | 97.22 | 104.36 | 82.18 | 70.27 | 49.01 | 30.50 | 14.00 | 1.17 | -10.01 | -23.39 | -35.48 |
| SG38-T | 24.26 | 88.49 | 164.28 | 241.73 | 314.40 | 401.02 | 467.86 | 547.83 | 617.81 | 694.64 | 774.47 |
| SG38-45 | -67.38 | -38.73 | -6.59 | 24.25 | 55.28 | 88.52 | 112.40 | 151.13 | 180.29 | 213.74 | 245.32 |
| SG38-L | -19.05 | -45.57 | -64.80 | -61.63 | -78.93 | -92.75 | -103.86 | -111.79 | -120.62 | -127.12 | -135.61 |
| SG39-T | -53.25 | 40.28 | 127.57 | 208.26 | 278.49 | 364.86 | 427.62 | 502.03 | 567.94 | 639.20 | 710.72 |
| SG39-45 | -45.91 | 6.99 | 54.84 | 104.93 | 147.87 | 196.63 | 226.59 | 275.93 | 311.45 | 350.82 | 390.82 |
| SG39-L | 36.06 | 26.68 | 23.43 | 33.00 | 34.96 | 33.77 | 35.06 | 34.92 | 35.18 | 33.68 | 31.99 |
| SG40-T | 57.01 | 119.77 | 170.06 | 217.61 | 259.31 | 316.92 | 360.75 | 416.12 | 464.31 | 521.02 | 578.69 |
| SG40-45 | 62.45 | 89.29 | 104.45 | 124.71 | 139.83 | 161.42 | 171.42 | 200.12 | 217.81 | 241.72 | 267.30 |
| SG40-L | 84.97 | 67.25 | 43.87 | 30.35 | 10.06 | -11.13 | -25.19 | -40.73 | -54.25 | -66.31 | -79.10 |

TABLE E-32. CVP3, WATER 1, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.02 | 0.01 | -0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | -0.01 | 0.00 | -0.01 |
| Frame-1 | -31.40 | 101.56 | 105.34 | -150.72 | 72.78 | 4.96 | -128.50 | 34.47 | 86.40 | 34.93 | -50.00 |
| Frame-2 | -146.36 | -38.28 | -91.83 | -87.79 | 35.19 | -142.71 | 153.57 | -57.34 | 7.22 | 17.86 | 22.51 |
| Frame-3 | 11.60 | 138.94 | 39.77 | -54.07 | 74.23 | 126.78 | -11.35 | 156.19 | 122.13 | 185.82 | -135.61 |
| Frame-4 | 13.30 | -86.34 | 76.05 | -35.46 | -111.70 | 99.69 | 91.94 | -89.71 | -32.56 | 10.74 | 72.25 |
| Frame-5 | 53.24 | 39.79 | -128.95 | -100.80 | 43.74 | -1.77 | -87.17 | 67.47 | 78.08 | 81.74 | -46.48 |
| Frame-6 | 72.59 | -15.36 | -11.57 | -97.66 | 46.29 | 54.13 | 78.77 | -55.99 | 12.20 | -58.95 | -44.19 |
| Frame-7 | 37.74 | -55.06 | -92.78 | 4.35 | -15.12 | 13.56 | -107.57 | 22.41 | 114.05 | -119.80 | 74.17 |
| Frame-8 | 73.88 | 74.10 | -11.80 | 23.30 | 107.13 | 73.82 | -5.92 | -61.95 | 84.73 | -19.87 | 48.32 |
| Frame-9 | 158.55 | -87.21 | 117.02 | 620.16 | -151.46 | -134.63 | 13.09 | -59.39 | -135.81 | 53.04 | -195.38 |
| Frame-10 | 142.77 | -111.85 | 53.62 | 81.85 | -58.15 | -32.93 | -141.95 | 117.11 | -6.52 | 140.26 | -94.59 |
| Frame-11 | 114.88 | 30.50 | 127.17 | 70.29 | 61.31 | 42.08 | 31.42 | 3.43 | -13.14 | 44.78 | 55.98 |
| Frame-12 | 34.45 | 15.64 | -81.06 | -44.05 | 41.90 | -100.53 | 33.82 | 10.39 | -53.25 | -83.96 | -86.37 |
| Hoop-1 | -66.80 | 17.77 | 8.58 | -19.00 | -33.70 | -31.86 | -15.32 | -18.99 | -18.99 | -18.99 | -18.99 |
| Hoop-2 | -0.03 | 166.01 | 14.41 | -16.28 | -41.55 | 16.21 | 66.76 | 12.60 | -25.30 | 43.29 | 32.46 |
| Hoop-3 | 112.30 | -29.80 | -129.81 | 177.22 | 12.30 | 28.09 | 168.44 | 250.88 | -152.60 | -26.30 | -31.56 |
| Hoop-4 | 232.07 | -40.06 | 24.72 | -40.07 | -23.41 | 183.92 | -43.77 | -30.81 | 309.79 | -34.51 | 200.58 |
| Hoop-5 | -104.79 | -108.42 | 203.75 | -124.87 | 141.66 | 165.39 | -73.75 | -126.69 | -139.46 | 33.96 | 41.26 |
| Hoop-6 | -66.05 | 183.46 | 4.19 | 91.07 | -43.86 | 242.62 | -91.93 | 357.21 | 65.18 | 233.38 | -10.60 |
| Hoop-7 | -101.31 | 31.98 | 126.93 | 31.99 | -93.99 | -55.65 | 139.71 | -68.43 | -28.27 | -48.35 | 46.59 |
| Hoop-8 | 59.76 | -6.43 | 22.98 | 8.28 | -13.79 | 8.28 | 8.28 | -43.20 | 0.92 | 52.40 | 30.34 |
| Hoop-9 | -30.19 | 105.85 | -100.93 | 82.28 | -32.00 | -120.89 | -137.21 | 332.62 | 60.51 | -137.21 | -21.12 |
| Hoop-10 | -76.04 | -43.49 | -77.84 | -45.31 | 14.36 | 177.08 | 102.94 | -144.75 | -88.69 | 37.86 | -79.66 |
| Hoop-11 | -134.54 | 226.81 | 247.09 | -105.04 | -58.95 | -151.14 | 1.90 | 481.27 | 1.90 | -110.56 | -34.98 |
| Hoop-12 | -55.97 | 97.82 | -85.61 | 8.89 | -5.94 | 477.71 | 21.85 | 90.42 | -102.29 | -143.05 | 51.51 |
| Hoop-13 | 104.13 | -66.50 | -59.09 | 15.10 | 52.19 | -44.25 | -36.83 | -96.19 | 96.70 | 81.86 | 74.45 |
| Hoop-14 | -85.15 | 107.13 | 158.90 | -33.37 | 55.37 | 99.75 | -33.37 | 33.19 | 84.95 | 25.79 | -40.77 |
| Long-1 | -20.95 | 1273.68 | 2418.91 | 3688.27 | 4905.01 | 6153.04 | 7346.74 | 8558.43 | 9823.88 | 10976.8 | 12133.5 |
| Long-2 | 1.22 | 1203.69 | 2454.01 | 3685.14 | 4857.24 | 6152.63 | 7367.84 | 8554.16 | 9826.22 | 10952.0 | 12154.6 |
| Long-3 | 9.10 | 1362.54 | 2452.75 | 3708.68 | 4894.18 | 6136.28 | 7359.74 | 8523.71 | 9646.16 | 10801.6 | 12080.5 |
| Long-4 | 5.63 | 1207.65 | 2408.94 | 3665.57 | 4883.51 | 6110.63 | 7379.37 | 8511.25 | 9834.84 | 11034.2 | 12290.3 |
| Long-5 | -1.79 | 1221.72 | 2464.91 | 3667.53 | 4903.03 | 6173.94 | 7358.44 | 8561.21 | 9843.84 | 11118.8 | 12062.9 |
| Long-6 | 21.43 | 1192.77 | 2435.52 | 3663.85 | 4908.56 | 6102.52 | 7363.73 | 8575.06 | 9822.58 | 11023.1 | 12335.2 |
| Long-7 | -27.48 | 1216.89 | 2442.52 | 3674.38 | 4910.34 | 6122.89 | 7357.03 | 8530.18 | 9837.35 | 11122.4 | 12310.5 |
| Long-8 | -13.44 | 1142.20 | 2368.47 | 3698.40 | 4858.96 | 6080.44 | 7364.70 | 8571.66 | 9840.91 | 10953.3 | 12208.7 |
| SG1 | 26.42 | 35.21 | 26.78 | 7.71 | 4.96 | 5.88 | -47.66 | -55.18 | -90.75 | -107.63 | -137.52 |
| SG2 | 98.48 | 108.55 | 91.86 | 56.65 | 53.72 | 52.61 | -26.98 | -34.87 | -89.30 | -119.39 | -153.14 |
| SG3 | 479.79 | 709.32 | 811.92 | 919.02 | 1046.15 | 1144.99 | 1185.32 | 1267.67 | 1329.34 | 1360.86 | 1426.95 |
| SG4 | 449.47 | 542.10 | 547.60 | 548.94 | 582.55 | 608.17 | 569.36 | 581.70 | 555.85 | 525.47 | 524.01 |
| SG5 | 119.88 | 128.84 | 110.83 | 72.63 | 69.93 | 67.31 | -16.44 | -23.87 | -75.82 | -109.05 | -138.97 |
| SG6 | 27.89 | 12.07 | -7.64 | -29.55 | -48.77 | -67.92 | -93.44 | -110.36 | -132.27 | -151.49 | -170.38 |
| SG7 | 299.97 | 319.51 | 308.24 | 249.38 | 231.26 | 244.93 | 163.84 | 167.61 | 113.99 | 85.19 | 46.86 |
| SG8 | 123.13 | 130.38 | 114.17 | 86.71 | 84.75 | 80.12 | 17.94 | 13.13 | -18.32 | -44.65 | -64.07 |
| SG9 | 56.23 | 43.36 | 27.57 | 11.59 | -1.08 | -14.31 | -36.90 | -48.84 | -65.92 | -82.82 | -98.07 |
| SG10 | 24.59 | 57.31 | 97.47 | 133.10 | 171.45 | 210.81 | 244.87 | 281.84 | 323.34 | 356.37 | 392.73 |
| SG11 | 8.03 | 48.82 | 82.44 | 121.76 | 157.05 | 195.25 | 232.14 | 269.45 | 306.93 | 342.24 | 381.92 |

TABLE E-32. CVP3, WATER 1, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -1.23 | 90.76 | 178.94 | 274.08 | 360.84 | 441.74 | 527.35 | 604.98 | 695.69 | 773.43 | 851.29 |
| SG13 | -18.56 | 109.55 | 217.81 | 335.59 | 447.12 | 557.82 | 668.25 | 777.03 | 893.63 | 999.52 | 1104.58 |
| SG14 | -16.03 | 111.31 | 227.59 | 347.90 | 462.00 | 568.84 | 681.66 | 780.63 | 892.51 | 987.62 | 1082.82 |
| SG15 | 10.42 | 76.48 | 133.33 | 196.25 | 253.86 | 310.69 | 371.14 | 427.11 | 485.24 | 538.47 | 596.98 |
| SG16 | 186.95 | 303.88 | 408.98 | 520.27 | 626.63 | 727.50 | 834.59 | 931.94 | 1039.10 | 1132.34 | 1225.12 |
| SG17 | 24376.9 | 24504.4 | 24628.0 | 24783.4 | 24824.2 | 24942.3 | 25057.9 | 25095.7 | 25275.2 | 25404.2 | 25571.9 |
| SG18 | 24.99 | 94.31 | 157.63 | 224.13 | 286.89 | 352.80 | 418.42 | 479.39 | 544.55 | 605.72 | 669.41 |
| SG19 | 30.79 | 137.52 | 224.38 | 308.51 | 376.65 | 444.34 | 515.09 | 578.81 | 650.95 | 714.88 | 780.95 |
| SG20 | 124.85 | 241.68 | 341.98 | 442.69 | 532.01 | 617.36 | 703.73 | 783.30 | 872.00 | 950.50 | 1029.64 |
| SG21 | 88.58 | 185.59 | 265.87 | 341.75 | 399.80 | 449.10 | 502.77 | 548.29 | 605.92 | 654.22 | 704.12 |
| SG22 | -34.59 | 76.90 | 145.50 | 200.35 | 210.29 | 223.08 | 237.09 | 248.45 | 275.13 | 291.23 | 306.38 |
| SG23 | -17.34 | 96.68 | 187.74 | 279.74 | 360.93 | 438.38 | 525.12 | 598.79 | 685.08 | 761.53 | 840.85 |
| SG24 | 8.94 | 130.30 | 230.18 | 334.68 | 429.47 | 518.30 | 615.86 | 700.75 | 797.87 | 884.07 | 973.31 |
| SG25 | 23.48 | 147.41 | 251.37 | 360.57 | 469.23 | 574.68 | 685.37 | 786.31 | 896.21 | 996.45 | 1095.13 |
| SG26 | 32.20 | 158.28 | 264.15 | 379.25 | 488.67 | 596.90 | 705.94 | 814.27 | 927.13 | 1032.18 | 1134.57 |
| SG27 | 51.41 | 156.97 | 246.46 | 343.06 | 439.49 | 533.45 | 633.62 | 725.42 | 824.51 | 915.24 | 1003.49 |
| SG28 | -89.98 | -38.47 | 8.61 | 60.85 | 108.68 | 158.70 | 205.74 | 253.58 | 304.34 | 353.66 | 402.95 |
| SG29 | 47.16 | 142.29 | 220.89 | 305.59 | 388.47 | 468.15 | 551.98 | 629.17 | 712.18 | 791.60 | 865.99 |
| SG30 | 643.84 | 670.07 | 694.41 | 717.26 | 738.74 | 760.43 | 779.61 | 799.39 | 818.77 | 838.60 | 856.14 |
| SG31 | -13.83 | 22.39 | 52.51 | 85.81 | 119.61 | 160.51 | 199.04 | 233.40 | 270.45 | 308.91 | 348.30 |
| SG32-T | -12.53 | -40.91 | -70.03 | -99.53 | -127.97 | -154.93 | -183.14 | -209.90 | -241.99 | -270.08 | -295.81 |
| SG32-45 | -23.17 | 12.52 | 46.37 | 82.11 | 114.60 | 145.42 | 174.47 | 206.59 | 246.08 | 277.62 | 307.21 |
| SG32-L | -6.54 | 92.54 | 184.79 | 281.56 | 370.14 | 451.99 | 540.70 | 620.07 | 713.24 | 792.54 | 871.41 |
| SG33-T | 0.91 | -48.56 | -93.07 | -138.20 | -182.46 | -224.67 | -265.74 | -307.07 | -352.82 | -394.21 | -435.38 |
| SG33-45 | -23.84 | -3.69 | 16.27 | 29.26 | 31.74 | 26.92 | 12.14 | 0.53 | -8.97 | -20.44 | -36.46 |
| SG33-T | 16.79 | 144.07 | 252.83 | 367.87 | 482.37 | 588.53 | 699.18 | 801.22 | 912.00 | 1011.51 | 1112.21 |
| SG34-T | -6.07 | -44.39 | -84.83 | -122.58 | -157.72 | -194.11 | -230.10 | -264.56 | -299.81 | -333.13 | -366.47 |
| SG34-45 | -35.76 | 4.67 | 24.65 | 52.29 | 70.67 | 81.76 | 109.10 | 122.81 | 136.28 | 150.32 | 167.32 |
| SG34-L | 16.98 | 130.50 | 231.55 | 332.46 | 426.78 | 518.26 | 608.75 | 695.19 | 788.91 | 873.36 | 957.55 |
| SG35-T | 57.15 | 18.05 | -5.89 | -30.67 | -53.98 | -73.24 | -92.90 | -112.36 | -134.84 | -153.34 | -173.99 |
| SG35-45 | 70.43 | 105.67 | 128.99 | 158.93 | 178.60 | 193.09 | 224.63 | 241.36 | 256.05 | 272.79 | 292.25 |
| SG35-L | 70.64 | 183.08 | 280.28 | 378.61 | 469.80 | 557.96 | 647.14 | 730.62 | 821.02 | 903.79 | 986.11 |
| SG36-T | -22.47 | -72.21 | -114.06 | -158.13 | -203.82 | -247.22 | -287.55 | -328.70 | -371.84 | -411.48 | -451.04 |
| SG36-45 | 22.80 | 54.94 | 69.67 | 87.51 | 85.69 | 73.30 | 70.53 | 56.37 | 45.31 | 32.70 | 24.49 |
| SG36-L | 12.83 | 146.33 | 258.13 | 373.63 | 491.31 | 600.49 | 710.18 | 814.38 | 926.40 | 1027.50 | 1127.78 |
| SG37-T | 504.68 | 468.54 | 439.60 | 406.26 | 366.13 | 324.82 | 284.96 | 244.46 | 202.96 | 164.01 | 125.39 |
| SG37-45 | 170.33 | 191.58 | 198.01 | 206.83 | 191.44 | 166.09 | 155.60 | 130.84 | 112.13 | 91.22 | 76.35 |
| SG37-L | 105.29 | 214.68 | 310.53 | 414.30 | 514.79 | 610.78 | 714.19 | 807.73 | 911.64 | 1005.94 | 1099.78 |
| SG38-T | 34.17 | -4.73 | -41.07 | -83.64 | -119.44 | -153.01 | -192.25 | -225.66 | -263.65 | -296.52 | -333.41 |
| SG38-45 | -65.91 | -33.40 | 1.12 | 37.29 | 69.43 | 100.09 | 135.68 | 161.58 | 199.58 | 226.96 | 262.40 |
| SG38-L | -33.55 | 86.44 | 183.81 | 288.63 | 382.79 | 470.72 | 569.49 | 654.71 | 751.48 | 837.46 | 926.85 |
| SG39-T | -24.83 | -58.01 | -85.33 | -113.03 | -141.65 | -169.14 | -197.44 | -225.74 | -255.08 | -282.29 | -308.65 |
| SG39-45 | -22.21 | 12.64 | 26.78 | 57.55 | 77.02 | 92.03 | 132.37 | 153.41 | 181.55 | 206.04 | 235.43 |
| SG39-L | 28.24 | 132.98 | 214.71 | 301.04 | 387.67 | 470.37 | 558.40 | 639.23 | 728.78 | 812.05 | 892.37 |
| SG40-T | 79.31 | 55.46 | 41.61 | 27.52 | 11.29 | -2.02 | -16.56 | -32.19 | -48.37 | -63.87 | -77.02 |
| SG40-45 | 82.36 | 123.42 | 148.27 | 190.59 | 220.34 | 246.65 | 299.01 | 330.07 | 369.65 | 404.55 | 445.90 |
| SG40-L | 82.05 | 170.65 | 246.15 | 325.94 | 405.95 | 484.38 | 569.46 | 646.81 | 733.52 | 815.08 | 891.63 |

TABLE E-33. CVP3, WATER 1, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.86 | 1.72 | 2.65 | 3.55 | 4.41 | 5.24 | 6.12 | 7.03 | 7.04 | 7.88 | 8.78 |
| Frame-1 | 183.72 | 414.37 | 541.30 | 717.37 | 897.26 | 1093.92 | 1288.53 | 1452.73 | 1471.48 | 1629.09 | 1836.61 |
| Frame-2 | 183.23 | 380.84 | 543.40 | 722.47 | 920.98 | 1072.06 | 1262.87 | 1445.62 | 1448.92 | 1644.04 | 1814.85 |
| Frame-3 | 165.36 | 392.91 | 551.40 | 726.27 | 899.81 | 1084.94 | 1286.88 | 1451.62 | 1451.42 | 1640.53 | 1821.00 |
| Frame-4 | 183.96 | 375.34 | 540.49 | 728.96 | 891.93 | 1099.28 | 1285.62 | 1462.21 | 1446.50 | 1644.07 | 1817.46 |
| Frame-5 | 158.60 | 379.58 | 543.27 | 728.57 | 898.69 | 1089.06 | 1280.86 | 1443.91 | 1448.90 | 1639.84 | 1806.60 |
| Frame-6 | 170.56 | 368.67 | 547.57 | 741.05 | 890.81 | 1109.85 | 1272.42 | 1457.53 | 1462.41 | 1634.42 | 1818.17 |
| Frame-7 | 247.97 | 337.37 | 545.11 | 868.29 | 887.40 | 1100.03 | 1354.76 | 1441.89 | 1424.41 | 1623.25 | 1778.11 |
| Frame-8 | 190.93 | 426.52 | 537.63 | 703.87 | 901.91 | 1104.00 | 1284.46 | 1460.95 | 1464.14 | 1640.39 | 1879.42 |
| Frame-9 | 193.67 | 364.69 | 547.52 | 733.80 | 884.21 | 1073.51 | 1258.45 | 1456.93 | 1449.75 | 1633.80 | 1808.37 |
| Frame-10 | 182.39 | 306.13 | 536.10 | 797.11 | 902.24 | 1111.28 | 1388.24 | 1452.88 | 1462.96 | 1627.22 | 1818.11 |
| Frame-11 | 207.10 | 380.20 | 549.22 | 737.01 | 934.13 | 1089.67 | 1274.59 | 1455.44 | 1466.98 | 1641.11 | 1797.20 |
| Frame-12 | 183.86 | 383.20 | 537.10 | 741.16 | 911.43 | 1073.63 | 1260.83 | 1449.27 | 1455.96 | 1578.35 | 1810.58 |
| Hoop-1 | 753.10 | 1547.25 | 2306.47 | 3097.25 | 3860.23 | 4652.62 | 5414.51 | 6163.25 | 6180.41 | 6929.37 | 7670.36 |
| Hoop-2 | 752.63 | 1516.12 | 2308.49 | 3077.70 | 3859.32 | 4651.77 | 5414.26 | 6190.92 | 6193.35 | 6923.31 | 7724.87 |
| Hoop-3 | 754.35 | 1566.58 | 2310.39 | 3077.31 | 3863.30 | 4652.80 | 5423.67 | 6176.80 | 6189.70 | 6943.05 | 7736.14 |
| Hoop-4 | 735.55 | 1588.91 | 2316.40 | 3108.99 | 3851.36 | 4649.27 | 5407.22 | 6181.52 | 6213.61 | 6941.87 | 7728.75 |
| Hoop-5 | 762.32 | 1622.12 | 2312.15 | 3090.12 | 3855.07 | 4641.93 | 5414.93 | 6176.69 | 6182.79 | 6928.35 | 7729.90 |
| Hoop-6 | 734.26 | 1560.44 | 2310.84 | 3089.27 | 3861.93 | 4641.98 | 5413.55 | 6184.82 | 6170.65 | 6931.06 | 7740.77 |
| Hoop-7 | 742.18 | 1569.23 | 2323.25 | 3086.71 | 3871.84 | 4644.19 | 5437.37 | 6173.68 | 6183.42 | 6905.34 | 7732.56 |
| Hoop-8 | 802.56 | 1508.44 | 2383.77 | 3030.67 | 3920.47 | 4597.47 | 5302.44 | 6347.84 | 6282.28 | 6950.91 | 7502.49 |
| Hoop-9 | 746.23 | 1531.57 | 2319.02 | 3075.18 | 3860.59 | 4642.84 | 5356.51 | 6141.26 | 6152.76 | 6972.10 | 7652.37 |
| Hoop-10 | 721.30 | 1538.38 | 2321.42 | 3085.91 | 3866.90 | 4718.88 | 5433.77 | 6201.47 | 6173.16 | 6910.22 | 7734.69 |
| Hoop-11 | 733.87 | 1541.28 | 2323.19 | 3086.20 | 3867.88 | 4633.43 | 5403.04 | 6187.72 | 6177.28 | 6949.19 | 7729.11 |
| Hoop-12 | 753.82 | 1530.11 | 2323.38 | 3079.13 | 3864.75 | 4606.37 | 5413.23 | 6162.95 | 6230.29 | 6985.72 | 7734.36 |
| Hoop-13 | 742.17 | 1550.69 | 2315.01 | 3071.44 | 3857.78 | 4607.49 | 5385.42 | 6172.91 | 6166.11 | 6974.17 | 7723.50 |
| Hoop-14 | 765.37 | 1541.77 | 2340.66 | 3079.93 | 3856.41 | 4618.55 | 5423.61 | 6186.45 | 6187.07 | 6955.61 | 7584.25 |
| Long-1 | 1259.64 | 2442.03 | 3677.20 | 4871.96 | 6112.30 | 7260.14 | 8545.45 | 9557.67 | 9581.73 | 10735.9 | 11962.3 |
| Long-2 | 1246.32 | 2454.74 | 3682.23 | 4910.68 | 6138.66 | 7493.70 | 8554.16 | 9765.99 | 9757.96 | 10871.7 | 12072.0 |
| Long-3 | 1385.07 | 2462.22 | 3613.61 | 4911.60 | 6042.37 | 7199.99 | 8268.67 | 9586.84 | 9594.88 | 10705.6 | 12132.8 |
| Long-4 | 1218.79 | 2429.27 | 3640.59 | 4885.96 | 6127.16 | 7317.67 | 8637.34 | 9812.07 | 9794.20 | 11023.1 | 12307.4 |
| Long-5 | 1206.25 | 2447.62 | 3686.26 | 4904.23 | 6121.74 | 7359.18 | 8582.81 | 9808.40 | 9806.43 | 11040.7 | 12263.3 |
| Long-6 | 1189.23 | 2458.27 | 3684.15 | 4900.00 | 6128.81 | 7370.58 | 8573.84 | 9808.41 | 9804.00 | 11027.9 | 12261.8 |
| Long-7 | 1214.60 | 2434.82 | 3677.52 | 4905.54 | 6128.28 | 7355.36 | 8573.43 | 9793.45 | 9804.70 | 11009.4 | 12206.0 |
| Long-8 | 1201.40 | 2423.38 | 3663.44 | 4922.96 | 6131.53 | 7380.21 | 8579.05 | 9783.54 | 9797.58 | 11015.9 | 12158.3 |
| SG1 | 51.54 | 72.98 | 54.64 | 76.83 | 86.18 | 87.28 | 116.27 | 86.56 | 83.44 | 84.18 | 85.46 |
| SG2 | 142.67 | 165.95 | 136.04 | 143.39 | 154.75 | 150.90 | 167.80 | 131.85 | 127.45 | 121.40 | 101.77 |
| SG3 | 838.62 | 1017.68 | 1121.82 | 1295.02 | 1429.23 | 1525.95 | 1646.86 | 1708.17 | 1706.70 | 1784.90 | 1872.09 |
| SG4 | 618.62 | 697.57 | 716.38 | 776.04 | 841.04 | 873.48 | 929.21 | 930.13 | 927.01 | 953.41 | 971.38 |
| SG5 | 166.33 | 190.60 | 169.74 | 170.35 | 186.92 | 186.78 | 200.10 | 173.07 | 168.44 | 163.40 | 138.11 |
| SG6 | 37.42 | 66.02 | 91.13 | 114.42 | 141.72 | 167.76 | 196.03 | 223.35 | 223.72 | 249.94 | 274.51 |
| SG7 | 395.15 | 398.82 | 381.43 | 387.28 | 408.63 | 415.54 | 433.49 | 410.31 | 403.03 | 413.52 | 384.21 |
| SG8 | 150.86 | 172.73 | 181.09 | 184.31 | 206.32 | 218.04 | 235.84 | 231.86 | 228.01 | 233.78 | 217.94 |
| SG9 | 73.68 | 108.20 | 144.74 | 174.87 | 209.38 | 242.81 | 276.47 | 309.35 | 309.72 | 341.68 | 369.05 |
| SG10 | 64.06 | 102.29 | 136.42 | 166.73 | 200.35 | 232.66 | 265.67 | 289.40 | 288.67 | 322.82 | 349.49 |
| SG11 | 38.17 | 55.06 | 74.35 | 95.11 | 119.35 | 145.07 | 168.43 | 195.25 | 194.52 | 221.53 | 248.72 |

TABLE E-33. CVP3, WATER 1, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 91.05 | 178.85 | 268.75 | 356.45 | 441.20 | 523.54 | 601.18 | 682.90 | 683.27 | 758.93 | 834.77 |
| SG13 | 101.68 | 201.49 | 308.94 | 418.98 | 523.61 | 629.57 | 733.47 | 835.78 | 835.78 | 933.69 | 1034.36 |
| SG14 | 123.38 | 226.31 | 332.84 | 439.85 | 543.10 | 638.05 | 724.94 | 818.49 | 818.86 | 901.59 | 986.33 |
| SG15 | 84.60 | 140.02 | 197.31 | 254.00 | 310.08 | 366.00 | 416.70 | 474.47 | 474.47 | 527.29 | 581.94 |
| SG16 | 303.91 | 404.30 | 509.25 | 615.69 | 719.06 | 818.92 | 912.41 | 1010.05 | 1010.23 | 1098.97 | 1187.17 |
| SG17 | 23747.9 | 23698.4 | 23799.0 | 24036.7 | 24043.1 | 24457.9 | 24556.9 | 24542.2 | 24612.8 | 24418.6 | 24459.8 |
| SG18 | 87.48 | 131.84 | 180.82 | 230.21 | 275.28 | 321.34 | 361.61 | 408.59 | 408.41 | 450.44 | 499.45 |
| SG19 | 114.90 | 169.54 | 223.44 | 270.39 | 314.89 | 359.97 | 398.88 | 446.73 | 446.54 | 488.32 | 535.25 |
| SG20 | 249.62 | 341.25 | 433.40 | 521.78 | 601.04 | 678.70 | 749.70 | 827.73 | 827.37 | 896.75 | 972.22 |
| SG21 | 185.61 | 250.77 | 311.31 | 359.58 | 400.23 | 436.31 | 469.54 | 509.68 | 508.95 | 543.01 | 580.57 |
| SG22 | 76.96 | 147.94 | 205.04 | 232.06 | 254.21 | 272.07 | 296.69 | 318.00 | 317.36 | 335.18 | 359.19 |
| SG23 | 76.67 | 136.51 | 198.18 | 254.93 | 310.16 | 362.48 | 413.78 | 469.78 | 469.78 | 521.74 | 577.00 |
| SG24 | 130.13 | 224.30 | 321.76 | 413.60 | 501.49 | 585.94 | 668.32 | 754.25 | 754.62 | 836.33 | 918.41 |
| SG25 | 149.22 | 243.82 | 343.38 | 448.15 | 548.79 | 644.32 | 735.03 | 830.03 | 830.03 | 915.45 | 1004.55 |
| SG26 | 146.90 | 245.22 | 354.55 | 463.58 | 567.74 | 672.86 | 774.65 | 879.06 | 878.33 | 976.67 | 1078.51 |
| SG27 | 149.54 | 238.96 | 334.30 | 433.66 | 529.29 | 622.26 | 711.10 | 802.16 | 802.34 | 886.00 | 971.31 |
| SG28 | -32.59 | 10.08 | 54.95 | 102.04 | 146.16 | 189.56 | 233.00 | 277.88 | 278.62 | 322.76 | 370.58 |
| SG29 | 125.95 | 204.92 | 290.10 | 375.90 | 457.59 | 535.82 | 611.97 | 690.40 | 690.03 | 762.77 | 837.71 |
| SG30 | 683.73 | 696.80 | 708.35 | 723.62 | 738.56 | 753.85 | 767.87 | 782.43 | 782.38 | 797.08 | 815.77 |
| SG31 | 29.24 | 54.35 | 79.96 | 112.10 | 144.78 | 177.37 | 208.49 | 238.52 | 237.74 | 269.23 | 304.91 |
| SG32-T | 11.69 | 65.12 | 115.97 | 160.11 | 199.97 | 238.38 | 276.06 | 315.89 | 317.63 | 354.31 | 392.17 |
| SG32-45 | 27.62 | 92.88 | 163.78 | 231.96 | 298.02 | 358.93 | 425.42 | 486.07 | 488.45 | 548.82 | 609.01 |
| SG32-L | 94.75 | 176.40 | 260.09 | 346.73 | 429.94 | 509.99 | 584.42 | 663.79 | 663.24 | 734.22 | 805.57 |
| SG33-T | 6.28 | 43.50 | 78.23 | 104.81 | 128.34 | 151.06 | 174.45 | 197.99 | 199.60 | 221.58 | 244.99 |
| SG33-45 | 12.14 | 57.44 | 96.89 | 124.39 | 139.94 | 149.30 | 162.36 | 168.79 | 169.89 | 177.78 | 187.70 |
| SG33-T | 139.87 | 239.26 | 344.68 | 456.05 | 560.17 | 659.93 | 752.33 | 851.74 | 851.38 | 939.24 | 1027.65 |
| SG34-T | 21.45 | 76.14 | 132.06 | 183.24 | 234.38 | 283.16 | 335.67 | 387.40 | 389.23 | 438.02 | 487.54 |
| SG34-45 | 41.88 | 107.32 | 170.41 | 230.36 | 282.58 | 334.63 | 385.66 | 442.31 | 442.49 | 493.64 | 545.70 |
| SG34-L | 134.36 | 220.55 | 306.53 | 393.31 | 470.29 | 544.93 | 615.29 | 690.67 | 690.49 | 757.80 | 831.54 |
| SG35-T | 251.06 | 224.66 | 236.93 | 271.18 | 287.52 | 317.75 | 353.87 | 392.18 | 393.33 | 431.54 | 477.37 |
| SG35-45 | 127.71 | 178.38 | 230.69 | 281.21 | 326.34 | 372.06 | 416.02 | 467.81 | 467.99 | 514.63 | 561.28 |
| SG35-L | 186.96 | 271.46 | 356.12 | 440.50 | 515.96 | 588.90 | 657.00 | 730.32 | 730.32 | 796.11 | 867.96 |
| SG36-T | -3.92 | 50.23 | 98.68 | 136.69 | 168.98 | 199.63 | 229.78 | 260.26 | 261.91 | 289.45 | 318.64 |
| SG36-45 | 77.84 | 132.40 | 183.43 | 215.09 | 235.48 | 252.35 | 267.04 | 288.13 | 288.09 | 302.90 | 315.75 |
| SG36-L | 140.70 | 247.38 | 356.29 | 470.64 | 575.68 | 672.72 | 766.89 | 863.86 | 864.05 | 952.94 | 1044.40 |
| SG37-T | 494.63 | 493.57 | 499.80 | 504.26 | 503.52 | 507.64 | 512.06 | 514.90 | 525.12 | 528.89 | 538.10 |
| SG37-45 | 210.32 | 232.50 | 252.85 | 251.04 | 245.14 | 241.29 | 236.56 | 241.34 | 241.15 | 240.79 | 238.95 |
| SG37-L | 218.36 | 294.03 | 377.75 | 466.30 | 552.02 | 634.29 | 714.15 | 799.38 | 799.38 | 878.01 | 958.65 |
| SG38-T | 46.83 | 89.95 | 134.53 | 179.86 | 223.33 | 266.45 | 312.20 | 357.52 | 359.17 | 402.67 | 448.73 |
| SG38-45 | -2.55 | 58.22 | 125.77 | 190.96 | 253.90 | 317.24 | 378.81 | 449.32 | 450.24 | 510.10 | 570.14 |
| SG38-L | 76.86 | 159.95 | 247.74 | 331.37 | 412.17 | 489.89 | 565.39 | 644.87 | 645.28 | 719.62 | 793.77 |
| SG39-T | 8.37 | 62.64 | 113.97 | 160.38 | 201.98 | 242.13 | 283.44 | 323.97 | 325.80 | 363.03 | 404.48 |
| SG39-45 | 42.30 | 107.91 | 183.19 | 247.85 | 312.92 | 377.56 | 439.30 | 510.57 | 511.21 | 572.79 | 630.69 |
| SG39-L | 128.83 | 210.50 | 297.46 | 384.80 | 468.04 | 546.60 | 623.00 | 703.00 | 702.72 | 774.98 | 849.31 |
| SG40-T | 100.23 | 135.18 | 166.16 | 199.45 | 232.45 | 265.43 | 298.47 | 334.19 | 335.63 | 367.94 | 404.59 |
| SG40-45 | 134.02 | 180.37 | 236.82 | 289.34 | 345.74 | 404.01 | 458.22 | 525.69 | 525.95 | 583.87 | 639.56 |
| SG40-L | 155.14 | 213.58 | 275.75 | 344.75 | 413.45 | 480.18 | 545.58 | 617.15 | 616.84 | 681.95 | 751.21 |

TABLE E-34. CVP3, WATER 2, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.06 | 0.90 | 1.79 | 2.62 | 3.52 | 4.34 | 5.36 | 6.17 | 7.03 | 7.84 | 8.68 |
| Frame-1 | -41.22 | 263.02 | 366.16 | 554.71 | 711.33 | 929.51 | 1098.69 | 1290.45 | 1427.83 | 1626.81 | 1830.97 |
| Frame-2 | 71.44 | 178.17 | 370.55 | 560.36 | 709.38 | 934.30 | 1077.09 | 1273.57 | 1451.79 | 1627.78 | 1810.76 |
| Frame-3 | -126.91 | 173.98 | 349.98 | 552.76 | 723.69 | 914.82 | 1091.34 | 1278.45 | 1471.42 | 1640.00 | 1824.01 |
| Frame-4 | -75.82 | 184.04 | 368.47 | 536.66 | 734.97 | 922.48 | 1109.26 | 1259.96 | 1461.42 | 1636.61 | 1825.60 |
| Frame-5 | -161.89 | 163.86 | 367.55 | 558.41 | 713.87 | 915.45 | 1083.54 | 1267.26 | 1453.48 | 1639.27 | 1806.10 |
| Frame-6 | -10.22 | 179.00 | 361.70 | 554.06 | 716.47 | 914.28 | 1105.76 | 1336.99 | 1449.95 | 1635.65 | 1804.33 |
| Frame-7 | -123.75 | 192.66 | 366.58 | 560.62 | 724.03 | 919.71 | 1087.39 | 1301.58 | 1574.73 | 1650.30 | 1807.86 |
| Frame-8 | 3.73 | 187.30 | 359.30 | 570.35 | 737.00 | 915.27 | 1160.21 | 1332.87 | 1442.22 | 1636.45 | 1862.69 |
| Frame-9 | 29.99 | 296.53 | 359.55 | 563.17 | 723.72 | 915.04 | 1113.34 | 1325.12 | 1479.84 | 1636.72 | 1827.84 |
| Frame-10 | -202.90 | 146.04 | 509.23 | 536.12 | 730.38 | 1061.95 | 1122.74 | 1273.09 | 1458.25 | 1609.50 | 1932.23 |
| Frame-11 | -43.90 | 210.15 | 371.43 | 561.17 | 708.73 | 901.77 | 1100.53 | 1276.28 | 1411.62 | 1639.01 | 1808.10 |
| Frame-12 | 34.91 | 176.79 | 345.14 | 547.47 | 693.15 | 917.88 | 1114.64 | 1281.85 | 1470.24 | 1605.50 | 1850.77 |
| Hoop-1 | -57.60 | 784.35 | 1525.19 | 2341.40 | 3082.24 | 3834.49 | 4696.74 | 5535.10 | 6170.60 | 6889.38 | 7714.78 |
| Hoop-2 | 140.75 | 716.53 | 1528.76 | 2306.69 | 3075.59 | 3821.42 | 4649.97 | 5435.20 | 6187.31 | 6882.22 | 7721.52 |
| Hoop-3 | -101.73 | 726.28 | 1549.04 | 2322.67 | 3068.23 | 3852.78 | 4666.84 | 5551.08 | 6206.62 | 6932.89 | 7706.52 |
| Hoop-4 | 58.04 | 672.61 | 1650.00 | 2316.40 | 3077.21 | 3880.98 | 4647.41 | 5397.19 | 6175.97 | 6962.69 | 7719.80 |
| Hoop-5 | 117.93 | 1233.30 | 1563.71 | 2319.46 | 3066.08 | 3862.37 | 4654.71 | 5381.32 | 6171.22 | 6959.82 | 7817.80 |
| Hoop-6 | 118.78 | 641.85 | 1549.35 | 2344.11 | 3087.11 | 3869.32 | 4658.61 | 5373.97 | 6182.97 | 6940.77 | 7726.28 |
| Hoop-7 | -99.47 | 736.71 | 1538.19 | 2325.08 | 3082.75 | 3820.72 | 4810.35 | 5584.53 | 6177.33 | 6876.58 | 7908.10 |
| Hoop-8 | -65.25 | 817.27 | 1603.88 | 2236.68 | 3104.20 | 3884.09 | 4633.78 | 5524.14 | 6171.95 | 6854.61 | 7642.23 |
| Hoop-9 | -126.31 | 829.68 | 1544.11 | 2324.46 | 3073.37 | 3822.88 | 4633.31 | 5451.91 | 6136.43 | 6677.55 | 7338.54 |
| Hoop-10 | -50.72 | 775.54 | 1525.57 | 2328.65 | 3078.68 | 3843.79 | 4646.09 | 5499.95 | 6173.16 | 6931.23 | 7662.37 |
| Hoop-11 | 390.85 | 772.59 | 1559.56 | 2313.97 | 3084.36 | 3835.08 | 4649.56 | 5457.59 | 6180.96 | 6906.10 | 7679.33 |
| Hoop-12 | 120.05 | 757.53 | 1537.37 | 2323.38 | 3079.13 | 3857.73 | 4635.55 | 5429.13 | 6193.22 | 6955.37 | 7741.77 |
| Hoop-13 | -44.24 | 771.84 | 1565.37 | 2359.52 | 3071.44 | 3917.52 | 4673.80 | 5445.85 | 6188.37 | 6936.38 | 7627.05 |
| Hoop-14 | 47.97 | 772.76 | 1534.22 | 2333.27 | 3079.93 | 3871.58 | 4677.25 | 5439.48 | 6187.07 | 6836.60 | 7465.92 |
| Long-1 | 9.73 | -20.95 | 12.10 | -24.50 | -18.59 | -22.13 | -7.97 | 16.81 | -30.39 | 13.28 | -38.65 |
| Long-2 | 1.22 | 1.22 | -2.42 | 1.22 | 1.22 | -2.42 | 1.22 | 6.08 | 4.87 | 1.22 | 0.01 |
| Long-3 | 2.88 | 7.86 | 10.34 | 4.12 | 7.86 | 12.83 | 10.34 | 10.34 | 11.59 | 5.37 | 12.83 |
| Long-4 | 19.09 | 14.20 | 28.89 | 15.42 | 20.32 | 15.42 | 21.54 | 19.09 | 16.64 | 10.52 | 12.97 |
| Long-5 | 21.00 | -36.58 | 58.19 | -28.18 | -16.18 | 10.21 | 33.00 | 121.76 | 180.54 | 274.13 | 350.87 |
| Long-6 | -5.47 | 11.65 | 17.76 | 28.77 | 26.32 | 37.33 | 21.43 | 29.99 | 58.11 | 104.58 | 143.70 |
| Long-7 | 74.62 | -33.49 | 116.67 | -25.08 | 59.01 | -27.48 | -26.28 | 3.75 | 60.20 | 109.46 | 161.10 |
| Long-8 | 5.02 | -1.14 | -14.67 | 11.17 | 29.64 | 46.87 | 59.17 | 117.01 | 174.86 | 231.49 | 272.08 |
| SG1 | 200.98 | 92.42 | 123.41 | 174.01 | 191.45 | 272.87 | 276.35 | 346.00 | 338.88 | 379.96 | 467.47 |
| SG2 | 324.08 | 195.48 | 211.99 | 295.80 | 314.91 | 407.53 | 412.85 | 506.16 | 494.66 | 537.21 | 618.16 |
| SG3 | 754.36 | 663.80 | 665.82 | 803.48 | 811.63 | 892.04 | 932.97 | 1042.64 | 1051.92 | 1098.55 | 1162.73 |
| SG4 | 730.09 | 609.20 | 601.87 | 732.22 | 752.46 | 852.39 | 868.16 | 981.55 | 985.87 | 1028.96 | 1097.46 |
| SG5 | 339.54 | 222.95 | 229.86 | 328.69 | 352.18 | 442.77 | 452.35 | 551.59 | 543.07 | 583.58 | 648.76 |
| SG6 | 20.41 | 54.10 | 92.24 | 141.92 | 187.41 | 234.53 | 284.41 | 334.25 | 376.46 | 421.01 | 465.80 |
| SG7 | 584.03 | 448.97 | 443.65 | 531.94 | 565.16 | 673.61 | 678.00 | 777.95 | 774.00 | 817.41 | 905.62 |
| SG8 | 280.49 | 204.73 | 210.37 | 302.12 | 332.41 | 403.66 | 421.74 | 504.80 | 507.87 | 543.40 | 584.49 |
| SG9 | 61.19 | 96.08 | 133.91 | 190.67 | 239.00 | 289.14 | 342.78 | 398.21 | 443.07 | 489.55 | 534.42 |
| SG10 | 12.28 | 11.69 | 12.05 | 5.22 | -8.33 | -7.27 | -28.57 | -33.25 | -45.42 | -56.75 | -73.84 |
| SG11 | 14.46 | -3.17 | -24.85 | -43.77 | -61.78 | -75.38 | -93.39 | -103.30 | -115.07 | -128.11 | -143.19 |

TABLE E-34. CVP3, WATER 2, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -16.24 | -13.62 | -10.32 | -9.72 | -6.05 | -0.68 | 3.27 | 6.16 | 7.17 | 7.81 | 8.37 |
| SG13 | 12.02 | -10.17 | -6.23 | -14.52 | -17.32 | -10.86 | -23.65 | -26.21 | -28.83 | -30.57 | -27.09 |
| SG14 | -13.83 | -12.72 | -23.18 | -29.28 | -32.58 | -40.97 | -44.37 | -52.20 | -58.95 | -66.70 | -76.02 |
| SG15 | 17.80 | 20.92 | 19.68 | 13.77 | 11.43 | 8.17 | 6.84 | 3.95 | 5.65 | 2.76 | -2.65 |
| SG16 | 191.10 | 189.80 | 189.52 | 188.65 | 191.24 | 190.96 | 189.86 | 188.61 | 186.33 | 184.27 | 182.27 |
| SG17 | 22309.2 | 22386.4 | 22439.4 | 22392.3 | 22421.0 | 22309.2 | 22294.5 | 21889.3 | 22109.2 | 22038.6 | 22070.2 |
| SG18 | 33.98 | 22.14 | 5.39 | -15.94 | -33.75 | -54.17 | -76.15 | -95.46 | -121.62 | -144.11 | -166.61 |
| SG19 | 39.07 | 16.07 | -10.07 | -41.53 | -69.33 | -99.14 | -132.46 | -159.68 | -195.40 | -229.08 | -262.60 |
| SG20 | 143.42 | 140.28 | 138.25 | 137.70 | 136.43 | 133.30 | 132.75 | 136.41 | 130.54 | 122.81 | 118.77 |
| SG21 | 100.91 | 96.30 | 83.78 | 74.94 | 66.11 | 54.33 | 46.04 | 37.57 | 25.60 | 10.69 | -1.83 |
| SG22 | -8.18 | -19.52 | -10.43 | -10.02 | -5.93 | 4.40 | 5.32 | 15.05 | 12.62 | 13.22 | 21.49 |
| SG23 | -19.36 | -43.95 | -65.25 | -97.75 | -122.73 | -151.92 | -184.24 | -214.51 | -239.32 | -267.96 | -298.47 |
| SG24 | 16.84 | 7.29 | 14.45 | 13.35 | 18.49 | 20.51 | 19.77 | 21.79 | 21.43 | 20.69 | 21.98 |
| SG25 | 23.80 | 21.49 | 18.73 | 14.32 | 12.20 | 6.86 | 2.03 | -6.58 | -16.89 | -26.78 | -32.36 |
| SG26 | 42.12 | 24.47 | 31.46 | 33.66 | 37.16 | 41.76 | 40.65 | 38.63 | 31.64 | 28.89 | 32.02 |
| SG27 | 49.01 | 48.82 | 53.28 | 56.13 | 60.64 | 63.12 | 64.82 | 63.99 | 60.27 | 56.50 | 56.88 |
| SG28 | -78.20 | -77.46 | -74.52 | -81.14 | -85.56 | -87.03 | -91.45 | -95.85 | -96.60 | -100.27 | -101.76 |
| SG29 | 32.46 | 32.64 | 28.23 | 29.34 | 32.28 | 35.40 | 38.52 | 40.91 | 42.38 | 41.83 | 44.22 |
| SG30 | 673.08 | 656.43 | 657.63 | 648.63 | 641.34 | 635.83 | 629.08 | 624.24 | 619.94 | 615.85 | 612.70 |
| SG31 | -23.93 | -25.81 | -33.06 | -37.98 | -51.25 | -57.86 | -73.52 | -75.94 | -92.21 | -106.44 | -110.77 |
| SG32-T | -21.28 | 44.83 | 130.72 | 203.83 | 278.49 | 344.69 | 426.42 | 490.75 | 560.16 | 622.39 | 682.67 |
| SG32-45 | -34.50 | -17.15 | 31.37 | 58.62 | 100.05 | 138.44 | 181.75 | 210.17 | 248.49 | 283.45 | 318.44 |
| SG32-L | 8.55 | -4.24 | -17.08 | -17.59 | -10.30 | -4.52 | -2.23 | -1.31 | -10.16 | -12.27 | -12.22 |
| SG33-T | -4.00 | 63.42 | 139.92 | 213.48 | 289.88 | 355.83 | 437.39 | 500.26 | 563.23 | 627.95 | 690.07 |
| SG33-45 | -12.09 | -4.38 | 25.96 | 54.04 | 87.46 | 114.63 | 146.21 | 167.30 | 192.10 | 220.37 | 248.30 |
| SG33-T | 63.38 | 38.06 | 32.74 | 34.94 | 35.31 | 36.78 | 34.03 | 35.49 | 32.56 | 23.21 | 19.54 |
| SG34-T | -18.31 | 60.92 | 150.23 | 233.49 | 316.78 | 392.53 | 483.50 | 554.61 | 629.68 | 703.78 | 777.77 |
| SG34-45 | -36.81 | 4.62 | 44.12 | 83.35 | 121.54 | 154.03 | 196.47 | 234.58 | 269.07 | 300.97 | 337.48 |
| SG34-L | 21.56 | 21.01 | 14.41 | 5.42 | -1.36 | -11.45 | -19.16 | -24.29 | -30.34 | -41.90 | -52.18 |
| SG35-T | 52.37 | 121.17 | 179.20 | 228.97 | 294.74 | 356.08 | 428.79 | 484.21 | 549.22 | 612.71 | 678.20 |
| SG35-45 | 66.01 | 100.71 | 126.23 | 151.02 | 179.87 | 203.92 | 241.94 | 274.60 | 306.21 | 334.49 | 367.95 |
| SG35-L | 86.62 | 83.49 | 77.25 | 70.63 | 64.21 | 55.20 | 47.67 | 43.44 | 37.01 | 25.62 | 15.51 |
| SG36-T | -20.63 | 39.40 | 137.79 | 222.42 | 311.11 | 387.12 | 478.17 | 546.96 | 620.45 | 688.93 | 757.12 |
| SG36-45 | 35.41 | 47.79 | 80.90 | 120.25 | 160.44 | 195.94 | 235.20 | 270.82 | 301.67 | 328.86 | 358.03 |
| SG36-L | 37.35 | 20.72 | 17.28 | 20.22 | 22.19 | 23.66 | 22.38 | 22.88 | 19.35 | 16.04 | 13.52 |
| SG37-T | 432.72 | 512.69 | 502.05 | 531.49 | 571.44 | 584.42 | 637.24 | 676.34 | 724.19 | 767.75 | 813.23 |
| SG37-45 | 136.55 | 179.84 | 189.93 | 202.59 | 217.48 | 227.02 | 250.33 | 270.49 | 291.07 | 305.75 | 323.22 |
| SG37-L | 84.75 | 108.93 | 89.69 | 71.36 | 57.62 | 38.01 | 26.83 | 13.27 | 2.82 | -13.12 | -25.96 |
| SG38-T | 31.60 | 90.68 | 160.60 | 235.65 | 310.54 | 380.83 | 468.00 | 537.31 | 610.04 | 680.51 | 751.97 |
| SG38-45 | -59.29 | -28.81 | 1.48 | 32.15 | 67.59 | 95.13 | 127.99 | 162.13 | 196.12 | 223.11 | 252.14 |
| SG38-L | -18.91 | -39.60 | -39.79 | -51.35 | -55.35 | -63.93 | -74.76 | -81.45 | -89.81 | -97.84 | -103.95 |
| SG39-T | -39.49 | 44.67 | 127.56 | 200.53 | 277.21 | 345.61 | 429.05 | 494.83 | 566.22 | 631.14 | 695.02 |
| SG39-45 | -48.84 | 2.40 | 54.28 | 101.25 | 152.87 | 195.71 | 244.57 | 289.17 | 329.98 | 365.88 | 403.25 |
| SG39-L | 26.36 | 25.58 | 30.52 | 38.25 | 46.40 | 52.12 | 55.05 | 54.59 | 51.67 | 48.88 | 49.61 |
| SG40-T | 62.80 | 117.60 | 167.74 | 211.98 | 258.18 | 301.98 | 361.80 | 410.43 | 460.85 | 510.30 | 559.57 |
| SG40-45 | 53.69 | 79.98 | 102.26 | 121.62 | 143.33 | 162.13 | 187.30 | 212.68 | 231.11 | 249.21 | 271.27 |
| SG40-L | 74.01 | 60.86 | 46.06 | 33.46 | 18.29 | 4.58 | -10.40 | -26.47 | -45.47 | -60.46 | -71.96 |

TABLE E-35. CVP3, WATER 2, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.04 | -0.12 | 0.08 | 0.03 | -0.15 | 0.10 | -0.02 | -0.02 | 0.03 | 0.01 | 0.05 |
| Frame-1 | -4.47 | -7.13 | 3.63 | -2.47 | -5.98 | -8.34 | 66.06 | 40.64 | 5.97 | -47.25 | -30.15 |
| Frame-2 | -72.22 | 32.58 | 76.77 | 1.03 | 56.27 | 12.60 | 146.54 | -82.40 | 47.77 | 39.22 | -82.47 |
| Frame-3 | 177.41 | -65.37 | 85.93 | -156.92 | -55.62 | -34.12 | 69.27 | 45.65 | 114.03 | -179.22 | 199.87 |
| Frame-4 | -89.03 | -119.30 | 0.11 | -88.75 | -45.75 | 29.51 | 97.06 | -74.91 | -119.96 | -100.83 | -33.71 |
| Frame-5 | 44.00 | -146.76 | -25.51 | 58.08 | -35.21 | 107.43 | -137.25 | 116.78 | -112.90 | -88.58 | -9.32 |
| Frame-6 | -19.80 | 1.75 | -6.83 | -75.54 | 45.42 | 64.53 | 4.06 | 36.71 | -82.50 | -38.13 | -87.60 |
| Frame-7 | -109.47 | 17.14 | 105.86 | 83.65 | -74.69 | 89.75 | 21.36 | 88.78 | -45.76 | -19.49 | -59.58 |
| Frame-8 | 100.63 | -13.83 | -81.85 | -104.04 | -9.20 | 50.11 | 50.62 | 57.75 | 55.84 | 95.87 | -4.45 |
| Frame-9 | -130.03 | 121.70 | -91.55 | -32.16 | -168.52 | 110.26 | -172.14 | -63.71 | -20.17 | 95.36 | 46.13 |
| Frame-10 | 9.39 | -108.54 | -109.41 | -81.68 | 32.12 | -94.52 | 140.17 | -107.54 | 100.62 | -133.12 | 40.32 |
| Frame-11 | -7.84 | 3.67 | -24.87 | 0.85 | 74.33 | -23.84 | 32.90 | 17.88 | -68.75 | 41.73 | -50.23 |
| Frame-12 | 59.62 | -110.85 | 38.90 | 47.70 | 14.84 | 57.34 | -73.69 | 73.57 | -26.89 | -92.20 | 38.81 |
| Hoop-1 | 109.70 | -79.65 | -20.83 | -4.29 | -15.32 | -70.47 | -118.27 | 34.32 | 1.23 | 12.26 | -41.05 |
| Hoop-2 | -19.89 | -95.68 | -39.74 | 99.23 | -65.00 | 12.60 | 54.12 | -43.35 | -48.77 | 21.63 | -10.86 |
| Hoop-3 | -54.37 | 61.41 | -40.33 | -42.08 | -3.49 | 68.44 | -145.60 | 47.38 | -96.47 | -50.85 | 164.90 |
| Hoop-4 | -73.39 | 424.52 | 109.86 | -53.02 | 148.73 | 11.77 | 148.76 | -65.98 | -69.68 | -40.06 | -14.15 |
| Hoop-5 | -26.29 | -126.67 | 172.68 | -108.42 | 203.71 | 223.83 | 2.92 | 1.10 | -15.33 | 64.98 | -124.85 |
| Hoop-6 | 33.77 | -84.52 | 83.66 | -71.58 | -21.68 | -14.29 | 107.71 | 9.74 | 200.11 | -58.64 | 6.04 |
| Hoop-7 | 227.36 | -86.68 | 183.50 | -59.30 | 2.77 | -17.31 | -59.31 | 44.76 | -95.82 | 225.48 | 50.23 |
| Hoop-8 | -28.49 | -43.20 | -6.43 | 15.63 | 8.28 | 15.63 | 118.57 | -13.79 | -50.56 | 0.92 | 22.98 |
| Hoop-9 | 357.95 | 94.98 | -111.83 | 104.04 | 203.82 | 151.20 | -51.95 | 47.81 | 417.88 | -6.61 | -137.21 |
| Hoop-10 | 46.89 | -39.88 | -3.72 | -57.96 | 8.93 | -10.95 | 64.97 | 70.41 | -135.71 | -21.80 | 153.56 |
| Hoop-11 | -90.27 | 189.96 | -103.21 | 232.34 | 90.40 | -31.29 | 307.90 | 372.49 | -44.20 | 57.21 | -158.50 |
| Hoop-12 | 253.44 | 101.54 | 359.15 | -83.76 | -35.59 | -117.11 | -183.80 | -109.71 | -98.59 | -102.31 | 255.32 |
| Hoop-13 | -81.33 | -29.42 | -44.26 | 7.68 | -51.67 | 7.68 | 15.10 | -7.16 | -36.83 | 7.68 | -36.83 |
| Hoop-14 | -114.71 | -40.77 | 62.78 | -114.72 | -107.33 | 47.97 | -92.52 | -144.31 | -3.79 | -144.33 | -40.77 |
| Long-1 | 61.66 | 1221.99 | 2486.87 | 3815.73 | 4898.91 | 6127.08 | 7353.82 | 8604.14 | 9737.52 | 10908.2 | 11898.5 |
| Long-2 | 0.01 | 1231.87 | 2459.60 | 3676.64 | 4925.03 | 6107.69 | 7330.19 | 8592.67 | 9756.75 | 10893.6 | 11968.7 |
| Long-3 | 5.37 | 1344.15 | 2485.85 | 3789.54 | 4885.21 | 6105.18 | 7341.08 | 8556.91 | 9751.63 | 11030.4 | 11987.3 |
| Long-4 | 12.97 | 1226.26 | 2397.44 | 3709.64 | 4921.22 | 6114.30 | 7401.40 | 8605.15 | 9775.83 | 11014.5 | 12203.3 |
| Long-5 | -19.78 | 1189.57 | 2471.61 | 3633.94 | 4920.81 | 6151.14 | 7359.64 | 8584.86 | 9756.05 | 11040.7 | 12366.4 |
| Long-6 | -4.25 | 1221.14 | 2438.70 | 3654.07 | 4904.65 | 6093.96 | 7347.84 | 8577.14 | 9781.99 | 10974.1 | 12529.6 |
| Long-7 | 42.19 | 1231.55 | 2427.62 | 3662.37 | 4919.73 | 6115.68 | 7371.44 | 8567.08 | 9771.07 | 11025.0 | 11174.2 |
| Long-8 | -13.44 | 1240.91 | 2434.45 | 3659.02 | 4935.03 | 6117.37 | 7357.32 | 8589.75 | 9809.89 | 11030.7 | 12278.9 |
| SG1 | 106.91 | 185.40 | 65.48 | 44.02 | 139.36 | 5.69 | 41.63 | 21.28 | -61.61 | -59.59 | -104.31 |
| SG2 | 201.74 | 312.52 | 141.04 | 106.36 | 239.86 | 50.41 | 92.97 | 67.29 | -52.85 | -55.05 | -109.92 |
| SG3 | 671.39 | 958.85 | 931.41 | 1039.99 | 1307.86 | 1202.26 | 1347.46 | 1466.05 | 1403.27 | 1522.22 | 1495.12 |
| SG4 | 618.25 | 797.57 | 648.75 | 661.89 | 856.34 | 655.29 | 732.66 | 760.90 | 624.48 | 671.97 | 595.76 |
| SG5 | 225.40 | 336.93 | 160.44 | 122.48 | 261.48 | 66.31 | 103.83 | 82.62 | -43.07 | -49.44 | -100.55 |
| SG6 | 22.89 | 15.87 | -7.69 | -32.58 | -48.07 | -70.67 | -91.30 | -109.59 | -135.03 | -153.55 | -166.22 |
| SG7 | 500.26 | 577.43 | 383.70 | 329.25 | 491.55 | 285.10 | 307.72 | 273.15 | 175.64 | 157.83 | 106.74 |
| SG8 | 212.45 | 282.23 | 154.04 | 125.40 | 222.77 | 82.87 | 106.36 | 98.85 | 3.43 | -7.79 | -37.96 |
| SG9 | 62.66 | 57.70 | 32.72 | 12.69 | 7.18 | -14.31 | -29.37 | -41.13 | -66.29 | -82.64 | -91.44 |
| SG10 | 21.10 | 64.29 | 93.73 | 132.32 | 171.28 | 203.65 | 246.25 | 281.51 | 316.53 | 349.17 | 382.78 |
| SG11 | 13.73 | 53.05 | 86.31 | 125.25 | 160.88 | 193.97 | 233.29 | 271.13 | 307.33 | 343.34 | 376.52 |

TABLE E-35. CVP3, WATER 2, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -11.74 | 80.07 | 176.32 | 263.89 | 345.76 | 443.21 | 521.72 | 605.04 | 690.25 | 769.94 | 833.32 |
| SG13 | -19.98 | 110.52 | 220.60 | 331.19 | 441.16 | 557.08 | 667.28 | 777.66 | 888.77 | 992.92 | 1088.04 |
| SG14 | -11.76 | 108.80 | 234.29 | 346.39 | 452.46 | 578.66 | 677.30 | 787.49 | 888.01 | 991.84 | 1063.53 |
| SG15 | 10.88 | 68.92 | 136.70 | 198.27 | 243.91 | 313.81 | 367.36 | 426.78 | 484.55 | 540.12 | 588.24 |
| SG16 | 181.80 | 295.80 | 409.65 | 514.99 | 614.59 | 733.41 | 831.51 | 935.01 | 1037.37 | 1133.44 | 1210.94 |
| SG17 | 22612.3 | 22941.8 | 22917.6 | 23324.2 | 23074.8 | 23168.3 | 23318.3 | 23362.5 | 23394.8 | 23433.1 | 23840.2 |
| SG18 | 27.92 | 96.89 | 161.56 | 228.31 | 289.17 | 355.73 | 419.42 | 481.64 | 546.07 | 607.37 | 661.02 |
| SG19 | 30.42 | 136.62 | 225.53 | 308.51 | 377.12 | 448.02 | 513.35 | 583.66 | 647.15 | 715.62 | 765.34 |
| SG20 | 138.64 | 247.04 | 353.65 | 450.61 | 536.69 | 631.35 | 709.76 | 796.45 | 877.25 | 960.07 | 1022.07 |
| SG21 | 110.85 | 199.79 | 287.83 | 359.98 | 418.31 | 475.99 | 519.44 | 573.76 | 620.34 | 673.01 | 704.90 |
| SG22 | -24.99 | 86.51 | 158.39 | 201.91 | 224.39 | 233.69 | 242.97 | 270.43 | 266.43 | 294.76 | 288.00 |
| SG23 | -22.84 | 92.28 | 186.30 | 275.89 | 356.45 | 438.20 | 517.88 | 598.67 | 678.72 | 757.86 | 821.41 |
| SG24 | 9.31 | 130.13 | 236.28 | 334.13 | 424.06 | 525.83 | 612.31 | 707.06 | 795.38 | 887.56 | 960.45 |
| SG25 | 28.54 | 140.52 | 256.21 | 363.70 | 465.83 | 583.14 | 682.93 | 791.00 | 896.67 | 999.21 | 1083.50 |
| SG26 | 34.77 | 158.85 | 268.62 | 377.78 | 482.69 | 599.10 | 709.58 | 821.16 | 928.33 | 1031.45 | 1128.46 |
| SG27 | 51.03 | 147.06 | 247.43 | 343.56 | 432.46 | 540.75 | 634.20 | 730.45 | 830.66 | 919.47 | 1001.27 |
| SG28 | -92.92 | -45.83 | 10.82 | 58.64 | 103.51 | 158.70 | 205.05 | 252.13 | 305.84 | 352.93 | 399.20 |
| SG29 | 46.05 | 129.81 | 218.55 | 303.75 | 380.86 | 468.70 | 546.76 | 627.03 | 712.07 | 786.09 | 860.86 |
| SG30 | 670.87 | 694.94 | 719.12 | 738.75 | 760.58 | 779.95 | 798.96 | 817.70 | 836.76 | 854.72 | 870.94 |
| SG31 | -12.91 | 25.20 | 47.88 | 88.42 | 129.23 | 153.44 | 197.56 | 232.82 | 267.21 | 305.87 | 342.03 |
| SG32-T | -7.91 | -53.28 | -65.06 | -97.56 | -146.58 | -152.59 | -194.67 | -222.65 | -244.76 | -275.76 | -291.17 |
| SG32-45 | -22.48 | 4.50 | 60.60 | 80.92 | 96.92 | 151.61 | 170.46 | 201.20 | 244.96 | 273.68 | 307.84 |
| SG32-L | 13.59 | 111.58 | 205.32 | 292.33 | 379.51 | 474.83 | 551.36 | 639.39 | 722.11 | 806.67 | 866.83 |
| SG33-T | 11.15 | -42.87 | -83.41 | -128.42 | -182.97 | -216.08 | -263.31 | -308.34 | -345.19 | -390.99 | -420.65 |
| SG33-45 | -17.92 | 2.23 | 24.95 | 30.09 | 32.47 | 27.20 | 14.35 | -0.48 | -9.47 | -24.07 | -32.37 |
| SG33-T | 45.95 | 180.59 | 277.10 | 389.14 | 511.80 | 616.04 | 724.26 | 834.14 | 934.10 | 1040.49 | 1119.32 |
| SG34-T | -7.63 | -53.29 | -81.78 | -124.73 | -172.72 | -192.78 | -238.08 | -271.83 | -305.03 | -339.51 | -363.41 |
| SG34-45 | -33.23 | -9.49 | 22.59 | 54.07 | 56.13 | 89.68 | 104.17 | 125.62 | 138.04 | 160.17 | 164.08 |
| SG34-L | 23.58 | 128.50 | 237.47 | 335.76 | 426.14 | 526.70 | 611.62 | 702.04 | 792.10 | 877.76 | 948.73 |
| SG35-T | 62.74 | 9.11 | 8.93 | -17.27 | -63.19 | -53.42 | -86.96 | -109.62 | -116.78 | -143.02 | -150.65 |
| SG35-45 | 70.42 | 86.58 | 126.26 | 162.05 | 161.67 | 203.92 | 220.45 | 243.40 | 263.05 | 285.27 | 293.11 |
| SG35-L | 86.07 | 190.08 | 294.12 | 390.56 | 478.35 | 575.05 | 657.74 | 746.49 | 833.96 | 917.76 | 986.65 |
| SG36-T | -14.57 | -68.91 | -106.37 | -151.71 | -207.59 | -240.20 | -288.48 | -332.68 | -367.65 | -411.89 | -442.42 |
| SG36-45 | 36.74 | 69.90 | 79.91 | 99.85 | 99.20 | 89.99 | 77.01 | 70.54 | 52.70 | 45.27 | 27.65 |
| SG36-L | 26.46 | 157.46 | 267.45 | 380.97 | 501.22 | 611.51 | 719.32 | 828.60 | 934.75 | 1039.44 | 1125.17 |
| SG37-T | 436.81 | 387.83 | 382.60 | 348.03 | 289.53 | 272.46 | 219.12 | 177.81 | 145.39 | 103.43 | 72.97 |
| SG37-45 | 154.35 | 164.62 | 189.97 | 200.78 | 172.87 | 171.60 | 139.48 | 125.90 | 103.15 | 88.46 | 63.49 |
| SG37-L | 94.28 | 186.84 | 306.37 | 407.70 | 493.24 | 615.36 | 700.59 | 802.68 | 906.23 | 1003.74 | 1084.17 |
| SG38-T | 46.83 | 1.14 | -35.57 | -79.24 | -118.32 | -148.06 | -192.28 | -227.70 | -264.04 | -299.82 | -327.84 |
| SG38-45 | -66.45 | -24.40 | 4.97 | 36.92 | 67.21 | 106.70 | 133.50 | 160.31 | 198.69 | 225.86 | 249.68 |
| SG38-L | -34.74 | 84.43 | 189.99 | 289.14 | 377.76 | 478.98 | 566.67 | 662.17 | 752.02 | 843.70 | 921.71 |
| SG39-T | -28.12 | -73.05 | -82.05 | -114.50 | -161.24 | -164.74 | -206.23 | -235.39 | -256.89 | -286.74 | -305.20 |
| SG39-45 | -34.15 | -10.27 | 20.86 | 49.92 | 51.66 | 98.41 | 113.66 | 146.63 | 174.36 | 202.51 | 227.17 |
| SG39-L | 30.62 | 119.95 | 211.45 | 298.16 | 379.76 | 470.33 | 552.43 | 639.43 | 726.29 | 808.03 | 880.66 |
| SG40-T | 66.22 | 43.89 | 41.01 | 24.10 | -0.74 | -0.56 | -26.31 | -43.46 | -53.03 | -69.26 | -80.37 |
| SG40-45 | 65.01 | 105.92 | 143.50 | 185.48 | 202.86 | 254.86 | 282.77 | 325.00 | 363.66 | 403.68 | 435.91 |
| SG40-L | 76.02 | 157.16 | 242.26 | 322.28 | 398.36 | 485.47 | 560.88 | 643.58 | 730.49 | 810.23 | 878.21 |

TABLE E-36. CVP3, WATER 2, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.11 | 0.81 | 1.76 | 2.62 | 3.52 | 4.41 | 5.27 | 6.13 | 7.12 | 7.90 | 8.82 |
| Frame-1 | -73.18 | 204.06 | 360.97 | 538.07 | 722.42 | 919.32 | 1080.72 | 1246.22 | 1440.65 | 1622.63 | 1851.74 |
| Frame-2 | 71.94 | 184.58 | 375.68 | 548.80 | 739.70 | 903.28 | 1079.66 | 1282.76 | 1450.97 | 1630.61 | 1838.89 |
| Frame-3 | 198.29 | 182.21 | 374.00 | 549.91 | 724.45 | 908.06 | 1083.78 | 1265.30 | 1446.39 | 1640.94 | 1856.64 |
| Frame-4 | -131.97 | 188.80 | 349.48 | 552.77 | 737.46 | 910.57 | 1094.70 | 1248.45 | 1453.59 | 1641.06 | 1820.56 |
| Frame-5 | -49.03 | 201.39 | 393.39 | 545.20 | 738.80 | 905.27 | 1086.21 | 1264.36 | 1449.10 | 1645.45 | 1837.31 |
| Frame-6 | -17.54 | 189.00 | 363.47 | 541.04 | 725.70 | 948.23 | 1166.38 | 1274.81 | 1457.27 | 1638.17 | 1851.65 |
| Frame-7 | -164.25 | 230.42 | 364.74 | 548.81 | 741.95 | 914.69 | 1162.45 | 1261.19 | 1453.80 | 1611.26 | 2016.03 |
| Frame-8 | 87.21 | 250.87 | 362.62 | 567.15 | 729.10 | 925.74 | 1111.28 | 1259.80 | 1531.38 | 1619.80 | 1819.37 |
| Frame-9 | -70.73 | 195.01 | 359.35 | 540.76 | 736.65 | 901.39 | 1094.94 | 1277.13 | 1465.73 | 1640.92 | 1864.52 |
| Frame-10 | 87.22 | 187.24 | 297.32 | 594.90 | 731.09 | 915.75 | 1075.53 | 1249.93 | 1456.17 | 1637.62 | 1840.70 |
| Frame-11 | -73.00 | 250.90 | 347.74 | 532.62 | 739.86 | 903.40 | 1081.49 | 1275.66 | 1453.30 | 1647.86 | 1854.79 |
| Frame-12 | -35.27 | 183.52 | 374.39 | 563.28 | 726.72 | 1020.12 | 1096.54 | 1275.85 | 1456.11 | 1632.06 | 1788.34 |
| Hoop-1 | 87.63 | 782.59 | 1559.96 | 2317.50 | 3076.72 | 3896.22 | 4565.30 | 5392.45 | 6191.44 | 6958.09 | 7666.68 |
| Hoop-2 | 7.19 | 774.37 | 1557.48 | 2308.49 | 3095.45 | 3851.33 | 4596.70 | 5446.74 | 6200.57 | 6926.23 | 7728.48 |
| Hoop-3 | -57.87 | 780.74 | 1522.57 | 2320.91 | 3106.83 | 3834.47 | 4622.05 | 5421.92 | 6170.40 | 6931.83 | 7678.23 |
| Hoop-4 | 195.02 | 759.69 | 1557.29 | 2312.70 | 3079.06 | 3959.79 | 4846.38 | 5429.43 | 6328.39 | 6887.48 | 7691.72 |
| Hoop-5 | 103.32 | 881.07 | 1528.87 | 2301.20 | 3087.98 | 3865.25 | 4624.57 | 5440.48 | 6171.83 | 6933.14 | 8003.77 |
| Hoop-6 | -127.04 | 763.91 | 1538.11 | 2314.53 | 3190.62 | 3857.46 | 4615.17 | 5415.40 | 6148.47 | 6945.16 | 7881.27 |
| Hoop-7 | 185.34 | 860.94 | 1512.48 | 2292.21 | 3318.26 | 3819.95 | 4619.53 | 5442.85 | 6187.08 | 7017.86 | 7641.25 |
| Hoop-8 | 140.64 | 765.79 | 1574.78 | 2317.35 | 3045.68 | 3875.96 | 4619.54 | 5406.47 | 6178.69 | 6752.34 | 7362.76 |
| Hoop-9 | -137.21 | 769.81 | 1540.79 | 2358.70 | 3075.49 | 3862.02 | 4646.47 | 5408.37 | 6161.21 | 6874.14 | 7403.85 |
| Hoop-10 | -18.18 | 775.54 | 1529.50 | 2321.19 | 3082.60 | 3866.52 | 4653.79 | 5413.17 | 6266.56 | 6953.62 | 7691.30 |
| Hoop-11 | 12.96 | 776.28 | 1535.91 | 2310.06 | 3086.51 | 3850.90 | 4631.58 | 5385.68 | 6200.63 | 6949.19 | 7718.04 |
| Hoop-12 | 199.73 | 727.88 | 1537.67 | 2315.73 | 3086.85 | 3864.37 | 4687.90 | 5406.90 | 6200.01 | 6933.83 | 7719.54 |
| Hoop-13 | -7.16 | 764.42 | 1513.75 | 2351.87 | 3101.43 | 4028.00 | 4600.07 | 5431.01 | 6224.85 | 6989.01 | 7723.50 |
| Hoop-14 | 107.13 | 772.76 | 1541.92 | 2340.43 | 3072.84 | 3870.81 | 4744.28 | 5409.90 | 6312.18 | 6896.45 | 7443.73 |
| Long-1 | 49.86 | 1257.28 | 2444.63 | 3711.06 | 4885.92 | 6129.44 | 7356.47 | 8516.27 | 9639.56 | 10721.9 | 11919.8 |
| Long-2 | 0.01 | 1271.83 | 2456.20 | 3646.64 | 4905.59 | 6122.26 | 7375.39 | 8541.16 | 9736.09 | 10885.3 | 11990.6 |
| Long-3 | 5.37 | 1392.54 | 2459.97 | 3777.47 | 4912.58 | 6061.64 | 7245.50 | 8484.29 | 9645.88 | 10859.0 | 11939.9 |
| Long-4 | 12.97 | 1227.36 | 2449.10 | 3711.23 | 4884.49 | 6126.54 | 7318.41 | 8578.95 | 9881.11 | 10986.6 | 12235.2 |
| Long-5 | -42.57 | 1214.64 | 2449.07 | 3685.89 | 4898.01 | 6124.75 | 7338.32 | 8574.75 | 9808.83 | 11027.7 | 12260.9 |
| Long-6 | -9.14 | 1214.90 | 2445.06 | 3681.33 | 4909.54 | 6129.42 | 7410.46 | 8583.99 | 9805.22 | 11035.5 | 12214.1 |
| Long-7 | 19.36 | 1212.20 | 2435.07 | 3683.16 | 4905.32 | 6121.69 | 7339.28 | 8542.54 | 9805.90 | 11117.7 | 12210.8 |
| Long-8 | 38.25 | 1229.70 | 2431.00 | 3701.23 | 4879.63 | 6106.29 | 7321.86 | 8548.65 | 9775.42 | 11042.0 | 12131.2 |
| SG1 | 334.33 | 162.11 | 83.80 | 152.76 | 123.23 | 133.15 | 134.42 | 149.85 | 138.09 | 141.56 | 157.69 |
| SG2 | 516.17 | 296.38 | 189.06 | 258.78 | 214.57 | 226.70 | 219.89 | 228.01 | 199.35 | 187.96 | 182.46 |
| SG3 | 1055.15 | 1035.40 | 1063.56 | 1291.11 | 1376.83 | 1535.95 | 1619.87 | 1729.26 | 1807.85 | 1871.17 | 1951.38 |
| SG4 | 998.25 | 824.89 | 742.12 | 868.16 | 871.27 | 945.81 | 978.53 | 1018.71 | 1028.59 | 1036.19 | 1054.89 |
| SG5 | 545.92 | 325.42 | 217.22 | 285.79 | 241.34 | 262.63 | 257.88 | 265.04 | 240.66 | 224.37 | 211.77 |
| SG6 | 20.69 | 41.09 | 59.23 | 88.39 | 110.21 | 140.30 | 166.69 | 193.87 | 225.73 | 248.08 | 277.60 |
| SG7 | 771.33 | 539.69 | 417.00 | 489.86 | 448.46 | 466.32 | 467.51 | 477.73 | 458.08 | 444.11 | 431.52 |
| SG8 | 442.62 | 273.62 | 200.16 | 263.73 | 233.28 | 269.89 | 275.95 | 289.25 | 292.03 | 281.10 | 276.52 |
| SG9 | 73.68 | 84.15 | 106.00 | 146.42 | 173.05 | 213.49 | 245.43 | 277.81 | 317.61 | 342.19 | 375.62 |
| SG10 | 26.43 | 64.38 | 98.66 | 137.78 | 165.69 | 204.55 | 234.78 | 266.41 | 290.55 | 324.71 | 342.25 |
| SG11 | 15.75 | 36.88 | 53.23 | 70.32 | 92.00 | 116.63 | 141.79 | 166.26 | 189.56 | 218.02 | 237.67 |

TABLE E-36. CVP3, WATER 2, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | -15.10 | 84.44 | 171.42 | 262.24 | 350.52 | 434.85 | 517.58 | 596.12 | 678.49 | 752.61 | 823.48 |
| SG13 | 1.89 | 108.87 | 204.20 | 316.34 | 420.67 | 529.08 | 635.56 | 737.65 | 844.22 | 942.58 | 1036.64 |
| SG14 | -8.74 | 120.95 | 218.84 | 324.56 | 435.72 | 534.32 | 630.43 | 721.24 | 812.07 | 895.45 | 969.54 |
| SG15 | 3.50 | 78.19 | 138.65 | 190.75 | 249.99 | 305.77 | 362.59 | 416.23 | 471.72 | 525.58 | 572.71 |
| SG16 | 186.86 | 307.35 | 406.18 | 511.28 | 619.46 | 720.97 | 821.56 | 915.94 | 1014.08 | 1099.96 | 1181.91 |
| SG17 | 21696.5 | 21688.5 | 21783.4 | 22020.6 | 21917.9 | 22146.7 | 22138.6 | 22254.9 | 22438.7 | 22677.6 | 22813.0 |
| SG18 | 30.86 | 93.81 | 136.20 | 182.33 | 231.61 | 274.08 | 319.57 | 363.33 | 404.92 | 451.68 | 488.94 |
| SG19 | 37.79 | 125.39 | 179.48 | 228.08 | 273.91 | 316.27 | 359.86 | 402.09 | 442.68 | 489.19 | 522.32 |
| SG20 | 147.67 | 264.53 | 354.31 | 446.19 | 529.57 | 609.14 | 684.91 | 758.68 | 834.54 | 904.39 | 970.65 |
| SG21 | 98.53 | 198.50 | 257.95 | 316.16 | 363.11 | 397.95 | 432.90 | 468.35 | 503.24 | 537.43 | 565.60 |
| SG22 | -8.92 | 92.25 | 155.65 | 217.20 | 230.70 | 262.88 | 278.00 | 304.10 | 325.95 | 350.66 | 366.04 |
| SG23 | -22.11 | 75.02 | 139.27 | 196.02 | 254.59 | 307.87 | 361.82 | 414.41 | 465.19 | 522.24 | 566.85 |
| SG24 | 14.45 | 136.74 | 229.63 | 325.50 | 417.68 | 504.21 | 589.91 | 673.78 | 760.13 | 841.94 | 916.66 |
| SG25 | 29.46 | 156.26 | 247.87 | 346.94 | 451.70 | 546.93 | 642.24 | 733.33 | 825.42 | 909.83 | 989.73 |
| SG26 | 42.49 | 155.17 | 248.16 | 362.16 | 465.83 | 571.22 | 675.39 | 777.56 | 883.29 | 980.06 | 1074.17 |
| SG27 | 47.78 | 157.40 | 243.88 | 339.52 | 438.99 | 530.65 | 625.19 | 713.41 | 804.00 | 885.73 | 965.15 |
| SG28 | -75.27 | -15.67 | 30.68 | 76.30 | 124.85 | 167.54 | 210.93 | 254.39 | 299.22 | 344.06 | 388.20 |
| SG29 | 32.10 | 125.77 | 202.71 | 286.67 | 371.16 | 447.99 | 526.74 | 604.19 | 680.85 | 752.22 | 822.75 |
| SG30 | 669.24 | 687.73 | 699.69 | 710.88 | 726.31 | 738.92 | 751.93 | 766.19 | 778.16 | 794.89 | 810.50 |
| SG31 | -9.74 | 25.70 | 51.55 | 80.66 | 108.49 | 140.69 | 167.85 | 209.27 | 230.99 | 269.85 | 294.18 |
| SG32-T | -25.08 | 11.28 | 71.48 | 116.77 | 164.07 | 207.36 | 246.85 | 285.55 | 332.84 | 366.09 | 408.98 |
| SG32-45 | -38.63 | 28.58 | 95.50 | 162.44 | 237.71 | 302.42 | 365.97 | 428.58 | 495.79 | 556.66 | 621.24 |
| SG32-L | 23.13 | 106.81 | 180.94 | 269.22 | 353.82 | 434.75 | 514.49 | 589.35 | 667.64 | 735.24 | 800.72 |
| SG33-T | -3.81 | 3.12 | 46.58 | 77.84 | 115.10 | 139.67 | 157.60 | 181.37 | 213.32 | 233.22 | 262.77 |
| SG33-45 | -9.70 | 19.63 | 77.54 | 113.80 | 137.94 | 153.56 | 161.63 | 169.19 | 180.72 | 190.43 | 202.91 |
| SG33-T | 101.36 | 185.17 | 274.66 | 381.44 | 481.41 | 586.20 | 692.16 | 784.58 | 881.83 | 964.64 | 1044.79 |
| SG34-T | -30.33 | 11.17 | 66.79 | 120.17 | 172.99 | 227.30 | 277.17 | 327.12 | 388.31 | 431.74 | 488.41 |
| SG34-45 | -36.45 | 42.39 | 110.62 | 176.86 | 232.04 | 286.33 | 339.10 | 395.82 | 456.79 | 505.51 | 554.45 |
| SG34-L | 32.02 | 147.39 | 235.77 | 325.85 | 409.31 | 486.03 | 559.89 | 631.37 | 705.16 | 772.77 | 837.51 |
| SG35-T | 17.83 | 65.03 | 113.42 | 136.74 | 179.04 | 219.34 | 258.68 | 298.01 | 348.83 | 385.40 | 436.32 |
| SG35-45 | 50.41 | 125.14 | 185.72 | 235.88 | 283.44 | 329.75 | 375.44 | 424.92 | 478.27 | 522.66 | 566.00 |
| SG35-L | 100.23 | 209.93 | 294.79 | 383.76 | 464.80 | 539.45 | 611.25 | 681.76 | 753.66 | 819.36 | 881.83 |
| SG36-T | -19.53 | -10.53 | 53.72 | 93.01 | 133.22 | 168.85 | 200.04 | 228.73 | 267.60 | 291.07 | 326.50 |
| SG36-45 | 48.07 | 78.20 | 131.53 | 178.38 | 210.16 | 233.49 | 251.26 | 270.90 | 292.86 | 305.76 | 317.55 |
| SG36-L | 61.73 | 158.10 | 254.91 | 368.07 | 483.04 | 582.69 | 680.75 | 774.39 | 870.11 | 957.25 | 1041.72 |
| SG37-T | 440.61 | 472.62 | 442.49 | 434.19 | 439.10 | 446.53 | 430.80 | 438.91 | 453.50 | 462.67 | 481.10 |
| SG37-45 | 113.07 | 188.48 | 220.21 | 234.00 | 233.45 | 231.08 | 227.39 | 229.45 | 232.53 | 231.04 | 226.27 |
| SG37-L | 67.89 | 206.63 | 287.98 | 371.41 | 465.07 | 544.67 | 627.82 | 708.24 | 790.95 | 867.11 | 940.78 |
| SG38-T | 40.60 | 48.67 | 87.01 | 132.72 | 176.58 | 223.21 | 265.95 | 310.06 | 365.78 | 402.99 | 456.02 |
| SG38-45 | -54.16 | 4.97 | 72.17 | 137.54 | 199.97 | 268.12 | 332.36 | 395.23 | 468.05 | 523.08 | 584.58 |
| SG38-L | -28.87 | 85.67 | 169.58 | 254.63 | 339.94 | 417.71 | 497.75 | 574.04 | 652.48 | 728.81 | 795.90 |
| SG39-T | -60.22 | -3.37 | 58.43 | 103.18 | 153.61 | 198.74 | 240.35 | 278.91 | 328.37 | 362.81 | 409.94 |
| SG39-45 | -53.07 | 35.83 | 107.95 | 177.53 | 244.89 | 311.92 | 378.88 | 446.37 | 520.35 | 578.38 | 634.67 |
| SG39-L | 32.27 | 136.10 | 219.37 | 311.38 | 396.83 | 476.74 | 556.91 | 635.12 | 713.16 | 783.05 | 852.01 |
| SG40-T | 55.37 | 96.17 | 138.88 | 160.63 | 198.89 | 230.65 | 262.58 | 294.30 | 333.12 | 363.08 | 402.22 |
| SG40-45 | 55.15 | 131.10 | 187.32 | 232.78 | 289.40 | 343.77 | 401.67 | 462.37 | 526.50 | 581.02 | 631.52 |
| SG40-L | 79.85 | 163.54 | 226.58 | 287.97 | 357.98 | 419.70 | 485.89 | 552.84 | 618.30 | 682.00 | 743.90 |

TABLE E-37. CVP4, AIR 1, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.05 | 0.88 | 1.77 | 2.66 | 3.55 | 4.39 | 5.27 | 6.16 | 7.04 | 7.92 | 8.82 |
| Frame-1 | -8.26 | 177.78 | 355.91 | 552.32 | 723.65 | 924.88 | 1098.47 | 1258.92 | 1447.37 | 1638.30 | 1837.06 |
| Frame-2 | -17.04 | 250.35 | 363.87 | 558.21 | 717.08 | 926.67 | 1082.58 | 1265.32 | 1449.98 | 1642.32 | 1826.84 |
| Frame-3 | -130.76 | 174.40 | 365.22 | 551.75 | 722.17 | 911.88 | 1113.67 | 1264.75 | 1476.07 | 1626.36 | 1827.22 |
| Frame-4 | -71.58 | 177.04 | 359.11 | 571.36 | 724.31 | 910.39 | 1086.25 | 1264.60 | 1451.75 | 1632.74 | 1869.73 |
| Frame-5 | -40.97 | 202.78 | 369.60 | 561.44 | 728.43 | 913.06 | 1111.60 | 1260.89 | 1462.11 | 1641.64 | 1865.14 |
| Frame-6 | -47.73 | 191.59 | 360.10 | 563.42 | 735.53 | 914.93 | 1090.91 | 1274.46 | 1454.79 | 1710.57 | 1841.47 |
| Frame-7 | -50.04 | 187.85 | 361.25 | 525.24 | 720.75 | 903.02 | 1125.25 | 1281.37 | 1442.05 | 1637.86 | 1823.13 |
| Frame-8 | 49.01 | 188.54 | 363.47 | 537.60 | 736.33 | 913.25 | 1105.99 | 1272.25 | 1456.84 | 1650.71 | 1809.96 |
| Frame-9 | -24.63 | 183.25 | 366.10 | 560.35 | 727.18 | 906.69 | 1112.81 | 1271.16 | 1453.31 | 1866.42 | 1820.54 |
| Frame-10 | 39.67 | 174.09 | 354.25 | 600.76 | 718.64 | 914.56 | 1095.32 | 1285.75 | 1453.19 | 1643.69 | 1815.05 |
| Frame-11 | -8.34 | 194.02 | 368.38 | 545.33 | 704.20 | 929.73 | 1121.61 | 1273.95 | 1456.14 | 1635.61 | 1819.94 |
| Frame-12 | 38.85 | 167.58 | 375.18 | 623.48 | 725.28 | 919.26 | 1143.01 | 1277.91 | 1443.31 | 1652.64 | 1811.62 |
| Hoop-1 | 24.51 | 769.36 | 1536.12 | 2388.50 | 3100.14 | 3856.85 | 4683.00 | 5396.58 | 6180.04 | 6939.60 | 7756.17 |
| Hoop-2 | -33.16 | 796.27 | 1564.11 | 2343.81 | 3113.53 | 3831.73 | 4630.82 | 5384.36 | 6190.31 | 6933.00 | 7733.53 |
| Hoop-3 | 46.22 | 797.35 | 1557.10 | 2335.41 | 3082.94 | 3848.86 | 4695.13 | 5402.39 | 6178.08 | 6930.96 | 7764.57 |
| Hoop-4 | -7.16 | 807.99 | 1563.70 | 2324.13 | 3098.44 | 3855.16 | 4635.50 | 5421.01 | 6197.25 | 6936.45 | 7775.68 |
| Hoop-5 | 22.46 | 514.54 | 1555.04 | 2352.34 | 3101.31 | 3858.47 | 4631.61 | 5395.24 | 6208.09 | 6937.09 | 7808.26 |
| Hoop-6 | 53.20 | 802.36 | 1543.96 | 2377.23 | 3085.59 | 3854.09 | 4631.37 | 5410.12 | 6183.32 | 6936.18 | 7740.82 |
| Hoop-7 | -56.64 | 800.77 | 1559.30 | 2348.11 | 3104.89 | 3844.29 | 4628.96 | 5396.80 | 6193.88 | 6974.51 | 7782.56 |
| Hoop-8 | 11.63 | 768.45 | 1554.50 | 2326.17 | 3104.72 | 3861.46 | 4640.25 | 5419.57 | 6190.47 | 6991.29 | 7718.65 |
| Hoop-9 | -38.33 | 756.72 | 1546.17 | 2352.26 | 3088.92 | 3834.88 | 4648.00 | 5399.95 | 6190.75 | 6980.28 | 7713.54 |
| Hoop-10 | 19.76 | 764.27 | 1551.99 | 2330.98 | 3082.41 | 3866.59 | 4656.19 | 5408.39 | 6210.10 | 6968.98 | 7713.41 |
| Hoop-11 | 20.85 | 768.10 | 1548.39 | 2327.15 | 3107.29 | 3858.15 | 4631.14 | 5395.45 | 6182.66 | 6927.98 | 7708.36 |
| Hoop-12 | 37.48 | 758.29 | 1604.93 | 2353.69 | 3101.98 | 3857.91 | 4658.31 | 5407.38 | 6207.24 | 6970.58 | 7741.34 |
| Hoop-13 | 52.50 | 757.56 | 1551.52 | 2316.10 | 3087.64 | 3859.41 | 4720.23 | 5403.48 | 6182.13 | 6946.48 | 7725.67 |
| Hoop-14 | -148.00 | 762.38 | 1546.79 | 2331.51 | 3100.97 | 3863.26 | 4588.54 | 5410.58 | 6187.12 | 6956.81 | 7733.90 |
| Long-1 | -3.60 | 6.01 | 6.02 | 8.42 | -3.60 | 6.02 | 14.42 | 81.70 | 98.51 | 146.57 | 176.61 |
| Long-2 | -7.08 | 1.55 | -3.38 | 34.82 | 0.32 | 24.96 | 2.78 | 15.10 | 22.50 | 92.74 | 128.47 |
| Long-3 | -12.46 | -24.69 | 130.69 | 16.91 | 182.10 | -22.25 | -0.22 | 82.98 | 98.87 | 167.40 | 195.54 |
| Long-4 | -28.38 | 164.74 | 121.57 | 149.18 | -5.59 | -36.77 | 177.95 | 29.20 | -9.18 | 44.80 | 61.59 |
| Long-5 | 462.30 | 495.28 | 556.57 | 514.98 | 447.60 | 363.04 | 387.54 | 377.74 | 350.76 | 392.44 | 414.49 |
| Long-6 | 42.08 | 66.38 | 93.12 | 84.62 | 72.47 | 46.94 | 56.66 | 43.29 | 42.07 | 74.89 | 95.55 |
| Long-7 | 78.23 | 100.77 | 111.46 | 104.35 | 111.47 | 123.34 | 148.27 | 149.46 | 149.44 | 151.83 | 158.95 |
| Long-8 | 5.05 | 2.56 | 5.05 | 10.02 | 10.02 | 1.32 | 7.54 | 2.57 | 8.78 | 2.57 | -1.16 |
| SG1 | -54.53 | -66.87 | -40.14 | 73.19 | 123.49 | 187.06 | 246.55 | 336.56 | 393.87 | 471.05 | 542.05 |
| SG2 | -115.10 | -120.38 | -98.52 | 27.18 | 98.35 | 180.45 | 253.40 | 357.43 | 427.47 | 526.95 | 602.39 |
| SG3 | -305.20 | -301.03 | -248.32 | -84.11 | 19.39 | 128.24 | 227.11 | 332.73 | 422.60 | 534.37 | 632.41 |
| SG4 | -159.09 | -170.29 | -135.78 | -17.72 | 63.42 | 158.14 | 234.20 | 337.21 | 405.24 | 503.71 | 582.52 |
| SG5 | -88.22 | -122.27 | -73.28 | 108.89 | 690.06 | 1223.97 | 1501.06 | 1856.32 | 2125.88 | 2130.82 | 2208.74 |
| SG6 | -24.73 | 10.46 | 48.97 | 94.45 | 137.00 | 181.21 | 224.84 | 268.39 | 313.16 | 357.89 | 401.96 |
| SG7 | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## |
| SG8 | -184.35 | -181.36 | -174.72 | -93.73 | -30.44 | 40.21 | 94.66 | 171.98 | 228.66 | 312.54 | 362.62 |
| SG9 | -48.26 | -14.89 | 22.53 | 70.78 | 117.41 | 165.20 | 211.03 | 258.71 | 305.96 | 356.49 | 401.28 |
| SG10 | -55.87 | -55.07 | -60.00 | -73.77 | -82.63 | -92.17 | -105.62 | -113.96 | -126.96 | -134.60 | -145.18 |
| SG11 | 16.79 | 18.36 | 12.45 | 1.47 | -6.01 | -14.77 | -20.12 | -29.31 | -36.09 | -43.33 | -50.03 |

TABLE E-37. CVP4, AIR 1, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 27.83 | 30.68 | 24.64 | 20.76 | 16.15 | 12.00 | 8.59 | 5.82 | 1.77 | 0.89 | -2.02 |
| SG13 | 42.61 | 46.52 | 49.28 | 60.82 | 58.61 | 57.56 | 59.94 | 67.15 | 66.73 | 69.53 | 78.89 |
| SG14 | 205.08 | 88.21 | 146.10 | 107.11 | 117.10 | 133.08 | 139.75 | 100.22 | 49.05 | 12.84 | -22.31 |
| SG15 | 38.94 | 49.25 | 52.47 | 46.43 | 44.95 | 40.62 | 39.84 | 35.10 | 32.75 | 28.56 | 28.38 |
| SG16 | 38.09 | 39.65 | 33.24 | 26.33 | 19.61 | 11.41 | 5.56 | -0.74 | -8.57 | -12.72 | -18.89 |
| SG17 | -55.91 | -62.70 | -65.40 | -71.22 | -75.17 | -84.45 | -89.31 | -92.27 | -97.79 | -97.41 | -102.24 |
| SG18 | 20.10 | 5.80 | -9.74 | -37.07 | -59.04 | -86.84 | -110.21 | -134.97 | -160.43 | -182.52 | -206.62 |
| SG19 | -64.44 | -81.63 | -109.18 | -147.57 | -183.25 | -222.55 | -255.62 | -291.90 | -327.82 | -358.81 | -393.01 |
| SG20 | -19.90 | -12.50 | -13.42 | -13.98 | -15.64 | -20.81 | -18.96 | -18.78 | -21.00 | -17.30 | -18.60 |
| SG21 | -38.77 | -36.18 | -49.62 | -68.76 | -86.26 | -106.32 | -119.57 | -137.10 | -154.60 | -166.00 | -180.93 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 16.97 | 1.47 | -26.76 | -55.34 | -87.06 | -124.68 | -156.39 | -193.32 | -229.48 | -262.66 | -295.15 |
| SG24 | 20.23 | 27.42 | 25.95 | 24.28 | 19.12 | 13.03 | 12.29 | 8.43 | 3.26 | 1.79 | -1.90 |
| SG25 | 11.39 | 15.09 | 2.79 | -14.18 | -31.20 | -51.77 | -61.29 | -77.26 | -93.87 | -103.15 | -115.09 |
| SG26 | -160.16 | -154.26 | -155.17 | -150.11 | -153.25 | -158.37 | -153.69 | -151.71 | -154.29 | -149.06 | -149.58 |
| SG27 | 16.95 | 21.06 | 16.30 | 9.92 | 1.65 | -8.00 | -11.65 | -17.84 | -25.37 | -28.83 | -35.35 |
| SG28 | 113.25 | 125.07 | 125.80 | 122.81 | 119.12 | 116.16 | 117.62 | 113.96 | 111.00 | 109.51 | 112.48 |
| SG29 | -12.19 | -10.16 | -16.11 | -22.57 | -31.34 | -40.98 | -45.27 | -52.95 | -60.61 | -65.82 | -72.29 |
| SG30 | -150.69 | -143.37 | -144.83 | -152.65 | -158.23 | -164.69 | -165.04 | -171.51 | -175.53 | -181.14 | -179.50 |
| SG31 | -104.51 | -91.39 | -95.02 | -108.29 | -127.61 | -148.51 | -156.10 | -181.47 | -199.88 | -216.88 | -227.60 |
| SG32-T | 6.88 | 113.86 | 221.24 | 320.35 | 408.73 | 492.84 | 574.67 | 650.98 | 728.61 | 798.92 | 870.87 |
| SG32-45 | 27.57 | 96.79 | 166.97 | 228.80 | 277.58 | 322.22 | 364.75 | 411.60 | 451.99 | 486.29 | 531.27 |
| SG32-L | 10.28 | 32.27 | 41.89 | 55.82 | 61.45 | 65.54 | 69.76 | 76.20 | 76.57 | 83.86 | 85.54 |
| SG33-T | 5.53 | 112.71 | 221.51 | 323.08 | 414.59 | 502.94 | 587.83 | 666.00 | 747.52 | 820.39 | 894.64 |
| SG33-45 | 16.76 | 82.47 | 153.60 | 217.87 | 265.27 | 311.79 | 353.44 | 399.24 | 439.92 | 475.35 | 516.44 |
| SG33-T | -4.05 | 16.23 | 30.13 | 45.80 | 50.68 | 51.79 | 54.11 | 59.24 | 55.99 | 59.33 | 57.48 |
| SG34-T | -26.32 | 38.66 | 116.14 | 197.81 | 273.23 | 348.74 | 424.03 | 497.36 | 573.96 | 646.49 | 721.25 |
| SG34-45 | 57.63 | 85.81 | 115.49 | 151.81 | 185.94 | 215.24 | 253.61 | 282.44 | 314.53 | 349.74 | 377.79 |
| SG34-L | 13.73 | 11.21 | 0.00 | -12.79 | -24.84 | -40.29 | -47.40 | -57.18 | -68.63 | -73.55 | -83.98 |
| SG35-T | 32.31 | 106.76 | 177.75 | 243.91 | 309.27 | 378.44 | 450.41 | 516.98 | 590.87 | 660.69 | 733.25 |
| SG35-45 | 24.95 | 60.20 | 87.32 | 116.05 | 144.98 | 171.40 | 208.94 | 235.80 | 267.43 | 301.40 | 328.74 |
| SG35-L | 21.32 | 21.46 | 11.67 | 0.02 | -11.86 | -26.96 | -34.00 | -44.45 | -56.00 | -61.68 | -72.74 |
| SG36-T | 11.09 | 101.32 | 196.18 | 287.74 | 370.44 | 450.45 | 528.31 | 601.56 | 678.37 | 746.77 | 816.35 |
| SG36-45 | -7.16 | 30.62 | 67.48 | 108.81 | 149.97 | 185.29 | 225.32 | 256.02 | 289.76 | 321.76 | 349.27 |
| SG36-L | 23.96 | 23.03 | 20.74 | 24.14 | 24.46 | 20.14 | 20.97 | 20.14 | 15.11 | 18.18 | 14.92 |
| SG37-L | 62.26 | 64.45 | 38.54 | 7.54 | -16.84 | -42.10 | -58.32 | -76.72 | -93.41 | -107.98 | -123.58 |
| SG37-45 | 1.08 | 22.79 | 32.06 | 35.40 | 49.80 | 63.06 | 85.08 | 98.32 | 120.44 | 137.63 | 155.31 |
| SG37-T | 36.78 | 74.16 | 117.46 | 150.74 | 188.91 | 231.19 | 276.98 | 321.05 | 371.60 | 417.11 | 466.82 |
| SG38-T | -28.59 | 61.80 | 154.22 | 247.34 | 331.56 | 414.11 | 495.68 | 574.07 | 654.49 | 731.26 | 808.18 |
| SG38-45 | -52.83 | -6.26 | 30.36 | 71.20 | 111.57 | 148.41 | 188.26 | 218.57 | 252.72 | 285.83 | 320.80 |
| SG38-L | 13.64 | 17.55 | 10.65 | 1.25 | -9.79 | -25.16 | -33.53 | -43.79 | -56.83 | -64.97 | -75.13 |
| SG39-T | 9.62 | 115.38 | 222.43 | 321.15 | 410.15 | 494.35 | 575.76 | 652.02 | 729.92 | 800.16 | 872.14 |
| SG39-45 | 19.63 | 91.42 | 146.79 | 201.34 | 253.00 | 297.59 | 346.38 | 385.37 | 426.45 | 467.05 | 503.06 |
| SG39-L | 10.37 | 32.27 | 37.05 | 44.79 | 47.34 | 45.39 | 49.01 | 49.81 | 45.91 | 50.87 | 47.30 |
| SG40-T | 25.10 | 57.78 | 93.76 | 124.08 | 160.61 | 200.95 | 246.05 | 287.32 | 336.23 | 381.00 | 434.50 |
| SG40-45 | 6.39 | 17.53 | 16.25 | 15.52 | 24.47 | 33.42 | 52.78 | 63.20 | 80.18 | 98.45 | 117.81 |
| SG40L | 9.58 | -11.06 | -39.38 | -69.34 | -96.74 | -121.76 | -135.46 | -154.27 | -170.51 | -182.40 | -193.54 |

TABLE E-38. CVP4, AIR 1, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.02 | 0.00 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| Frame-1 | -31.03 | 6.24 | -49.99 | -15.80 | 8.24 | 12.67 | 11.37 | -5.07 | -0.37 | 3.71 | -3.11 |
| Frame-2 | 8.86 | -51.21 | 0.36 | 17.13 | -5.77 | -16.98 | -42.61 | -83.36 | 254.97 | 488.42 | -178.71 |
| Frame-3 | 69.92 | -119.77 | 54.70 | -57.40 | -7.97 | -92.83 | 74.05 | 18.36 | 36.74 | 75.07 | -70.66 |
| Frame-4 | -47.56 | 30.79 | -31.84 | -41.03 | -32.73 | 28.54 | -52.04 | -20.07 | 31.14 | 4.15 | 30.14 |
| Frame-5 | -58.35 | 20.06 | 47.10 | -38.01 | 15.15 | 55.77 | 2.72 | -32.57 | -2.02 | 57.23 | 33.21 |
| Frame-6 | 49.01 | 54.94 | -45.81 | -32.75 | -19.52 | 68.00 | 32.77 | 62.55 | 38.30 | 26.98 | 27.11 |
| Frame-7 | -10.92 | 10.83 | 53.37 | -54.13 | -54.54 | 79.12 | -39.38 | -55.54 | -11.26 | 42.91 | -19.45 |
| Frame-8 | -22.08 | -20.99 | 12.92 | -3.27 | -3.69 | 28.32 | 39.00 | 24.58 | -27.57 | -26.81 | 7.27 |
| Frame-9 | 41.09 | -38.12 | 17.18 | -4.50 | -15.36 | 22.33 | -3.49 | 4.58 | 7.54 | 8.33 | 16.70 |
| Frame-10 | -3.88 | 23.03 | 3.57 | -2.30 | 0.73 | -8.57 | -11.67 | 6.62 | 2.67 | -6.89 | -5.52 |
| Frame-11 | -35.83 | 26.23 | -14.90 | -20.62 | -36.29 | 13.77 | -9.57 | -5.14 | -15.77 | -1.50 | 13.43 |
| Frame-12 | 19.29 | -47.09 | 50.97 | -27.57 | 25.64 | -56.34 | -4.11 | 5.61 | 8.56 | 2.42 | -13.46 |
| Hoop-1 | 31.87 | 50.27 | 17.16 | -47.21 | 0.61 | -23.30 | 50.26 | 48.43 | 26.36 | 7.97 | 11.64 |
| Hoop-2 | -51.23 | -87.38 | 33.70 | -56.66 | 93.34 | 35.50 | -34.97 | 58.99 | -65.69 | 33.70 | -0.64 |
| Hoop-3 | -45.02 | -57.31 | 51.49 | 35.70 | -22.22 | 0.60 | 5.86 | -9.93 | 16.39 | -8.17 | -8.17 |
| Hoop-4 | -59.03 | -60.89 | -55.33 | 63.24 | -18.28 | 39.15 | 44.70 | 133.63 | -81.27 | -62.74 | 87.32 |
| Hoop-5 | -66.84 | -57.73 | -8.53 | -6.70 | -75.97 | -26.75 | -34.04 | 93.54 | 102.65 | 42.51 | 31.57 |
| Hoop-6 | 29.16 | 55.06 | -26.33 | 53.21 | 97.61 | -15.23 | 60.60 | -41.13 | 53.21 | -44.83 | -46.68 |
| Hoop-7 | 27.45 | -42.02 | -29.22 | 36.60 | 129.84 | 58.53 | -1.80 | 3.68 | -31.05 | 5.51 | 20.14 |
| Hoop-8 | 77.75 | -10.41 | 26.33 | -17.76 | -3.06 | -3.06 | 4.28 | -32.45 | 70.41 | -3.06 | 63.07 |
| Hoop-9 | -43.77 | -49.22 | 28.83 | 188.53 | -12.92 | 83.29 | -16.55 | 86.91 | 3.42 | -31.07 | 19.76 |
| Hoop-10 | 17.95 | 32.41 | 5.31 | -9.15 | 43.26 | -19.99 | -10.95 | 21.57 | -9.15 | 12.54 | -12.76 |
| Hoop-11 | -86.14 | 4.25 | 24.55 | -108.28 | -130.44 | -38.19 | 31.92 | -17.89 | -54.79 | 20.86 | 59.60 |
| Hoop-12 | -40.33 | -66.27 | -66.28 | 83.79 | 78.25 | 33.78 | -21.81 | 61.57 | -14.40 | -44.04 | -29.22 |
| Hoop-13 | -43.96 | -66.23 | 30.24 | -43.96 | -51.39 | 30.24 | -14.28 | 15.40 | -73.65 | 15.40 | -43.97 |
| Hoop-14 | -147.99 | 0.01 | 125.84 | -36.99 | 303.48 | -125.81 | 74.02 | 148.03 | 148.03 | -133.21 | 103.64 |
| Long-1 | 2.41 | 1167.82 | 2407.72 | 3676.46 | 4959.61 | 6137.04 | 7339.70 | 8606.89 | 9811.09 | 10959.7 | 11996.5 |
| Long-2 | -92.11 | 1185.89 | 2473.75 | 3675.34 | 4896.65 | 6154.93 | 7340.50 | 8560.20 | 9807.76 | 11039.0 | 12064.2 |
| Long-3 | -27.15 | 1136.56 | 2426.30 | 3668.31 | 4894.42 | 6145.00 | 7366.22 | 8605.42 | 9730.33 | 11113.1 | 12170.3 |
| Long-4 | 101.19 | 1215.71 | 2498.20 | 3671.51 | 4838.83 | 6142.91 | 7334.22 | 8576.77 | 9782.82 | 11060.6 | 12278.2 |
| Long-5 | 464.75 | 1470.45 | 2327.93 | 3644.78 | 4960.40 | 6160.87 | 7377.27 | 8583.50 | 9794.14 | 11068.2 | 12295.5 |
| Long-6 | 22.63 | 1134.83 | 2445.17 | 3664.34 | 4875.00 | 6130.64 | 7346.16 | 8581.99 | 9805.17 | 11058.4 | 12272.6 |
| Long-7 | 106.72 | 1056.64 | 2451.84 | 3664.17 | 4863.44 | 6142.27 | 7353.42 | 8584.42 | 9792.33 | 11089.0 | 12262.1 |
| Long-8 | -2.41 | 1215.91 | 2471.52 | 3660.00 | 4802.49 | 6143.88 | 7337.33 | 8583.86 | 9795.10 | 11047.1 | 12278.9 |
| SG1 | -60.76 | -48.98 | -61.13 | -74.59 | -86.57 | -123.63 | -160.10 | -175.23 | -240.84 | -273.12 | -304.08 |
| SG2 | -127.51 | -110.71 | -123.37 | -160.37 | -186.28 | -249.85 | -310.41 | -338.23 | -440.25 | -502.96 | -545.13 |
| SG3 | -347.17 | -236.18 | -105.04 | -86.32 | 18.84 | 11.46 | 77.88 | 160.19 | 137.31 | 176.27 | 217.97 |
| SG4 | -194.77 | -62.12 | -26.93 | -6.12 | 18.06 | 5.95 | 6.91 | 29.62 | -15.24 | -27.91 | -17.13 |
| SG5 | -23.01 | -16.11 | -26.78 | -84.31 | -17.44 | -145.73 | -240.17 | -342.84 | -451.20 | -517.86 | -558.33 |
| SG6 | -27.80 | -36.37 | -44.79 | -59.35 | -71.88 | -87.09 | -101.96 | -113.85 | -133.70 | -149.60 | -160.52 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -194.54 | -180.57 | -165.84 | -202.65 | -221.81 | -266.00 | -304.24 | -318.26 | -385.24 | -430.19 | -457.43 |
| SG9 | -52.52 | -60.13 | -64.14 | -80.89 | -93.91 | -109.88 | -125.28 | -137.01 | -157.82 | -174.72 | -187.00 |
| SG10 | -51.18 | 1.56 | 47.25 | 78.37 | 122.83 | 148.85 | 187.02 | 224.67 | 254.55 | 285.57 | 323.57 |
| SG11 | 18.76 | 60.79 | 109.54 | 154.81 | 204.37 | 250.17 | 296.46 | 341.53 | 387.30 | 432.93 | 474.65 |

TABLE E-38. CVP4, AIR 1, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 31.78 | 96.74 | 175.20 | 251.10 | 332.42 | 406.15 | 481.54 | 559.85 | 638.15 | 711.18 | 782.34 |
| SG13 | 48.07 | 153.19 | 272.55 | 380.32 | 500.59 | 601.22 | 707.07 | 813.24 | 916.58 | 1019.11 | 1114.54 |
| SG14 | 285.40 | 371.28 | 487.28 | 606.89 | 743.74 | 859.76 | 973.94 | 1082.80 | 1200.76 | 1288.41 | 1384.42 |
| SG15 | 43.66 | 85.53 | 134.65 | 183.95 | 237.67 | 286.61 | 336.56 | 384.91 | 435.58 | 485.38 | 530.34 |
| SG16 | 42.63 | 109.67 | 187.65 | 264.15 | 348.45 | 422.95 | 499.53 | 576.13 | 654.88 | 728.04 | 799.34 |
| SG17 | -57.21 | 30.78 | 123.21 | 215.16 | 309.80 | 403.26 | 495.03 | 587.00 | 683.00 | 780.37 | 864.39 |
| SG18 | 21.79 | 77.75 | 134.58 | 197.04 | 257.49 | 323.09 | 384.22 | 445.25 | 513.27 | 580.79 | 639.44 |
| SG19 | -53.68 | 36.55 | 127.14 | 215.72 | 309.50 | 395.71 | 482.59 | 566.41 | 656.66 | 742.37 | 821.16 |
| SG20 | -10.10 | 78.95 | 170.39 | 256.31 | 349.09 | 430.80 | 515.94 | 598.03 | 685.81 | 767.74 | 844.44 |
| SG21 | -23.65 | 60.68 | 125.66 | 174.28 | 228.25 | 271.18 | 320.69 | 363.08 | 416.12 | 459.99 | 503.64 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 21.75 | 111.94 | 212.43 | 305.03 | 404.66 | 493.05 | 586.52 | 675.67 | 767.53 | 860.22 | 947.48 |
| SG24 | 28.33 | 115.55 | 217.13 | 309.71 | 413.56 | 502.49 | 594.64 | 685.07 | 777.09 | 868.10 | 954.42 |
| SG25 | 24.98 | 131.83 | 245.36 | 362.87 | 492.38 | 604.90 | 721.73 | 835.57 | 953.40 | 1062.28 | 1166.80 |
| SG26 | -151.85 | -53.54 | 55.20 | 160.63 | 275.87 | 377.47 | 480.84 | 583.01 | 684.02 | 787.33 | 883.19 |
| SG27 | 23.17 | 91.07 | 164.35 | 239.01 | 321.99 | 391.27 | 463.48 | 534.85 | 609.50 | 681.08 | 750.57 |
| SG28 | 116.14 | 154.62 | 201.94 | 247.82 | 299.63 | 344.79 | 392.84 | 440.96 | 492.01 | 540.89 | 588.25 |
| SG29 | -7.71 | 40.15 | 90.26 | 140.48 | 199.38 | 248.51 | 302.40 | 355.60 | 411.36 | 465.32 | 518.50 |
| SG30 | -147.28 | -112.73 | -73.82 | -33.54 | 8.36 | 46.95 | 86.68 | 125.56 | 164.93 | 204.41 | 242.87 |
| SG31 | -100.99 | -72.36 | -33.43 | -9.54 | 27.50 | 58.45 | 92.12 | 130.05 | 158.00 | 198.76 | 233.96 |
| SG32-T | 2.52 | -22.27 | -47.10 | -71.66 | -97.53 | -120.10 | -143.67 | -167.32 | -191.04 | -212.42 | -233.69 |
| SG32-45 | 31.92 | 69.19 | 107.33 | 154.08 | 209.56 | 241.52 | 284.10 | 323.40 | 364.95 | 399.66 | 434.53 |
| SG32-L | 19.47 | 107.00 | 200.64 | 290.46 | 389.51 | 473.88 | 562.58 | 650.13 | 740.60 | 822.97 | 905.41 |
| SG33-T | 1.57 | -54.76 | -117.17 | -179.46 | -244.61 | -301.53 | -357.45 | -413.73 | -465.97 | -516.96 | -566.64 |
| SG33-45 | 16.66 | 21.49 | 4.87 | -15.84 | -34.50 | -68.73 | -91.05 | -117.39 | -138.15 | -165.70 | -189.57 |
| SG33-T | 3.49 | 91.45 | 187.63 | 278.50 | 378.40 | 463.26 | 551.75 | 640.16 | 731.49 | 816.02 | 901.22 |
| SG34-T | -29.38 | -62.16 | -96.56 | -131.58 | -169.22 | -202.90 | -239.39 | -272.25 | -311.59 | -344.74 | -376.55 |
| SG34-45 | 63.90 | 84.12 | 103.77 | 125.11 | 143.85 | 174.29 | 193.01 | 212.88 | 232.91 | 262.62 | 284.14 |
| SG34-L | 20.79 | 111.97 | 206.66 | 299.54 | 398.94 | 488.69 | 581.31 | 671.45 | 767.86 | 858.77 | 944.02 |
| SG35-T | 31.08 | 2.39 | -20.69 | -45.30 | -70.28 | -90.86 | -112.48 | -135.94 | -156.46 | -180.07 | -201.94 |
| SG35-45 | 33.99 | 57.31 | 84.32 | 110.98 | 135.10 | 172.78 | 198.95 | 223.73 | 252.20 | 285.48 | 312.47 |
| SG35-L | 29.65 | 121.68 | 215.93 | 307.75 | 406.57 | 495.35 | 587.76 | 676.56 | 772.39 | 862.33 | 947.16 |
| SG36-T | 7.69 | -29.73 | -71.66 | -120.21 | -173.61 | -218.60 | -267.31 | -315.05 | -362.30 | -407.50 | -451.87 |
| SG36-45 | -1.22 | 16.74 | 36.83 | 30.43 | 18.23 | 16.70 | 6.39 | -2.10 | -10.88 | -13.71 | -18.44 |
| SG36-L | 33.40 | 142.98 | 258.21 | 372.56 | 494.38 | 595.37 | 700.52 | 803.39 | 909.17 | 1008.35 | 1104.64 |
| SG37-L | 88.30 | 167.38 | 256.70 | 354.59 | 459.38 | 549.65 | 648.71 | 739.79 | 842.99 | 938.22 | 1031.94 |
| SG37-45 | 8.10 | 8.42 | 14.43 | 2.18 | -14.02 | -16.45 | -26.50 | -36.18 | -42.51 | -47.06 | -52.52 |
| SG37-T | 35.01 | 12.89 | -15.97 | -43.83 | -75.82 | -102.90 | -131.76 | -161.33 | -188.50 | -218.26 | -248.01 |
| SG38-T | -30.67 | -63.13 | -96.56 | -132.15 | -170.58 | -201.71 | -236.95 | -269.81 | -304.70 | -338.60 | -371.39 |
| SG38-45 | -49.18 | -30.46 | 13.54 | 39.83 | 65.07 | 103.60 | 133.28 | 167.40 | 198.49 | 232.90 | 269.43 |
| SG38-L | 21.36 | 110.25 | 212.80 | 306.46 | 412.67 | 502.40 | 597.02 | 689.95 | 783.70 | 877.67 | 967.71 |
| SG39-T | 6.54 | -22.10 | -47.06 | -74.55 | -104.46 | -127.44 | -153.19 | -177.34 | -202.55 | -226.15 | -248.34 |
| SG39-45 | 29.79 | 46.33 | 85.71 | 110.48 | 143.20 | 181.31 | 212.61 | 246.68 | 280.56 | 321.57 | 359.35 |
| SG39-L | 23.31 | 105.89 | 189.57 | 273.05 | 368.84 | 448.60 | 534.12 | 617.93 | 705.91 | 791.09 | 874.40 |
| SG40-T | 20.17 | 4.83 | -4.85 | -17.27 | -32.43 | -45.39 | -59.64 | -73.84 | -89.59 | -107.66 | -124.39 |
| SG40-45 | 12.42 | 31.96 | 75.08 | 105.77 | 142.67 | 183.41 | 218.30 | 255.96 | 293.20 | 335.19 | 375.27 |
| SG40L | 18.90 | 91.79 | 170.34 | 250.72 | 341.14 | 418.78 | 501.54 | 584.35 | 671.98 | 754.66 | 836.29 |

TABLE E-39. CVP4, AIR 1, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.03 | 0.87 | 1.77 | 2.62 | 3.52 | 4.39 | 5.28 | 6.15 | 7.06 | 7.91 | 8.79 |
| Frame-1 | -21.76 | 145.41 | 362.53 | 533.07 | 723.31 | 895.33 | 1088.26 | 1271.47 | 1462.68 | 1618.30 | 1808.89 |
| Frame-2 | -86.12 | 179.79 | 367.01 | 532.05 | 706.31 | 902.36 | 1088.01 | 1279.60 | 1451.37 | 1622.34 | 1796.97 |
| Frame-3 | -149.03 | 183.66 | 361.45 | 539.75 | 733.90 | 901.59 | 1086.41 | 1272.01 | 1456.83 | 1639.24 | 1821.81 |
| Frame-4 | -15.87 | 179.45 | 362.23 | 543.75 | 753.31 | 896.61 | 1095.07 | 1275.33 | 1470.35 | 1623.26 | 1817.71 |
| Frame-5 | -38.72 | 184.49 | 376.16 | 547.60 | 710.87 | 911.34 | 1096.28 | 1287.16 | 1449.68 | 1632.16 | 1818.26 |
| Frame-6 | 7.35 | 183.78 | 369.96 | 544.84 | 720.03 | 904.75 | 1070.72 | 1285.06 | 1456.10 | 1648.61 | 1814.09 |
| Frame-7 | 14.25 | 173.23 | 388.59 | 556.00 | 725.95 | 911.91 | 1077.35 | 1264.17 | 1483.37 | 1640.91 | 1829.56 |
| Frame-8 | -81.27 | 175.65 | 356.36 | 545.96 | 731.20 | 903.19 | 1094.26 | 1273.99 | 1439.61 | 1648.61 | 1809.50 |
| Frame-9 | 33.31 | 180.64 | 358.90 | 556.51 | 776.00 | 905.22 | 1144.57 | 1295.58 | 1462.04 | 1600.82 | 1813.04 |
| Frame-10 | 188.30 | 178.42 | 376.41 | 533.36 | 737.62 | 906.22 | 1090.48 | 1227.23 | 1439.39 | 1631.25 | 1821.48 |
| Frame-11 | -34.63 | 179.68 | 352.94 | 533.39 | 731.40 | 908.01 | 1089.76 | 1287.54 | 1435.78 | 1638.67 | 1809.41 |
| Frame-12 | -29.84 | 192.68 | 357.67 | 555.75 | 766.80 | 895.32 | 1075.90 | 1283.11 | 1434.65 | 1657.42 | 1795.57 |
| Hoop-1 | 30.03 | 776.79 | 1558.34 | 2301.58 | 3103.20 | 3838.85 | 4656.79 | 5403.40 | 6164.11 | 6930.40 | 7708.35 |
| Hoop-2 | 30.08 | 778.28 | 1540.77 | 2290.93 | 3091.22 | 3837.53 | 4635.78 | 5387.44 | 6205.38 | 6933.00 | 7702.81 |
| Hoop-3 | -55.56 | 758.82 | 1543.22 | 2312.12 | 3031.43 | 3824.67 | 4652.55 | 5403.60 | 6201.52 | 6980.10 | 7718.94 |
| Hoop-4 | 148.46 | 745.07 | 1536.07 | 2271.78 | 3351.63 | 3835.17 | 4629.47 | 5401.94 | 6184.90 | 6954.97 | 7729.37 |
| Hoop-5 | -48.62 | 789.82 | 1564.31 | 2324.53 | 3264.72 | 3796.89 | 4620.21 | 5420.22 | 6195.95 | 6993.59 | 7704.37 |
| Hoop-6 | -54.08 | 745.10 | 1531.17 | 2323.10 | 3083.12 | 3834.12 | 4636.46 | 5392.93 | 6161.74 | 6919.53 | 7724.18 |
| Hoop-7 | 34.76 | 773.42 | 1546.66 | 2312.90 | 3171.91 | 3839.19 | 4750.98 | 5412.71 | 6187.19 | 7018.39 | 7740.51 |
| Hoop-8 | 41.01 | 761.03 | 1547.16 | 2392.06 | 3097.07 | 3898.59 | 4632.90 | 5412.23 | 6271.28 | 6924.48 | 7725.99 |
| Hoop-9 | -29.25 | 756.64 | 1558.87 | 2304.84 | 3106.76 | 3833.45 | 4624.41 | 5428.99 | 6143.56 | 6919.69 | 7702.65 |
| Hoop-10 | 1.69 | 764.19 | 1553.79 | 2310.87 | 3109.20 | 3876.01 | 4648.96 | 5401.16 | 6195.64 | 6924.92 | 7691.73 |
| Hoop-11 | 20.85 | 760.64 | 1546.55 | 2301.09 | 3101.45 | 3847.46 | 4640.37 | 5399.14 | 6195.58 | 6932.82 | 7719.42 |
| Hoop-12 | -51.44 | 773.04 | 1553.06 | 2331.22 | 3086.85 | 3858.30 | 4650.90 | 5422.20 | 6192.42 | 7014.35 | 7711.69 |
| Hoop-13 | -110.73 | 750.06 | 1544.10 | 2323.29 | 3087.33 | 3844.95 | 4660.86 | 5425.75 | 6241.50 | 6990.31 | 7710.83 |
| Hoop-14 | 96.21 | 769.70 | 1561.59 | 2316.48 | 3100.66 | 3856.24 | 4647.75 | 5417.98 | 6194.52 | 6956.12 | 7726.50 |
| Long-1 | -18.01 | 1217.20 | 2454.83 | 3676.46 | 4903.86 | 6131.62 | 7352.64 | 8635.54 | 9834.13 | 11015.1 | 12230.8 |
| Long-2 | -76.10 | 1248.86 | 2417.30 | 3746.82 | 4881.37 | 6129.67 | 7335.33 | 8616.77 | 9803.09 | 11014.5 | 12252.8 |
| Long-3 | -30.82 | 1195.41 | 2432.66 | 3653.63 | 4937.98 | 6133.38 | 7324.37 | 8643.21 | 9815.00 | 11061.9 | 12260.8 |
| Long-4 | 188.79 | 1219.44 | 2451.66 | 3621.13 | 4915.12 | 6103.91 | 7360.34 | 8589.79 | 9805.83 | 11012.7 | 12279.4 |
| Long-5 | 559.13 | 1413.02 | 2201.98 | 3740.33 | 4874.16 | 6116.16 | 7348.85 | 8578.47 | 9800.51 | 10972.8 | 12246.5 |
| Long-6 | 37.22 | 1228.55 | 2449.06 | 3710.53 | 4893.96 | 6116.65 | 7370.21 | 8573.34 | 9805.40 | 11014.8 | 12227.7 |
| Long-7 | 62.80 | 1202.81 | 2477.02 | 3819.72 | 4910.45 | 6107.23 | 7350.76 | 8593.72 | 9800.85 | 11019.0 | 12227.6 |
| Long-8 | 10.03 | 1212.30 | 2471.77 | 3707.24 | 4892.75 | 6079.87 | 7347.05 | 8565.13 | 9802.82 | 11021.1 | 12232.9 |
| SG1 | 20.68 | -63.55 | -98.38 | -44.57 | 30.45 | 35.60 | 83.72 | 102.88 | 113.22 | 140.85 | 184.92 |
| SG2 | -2.95 | -121.75 | -182.11 | -128.82 | -59.13 | -67.65 | -20.47 | -11.07 | -14.89 | 0.73 | 46.59 |
| SG3 | -254.71 | -247.44 | -155.36 | 59.63 | 272.60 | 429.61 | 594.70 | 731.21 | 820.61 | 936.61 | 1066.64 |
| SG4 | -68.58 | -106.62 | -81.47 | 31.93 | 156.03 | 223.44 | 315.12 | 376.77 | 411.03 | 462.77 | 540.40 |
| SG5 | -20.81 | -134.09 | -150.43 | 65.33 | 230.92 | 276.42 | 305.71 | 270.37 | 306.22 | 327.87 | 337.39 |
| SG6 | -19.48 | 1.02 | 25.34 | 55.43 | 85.09 | 111.61 | 142.40 | 168.74 | 196.95 | 222.91 | 254.99 |
| SG7 | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## |
| SG8 | -101.86 | -185.03 | -224.78 | -179.17 | -138.71 | -138.84 | -99.34 | -58.43 | -54.01 | -39.29 | 11.51 |
| SG9 | -39.94 | -23.28 | 0.76 | 34.63 | 67.52 | 98.38 | 132.83 | 163.27 | 194.94 | 223.76 | 261.81 |
| SG10 | -42.48 | -0.47 | 35.09 | 69.37 | 101.27 | 132.81 | 167.15 | 198.86 | 229.69 | 261.40 | 291.87 |
| SG11 | 23.57 | 66.43 | 106.34 | 144.99 | 177.97 | 218.05 | 253.91 | 292.09 | 329.78 | 365.37 | 400.30 |

TABLE E-39. CVP4, AIR 1, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 32.48 | 101.37 | 172.90 | 246.92 | 311.64 | 383.27 | 452.49 | 523.98 | 593.86 | 662.93 | 733.20 |
| SG13 | 59.14 | 160.36 | 262.69 | 380.52 | 483.65 | 589.43 | 691.99 | 796.93 | 897.24 | 998.29 | 1100.46 |
| SG14 | 270.36 | 373.38 | 493.60 | 711.72 | 935.81 | 805.04 | 814.73 | 860.72 | 953.37 | 1056.05 | 1139.04 |
| SG15 | 42.29 | 101.21 | 151.14 | 195.03 | 232.00 | 278.37 | 319.11 | 362.10 | 406.00 | 448.16 | 486.90 |
| SG16 | 42.92 | 111.40 | 181.17 | 252.69 | 314.43 | 384.40 | 449.94 | 516.49 | 581.12 | 644.40 | 709.18 |
| SG17 | -60.31 | 25.82 | 104.28 | 190.67 | 271.23 | 355.08 | 435.55 | 522.88 | 604.62 | 688.08 | 774.24 |
| SG18 | 21.75 | 69.31 | 110.17 | 148.67 | 184.92 | 225.39 | 264.00 | 309.11 | 352.39 | 396.99 | 440.19 |
| SG19 | -59.25 | 14.18 | 74.84 | 132.01 | 179.90 | 236.29 | 286.10 | 341.93 | 394.13 | 446.80 | 497.71 |
| SG20 | -9.91 | 86.36 | 171.36 | 256.23 | 334.56 | 417.13 | 495.76 | 576.47 | 654.15 | 730.60 | 808.48 |
| SG21 | -39.87 | 48.16 | 98.81 | 133.46 | 160.52 | 195.86 | 227.21 | 260.16 | 292.42 | 324.81 | 353.02 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 21.21 | 97.02 | 163.98 | 229.51 | 281.32 | 344.56 | 401.27 | 459.90 | 518.61 | 577.23 | 633.56 |
| SG24 | 30.74 | 124.98 | 218.67 | 310.94 | 389.48 | 478.15 | 562.17 | 643.08 | 727.63 | 809.45 | 891.43 |
| SG25 | 19.95 | 127.00 | 229.02 | 333.55 | 428.47 | 534.24 | 633.14 | 732.79 | 830.56 | 925.38 | 1019.27 |
| SG26 | -146.60 | -51.89 | 44.88 | 156.08 | 256.90 | 362.14 | 463.25 | 563.86 | 661.07 | 757.04 | 859.45 |
| SG27 | 21.84 | 90.35 | 157.34 | 227.28 | 289.25 | 357.78 | 421.29 | 482.97 | 544.01 | 603.84 | 666.00 |
| SG28 | 105.83 | 162.79 | 210.88 | 253.84 | 294.51 | 341.09 | 381.85 | 426.21 | 471.39 | 517.96 | 557.97 |
| SG29 | -9.47 | 36.14 | 77.40 | 122.06 | 162.68 | 209.93 | 255.21 | 299.87 | 343.85 | 387.77 | 434.16 |
| SG30 | -144.94 | -101.31 | -68.86 | -36.83 | -2.85 | 28.12 | 61.55 | 96.40 | 130.80 | 166.52 | 197.00 |
| SG31 | -83.41 | -56.60 | -30.67 | -9.04 | 21.50 | 40.23 | 67.51 | 94.21 | 118.91 | 147.32 | 172.75 |
| SG32-T | -5.61 | 89.39 | 167.85 | 225.93 | 284.23 | 336.38 | 385.68 | 430.96 | 479.11 | 519.36 | 561.21 |
| SG32-45 | 26.17 | 140.23 | 240.73 | 331.22 | 408.58 | 487.45 | 561.19 | 631.51 | 703.26 | 773.57 | 839.39 |
| SG32-L | 20.69 | 124.36 | 219.99 | 314.90 | 398.61 | 485.92 | 568.79 | 652.24 | 731.17 | 809.07 | 887.74 |
| SG33-T | -9.28 | 59.30 | 114.19 | 148.58 | 188.24 | 220.95 | 254.71 | 284.71 | 319.76 | 346.22 | 373.03 |
| SG33-45 | 17.60 | 89.80 | 139.25 | 167.94 | 193.69 | 211.78 | 231.10 | 248.45 | 266.49 | 283.97 | 295.29 |
| SG33-T | 12.60 | 110.40 | 209.77 | 309.86 | 398.94 | 489.86 | 575.73 | 661.06 | 742.24 | 822.35 | 904.48 |
| SG34-T | -26.55 | 8.43 | 56.00 | 100.53 | 149.78 | 195.39 | 243.62 | 287.50 | 336.74 | 379.59 | 425.12 |
| SG34-45 | 53.90 | 107.32 | 169.47 | 225.35 | 280.61 | 342.36 | 400.87 | 455.00 | 512.38 | 562.79 | 617.40 |
| SG34-L | 18.19 | 107.16 | 186.63 | 268.76 | 345.42 | 426.53 | 504.05 | 585.15 | 661.91 | 737.22 | 815.48 |
| SG35-T | 14.25 | 81.58 | 134.34 | 169.50 | 211.83 | 251.82 | 295.01 | 335.79 | 382.92 | 422.72 | 464.04 |
| SG35-45 | 17.28 | 91.08 | 157.82 | 208.86 | 261.00 | 320.43 | 376.47 | 428.96 | 485.36 | 533.80 | 586.67 |
| SG35-L | 25.84 | 117.89 | 199.49 | 281.39 | 358.74 | 439.24 | 515.97 | 595.90 | 671.66 | 746.55 | 823.07 |
| SG36-T | -0.87 | 63.88 | 116.72 | 151.29 | 189.08 | 219.04 | 248.93 | 275.72 | 306.99 | 330.80 | 354.48 |
| SG36-45 | -4.52 | 57.17 | 112.82 | 147.81 | 175.50 | 206.12 | 233.00 | 254.70 | 279.42 | 297.22 | 317.86 |
| SG36-L | 42.03 | 138.91 | 251.77 | 366.37 | 465.42 | 568.18 | 664.78 | 759.33 | 849.19 | 937.76 | 1028.75 |
| SG37-L | 58.63 | 147.02 | 218.91 | 293.38 | 361.85 | 441.86 | 517.53 | 595.61 | 671.79 | 747.47 | 825.55 |
| SG37-45 | -4.70 | 33.06 | 53.35 | 50.79 | 48.86 | 56.05 | 59.83 | 64.28 | 72.82 | 76.48 | 81.59 |
| SG37-T | 23.98 | 55.74 | 76.68 | 78.25 | 88.37 | 100.32 | 113.27 | 128.79 | 147.83 | 164.35 | 178.85 |
| SG38-T | -33.38 | 33.33 | 97.42 | 152.06 | 211.83 | 262.79 | 314.99 | 363.99 | 415.49 | 460.34 | 506.86 |
| SG38-45 | -52.45 | 21.49 | 101.28 | 175.29 | 245.54 | 317.13 | 388.72 | 458.40 | 531.32 | 596.52 | 665.93 |
| SG38-L | 19.64 | 109.76 | 197.64 | 285.06 | 358.58 | 444.24 | 525.28 | 603.29 | 682.63 | 760.35 | 839.66 |
| SG39-T | -2.29 | 90.68 | 170.25 | 228.38 | 287.94 | 338.33 | 389.01 | 434.92 | 484.60 | 527.53 | 567.54 |
| SG39-45 | 20.04 | 117.24 | 210.63 | 291.25 | 359.90 | 443.87 | 517.71 | 584.85 | 658.47 | 721.42 | 788.27 |
| SG39-L | 23.78 | 116.58 | 199.23 | 287.59 | 364.79 | 450.55 | 529.87 | 608.76 | 684.93 | 758.79 | 838.05 |
| SG40-T | 13.60 | 44.28 | 71.86 | 89.02 | 116.22 | 139.96 | 167.33 | 196.00 | 229.25 | 258.99 | 284.79 |
| SG40-45 | 4.74 | 45.30 | 92.99 | 136.64 | 176.82 | 237.10 | 290.77 | 342.83 | 401.68 | 453.51 | 507.86 |
| SG40L | 17.44 | 69.69 | 122.12 | 181.30 | 239.00 | 307.68 | 373.77 | 442.26 | 510.80 | 577.60 | 648.60 |

TABLE E-40. CVP4, AIR 2, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.02 | 0.88 | 1.77 | 2.64 | 3.54 | 4.42 | 5.30 | 6.16 | 7.03 | 7.90 | 8.79 |
| Frame-1 | 2.98 | 187.07 | 370.59 | 546.99 | 719.70 | 902.12 | 1086.29 | 1278.32 | 1455.90 | 1611.61 | 1827.24 |
| Frame-2 | -125.70 | 183.17 | 352.48 | 558.11 | 907.75 | 900.45 | 1105.16 | 1263.84 | 1465.44 | 1601.75 | 1825.72 |
| Frame-3 | 95.00 | 188.70 | 362.55 | 560.29 | 721.71 | 906.50 | 1087.87 | 1278.74 | 1451.90 | 1627.52 | 1810.75 |
| Frame-4 | 31.04 | 184.52 | 373.67 | 541.99 | 732.47 | 911.92 | 1086.21 | 1275.20 | 1436.07 | 1625.27 | 1811.77 |
| Frame-5 | -34.89 | 167.13 | 368.64 | 549.29 | 762.47 | 904.24 | 1139.17 | 1295.66 | 1442.98 | 1618.64 | 1808.87 |
| Frame-6 | 29.77 | 187.05 | 384.64 | 554.95 | 735.10 | 906.16 | 1112.90 | 1308.68 | 1452.96 | 1635.33 | 1864.29 |
| Frame-7 | 14.45 | 222.47 | 436.15 | 533.22 | 730.49 | 963.34 | 1076.85 | 1282.68 | 1438.49 | 1647.32 | 1809.63 |
| Frame-8 | 23.94 | 183.54 | 347.08 | 549.01 | 735.74 | 897.78 | 1076.55 | 1294.22 | 1458.44 | 1642.95 | 1817.13 |
| Frame-9 | 9.11 | 258.46 | 398.33 | 549.19 | 749.25 | 932.95 | 1076.05 | 1275.97 | 1433.98 | 1642.20 | 1801.57 |
| Frame-10 | -16.40 | 236.24 | 430.84 | 545.03 | 718.05 | 940.41 | 1086.54 | 1288.78 | 1437.57 | 1677.25 | 1808.44 |
| Frame-11 | -22.61 | 216.16 | 379.36 | 560.01 | 725.64 | 911.06 | 1096.00 | 1282.00 | 1457.74 | 1629.72 | 1828.77 |
| Frame-12 | -53.85 | 179.87 | 369.09 | 545.00 | 755.81 | 927.95 | 1065.03 | 1265.38 | 1434.54 | 1646.56 | 1794.58 |
| Hoop-1 | 66.82 | 769.21 | 1556.66 | 2347.09 | 3083.59 | 3891.12 | 4624.15 | 5416.81 | 6169.61 | 6939.60 | 7708.05 |
| Hoop-2 | -45.82 | 732.88 | 1540.93 | 2330.22 | 3057.50 | 3879.87 | 4645.28 | 5431.35 | 6167.39 | 6927.58 | 7709.77 |
| Hoop-3 | -64.34 | 779.65 | 1550.39 | 2341.49 | 3093.47 | 3881.61 | 4633.71 | 5421.69 | 6155.79 | 6945.00 | 7725.75 |
| Hoop-4 | 87.33 | 689.28 | 1691.86 | 2299.11 | 3078.06 | 3861.88 | 4655.88 | 5402.48 | 6151.56 | 6947.56 | 7710.53 |
| Hoop-5 | 13.35 | 971.80 | 1528.01 | 2324.07 | 3114.07 | 3854.16 | 4627.96 | 5404.36 | 6168.58 | 6984.48 | 7705.92 |
| Hoop-6 | 58.76 | 739.32 | 1538.72 | 2318.94 | 3085.59 | 3866.34 | 4653.57 | 5404.57 | 6178.39 | 6952.82 | 7729.42 |
| Hoop-7 | -42.02 | 701.91 | 1629.09 | 2325.23 | 3075.63 | 3841.79 | 4647.25 | 5418.73 | 6172.53 | 6967.20 | 7718.29 |
| Hoop-8 | -25.10 | 665.51 | 1642.67 | 2303.90 | 3075.33 | 3883.51 | 4625.55 | 5419.03 | 6182.50 | 6939.86 | 7725.99 |
| Hoop-9 | -32.88 | 783.87 | 1528.02 | 2548.05 | 3096.18 | 3876.63 | 4644.37 | 5415.75 | 6164.72 | 6971.20 | 7722.61 |
| Hoop-10 | -16.37 | 766.00 | 1530.31 | 2337.98 | 3120.35 | 3873.81 | 4627.28 | 5422.30 | 6173.34 | 6947.30 | 7698.96 |
| Hoop-11 | 37.46 | 777.24 | 1524.41 | 2299.25 | 3101.76 | 3882.13 | 4658.81 | 5417.05 | 6183.89 | 6942.74 | 7719.42 |
| Hoop-12 | 30.07 | 761.92 | 1536.38 | 2375.69 | 3101.98 | 3902.38 | 4636.08 | 5414.25 | 6176.98 | 6963.17 | 7733.93 |
| Hoop-13 | 7.98 | 794.59 | 1529.26 | 2308.45 | 3109.90 | 3851.98 | 4646.02 | 5432.63 | 6196.36 | 6968.75 | 7703.41 |
| Hoop-14 | -88.80 | 777.10 | 1539.39 | 2323.88 | 3123.17 | 3863.26 | 4625.54 | 5410.03 | 6156.90 | 6949.41 | 7534.08 |
| Long-1 | -1.19 | -2.39 | -8.40 | -19.22 | -3.60 | 4.81 | 25.24 | 93.72 | 144.17 | 180.25 | 207.86 |
| Long-2 | 16.34 | -69.93 | 81.65 | -67.48 | 77.97 | -29.26 | -42.82 | -0.92 | 44.68 | 93.99 | 133.42 |
| Long-3 | 45.05 | 229.82 | -19.80 | 42.61 | -23.48 | -22.25 | 32.81 | 95.22 | 153.94 | 191.91 | 222.48 |
| Long-4 | -12.78 | -17.58 | 303.91 | 36.41 | 12.41 | 331.50 | -31.98 | 4.01 | 42.40 | 70.00 | 108.39 |
| Long-5 | 522.32 | 546.82 | 528.40 | 429.31 | 461.12 | 427.96 | 369.20 | 360.63 | 399.79 | 408.44 | 431.68 |
| Long-6 | 33.57 | 50.59 | 54.23 | 28.71 | 45.73 | 53.01 | 29.92 | 42.08 | 66.38 | 61.53 | 80.97 |
| Long-7 | 113.85 | 85.35 | 131.65 | 93.68 | 136.42 | 147.08 | 138.78 | 137.60 | 148.27 | 151.86 | 154.22 |
| Long-8 | 26.19 | 19.97 | 13.75 | 17.49 | 15.00 | 21.21 | 31.16 | 28.67 | 24.94 | 17.49 | 19.97 |
| SG1 | 53.69 | -50.11 | -20.06 | 35.43 | 120.22 | 180.90 | 254.28 | 352.88 | 393.44 | 523.46 | 553.82 |
| SG2 | 37.84 | -100.64 | -63.01 | 9.49 | 105.91 | 176.32 | 261.69 | 379.29 | 431.47 | 592.67 | 619.35 |
| SG3 | -195.08 | -291.06 | -242.39 | -108.71 | 40.26 | 135.70 | 230.59 | 354.98 | 434.91 | 593.34 | 616.91 |
| SG4 | -66.40 | -151.68 | -95.50 | -5.34 | 119.37 | 192.84 | 266.02 | 372.00 | 435.36 | 584.14 | 605.78 |
| SG5 | 37.12 | -90.90 | 3.13 | 152.29 | 265.06 | 389.59 | 506.83 | 597.77 | 687.42 | 839.36 | 867.09 |
| SG6 | -15.06 | 15.26 | 55.62 | 99.12 | 142.96 | 185.37 | 228.50 | 273.63 | 315.46 | 365.26 | 405.40 |
| SG7 | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## |
| SG8 | -68.76 | -167.43 | -141.64 | -85.69 | -17.94 | 43.18 | 100.62 | 188.96 | 239.77 | 365.71 | 384.09 |
| SG9 | -31.51 | -6.77 | 33.62 | 80.05 | 126.64 | 172.83 | 217.78 | 266.91 | 312.19 | 367.65 | 408.41 |
| SG10 | -44.30 | -53.70 | -65.51 | -78.85 | -89.39 | -104.13 | -115.80 | -126.44 | -137.05 | -148.42 | -169.85 |
| SG11 | 21.83 | 19.65 | 14.39 | 7.47 | -4.12 | -12.06 | -21.61 | -30.20 | -34.63 | -43.91 | -49.90 |

TABLE E-40. CVP4, AIR 2, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 34.11 | 27.74 | 27.60 | 23.96 | 21.69 | 17.45 | 11.92 | 10.81 | 8.41 | 7.35 | 2.27 |
| SG13 | 69.07 | 49.53 | 52.98 | 50.54 | 54.03 | 57.36 | 58.05 | 66.43 | 70.07 | 80.17 | 78.96 |
| SG14 | 148.48 | 131.69 | 159.09 | 270.90 | 6.39 | 22.98 | 40.17 | 27.22 | 32.20 | 61.09 | 52.19 |
| SG15 | 37.89 | 46.45 | 49.91 | 48.39 | 42.48 | 39.86 | 35.21 | 30.14 | 30.78 | 23.60 | 23.78 |
| SG16 | 45.19 | 38.92 | 37.35 | 28.46 | 22.33 | 15.98 | 6.63 | 1.51 | -3.79 | -9.36 | -17.24 |
| SG17 | -44.71 | -51.14 | -61.56 | -70.58 | -72.90 | -82.02 | -86.15 | -88.30 | -90.05 | -90.52 | -96.62 |
| SG18 | 24.75 | 15.46 | -5.46 | -32.13 | -57.68 | -82.20 | -107.16 | -131.06 | -152.71 | -180.04 | -200.75 |
| SG19 | -54.46 | -78.88 | -106.80 | -144.88 | -181.99 | -215.93 | -254.46 | -287.64 | -317.42 | -353.72 | -385.82 |
| SG20 | -6.59 | -9.55 | -9.18 | -13.80 | -13.61 | -14.17 | -18.61 | -16.02 | -13.80 | -10.84 | -14.17 |
| SG21 | -35.09 | -40.25 | -47.61 | -67.15 | -83.53 | -99.76 | -121.31 | -135.48 | -147.83 | -164.79 | -180.06 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 19.18 | -7.39 | -34.15 | -71.61 | -96.69 | -127.71 | -166.09 | -201.50 | -231.76 | -271.64 | -301.88 |
| SG24 | 29.28 | 25.22 | 29.09 | 19.87 | 17.83 | 15.62 | 7.51 | 6.95 | 5.11 | 4.92 | 0.13 |
| SG25 | 21.90 | 14.82 | 6.44 | -14.19 | -29.17 | -41.35 | -62.44 | -73.22 | -83.95 | -98.99 | -111.56 |
| SG26 | -139.63 | -153.38 | -153.23 | -158.23 | -159.68 | -150.34 | -157.22 | -151.20 | -148.43 | -139.02 | -142.29 |
| SG27 | 25.46 | 21.53 | 19.17 | 9.83 | 3.92 | -0.52 | -10.22 | -15.35 | -19.42 | -24.41 | -30.92 |
| SG28 | 100.69 | 113.27 | 118.44 | 116.23 | 112.50 | 113.27 | 110.31 | 106.59 | 109.55 | 104.38 | 106.59 |
| SG29 | -4.30 | -10.16 | -15.01 | -24.57 | -31.63 | -36.07 | -46.87 | -53.06 | -58.78 | -65.07 | -71.85 |
| SG30 | -168.69 | -158.88 | -161.96 | -169.55 | -175.51 | -177.86 | -182.94 | -187.68 | -189.48 | -196.24 | -196.63 |
| SG31 | -87.00 | -87.26 | -87.44 | -108.31 | -132.74 | -140.94 | -164.19 | -176.36 | -193.48 | -213.34 | -228.37 |
| SG32-T | -9.28 | 115.34 | 220.38 | 317.75 | 409.64 | 494.07 | 576.00 | 650.06 | 724.93 | 794.86 | 869.46 |
| SG32-45 | 24.70 | 99.05 | 164.18 | 217.19 | 278.57 | 321.30 | 369.78 | 412.56 | 453.05 | 493.17 | 531.76 |
| SG32-L | 22.42 | 30.60 | 43.95 | 50.42 | 63.38 | 69.35 | 71.58 | 80.50 | 82.87 | 89.67 | 86.92 |
| SG33-T | -11.57 | 115.31 | 221.29 | 322.95 | 418.90 | 506.50 | 592.62 | 669.78 | 746.81 | 818.43 | 895.47 |
| SG33-45 | 18.58 | 88.63 | 151.74 | 208.06 | 269.60 | 310.86 | 359.64 | 401.59 | 441.17 | 480.42 | 516.41 |
| SG33-T | 15.21 | 17.68 | 33.68 | 39.26 | 49.91 | 53.92 | 52.76 | 59.26 | 58.80 | 64.76 | 58.05 |
| SG34-T | -27.68 | 41.56 | 118.22 | 197.60 | 277.11 | 351.93 | 427.35 | 500.16 | 572.83 | 645.37 | 721.00 |
| SG34-45 | 47.24 | 75.45 | 110.70 | 148.19 | 177.67 | 219.09 | 244.32 | 278.26 | 309.62 | 341.94 | 375.49 |
| SG34-L | 26.95 | 15.08 | 3.26 | -12.80 | -24.85 | -32.54 | -47.85 | -55.43 | -61.99 | -69.73 | -80.33 |
| SG35-T | 13.65 | 106.05 | 177.62 | 245.50 | 310.46 | 382.11 | 451.38 | 517.89 | 589.19 | 655.67 | 731.00 |
| SG35-45 | 12.60 | 53.81 | 87.63 | 118.07 | 140.62 | 181.82 | 204.02 | 235.27 | 266.35 | 295.98 | 329.81 |
| SG35-L | 33.54 | 23.80 | 14.47 | -0.54 | -12.34 | -19.38 | -35.09 | -43.01 | -49.96 | -57.94 | -69.31 |
| SG36-T | -1.80 | 101.58 | 194.33 | 284.79 | 370.41 | 451.84 | 529.80 | 602.34 | 674.52 | 742.63 | 814.73 |
| SG36-45 | -8.10 | 24.46 | 71.58 | 110.87 | 145.07 | 189.63 | 216.61 | 252.89 | 285.49 | 315.84 | 346.17 |
| SG36-L | 45.12 | 25.50 | 29.23 | 25.92 | 29.08 | 29.42 | 22.85 | 25.45 | 24.43 | 27.41 | 19.45 |
| SG37-L | 53.60 | 59.24 | 38.83 | 9.70 | -13.46 | -34.28 | -57.86 | -75.65 | -90.09 | -107.94 | -123.11 |
| SG37-45 | -10.63 | 17.19 | 35.14 | 43.96 | 48.72 | 70.35 | 80.68 | 96.79 | 116.25 | 127.78 | 152.01 |
| SG37-T | 22.85 | 76.75 | 117.63 | 157.02 | 196.36 | 237.93 | 283.87 | 324.18 | 371.16 | 411.49 | 465.77 |
| SG38-T | -35.77 | 63.63 | 156.22 | 247.91 | 335.93 | 418.73 | 500.59 | 577.78 | 654.69 | 729.77 | 808.23 |
| SG38-45 | -52.24 | -9.65 | 35.81 | 71.84 | 106.55 | 152.92 | 180.02 | 215.28 | 250.05 | 280.76 | 316.62 |
| SG38-L | 21.38 | 11.73 | 6.70 | -9.24 | -18.97 | -26.80 | -43.06 | -49.81 | -57.96 | -66.22 | -75.99 |
| SG39-T | -5.22 | 116.26 | 221.52 | 319.81 | 411.89 | 496.00 | 578.40 | 653.52 | 726.56 | 796.23 | 869.19 |
| SG39-45 | 8.94 | 79.78 | 148.42 | 202.49 | 248.64 | 304.75 | 341.19 | 384.75 | 425.18 | 462.04 | 504.47 |
| SG39-L | 26.06 | 31.72 | 40.59 | 42.26 | 46.15 | 52.75 | 44.54 | 49.04 | 51.17 | 56.37 | 52.52 |
| SG40-T | 17.43 | 60.90 | 95.58 | 128.13 | 165.01 | 203.32 | 250.10 | 291.19 | 337.54 | 378.70 | 431.26 |
| SG40-45 | -0.37 | 9.13 | 20.82 | 21.19 | 23.20 | 42.19 | 49.68 | 65.03 | 82.56 | 94.27 | 119.84 |
| SG40-L | 22.73 | -7.59 | -32.98 | -67.34 | -91.64 | -109.34 | -132.36 | -147.71 | -159.75 | -174.22 | -185.52 |

TABLE E-41. CVP4, AIR 2, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.03 | 0.88 | 1.79 | 2.67 | 3.55 | 4.40 | 5.29 | 6.16 | 7.06 | 7.92 | 8.82 |
| Frame-1 | 30.60 | 182.69 | 375.10 | 557.01 | 725.80 | 894.64 | 1092.60 | 1277.42 | 1446.76 | 1639.56 | 1831.36 |
| Frame-2 | 0.94 | 178.80 | 374.36 | 561.17 | 740.08 | 901.67 | 1114.94 | 1285.54 | 1442.41 | 1664.42 | 1829.84 |
| Frame-3 | 82.80 | 172.38 | 348.08 | 552.95 | 729.44 | 911.17 | 1090.68 | 1269.27 | 1453.11 | 1648.18 | 1816.45 |
| Frame-4 | -50.18 | 188.80 | 362.59 | 603.60 | 722.99 | 901.08 | 1099.37 | 1274.31 | 1449.38 | 1642.59 | 1826.15 |
| Frame-5 | -55.80 | 188.68 | 361.01 | 586.80 | 768.52 | 876.13 | 1090.24 | 1291.32 | 1449.40 | 1653.23 | 1823.26 |
| Frame-6 | 61.86 | 184.49 | 361.78 | 556.11 | 729.15 | 900.63 | 1097.01 | 1272.13 | 1440.51 | 1643.86 | 1830.81 |
| Frame-7 | 10.72 | 196.08 | 481.66 | 565.76 | 776.07 | 981.64 | 1076.22 | 1244.20 | 1451.56 | 1668.05 | 1838.85 |
| Frame-8 | 6.44 | 203.65 | 371.90 | 584.97 | 774.40 | 1043.46 | 1125.84 | 1264.36 | 1449.13 | 1629.24 | 1870.43 |
| Frame-9 | -5.16 | 210.78 | 414.82 | 550.81 | 716.92 | 935.75 | 1078.88 | 1264.92 | 1450.79 | 1645.77 | 1867.89 |
| Frame-10 | 7.42 | 178.87 | 345.47 | 563.78 | 753.28 | 982.81 | 1080.74 | 1262.36 | 1485.08 | 1701.42 | 1832.49 |
| Frame-11 | -29.63 | 191.95 | 352.92 | 561.43 | 712.86 | 913.86 | 1086.94 | 1267.87 | 1450.18 | 1648.36 | 1815.05 |
| Frame-12 | -23.01 | 255.41 | 356.00 | 555.21 | 708.18 | 958.42 | 1079.96 | 1256.15 | 1439.05 | 1648.36 | 1842.98 |
| Hoop-1 | 26.36 | 815.34 | 1552.98 | 2334.92 | 3109.03 | 3852.11 | 4649.43 | 5402.64 | 6182.50 | 6951.33 | 7743.29 |
| Hoop-2 | -110.87 | 881.20 | 1551.77 | 2332.73 | 3082.49 | 3839.72 | 4637.59 | 5412.01 | 6216.23 | 6955.38 | 7729.91 |
| Hoop-3 | 0.60 | 783.31 | 1550.39 | 2345.70 | 3101.94 | 3849.63 | 4647.29 | 5371.33 | 6175.19 | 6977.29 | 7761.06 |
| Hoop-4 | 28.04 | 798.72 | 1526.96 | 2316.48 | 3107.40 | 3829.99 | 4638.74 | 5410.43 | 6175.64 | 6963.08 | 7734.93 |
| Hoop-5 | 6.05 | 787.92 | 1568.11 | 2335.70 | 3117.41 | 3853.78 | 4669.41 | 5399.43 | 6186.84 | 6976.06 | 7746.29 |
| Hoop-6 | 18.06 | 776.47 | 1562.77 | 2330.73 | 3088.98 | 3830.81 | 4632.76 | 5386.61 | 6187.64 | 6981.27 | 7729.73 |
| Hoop-7 | 45.73 | 747.75 | 1568.76 | 2353.36 | 3091.78 | 3828.61 | 4694.31 | 5393.68 | 6170.73 | 6947.78 | 7735.03 |
| Hoop-8 | -10.41 | 856.54 | 1554.50 | 2355.33 | 3127.08 | 3891.24 | 4632.90 | 5381.76 | 6153.73 | 6940.56 | 7778.20 |
| Hoop-9 | -31.07 | 798.39 | 1557.06 | 2339.32 | 3105.56 | 3886.09 | 4635.30 | 5395.24 | 6194.38 | 6933.78 | 7748.80 |
| Hoop-10 | 8.92 | 764.19 | 1535.73 | 2347.01 | 3066.45 | 3868.78 | 4656.19 | 5400.08 | 6217.32 | 6969.68 | 7750.32 |
| Hoop-11 | 22.70 | 731.12 | 1544.70 | 2334.30 | 3113.14 | 3865.91 | 4634.83 | 5394.37 | 6188.20 | 6967.42 | 7744.18 |
| Hoop-12 | -1.43 | 715.60 | 1553.06 | 2338.63 | 3072.64 | 3925.01 | 4628.67 | 5413.71 | 6185.00 | 6971.28 | 7734.70 |
| Hoop-13 | -6.86 | 757.49 | 1536.68 | 2352.97 | 3095.37 | 3889.48 | 4623.75 | 5402.40 | 6167.29 | 6947.18 | 7741.29 |
| Hoop-14 | -170.22 | 1058.34 | 1539.39 | 2316.48 | 3101.28 | 3878.45 | 4625.54 | 5409.49 | 6194.52 | 6972.31 | 7734.67 |
| Long-1 | 2.41 | 1209.99 | 2433.20 | 3672.49 | 4918.77 | 6110.61 | 7361.79 | 8591.61 | 9795.47 | 11046.3 | 12246.4 |
| Long-2 | 73.03 | 1256.26 | 2425.92 | 3709.47 | 4902.81 | 6105.63 | 7326.21 | 8559.34 | 9788.05 | 11028.1 | 12246.6 |
| Long-3 | 297.13 | 1189.29 | 2452.24 | 3666.72 | 4904.21 | 6132.77 | 7338.56 | 8571.52 | 9787.84 | 11048.4 | 12247.4 |
| Long-4 | -22.38 | 1191.84 | 2442.06 | 3674.74 | 4880.82 | 6115.31 | 7362.27 | 8597.51 | 9809.21 | 11041.5 | 12266.2 |
| Long-5 | 698.72 | 1291.74 | 2117.45 | 3673.81 | 4895.47 | 6208.64 | 7328.76 | 8580.19 | 9810.06 | 11036.5 | 12236.7 |
| Long-6 | 68.82 | 1453.45 | 2455.14 | 3683.42 | 4923.62 | 6171.96 | 7352.72 | 8556.82 | 9802.73 | 11033.0 | 12258.0 |
| Long-7 | 134.03 | 1240.81 | 2435.46 | 3637.68 | 4905.00 | 6157.71 | 7339.62 | 8545.56 | 9795.90 | 11041.6 | 12289.4 |
| Long-8 | 16.24 | 1254.57 | 2441.93 | 3686.99 | 4905.67 | 6136.42 | 7357.73 | 8605.38 | 9803.80 | 11026.1 | 12193.2 |
| SG1 | 29.35 | -18.59 | -69.10 | -20.61 | 31.01 | 84.65 | 90.92 | 95.73 | 139.76 | 177.03 | 170.56 |
| SG2 | -0.19 | -44.77 | -134.98 | -97.13 | -60.26 | -1.43 | -10.51 | -20.94 | 14.05 | 46.14 | 28.85 |
| SG3 | -244.81 | -119.54 | -78.99 | 120.01 | 283.05 | 493.98 | 613.04 | 732.79 | 876.17 | 998.19 | 1065.83 |
| SG4 | -99.48 | -54.19 | -25.34 | 87.19 | 177.24 | 299.48 | 347.82 | 391.76 | 468.34 | 533.41 | 550.31 |
| SG5 | 15.43 | -12.34 | -75.01 | 66.82 | 149.77 | 287.60 | 283.32 | 272.88 | 196.55 | 325.81 | 384.76 |
| SG6 | -18.70 | 11.94 | 32.08 | 61.89 | 89.18 | 120.86 | 147.21 | 172.49 | 203.58 | 231.82 | 258.70 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | -102.63 | -107.07 | -181.42 | -155.65 | -129.89 | -70.95 | -71.69 | -70.97 | -35.61 | -3.95 | -1.74 |
| SG9 | -37.83 | -6.95 | 9.62 | 42.07 | 72.26 | 109.63 | 137.60 | 165.37 | 201.91 | 233.98 | 265.07 |
| SG10 | -38.57 | 13.28 | 36.95 | 69.56 | 99.47 | 130.45 | 159.42 | 189.90 | 217.88 | 251.51 | 277.32 |
| SG11 | 23.90 | 66.06 | 102.93 | 140.31 | 177.54 | 215.72 | 252.64 | 291.29 | 325.90 | 362.90 | 399.78 |

TABLE E-41. CVP4, AIR 2, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 35.90 | 106.93 | 173.80 | 244.98 | 318.55 | 387.31 | 454.93 | 526.26 | 595.80 | 666.09 | 734.94 |
| SG13 | 63.90 | 172.66 | 261.13 | 372.49 | 486.24 | 593.66 | 691.69 | 792.83 | 896.69 | 1000.80 | 1095.05 |
| SG14 | 359.89 | 499.94 | 619.51 | 770.61 | 1047.39 | 887.94 | 791.96 | 862.45 | 874.81 | 955.68 | 1041.70 |
| SG15 | 42.35 | 95.46 | 144.29 | 187.51 | 230.39 | 271.49 | 315.59 | 359.85 | 399.18 | 440.92 | 484.37 |
| SG16 | 44.50 | 116.67 | 181.15 | 249.10 | 320.87 | 387.70 | 451.59 | 517.62 | 581.35 | 646.11 | 709.11 |
| SG17 | -38.59 | 33.83 | 108.55 | 190.71 | 273.45 | 358.68 | 438.86 | 522.17 | 605.40 | 691.59 | 774.64 |
| SG18 | 33.16 | 67.33 | 109.98 | 146.76 | 186.00 | 224.07 | 265.82 | 309.42 | 350.60 | 396.83 | 442.44 |
| SG19 | -48.53 | 17.89 | 74.69 | 127.60 | 182.57 | 235.07 | 287.05 | 341.88 | 390.98 | 445.46 | 499.24 |
| SG20 | 0.62 | 93.81 | 173.09 | 254.25 | 337.65 | 419.29 | 495.81 | 575.04 | 651.57 | 730.82 | 807.45 |
| SG21 | -36.75 | 50.96 | 95.35 | 129.43 | 160.77 | 192.97 | 224.29 | 256.76 | 285.42 | 318.82 | 351.95 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 19.37 | 95.78 | 154.26 | 214.24 | 274.97 | 330.64 | 391.35 | 451.41 | 508.10 | 566.70 | 625.87 |
| SG24 | 34.63 | 133.36 | 216.72 | 301.96 | 392.96 | 477.55 | 558.35 | 640.02 | 722.47 | 806.19 | 886.91 |
| SG25 | 30.55 | 134.71 | 233.32 | 332.37 | 437.71 | 538.28 | 635.43 | 734.94 | 828.34 | 925.29 | 1018.27 |
| SG26 | -135.46 | -40.65 | 47.48 | 151.68 | 261.26 | 368.16 | 464.03 | 560.76 | 660.70 | 760.23 | 853.25 |
| SG27 | 27.95 | 95.67 | 159.62 | 225.75 | 295.56 | 360.66 | 421.70 | 483.72 | 543.46 | 604.94 | 664.77 |
| SG28 | 104.38 | 161.41 | 206.52 | 245.75 | 293.15 | 333.79 | 378.93 | 424.16 | 463.99 | 509.23 | 555.06 |
| SG29 | -6.51 | 38.56 | 77.76 | 120.98 | 166.99 | 212.39 | 256.16 | 300.73 | 345.52 | 390.29 | 434.20 |
| SG30 | -160.54 | -120.86 | -87.59 | -56.51 | -21.69 | 8.32 | 45.17 | 80.13 | 110.44 | 145.42 | 180.31 |
| SG31 | -84.36 | -42.83 | -25.05 | -4.47 | 17.68 | 40.71 | 68.67 | 96.24 | 119.83 | 148.28 | 176.88 |
| SG32-T | -4.63 | 85.77 | 166.90 | 231.18 | 284.16 | 331.66 | 384.60 | 430.94 | 477.25 | 517.48 | 562.20 |
| SG32-45 | 27.30 | 140.40 | 235.85 | 329.29 | 416.92 | 485.69 | 561.06 | 633.25 | 704.00 | 772.32 | 836.88 |
| SG32-L | 21.58 | 134.77 | 219.76 | 312.92 | 407.33 | 493.37 | 572.06 | 653.57 | 732.57 | 813.08 | 890.90 |
| SG33-T | -8.07 | 54.49 | 112.47 | 155.97 | 187.71 | 216.54 | 255.76 | 289.02 | 321.81 | 348.89 | 382.43 |
| SG33-45 | 19.32 | 89.20 | 134.57 | 168.85 | 192.94 | 206.83 | 228.57 | 246.41 | 264.96 | 281.41 | 295.60 |
| SG33-T | 16.10 | 121.35 | 212.56 | 307.88 | 405.24 | 494.85 | 576.34 | 658.72 | 739.27 | 821.11 | 899.36 |
| SG34-T | -28.70 | 9.22 | 57.61 | 107.11 | 153.09 | 197.17 | 245.78 | 290.41 | 339.02 | 382.17 | 429.82 |
| SG34-45 | 52.07 | 101.26 | 168.05 | 226.32 | 284.25 | 344.69 | 400.17 | 454.44 | 511.27 | 562.59 | 617.64 |
| SG34-L | 31.42 | 113.92 | 188.56 | 267.32 | 348.35 | 428.70 | 504.66 | 583.90 | 659.49 | 738.56 | 814.63 |
| SG35-T | 14.21 | 76.46 | 131.18 | 172.51 | 211.50 | 249.06 | 295.69 | 339.60 | 382.46 | 422.70 | 469.71 |
| SG35-45 | 19.05 | 83.61 | 155.89 | 210.39 | 264.59 | 322.06 | 377.06 | 430.53 | 483.68 | 533.91 | 589.75 |
| SG35-L | 37.88 | 123.93 | 201.11 | 279.96 | 361.12 | 441.05 | 516.58 | 594.65 | 669.24 | 747.14 | 822.41 |
| SG36-T | -0.87 | 62.38 | 116.81 | 158.72 | 190.69 | 218.59 | 251.56 | 280.39 | 308.39 | 330.71 | 359.31 |
| SG36-45 | -8.98 | 57.39 | 110.78 | 146.91 | 174.83 | 206.23 | 231.54 | 253.32 | 278.08 | 296.34 | 319.43 |
| SG36-L | 47.49 | 146.82 | 253.17 | 361.79 | 470.08 | 570.58 | 663.17 | 756.65 | 848.26 | 939.90 | 1026.81 |
| SG37-L | 61.90 | 148.71 | 217.98 | 287.98 | 365.76 | 440.16 | 515.61 | 594.84 | 668.81 | 746.96 | 823.39 |
| SG37-45 | -7.23 | 31.57 | 52.31 | 51.35 | 49.20 | 54.24 | 61.26 | 66.78 | 71.85 | 75.04 | 85.54 |
| SG37-T | 28.02 | 51.74 | 76.62 | 84.78 | 90.75 | 98.20 | 117.36 | 135.58 | 148.74 | 164.40 | 185.84 |
| SG38-T | -32.97 | 33.44 | 98.86 | 160.66 | 214.15 | 264.68 | 318.00 | 367.49 | 418.23 | 463.55 | 512.49 |
| SG38-45 | -55.30 | 32.24 | 103.55 | 173.14 | 244.71 | 317.97 | 388.20 | 456.72 | 528.16 | 595.02 | 666.18 |
| SG38-L | 21.84 | 115.28 | 194.22 | 274.87 | 361.85 | 441.99 | 519.75 | 598.55 | 678.49 | 758.01 | 834.57 |
| SG39-T | -3.78 | 86.78 | 167.62 | 232.94 | 288.38 | 336.01 | 389.79 | 438.12 | 484.64 | 526.43 | 572.80 |
| SG39-45 | 14.80 | 119.87 | 210.34 | 289.17 | 367.48 | 443.45 | 515.16 | 583.09 | 654.15 | 717.50 | 786.95 |
| SG39-L | 32.47 | 125.29 | 203.86 | 287.05 | 371.57 | 455.19 | 530.57 | 607.56 | 684.84 | 762.09 | 836.88 |
| SG40-T | 17.43 | 45.56 | 73.32 | 93.76 | 116.96 | 137.05 | 170.27 | 201.52 | 229.28 | 258.44 | 291.92 |
| SG40-45 | 2.55 | 48.96 | 95.00 | 134.62 | 184.51 | 236.75 | 290.80 | 343.81 | 398.80 | 450.59 | 509.14 |
| SG40-L | 26.57 | 77.54 | 127.79 | 183.11 | 247.61 | 313.19 | 379.10 | 447.47 | 513.41 | 582.53 | 650.79 |

TABLE E-42. CVP4, AIR 2, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.03 | 0.88 | 1.79 | 2.67 | 3.55 | 4.40 | 5.29 | 6.16 | 7.06 | 7.92 | 8.82 |
| Frame-1 | 30.60 | 182.69 | 375.10 | 557.01 | 725.80 | 894.64 | 1092.60 | 1277.42 | 1446.76 | 1639.56 | 1831.36 |
| Frame-2 | 0.94 | 178.80 | 374.36 | 561.17 | 740.08 | 901.67 | 1114.94 | 1285.54 | 1442.41 | 1664.42 | 1829.84 |
| Frame-3 | 82.80 | 172.38 | 348.08 | 552.95 | 729.44 | 911.17 | 1090.68 | 1269.27 | 1453.11 | 1648.18 | 1816.45 |
| Frame-4 | -50.18 | 188.80 | 362.59 | 603.60 | 722.99 | 901.08 | 1099.37 | 1274.31 | 1449.38 | 1642.59 | 1826.15 |
| Frame-5 | -55.80 | 188.68 | 361.01 | 586.80 | 768.52 | 876.13 | 1090.24 | 1291.32 | 1449.40 | 1653.23 | 1823.26 |
| Frame-6 | 61.86 | 184.49 | 361.78 | 556.11 | 729.15 | 900.63 | 1097.01 | 1272.13 | 1440.51 | 1643.86 | 1830.81 |
| Frame-7 | 10.72 | 196.08 | 481.66 | 565.76 | 776.07 | 981.64 | 1076.22 | 1244.20 | 1451.56 | 1668.05 | 1838.85 |
| Frame-8 | 6.44 | 203.65 | 371.90 | 584.97 | 774.40 | 1043.46 | 1125.84 | 1264.36 | 1449.13 | 1629.24 | 1870.43 |
| Frame-9 | -5.16 | 210.78 | 414.82 | 550.81 | 716.92 | 935.75 | 1078.88 | 1264.92 | 1450.79 | 1645.77 | 1867.89 |
| Frame-10 | 7.42 | 178.87 | 345.47 | 563.78 | 753.28 | 982.81 | 1080.74 | 1262.36 | 1485.08 | 1701.42 | 1832.49 |
| Frame-11 | -29.63 | 191.95 | 352.92 | 561.43 | 712.86 | 913.86 | 1086.94 | 1267.87 | 1450.18 | 1648.36 | 1815.05 |
| Frame-12 | -23.01 | 255.41 | 356.00 | 555.21 | 708.18 | 958.42 | 1079.96 | 1256.15 | 1439.05 | 1648.36 | 1842.98 |
| Hoop-1 | 26.36 | 815.34 | 1552.98 | 2334.92 | 3109.03 | 3852.11 | 4649.43 | 5402.64 | 6182.50 | 6951.33 | 7743.29 |
| Hoop-2 | -110.87 | 881.20 | 1551.77 | 2332.73 | 3082.49 | 3839.72 | 4637.59 | 5412.01 | 6216.23 | 6955.38 | 7729.91 |
| Hoop-3 | 0.60 | 783.31 | 1550.39 | 2345.70 | 3101.94 | 3849.63 | 4647.29 | 5371.33 | 6175.19 | 6977.29 | 7761.06 |
| Hoop-4 | 28.04 | 798.72 | 1526.96 | 2316.48 | 3107.40 | 3829.99 | 4638.74 | 5410.43 | 6175.64 | 6963.08 | 7734.93 |
| Hoop-5 | 6.05 | 787.92 | 1568.11 | 2335.70 | 3117.41 | 3853.78 | 4669.41 | 5399.43 | 6186.84 | 6976.06 | 7746.29 |
| Hoop-6 | 18.06 | 776.47 | 1562.77 | 2330.73 | 3088.98 | 3830.81 | 4632.76 | 5386.61 | 6187.64 | 6981.27 | 7729.73 |
| Hoop-7 | 45.73 | 747.75 | 1568.76 | 2353.36 | 3091.78 | 3828.61 | 4694.31 | 5393.68 | 6170.73 | 6947.78 | 7735.03 |
| Hoop-8 | -10.41 | 856.54 | 1554.50 | 2355.33 | 3127.08 | 3891.24 | 4632.90 | 5381.76 | 6153.73 | 6940.56 | 7778.20 |
| Hoop-9 | -31.07 | 798.39 | 1557.06 | 2339.32 | 3105.56 | 3886.09 | 4635.30 | 5395.24 | 6194.38 | 6933.78 | 7748.80 |
| Hoop-10 | 8.92 | 764.19 | 1535.73 | 2347.01 | 3066.45 | 3868.78 | 4656.19 | 5400.08 | 6217.32 | 6969.68 | 7750.32 |
| Hoop-11 | 22.70 | 731.12 | 1544.70 | 2334.30 | 3113.14 | 3865.91 | 4634.83 | 5394.37 | 6188.20 | 6967.42 | 7744.18 |
| Hoop-12 | -1.43 | 715.60 | 1553.06 | 2338.63 | 3072.64 | 3925.01 | 4628.67 | 5413.71 | 6185.00 | 6971.28 | 7734.70 |
| Hoop-13 | -6.86 | 757.49 | 1536.68 | 2352.97 | 3095.37 | 3889.48 | 4623.75 | 5402.40 | 6167.29 | 6947.18 | 7741.29 |
| Hoop-14 | -170.22 | 1058.34 | 1539.39 | 2316.48 | 3101.28 | 3878.45 | 4625.54 | 5409.49 | 6194.52 | 6972.31 | 7734.67 |
| Long-1 | 2.41 | 1209.99 | 2433.20 | 3672.49 | 4918.77 | 6110.61 | 7361.79 | 8591.61 | 9795.47 | 11046.3 | 12246.4 |
| Long-2 | 73.03 | 1256.26 | 2425.92 | 3709.47 | 4902.81 | 6105.63 | 7326.21 | 8559.34 | 9788.05 | 11028.1 | 12246.6 |
| Long-3 | 297.13 | 1189.29 | 2452.24 | 3666.72 | 4904.21 | 6132.77 | 7338.56 | 8571.52 | 9787.84 | 11048.4 | 12247.4 |
| Long-4 | -22.38 | 1191.84 | 2442.06 | 3674.74 | 4880.82 | 6115.31 | 7362.27 | 8597.51 | 9809.21 | 11041.5 | 12266.2 |
| Long-5 | 698.72 | 1291.74 | 2117.45 | 3673.81 | 4895.47 | 6208.64 | 7328.76 | 8580.19 | 9810.06 | 11036.5 | 12236.7 |
| Long-6 | 68.82 | 1453.45 | 2455.14 | 3683.42 | 4923.62 | 6171.96 | 7352.72 | 8556.82 | 9802.73 | 11033.0 | 12258.0 |
| Long-7 | 134.03 | 1240.81 | 2435.46 | 3637.68 | 4905.00 | 6157.71 | 7339.62 | 8545.56 | 9795.90 | 11041.6 | 12289.4 |
| Long-8 | 16.24 | 1254.57 | 2441.93 | 3686.99 | 4905.67 | 6136.42 | 7357.73 | 8605.38 | 9803.80 | 11026.1 | 12193.2 |
| SG1 | 29.35 | -18.59 | -69.10 | -20.61 | 31.01 | 84.65 | 90.92 | 95.73 | 139.76 | 177.03 | 170.56 |
| SG2 | -0.19 | -44.77 | -134.98 | -97.13 | -60.26 | -1.43 | -10.51 | -20.94 | 14.05 | 46.14 | 28.85 |
| SG3 | -244.81 | -119.54 | -78.99 | 120.01 | 283.05 | 493.98 | 613.04 | 732.79 | 876.17 | 998.19 | 1065.83 |
| SG4 | -99.48 | -54.19 | -25.34 | 87.19 | 177.24 | 299.48 | 347.82 | 391.76 | 468.34 | 533.41 | 550.31 |
| SG5 | 15.43 | -12.34 | -75.01 | 66.82 | 149.77 | 287.60 | 283.32 | 272.88 | 196.55 | 325.81 | 384.76 |
| SG6 | -18.70 | 11.94 | 32.08 | 61.89 | 89.18 | 120.86 | 147.21 | 172.49 | 203.58 | 231.82 | 258.70 |
| SG7 | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## | ######## |
| SG8 | -102.63 | -107.07 | -181.42 | -155.65 | -129.89 | -70.95 | -71.69 | -70.97 | -35.61 | -3.95 | -1.74 |
| SG9 | -37.83 | -6.95 | 9.62 | 42.07 | 72.26 | 109.63 | 137.60 | 165.37 | 201.91 | 233.98 | 265.07 |
| SG10 | -38.57 | 13.28 | 36.95 | 69.56 | 99.47 | 130.45 | 159.42 | 189.90 | 217.88 | 251.51 | 277.32 |
| SG11 | 23.90 | 66.06 | 102.93 | 140.31 | 177.54 | 215.72 | 252.64 | 291.29 | 325.90 | 362.90 | 399.78 |

TABLE E-42. CVP4, AIR 2, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 35.90 | 106.93 | 173.80 | 244.98 | 318.55 | 387.31 | 454.93 | 526.26 | 595.80 | 666.09 | 734.94 |
| SG13 | 63.90 | 172.66 | 261.13 | 372.49 | 486.24 | 593.66 | 691.69 | 792.83 | 896.69 | 1000.80 | 1095.05 |
| SG14 | 359.89 | 499.94 | 619.51 | 770.61 | 1047.39 | 887.94 | 791.96 | 862.45 | 874.81 | 955.68 | 1041.70 |
| SG15 | 42.35 | 95.46 | 144.29 | 187.51 | 230.39 | 271.49 | 315.59 | 359.85 | 399.18 | 440.92 | 484.37 |
| SG16 | 44.50 | 116.67 | 181.15 | 249.10 | 320.87 | 387.70 | 451.59 | 517.62 | 581.35 | 646.11 | 709.11 |
| SG17 | -38.59 | 33.83 | 108.55 | 190.71 | 273.45 | 358.68 | 438.86 | 522.17 | 605.40 | 691.59 | 774.64 |
| SG18 | 33.16 | 67.33 | 109.98 | 146.76 | 186.00 | 224.07 | 265.82 | 309.42 | 350.60 | 396.83 | 442.44 |
| SG19 | -48.53 | 17.89 | 74.69 | 127.60 | 182.57 | 235.07 | 287.05 | 341.88 | 390.98 | 445.46 | 499.24 |
| SG20 | 0.62 | 93.81 | 173.09 | 254.25 | 337.65 | 419.29 | 495.81 | 575.04 | 651.57 | 730.82 | 807.45 |
| SG21 | -36.75 | 50.96 | 95.35 | 129.43 | 160.77 | 192.97 | 224.29 | 256.76 | 285.42 | 318.82 | 351.95 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 19.37 | 95.78 | 154.26 | 214.24 | 274.97 | 330.64 | 391.35 | 451.41 | 508.10 | 566.70 | 625.87 |
| SG24 | 34.63 | 133.36 | 216.72 | 301.96 | 392.96 | 477.55 | 558.35 | 640.02 | 722.47 | 806.19 | 886.91 |
| SG25 | 30.55 | 134.71 | 233.32 | 332.37 | 437.71 | 538.28 | 635.43 | 734.94 | 828.34 | 925.29 | 1018.27 |
| SG26 | -135.46 | -40.65 | 47.48 | 151.68 | 261.26 | 368.16 | 464.03 | 560.76 | 660.70 | 760.23 | 853.25 |
| SG27 | 27.95 | 95.67 | 159.62 | 225.75 | 295.56 | 360.66 | 421.70 | 483.72 | 543.46 | 604.94 | 664.77 |
| SG28 | 104.38 | 161.41 | 206.52 | 245.75 | 293.15 | 333.79 | 378.93 | 424.16 | 463.99 | 509.23 | 555.06 |
| SG29 | -6.51 | 38.56 | 77.76 | 120.98 | 166.99 | 212.39 | 256.16 | 300.73 | 345.52 | 390.29 | 434.20 |
| SG30 | -160.54 | -120.86 | -87.59 | -56.51 | -21.69 | 8.32 | 45.17 | 80.13 | 110.44 | 145.42 | 180.31 |
| SG31 | -84.36 | -42.83 | -25.05 | -4.47 | 17.68 | 40.71 | 68.67 | 96.24 | 119.83 | 148.28 | 176.88 |
| SG32-T | -4.63 | 85.77 | 166.90 | 231.18 | 284.16 | 331.66 | 384.60 | 430.94 | 477.25 | 517.48 | 562.20 |
| SG32-45 | 27.30 | 140.40 | 235.85 | 329.29 | 416.92 | 485.69 | 561.06 | 633.25 | 704.00 | 772.32 | 836.88 |
| SG32-L | 21.58 | 134.77 | 219.76 | 312.92 | 407.33 | 493.37 | 572.06 | 653.57 | 732.57 | 813.08 | 890.90 |
| SG33-T | -8.07 | 54.49 | 112.47 | 155.97 | 187.71 | 216.54 | 255.76 | 289.02 | 321.81 | 348.89 | 382.43 |
| SG33-45 | 19.32 | 89.20 | 134.57 | 168.85 | 192.94 | 206.83 | 228.57 | 246.41 | 264.96 | 281.41 | 295.60 |
| SG33-T | 16.10 | 121.35 | 212.56 | 307.88 | 405.24 | 494.85 | 576.34 | 658.72 | 739.27 | 821.11 | 899.36 |
| SG34-T | -28.70 | 9.22 | 57.61 | 107.11 | 153.09 | 197.17 | 245.78 | 290.41 | 339.02 | 382.17 | 429.82 |
| SG34-45 | 52.07 | 101.26 | 168.05 | 226.32 | 284.25 | 344.69 | 400.17 | 454.44 | 511.27 | 562.59 | 617.64 |
| SG34-L | 31.42 | 113.92 | 188.56 | 267.32 | 348.35 | 428.70 | 504.66 | 583.90 | 659.49 | 738.56 | 814.63 |
| SG35-T | 14.21 | 76.46 | 131.18 | 172.51 | 211.50 | 249.06 | 295.69 | 339.60 | 382.46 | 422.70 | 469.71 |
| SG35-45 | 19.05 | 83.61 | 155.89 | 210.39 | 264.59 | 322.06 | 377.06 | 430.53 | 483.68 | 533.91 | 589.75 |
| SG35-L | 37.88 | 123.93 | 201.11 | 279.96 | 361.12 | 441.05 | 516.58 | 594.65 | 669.24 | 747.14 | 822.41 |
| SG36-T | -0.87 | 62.38 | 116.81 | 158.72 | 190.69 | 218.59 | 251.56 | 280.39 | 308.39 | 330.71 | 359.31 |
| SG36-45 | -8.98 | 57.39 | 110.78 | 146.91 | 174.83 | 206.23 | 231.54 | 253.32 | 278.08 | 296.34 | 319.43 |
| SG36-L | 47.49 | 146.82 | 253.17 | 361.79 | 470.08 | 570.58 | 663.17 | 756.65 | 848.26 | 939.90 | 1026.81 |
| SG37-L | 61.90 | 148.71 | 217.98 | 287.98 | 365.76 | 440.16 | 515.61 | 594.84 | 668.81 | 746.96 | 823.39 |
| SG37-45 | -7.23 | 31.57 | 52.31 | 51.35 | 49.20 | 54.24 | 61.26 | 66.78 | 71.85 | 75.04 | 85.54 |
| SG37-T | 28.02 | 51.74 | 76.62 | 84.78 | 90.75 | 98.20 | 117.36 | 135.58 | 148.74 | 164.40 | 185.84 |
| SG38-T | -32.97 | 33.44 | 98.86 | 160.66 | 214.15 | 264.68 | 318.00 | 367.49 | 418.23 | 463.55 | 512.49 |
| SG38-45 | -55.30 | 32.24 | 103.55 | 173.14 | 244.71 | 317.97 | 388.20 | 456.72 | 528.16 | 595.02 | 666.18 |
| SG38-L | 21.84 | 115.28 | 194.22 | 274.87 | 361.85 | 441.99 | 519.75 | 598.55 | 678.49 | 758.01 | 834.57 |
| SG39-T | -3.78 | 86.78 | 167.62 | 232.94 | 288.38 | 336.01 | 389.79 | 438.12 | 484.64 | 526.43 | 572.80 |
| SG39-45 | 14.80 | 119.87 | 210.34 | 289.17 | 367.48 | 443.45 | 515.16 | 583.09 | 654.15 | 717.50 | 786.95 |
| SG39-L | 32.47 | 125.29 | 203.86 | 287.05 | 371.57 | 455.19 | 530.57 | 607.56 | 684.84 | 762.09 | 836.88 |
| SG40-T | 17.43 | 45.56 | 73.32 | 93.76 | 116.96 | 137.05 | 170.27 | 201.52 | 229.28 | 258.44 | 291.92 |
| SG40-45 | 2.55 | 48.96 | 95.00 | 134.62 | 184.51 | 236.75 | 290.80 | 343.81 | 398.80 | 450.59 | 509.14 |
| SG40-L | 26.57 | 77.54 | 127.79 | 183.11 | 247.61 | 313.19 | 379.10 | 447.47 | 513.41 | 582.53 | 650.79 |

TABLE E-43. CVP4, WATER 1, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.09 | 0.92 | 1.72 | 2.64 | 3.57 | 4.41 | 5.24 | 6.13 | 7.06 | 7.90 | 8.79 |
| Frame-1 | -241.93 | 176.22 | 347.09 | 559.63 | 725.83 | 919.45 | 1093.92 | 1276.21 | 1453.15 | 1631.14 | 1817.46 |
| Frame-2 | -299.13 | 203.60 | 381.14 | 549.89 | 727.94 | 922.98 | 1100.63 | 1253.06 | 1448.79 | 1633.42 | 1835.06 |
| Frame-3 | -112.15 | 191.65 | 416.70 | 559.05 | 724.28 | 913.33 | 1088.66 | 1252.71 | 1459.43 | 1646.78 | 1801.08 |
| Frame-4 | -206.42 | 178.88 | 324.60 | 544.19 | 722.99 | 899.81 | 1095.58 | 1269.72 | 1454.00 | 1629.11 | 1824.48 |
| Frame-5 | -167.32 | 175.30 | 438.56 | 561.84 | 725.39 | 916.27 | 1093.33 | 1266.01 | 1459.19 | 1627.66 | 1818.13 |
| Frame-6 | -219.23 | 171.23 | 287.18 | 552.02 | 717.21 | 912.94 | 1073.02 | 1264.29 | 1460.36 | 1623.84 | 1827.54 |
| Frame-7 | -167.70 | 187.61 | 385.03 | 551.14 | 739.83 | 885.45 | 1082.59 | 1268.44 | 1464.97 | 1609.87 | 1833.79 |
| Frame-8 | -326.80 | 164.19 | 394.12 | 561.76 | 717.53 | 869.86 | 1099.51 | 1252.44 | 1438.43 | 1636.52 | 1820.61 |
| Frame-9 | -217.40 | 195.31 | 383.09 | 558.61 | 729.11 | 941.28 | 1078.26 | 1270.21 | 1459.11 | 1651.36 | 1829.54 |
| Frame-10 | -34.90 | 177.29 | 388.35 | 575.00 | 713.61 | 915.94 | 1088.83 | 1262.49 | 1465.77 | 1639.83 | 1818.82 |
| Frame-11 | -214.86 | 169.97 | 378.35 | 562.40 | 711.04 | 902.26 | 1096.73 | 1268.09 | 1454.91 | 1655.59 | 1832.17 |
| Frame-12 | -110.53 | 148.35 | 355.78 | 533.59 | 715.05 | 887.80 | 1077.68 | 1289.11 | 1445.59 | 1636.63 | 1799.82 |
| Hoop-1 | -39.85 | 826.29 | 1526.92 | 2342.27 | 3099.21 | 3925.29 | 4634.72 | 5434.66 | 6180.04 | 6956.15 | 7739.62 |
| Hoop-2 | -71.11 | 796.19 | 1529.78 | 2311.04 | 3098.14 | 3850.18 | 4632.17 | 5414.54 | 6219.22 | 6949.27 | 7722.68 |
| Hoop-3 | -27.48 | 821.84 | 1541.31 | 2319.37 | 3097.81 | 3861.53 | 4643.78 | 5482.57 | 6200.90 | 6939.74 | 7734.74 |
| Hoop-4 | 322.57 | 804.20 | 1554.44 | 2318.34 | 3169.76 | 3849.99 | 4623.92 | 5426.02 | 6187.99 | 6954.97 | 7736.78 |
| Hoop-5 | -54.08 | 787.84 | 1604.24 | 2315.65 | 3100.38 | 3893.49 | 4605.63 | 5631.61 | 6257.29 | 6957.14 | 7722.60 |
| Hoop-6 | -65.17 | 785.64 | 1582.80 | 2347.39 | 3101.31 | 3845.22 | 4612.41 | 5492.81 | 6181.47 | 6954.67 | 7737.12 |
| Hoop-7 | 1.86 | 866.50 | 1656.19 | 2302.16 | 3111.27 | 3974.48 | 4674.20 | 5434.64 | 6223.13 | 6976.34 | 7735.03 |
| Hoop-8 | -47.14 | 738.98 | 1532.46 | 2355.33 | 3104.72 | 4067.18 | 4809.71 | 5396.99 | 6234.55 | 6961.90 | 7741.46 |
| Hoop-9 | -38.32 | 743.94 | 1616.95 | 2335.69 | 3105.25 | 3912.93 | 4643.02 | 5397.60 | 6187.12 | 6951.24 | 7732.46 |
| Hoop-10 | 3.50 | 766.00 | 1606.19 | 2321.71 | 3091.44 | 3893.69 | 4656.65 | 5415.07 | 6166.73 | 6947.30 | 7728.64 |
| Hoop-11 | 15.32 | 1094.56 | 1555.77 | 2317.70 | 3151.57 | 3861.84 | 4633.45 | 5402.29 | 6171.59 | 6957.50 | 7723.89 |
| Hoop-12 | -32.92 | 786.01 | 1536.38 | 2323.81 | 3101.98 | 3880.15 | 4643.96 | 5436.48 | 6170.18 | 6948.35 | 7764.35 |
| Hoop-13 | -21.70 | 816.85 | 1603.46 | 2308.45 | 3102.48 | 3889.09 | 4705.85 | 5477.15 | 6196.98 | 6946.48 | 7726.45 |
| Hoop-14 | -79.44 | 779.05 | 1541.34 | 2333.23 | 3088.11 | 3894.80 | 4664.96 | 5337.97 | 6055.85 | 6551.71 | 7188.90 |
| Long-1 | -45.64 | 12.02 | -7.20 | 8.42 | -2.39 | -3.60 | 3.61 | 22.84 | 78.10 | 120.15 | 169.40 |
| Long-2 | -42.81 | 151.90 | 24.96 | -42.82 | -24.33 | -40.36 | 16.34 | 55.77 | 128.49 | 182.71 | 234.45 |
| Long-3 | -21.02 | -16.13 | 13.24 | 18.13 | 1.00 | 8.34 | 51.17 | 95.22 | 161.30 | 209.02 | 256.72 |
| Long-4 | 318.30 | -6.79 | -15.18 | 70.00 | 95.20 | -3.19 | 0.41 | -12.78 | 41.20 | 80.79 | 132.37 |
| Long-5 | 402.24 | 394.93 | 328.78 | 263.88 | 227.13 | 179.35 | 201.38 | 212.41 | 235.68 | 243.03 | 247.91 |
| Long-6 | -4.11 | 53.02 | 27.49 | 38.44 | 27.49 | 4.40 | 3.18 | 25.06 | 65.17 | 74.90 | 85.83 |
| Long-7 | 60.41 | 126.91 | 105.54 | 110.30 | 111.49 | 112.67 | 112.66 | 120.97 | 144.72 | 155.41 | 156.58 |
| Long-8 | 56.02 | 58.51 | 48.56 | 52.30 | 48.57 | 47.32 | 47.32 | 53.54 | 52.29 | 54.78 | 53.53 |
| SG1 | 296.32 | 176.86 | 161.54 | 208.15 | 254.46 | 345.69 | 430.49 | 521.56 | 546.14 | 590.02 | 670.59 |
| SG2 | 353.70 | 193.49 | 186.09 | 234.35 | 289.53 | 405.48 | 513.89 | 616.21 | 636.93 | 682.10 | 782.04 |
| SG3 | 16.45 | -16.23 | -60.16 | 59.63 | 136.26 | 264.16 | 392.64 | 513.54 | 578.02 | 606.08 | 694.32 |
| SG4 | 178.01 | 60.65 | 60.60 | 117.67 | 183.54 | 288.98 | 401.26 | 504.83 | 547.55 | 583.59 | 677.63 |
| SG5 | 278.93 | 128.50 | 136.63 | 179.52 | 234.86 | 348.43 | 457.69 | 550.98 | 571.48 | 613.16 | 709.87 |
| SG6 | -13.58 | 24.66 | 62.44 | 104.63 | 149.25 | 193.83 | 239.54 | 284.13 | 326.55 | 367.10 | 397.33 |
| SG7 | 167.44 | 29.28 | 29.23 | 49.34 | 85.67 | 191.17 | 284.07 | 359.20 | 367.15 | 411.72 | 897.15 |
| SG8 | 145.49 | 43.09 | 60.62 | 92.50 | 140.15 | 226.70 | 315.24 | 383.07 | 406.45 | 439.81 | 506.36 |
| SG9 | -28.55 | 5.00 | 44.74 | 87.28 | 134.66 | 182.73 | 232.21 | 279.05 | 323.57 | 365.11 | 407.30 |
| SG10 | -35.02 | -37.88 | -51.67 | -62.78 | -74.97 | -81.61 | -87.14 | -101.63 | -116.03 | -135.91 | -150.26 |
| SG11 | 20.53 | 19.52 | 15.68 | 5.16 | -4.72 | -10.81 | -17.00 | -28.77 | -34.95 | -43.03 | -50.92 |

TABLE E-43. CVP4, WATER 1, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 37.75 | 38.58 | 33.92 | 29.76 | 23.13 | 22.71 | 20.45 | 13.16 | 12.38 | 6.93 | 0.24 |
| SG13 | 56.76 | 55.94 | 55.42 | 56.20 | 55.24 | 62.24 | 71.31 | 70.85 | 74.54 | 73.53 | 78.23 |
| SG14 | 25.66 | 30.13 | 20.03 | 68.54 | 497.53 | 483.20 | 366.67 | 512.04 | 15.98 | 60.59 | 272.47 |
| SG15 | 28.07 | 44.29 | 46.04 | 43.77 | 41.52 | 37.51 | 34.19 | 27.28 | 27.74 | 25.49 | 20.65 |
| SG16 | 31.83 | 32.75 | 27.22 | 21.87 | 14.04 | 10.73 | 5.93 | -4.06 | -7.56 | -15.58 | -25.72 |
| SG17 | -83.21 | -78.44 | -83.12 | -89.86 | -98.70 | -98.64 | -100.07 | -104.16 | -105.45 | -110.19 | -114.78 |
| SG18 | 2908.85 | 2688.62 | 2077.78 | 1749.89 | 1613.79 | 1178.91 | 859.32 | 786.86 | 648.28 | 630.07 | 602.30 |
| SG19 | 40.27 | 16.59 | -8.02 | -43.35 | -81.47 | -113.09 | -145.65 | -185.75 | -216.07 | -247.80 | -286.79 |
| SG20 | -23.78 | -15.46 | -15.83 | -16.94 | -20.45 | -17.13 | -15.65 | -19.53 | -15.83 | -18.42 | -22.12 |
| SG21 | -52.59 | -49.65 | -58.49 | -71.00 | -88.89 | -99.19 | -113.56 | -136.22 | -146.74 | -164.05 | -176.95 |
| SG22 | 548.97 | 722.87 | 419.54 | 246.26 | 235.61 | 253.35 | 206.34 | 189.59 | 275.37 | 271.10 | 224.36 |
| SG23 | -32.90 | -53.58 | -79.13 | -110.02 | -144.68 | -177.84 | -211.83 | -249.84 | -277.50 | -310.35 | -343.24 |
| SG24 | 18.94 | 18.58 | 12.86 | 10.64 | 5.85 | 6.58 | 5.48 | -2.64 | -2.09 | -7.62 | -8.91 |
| SG25 | 4.82 | 5.06 | 0.34 | -11.13 | -29.23 | -39.86 | -53.60 | -74.19 | -82.29 | -97.60 | -110.33 |
| SG26 | -113.66 | -127.53 | -132.23 | -134.47 | -137.08 | -132.77 | -127.83 | -130.09 | -127.84 | -129.32 | -139.39 |
| SG27 | 10.25 | 10.62 | 7.34 | 2.86 | -4.77 | -8.37 | -13.32 | -22.61 | -24.83 | -31.62 | -35.64 |
| SG28 | 44.43 | 56.28 | 60.72 | 60.71 | 57.76 | 54.05 | 51.83 | 50.35 | 51.84 | 52.58 | 43.69 |
| SG29 | -13.21 | -15.43 | -17.69 | -22.35 | -29.79 | -34.49 | -40.27 | -48.99 | -53.15 | -59.99 | -66.64 |
| SG30 | -151.68 | -150.03 | -148.91 | -154.19 | -159.57 | -164.22 | -169.11 | -170.68 | -173.80 | -176.89 | -182.61 |
| SG31 | -74.80 | -82.61 | -81.08 | -95.92 | -116.61 | -128.37 | -141.66 | -158.92 | -181.78 | -197.42 | -217.36 |
| SG32-T | -58.51 | 89.38 | 190.86 | 292.80 | 391.51 | 471.17 | 549.01 | 629.82 | 710.14 | 784.08 | 858.58 |
| SG32-45 | -17.80 | 80.99 | 134.62 | 194.48 | 250.53 | 294.76 | 341.28 | 385.49 | 431.08 | 467.63 | 506.87 |
| SG32-L | 9.02 | 35.54 | 44.04 | 54.87 | 59.02 | 69.94 | 78.13 | 79.94 | 84.55 | 82.32 | 77.90 |
| SG33-T | -45.48 | 83.18 | 187.17 | 292.71 | 395.23 | 476.60 | 556.84 | 641.33 | 723.83 | 799.75 | 868.64 |
| SG33-45 | 11.84 | 82.09 | 136.94 | 196.31 | 251.96 | 297.96 | 344.18 | 389.33 | 429.88 | 465.37 | 486.36 |
| SG33-T | 41.59 | 34.85 | 43.17 | 52.65 | 55.97 | 65.82 | 71.64 | 69.73 | 69.88 | 64.29 | 66.67 |
| SG34-T | -23.21 | 46.68 | 114.28 | 192.08 | 272.33 | 342.78 | 414.00 | 489.83 | 567.53 | 639.79 | 703.20 |
| SG34-45 | 50.02 | 74.34 | 97.35 | 135.18 | 170.28 | 205.33 | 233.72 | 263.97 | 302.78 | 336.00 | 382.76 |
| SG34-L | 10.47 | 6.19 | -3.21 | -13.26 | -27.60 | -34.58 | -43.28 | -57.29 | -63.16 | -74.15 | -59.72 |
| SG35-T | -33.87 | 80.45 | 151.29 | 225.53 | 300.75 | 364.99 | 430.15 | 500.80 | 577.47 | 648.78 | 718.69 |
| SG35-45 | 3.72 | 50.79 | 75.69 | 112.05 | 144.37 | 176.04 | 201.63 | 229.32 | 268.10 | 301.13 | 356.38 |
| SG35-L | 14.19 | 12.75 | 4.96 | -4.22 | -18.21 | -24.74 | -33.50 | -47.72 | -53.88 | -64.84 | -50.76 |
| SG36-T | -27.88 | 81.57 | 170.46 | 264.67 | 355.86 | 431.35 | 504.97 | 582.36 | 659.17 | 730.19 | 793.57 |
| SG36-45 | -4.57 | 28.73 | 70.29 | 114.38 | 155.45 | 192.16 | 224.52 | 253.73 | 291.88 | 322.20 | 342.45 |
| SG36-L | 44.23 | 28.49 | 28.25 | 30.85 | 26.76 | 31.04 | 32.72 | 25.59 | 25.69 | 19.22 | 24.11 |
| SG37-T | -35.15 | 30.04 | 69.24 | 109.60 | 153.36 | 189.00 | 227.83 | 273.11 | 326.91 | 375.74 | 421.30 |
| SG37-45 | -26.92 | -0.07 | 19.03 | 38.85 | 73.15 | 87.97 | 98.26 | 108.91 | 149.68 | 171.12 | 187.05 |
| SG37-L | 327.33 | 350.89 | 265.78 | 112.51 | 66.30 | 32.50 | -0.94 | -37.40 | -49.60 | -67.86 | -83.22 |
| SG38-T | -62.43 | 56.61 | 143.63 | 235.58 | 325.53 | 403.24 | 480.11 | 561.40 | 642.84 | 718.41 | 796.03 |
| SG38-45 | -75.11 | -17.00 | 29.58 | 72.29 | 113.03 | 145.37 | 178.38 | 211.05 | 250.68 | 282.71 | 316.88 |
| SG38-L | 12.94 | 8.61 | -1.32 | -10.03 | -21.16 | -29.59 | -37.51 | -53.03 | -58.48 | -70.18 | -78.56 |
| SG39-T | -39.28 | 105.05 | 203.12 | 304.21 | 399.92 | 480.32 | 557.22 | 636.91 | 716.72 | 788.93 | 860.39 |
| SG39-45 | -21.41 | 67.56 | 129.05 | 189.53 | 245.30 | 290.40 | 331.62 | 368.94 | 420.39 | 460.46 | 496.71 |
| SG39-L | 6.70 | 29.41 | 38.36 | 47.17 | 49.97 | 55.30 | 57.62 | 54.14 | 56.70 | 52.99 | 58.93 |
| SG40-T | -13.43 | 27.29 | 62.72 | 98.71 | 138.16 | 173.78 | 211.93 | 257.40 | 306.34 | 353.28 | 400.54 |
| SG40-45 | -20.28 | -16.26 | -7.50 | 0.72 | 11.69 | 20.09 | 29.04 | 38.18 | 64.30 | 82.39 | 97.36 |
| SG40-L | -2.48 | -35.00 | -52.72 | -77.20 | -100.77 | -117.94 | -135.10 | -154.83 | -163.79 | -175.48 | -195.37 |

TABLE E-44. CVP4, WATER 1, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.13 | 0.07 | -0.02 | 0.00 | 0.00 | -0.02 | 0.00 | -0.01 | -0.01 | 0.00 | 0.00 |
| Frame-1 | -35.28 | -168.19 | -159.99 | 2.54 | -24.37 | -118.90 | -156.69 | 94.99 | -30.33 | -150.86 | -90.51 |
| Frame-2 | 51.51 | 146.37 | -245.08 | 108.44 | 69.39 | -169.27 | 170.04 | 148.67 | -183.31 | 563.36 | 65.87 |
| Frame-3 | 0.27 | -118.71 | 128.13 | 115.11 | -14.39 | -93.89 | 69.56 | 51.90 | -195.29 | 1.50 | 52.49 |
| Frame-4 | -7.12 | -16.36 | -63.25 | -150.44 | -27.13 | -72.52 | 107.21 | -146.71 | 315.21 | 156.07 | -92.68 |
| Frame-5 | -5.78 | -106.48 | -8.49 | -2.58 | 51.81 | 4.66 | 58.58 | -36.81 | -76.58 | 2.24 | 108.71 |
| Frame-6 | 63.11 | -137.73 | 64.25 | -9.81 | 128.65 | 14.36 | -54.87 | 41.44 | -86.00 | -96.76 | -58.18 |
| Frame-7 | -147.76 | 149.78 | 90.72 | -60.14 | 64.79 | -166.42 | -95.57 | 83.11 | 29.62 | -13.85 | 111.26 |
| Frame-8 | 87.33 | 110.99 | 108.77 | 118.10 | -233.89 | -53.53 | -36.09 | -134.67 | 83.87 | -111.07 | 48.39 |
| Frame-9 | 138.24 | -64.71 | -238.14 | 55.74 | 100.26 | 63.19 | -182.53 | 78.67 | -167.40 | 263.12 | 150.81 |
| Frame-10 | -243.99 | 163.64 | 135.60 | 113.94 | 51.15 | 143.73 | 143.95 | -230.15 | -183.74 | -299.52 | 28.72 |
| Frame-11 | 123.85 | -206.38 | 207.99 | 157.87 | -86.58 | 19.69 | -196.74 | 131.10 | 109.02 | -104.63 | 119.82 |
| Frame-12 | -403.39 | 75.18 | -210.75 | -45.71 | -148.56 | -181.83 | 122.80 | 79.09 | 103.22 | 102.81 | -51.75 |
| Hoop-1 | -23.30 | 68.66 | -32.49 | 13.48 | 92.57 | 81.53 | 77.85 | -30.66 | 7.97 | 22.68 | -6.75 |
| Hoop-2 | -6.06 | -9.68 | 30.07 | 21.04 | -9.68 | 19.24 | -16.90 | -18.71 | 6.59 | -4.25 | 22.85 |
| Hoop-3 | 28.68 | -6.42 | 62.01 | 0.60 | -20.46 | -2.91 | -2.91 | 28.68 | 12.89 | -38.01 | 2.35 |
| Hoop-4 | -34.96 | -73.87 | -7.16 | -42.36 | 2.10 | -14.57 | -51.63 | -29.40 | -60.90 | 39.15 | 100.29 |
| Hoop-5 | 162.81 | 80.79 | 46.14 | 66.19 | -13.99 | -50.44 | 13.34 | -34.04 | 9.70 | -43.15 | 2.41 |
| Hoop-6 | 16.22 | 5.12 | -13.38 | -55.92 | 203.06 | -57.78 | -26.33 | -33.73 | -65.18 | 378.77 | -52.23 |
| Hoop-7 | 16.48 | 202.98 | 5.51 | 40.24 | 299.88 | 237.69 | 21.97 | 87.79 | 23.80 | 345.55 | 25.62 |
| Hoop-8 | -10.41 | -3.06 | -10.41 | 4.28 | 11.63 | 41.02 | 18.98 | 11.63 | 4.28 | 4.28 | 4.28 |
| Hoop-9 | 86.90 | 57.87 | 27.01 | -5.66 | -47.40 | 50.61 | -29.25 | -23.81 | -14.73 | 34.28 | 43.34 |
| Hoop-10 | -23.60 | -7.34 | 7.11 | -25.41 | 14.34 | -7.34 | -12.76 | 7.11 | -12.76 | 16.15 | -25.40 |
| Hoop-11 | -14.20 | -3.13 | -27.11 | 20.85 | -6.82 | 0.56 | 26.39 | -12.35 | -19.73 | 72.52 | 19.01 |
| Hoop-12 | -49.59 | -3.28 | 59.71 | -34.78 | -53.30 | -3.28 | 59.72 | -55.16 | -23.66 | 7.84 | 52.29 |
| Hoop-13 | -6.86 | 0.56 | -21.70 | 67.35 | 22.82 | 0.56 | 15.40 | 37.66 | -14.28 | 15.40 | -6.86 |
| Hoop-14 | 275.76 | 105.58 | 68.56 | -12.84 | -20.24 | 75.97 | -20.24 | -35.05 | 9.36 | -35.05 | -35.04 |
| Long-1 | 56.48 | 1278.61 | 2471.15 | 3645.95 | 4930.29 | 6023.50 | 7090.29 | 8117.43 | 9395.13 | 10568.0 | 11768.2 |
| Long-2 | 11.41 | 1195.98 | 2436.53 | 3650.19 | 4816.06 | 6117.34 | 7313.89 | 8419.24 | 9384.76 | 10439.9 | 11793.1 |
| Long-3 | -8.79 | 1240.82 | 2413.82 | 3667.82 | 4933.08 | 6152.95 | 7317.76 | 8565.77 | 9810.85 | 10900.1 | 11934.1 |
| Long-4 | 140.78 | 1211.16 | 2437.97 | 3672.25 | 4844.34 | 6093.11 | 7391.06 | 8588.25 | 9802.99 | 10987.3 | 12377.7 |
| Long-5 | 718.32 | 1708.44 | 2402.42 | 3661.44 | 4906.01 | 6134.53 | 7338.56 | 8549.93 | 9823.29 | 11129.3 | 12286.9 |
| Long-6 | 110.15 | 1232.32 | 2466.80 | 3673.58 | 4942.58 | 6125.16 | 7353.93 | 8582.71 | 9801.28 | 10963.5 | 12340.7 |
| Long-7 | 105.54 | 958.28 | 2431.41 | 3668.47 | 4891.45 | 6146.41 | 7337.25 | 8570.83 | 9750.56 | 10799.2 | 12018.7 |
| Long-8 | 17.48 | 1178.85 | 2433.98 | 3704.26 | 4857.94 | 6144.51 | 7356.49 | 8614.46 | 9797.33 | 11030.8 | 12357.3 |
| SG1 | 20.31 | 71.39 | 108.79 | 67.33 | 60.69 | 11.46 | -16.74 | -53.81 | -91.60 | -90.14 | -142.65 |
| SG2 | -12.04 | 35.08 | 79.82 | 9.95 | -26.09 | -88.36 | -140.81 | -198.29 | -262.76 | -273.47 | -354.41 |
| SG3 | -280.23 | -149.79 | -24.16 | 26.42 | 69.98 | 146.94 | 178.87 | 204.95 | 246.10 | 258.52 | 312.34 |
| SG4 | -88.04 | -14.23 | 50.08 | 55.02 | 70.18 | 73.58 | 81.50 | 91.30 | 85.99 | 93.20 | 99.66 |
| SG5 | -57.65 | -20.58 | 26.61 | -45.54 | -91.54 | -142.82 | -195.40 | -251.36 | -315.76 | -333.19 | -407.64 |
| SG6 | -8.88 | -20.27 | -29.66 | -44.92 | -61.08 | -74.25 | -87.57 | -101.14 | -115.92 | -127.24 | -141.76 |
| SG7 | -90.00 | -52.30 | -16.02 | -73.80 | -92.63 | -140.35 | -199.59 | -240.81 | -299.35 | -282.28 | -367.08 |
| SG8 | -76.52 | -57.02 | -15.45 | -70.27 | -111.27 | -137.76 | -170.75 | -207.95 | -252.99 | -269.43 | -311.45 |
| SG9 | -25.55 | -35.98 | -40.87 | -58.60 | -77.10 | -88.95 | -103.21 | -118.11 | -135.08 | -148.31 | -162.16 |
| SG10 | -41.43 | 7.93 | 55.53 | 89.49 | 122.33 | 158.66 | 187.81 | 219.24 | 251.70 | 289.77 | 324.19 |
| SG11 | 22.88 | 63.55 | 105.54 | 152.82 | 198.92 | 248.37 | 292.86 | 335.97 | 379.88 | 419.85 | 466.99 |

TABLE E-44. CVP4, WATER 1, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 30.87 | 93.89 | 168.69 | 242.95 | 316.41 | 387.78 | 457.89 | 530.55 | 603.25 | 673.88 | 751.77 |
| SG13 | 52.61 | 162.82 | 274.39 | 377.00 | 487.61 | 591.20 | 693.65 | 793.01 | 893.36 | 987.92 | 1093.94 |
| SG14 | 50.72 | 152.33 | 257.72 | 379.20 | 499.83 | 618.60 | 728.53 | 840.88 | 949.46 | 1051.32 | 1161.13 |
| SG15 | 49.67 | 93.60 | 135.18 | 183.60 | 231.08 | 282.25 | 328.09 | 372.57 | 419.35 | 460.74 | 512.39 |
| SG16 | 29.48 | 93.38 | 163.93 | 240.03 | 317.86 | 395.58 | 470.94 | 547.52 | 623.07 | 693.52 | 770.75 |
| SG17 | -75.99 | 18.16 | 106.55 | 199.62 | 292.42 | 384.41 | 472.53 | 562.89 | 648.40 | 733.83 | 824.17 |
| SG18 | 25.02 | 82.58 | 138.51 | 200.56 | 263.20 | 324.81 | 384.48 | 446.39 | 504.65 | 563.43 | 624.67 |
| SG19 | 53.59 | 146.10 | 232.27 | 321.13 | 411.56 | 497.71 | 580.03 | 664.39 | 744.62 | 821.20 | 904.20 |
| SG20 | 4.50 | 94.90 | 180.08 | 270.33 | 358.66 | 440.68 | 519.05 | 600.37 | 676.47 | 750.93 | 827.97 |
| SG21 | -12.80 | 78.40 | 147.09 | 211.60 | 267.40 | 313.05 | 353.94 | 399.74 | 437.29 | 473.68 | 514.06 |
| SG22 | 37.67 | 130.79 | 216.28 | 290.02 | 371.02 | 446.22 | 520.35 | 594.07 | 665.50 | 734.66 | 808.72 |
| SG23 | -19.06 | 74.50 | 168.90 | 265.54 | 359.61 | 453.49 | 541.68 | 630.61 | 716.72 | 795.68 | 891.02 |
| SG24 | 33.70 | 123.18 | 219.45 | 313.95 | 409.48 | 500.93 | 588.73 | 678.77 | 763.20 | 843.07 | 936.72 |
| SG25 | 44.51 | 148.33 | 248.77 | 366.98 | 487.03 | 601.13 | 709.00 | 819.52 | 925.66 | 1026.35 | 1130.40 |
| SG26 | -131.57 | -26.97 | 81.27 | 181.60 | 288.54 | 390.47 | 490.58 | 590.50 | 687.44 | 783.85 | 883.73 |
| SG27 | 38.48 | 105.82 | 171.74 | 246.45 | 323.09 | 394.12 | 461.21 | 530.13 | 595.33 | 660.16 | 728.91 |
| SG28 | 39.25 | 77.74 | 116.94 | 164.33 | 210.94 | 259.76 | 306.38 | 354.58 | 404.13 | 447.15 | 498.08 |
| SG29 | -4.30 | 45.90 | 91.36 | 143.70 | 199.09 | 252.44 | 304.70 | 357.63 | 410.42 | 462.23 | 514.54 |
| SG30 | -137.67 | -104.12 | -70.67 | -33.14 | 5.83 | 43.68 | 80.02 | 117.31 | 155.58 | 191.22 | 230.50 |
| SG31 | -79.36 | -44.16 | -13.38 | 15.00 | 46.70 | 81.07 | 112.40 | 141.28 | 178.60 | 210.54 | 243.79 |
| SG32-T | 16.41 | -13.83 | -50.28 | -72.54 | -99.33 | -124.49 | -146.17 | -170.56 | -192.98 | -214.99 | -237.96 |
| SG32-45 | 41.60 | 76.29 | 103.20 | 142.14 | 188.19 | 222.44 | 261.62 | 294.35 | 332.59 | 369.16 | 408.15 |
| SG32-L | 29.81 | 111.58 | 194.23 | 283.89 | 375.11 | 460.26 | 543.12 | 627.94 | 709.88 | 789.19 | 876.01 |
| SG33-T | 4.03 | -54.09 | -124.86 | -184.65 | -247.69 | -308.06 | -362.64 | -419.62 | -472.16 | -524.39 | -576.02 |
| SG33-45 | 44.03 | 52.72 | 35.90 | 21.78 | 5.52 | -28.48 | -55.32 | -87.35 | -118.97 | -143.71 | -177.07 |
| SG33-T | 28.93 | 112.58 | 198.10 | 292.06 | 386.18 | 471.91 | 556.57 | 641.97 | 722.67 | 802.29 | 886.52 |
| SG34-T | 0.80 | -34.33 | -72.23 | -109.10 | -146.72 | -183.87 | -215.64 | -249.26 | -283.85 | -315.73 | -347.51 |
| SG34-45 | 40.00 | 65.98 | 88.98 | 115.90 | 138.72 | 159.67 | 183.05 | 209.46 | 229.29 | 249.01 | 273.06 |
| SG34-L | 26.58 | 119.11 | 208.82 | 305.49 | 402.08 | 492.88 | 579.63 | 668.25 | 753.64 | 837.22 | 922.98 |
| SG35-T | 29.57 | -4.83 | -38.47 | -56.96 | -80.32 | -100.37 | -121.73 | -144.85 | -163.18 | -184.63 | -207.05 |
| SG35-45 | 25.00 | 52.14 | 78.74 | 116.02 | 145.37 | 175.18 | 202.82 | 234.48 | 261.55 | 285.72 | 313.69 |
| SG35-L | 29.90 | 123.06 | 212.17 | 308.49 | 404.31 | 494.89 | 580.67 | 668.69 | 754.05 | 836.27 | 921.06 |
| SG36-T | 11.33 | -27.65 | -74.58 | -119.44 | -169.58 | -217.66 | -262.83 | -310.13 | -356.58 | -403.32 | -448.46 |
| SG36-45 | 5.32 | 25.80 | 49.57 | 61.61 | 57.19 | 53.42 | 46.23 | 42.20 | 30.82 | 12.80 | 8.99 |
| SG36-L | 42.83 | 145.67 | 252.19 | 369.43 | 485.26 | 590.08 | 690.30 | 792.43 | 890.35 | 986.12 | 1082.13 |
| SG37-T | 23.94 | -2.32 | -36.93 | -58.89 | -88.96 | -116.49 | -145.55 | -174.80 | -202.19 | -231.72 | -262.22 |
| SG37-45 | -0.43 | 1.63 | 5.99 | 10.77 | 0.39 | -3.23 | -11.72 | -15.95 | -25.77 | -45.25 | -48.63 |
| SG37-L | 51.25 | 124.83 | 200.70 | 301.78 | 404.39 | 501.89 | 594.93 | 691.63 | 786.59 | 877.08 | 971.20 |
| SG38-T | -5.05 | -44.23 | -84.42 | -117.85 | -154.69 | -191.66 | -224.09 | -258.41 | -292.21 | -320.34 | -359.00 |
| SG38-45 | -36.43 | -21.46 | 11.78 | 46.41 | 69.84 | 110.13 | 146.19 | 182.92 | 214.10 | 236.69 | 281.76 |
| SG38-L | 26.22 | 117.68 | 212.30 | 309.81 | 407.94 | 502.13 | 592.03 | 684.75 | 771.99 | 853.98 | 951.69 |
| SG39-T | 25.62 | -7.08 | -42.95 | -66.31 | -94.59 | -121.23 | -144.82 | -169.71 | -192.96 | -218.12 | -240.43 |
| SG39-45 | 26.32 | 44.31 | 71.26 | 106.74 | 136.05 | 174.66 | 210.35 | 251.09 | 286.15 | 310.48 | 360.07 |
| SG39-L | 22.90 | 106.14 | 182.33 | 269.73 | 360.78 | 445.63 | 528.06 | 613.32 | 696.26 | 778.17 | 862.69 |
| SG40-T | 13.41 | -7.41 | -26.94 | -38.64 | -53.83 | -66.43 | -81.22 | -96.70 | -110.65 | -129.40 | -146.66 |
| SG40-45 | -1.83 | 17.54 | 49.68 | 86.24 | 119.09 | 162.38 | 198.92 | 241.30 | 279.35 | 304.71 | 354.59 |
| SG40-L | 4.83 | 77.19 | 147.31 | 230.12 | 315.36 | 397.37 | 476.10 | 558.48 | 639.89 | 718.75 | 800.77 |

TABLE E-45. CVP4, WATER 1, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.03 | 0.90 | 1.79 | 2.64 | 3.51 | 4.44 | 5.27 | 6.18 | 7.07 | 7.92 | 8.80 |
| Frame-1 | -21.10 | 177.71 | 372.70 | 538.94 | 722.31 | 880.02 | 1093.52 | 1260.61 | 1450.21 | 1632.82 | 1810.33 |
| Frame-2 | -28.13 | 198.15 | 418.88 | 548.34 | 736.60 | 906.17 | 1093.27 | 1286.12 | 1471.92 | 1662.90 | 1805.35 |
| Frame-3 | -373.18 | 196.60 | 357.73 | 540.35 | 741.53 | 882.94 | 1088.21 | 1269.80 | 1458.23 | 1636.38 | 1812.92 |
| Frame-4 | -137.62 | 195.91 | 327.47 | 540.92 | 731.66 | 910.67 | 1102.04 | 1271.42 | 1454.52 | 1618.68 | 1808.79 |
| Frame-5 | -346.89 | 176.81 | 343.11 | 546.50 | 730.61 | 890.91 | 1087.73 | 1269.44 | 1423.49 | 1629.30 | 1816.23 |
| Frame-6 | -17.47 | 186.35 | 311.92 | 540.32 | 724.21 | 915.08 | 1079.33 | 1281.12 | 1457.46 | 1633.88 | 1769.63 |
| Frame-7 | -215.96 | 275.60 | 347.81 | 535.86 | 734.80 | 893.28 | 1096.04 | 1270.28 | 1526.03 | 1622.10 | 1809.80 |
| Frame-8 | 88.05 | 195.32 | 358.64 | 560.26 | 755.55 | 894.89 | 1168.03 | 1261.16 | 1509.78 | 1614.31 | 1777.71 |
| Frame-9 | 30.43 | 230.30 | 359.50 | 550.10 | 736.10 | 895.18 | 1032.61 | 1265.21 | 1451.19 | 1648.08 | 1815.72 |
| Frame-10 | -346.58 | 201.54 | 328.76 | 597.60 | 687.93 | 901.37 | 1088.50 | 1274.66 | 1442.43 | 1664.10 | 1874.05 |
| Frame-11 | -282.75 | 268.32 | 375.43 | 554.16 | 741.82 | 904.79 | 1089.56 | 1259.60 | 1430.27 | 1638.78 | 1815.38 |
| Frame-12 | 72.81 | 169.23 | 404.94 | 582.24 | 770.49 | 926.80 | 1103.30 | 1292.73 | 1461.93 | 1648.92 | 1810.33 |
| Hoop-1 | 4.29 | 831.97 | 1539.95 | 2323.18 | 3092.17 | 3964.30 | 4638.86 | 5405.78 | 6222.37 | 6943.97 | 7735.94 |
| Hoop-2 | -16.90 | 787.31 | 1551.62 | 2310.34 | 3085.80 | 3868.64 | 4627.21 | 5404.24 | 6221.09 | 6982.49 | 7711.84 |
| Hoop-3 | -39.76 | 765.84 | 1562.52 | 2339.74 | 3094.61 | 3965.47 | 4633.71 | 5405.90 | 6201.00 | 6938.68 | 7727.72 |
| Hoop-4 | 254.05 | 798.80 | 1547.18 | 2328.75 | 3092.27 | 3876.31 | 4602.15 | 5374.69 | 6223.21 | 6951.96 | 7608.95 |
| Hoop-5 | 191.95 | 775.24 | 1544.26 | 2327.71 | 3089.76 | 4016.00 | 4611.56 | 5393.42 | 6244.59 | 6919.56 | 7697.08 |
| Hoop-6 | -39.28 | 793.19 | 1534.87 | 2311.54 | 3086.82 | 3976.95 | 4631.37 | 5391.62 | 6061.21 | 6946.12 | 7700.13 |
| Hoop-7 | -5.46 | 822.79 | 1590.54 | 2367.28 | 3118.89 | 3865.17 | 4650.90 | 5435.19 | 6164.65 | 6969.72 | 7740.51 |
| Hoop-8 | -3.06 | 790.33 | 1488.23 | 2244.90 | 3112.38 | 4030.04 | 4720.59 | 5441.07 | 6191.09 | 6933.21 | 7710.53 |
| Hoop-9 | 46.98 | 780.16 | 1587.75 | 2311.87 | 3085.60 | 3934.31 | 4634.83 | 5395.78 | 6193.19 | 6926.52 | 7707.32 |
| Hoop-10 | 8.92 | 780.38 | 1526.54 | 2359.42 | 3102.59 | 3858.97 | 4655.72 | 5415.07 | 6174.58 | 6962.45 | 7705.41 |
| Hoop-11 | 6.09 | 779.01 | 1526.10 | 2607.08 | 3135.28 | 3859.61 | 4643.59 | 5402.29 | 6207.27 | 6947.13 | 7720.50 |
| Hoop-12 | -8.84 | 787.78 | 1530.67 | 2308.76 | 3087.47 | 3901.99 | 4635.62 | 5436.48 | 6178.21 | 7008.34 | 7710.92 |
| Hoop-13 | -14.28 | 787.09 | 1536.52 | 2293.37 | 3139.90 | 3903.54 | 4638.13 | 5410.36 | 6234.70 | 7021.39 | 7724.90 |
| Hoop-14 | -35.05 | 793.77 | 1533.78 | 2332.99 | 3118.03 | 3864.81 | 4649.23 | 5404.58 | 6137.88 | 6678.19 | 7180.06 |
| Long-1 | 4.81 | 1244.72 | 2450.98 | 3667.68 | 4928.38 | 6236.18 | 7364.93 | 8584.40 | 9770.24 | 10726.6 | 11922.0 |
| Long-2 | -52.67 | 1229.02 | 2487.30 | 3658.95 | 4929.92 | 6156.78 | 7383.63 | 8580.29 | 9780.65 | 10956.3 | 12021.1 |
| Long-3 | 10.79 | 1254.03 | 2467.90 | 3737.69 | 4947.04 | 6146.84 | 7355.20 | 8598.44 | 9844.13 | 11002.9 | 12244.9 |
| Long-4 | -13.98 | 1224.11 | 2432.22 | 3668.75 | 4933.60 | 6136.32 | 7351.01 | 8573.51 | 9877.59 | 11017.3 | 12213.4 |
| Long-5 | 400.97 | 1385.93 | 2430.83 | 3731.38 | 4899.15 | 6165.16 | 7341.74 | 8642.66 | 9813.74 | 11032.5 | 12247.7 |
| Long-6 | 12.90 | 1188.32 | 2401.41 | 3702.87 | 4977.10 | 6216.35 | 7352.24 | 8623.68 | 9863.51 | 11064.4 | 12256.8 |
| Long-7 | 125.70 | 1214.57 | 2626.38 | 3689.92 | 4891.94 | 6148.82 | 7311.86 | 8380.52 | 9514.48 | 10793.3 | 11880.9 |
| Long-8 | 58.50 | 1246.99 | 2610.76 | 3700.66 | 4896.97 | 6094.76 | 7372.14 | 8596.68 | 9806.29 | 11038.2 | 12237.9 |
| SG1 | 311.25 | 144.40 | 62.90 | 144.60 | 175.70 | 234.16 | 231.58 | 235.27 | 270.69 | 268.42 | 276.77 |
| SG2 | 361.82 | 159.17 | 46.87 | 128.57 | 162.83 | 206.35 | 196.21 | 185.74 | 216.15 | 189.56 | 170.42 |
| SG3 | 83.46 | 81.98 | 93.61 | 330.68 | 519.95 | 681.33 | 773.07 | 863.69 | 1014.43 | 1045.97 | 1101.01 |
| SG4 | 185.33 | 104.74 | 77.87 | 221.85 | 335.53 | 417.43 | 455.67 | 489.73 | 571.56 | 563.38 | 579.67 |
| SG5 | 287.59 | 117.98 | 16.95 | 89.26 | 129.47 | 166.27 | 172.40 | 163.27 | 196.27 | 187.67 | 240.89 |
| SG6 | -25.06 | -4.23 | 18.39 | 51.02 | 82.88 | 115.69 | 126.57 | 152.77 | 185.93 | 209.85 | 239.01 |
| SG7 | 138.89 | 12.84 | -102.34 | -56.50 | -21.13 | 41.52 | 65.00 | 88.08 | 113.53 | 292.88 | 169.14 |
| SG8 | 143.60 | 42.40 | -24.84 | 30.52 | 73.26 | 106.82 | 123.98 | 124.79 | 161.78 | 140.58 | 124.23 |
| SG9 | -37.92 | -18.49 | 2.60 | 36.76 | 72.01 | 107.41 | 128.04 | 157.15 | 194.15 | 217.55 | 245.71 |
| SG10 | -25.98 | 13.19 | 40.17 | 77.88 | 112.54 | 143.73 | 175.65 | 205.03 | 235.83 | 256.63 | 276.79 |
| SG11 | 22.52 | 62.49 | 101.72 | 138.02 | 176.10 | 210.55 | 248.77 | 285.19 | 320.43 | 353.78 | 388.75 |

TABLE E-45. CVP4, WATER 1, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 22.80 | 86.84 | 160.40 | 224.52 | 298.39 | 367.61 | 429.52 | 497.70 | 561.04 | 626.10 | 690.72 |
| SG13 | 62.01 | 158.16 | 263.73 | 370.59 | 477.52 | 587.95 | 686.16 | 787.30 | 883.97 | 978.31 | 1075.44 |
| SG14 | 116.48 | 282.98 | 546.19 | 785.30 | 791.84 | 824.63 | 997.10 | 824.29 | 919.00 | 1007.09 | 1110.23 |
| SG15 | 29.59 | 85.81 | 135.75 | 177.21 | 220.23 | 260.80 | 300.85 | 342.89 | 381.57 | 422.03 | 464.33 |
| SG16 | 29.75 | 98.08 | 172.42 | 235.17 | 307.23 | 374.34 | 433.67 | 499.37 | 560.14 | 621.24 | 682.00 |
| SG17 | -74.25 | 43.98 | 92.55 | 150.52 | 234.59 | 317.41 | 396.81 | 479.52 | 561.41 | 642.25 | 721.41 |
| SG18 | 2470.42 | 2158.52 | 1271.78 | 959.73 | 639.14 | 671.01 | 682.23 | 731.66 | 781.79 | 848.20 | 870.62 |
| SG19 | 49.34 | 115.20 | 177.54 | 226.42 | 282.22 | 333.49 | 378.81 | 431.81 | 480.61 | 532.31 | 581.44 |
| SG20 | -13.61 | 81.77 | 172.15 | 250.02 | 336.26 | 417.25 | 491.19 | 567.46 | 641.16 | 713.85 | 782.95 |
| SG21 | -45.59 | 50.95 | 111.37 | 140.87 | 182.27 | 216.92 | 229.45 | 260.08 | 292.66 | 320.60 | 349.96 |
| SG22 | 673.58 | 516.74 | 406.83 | 392.40 | 482.58 | 577.15 | 659.74 | 733.76 | 806.36 | 875.11 | 961.78 |
| SG23 | -45.87 | 7.88 | 138.38 | 190.03 | 252.11 | 310.95 | 363.86 | 424.83 | 479.41 | 538.17 | 596.04 |
| SG24 | 25.77 | 118.39 | 212.64 | 293.50 | 383.80 | 470.36 | 549.13 | 633.56 | 710.80 | 791.09 | 869.29 |
| SG25 | 5.29 | 122.38 | 231.68 | 325.93 | 432.03 | 530.88 | 623.77 | 726.43 | 814.44 | 901.23 | 988.39 |
| SG26 | -100.32 | -13.30 | 67.24 | 170.17 | 273.37 | 377.77 | 468.28 | 566.49 | 661.94 | 752.13 | 845.58 |
| SG27 | 10.81 | 83.87 | 156.32 | 220.13 | 289.19 | 354.01 | 414.50 | 480.21 | 536.73 | 593.92 | 649.68 |
| SG28 | 50.36 | 102.16 | 159.14 | 196.18 | 239.78 | 281.25 | 318.25 | 364.20 | 406.36 | 449.93 | 493.69 |
| SG29 | -18.34 | 32.27 | 80.01 | 122.29 | 168.60 | 213.87 | 256.35 | 304.06 | 346.32 | 390.02 | 433.32 |
| SG30 | -458.98 | -400.01 | 4.67 | 34.14 | 63.21 | 97.38 | 126.84 | 162.56 | 195.66 | 229.04 | 261.92 |
| SG31 | -83.06 | -45.27 | -25.65 | -2.63 | 22.66 | 48.32 | 72.22 | 99.79 | 126.82 | 151.02 | 170.71 |
| SG32-T | -47.97 | 59.37 | 143.38 | 206.12 | 261.04 | 315.87 | 365.65 | 417.19 | 466.20 | 512.17 | 557.98 |
| SG32-45 | -5.35 | 111.35 | 208.67 | 292.68 | 379.28 | 461.46 | 527.81 | 604.46 | 667.74 | 736.51 | 802.78 |
| SG32-L | 12.65 | 117.48 | 210.67 | 296.16 | 391.44 | 481.19 | 555.92 | 634.64 | 708.57 | 780.32 | 851.22 |
| SG33-T | -40.31 | 23.36 | 81.02 | 121.42 | 154.26 | 195.45 | 233.50 | 273.70 | 308.23 | 343.46 | 380.42 |
| SG33-45 | 12.31 | 69.58 | 116.26 | 148.57 | 175.46 | 203.26 | 224.02 | 241.81 | 253.72 | 269.28 | 282.57 |
| SG33-T | 45.54 | 114.02 | 212.21 | 305.86 | 403.63 | 492.43 | 562.20 | 639.18 | 716.53 | 788.01 | 857.95 |
| SG34-T | -31.35 | -2.55 | 42.16 | 89.72 | 135.88 | 186.47 | 228.10 | 275.61 | 322.57 | 369.07 | 421.49 |
| SG34-45 | 61.53 | 109.78 | 170.82 | 228.39 | 282.87 | 340.60 | 384.95 | 437.55 | 500.98 | 556.35 | 616.59 |
| SG34-L | 27.88 | 132.33 | 216.66 | 289.32 | 367.42 | 444.53 | 519.74 | 597.86 | 674.89 | 747.16 | 811.73 |
| SG35-T | -16.23 | 53.03 | 109.20 | 148.23 | 186.86 | 232.30 | 266.70 | 315.12 | 361.21 | 407.40 | 459.43 |
| SG35-45 | 33.27 | 97.53 | 165.95 | 218.64 | 269.25 | 324.75 | 368.19 | 422.86 | 486.15 | 541.66 | 604.17 |
| SG35-L | 48.79 | 144.04 | 230.70 | 302.93 | 380.59 | 456.90 | 529.63 | 607.70 | 684.29 | 756.13 | 822.49 |
| SG36-T | -28.68 | 33.92 | 86.95 | 141.32 | 175.18 | 212.96 | 237.45 | 271.96 | 302.25 | 331.67 | 361.26 |
| SG36-45 | -7.72 | 54.04 | 119.17 | 154.86 | 184.48 | 214.03 | 261.67 | 283.73 | 309.11 | 324.92 | 351.83 |
| SG36-L | 61.46 | 153.50 | 266.19 | 373.19 | 479.63 | 575.80 | 686.46 | 779.20 | 864.08 | 946.23 | 1025.42 |
| SG37-T | -27.58 | 4.00 | 31.37 | 37.10 | 47.04 | 60.15 | 87.56 | 109.36 | 124.80 | 144.53 | 159.54 |
| SG37-45 | -3.19 | 25.96 | 63.74 | 63.11 | 69.15 | 78.43 | 122.03 | 129.36 | 137.93 | 141.85 | 149.36 |
| SG37-L | 134.09 | 165.88 | 230.71 | 299.66 | 377.48 | 449.29 | 555.32 | 636.03 | 701.51 | 770.20 | 833.15 |
| SG38-T | -53.21 | 20.59 | 82.94 | 141.82 | 195.29 | 252.21 | 300.00 | 351.76 | 403.24 | 449.31 | 498.26 |
| SG38-45 | -105.79 | -15.51 | 70.53 | 132.10 | 239.29 | 313.83 | 381.88 | 447.98 | 521.76 | 587.47 | 654.16 |
| SG38-L | 18.07 | 108.78 | 202.36 | 279.84 | 367.33 | 448.56 | 525.80 | 607.59 | 681.61 | 758.00 | 830.93 |
| SG39-T | -27.00 | 72.66 | 156.25 | 219.94 | 276.16 | 334.71 | 376.44 | 425.37 | 474.32 | 521.63 | 565.51 |
| SG39-45 | -20.30 | 98.04 | 201.58 | 275.03 | 355.90 | 434.24 | 501.87 | 565.37 | 639.45 | 709.31 | 778.76 |
| SG39-L | 0.71 | 112.87 | 203.14 | 286.70 | 375.73 | 458.30 | 538.09 | 617.03 | 690.97 | 761.66 | 835.43 |
| SG40-T | -4.48 | 17.61 | 49.03 | 68.74 | 94.50 | 122.09 | 141.25 | 170.84 | 202.06 | 235.67 | 264.16 |
| SG40-45 | -20.28 | 22.65 | 81.65 | 117.81 | 168.43 | 218.87 | 265.44 | 312.39 | 370.30 | 429.30 | 487.58 |
| SG40-L | -2.66 | 51.78 | 119.37 | 173.97 | 235.92 | 299.89 | 364.16 | 431.39 | 494.96 | 560.54 | 631.43 |

TABLE E-46. CVP4, WATER 2, LOAD CONDITION 1a

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 0.01 | 0.87 | 1.80 | 2.62 | 3.51 | 4.41 | 5.29 | 6.16 | 7.04 | 7.93 | 8.78 |
| Frame-1 | -4.94 | 164.86 | 380.38 | 485.16 | 724.72 | 911.37 | 1093.08 | 1273.55 | 1452.37 | 1654.43 | 1825.42 |
| Frame-2 | 0.18 | 180.11 | 419.60 | 551.94 | 702.52 | 906.22 | 1111.94 | 1260.82 | 1446.28 | 1637.58 | 1825.64 |
| Frame-3 | 179.77 | 192.56 | 351.54 | 549.09 | 719.88 | 907.06 | 1087.73 | 1279.17 | 1438.10 | 1635.36 | 1822.70 |
| Frame-4 | -149.25 | 174.59 | 374.71 | 546.24 | 720.25 | 921.10 | 1094.68 | 1270.47 | 1451.53 | 1640.07 | 1787.57 |
| Frame-5 | 77.96 | 188.26 | 354.15 | 539.74 | 743.35 | 904.79 | 1088.99 | 1282.30 | 1451.54 | 1650.71 | 1795.00 |
| Frame-6 | -73.20 | 177.31 | 373.69 | 525.20 | 745.22 | 920.31 | 1077.12 | 1283.63 | 1454.57 | 1649.83 | 1798.02 |
| Frame-7 | 25.49 | 256.03 | 302.41 | 547.94 | 711.21 | 912.23 | 1088.80 | 1270.85 | 1434.73 | 1631.02 | 1834.98 |
| Frame-8 | 24.64 | 179.21 | 351.14 | 527.57 | 713.03 | 917.28 | 1078.16 | 1278.94 | 1451.24 | 1635.27 | 1835.58 |
| Frame-9 | -100.01 | 196.46 | 416.48 | 546.61 | 712.21 | 926.54 | 1086.38 | 1274.47 | 1431.94 | 1634.47 | 1828.97 |
| Frame-10 | 61.79 | 169.92 | 371.19 | 542.52 | 712.55 | 918.60 | 1076.09 | 1321.72 | 1454.48 | 1635.13 | 1820.01 |
| Frame-11 | 57.50 | 184.87 | 374.78 | 540.68 | 725.39 | 901.47 | 1092.54 | 1351.57 | 1455.70 | 1639.02 | 1818.16 |
| Frame-12 | 67.95 | 185.88 | 366.28 | 544.20 | 720.87 | 937.17 | 1078.75 | 1350.36 | 1441.15 | 1640.59 | 1823.49 |
| Hoop-1 | 20.84 | 789.59 | 1497.50 | 2299.74 | 3129.26 | 3874.18 | 4642.08 | 5413.67 | 6183.72 | 6972.70 | 7715.71 |
| Hoop-2 | -80.15 | 740.25 | 1522.55 | 2283.70 | 3084.30 | 3874.06 | 4630.36 | 5421.05 | 6190.31 | 6965.53 | 7715.45 |
| Hoop-3 | 32.19 | 693.81 | 1550.08 | 2280.53 | 3133.53 | 3868.93 | 4657.81 | 5402.93 | 6206.16 | 6957.29 | 7732.98 |
| Hoop-4 | -21.99 | 737.59 | 1530.36 | 2294.02 | 3061.08 | 3874.46 | 4653.56 | 5352.99 | 6173.17 | 6949.42 | 7716.40 |
| Hoop-5 | 40.68 | 775.16 | 1591.49 | 2339.11 | 3286.92 | 3855.60 | 4653.01 | 5344.75 | 6173.46 | 6968.08 | 7717.13 |
| Hoop-6 | -39.28 | 728.37 | 1556.91 | 2193.60 | 3087.13 | 3856.71 | 4627.21 | 5403.26 | 6199.97 | 6963.92 | 7714.93 |
| Hoop-7 | -42.02 | 689.25 | 1559.30 | 2334.84 | 3097.26 | 3883.46 | 4623.02 | 5408.31 | 6213.99 | 6956.23 | 7713.09 |
| Hoop-8 | 4.28 | 680.07 | 1554.50 | 2340.40 | 3090.03 | 3876.16 | 4640.25 | 5448.96 | 6205.16 | 6941.25 | 7734.11 |
| Hoop-9 | -36.51 | 796.41 | 1555.24 | 2444.35 | 3021.76 | 3892.96 | 4648.00 | 5383.62 | 6181.68 | 6956.26 | 7727.01 |
| Hoop-10 | -3.73 | 731.52 | 1555.60 | 2350.39 | 3028.20 | 3870.20 | 4620.05 | 5531.27 | 6224.55 | 6977.60 | 7721.41 |
| Hoop-11 | 6.09 | 725.44 | 1565.00 | 2310.08 | 3083.31 | 3885.82 | 4644.05 | 5467.41 | 6177.13 | 6953.36 | 7747.87 |
| Hoop-12 | -60.71 | 754.36 | 1564.17 | 2360.63 | 3087.16 | 3887.56 | 4658.31 | 5407.38 | 6199.83 | 6957.15 | 7727.29 |
| Hoop-13 | 15.40 | 735.08 | 1573.78 | 2293.37 | 3109.90 | 3903.93 | 4660.86 | 5529.65 | 6182.13 | 6955.30 | 7711.60 |
| Hoop-14 | -29.59 | 725.15 | 1576.40 | 2323.65 | 3123.17 | 3855.86 | 4655.15 | 5321.76 | 5965.10 | 6425.24 | 6972.31 |
| Long-1 | 19.23 | -37.24 | 12.02 | -3.60 | 6.02 | 14.43 | 40.85 | 123.75 | 144.18 | 186.23 | 204.24 |
| Long-2 | -95.80 | -20.63 | -60.06 | 75.50 | -20.63 | 8.94 | -8.31 | 57.00 | 80.42 | 139.58 | 160.51 |
| Long-3 | -14.91 | -6.34 | 250.58 | 217.61 | 8.34 | 5.89 | 37.71 | 117.24 | 131.93 | 193.11 | 201.66 |
| Long-4 | 156.36 | 11.21 | 5.21 | -30.78 | -25.98 | 288.34 | -23.58 | 25.60 | 17.21 | 77.19 | 103.58 |
| Long-5 | 516.15 | 437.80 | 572.43 | 430.50 | 394.93 | 425.55 | 332.42 | 353.24 | 300.60 | 311.63 | 261.38 |
| Long-6 | 54.23 | 14.12 | 45.72 | 15.34 | 16.55 | 43.29 | 16.55 | 27.49 | 27.49 | 46.94 | 60.30 |
| Long-7 | 107.90 | 41.42 | 85.33 | 94.86 | 75.85 | 129.28 | 100.78 | 138.77 | 136.41 | 150.66 | 154.20 |
| Long-8 | 12.51 | 12.51 | 8.78 | 13.76 | 8.78 | 12.51 | 8.78 | 10.02 | 13.75 | 7.54 | 7.54 |
| SG1 | 187.44 | 97.71 | 59.75 | 121.50 | 234.69 | 293.83 | 368.88 | 452.94 | 500.13 | 561.70 | 621.91 |
| SG2 | 221.38 | 105.61 | 41.24 | 131.66 | 255.19 | 329.82 | 422.21 | 522.31 | 570.25 | 634.03 | 699.04 |
| SG3 | 124.38 | -72.78 | -78.41 | 21.98 | 193.82 | 306.00 | 383.74 | 533.79 | 573.29 | 619.06 | 667.35 |
| SG4 | 163.73 | -17.27 | -22.52 | 81.72 | 202.53 | 296.84 | 378.14 | 490.64 | 527.96 | 576.61 | 628.97 |
| SG5 | 197.73 | 142.98 | 69.75 | 197.64 | 304.47 | 384.08 | 478.23 | 586.15 | 587.12 | 610.64 | 774.66 |
| SG6 | -21.45 | 14.33 | 49.34 | 93.38 | 138.72 | 183.29 | 228.83 | 274.34 | 315.99 | 358.18 | 400.89 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | 46.10 | -38.32 | -91.28 | -17.34 | 55.13 | 116.97 | 209.56 | 286.86 | 322.20 | 368.59 | 416.40 |
| SG9 | -40.35 | -9.62 | 21.94 | 72.14 | 117.78 | 165.39 | 214.23 | 263.98 | 306.25 | 351.01 | 395.82 |
| SG10 | -42.75 | -58.34 | -66.65 | -75.04 | -82.61 | -94.41 | -104.66 | -113.98 | -130.68 | -152.22 | -170.79 |
| SG11 | 16.51 | 12.03 | 8.85 | 2.94 | -12.52 | -17.22 | -26.45 | -32.69 | -42.01 | -50.50 | -58.02 |

TABLE E-46. CVP4, WATER 2, LOAD CONDITION 1a (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 39.07 | 30.91 | 30.77 | 26.95 | 20.72 | 19.48 | 15.05 | 14.13 | 8.91 | 3.75 | -1.83 |
| SG13 | 58.07 | 52.78 | 51.36 | 53.11 | 54.68 | 59.42 | 60.76 | 69.32 | 66.88 | 68.13 | 68.30 |
| SG14 | 414.38 | 361.26 | 357.71 | -111.86 | -294.74 | -295.35 | -328.32 | -425.44 | -273.31 | -214.89 | 291.74 |
| SG15 | 24.88 | 36.26 | 45.24 | 41.23 | 31.24 | 30.73 | 25.25 | 22.35 | 19.26 | 15.81 | 12.63 |
| SG16 | 41.34 | 34.53 | 32.37 | 27.07 | 17.63 | 13.86 | 5.38 | 1.47 | -7.52 | -15.25 | -24.23 |
| SG17 | -57.59 | -62.74 | -64.58 | -68.35 | -83.29 | -88.61 | -92.80 | -92.61 | -100.15 | -102.95 | -109.19 |
| SG18 | 1702.68 | 1267.35 | 629.70 | 301.34 | 188.20 | 122.68 | 72.22 | 38.25 | -8.40 | -10.24 | 19.36 |
| SG19 | -62.01 | -84.39 | -108.08 | -138.46 | -184.11 | -216.32 | -253.76 | -286.78 | -321.88 | -356.05 | -391.11 |
| SG20 | -16.19 | -16.94 | -13.61 | -13.80 | -22.48 | -19.15 | -23.22 | -18.97 | -23.41 | -25.44 | -29.13 |
| SG21 | -45.57 | -52.57 | -56.44 | -69.89 | -95.68 | -105.99 | -126.44 | -139.34 | -159.60 | -177.65 | -196.79 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 9.58 | -11.45 | -30.26 | -63.47 | -99.64 | -126.19 | -168.27 | -200.74 | -233.21 | -269.38 | -306.98 |
| SG24 | 22.25 | 17.83 | 16.54 | 12.67 | 5.66 | 6.40 | 0.50 | 1.23 | -6.15 | -9.10 | -15.55 |
| SG25 | 6.53 | 8.48 | 3.53 | -11.46 | -36.07 | -44.57 | -66.41 | -77.32 | -96.29 | -111.41 | -128.93 |
| SG26 | -135.90 | -140.63 | -149.60 | -147.47 | -149.57 | -144.52 | -149.66 | -141.07 | -146.61 | -146.75 | -148.49 |
| SG27 | 15.70 | 15.97 | 13.57 | 7.71 | -2.74 | -4.63 | -14.33 | -17.06 | -26.35 | -32.86 | -40.57 |
| SG28 | 109.51 | 127.28 | 133.21 | 128.77 | 123.60 | 122.11 | 116.20 | 112.50 | 113.98 | 113.24 | 110.27 |
| SG29 | -16.66 | -13.99 | -18.47 | -25.16 | -34.63 | -37.16 | -47.14 | -50.65 | -59.98 | -66.44 | -75.02 |
| SG30 | -162.12 | -152.95 | -150.25 | -158.14 | -161.48 | -166.73 | -173.39 | -180.18 | -181.10 | -185.26 | -188.28 |
| SG31 | -102.07 | -94.66 | -106.75 | -117.18 | -131.45 | -142.69 | -165.08 | -181.83 | -199.18 | -216.02 | -234.59 |
| SG32-T | -39.31 | 86.65 | 203.43 | 294.07 | 386.05 | 473.49 | 555.64 | 633.28 | 709.44 | 785.41 | 857.95 |
| SG32-45 | -1.68 | 71.66 | 150.08 | 195.07 | 256.75 | 303.98 | 349.98 | 394.36 | 433.37 | 471.95 | 505.14 |
| SG32-L | 18.73 | 29.47 | 42.59 | 52.96 | 62.45 | 71.97 | 75.93 | 83.93 | 82.96 | 82.58 | 78.39 |
| SG33-T | -34.19 | 84.16 | 204.35 | 297.98 | 395.76 | 485.12 | 571.22 | 650.30 | 731.51 | 810.07 | 884.95 |
| SG33-45 | 10.72 | 68.86 | 143.96 | 192.86 | 253.63 | 300.37 | 347.30 | 389.10 | 426.82 | 464.53 | 497.18 |
| SG33-T | 35.34 | 24.37 | 33.49 | 44.28 | 49.86 | 57.67 | 57.21 | 63.40 | 57.21 | 53.35 | 46.83 |
| SG34-T | -34.59 | 26.75 | 103.64 | 177.73 | 256.64 | 333.27 | 409.50 | 483.13 | 558.44 | 633.99 | 707.74 |
| SG34-45 | 62.43 | 81.54 | 115.31 | 150.56 | 179.34 | 220.32 | 247.80 | 283.61 | 316.45 | 351.70 | 384.88 |
| SG34-L | 18.94 | 12.24 | 4.84 | -7.31 | -26.57 | -32.85 | -48.59 | -54.03 | -69.15 | -79.44 | -92.09 |
| SG35-T | -24.27 | 75.95 | 161.06 | 223.42 | 291.89 | 362.87 | 432.86 | 500.94 | 574.28 | 647.39 | 719.22 |
| SG35-45 | 3.63 | 41.76 | 80.08 | 110.09 | 133.05 | 172.24 | 196.50 | 230.69 | 261.82 | 296.29 | 329.52 |
| SG35-L | 26.21 | 21.18 | 15.49 | 4.40 | -14.43 | -20.31 | -36.11 | -41.94 | -57.18 | -68.00 | -81.32 |
| SG36-T | -17.63 | 81.66 | 181.40 | 266.41 | 353.41 | 435.27 | 514.00 | 587.71 | 663.09 | 736.94 | 807.58 |
| SG36-45 | -6.84 | 23.94 | 59.64 | 106.01 | 137.68 | 180.75 | 212.20 | 248.18 | 280.31 | 313.27 | 344.71 |
| SG36-L | 47.37 | 29.96 | 27.45 | 30.15 | 24.52 | 29.45 | 23.22 | 26.10 | 16.19 | 10.55 | 1.19 |
| SG37-T | -9.47 | 42.36 | 96.71 | 128.38 | 164.97 | 208.30 | 251.96 | 295.09 | 345.64 | 396.29 | 445.74 |
| SG37-45 | -22.83 | 3.51 | 23.61 | 36.79 | 38.99 | 60.05 | 73.97 | 91.59 | 115.04 | 137.99 | 161.11 |
| SG37-L | 33.40 | 44.04 | 31.94 | 5.21 | -26.20 | -43.40 | -67.84 | -84.30 | -104.53 | -122.87 | -142.12 |
| SG38-T | -57.47 | 42.82 | 142.14 | 228.39 | 316.11 | 400.70 | 482.30 | 561.11 | 639.55 | 718.45 | 795.23 |
| SG38-45 | -63.31 | -8.58 | 24.84 | 70.84 | 104.08 | 143.35 | 176.87 | 211.27 | 247.24 | 282.84 | 317.30 |
| SG38-L | 18.06 | 13.77 | 7.86 | -2.34 | -17.62 | -25.26 | -39.05 | -45.10 | -58.61 | -68.90 | -82.17 |
| SG39-T | -27.68 | 93.33 | 209.71 | 301.25 | 391.70 | 477.85 | 560.00 | 636.24 | 713.55 | 787.79 | 859.81 |
| SG39-45 | -12.06 | 68.36 | 130.17 | 189.00 | 232.28 | 287.41 | 328.48 | 374.02 | 416.17 | 458.69 | 498.33 |
| SG39-L | 13.06 | 33.57 | 39.74 | 47.82 | 47.36 | 58.21 | 54.32 | 60.73 | 53.30 | 52.14 | 46.29 |
| SG40-T | 3.00 | 42.09 | 84.25 | 110.58 | 147.09 | 186.54 | 229.98 | 271.25 | 321.32 | 370.81 | 420.81 |
| SG40-45 | -12.98 | -1.47 | 2.92 | 7.12 | 8.03 | 24.29 | 33.97 | 50.41 | 70.88 | 92.25 | 113.80 |
| SG40-L | 8.85 | -11.61 | -40.10 | -69.53 | -96.74 | -112.45 | -135.82 | -149.16 | -165.06 | -178.03 | -193.00 |

TABLE E-47. CVP4, WATER 2, LOAD CONDITION 1b

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.07 | -0.11 | 0.12 | -0.09 | 0.04 | 0.02 | -0.02 | 0.09 | -0.08 | 0.06 | 0.08 |
| Frame-1 | -8.26 | -25.56 | 3.94 | -0.69 | 9.44 | 37.10 | 18.29 | 13.30 | 4.74 | -9.39 | 10.65 |
| Frame-2 | -22.24 | -20.40 | -6.61 | -122.41 | -143.58 | 78.67 | -20.05 | -99.77 | -9.25 | -89.42 | 962.76 |
| Frame-3 | -84.16 | -207.52 | 71.59 | -212.19 | -154.45 | -103.09 | 144.42 | -125.02 | -100.46 | 68.88 | -95.02 |
| Frame-4 | 26.86 | 33.91 | -18.22 | 24.06 | -74.70 | 128.58 | 63.45 | -114.05 | 50.12 | -89.95 | -82.19 |
| Frame-5 | -152.96 | -45.84 | 59.02 | 109.93 | 26.64 | -28.71 | -123.23 | 95.95 | 98.05 | -30.03 | 76.08 |
| Frame-6 | 56.33 | -74.15 | -168.56 | 23.07 | -62.67 | 127.43 | -43.59 | -133.81 | 55.51 | 46.22 | 41.91 |
| Frame-7 | 120.73 | -22.12 | 15.33 | -164.69 | -111.29 | 32.49 | 2.26 | -130.33 | -67.47 | -165.07 | -148.32 |
| Frame-8 | 81.97 | 49.38 | -99.14 | -149.92 | 30.83 | 124.60 | -50.21 | 63.44 | -135.38 | -93.50 | -128.41 |
| Frame-9 | -47.34 | -101.39 | 121.97 | 73.51 | -39.60 | -40.56 | 57.82 | -163.45 | -131.57 | -3.30 | -75.26 |
| Frame-10 | 24.42 | -34.01 | -0.03 | -71.49 | 40.43 | 73.95 | 59.23 | -21.66 | 61.86 | -21.95 | -67.19 |
| Frame-11 | -6.05 | 104.18 | 33.66 | -95.15 | 0.91 | -81.17 | 105.86 | -87.33 | -74.12 | 20.77 | 62.53 |
| Frame-12 | -76.88 | -163.26 | 9.40 | 8.37 | -135.08 | 111.31 | 44.60 | -12.35 | 78.32 | -131.99 | -108.24 |
| Hoop-1 | -8.59 | -56.40 | 7.97 | -19.62 | 9.80 | -10.42 | -15.94 | -26.98 | 33.71 | -28.82 | -8.59 |
| Hoop-2 | 4.78 | 40.92 | 30.08 | -38.59 | 48.14 | -44.00 | 17.43 | -29.55 | -6.06 | -7.87 | -29.55 |
| Hoop-3 | -25.73 | -41.52 | -1.16 | 39.21 | 21.66 | 19.90 | 37.45 | 30.43 | 19.90 | 33.94 | 49.74 |
| Hoop-4 | 83.62 | -59.03 | -5.31 | 3.95 | -57.17 | 63.23 | 57.68 | -25.69 | 152.15 | 50.27 | -12.72 |
| Hoop-5 | 4.23 | -17.64 | -26.75 | 47.98 | 46.14 | -8.52 | -21.28 | -12.17 | 102.64 | -28.57 | -23.11 |
| Hoop-6 | 167.91 | 19.91 | -9.68 | -26.33 | -11.53 | -17.08 | 32.86 | -30.03 | -48.52 | 21.76 | -31.88 |
| Hoop-7 | 40.25 | -16.42 | 0.03 | 3.69 | 49.38 | 67.66 | 58.53 | 58.52 | 42.07 | 38.42 | 56.70 |
| Hoop-8 | 48.37 | 18.98 | 11.63 | 4.28 | 18.98 | 11.63 | -3.06 | -10.41 | 18.98 | 4.28 | -10.41 |
| Hoop-9 | 32.46 | -70.99 | -25.62 | 59.68 | -3.84 | -9.28 | 97.80 | 119.58 | 183.08 | 66.94 | -14.73 |
| Hoop-10 | -25.41 | -14.57 | 7.11 | 1.69 | -14.57 | 10.73 | 16.15 | -23.60 | 39.63 | 25.18 | 14.34 |
| Hoop-11 | 4.25 | -108.28 | 15.32 | -23.42 | -97.24 | 66.96 | -139.65 | 26.39 | -93.52 | -10.51 | -117.50 |
| Hoop-12 | 11.54 | 74.53 | -49.59 | 83.80 | 83.82 | -21.80 | 35.63 | -53.30 | -5.13 | -36.63 | 52.30 |
| Hoop-13 | 30.24 | 0.56 | -81.06 | -21.70 | -58.82 | 30.24 | -6.86 | -51.39 | -58.80 | -43.97 | -14.28 |
| Hoop-14 | 192.44 | -155.39 | 162.82 | 66.62 | -22.19 | -81.38 | 488.47 | -7.39 | 244.22 | -96.20 | 370.02 |
| Long-1 | 22.83 | 1250.60 | 2432.47 | 3640.05 | 4911.07 | 6144.25 | 7370.94 | 8561.58 | 9841.56 | 10990.8 | 12084.2 |
| Long-2 | 112.44 | 1194.39 | 2439.98 | 3634.30 | 4904.78 | 6154.93 | 7355.29 | 8576.60 | 9837.84 | 11038.8 | 12128.3 |
| Long-3 | -14.91 | 1179.27 | 2496.77 | 3617.78 | 4924.52 | 6159.69 | 7401.70 | 8593.55 | 9828.70 | 10988.1 | 12112.8 |
| Long-4 | 275.09 | 1285.17 | 2496.50 | 3635.16 | 4907.92 | 6109.32 | 7305.42 | 8583.11 | 9827.64 | 11046.0 | 12179.8 |
| Long-5 | 687.56 | 1323.32 | 2347.06 | 3852.64 | 4890.08 | 6124.12 | 7406.67 | 8596.11 | 9813.00 | 11004.2 | 12195.0 |
| Long-6 | 76.10 | 1295.15 | 2430.10 | 3694.36 | 4902.47 | 6140.36 | 7366.82 | 8564.12 | 9821.43 | 11015.7 | 12249.5 |
| Long-7 | 123.32 | 1228.69 | 2425.23 | 3846.64 | 4912.82 | 6136.33 | 7371.23 | 8561.00 | 9839.05 | 11058.0 | 12123.2 |
| Long-8 | 19.97 | 1229.46 | 2448.66 | 3644.72 | 4884.05 | 6131.45 | 7230.42 | 8560.62 | 9808.06 | 10977.2 | 12128.5 |
| SG1 | 134.00 | 110.06 | -45.66 | 50.34 | -83.10 | -78.48 | -91.74 | -197.16 | -111.29 | -251.21 | -292.99 |
| SG2 | 142.87 | 111.00 | -117.03 | 25.11 | -179.70 | -182.08 | -197.13 | -382.92 | -247.01 | -476.93 | -530.70 |
| SG3 | -55.15 | 21.61 | -110.32 | 108.88 | 32.32 | 122.01 | 259.29 | 107.05 | 350.30 | 180.90 | 291.21 |
| SG4 | 41.46 | 67.94 | -21.32 | 106.90 | 10.42 | 55.88 | 96.36 | -9.67 | 117.06 | -21.65 | 1.80 |
| SG5 | 29.87 | 15.05 | -209.60 | -53.71 | -259.35 | -260.47 | -259.80 | -453.87 | -305.31 | -546.37 | -592.75 |
| SG6 | -17.58 | -28.73 | -45.59 | -51.43 | -71.54 | -83.32 | -94.60 | -117.53 | -122.93 | -147.36 | -157.83 |
| SG7 | -1240.59 | -33616.5 | -48358.7 | -59269.9 | -63780.2 | -70416.2 | -75910.9 | -79816.4 | -77995.2 | -83049.3 | -94104.0 |
| SG8 | 31.43 | 11.92 | -158.14 | -42.04 | -196.71 | -194.89 | -190.78 | -343.10 | -226.41 | -406.86 | -434.47 |
| SG9 | -35.97 | -45.57 | -69.32 | -67.98 | -94.81 | -105.83 | -113.94 | -144.12 | -142.84 | -174.69 | -184.53 |
| SG10 | -29.79 | 10.09 | 41.59 | 94.61 | 113.83 | 151.27 | 201.24 | 215.81 | 266.93 | 286.15 | 330.36 |
| SG11 | 17.57 | 56.65 | 107.49 | 148.27 | 200.19 | 245.76 | 292.25 | 339.31 | 384.01 | 428.91 | 471.46 |

TABLE E-47. CVP4, WATER 2, LOAD CONDITION 1b (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 38.61 | 95.93 | 173.62 | 243.80 | 324.03 | 397.24 | 476.33 | 553.67 | 629.36 | 703.08 | 779.31 |
| SG13 | 79.34 | 171.50 | 275.18 | 388.60 | 492.31 | 601.65 | 712.66 | 812.69 | 924.05 | 1015.34 | 1114.24 |
| SG14 | 637.16 | 763.12 | 867.50 | 952.39 | 1110.52 | 1160.16 | 1291.42 | 1410.44 | 1471.76 | 1604.97 | 1665.45 |
| SG15 | 36.48 | 78.08 | 137.90 | 173.78 | 234.70 | 281.34 | 330.01 | 385.65 | 426.05 | 481.01 | 529.19 |
| SG16 | 46.92 | 107.39 | 189.07 | 258.19 | 341.55 | 417.33 | 495.72 | 574.33 | 647.02 | 721.85 | 797.64 |
| SG17 | -53.73 | 25.96 | 120.48 | 207.15 | 302.41 | 398.75 | 488.88 | 584.70 | 679.39 | 770.15 | 857.41 |
| SG18 | 17.24 | 67.80 | 135.16 | 186.62 | 255.13 | 317.20 | 375.21 | 447.27 | 505.05 | 575.52 | 632.21 |
| SG19 | -47.40 | 31.56 | 129.02 | 208.16 | 302.56 | 391.31 | 476.53 | 568.08 | 651.92 | 736.89 | 816.08 |
| SG20 | -3.26 | 74.53 | 173.56 | 251.16 | 341.99 | 430.10 | 514.32 | 600.62 | 681.99 | 762.09 | 841.39 |
| SG21 | -26.60 | 47.06 | 127.16 | 167.85 | 220.95 | 272.13 | 318.70 | 366.95 | 412.11 | 455.07 | 499.91 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 23.60 | 109.93 | 210.07 | 298.97 | 396.84 | 486.65 | 579.75 | 671.24 | 759.31 | 849.42 | 936.87 |
| SG24 | 33.32 | 118.16 | 217.17 | 308.08 | 404.83 | 498.30 | 591.01 | 682.67 | 770.35 | 858.78 | 948.79 |
| SG25 | 21.56 | 116.92 | 244.99 | 349.22 | 480.32 | 597.37 | 715.70 | 833.35 | 938.51 | 1048.88 | 1154.85 |
| SG26 | -128.66 | -41.83 | 55.95 | 164.53 | 267.27 | 374.92 | 481.62 | 582.08 | 691.29 | 782.79 | 880.70 |
| SG27 | 22.81 | 83.61 | 163.28 | 231.23 | 312.20 | 385.40 | 458.72 | 533.56 | 600.88 | 674.31 | 746.61 |
| SG28 | 104.33 | 144.29 | 201.24 | 236.01 | 294.54 | 338.16 | 386.22 | 440.22 | 481.70 | 535.03 | 581.53 |
| SG29 | -4.25 | 39.79 | 91.80 | 140.30 | 195.38 | 248.91 | 304.64 | 358.37 | 411.22 | 463.52 | 517.53 |
| SG30 | -150.59 | -120.00 | -75.36 | -42.31 | 3.29 | 41.00 | 81.20 | 122.33 | 160.56 | 200.74 | 237.67 |
| SG31 | -77.39 | -48.25 | -32.47 | 8.12 | 36.96 | 62.57 | 100.89 | 125.71 | 176.06 | 197.25 | 226.42 |
| SG32-T | -9.23 | -37.04 | -33.65 | -86.15 | -92.96 | -121.55 | -152.88 | -160.72 | -211.03 | -212.16 | -229.76 |
| SG32-45 | 37.40 | 60.01 | 122.90 | 139.47 | 200.10 | 235.32 | 276.93 | 327.90 | 341.45 | 396.55 | 446.00 |
| SG32-L | 39.70 | 110.56 | 209.93 | 286.87 | 382.65 | 470.07 | 561.61 | 651.34 | 735.14 | 818.73 | 906.57 |
| SG33-T | -20.17 | -74.04 | -110.81 | -200.48 | -245.19 | -310.64 | -375.13 | -406.84 | -496.75 | -518.50 | -563.83 |
| SG33-45 | 26.65 | 15.78 | 14.67 | -21.55 | -42.41 | -69.66 | -95.24 | -110.98 | -153.07 | -163.81 | -178.59 |
| SG33-T | 31.99 | 103.61 | 189.85 | 282.24 | 368.47 | 459.77 | 552.55 | 640.35 | 729.33 | 811.27 | 900.95 |
| SG34-T | -24.68 | -56.92 | -87.46 | -130.25 | -163.41 | -200.04 | -238.76 | -268.39 | -315.30 | -340.96 | -370.89 |
| SG34-45 | 54.45 | 77.64 | 109.35 | 116.22 | 144.64 | 166.89 | 178.00 | 214.92 | 223.10 | 255.41 | 273.54 |
| SG34-L | 26.57 | 107.90 | 209.31 | 295.47 | 393.10 | 489.30 | 581.37 | 675.17 | 766.07 | 854.57 | 941.87 |
| SG35-T | -12.36 | -36.51 | -22.13 | -75.45 | -73.79 | -102.54 | -129.89 | -134.55 | -182.77 | -182.65 | -202.99 |
| SG35-45 | 1.03 | 29.12 | 85.18 | 85.87 | 132.21 | 158.12 | 174.45 | 224.47 | 230.63 | 276.50 | 298.64 |
| SG35-L | 32.78 | 113.97 | 216.11 | 300.14 | 398.12 | 492.79 | 584.09 | 678.24 | 767.43 | 856.08 | 942.59 |
| SG36-T | -4.97 | -40.16 | -61.94 | -131.58 | -166.12 | -220.15 | -275.85 | -305.41 | -379.28 | -402.37 | -446.00 |
| SG36-45 | -5.96 | 19.29 | 39.67 | 32.71 | 27.75 | 19.02 | 4.58 | 4.72 | -12.73 | -12.22 | -21.04 |
| SG36-L | 53.28 | 143.94 | 259.56 | 371.29 | 483.17 | 592.45 | 701.15 | 804.13 | 905.72 | 1002.67 | 1104.53 |
| SG37-T | -6.54 | -23.77 | -21.02 | -72.56 | -81.89 | -113.87 | -147.40 | -165.45 | -211.85 | -224.61 | -254.40 |
| SG37-45 | -32.28 | -16.63 | 8.10 | -16.91 | -12.37 | -23.33 | -38.66 | -37.05 | -56.79 | -53.90 | -65.18 |
| SG37-L | 50.41 | 120.24 | 232.55 | 306.54 | 422.10 | 515.92 | 615.90 | 723.10 | 808.91 | 914.10 | 1013.64 |
| SG38-T | -42.16 | -76.08 | -93.09 | -140.58 | -168.58 | -202.15 | -242.00 | -266.70 | -316.64 | -337.93 | -368.66 |
| SG38-45 | -59.13 | -24.19 | 16.47 | 40.49 | 76.34 | 104.68 | 132.88 | 169.35 | 197.95 | 232.55 | 262.48 |
| SG38-L | 27.14 | 111.99 | 215.36 | 305.14 | 405.34 | 499.71 | 595.22 | 690.46 | 779.72 | 872.17 | 965.47 |
| SG39-T | -18.10 | -45.17 | -39.77 | -96.04 | -101.51 | -132.39 | -164.04 | -171.02 | -222.71 | -222.97 | -243.48 |
| SG39-45 | 0.57 | 30.96 | 84.71 | 93.81 | 144.17 | 172.78 | 200.13 | 252.12 | 262.32 | 317.93 | 354.34 |
| SG39-L | 25.49 | 97.88 | 188.21 | 266.72 | 357.72 | 444.52 | 531.57 | 617.65 | 700.27 | 784.68 | 869.81 |
| SG40-T | -2.29 | -12.70 | -9.96 | -34.43 | -35.71 | -53.93 | -69.68 | -80.00 | -105.09 | -113.20 | -130.18 |
| SG40-45 | -16.26 | 18.99 | 64.83 | 89.50 | 138.09 | 169.53 | 204.24 | 250.82 | 275.43 | 324.48 | 360.98 |
| SG40-L | 11.04 | 79.17 | 161.72 | 238.82 | 325.95 | 408.55 | 493.50 | 576.80 | 659.61 | 741.84 | 823.97 |

TABLE E-48. CVP4, WATER 2, LOAD CONDITION 1c

| Load Step | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 | 9.00 | 10.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | -0.17 | 0.86 | 1.73 | 2.66 | 3.51 | 4.41 | 5.27 | 6.19 | 7.03 | 7.93 | 8.82 |
| Frame-1 | -321.22 | 190.00 | 415.43 | 532.28 | 729.83 | 918.94 | 1092.26 | 1273.59 | 1461.37 | 1641.14 | 1807.49 |
| Frame-2 | -53.39 | 259.09 | 378.17 | 532.98 | 740.63 | 908.57 | 1119.81 | 1262.59 | 1486.55 | 1639.94 | 1814.68 |
| Frame-3 | -327.48 | 181.36 | 379.43 | 540.58 | 733.49 | 902.52 | 1109.26 | 1279.17 | 1452.15 | 1651.45 | 1820.39 |
| Frame-4 | -72.86 | 202.98 | 369.91 | 541.17 | 732.21 | 911.36 | 1073.20 | 1268.76 | 1451.84 | 1645.88 | 1818.03 |
| Frame-5 | -221.71 | 178.71 | 382.12 | 548.47 | 722.53 | 905.40 | 1095.09 | 1252.98 | 1474.28 | 1653.07 | 1813.40 |
| Frame-6 | -216.52 | 212.10 | 369.15 | 547.28 | 743.41 | 898.84 | 1101.84 | 1271.69 | 1454.91 | 1643.70 | 1812.65 |
| Frame-7 | -261.35 | 210.34 | 372.17 | 546.71 | 728.43 | 907.71 | 1093.32 | 1271.65 | 1465.71 | 1638.59 | 1841.97 |
| Frame-8 | 46.15 | 192.08 | 370.94 | 545.27 | 731.97 | 907.61 | 1075.79 | 1262.53 | 1483.93 | 1627.35 | 1830.51 |
| Frame-9 | -183.32 | 219.94 | 382.30 | 543.70 | 738.38 | 909.75 | 1083.95 | 1266.60 | 1444.11 | 1650.83 | 1829.13 |
| Frame-10 | -104.39 | 184.52 | 368.61 | 532.68 | 734.94 | 900.31 | 1099.55 | 1253.65 | 1451.01 | 1644.42 | 1835.60 |
| Frame-11 | -298.16 | 194.18 | 372.48 | 532.59 | 733.85 | 891.97 | 1093.64 | 1249.09 | 1454.01 | 1624.50 | 1853.70 |
| Frame-12 | -185.58 | 193.61 | 354.99 | 546.45 | 746.81 | 968.95 | 1095.38 | 1285.46 | 1456.68 | 1655.10 | 1839.17 |
| Hoop-1 | -56.40 | 741.77 | 1552.98 | 2319.74 | 3088.49 | 3870.50 | 4633.35 | 5380.57 | 6183.10 | 6959.13 | 7737.78 |
| Hoop-2 | -100.03 | 877.59 | 1542.73 | 2343.10 | 3102.06 | 3841.53 | 4625.40 | 5410.20 | 6155.36 | 6950.38 | 7706.42 |
| Hoop-3 | -46.78 | 769.28 | 1545.12 | 2324.18 | 3071.79 | 3868.93 | 4626.69 | 5408.19 | 6187.99 | 6961.85 | 7715.43 |
| Hoop-4 | 85.47 | 789.46 | 1560.31 | 2310.46 | 3099.68 | 3874.46 | 4642.91 | 5415.99 | 6159.58 | 6956.13 | 7721.96 |
| Hoop-5 | -43.15 | 540.05 | 1551.71 | 2331.59 | 3095.22 | 3866.54 | 4638.90 | 5408.54 | 6172.84 | 6958.27 | 7702.55 |
| Hoop-6 | -91.07 | 815.31 | 1529.47 | 2345.07 | 3097.92 | 3886.31 | 4690.56 | 5423.61 | 6184.55 | 6953.98 | 7720.48 |
| Hoop-7 | 23.79 | 822.71 | 1535.85 | 2321.81 | 3100.61 | 3868.83 | 4649.07 | 5415.62 | 6217.02 | 6970.16 | 7725.89 |
| Hoop-8 | -32.45 | 709.60 | 1547.00 | 2318.13 | 3097.38 | 3868.81 | 4631.97 | 5433.73 | 6205.16 | 6969.95 | 7748.03 |
| Hoop-9 | -29.25 | 771.16 | 1544.20 | 2317.08 | 3103.44 | 3869.37 | 4616.22 | 5423.01 | 6152.64 | 6926.52 | 7758.91 |
| Hoop-10 | 25.18 | 751.54 | 1562.67 | 2321.25 | 3091.44 | 3855.75 | 4633.58 | 5436.76 | 6159.50 | 6955.22 | 7742.32 |
| Hoop-11 | -76.92 | 764.33 | 1539.01 | 2324.61 | 3107.29 | 3865.53 | 4661.57 | 5481.62 | 6154.99 | 6954.51 | 7726.80 |
| Hoop-12 | 18.95 | 756.36 | 1545.49 | 2315.94 | 3079.75 | 3865.32 | 4649.97 | 5414.25 | 6185.00 | 6956.46 | 7726.52 |
| Hoop-13 | 15.40 | 779.75 | 1551.36 | 2315.40 | 3080.21 | 3844.56 | 4630.25 | 5425.21 | 6204.40 | 6939.76 | 7747.94 |
| Hoop-14 | 0.01 | 777.10 | 1546.64 | 2316.02 | 3093.57 | 3870.66 | 4639.42 | 5432.24 | 6179.72 | 6972.31 | 7719.10 |
| Long-1 | 3.61 | 1224.29 | 2468.75 | 3665.28 | 4911.56 | 6136.43 | 7361.32 | 8578.74 | 9787.28 | 11019.7 | 12276.5 |
| Long-2 | 23.73 | 1299.27 | 2442.69 | 3681.13 | 4924.99 | 6127.20 | 7342.96 | 8585.60 | 9792.00 | 11029.0 | 12268.8 |
| Long-3 | 136.83 | 1257.70 | 2494.57 | 3669.17 | 4916.45 | 6117.47 | 7358.87 | 8557.21 | 9785.64 | 11042.0 | 12249.8 |
| Long-4 | -22.38 | 1294.90 | 2453.57 | 3657.95 | 4901.21 | 6124.30 | 7364.21 | 8570.25 | 9810.63 | 11044.9 | 12256.6 |
| Long-5 | 584.80 | 1426.35 | 2497.95 | 3678.71 | 4900.37 | 6132.08 | 7367.47 | 8598.93 | 9782.13 | 11041.1 | 12279.6 |
| Long-6 | 42.08 | 1190.75 | 2472.88 | 3666.40 | 4911.47 | 6119.08 | 7351.02 | 8597.29 | 9813.91 | 11037.7 | 12265.4 |
| Long-7 | 107.91 | 1271.56 | 2519.27 | 3672.11 | 4900.25 | 6102.48 | 7377.17 | 8577.95 | 9762.86 | 11035.5 | 12243.1 |
| Long-8 | -1.16 | 1279.31 | 2514.78 | 3667.10 | 4916.86 | 6122.13 | 7355.98 | 8570.96 | 9818.98 | 10998.5 | 12276.4 |
| SG1 | 233.19 | 117.09 | 24.19 | 55.88 | 104.56 | 149.36 | 201.14 | 185.84 | 215.17 | 243.01 | 244.64 |
| SG2 | 298.85 | 122.64 | -7.06 | 5.29 | 50.33 | 84.25 | 137.75 | 103.79 | 123.57 | 139.43 | 133.51 |
| SG3 | 196.75 | 85.66 | 59.09 | 225.36 | 432.14 | 620.97 | 771.70 | 856.24 | 987.01 | 1097.02 | 1181.26 |
| SG4 | 249.40 | 80.58 | 63.13 | 151.24 | 262.12 | 358.09 | 448.44 | 469.45 | 539.44 | 592.14 | 627.83 |
| SG5 | 269.73 | 114.09 | -35.50 | -24.63 | 34.26 | 103.70 | 239.78 | 246.87 | 354.18 | 396.13 | 405.44 |
| SG6 | -25.79 | 1.34 | 23.92 | 54.87 | 84.37 | 114.77 | 146.64 | 173.73 | 201.76 | 231.43 | 260.34 |
| SG7 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG8 | 101.32 | -17.20 | -107.03 | -95.97 | -57.70 | -23.83 | 24.03 | 18.14 | 37.28 | 57.16 | 71.15 |
| SG9 | -43.22 | -20.84 | -1.74 | 30.98 | 63.20 | 97.81 | 133.01 | 163.75 | 194.59 | 227.73 | 260.79 |
| SG10 | -24.91 | 6.68 | 33.95 | 65.85 | 100.56 | 131.37 | 166.04 | 197.04 | 230.45 | 262.19 | 293.71 |
| SG11 | 20.80 | 57.91 | 99.32 | 133.35 | 171.69 | 206.30 | 243.57 | 282.15 | 318.55 | 355.11 | 394.21 |

TABLE E-48. CVP4, WATER 2, LOAD CONDITION 1c (Continued)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SG12 | 37.00 | 98.95 | 172.03 | 241.08 | 311.94 | 381.08 | 451.94 | 521.08 | 591.61 | 664.04 | 735.05 |
| SG13 | 59.74 | 167.02 | 263.96 | 369.79 | 479.32 | 587.39 | 693.28 | 793.69 | 894.75 | 998.31 | 1098.81 |
| SG14 | 455.60 | 509.46 | 809.42 | 828.24 | 682.90 | 700.73 | 638.32 | 631.64 | 469.10 | 631.84 | 739.87 |
| SG15 | 28.34 | 84.32 | 137.96 | 179.07 | 221.18 | 261.96 | 303.21 | 347.95 | 388.90 | 430.92 | 474.93 |
| SG16 | 40.25 | 108.10 | 179.10 | 245.67 | 314.27 | 381.34 | 447.91 | 513.13 | 577.68 | 643.33 | 708.72 |
| SG17 | -53.05 | 26.98 | 103.16 | 182.57 | 266.09 | 348.75 | 431.55 | 514.25 | 595.86 | 682.38 | 766.89 |
| SG18 | 1025.53 | 710.85 | 339.65 | 300.19 | 325.67 | 358.31 | 397.12 | 431.73 | 496.32 | 555.17 | 600.89 |
| SG19 | -50.92 | 15.29 | 77.08 | 127.19 | 181.24 | 233.22 | 286.29 | 339.74 | 391.39 | 445.41 | 499.93 |
| SG20 | -11.02 | 85.08 | 169.20 | 248.07 | 329.64 | 410.97 | 489.48 | 567.84 | 643.68 | 723.16 | 801.27 |
| SG21 | -42.63 | 47.44 | 99.02 | 129.39 | 160.37 | 192.05 | 223.53 | 255.58 | 286.00 | 315.29 | 349.15 |
| SG22 | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### | ####### |
| SG23 | 10.14 | 90.95 | 159.41 | 215.83 | 276.03 | 333.60 | 393.15 | 452.75 | 511.84 | 571.81 | 632.26 |
| SG24 | 24.66 | 124.08 | 213.57 | 297.81 | 382.73 | 467.78 | 553.69 | 636.14 | 717.74 | 801.31 | 885.34 |
| SG25 | 3.44 | 124.11 | 232.19 | 327.37 | 427.82 | 526.63 | 625.19 | 721.21 | 816.76 | 912.80 | 1005.77 |
| SG26 | -135.88 | -33.62 | 53.39 | 155.14 | 260.46 | 364.65 | 467.31 | 562.81 | 660.03 | 761.44 | 857.23 |
| SG27 | 13.20 | 89.44 | 157.75 | 222.68 | 288.76 | 353.68 | 417.23 | 477.29 | 538.15 | 600.07 | 661.56 |
| SG28 | 102.13 | 167.26 | 218.34 | 257.51 | 299.75 | 341.19 | 382.59 | 429.21 | 472.18 | 516.58 | 562.41 |
| SG29 | -22.53 | 35.50 | 77.66 | 119.28 | 163.82 | 209.80 | 255.21 | 299.53 | 343.89 | 390.80 | 435.45 |
| SG30 | -158.46 | -112.87 | -74.14 | -46.43 | -12.92 | 19.59 | 52.82 | 86.62 | 121.02 | 155.38 | 188.18 |
| SG31 | -90.19 | -48.30 | -28.42 | -10.33 | 16.39 | 39.04 | 66.77 | 90.58 | 118.64 | 145.55 | 171.55 |
| SG32-T | -65.32 | 57.45 | 139.85 | 211.61 | 265.89 | 320.70 | 365.99 | 418.55 | 461.14 | 505.72 | 548.58 |
| SG32-45 | -19.97 | 112.21 | 214.05 | 311.09 | 390.78 | 472.46 | 545.77 | 621.17 | 690.14 | 761.47 | 828.06 |
| SG32-L | 11.90 | 122.48 | 217.08 | 309.52 | 399.43 | 486.67 | 569.95 | 650.21 | 729.20 | 809.37 | 888.95 |
| SG33-T | -43.41 | 21.59 | 80.04 | 131.80 | 164.38 | 200.71 | 229.89 | 270.03 | 298.14 | 328.36 | 359.81 |
| SG33-45 | 11.37 | 70.45 | 117.79 | 156.64 | 178.22 | 202.37 | 221.49 | 243.13 | 258.44 | 275.25 | 288.78 |
| SG33-T | 44.55 | 119.58 | 214.68 | 307.42 | 399.77 | 488.89 | 574.80 | 654.99 | 735.25 | 817.49 | 895.55 |
| SG34-T | -41.48 | -9.34 | 33.83 | 88.20 | 132.78 | 181.72 | 226.22 | 276.22 | 319.84 | 366.22 | 412.61 |
| SG34-45 | 57.80 | 109.94 | 166.36 | 227.55 | 284.19 | 341.53 | 396.42 | 451.34 | 505.38 | 559.56 | 615.17 |
| SG34-L | 16.10 | 108.67 | 189.47 | 264.63 | 344.18 | 423.30 | 500.70 | 577.21 | 653.04 | 731.60 | 808.78 |
| SG35-T | -48.66 | 47.67 | 110.04 | 157.06 | 194.84 | 237.98 | 276.21 | 325.68 | 365.23 | 409.54 | 453.15 |
| SG35-45 | -7.94 | 77.35 | 145.09 | 202.06 | 255.67 | 310.30 | 361.46 | 416.00 | 467.89 | 520.57 | 574.41 |
| SG35-L | 24.44 | 120.10 | 201.79 | 277.26 | 356.39 | 435.27 | 512.05 | 587.57 | 662.03 | 740.17 | 815.99 |
| SG36-T | -31.32 | 40.85 | 92.03 | 140.52 | 173.10 | 206.90 | 232.63 | 266.48 | 291.79 | 317.45 | 343.17 |
| SG36-45 | -17.33 | 51.05 | 101.81 | 139.71 | 168.81 | 196.94 | 220.42 | 245.07 | 266.87 | 286.42 | 310.30 |
| SG36-L | 47.43 | 144.34 | 254.64 | 360.38 | 462.54 | 561.08 | 657.89 | 748.23 | 838.09 | 930.31 | 1019.25 |
| SG37-T | -24.64 | 18.76 | 49.11 | 61.52 | 68.40 | 81.74 | 91.54 | 114.14 | 128.13 | 145.14 | 163.55 |
| SG37-45 | -33.34 | 13.98 | 42.71 | 44.77 | 46.85 | 51.34 | 54.18 | 63.73 | 72.05 | 75.76 | 87.46 |
| SG37-L | 26.94 | 131.64 | 214.52 | 281.47 | 354.95 | 427.60 | 502.76 | 578.38 | 654.98 | 733.50 | 811.15 |
| SG38-T | -73.71 | 7.09 | 72.84 | 140.09 | 193.54 | 249.47 | 298.15 | 352.49 | 397.94 | 446.47 | 493.32 |
| SG38-45 | -86.01 | 19.07 | 97.45 | 168.95 | 240.11 | 309.55 | 379.06 | 450.63 | 519.47 | 587.71 | 660.16 |
| SG38-L | 17.59 | 118.58 | 204.55 | 283.73 | 364.71 | 442.13 | 523.23 | 601.96 | 680.42 | 761.29 | 841.52 |
| SG39-T | -52.01 | 61.39 | 144.11 | 215.01 | 269.72 | 325.03 | 371.56 | 424.59 | 468.46 | 513.54 | 557.12 |
| SG39-45 | -35.34 | 97.79 | 191.96 | 275.05 | 349.75 | 425.37 | 495.50 | 568.22 | 636.51 | 703.16 | 773.91 |
| SG39-L | 5.63 | 122.13 | 204.26 | 287.61 | 370.15 | 452.59 | 533.67 | 610.07 | 685.51 | 763.82 | 840.09 |
| SG40-T | -4.48 | 26.01 | 58.33 | 79.15 | 103.45 | 129.55 | 154.22 | 187.25 | 215.74 | 244.98 | 275.69 |
| SG40-45 | -23.02 | 31.60 | 81.28 | 122.02 | 170.62 | 221.20 | 271.46 | 326.97 | 382.13 | 435.70 | 495.12 |
| SG40-L | 8.30 | 67.12 | 126.12 | 177.26 | 241.77 | 305.86 | 372.57 | 437.92 | 505.69 | 576.07 | 647.38 |

# APPENDIX F—REDUCED STRAIN GAGE DATA

The raw strain gage data in appendix E was reduced to remove the strain gage offset due to preloading after the panel was installed in the fixture. In the strain gage data reduction, the first three data points were removed to minimize the effects of preloading and free play. A linear regression using a least squares method was used to curve-fit the remaining data set to a first order polynomial:

$$\varepsilon = A\chi + B \tag{1}$$

where $\varepsilon$ is the dependent strain variable, $\chi$ the independent load increment variable, $A$ the slope, and $B$ the ordinate intercept. Parameter $B$ was used to define the zero load offset which was used to shift all data in the set. The reduced strain gage data is presented in the tables of this appendix in terms of the ten equal load increments up to the maximum loads for each load sequence. Cross-reference tables in appendix E list the corresponding values of the applied loads.

| CVP1 | SG1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 305.54 | 187.21 | 279.40 | 154.54 | | | -55.90 | 49.81 | 203.04 | 96.31 | 142.61 | 109.95 |
| 1 | 206.97 | 157.73 | 112.17 | 49.25 | | | -37.88 | -13.06 | 96.40 | 108.59 | 73.59 | 48.00 |
| 2 | 239.73 | 183.88 | 163.85 | 35.85 | | | -0.35 | 4.36 | 135.59 | 146.52 | 77.62 | 68.16 |
| 3 | 261.37 | 239.44 | 222.66 | 154.98 | | | 6.93 | -2.65 | 217.52 | 222.76 | 174.98 | 166.96 |
| 4 | 344.55 | 341.14 | 291.94 | 345.79 | | | -14.61 | -21.29 | 308.59 | 308.71 | 296.91 | 332.79 |
| 5 | 436.52 | 411.13 | 381.29 | 419.20 | | | -39.02 | -17.07 | 412.85 | 417.20 | 371.72 | 444.74 |
| 6 | 552.71 | 482.78 | 483.94 | 533.60 | | | -50.30 | -25.48 | 488.68 | 513.60 | 434.03 | 518.36 |
| 7 | 599.44 | 558.61 | 515.27 | 571.07 | | | -40.20 | -38.57 | 568.07 | 581.16 | 529.03 | 571.35 |
| 8 | 716.35 | 669.66 | 605.07 | 630.34 | | | -46.97 | -33.88 | 649.06 | 661.45 | 565.60 | 654.11 |
| 9 | 781.00 | 748.75 | 686.00 | 689.91 | | | -33.31 | -18.65 | 711.73 | 699.16 | 628.78 | 697.68 |
| 10 | 877.51 | 810.10 | 748.91 | 760.80 | | | -36.31 | -41.38 | 769.04 | 799.62 | 693.95 | 767.52 |

| CVP1 | SG2 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 34.95 | 28.29 | 37.46 | 25.44 | | | -2.61 | 1.22 | 28.17 | 21.77 | 20.89 | 23.18 |
| 1 | 77.09 | 74.83 | 72.87 | 70.01 | | | -5.91 | -4.28 | 65.55 | 66.67 | 66.73 | 69.01 |
| 2 | 129.50 | 124.88 | 123.07 | 119.50 | | | -9.21 | -5.56 | 112.65 | 112.30 | 111.11 | 114.09 |
| 3 | 181.16 | 178.00 | 181.15 | 177.75 | | | -12.51 | -8.31 | 164.68 | 163.96 | 164.08 | 165.23 |
| 4 | 236.31 | 234.62 | 239.80 | 235.85 | | | -15.44 | -13.08 | 216.72 | 216.23 | 217.62 | 219.02 |
| 5 | 295.99 | 291.95 | 293.01 | 292.91 | | | -17.46 | -15.10 | 270.57 | 271.92 | 272.25 | 273.24 |
| 6 | 358.00 | 349.14 | 355.93 | 353.23 | | | -22.59 | -20.97 | 325.51 | 327.63 | 325.55 | 328.12 |
| 7 | 412.98 | 405.69 | 411.61 | 413.47 | | | -26.07 | -22.62 | 380.72 | 381.80 | 382.08 | 382.40 |
| 8 | 476.93 | 468.94 | 470.95 | 470.70 | | | -30.30 | -26.65 | 435.70 | 436.08 | 435.17 | 440.07 |
| 9 | 534.05 | 529.00 | 533.20 | 530.83 | | | -34.88 | -26.46 | 489.20 | 488.07 | 489.75 | 491.91 |
| 10 | 596.65 | 586.13 | 599.27 | 589.35 | | | -38.19 | -31.59 | 543.75 | 544.92 | 545.29 | 548.37 |

| CVP1 | SG3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 300.89 | 244.64 | 334.83 | 231.45 | | | -57.68 | 36.93 | 237.72 | 170.80 | 192.71 | 216.48 |
| 1 | 207.96 | 179.27 | 102.56 | 36.20 | | | -51.00 | -35.64 | 119.44 | 131.31 | 43.00 | 18.43 |
| 2 | 226.85 | 177.38 | 141.87 | 34.54 | | | -25.34 | -27.18 | 102.34 | 135.35 | 40.06 | 39.01 |
| 3 | 243.21 | 217.64 | 200.09 | 137.60 | | | -36.22 | -57.56 | 159.67 | 176.87 | 117.61 | 120.58 |
| 4 | 305.46 | 301.02 | 264.39 | 313.23 | | | -72.34 | -105.46 | 238.46 | 238.94 | 214.09 | 252.95 |
| 5 | 389.39 | 364.01 | 342.51 | 382.94 | | | -116.10 | -110.06 | 316.14 | 324.36 | 266.65 | 345.33 |
| 6 | 486.91 | 429.95 | 437.36 | 494.11 | | | -148.68 | -124.19 | 389.78 | 405.36 | 303.88 | 397.78 |
| 7 | 531.18 | 498.61 | 463.96 | 528.55 | | | -161.53 | -154.38 | 442.87 | 457.86 | 378.02 | 433.06 |
| 8 | 644.68 | 596.32 | 545.31 | 578.03 | | | -176.14 | -167.55 | 501.46 | 527.30 | 401.65 | 504.46 |
| 9 | 701.03 | 664.92 | 616.15 | 626.90 | | | -174.53 | -196.49 | 546.28 | 546.56 | 443.87 | 528.49 |
| 10 | 788.96 | 724.58 | 676.49 | 690.93 | | | -182.02 | -227.36 | 587.02 | 624.64 | 488.28 | 580.48 |

| CVP1 | SG4 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 18.93 | 21.00 | 22.87 | 16.75 | | | 3.42 | 4.43 | 20.76 | 21.70 | 11.13 | 19.63 |
| 1 | 71.66 | 71.91 | 65.77 | 65.69 | | | -5.01 | -1.61 | 65.26 | 65.84 | 58.42 | 61.21 |
| 2 | 124.78 | 124.50 | 120.34 | 121.94 | | | -8.86 | -7.84 | 109.22 | 111.08 | 108.27 | 111.95 |
| 3 | 181.35 | 176.67 | 180.77 | 180.88 | | | -16.00 | -12.42 | 160.49 | 160.52 | 161.39 | 165.63 |
| 4 | 235.37 | 232.34 | 240.85 | 234.37 | | | -18.39 | -18.29 | 212.14 | 211.10 | 213.06 | 211.14 |
| 5 | 295.01 | 290.37 | 294.77 | 293.23 | | | -21.87 | -22.32 | 264.12 | 265.29 | 265.47 | 265.89 |
| 6 | 355.35 | 348.26 | 356.36 | 354.07 | | | -28.46 | -26.72 | 318.84 | 319.51 | 316.90 | 320.18 |
| 7 | 411.39 | 405.14 | 414.03 | 416.10 | | | -34.32 | -31.48 | 371.83 | 372.18 | 372.12 | 373.88 |
| 8 | 474.94 | 465.79 | 472.61 | 473.12 | | | -38.20 | -37.18 | 424.94 | 425.15 | 425.54 | 430.61 |
| 9 | 533.12 | 524.91 | 534.27 | 533.03 | | | -42.58 | -38.80 | 478.23 | 477.66 | 478.81 | 482.05 |
| 10 | 594.59 | 582.74 | 600.85 | 591.52 | | | -48.11 | -44.11 | 531.29 | 531.73 | 533.59 | 536.83 |

| CVP1 | SG5 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 333.86 | 240.30 | 356.75 | 258.39 | | | -60.26 | 28.00 | 280.26 | 180.87 | 221.09 | 248.98 |
| 1 | 158.67 | 129.82 | 128.69 | 62.00 | | | -44.81 | -20.15 | 97.07 | 108.77 | 63.40 | 62.30 |
| 2 | 202.20 | 155.81 | 170.80 | 64.37 | | | -15.70 | -10.12 | 111.75 | 142.83 | 81.41 | 69.76 |
| 3 | 240.85 | 219.79 | 206.36 | 158.72 | | | -21.20 | -42.83 | 174.25 | 201.34 | 149.97 | 149.48 |
| 4 | 298.56 | 298.62 | 276.55 | 303.91 | | | -48.72 | -90.86 | 260.81 | 260.80 | 247.85 | 270.22 |
| 5 | 393.44 | 358.85 | 367.95 | 379.04 | | | -75.86 | -95.35 | 344.48 | 349.11 | 312.52 | 370.80 |
| 6 | 466.14 | 422.81 | 459.11 | 496.46 | | | -100.95 | -103.53 | 430.52 | 435.73 | 356.52 | 431.42 |
| 7 | 513.84 | 494.22 | 491.26 | 533.68 | | | -118.05 | -130.01 | 482.22 | 494.88 | 439.72 | 474.39 |
| 8 | 632.72 | 589.67 | 574.84 | 581.82 | | | -119.75 | -127.04 | 542.23 | 575.37 | 478.43 | 553.03 |
| 9 | 690.18 | 659.94 | 642.57 | 637.82 | | | -124.08 | -175.12 | 594.92 | 606.10 | 528.84 | 588.65 |
| 10 | 778.01 | 721.53 | 712.75 | 703.82 | | | -112.54 | -184.28 | 645.33 | 681.07 | 580.31 | 640.53 |

| CVP1 | SG6 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 41.94 | 41.66 | 52.72 | 39.32 | | | 2.31 | -0.24 | 44.50 | 41.09 | 37.75 | 44.12 |
| 1 | 86.06 | 87.62 | 91.04 | 86.98 | | | -7.59 | -7.39 | 78.93 | 80.65 | 81.01 | 82.23 |
| 2 | 143.21 | 142.04 | 144.88 | 141.76 | | | -14.55 | -11.42 | 125.27 | 127.17 | 128.29 | 129.49 |
| 3 | 200.34 | 197.33 | 202.56 | 200.52 | | | -19.31 | -16.55 | 177.82 | 178.08 | 179.04 | 181.15 |
| 4 | 257.47 | 254.83 | 263.56 | 252.00 | | | -24.27 | -22.97 | 230.38 | 229.94 | 229.06 | 224.64 |
| 5 | 322.24 | 316.89 | 320.59 | 311.78 | | | -29.21 | -29.38 | 285.48 | 285.97 | 282.75 | 280.30 |
| 6 | 384.22 | 378.45 | 387.50 | 377.74 | | | -36.89 | -35.99 | 343.50 | 343.48 | 338.40 | 337.35 |
| 7 | 445.94 | 441.74 | 449.75 | 442.70 | | | -44.22 | -41.11 | 401.43 | 401.47 | 399.12 | 395.08 |
| 8 | 517.73 | 509.35 | 514.38 | 506.32 | | | -50.13 | -46.63 | 460.22 | 460.84 | 457.67 | 456.94 |
| 9 | 582.32 | 575.43 | 585.20 | 574.11 | | | -55.79 | -52.27 | 519.74 | 520.31 | 517.17 | 513.69 |
| 10 | 651.48 | 642.05 | 662.21 | 640.67 | | | -60.77 | -57.22 | 579.94 | 579.70 | 577.45 | 574.70 |

| CVP1 | SG7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 368.71 | 314.76 | 404.22 | 272.02 | | | -85.90 | -4.52 | 333.07 | 230.18 | 214.33 | 269.14 |
| 1 | 150.21 | 147.24 | 133.72 | 71.49 | | | -42.77 | -16.21 | 105.10 | 140.59 | 56.43 | 50.27 |
| 2 | 205.88 | 179.55 | 159.52 | 61.03 | | | 21.63 | 11.09 | 138.32 | 198.64 | 78.78 | 88.36 |
| 3 | 256.20 | 234.75 | 209.49 | 160.45 | | | 32.74 | 7.71 | 213.50 | 261.78 | 189.97 | 193.49 |
| 4 | 296.02 | 306.43 | 281.65 | 301.85 | | | 34.35 | -12.51 | 332.33 | 335.11 | 307.96 | 338.88 |
| 5 | 384.36 | 386.17 | 378.64 | 389.85 | | | 51.17 | -14.52 | 432.85 | 435.10 | 389.67 | 464.85 |
| 6 | 464.56 | 452.28 | 476.61 | 521.57 | | | 34.86 | -4.04 | 545.79 | 549.37 | 450.69 | 538.78 |
| 7 | 521.14 | 527.13 | 508.47 | 550.95 | | | 23.36 | -13.68 | 606.63 | 624.21 | 549.62 | 599.98 |
| 8 | 637.41 | 629.68 | 589.96 | 593.32 | | | 30.31 | 9.97 | 681.15 | 736.30 | 605.74 | 700.80 |
| 9 | 700.55 | 698.62 | 655.44 | 653.77 | | | 65.31 | -18.19 | 745.97 | 781.11 | 665.76 | 747.44 |
| 10 | 784.00 | 761.95 | 731.68 | 714.51 | | | 109.19 | -10.13 | 811.29 | 861.36 | 723.79 | 804.59 |

| CVP1 | SG8 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 16.56 | 25.06 | 28.79 | 19.78 | | | 1.23 | 0.65 | 28.09 | 23.78 | 18.89 | 25.38 |
| 1 | 61.92 | 68.90 | 68.90 | 69.17 | | | -5.54 | -5.12 | 63.95 | 65.36 | 65.99 | 68.57 |
| 2 | 119.96 | 122.35 | 120.89 | 123.25 | | | -9.02 | -8.23 | 110.97 | 114.25 | 113.63 | 116.87 |
| 3 | 177.47 | 175.55 | 180.10 | 181.39 | | | -14.65 | -11.61 | 163.37 | 164.90 | 167.46 | 170.98 |
| 4 | 230.88 | 230.02 | 239.57 | 232.03 | | | -17.21 | -17.84 | 216.46 | 215.94 | 220.04 | 217.08 |
| 5 | 289.86 | 289.71 | 295.94 | 291.18 | | | -21.14 | -21.73 | 270.26 | 269.43 | 273.94 | 274.92 |
| 6 | 346.74 | 346.36 | 358.01 | 352.77 | | | -27.73 | -26.44 | 326.70 | 325.09 | 327.93 | 330.80 |
| 7 | 403.12 | 402.98 | 414.69 | 413.86 | | | -33.31 | -30.19 | 380.45 | 378.42 | 384.40 | 385.85 |
| 8 | 466.23 | 463.70 | 473.11 | 470.22 | | | -36.53 | -33.82 | 434.00 | 434.71 | 440.18 | 444.12 |
| 9 | 522.43 | 520.93 | 534.10 | 530.61 | | | -41.92 | -38.69 | 488.01 | 488.03 | 495.58 | 497.64 |
| 10 | 582.27 | 579.41 | 600.06 | 589.08 | | | -44.23 | -42.40 | 542.78 | 542.68 | 551.59 | 553.69 |

| CVP1 | SG9 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 301.63 | 246.36 | 345.15 | 230.67 | | | -60.40 | 32.75 | 241.72 | 169.60 | 207.00 | 232.70 |
| 1 | 206.29 | 180.42 | 114.51 | 48.42 | | | -57.03 | -48.65 | 118.08 | 127.16 | 58.16 | 40.11 |
| 2 | 237.86 | 177.25 | 151.43 | 42.53 | | | -41.47 | -31.56 | 108.88 | 141.12 | 48.42 | 57.39 |
| 3 | 245.77 | 226.52 | 212.42 | 148.91 | | | -37.84 | -54.59 | 170.81 | 188.54 | 128.01 | 131.44 |
| 4 | 319.80 | 313.04 | 277.09 | 321.65 | | | -82.23 | -105.44 | 247.78 | 252.64 | 227.45 | 272.30 |
| 5 | 407.41 | 383.95 | 357.28 | 393.40 | | | -122.51 | -112.80 | 334.30 | 340.84 | 280.58 | 369.30 |
| 6 | 502.77 | 449.54 | 456.72 | 508.09 | | | -156.58 | -137.78 | 407.03 | 424.25 | 325.91 | 421.39 |
| 7 | 547.41 | 520.24 | 488.12 | 546.03 | | | -167.77 | -156.77 | 467.31 | 483.92 | 403.37 | 459.63 |
| 8 | 667.00 | 625.32 | 573.36 | 598.83 | | | -188.45 | -167.73 | 526.83 | 555.04 | 428.29 | 542.63 |
| 9 | 721.90 | 691.92 | 646.96 | 650.84 | | | -188.49 | -200.55 | 576.44 | 577.05 | 474.38 | 566.65 |
| 10 | 816.82 | 758.21 | 710.06 | 716.74 | | | -194.87 | -229.22 | 617.55 | 660.12 | 520.84 | 622.89 |

| CVP1 | SG10 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |

| CVP1 | SG11 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 325.20 | 227.09 | 342.88 | 237.88 | | | -52.36 | 30.84 | 276.35 | 173.63 | 209.18 | 236.28 |
| 1 | 143.97 | 111.05 | 111.56 | 43.93 | | | -37.23 | -24.81 | 92.88 | 99.79 | 39.80 | 41.18 |
| 2 | 173.87 | 124.58 | 139.84 | 34.37 | | | -13.04 | -15.62 | 92.49 | 119.81 | 49.91 | 43.57 |
| 3 | 199.96 | 176.22 | 165.18 | 117.94 | | | -19.15 | -41.22 | 138.61 | 165.74 | 108.71 | 116.68 |
| 4 | 245.32 | 243.26 | 226.16 | 252.59 | | | -46.25 | -92.97 | 215.19 | 214.39 | 201.51 | 226.99 |
| 5 | 318.96 | 296.15 | 308.47 | 319.90 | | | -71.08 | -98.67 | 291.22 | 288.97 | 256.09 | 320.84 |
| 6 | 383.78 | 341.33 | 386.28 | 427.39 | | | -98.54 | -110.05 | 366.14 | 367.21 | 292.39 | 369.97 |
| 7 | 415.37 | 398.61 | 406.06 | 449.35 | | | -112.85 | -133.26 | 407.29 | 416.23 | 361.94 | 402.86 |
| 8 | 520.60 | 483.82 | 478.93 | 486.50 | | | -112.53 | -131.52 | 455.41 | 483.09 | 385.02 | 474.63 |
| 9 | 564.47 | 535.67 | 533.24 | 524.90 | | | -117.93 | -177.76 | 496.36 | 498.50 | 421.54 | 493.70 |
| 10 | 639.92 | 584.88 | 582.23 | 577.13 | | | -106.08 | -187.87 | 531.05 | 564.63 | 460.42 | 533.93 |

| CVP1 | SG12 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 43.30 | 46.55 | 38.05 | 29.09 | | | 7.63 | -8.97 | 51.75 | 47.03 | 31.29 | 36.85 |
| 1 | 126.54 | 130.11 | 125.04 | 124.11 | | | -6.22 | -12.18 | 119.96 | 121.12 | 114.46 | 117.11 |
| 2 | 210.96 | 209.02 | 206.98 | 209.00 | | | -16.18 | -15.62 | 188.74 | 191.04 | 190.15 | 192.35 |
| 3 | 294.14 | 289.80 | 294.79 | 292.88 | | | -23.43 | -19.02 | 265.79 | 265.38 | 268.00 | 269.43 |
| 4 | 378.66 | 373.05 | 382.55 | 370.66 | | | -24.94 | -23.97 | 341.79 | 341.18 | 343.13 | 339.04 |
| 5 | 470.94 | 463.08 | 468.85 | 455.08 | | | -28.38 | -32.96 | 423.35 | 424.13 | 420.24 | 418.37 |
| 6 | 563.40 | 553.94 | 563.51 | 552.36 | | | -37.64 | -41.41 | 509.20 | 507.98 | 504.71 | 502.91 |
| 7 | 656.05 | 647.06 | 657.15 | 645.34 | | | -46.63 | -44.34 | 595.12 | 595.25 | 592.07 | 588.55 |
| 8 | 759.61 | 745.58 | 750.89 | 741.53 | | | -48.90 | -51.09 | 683.42 | 683.33 | 681.61 | 680.95 |
| 9 | 854.88 | 843.02 | 853.29 | 840.82 | | | -60.40 | -57.90 | 772.81 | 771.91 | 772.11 | 768.57 |
| 10 | 955.44 | 940.31 | 962.89 | 936.90 | | | -65.51 | -63.77 | 861.89 | 861.15 | 862.78 | 859.56 |

| CVP1 | SG13 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 357.41 | 298.88 | 392.63 | 257.43 | | | -81.12 | -12.60 | 324.33 | 214.35 | 195.82 | 257.36 |
| 1 | 150.27 | 140.64 | 130.43 | 65.80 | | | -39.92 | -20.72 | 106.75 | 137.25 | 48.11 | 44.90 |
| 2 | 199.94 | 175.64 | 153.42 | 54.54 | | | 16.22 | 9.49 | 144.53 | 198.55 | 72.81 | 91.63 |
| 3 | 251.71 | 231.32 | 205.53 | 154.56 | | | 30.07 | 7.25 | 216.32 | 262.18 | 190.07 | 199.40 |
| 4 | 295.27 | 304.75 | 277.37 | 298.90 | | | 34.95 | -17.29 | 331.39 | 335.44 | 306.40 | 344.26 |
| 5 | 381.91 | 383.39 | 369.78 | 387.28 | | | 53.48 | -16.92 | 435.72 | 442.03 | 388.90 | 472.92 |
| 6 | 461.17 | 445.56 | 464.90 | 517.94 | | | 34.30 | -11.33 | 550.15 | 555.51 | 453.96 | 544.71 |
| 7 | 512.25 | 517.39 | 498.49 | 545.68 | | | 20.96 | -15.17 | 609.71 | 635.20 | 551.79 | 607.05 |
| 8 | 630.70 | 621.56 | 576.65 | 587.91 | | | 29.10 | 4.53 | 684.65 | 739.99 | 603.91 | 715.81 |
| 9 | 692.55 | 692.94 | 642.90 | 645.46 | | | 64.56 | -26.06 | 751.80 | 784.74 | 667.44 | 759.18 |
| 10 | 777.88 | 753.29 | 716.97 | 703.51 | | | 107.89 | -16.16 | 815.01 | 869.35 | 722.61 | 820.03 |

| CVP1 | SG14 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -10.84 | -0.53 | 2.40 | -8.06 | | | 2.25 | -2.29 | 2.87 | -6.34 | -9.57 | 0.01 |
| 1 | 49.10 | 56.43 | 55.10 | 57.27 | | | -6.36 | -6.51 | 52.15 | 51.19 | 53.41 | 56.46 |
| 2 | 118.28 | 121.97 | 117.51 | 122.24 | | | -11.63 | -7.88 | 111.57 | 112.71 | 111.71 | 118.03 |
| 3 | 184.67 | 183.41 | 186.75 | 190.08 | | | -15.62 | -10.45 | 170.82 | 172.47 | 175.79 | 181.30 |
| 4 | 245.62 | 244.60 | 253.95 | 246.20 | | | -16.40 | -16.68 | 230.18 | 229.09 | 234.36 | 232.85 |
| 5 | 309.85 | 309.10 | 314.32 | 311.74 | | | -18.87 | -20.49 | 289.69 | 289.29 | 293.99 | 296.91 |
| 6 | 370.60 | 369.45 | 381.50 | 379.15 | | | -26.29 | -25.80 | 350.84 | 349.16 | 352.48 | 356.70 |
| 7 | 428.72 | 428.63 | 441.50 | 444.95 | | | -32.62 | -27.54 | 407.02 | 406.29 | 412.96 | 415.91 |
| 8 | 496.32 | 493.15 | 502.51 | 503.46 | | | -35.61 | -32.13 | 463.45 | 464.41 | 471.34 | 478.51 |
| 9 | 554.52 | 553.60 | 564.91 | 565.41 | | | -41.19 | -36.24 | 519.69 | 519.50 | 529.56 | 534.73 |
| 10 | 615.64 | 612.54 | 631.67 | 623.96 | | | -42.76 | -39.41 | 575.51 | 575.43 | 585.52 | 592.28 |

| CVP1 | SG15 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 128.12 | 108.11 | 149.58 | 99.45 | | | -25.61 | -26.88 | 110.31 | 86.72 | 100.94 | 125.41 |
| 1 | 98.38 | 95.42 | 76.82 | 53.54 | | | -33.39 | -63.74 | 65.63 | 77.74 | 57.57 | 71.59 |
| 2 | 158.21 | 108.87 | 99.10 | 72.80 | | | -53.58 | -23.11 | 88.67 | 112.25 | 67.34 | 97.76 |
| 3 | 168.66 | 163.78 | 159.69 | 141.87 | | | -4.90 | -15.10 | 149.63 | 160.19 | 131.21 | 149.84 |
| 4 | 222.91 | 221.57 | 208.46 | 218.38 | | | -36.47 | -30.72 | 201.18 | 212.62 | 192.15 | 221.86 |
| 5 | 292.95 | 278.75 | 261.65 | 272.83 | | | -53.30 | -42.87 | 274.40 | 279.85 | 239.65 | 288.96 |
| 6 | 349.76 | 323.62 | 322.81 | 339.95 | | | -52.22 | -69.97 | 317.82 | 337.00 | 290.42 | 338.71 |
| 7 | 383.35 | 376.42 | 364.08 | 387.52 | | | -52.40 | -47.33 | 380.91 | 399.33 | 344.33 | 376.95 |
| 8 | 465.52 | 456.03 | 416.48 | 435.32 | | | -63.55 | -40.88 | 427.65 | 453.84 | 377.24 | 460.11 |
| 9 | 501.64 | 493.10 | 483.31 | 476.90 | | | -74.89 | -78.93 | 475.17 | 480.98 | 423.50 | 485.65 |
| 10 | 573.49 | 546.19 | 523.39 | 526.83 | | | -66.26 | -77.92 | 511.01 | 547.69 | 468.63 | 544.01 |

| CVP1 | SG16 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 49.82 | 47.18 | 49.46 | 23.64 | | | 12.09 | -2.42 | 52.59 | 52.01 | 44.96 | 44.20 |
| 1 | 66.65 | 69.34 | 59.43 | 52.61 | | | 3.63 | -20.57 | 62.85 | 65.38 | 64.27 | 64.88 |
| 2 | 134.39 | 111.26 | 101.25 | 101.92 | | | -19.79 | -6.28 | 99.10 | 103.48 | 100.75 | 102.26 |
| 3 | 167.17 | 168.22 | 164.63 | 162.03 | | | -9.13 | -7.17 | 152.21 | 154.02 | 153.17 | 153.37 |
| 4 | 227.96 | 226.46 | 223.79 | 225.96 | | | -19.63 | -16.37 | 203.49 | 205.49 | 205.75 | 209.44 |
| 5 | 286.90 | 288.89 | 275.01 | 281.12 | | | -23.10 | -24.25 | 256.04 | 260.98 | 256.14 | 264.76 |
| 6 | 344.25 | 346.95 | 337.13 | 339.38 | | | -22.48 | -38.61 | 309.31 | 313.54 | 309.34 | 313.35 |
| 7 | 397.54 | 401.66 | 389.79 | 396.50 | | | -26.70 | -26.97 | 362.81 | 366.43 | 360.96 | 363.01 |
| 8 | 457.79 | 460.83 | 443.74 | 450.75 | | | -32.17 | -25.76 | 410.60 | 418.09 | 409.83 | 422.33 |
| 9 | 509.76 | 511.65 | 497.73 | 503.88 | | | -41.57 | -42.69 | 461.70 | 465.86 | 462.19 | 466.64 |
| 10 | 567.95 | 569.31 | 555.42 | 555.34 | | | -38.09 | -40.76 | 508.91 | 516.43 | 513.00 | 521.42 |

| CVP1 | SG17 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 130.54 | 86.05 | 158.55 | 110.34 | | | -13.76 | 16.34 | 127.66 | 88.81 | 100.24 | 118.44 |
| 1 | 92.53 | 69.72 | 87.46 | 63.47 | | | -14.12 | -6.25 | 93.88 | 82.57 | 56.68 | 68.11 |
| 2 | 128.69 | 107.35 | 122.20 | 81.48 | | | -6.05 | -4.97 | 119.40 | 121.68 | 84.98 | 98.78 |
| 3 | 167.98 | 155.65 | 161.13 | 141.72 | | | -5.32 | -9.20 | 146.21 | 159.14 | 136.79 | 155.54 |
| 4 | 207.28 | 196.04 | 216.05 | 211.15 | | | -16.70 | -34.73 | 200.75 | 197.53 | 200.55 | 210.69 |
| 5 | 253.16 | 247.63 | 272.20 | 263.72 | | | -26.62 | -31.98 | 262.07 | 239.40 | 248.51 | 278.46 |
| 6 | 304.97 | 279.04 | 334.47 | 338.13 | | | -33.79 | -38.96 | 314.38 | 300.55 | 293.42 | 324.25 |
| 7 | 343.34 | 328.03 | 372.03 | 377.57 | | | -36.18 | -43.92 | 362.15 | 352.85 | 350.29 | 368.17 |
| 8 | 420.65 | 394.88 | 431.45 | 420.95 | | | -39.12 | -45.94 | 412.10 | 408.14 | 391.76 | 448.21 |
| 9 | 462.49 | 440.32 | 492.75 | 463.02 | | | -39.85 | -57.15 | 462.23 | 441.16 | 436.55 | 477.94 |
| 10 | 528.92 | 496.85 | 540.86 | 520.32 | | | -37.28 | -61.01 | 502.77 | 506.56 | 485.68 | 530.29 |

| CVP1 | SG18 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 40.39 | 31.83 | 45.96 | 36.59 | | | 0.64 | 3.02 | 46.95 | 43.95 | 38.77 | 43.20 |
| 1 | 72.32 | 63.11 | 62.88 | 62.95 | | | -6.07 | -4.11 | 74.91 | 70.73 | 59.29 | 61.12 |
| 2 | 120.74 | 113.97 | 109.69 | 110.18 | | | -7.99 | -6.54 | 118.41 | 116.81 | 102.48 | 107.49 |
| 3 | 171.22 | 166.43 | 166.34 | 166.04 | | | -10.47 | -8.48 | 158.30 | 162.01 | 156.99 | 160.46 |
| 4 | 219.90 | 214.15 | 223.88 | 223.31 | | | -14.45 | -17.16 | 208.91 | 207.86 | 211.58 | 214.61 |
| 5 | 272.05 | 268.78 | 274.73 | 277.29 | | | -19.75 | -18.49 | 263.09 | 256.87 | 262.86 | 269.60 |
| 6 | 325.98 | 316.88 | 331.75 | 335.86 | | | -24.00 | -23.97 | 316.44 | 311.61 | 314.78 | 320.03 |
| 7 | 378.47 | 370.02 | 385.63 | 392.52 | | | -27.37 | -26.25 | 369.22 | 365.77 | 368.41 | 372.92 |
| 8 | 442.60 | 431.10 | 441.92 | 446.47 | | | -30.70 | -30.11 | 420.38 | 418.91 | 420.94 | 434.08 |
| 9 | 494.42 | 483.39 | 498.80 | 500.54 | | | -34.26 | -33.16 | 474.48 | 469.13 | 472.60 | 481.06 |
| 10 | 554.30 | 541.27 | 554.73 | 556.25 | | | -36.78 | -36.55 | 525.01 | 525.31 | 526.14 | 535.54 |

| CVP1 | SG19 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 159.91 | 126.80 | 172.92 | 102.89 | | | -14.37 | -34.75 | 147.94 | 98.44 | 86.77 | 127.76 |
| 1 | 88.74 | 80.64 | 82.34 | 52.80 | | | -1.81 | -29.58 | 63.88 | 75.99 | 41.61 | 51.95 |
| 2 | 127.91 | 121.28 | 107.88 | 73.21 | | | -9.40 | -3.08 | 117.22 | 130.81 | 66.27 | 104.76 |
| 3 | 178.49 | 171.87 | 163.05 | 143.08 | | | 6.94 | -0.54 | 161.92 | 181.58 | 152.94 | 177.81 |
| 4 | 225.94 | 236.07 | 217.14 | 218.16 | | | 11.42 | -19.26 | 228.14 | 237.16 | 219.75 | 246.36 |
| 5 | 289.92 | 294.73 | 278.65 | 284.28 | | | 28.16 | -16.13 | 304.09 | 315.51 | 274.05 | 332.62 |
| 6 | 345.89 | 342.76 | 343.84 | 367.28 | | | 14.82 | -33.78 | 375.25 | 377.88 | 332.54 | 387.54 |
| 7 | 385.62 | 394.02 | 384.28 | 406.57 | | | 3.98 | -21.13 | 418.34 | 446.98 | 394.97 | 434.85 |
| 8 | 465.64 | 466.52 | 438.14 | 451.52 | | | 17.03 | -22.52 | 473.53 | 506.80 | 434.45 | 531.93 |
| 9 | 512.32 | 533.22 | 499.52 | 494.40 | | | 21.92 | -38.67 | 530.55 | 544.46 | 492.00 | 561.32 |
| 10 | 581.98 | 574.02 | 550.78 | 538.61 | | | 38.78 | -27.08 | 574.83 | 614.41 | 535.27 | 620.58 |

| CVP1 | SG20 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 51.25 | 53.37 | 54.99 | 40.36 | | | 2.41 | -14.68 | 50.07 | 46.84 | 41.20 | 51.00 |
| 1 | 72.03 | 72.30 | 74.43 | 73.85 | | | 0.41 | -13.93 | 65.33 | 65.96 | 68.40 | 71.61 |
| 2 | 113.98 | 114.27 | 112.82 | 111.93 | | | -14.70 | -4.00 | 113.71 | 110.66 | 105.20 | 117.40 |
| 3 | 164.54 | 164.63 | 163.37 | 163.19 | | | -6.63 | -1.99 | 157.28 | 159.01 | 158.90 | 164.50 |
| 4 | 215.66 | 219.44 | 216.90 | 212.12 | | | -4.57 | -9.69 | 205.47 | 208.35 | 208.22 | 211.69 |
| 5 | 272.05 | 272.37 | 265.74 | 266.27 | | | 1.68 | -9.88 | 261.53 | 262.03 | 258.64 | 268.68 |
| 6 | 324.19 | 325.00 | 323.88 | 324.04 | | | -3.88 | -22.57 | 315.00 | 312.24 | 314.72 | 321.01 |
| 7 | 374.39 | 377.70 | 376.09 | 378.79 | | | -7.74 | -12.65 | 363.81 | 369.36 | 368.31 | 371.98 |
| 8 | 434.90 | 435.29 | 428.30 | 431.82 | | | -4.15 | -21.27 | 416.22 | 419.97 | 418.08 | 436.49 |
| 9 | 487.07 | 496.69 | 484.51 | 485.91 | | | -10.82 | -21.32 | 470.47 | 470.13 | 472.49 | 480.96 |
| 10 | 543.65 | 543.35 | 541.25 | 534.16 | | | -9.67 | -17.09 | 520.07 | 525.35 | 522.19 | 537.44 |

| CVP1 | SG21 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -8.50 | -6.46 | -5.84 | -1.43 | | | 1.09 | -4.67 | -2.82 | -4.01 | 4.36 | 0.93 |
| 1 | -25.25 | -31.50 | -26.66 | -22.99 | | | 27.44 | 23.89 | 0.49 | 0.60 | 3.99 | 9.58 |
| 2 | -62.08 | -61.34 | -53.54 | -48.60 | | | 55.98 | 49.68 | 1.05 | -0.51 | 5.46 | 10.50 |
| 3 | -89.69 | -88.58 | -85.39 | -77.87 | | | 82.31 | 79.52 | -6.69 | -5.48 | -2.10 | 5.53 |
| 4 | -117.49 | -118.41 | -116.15 | -129.26 | | | 104.27 | 107.92 | -9.82 | -8.61 | -10.57 | -19.34 |
| 5 | -151.16 | -151.72 | -146.11 | -155.62 | | | 135.95 | 134.09 | -9.45 | -13.40 | -13.52 | -22.65 |
| 6 | -178.08 | -179.91 | -171.55 | -183.99 | | | 163.50 | 160.64 | -16.08 | -15.24 | -17.02 | -24.68 |
| 7 | -208.28 | -209.33 | -201.82 | -213.80 | | | 192.25 | 187.12 | -18.29 | -18.92 | -17.57 | -23.39 |
| 8 | -240.50 | -239.72 | -232.10 | -242.55 | | | 214.19 | 213.21 | -19.21 | -20.95 | -17.39 | -26.89 |
| 9 | -267.54 | -269.08 | -261.35 | -269.44 | | | 245.04 | 241.77 | -20.87 | -20.02 | -18.68 | -25.05 |
| 10 | -297.71 | -297.78 | -287.00 | -298.85 | | | 268.60 | 267.37 | -22.71 | -22.42 | -22.00 | -26.34 |

| CVP1 | SG22 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -8.11 | -4.01 | 0.79 | 3.35 | | | -1.49 | -13.08 | -15.42 | -13.21 | 6.70 | -2.52 |
| 1 | 4.90 | -2.18 | -2.14 | -1.05 | | | 27.68 | 18.83 | 21.97 | 21.07 | 21.73 | 26.08 |
| 2 | -4.81 | -8.96 | -3.79 | 4.45 | | | 56.27 | 47.07 | 48.37 | 46.00 | 48.50 | 57.06 |
| 3 | -6.46 | -5.84 | -1.41 | 1.14 | | | 78.81 | 76.95 | 67.24 | 68.16 | 72.51 | 77.96 |
| 4 | -8.66 | -7.13 | -3.97 | -13.16 | | | 104.52 | 106.14 | 91.43 | 93.85 | 95.25 | 88.45 |
| 5 | -11.78 | -14.46 | -5.99 | -13.34 | | | 138.61 | 130.72 | 117.99 | 115.28 | 120.38 | 111.17 |
| 6 | -9.21 | -14.64 | -3.79 | -11.69 | | | 162.73 | 155.31 | 137.03 | 138.92 | 142.26 | 136.50 |
| 7 | -11.41 | -17.02 | -6.72 | -14.26 | | | 190.06 | 183.50 | 161.26 | 160.88 | 166.41 | 161.99 |
| 8 | -15.81 | -17.21 | -8.37 | -16.27 | | | 214.67 | 209.66 | 185.27 | 186.19 | 192.40 | 185.80 |
| 9 | -18.56 | -18.31 | -8.37 | -16.27 | | | 241.33 | 236.61 | 205.79 | 207.79 | 215.67 | 210.16 |
| 10 | -21.12 | -23.62 | -7.45 | -18.66 | | | 267.17 | 259.34 | 229.04 | 230.54 | 239.31 | 233.63 |

| CVP1 | SG23 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -26.30 | -22.44 | -23.80 | -24.47 | | | -16.32 | -12.18 | -31.69 | -28.33 | -25.88 | -35.60 |
| 1 | -24.09 | -32.17 | -22.65 | -34.94 | | | 23.35 | 27.83 | 0.59 | -0.64 | -7.19 | -6.79 |
| 2 | -51.77 | -51.78 | -43.41 | -45.78 | | | 60.20 | 59.58 | 17.10 | 14.77 | 14.09 | 12.28 |
| 3 | -70.66 | -68.84 | -66.53 | -67.44 | | | 91.91 | 92.95 | 23.69 | 23.74 | 23.98 | 19.44 |
| 4 | -91.94 | -91.03 | -91.84 | -95.69 | | | 121.34 | 125.49 | 31.76 | 33.49 | 30.59 | 33.98 |
| 5 | -118.15 | -117.07 | -113.88 | -120.83 | | | 159.12 | 154.85 | 42.57 | 40.26 | 32.42 | 28.09 |
| 6 | -137.42 | -137.25 | -135.31 | -145.97 | | | 190.00 | 185.17 | 47.14 | 47.42 | 37.25 | 34.35 |
| 7 | -159.79 | -160.16 | -157.16 | -169.81 | | | 221.95 | 217.57 | 55.79 | 54.91 | 45.82 | 45.00 |
| 8 | -187.67 | -183.82 | -181.77 | -192.57 | | | 248.32 | 247.64 | 64.78 | 63.73 | 56.80 | 49.37 |
| 9 | -208.57 | -206.78 | -204.69 | -212.75 | | | 281.01 | 280.41 | 72.11 | 73.43 | 65.04 | 60.73 |
| 10 | -232.94 | -230.06 | -225.17 | -236.11 | | | 309.69 | 310.49 | 80.71 | 80.41 | 71.58 | 67.89 |

| CVP1 | SG24 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -2.31 | -3.07 | -1.26 | -7.44 | | | -16.90 | -15.16 | -14.38 | -15.86 | -8.29 | -18.36 |
| 1 | 0.99 | -9.68 | -4.39 | -16.99 | | | 22.95 | 26.52 | 19.20 | 19.57 | 11.73 | 12.85 |
| 2 | -13.69 | -18.13 | -12.28 | -16.25 | | | 61.50 | 60.13 | 49.30 | 48.38 | 43.51 | 45.71 |
| 3 | -18.64 | -18.67 | -17.60 | -21.75 | | | 93.06 | 94.45 | 71.69 | 73.33 | 72.51 | 69.75 |
| 4 | -25.06 | -22.89 | -25.31 | -28.54 | | | 123.77 | 127.72 | 99.95 | 101.98 | 96.75 | 100.45 |
| 5 | -32.03 | -33.72 | -31.59 | -35.34 | | | 164.34 | 156.19 | 128.75 | 126.93 | 118.97 | 119.16 |
| 6 | -32.59 | -37.94 | -33.56 | -40.85 | | | 194.72 | 185.60 | 150.94 | 152.26 | 140.14 | 142.87 |
| 7 | -39.38 | -44.72 | -42.76 | -49.47 | | | 226.68 | 219.33 | 176.29 | 175.90 | 165.61 | 168.22 |
| 8 | -48.19 | -48.58 | -50.48 | -58.29 | | | 254.10 | 250.30 | 201.25 | 203.08 | 192.01 | 191.69 |
| 9 | -54.79 | -54.29 | -55.25 | -63.43 | | | 285.74 | 284.43 | 224.01 | 226.37 | 215.86 | 216.63 |
| 10 | -61.57 | -63.83 | -59.80 | -70.80 | | | 317.34 | 313.98 | 248.76 | 250.98 | 238.79 | 240.32 |

| CVP1 | SG25 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -41.98 | -28.66 | -25.40 | -51.10 | | | 27.13 | 29.78 | -27.92 | -28.78 | -29.95 | -58.12 |
| 1 | -40.91 | -44.10 | -32.00 | -65.60 | | | 77.04 | 79.26 | 8.69 | 8.57 | -7.25 | -20.61 |
| 2 | -65.43 | -60.35 | -49.37 | -72.50 | | | 124.50 | 121.42 | 40.69 | 43.34 | 28.33 | 14.02 |
| 3 | -79.75 | -74.10 | -72.07 | -90.15 | | | 171.52 | 168.23 | 61.86 | 70.03 | 46.09 | 36.66 |
| 4 | -100.53 | -94.53 | -104.27 | -85.92 | | | 218.67 | 221.73 | 84.12 | 99.82 | 70.02 | 101.36 |
| 5 | -125.85 | -120.25 | -130.28 | -101.85 | | | 277.06 | 269.97 | 107.87 | 126.69 | 89.53 | 126.80 |
| 6 | -144.72 | -139.41 | -156.57 | -135.90 | | | 331.67 | 323.35 | 126.82 | 150.05 | 108.36 | 147.02 |
| 7 | -169.19 | -162.90 | -182.25 | -168.18 | | | 387.77 | 376.22 | 149.06 | 173.60 | 125.43 | 167.45 |
| 8 | -201.20 | -189.05 | -210.46 | -194.37 | | | 440.43 | 433.28 | 170.22 | 199.54 | 138.00 | 175.39 |
| 9 | -225.99 | -213.08 | -231.66 | -214.80 | | | 499.60 | 494.38 | 189.54 | 224.00 | 154.05 | 196.38 |
| 10 | -254.82 | -241.56 | -252.24 | -237.33 | | | 558.68 | 550.87 | 210.51 | 243.88 | 171.16 | 213.86 |

| CVP1 | SG26 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 0.11 | 0.45 | -1.27 | -12.66 | | | -13.44 | -10.38 | -14.77 | -13.77 | -15.84 | -31.28 |
| 1 | 0.35 | -8.96 | -5.36 | -23.74 | | | 28.04 | 29.89 | 16.97 | 20.00 | 6.48 | 3.28 |
| 2 | -12.57 | -14.31 | -11.69 | -23.11 | | | 65.68 | 62.76 | 51.53 | 52.48 | 43.15 | 37.91 |
| 3 | -13.72 | -13.86 | -14.55 | -27.18 | | | 97.31 | 96.60 | 79.73 | 81.22 | 73.87 | 64.71 |
| 4 | -18.31 | -16.25 | -23.73 | -19.29 | | | 128.79 | 129.67 | 110.37 | 113.28 | 108.57 | 113.26 |
| 5 | -22.08 | -23.64 | -29.50 | -17.89 | | | 169.66 | 159.41 | 142.96 | 142.95 | 139.60 | 144.15 |
| 6 | -20.28 | -25.42 | -33.56 | -29.27 | | | 201.78 | 189.79 | 168.02 | 170.84 | 166.70 | 171.28 |
| 7 | -25.78 | -28.83 | -39.04 | -40.94 | | | 234.89 | 222.79 | 195.87 | 197.48 | 192.66 | 198.46 |
| 8 | -32.75 | -32.08 | -46.60 | -48.23 | | | 264.16 | 255.89 | 223.21 | 227.28 | 216.74 | 215.37 |
| 9 | -36.84 | -37.98 | -50.38 | -51.17 | | | 296.62 | 289.18 | 249.27 | 253.25 | 241.62 | 240.44 |
| 10 | -44.60 | -45.92 | -54.85 | -56.85 | | | 329.83 | 320.57 | 275.61 | 279.57 | 266.62 | 265.59 |

| CVP1 | SG27 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |

| CVP1 | SG28 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -3.65 | -8.02 | -14.21 | -32.98 | | | -14.54 | -9.35 | -17.68 | -21.60 | -43.72 | -41.88 |
| 1 | -6.59 | -16.85 | -12.09 | -34.45 | | | 23.74 | 31.88 | 11.02 | 13.73 | -3.90 | 0.82 |
| 2 | -22.05 | -21.27 | -17.19 | -24.86 | | | 62.04 | 63.55 | 44.15 | 41.70 | 39.56 | 31.74 |
| 3 | -22.05 | -19.80 | -17.91 | -24.10 | | | 93.70 | 100.37 | 68.43 | 70.40 | 65.34 | 63.39 |
| 4 | -27.20 | -27.89 | -26.01 | -29.26 | | | 121.69 | 132.80 | 97.13 | 96.18 | 97.00 | 95.83 |
| 5 | -33.08 | -35.99 | -35.68 | -32.95 | | | 163.66 | 160.05 | 124.35 | 121.93 | 122.04 | 116.42 |
| 6 | -36.77 | -36.72 | -31.87 | -38.10 | | | 195.27 | 191.00 | 148.62 | 147.69 | 136.81 | 137.07 |
| 7 | -44.13 | -43.34 | -44.44 | -48.40 | | | 229.14 | 226.30 | 168.52 | 171.94 | 164.76 | 157.69 |
| 8 | -55.17 | -50.71 | -54.05 | -58.71 | | | 251.41 | 258.82 | 192.07 | 196.25 | 189.03 | 181.22 |
| 9 | -61.79 | -59.55 | -56.97 | -63.13 | | | 283.72 | 296.92 | 220.04 | 216.10 | 211.83 | 206.97 |
| 10 | -66.93 | -69.11 | -62.05 | -72.01 | | | 317.75 | 326.37 | 239.15 | 240.41 | 231.85 | 226.85 |

| CVP1 | SG29T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -73.71 | -74.23 | -67.93 | -66.71 | | | 18.00 | 6.04 | -66.46 | -64.31 | -61.91 | -54.12 |
| 1 | 44.68 | 51.13 | 48.21 | 55.84 | | | -8.55 | -10.81 | 48.30 | 46.43 | 51.67 | 54.46 |
| 2 | 159.83 | 162.83 | 156.55 | 169.55 | | | -26.86 | -22.71 | 148.06 | 146.55 | 149.29 | 153.68 |
| 3 | 264.30 | 264.18 | 265.24 | 270.70 | | | -43.51 | -35.71 | 242.67 | 241.70 | 242.82 | 245.22 |
| 4 | 357.45 | 357.70 | 366.65 | 352.90 | | | -50.31 | -45.98 | 329.97 | 328.72 | 325.60 | 321.53 |
| 5 | 453.60 | 455.02 | 451.33 | 446.19 | | | -59.09 | -61.92 | 413.74 | 414.34 | 411.86 | 406.97 |
| 6 | 542.16 | 545.30 | 543.00 | 531.52 | | | -74.25 | -77.13 | 497.87 | 498.17 | 494.49 | 489.66 |
| 7 | 630.01 | 633.19 | 636.26 | 628.98 | | | -89.82 | -85.16 | 580.89 | 580.96 | 574.29 | 571.16 |
| 8 | 720.79 | 721.66 | 720.72 | 715.47 | | | -97.43 | -98.40 | 660.51 | 659.91 | 656.93 | 653.44 |
| 9 | 806.72 | 808.67 | 808.46 | 804.64 | | | -116.61 | -108.38 | 741.22 | 741.64 | 736.86 | 731.37 |
| 10 | 893.74 | 895.52 | 904.65 | 889.43 | | | -130.06 | -120.46 | 820.74 | 818.22 | 815.28 | 811.56 |

| CVP1 | SG29-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -48.25 | -47.70 | -56.25 | -47.53 | | | 24.15 | 14.97 | -40.47 | -32.36 | -44.77 | -28.23 |
| 1 | 7.87 | 12.44 | 5.57 | 18.86 | | | 13.34 | 16.57 | 24.64 | 21.25 | 28.73 | 34.57 |
| 2 | 64.39 | 70.76 | 62.15 | 73.78 | | | 16.91 | 23.49 | 81.19 | 86.64 | 93.51 | 96.98 |
| 3 | 115.73 | 116.93 | 115.33 | 125.43 | | | 24.51 | 26.10 | 148.11 | 147.33 | 149.73 | 154.64 |
| 4 | 160.41 | 160.01 | 164.97 | 158.95 | | | 31.12 | 33.48 | 201.86 | 197.97 | 197.74 | 195.36 |
| 5 | 207.69 | 206.86 | 212.48 | 204.66 | | | 36.70 | 39.94 | 249.67 | 251.65 | 252.44 | 254.17 |
| 6 | 244.59 | 247.09 | 248.29 | 248.27 | | | 47.27 | 49.52 | 301.96 | 301.79 | 302.61 | 305.54 |
| 7 | 281.72 | 287.03 | 295.91 | 290.43 | | | 52.90 | 51.98 | 353.08 | 349.28 | 350.84 | 354.01 |
| 8 | 325.94 | 324.51 | 327.82 | 329.31 | | | 67.34 | 67.36 | 401.70 | 399.50 | 402.10 | 404.41 |
| 9 | 364.54 | 362.82 | 369.93 | 369.38 | | | 71.30 | 72.67 | 450.00 | 449.07 | 450.87 | 454.19 |
| 10 | 398.32 | 402.29 | 406.93 | 408.32 | | | 75.78 | 84.12 | 499.85 | 496.14 | 499.16 | 504.67 |

| CVP1 | SG29L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -17.16 | -22.32 | -23.10 | -23.19 | | | 30.97 | 28.35 | 0.74 | -1.83 | 7.37 | 2.90 |
| 1 | -14.93 | -25.80 | -24.70 | -30.42 | | | 43.46 | 42.77 | 13.19 | 13.41 | 13.35 | 15.03 |
| 2 | -25.69 | -31.95 | -33.33 | -34.48 | | | 66.64 | 66.21 | 36.89 | 40.96 | 37.81 | 39.11 |
| 3 | -35.71 | -36.14 | -37.53 | -41.73 | | | 96.99 | 95.47 | 60.28 | 62.70 | 63.32 | 62.00 |
| 4 | -42.16 | -42.23 | -48.10 | -39.86 | | | 123.33 | 124.33 | 85.26 | 88.55 | 90.65 | 93.60 |
| 5 | -53.48 | -58.42 | -55.73 | -49.53 | | | 155.10 | 153.00 | 112.94 | 110.15 | 113.64 | 121.33 |
| 6 | -62.39 | -68.27 | -63.74 | -59.60 | | | 186.96 | 183.28 | 129.22 | 130.52 | 134.37 | 142.14 |
| 7 | -72.83 | -79.04 | -77.78 | -73.13 | | | 217.27 | 215.17 | 151.57 | 150.23 | 157.64 | 164.53 |
| 8 | -84.13 | -90.22 | -91.69 | -85.87 | | | 249.25 | 247.71 | 171.84 | 174.72 | 180.56 | 184.97 |
| 9 | -97.39 | -102.12 | -100.18 | -98.92 | | | 280.62 | 278.25 | 191.88 | 194.57 | 200.96 | 206.11 |
| 10 | -110.55 | -114.60 | -120.21 | -111.24 | | | 314.79 | 311.66 | 213.29 | 216.86 | 220.62 | 228.91 |

| CVP1 | SG30T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -7.56 | -9.53 | 4.57 | 2.41 | | | 13.42 | 6.84 | -0.98 | -2.16 | 4.52 | 17.31 |
| 1 | 72.34 | 76.41 | 75.97 | 81.85 | | | -13.29 | -13.10 | 69.79 | 69.35 | 75.53 | 77.31 |
| 2 | 161.60 | 161.68 | 156.24 | 165.09 | | | -29.39 | -21.52 | 139.48 | 139.94 | 141.96 | 145.35 |
| 3 | 243.86 | 243.56 | 243.08 | 247.33 | | | -40.73 | -33.78 | 214.08 | 212.71 | 213.47 | 216.33 |
| 4 | 322.67 | 322.93 | 327.76 | 315.56 | | | -49.53 | -48.61 | 283.38 | 282.07 | 277.70 | 272.60 |
| 5 | 405.59 | 406.64 | 400.02 | 393.75 | | | -63.61 | -63.61 | 352.10 | 353.37 | 347.23 | 342.25 |
| 6 | 483.99 | 486.78 | 481.12 | 469.32 | | | -75.66 | -75.70 | 423.55 | 423.42 | 416.75 | 412.04 |
| 7 | 563.72 | 566.39 | 563.46 | 557.75 | | | -90.66 | -85.38 | 495.33 | 495.00 | 485.74 | 481.76 |
| 8 | 648.57 | 648.00 | 641.41 | 635.74 | | | -100.62 | -96.76 | 565.36 | 564.73 | 557.90 | 554.30 |
| 9 | 727.49 | 729.04 | 723.24 | 718.07 | | | -115.77 | -109.32 | 637.60 | 636.90 | 628.82 | 622.66 |
| 10 | 809.69 | 811.27 | 813.02 | 797.79 | | | -129.01 | -121.21 | 708.66 | 706.45 | 699.56 | 695.65 |

| CVP1 | SG30-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -31.07 | -26.96 | -23.19 | -16.46 | | | -2.05 | -8.38 | -36.74 | -24.64 | -23.05 | -21.23 |
| 1 | 20.01 | 19.50 | 15.75 | 16.15 | | | 10.20 | 11.38 | 37.77 | 35.53 | 30.15 | 28.65 |
| 2 | 60.66 | 66.81 | 59.83 | 66.81 | | | 23.40 | 27.62 | 87.86 | 91.16 | 89.39 | 89.42 |
| 3 | 101.02 | 103.27 | 102.75 | 105.83 | | | 42.60 | 39.90 | 141.60 | 141.97 | 142.69 | 141.95 |
| 4 | 136.53 | 136.67 | 139.65 | 138.56 | | | 51.51 | 53.44 | 192.69 | 191.27 | 189.32 | 187.78 |
| 5 | 174.97 | 173.22 | 176.95 | 177.05 | | | 66.27 | 66.46 | 238.67 | 237.76 | 238.38 | 242.98 |
| 6 | 205.09 | 209.44 | 208.57 | 212.22 | | | 81.31 | 79.49 | 287.30 | 285.83 | 285.91 | 290.72 |
| 7 | 239.46 | 244.62 | 248.41 | 250.07 | | | 94.24 | 90.61 | 335.75 | 331.59 | 331.82 | 336.57 |
| 8 | 276.07 | 275.57 | 278.30 | 280.26 | | | 112.06 | 109.42 | 381.75 | 381.06 | 381.21 | 382.57 |
| 9 | 310.45 | 311.18 | 314.41 | 316.85 | | | 124.51 | 117.12 | 429.13 | 429.45 | 428.33 | 429.98 |
| 10 | 340.19 | 344.83 | 348.15 | 351.74 | | | 131.43 | 133.67 | 477.88 | 474.72 | 474.75 | 477.10 |

| CVP1 | SG30L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -28.46 | -29.57 | -34.40 | -34.98 | | | -12.66 | -16.45 | -41.09 | -39.15 | -32.50 | -47.85 |
| 1 | -17.60 | -27.42 | -26.31 | -34.02 | | | 32.33 | 31.29 | 3.59 | 4.16 | -0.36 | -1.69 |
| 2 | -27.13 | -29.94 | -30.13 | -30.44 | | | 68.53 | 64.07 | 39.02 | 38.90 | 35.87 | 34.29 |
| 3 | -31.62 | -30.90 | -33.34 | -36.82 | | | 100.28 | 98.12 | 62.38 | 64.18 | 64.78 | 59.13 |
| 4 | -38.72 | -36.58 | -43.15 | -34.02 | | | 132.15 | 134.39 | 89.41 | 92.57 | 93.26 | 98.20 |
| 5 | -47.24 | -49.55 | -48.10 | -40.21 | | | 173.08 | 166.03 | 117.95 | 115.80 | 119.62 | 125.95 |
| 6 | -54.16 | -57.11 | -56.99 | -48.83 | | | 204.79 | 196.46 | 137.13 | 138.34 | 141.80 | 147.36 |
| 7 | -63.79 | -66.09 | -65.65 | -62.26 | | | 238.36 | 231.15 | 159.80 | 159.34 | 164.42 | 169.55 |
| 8 | -75.20 | -76.45 | -78.27 | -74.04 | | | 271.43 | 264.58 | 181.43 | 183.60 | 188.44 | 189.41 |
| 9 | -86.19 | -85.76 | -88.90 | -83.16 | | | 302.55 | 298.13 | 201.04 | 204.33 | 209.09 | 211.80 |
| 10 | -98.74 | -98.59 | -106.75 | -94.69 | | | 337.90 | 330.81 | 222.60 | 225.44 | 228.54 | 232.34 |

| CVP1 | SG31T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 21.32 | 30.60 | 27.28 | 33.87 | | | 5.05 | -4.61 | 24.71 | 35.25 | 26.45 | 26.74 |
| 1 | 105.90 | 110.25 | 117.41 | 122.37 | | | -4.84 | -3.96 | 102.82 | 99.80 | 106.11 | 109.02 |
| 2 | 177.44 | 183.21 | 185.57 | 197.12 | | | -15.41 | -16.16 | 165.33 | 161.74 | 168.12 | 171.42 |
| 3 | 253.92 | 254.44 | 261.41 | 266.17 | | | -27.07 | -21.68 | 227.83 | 225.58 | 229.95 | 230.25 |
| 4 | 329.55 | 326.64 | 339.91 | 329.91 | | | -29.48 | -27.08 | 291.00 | 290.33 | 291.05 | 289.12 |
| 5 | 407.61 | 409.11 | 413.08 | 406.94 | | | -33.16 | -36.07 | 359.49 | 359.11 | 360.73 | 357.44 |
| 6 | 485.04 | 490.52 | 494.59 | 482.90 | | | -41.29 | -43.73 | 431.73 | 429.90 | 434.86 | 429.81 |
| 7 | 569.39 | 572.31 | 583.27 | 575.24 | | | -50.41 | -51.12 | 506.23 | 504.92 | 506.18 | 505.14 |
| 8 | 655.57 | 655.25 | 665.71 | 661.01 | | | -56.08 | -59.75 | 580.63 | 577.82 | 584.16 | 580.15 |
| 9 | 741.30 | 740.93 | 753.99 | 752.00 | | | -67.42 | -63.09 | 657.83 | 657.65 | 660.68 | 656.27 |
| 10 | 826.65 | 828.51 | 851.69 | 837.64 | | | -76.97 | -70.93 | 734.94 | 729.97 | 738.27 | 734.78 |

| CVP1 | SG31-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 3.09 | 13.88 | 18.92 | 16.89 | | | -8.46 | -8.60 | -5.17 | 6.31 | 19.70 | 4.22 |
| 1 | 43.12 | 44.72 | 55.30 | 52.03 | | | 9.97 | 14.30 | 56.62 | 53.72 | 67.46 | 59.68 |
| 2 | 74.55 | 81.95 | 86.61 | 88.01 | | | 26.13 | 28.01 | 107.30 | 106.99 | 112.73 | 108.78 |
| 3 | 108.59 | 116.71 | 119.82 | 118.13 | | | 43.03 | 44.27 | 152.67 | 153.55 | 156.69 | 148.63 |
| 4 | 146.22 | 147.06 | 149.81 | 149.54 | | | 53.86 | 59.77 | 199.43 | 201.47 | 202.33 | 201.62 |
| 5 | 182.11 | 183.61 | 185.85 | 185.04 | | | 76.00 | 74.27 | 246.89 | 246.01 | 250.40 | 252.20 |
| 6 | 213.00 | 222.52 | 223.71 | 222.28 | | | 89.44 | 85.94 | 294.89 | 294.79 | 302.12 | 300.53 |
| 7 | 251.87 | 260.59 | 265.29 | 261.48 | | | 104.09 | 98.83 | 346.50 | 344.95 | 351.14 | 349.89 |
| 8 | 288.73 | 296.20 | 301.17 | 296.19 | | | 119.76 | 116.55 | 396.01 | 397.44 | 405.54 | 398.61 |
| 9 | 327.20 | 337.40 | 340.00 | 340.03 | | | 133.92 | 132.02 | 447.72 | 451.49 | 457.40 | 450.11 |
| 10 | 361.81 | 374.40 | 382.88 | 379.29 | | | 140.53 | 148.02 | 500.48 | 500.69 | 508.99 | 502.21 |

| CVP1 | SG31L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -7.39 | -8.34 | -15.27 | -18.65 | | | -12.00 | -10.47 | -22.17 | -21.92 | -15.46 | -29.85 |
| 1 | -12.15 | -22.28 | -25.63 | -34.08 | | | 30.26 | 31.21 | 5.89 | 8.34 | 0.63 | -1.21 |
| 2 | -34.51 | -36.75 | -39.63 | -40.89 | | | 68.01 | 64.06 | 32.32 | 32.74 | 28.70 | 26.29 |
| 3 | -45.52 | -44.83 | -49.55 | -54.32 | | | 98.97 | 99.62 | 50.27 | 52.53 | 50.69 | 43.90 |
| 4 | -59.27 | -56.94 | -66.06 | -55.79 | | | 130.82 | 133.65 | 73.20 | 75.68 | 75.83 | 83.07 |
| 5 | -73.58 | -74.55 | -79.96 | -65.86 | | | 173.37 | 163.75 | 96.10 | 94.92 | 97.12 | 103.94 |
| 6 | -82.19 | -86.47 | -90.65 | -82.56 | | | 205.13 | 195.35 | 111.85 | 113.44 | 114.65 | 120.14 |
| 7 | -97.23 | -100.59 | -105.31 | -100.73 | | | 239.10 | 229.94 | 130.42 | 131.18 | 133.82 | 138.68 |
| 8 | -115.75 | -115.08 | -123.29 | -117.43 | | | 269.21 | 262.80 | 148.76 | 151.57 | 152.30 | 153.49 |
| 9 | -130.98 | -129.20 | -141.83 | -132.11 | | | 302.05 | 298.63 | 163.98 | 167.49 | 168.97 | 171.80 |
| 10 | -147.66 | -148.28 | -164.20 | -150.28 | | | 335.55 | 329.82 | 180.64 | 184.21 | 183.13 | 188.13 |

| CVP1 | SG32T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -26.59 | -27.66 | -14.74 | -16.13 | | | 12.13 | 1.07 | -15.45 | -18.91 | -13.73 | -0.62 |
| 1 | 64.25 | 70.10 | 73.09 | 78.43 | | | -12.17 | -13.64 | 65.73 | 63.94 | 71.75 | 74.27 |
| 2 | 168.73 | 169.16 | 165.44 | 173.91 | | | -29.58 | -20.16 | 149.18 | 149.39 | 150.33 | 154.19 |
| 3 | 261.25 | 260.80 | 262.70 | 265.63 | | | -37.42 | -32.11 | 232.64 | 231.48 | 231.95 | 235.27 |
| 4 | 348.29 | 347.85 | 356.36 | 341.53 | | | -47.01 | -43.45 | 310.90 | 309.43 | 304.75 | 299.19 |
| 5 | 438.90 | 438.34 | 437.43 | 426.68 | | | -60.35 | -55.65 | 387.65 | 387.85 | 382.32 | 377.42 |
| 6 | 522.43 | 524.71 | 524.34 | 509.19 | | | -72.10 | -69.23 | 466.03 | 465.19 | 458.98 | 454.34 |
| 7 | 608.38 | 610.53 | 613.85 | 603.13 | | | -87.13 | -75.95 | 544.20 | 543.16 | 533.24 | 530.81 |
| 8 | 699.65 | 697.64 | 697.30 | 687.16 | | | -94.78 | -87.50 | 620.07 | 618.91 | 612.33 | 609.18 |
| 9 | 784.61 | 784.56 | 787.00 | 776.08 | | | -110.37 | -100.71 | 698.51 | 697.82 | 688.90 | 683.19 |
| 10 | 872.29 | 872.45 | 883.91 | 862.05 | | | -120.58 | -108.96 | 776.50 | 773.22 | 766.63 | 762.76 |

| CVP1 | SG32-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -29.41 | -23.83 | -18.23 | -22.31 | | | -3.76 | -7.66 | -32.13 | -29.00 | -13.84 | -19.68 |
| 1 | 19.01 | 20.76 | 23.82 | 22.50 | | | 5.93 | 10.44 | 36.95 | 32.04 | 46.34 | 40.09 |
| 2 | 65.25 | 71.04 | 69.69 | 72.05 | | | 19.46 | 27.63 | 97.81 | 97.28 | 103.40 | 99.31 |
| 3 | 106.35 | 114.69 | 115.01 | 113.88 | | | 39.57 | 42.25 | 153.35 | 153.73 | 157.14 | 149.22 |
| 4 | 149.29 | 151.24 | 151.38 | 149.16 | | | 47.26 | 57.08 | 207.08 | 207.88 | 208.33 | 205.61 |
| 5 | 190.00 | 190.69 | 189.56 | 189.60 | | | 67.74 | 70.25 | 257.48 | 255.18 | 260.08 | 260.78 |
| 6 | 221.49 | 230.36 | 229.57 | 228.54 | | | 79.04 | 79.03 | 307.88 | 307.09 | 312.50 | 310.02 |
| 7 | 260.42 | 268.49 | 268.96 | 267.24 | | | 92.57 | 94.37 | 359.48 | 357.81 | 363.21 | 359.22 |
| 8 | 296.60 | 304.52 | 304.15 | 299.45 | | | 107.29 | 111.98 | 410.28 | 410.67 | 417.43 | 410.33 |
| 9 | 333.66 | 344.29 | 342.48 | 340.95 | | | 118.21 | 123.95 | 463.27 | 463.24 | 469.67 | 460.75 |
| 10 | 367.79 | 380.62 | 381.24 | 378.21 | | | 126.51 | 140.41 | 514.39 | 513.36 | 521.03 | 511.38 |

| CVP1 | SG32L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -19.15 | -20.19 | -35.13 | -33.49 | | | -7.55 | -12.39 | -33.34 | -32.31 | -27.68 | -42.13 |
| 1 | -17.37 | -27.20 | -33.60 | -38.08 | | | 33.68 | 31.17 | 1.20 | 4.17 | -4.25 | -4.31 |
| 2 | -37.85 | -40.13 | -44.66 | -41.93 | | | 69.65 | 63.58 | 29.48 | 30.29 | 25.78 | 24.97 |
| 3 | -47.51 | -47.09 | -53.13 | -54.57 | | | 99.15 | 99.00 | 48.76 | 50.85 | 49.56 | 44.13 |
| 4 | -61.12 | -58.45 | -68.30 | -57.69 | | | 132.81 | 134.90 | 71.49 | 74.52 | 74.78 | 81.62 |
| 5 | -76.18 | -76.08 | -81.99 | -67.83 | | | 175.15 | 164.20 | 94.75 | 94.30 | 96.78 | 102.96 |
| 6 | -84.54 | -88.42 | -93.55 | -85.06 | | | 207.13 | 196.05 | 110.04 | 112.95 | 113.86 | 119.77 |
| 7 | -100.16 | -103.38 | -108.09 | -102.19 | | | 241.53 | 230.92 | 128.67 | 129.97 | 132.59 | 138.07 |
| 8 | -119.45 | -117.87 | -126.59 | -119.07 | | | 273.35 | 264.07 | 146.31 | 149.55 | 150.98 | 152.61 |
| 9 | -135.39 | -133.44 | -147.02 | -135.20 | | | 304.38 | 299.41 | 160.43 | 165.20 | 167.10 | 171.06 |
| 10 | -153.10 | -152.94 | -172.03 | -153.73 | | | 338.53 | 330.39 | 176.76 | 181.16 | 180.73 | 186.33 |

| CVP1 | SG33T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -9.86 | -14.55 | 5.15 | 3.55 | | | 9.15 | -3.03 | -4.70 | -10.98 | -1.48 | 10.32 |
| 1 | 71.73 | 75.94 | 81.21 | 88.90 | | | -10.52 | -12.79 | 69.58 | 67.52 | 77.81 | 80.41 |
| 2 | 174.58 | 175.24 | 171.70 | 180.91 | | | -25.97 | -20.73 | 154.14 | 153.13 | 154.16 | 158.46 |
| 3 | 267.52 | 266.62 | 268.83 | 271.09 | | | -37.74 | -33.88 | 236.05 | 235.55 | 235.28 | 237.71 |
| 4 | 355.31 | 354.60 | 361.22 | 347.73 | | | -46.24 | -45.31 | 315.37 | 313.92 | 307.49 | 302.51 |
| 5 | 447.04 | 446.57 | 442.29 | 433.44 | | | -56.87 | -56.77 | 393.78 | 392.53 | 386.17 | 381.85 |
| 6 | 531.67 | 534.22 | 531.24 | 517.98 | | | -70.41 | -71.46 | 472.90 | 470.98 | 463.76 | 458.96 |
| 7 | 620.02 | 621.89 | 621.86 | 613.03 | | | -86.18 | -80.19 | 552.00 | 550.25 | 539.86 | 536.37 |
| 8 | 713.13 | 710.48 | 707.70 | 698.72 | | | -93.05 | -92.39 | 629.16 | 627.47 | 618.60 | 615.30 |
| 9 | 800.66 | 799.61 | 799.43 | 790.04 | | | -109.56 | -104.32 | 708.71 | 707.86 | 696.82 | 690.78 |
| 10 | 890.19 | 890.26 | 897.64 | 877.86 | | | -117.19 | -113.08 | 788.18 | 784.36 | 775.11 | 771.09 |

| CVP1 | SG33-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -19.28 | -15.54 | -30.54 | -31.22 | | | -1.56 | -13.02 | -32.02 | -28.72 | -22.79 | -33.59 |
| 1 | 23.65 | 24.88 | 19.61 | 23.28 | | | 10.15 | 7.32 | 34.50 | 34.92 | 35.93 | 30.61 |
| 2 | 69.58 | 70.91 | 61.48 | 70.79 | | | 21.98 | 28.07 | 94.37 | 97.50 | 93.49 | 94.85 |
| 3 | 107.74 | 114.75 | 109.96 | 110.40 | | | 42.17 | 45.96 | 152.16 | 154.05 | 149.79 | 148.35 |
| 4 | 151.40 | 154.02 | 149.01 | 150.18 | | | 54.08 | 61.49 | 209.46 | 211.48 | 205.38 | 206.40 |
| 5 | 189.80 | 195.74 | 186.10 | 188.13 | | | 78.67 | 73.20 | 262.23 | 260.18 | 257.52 | 262.03 |
| 6 | 227.34 | 234.89 | 223.84 | 228.20 | | | 92.12 | 82.81 | 313.30 | 314.37 | 310.49 | 310.20 |
| 7 | 265.88 | 273.46 | 264.01 | 266.14 | | | 106.26 | 102.38 | 367.00 | 366.22 | 358.87 | 360.05 |
| 8 | 302.53 | 311.93 | 299.54 | 299.67 | | | 122.96 | 118.32 | 417.14 | 419.94 | 410.79 | 411.52 |
| 9 | 338.37 | 351.40 | 334.35 | 338.59 | | | 134.18 | 133.69 | 467.23 | 470.58 | 460.40 | 460.81 |
| 10 | 371.40 | 384.85 | 370.22 | 373.76 | | | 142.26 | 149.30 | 518.74 | 520.08 | 509.51 | 511.89 |

| CVP1 | SG33L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -22.63 | -18.75 | -34.44 | -32.80 | | | -3.65 | -3.83 | -35.82 | -32.70 | -25.26 | -33.96 |
| 1 | -18.27 | -25.49 | -31.81 | -38.59 | | | 30.70 | 32.85 | 1.61 | 3.73 | -3.60 | -4.40 |
| 2 | -37.22 | -38.25 | -42.79 | -39.28 | | | 68.79 | 67.56 | 29.15 | 30.90 | 29.92 | 28.68 |
| 3 | -46.16 | -44.21 | -51.92 | -48.59 | | | 101.86 | 102.98 | 52.77 | 53.92 | 55.38 | 51.49 |
| 4 | -58.78 | -55.73 | -62.84 | -52.13 | | | 135.56 | 138.01 | 75.89 | 77.75 | 82.47 | 90.28 |
| 5 | -73.50 | -71.69 | -71.12 | -58.23 | | | 176.58 | 167.99 | 98.68 | 98.48 | 106.75 | 112.70 |
| 6 | -79.25 | -81.88 | -84.40 | -76.32 | | | 211.13 | 202.81 | 115.59 | 118.07 | 124.67 | 131.23 |
| 7 | -95.53 | -96.77 | -97.08 | -88.84 | | | 245.70 | 239.06 | 135.62 | 136.85 | 143.93 | 151.34 |
| 8 | -114.66 | -109.49 | -114.73 | -104.13 | | | 278.86 | 273.13 | 154.62 | 156.78 | 165.84 | 168.74 |
| 9 | -130.48 | -125.53 | -134.96 | -119.87 | | | 311.44 | 307.41 | 170.31 | 173.09 | 184.08 | 190.75 |
| 10 | -146.98 | -144.42 | -159.00 | -136.80 | | | 344.03 | 340.68 | 187.08 | 190.09 | 200.08 | 207.64 |

| CVP1 | SG34T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -24.47 | -27.28 | -8.87 | -9.59 | | | -1.75 | -17.52 | -6.41 | -16.63 | -1.01 | 4.83 |
| 1 | 58.09 | 61.47 | 65.23 | 73.01 | | | -12.71 | -18.12 | 62.96 | 63.80 | 71.94 | 74.92 |
| 2 | 157.15 | 154.96 | 150.49 | 159.66 | | | -33.26 | -31.65 | 141.51 | 140.83 | 140.16 | 145.17 |
| 3 | 242.90 | 240.20 | 240.79 | 243.74 | | | -49.96 | -48.53 | 214.85 | 214.49 | 214.86 | 215.85 |
| 4 | 321.43 | 322.04 | 325.17 | 316.34 | | | -59.64 | -63.08 | 287.39 | 286.03 | 279.08 | 274.81 |
| 5 | 406.15 | 404.02 | 401.28 | 391.68 | | | -70.61 | -81.85 | 358.69 | 357.90 | 349.82 | 346.58 |
| 6 | 481.57 | 484.07 | 480.93 | 471.27 | | | -89.76 | -100.44 | 430.89 | 429.43 | 420.06 | 416.07 |
| 7 | 562.72 | 564.41 | 562.01 | 557.02 | | | -110.67 | -113.59 | 502.37 | 501.27 | 488.64 | 485.63 |
| 8 | 647.41 | 643.23 | 639.96 | 634.14 | | | -120.29 | -128.54 | 572.84 | 571.70 | 560.96 | 558.19 |
| 9 | 726.23 | 723.69 | 722.20 | 715.60 | | | -140.99 | -147.00 | 645.33 | 645.08 | 632.77 | 627.07 |
| 10 | 806.93 | 805.60 | 808.02 | 794.04 | | | -150.42 | -161.63 | 718.06 | 714.74 | 704.37 | 699.95 |

| CVP1 | SG34-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -44.05 | -33.24 | -43.96 | -48.28 | | | -1.82 | -14.48 | -40.62 | -53.91 | -37.80 | -45.22 |
| 1 | 13.18 | 12.99 | 6.12 | 7.48 | | | 7.87 | 10.83 | 36.27 | 33.02 | 27.17 | 20.15 |
| 2 | 58.75 | 62.42 | 53.38 | 55.98 | | | 22.94 | 32.20 | 100.58 | 101.76 | 91.86 | 93.25 |
| 3 | 97.54 | 109.27 | 103.49 | 95.71 | | | 45.75 | 50.66 | 160.00 | 162.00 | 153.91 | 149.49 |
| 4 | 146.79 | 146.75 | 142.54 | 144.06 | | | 63.21 | 68.34 | 221.49 | 222.59 | 213.65 | 216.90 |
| 5 | 183.39 | 189.57 | 173.17 | 181.70 | | | 88.37 | 81.73 | 277.59 | 278.70 | 269.82 | 274.46 |
| 6 | 221.51 | 221.58 | 208.11 | 213.84 | | | 106.13 | 95.69 | 332.21 | 334.75 | 325.69 | 323.60 |
| 7 | 254.00 | 257.76 | 247.01 | 247.06 | | | 121.31 | 118.43 | 388.15 | 391.12 | 375.27 | 374.73 |
| 8 | 289.55 | 297.01 | 278.94 | 277.76 | | | 136.13 | 134.85 | 440.89 | 446.10 | 427.07 | 428.73 |
| 9 | 322.19 | 336.44 | 313.29 | 314.66 | | | 150.25 | 149.46 | 494.59 | 498.06 | 478.08 | 477.18 |
| 10 | 353.25 | 366.83 | 349.79 | 348.76 | | | 162.57 | 166.47 | 547.50 | 551.08 | 530.77 | 530.72 |

| CVP1 | SG34L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -17.14 | -6.89 | -25.36 | -28.58 | | | 0.36 | 0.99 | -22.47 | -25.43 | -18.39 | -16.83 |
| 1 | -14.02 | -23.58 | -29.66 | -33.77 | | | 26.93 | 35.63 | 15.27 | 12.54 | 5.01 | 2.12 |
| 2 | -39.83 | -34.27 | -36.23 | -36.79 | | | 70.09 | 72.80 | 36.60 | 38.41 | 36.76 | 36.02 |
| 3 | -50.28 | -40.46 | -46.91 | -50.00 | | | 106.86 | 108.53 | 59.57 | 60.69 | 57.81 | 56.20 |
| 4 | -54.78 | -54.81 | -55.90 | -55.37 | | | 139.77 | 144.04 | 81.03 | 82.81 | 87.31 | 92.58 |
| 5 | -72.19 | -63.61 | -70.42 | -54.96 | | | 179.54 | 178.60 | 103.99 | 103.90 | 111.03 | 115.81 |
| 6 | -75.10 | -77.47 | -83.23 | -79.74 | | | 217.64 | 214.60 | 121.22 | 123.39 | 131.01 | 135.48 |
| 7 | -94.54 | -94.46 | -94.03 | -95.83 | | | 254.86 | 252.57 | 143.53 | 144.78 | 152.61 | 157.60 |
| 8 | -113.71 | -101.35 | -111.99 | -109.78 | | | 287.27 | 287.13 | 164.07 | 166.21 | 173.08 | 176.60 |
| 9 | -129.70 | -115.73 | -128.90 | -124.19 | | | 322.87 | 323.08 | 183.20 | 184.62 | 191.54 | 197.36 |
| 10 | -146.15 | -136.22 | -145.46 | -138.54 | | | 354.61 | 359.87 | 201.93 | 205.60 | 211.11 | 217.27 |

| CVP1 | SG35T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 37.17 | 35.43 | 96.31 | 110.42 | | | -8.69 | 18.92 | 40.85 | 42.06 | 89.83 | 105.64 |
| 1 | 101.59 | 105.49 | 113.77 | 122.10 | | | -17.29 | -12.79 | 99.83 | 98.03 | 113.88 | 115.64 |
| 2 | 195.12 | 195.19 | 193.32 | 204.76 | | | -26.51 | -24.02 | 175.54 | 175.80 | 180.60 | 184.34 |
| 3 | 288.11 | 288.22 | 288.79 | 295.31 | | | -34.58 | -40.11 | 260.44 | 260.05 | 262.23 | 264.37 |
| 4 | 380.65 | 380.72 | 387.27 | 374.33 | | | -54.64 | -61.55 | 344.84 | 344.60 | 339.81 | 333.52 |
| 5 | 478.23 | 479.96 | 476.89 | 467.68 | | | -77.69 | -70.44 | 430.02 | 429.85 | 425.31 | 419.92 |
| 6 | 570.42 | 574.80 | 571.16 | 558.72 | | | -89.86 | -82.91 | 516.24 | 516.18 | 511.05 | 506.01 |
| 7 | 665.63 | 669.29 | 671.20 | 663.88 | | | -99.35 | -100.18 | 604.31 | 604.14 | 594.58 | 591.99 |
| 8 | 766.24 | 765.79 | 764.19 | 757.59 | | | -117.50 | -112.34 | 689.45 | 689.33 | 683.40 | 679.57 |
| 9 | 859.03 | 861.47 | 861.09 | 854.62 | | | -122.24 | -128.94 | 776.64 | 777.60 | 769.82 | 763.58 |
| 10 | 954.68 | 957.56 | 962.99 | 948.49 | | | -137.00 | -141.95 | 863.29 | 861.61 | 858.16 | 851.40 |

| CVP1 | SG35-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 9.77 | 19.88 | 45.56 | 49.60 | | | -7.80 | 7.73 | 2.95 | 13.86 | 45.45 | 46.10 |
| 1 | 45.15 | 49.44 | 54.46 | 51.48 | | | 3.86 | 7.92 | 55.67 | 57.28 | 66.44 | 64.31 |
| 2 | 95.96 | 100.12 | 99.19 | 100.78 | | | 16.14 | 22.42 | 116.14 | 120.91 | 121.21 | 120.75 |
| 3 | 144.63 | 152.04 | 151.03 | 149.81 | | | 35.52 | 32.72 | 181.50 | 182.78 | 178.93 | 176.19 |
| 4 | 196.70 | 199.17 | 199.26 | 193.37 | | | 35.33 | 37.11 | 241.97 | 243.02 | 237.10 | 238.47 |
| 5 | 249.36 | 251.17 | 244.37 | 244.68 | | | 46.74 | 48.21 | 300.61 | 302.05 | 298.38 | 300.06 |
| 6 | 296.01 | 305.47 | 294.34 | 292.02 | | | 57.83 | 56.66 | 361.26 | 363.11 | 359.62 | 357.55 |
| 7 | 345.52 | 355.64 | 347.66 | 344.05 | | | 71.32 | 65.34 | 423.86 | 424.10 | 417.09 | 415.35 |
| 8 | 395.03 | 405.37 | 395.29 | 389.58 | | | 79.80 | 79.86 | 483.09 | 485.93 | 478.09 | 476.18 |
| 9 | 443.76 | 455.19 | 444.01 | 442.04 | | | 95.24 | 86.31 | 543.05 | 547.49 | 536.55 | 534.47 |
| 10 | 489.54 | 501.91 | 497.88 | 490.11 | | | 96.15 | 99.47 | 603.69 | 605.67 | 595.48 | 594.82 |

| CVP1 | SG35L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -11.75 | -12.60 | -16.88 | -20.57 | | | 0.01 | -3.91 | -19.34 | -18.49 | -15.63 | -28.97 |
| 1 | -5.66 | -13.01 | -10.47 | -20.39 | | | 35.07 | 33.65 | 14.26 | 17.27 | 9.50 | 9.40 |
| 2 | -12.52 | -13.56 | -10.91 | -16.00 | | | 65.96 | 58.89 | 46.17 | 46.61 | 44.67 | 41.22 |
| 3 | -10.65 | -11.41 | -10.96 | -17.21 | | | 89.38 | 87.86 | 71.16 | 72.46 | 71.26 | 65.39 |
| 4 | -14.58 | -13.24 | -13.16 | -11.94 | | | 119.25 | 118.22 | 97.34 | 98.81 | 101.21 | 106.07 |
| 5 | -17.06 | -17.96 | -16.42 | -10.38 | | | 155.79 | 143.83 | 125.84 | 125.99 | 129.43 | 132.56 |
| 6 | -16.23 | -19.69 | -19.53 | -17.16 | | | 184.80 | 171.48 | 148.93 | 149.52 | 154.80 | 155.73 |
| 7 | -19.20 | -22.12 | -21.62 | -23.94 | | | 213.67 | 201.73 | 173.64 | 174.29 | 178.75 | 180.51 |
| 8 | -26.34 | -26.33 | -26.19 | -28.88 | | | 244.22 | 231.05 | 198.13 | 199.30 | 204.12 | 201.66 |
| 9 | -28.95 | -29.31 | -29.72 | -30.30 | | | 271.79 | 263.01 | 220.74 | 223.58 | 227.68 | 227.19 |
| 10 | -34.68 | -36.81 | -34.32 | -35.70 | | | 303.60 | 290.71 | 243.79 | 246.08 | 249.32 | 250.18 |

| CVP1 | SG36T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -48.89 | -46.87 | -35.61 | -32.60 | | | 13.49 | 2.22 | -39.80 | -36.65 | -32.86 | -21.62 |
| 1 | 55.50 | 59.91 | 52.58 | 62.74 | | | -10.15 | -13.91 | 57.10 | 54.76 | 57.35 | 59.93 |
| 2 | 162.68 | 162.73 | 152.22 | 166.47 | | | -29.76 | -19.59 | 146.33 | 145.08 | 144.97 | 148.24 |
| 3 | 257.90 | 257.39 | 257.53 | 260.58 | | | -35.61 | -29.48 | 232.40 | 231.70 | 233.28 | 233.62 |
| 4 | 346.73 | 345.68 | 353.72 | 346.69 | | | -44.98 | -42.70 | 313.37 | 312.37 | 313.93 | 310.71 |
| 5 | 437.66 | 436.30 | 434.57 | 434.00 | | | -56.70 | -55.53 | 392.82 | 391.84 | 395.31 | 394.22 |
| 6 | 522.07 | 522.81 | 523.81 | 516.84 | | | -67.85 | -70.57 | 470.61 | 469.88 | 475.05 | 471.65 |
| 7 | 608.35 | 607.49 | 613.28 | 610.36 | | | -80.86 | -76.04 | 549.66 | 548.91 | 552.38 | 550.11 |
| 8 | 697.92 | 694.37 | 695.59 | 694.72 | | | -89.57 | -85.99 | 626.41 | 624.98 | 631.25 | 628.98 |
| 9 | 781.36 | 779.60 | 782.13 | 781.95 | | | -104.19 | -98.37 | 704.08 | 703.67 | 708.14 | 703.32 |
| 10 | 866.26 | 865.26 | 873.13 | 865.50 | | | -114.52 | -106.25 | 781.30 | 778.30 | 784.20 | 781.56 |

| CVP1 | SG36-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -29.78 | -16.78 | -24.45 | -21.99 | | | 5.08 | 1.00 | -34.05 | -21.51 | -17.75 | -18.10 |
| 1 | 16.32 | 21.44 | 20.48 | 12.55 | | | 9.68 | 3.12 | 22.19 | 27.77 | 23.85 | 30.46 |
| 2 | 66.76 | 68.64 | 64.57 | 71.07 | | | 11.00 | 19.68 | 80.47 | 87.00 | 85.77 | 87.96 |
| 3 | 111.12 | 115.88 | 114.02 | 118.07 | | | 29.52 | 31.09 | 142.52 | 143.69 | 141.61 | 141.83 |
| 4 | 153.06 | 156.67 | 157.89 | 148.88 | | | 31.88 | 38.03 | 195.92 | 195.86 | 189.64 | 189.93 |
| 5 | 197.19 | 199.69 | 194.83 | 191.76 | | | 47.01 | 43.58 | 244.67 | 246.95 | 241.33 | 239.47 |
| 6 | 236.14 | 243.86 | 234.82 | 227.30 | | | 58.20 | 49.74 | 294.68 | 296.92 | 290.03 | 287.92 |
| 7 | 273.08 | 282.39 | 277.12 | 270.85 | | | 68.21 | 62.92 | 344.90 | 345.62 | 336.27 | 334.84 |
| 8 | 310.08 | 320.83 | 313.22 | 305.97 | | | 80.09 | 77.97 | 391.56 | 394.57 | 384.12 | 381.59 |
| 9 | 347.12 | 358.08 | 348.51 | 345.63 | | | 86.00 | 79.95 | 437.95 | 441.87 | 429.65 | 428.69 |
| 10 | 382.83 | 392.19 | 389.52 | 381.62 | | | 88.09 | 94.86 | 485.02 | 486.71 | 476.88 | 476.06 |

| CVP1 | SG36L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 3.07 | 2.92 | -6.95 | -8.23 | | | -7.83 | -10.62 | -7.31 | -7.34 | -11.60 | -21.29 |
| 1 | -11.22 | -18.48 | -4.67 | -18.83 | | | 33.33 | 31.03 | 4.98 | 9.48 | 3.47 | 10.08 |
| 2 | -27.67 | -28.47 | -20.23 | -22.69 | | | 64.94 | 58.50 | 28.04 | 30.11 | 30.29 | 31.98 |
| 3 | -34.91 | -35.85 | -36.00 | -31.73 | | | 89.81 | 86.13 | 46.32 | 48.07 | 48.44 | 49.26 |
| 4 | -47.83 | -45.43 | -47.69 | -53.96 | | | 118.12 | 118.50 | 67.08 | 67.52 | 60.50 | 61.60 |
| 5 | -57.41 | -58.40 | -54.57 | -62.81 | | | 154.97 | 144.69 | 87.27 | 88.04 | 78.61 | 73.13 |
| 6 | -65.34 | -67.89 | -67.26 | -73.82 | | | 184.44 | 173.20 | 104.86 | 104.86 | 91.51 | 91.18 |
| 7 | -78.22 | -78.23 | -78.37 | -85.60 | | | 212.74 | 202.67 | 120.74 | 121.19 | 106.35 | 107.88 |
| 8 | -92.29 | -91.25 | -91.45 | -99.17 | | | 244.76 | 233.30 | 137.52 | 138.63 | 123.65 | 121.51 |
| 9 | -103.47 | -102.27 | -102.85 | -109.35 | | | 271.35 | 261.73 | 150.85 | 153.09 | 140.14 | 139.37 |
| 10 | -115.74 | -117.39 | -116.44 | -122.31 | | | 302.06 | 290.20 | 165.87 | 168.23 | 155.92 | 154.96 |

| CVP2 | SG1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 192.71 | 332.93 | 473.87 | 518.68 | -18.98 | -51.08 | 92.09 | 91.74 | 108.38 | 179.39 | 447.98 | 554.61 |
| 1 | 103.52 | 213.13 | 163.96 | 77.12 | 46.99 | -45.95 | -28.33 | 68.76 | 76.13 | 142.34 | 196.25 | 219.74 |
| 2 | 168.58 | 225.11 | 204.29 | 193.48 | 58.60 | 16.17 | 47.71 | 63.97 | 117.22 | 73.39 | 258.53 | 256.19 |
| 3 | 275.46 | 285.93 | 275.46 | 260.94 | 40.91 | 15.46 | -2.09 | -68.01 | 233.89 | 288.10 | 214.86 | 202.75 |
| 4 | 315.65 | 363.73 | 302.50 | 352.27 | 69.46 | 14.15 | 26.47 | 206.05 | 381.66 | 353.37 | 325.98 | 405.64 |
| 5 | 388.64 | 471.36 | 451.94 | 397.84 | 60.44 | 74.04 | 40.96 | -153.85 | 432.75 | 450.14 | 449.27 | 444.89 |
| 6 | 468.74 | 571.63 | 527.00 | 425.06 | 76.85 | 47.34 | 34.95 | 86.51 | 532.08 | 542.77 | 517.64 | 547.79 |
| 7 | 555.51 | 673.56 | 622.83 | 575.51 | 79.78 | 45.48 | 150.24 | 110.54 | 586.33 | 650.37 | 580.82 | 665.09 |
| 8 | 622.38 | 762.58 | 667.61 | 669.68 | 98.04 | 29.81 | 24.19 | -155.14 | 716.20 | 767.32 | 669.67 | 736.70 |
| 9 | 736.47 | 816.16 | 771.45 | 706.18 | 129.17 | 67.83 | 95.14 | -42.36 | 762.28 | 832.03 | 743.20 | 791.44 |
| 10 | 829.85 | 953.91 | 870.32 | 847.45 | 142.64 | 83.47 | 32.41 | 133.63 | 876.17 | 898.59 | 807.80 | 859.26 |

| CVP2 | SG2 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 19.39 | 22.88 | 24.79 | 23.87 | 1.24 | -0.47 | 9.79 | 5.61 | 10.61 | 19.47 | 15.65 | 20.62 |
| 1 | 67.46 | 73.12 | 65.85 | 51.15 | 0.04 | -1.44 | 4.44 | 0.82 | 59.79 | 63.77 | 54.08 | 55.96 |
| 2 | 127.91 | 128.97 | 126.70 | 124.25 | -3.46 | -4.44 | 5.82 | -4.01 | 114.06 | 111.55 | 123.79 | 123.73 |
| 3 | 188.58 | 189.16 | 190.39 | 181.86 | -6.50 | -7.38 | -5.33 | -10.28 | 172.12 | 178.81 | 177.70 | 173.95 |
| 4 | 246.80 | 248.35 | 244.04 | 248.31 | -7.19 | -11.03 | -10.26 | -1.48 | 234.40 | 233.44 | 237.69 | 241.73 |
| 5 | 306.75 | 310.27 | 310.20 | 311.00 | -9.03 | -8.86 | -9.94 | -22.77 | 289.63 | 292.57 | 298.46 | 298.68 |
| 6 | 367.92 | 372.53 | 369.85 | 371.14 | -11.89 | -14.30 | -7.31 | -13.32 | 348.29 | 350.38 | 356.01 | 352.90 |
| 7 | 430.14 | 437.09 | 435.65 | 431.54 | -14.84 | -17.48 | -3.76 | -13.92 | 404.55 | 412.11 | 415.99 | 420.22 |
| 8 | 490.89 | 497.74 | 491.40 | 494.76 | -16.13 | -21.02 | -16.53 | -27.93 | 466.80 | 472.67 | 480.36 | 481.74 |
| 9 | 555.96 | 558.33 | 559.83 | 554.12 | -17.19 | -21.30 | -14.87 | -21.85 | 520.26 | 529.64 | 536.39 | 537.22 |
| 10 | 620.05 | 625.67 | 621.52 | 616.66 | -19.49 | -23.10 | -20.03 | -24.93 | 579.98 | 586.49 | 591.92 | 589.19 |

| CVP2 | SG3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 192.02 | 325.48 | 495.19 | 586.04 | 15.14 | -8.43 | 14.46 | 86.37 | 146.08 | 230.41 | 567.82 | 642.85 |
| 1 | 115.12 | 199.65 | 184.43 | 116.36 | 79.88 | -61.05 | 7.55 | 52.49 | 82.82 | 180.04 | 237.44 | 289.75 |
| 2 | 162.34 | 227.32 | 225.71 | 178.81 | 41.51 | -16.94 | -45.84 | -12.63 | 95.72 | 73.56 | 229.33 | 239.53 |
| 3 | 268.22 | 267.73 | 272.98 | 242.65 | -14.39 | -56.58 | -86.27 | -147.70 | 184.27 | 245.86 | 186.35 | 173.68 |
| 4 | 329.86 | 370.34 | 301.70 | 361.91 | -3.88 | -69.70 | -91.07 | 103.40 | 327.40 | 275.96 | 267.33 | 325.49 |
| 5 | 409.74 | 480.83 | 454.61 | 385.03 | -15.31 | -42.58 | -41.52 | -256.49 | 362.11 | 376.70 | 385.20 | 364.04 |
| 6 | 492.12 | 588.95 | 534.18 | 436.81 | -31.73 | -80.75 | -91.25 | -78.62 | 454.54 | 445.61 | 431.50 | 457.26 |
| 7 | 575.14 | 679.17 | 623.09 | 553.65 | -33.76 | -125.97 | -69.56 | -34.08 | 492.41 | 542.44 | 479.24 | 546.07 |
| 8 | 643.54 | 761.27 | 691.53 | 663.78 | -40.40 | -154.93 | -187.25 | -350.76 | 583.31 | 642.89 | 554.17 | 600.05 |
| 9 | 753.87 | 814.71 | 771.32 | 706.95 | -34.32 | -136.10 | -129.32 | -319.58 | 638.29 | 680.72 | 626.11 | 656.69 |
| 10 | 851.03 | 951.31 | 865.11 | 823.28 | -28.23 | -140.90 | -208.33 | -80.14 | 733.30 | 740.54 | 685.05 | 707.24 |

| CVP2 | SG4 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 15.50 | 18.17 | 17.31 | 15.80 | 0.76 | -5.39 | -2.93 | -4.14 | 13.63 | 23.45 | 14.98 | 17.48 |
| 1 | 66.91 | 68.24 | 63.37 | 45.05 | -0.07 | -11.06 | 6.88 | -8.33 | 61.49 | 67.22 | 50.58 | 62.35 |
| 2 | 125.78 | 124.58 | 126.55 | 115.27 | -6.84 | -15.20 | -6.02 | -18.83 | 110.54 | 111.58 | 116.49 | 124.43 |
| 3 | 186.52 | 185.44 | 184.83 | 176.21 | -16.01 | -21.79 | -18.22 | -21.13 | 164.71 | 170.71 | 169.09 | 167.86 |
| 4 | 245.27 | 245.72 | 239.94 | 243.79 | -22.04 | -30.54 | -25.22 | -21.77 | 223.56 | 220.39 | 226.43 | 228.61 |
| 5 | 306.30 | 306.14 | 305.29 | 300.47 | -25.91 | -30.68 | -22.87 | -41.12 | 274.80 | 277.33 | 286.03 | 289.41 |
| 6 | 366.85 | 369.29 | 364.46 | 366.95 | -33.28 | -41.18 | -26.74 | -41.17 | 330.73 | 331.85 | 339.46 | 340.75 |
| 7 | 428.22 | 430.79 | 429.95 | 416.00 | -38.62 | -51.54 | -35.40 | -40.84 | 384.20 | 390.42 | 394.99 | 404.59 |
| 8 | 487.79 | 490.77 | 487.71 | 480.30 | -42.77 | -59.14 | -45.76 | -58.67 | 441.32 | 447.64 | 454.19 | 458.40 |
| 9 | 552.70 | 550.79 | 547.04 | 539.59 | -49.35 | -63.76 | -48.30 | -64.79 | 495.95 | 500.95 | 510.98 | 515.10 |
| 10 | 616.58 | 617.18 | 609.07 | 602.11 | -53.46 | -69.28 | -54.65 | -64.65 | 553.07 | 557.42 | 565.94 | 567.61 |

| CVP2 | SG5 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 165.97 | 212.63 | 368.66 | 454.91 | 17.63 | 40.99 | -20.91 | 100.82 | 105.37 | 115.31 | 467.91 | 513.40 |
| 1 | 93.92 | 173.16 | 163.28 | 136.35 | 37.71 | 13.68 | 31.67 | 94.27 | 77.51 | 139.71 | 194.76 | 216.14 |
| 2 | 132.92 | 227.23 | 206.94 | 174.80 | 7.09 | 15.80 | -77.13 | 8.18 | 101.59 | 50.97 | 182.70 | 150.37 |
| 3 | 239.91 | 251.95 | 256.00 | 215.97 | -10.18 | -13.76 | -72.71 | -97.86 | 170.79 | 227.50 | 204.25 | 206.45 |
| 4 | 299.51 | 366.64 | 281.52 | 345.16 | 21.50 | 21.37 | -96.10 | 92.98 | 292.97 | 235.44 | 265.39 | 284.12 |
| 5 | 388.33 | 463.92 | 424.32 | 360.99 | -3.09 | -7.96 | -29.80 | -130.91 | 338.53 | 346.10 | 369.90 | 319.15 |
| 6 | 473.58 | 551.13 | 511.11 | 401.65 | -18.37 | 2.64 | -74.69 | -36.73 | 424.36 | 404.37 | 423.21 | 426.51 |
| 7 | 540.45 | 647.19 | 577.36 | 509.62 | -21.87 | -8.42 | -112.12 | 19.20 | 467.41 | 485.62 | 458.49 | 492.78 |
| 8 | 619.38 | 734.04 | 656.91 | 603.68 | -17.68 | -5.66 | -162.71 | -208.67 | 525.75 | 588.47 | 529.19 | 552.17 |
| 9 | 693.38 | 787.71 | 721.08 | 667.78 | 6.54 | 1.86 | -115.75 | -165.90 | 582.01 | 607.90 | 623.30 | 616.31 |
| 10 | 781.36 | 908.98 | 811.24 | 757.37 | -3.50 | -1.97 | -194.42 | -12.26 | 681.88 | 668.39 | 699.98 | 687.03 |

| CVP2 | SG6 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 33.85 | 25.79 | 43.29 | 34.04 | -1.46 | -4.49 | -8.39 | -5.68 | 21.27 | 25.16 | 34.54 | 36.33 |
| 1 | 87.83 | 90.46 | 90.64 | 69.03 | -6.44 | -6.33 | 7.46 | -7.15 | 78.39 | 83.39 | 70.83 | 79.45 |
| 2 | 150.29 | 153.29 | 159.15 | 146.25 | -12.33 | -13.88 | -13.18 | -19.68 | 132.55 | 131.10 | 141.94 | 150.36 |
| 3 | 217.15 | 217.78 | 222.35 | 211.48 | -19.89 | -20.33 | -20.18 | -22.08 | 190.96 | 196.86 | 202.55 | 203.05 |
| 4 | 283.68 | 286.35 | 281.09 | 286.97 | -22.28 | -23.83 | -29.76 | -24.65 | 255.60 | 251.60 | 261.68 | 263.66 |
| 5 | 354.79 | 355.42 | 355.88 | 356.27 | -30.02 | -30.83 | -27.55 | -39.58 | 316.24 | 317.01 | 326.71 | 328.50 |
| 6 | 425.82 | 427.83 | 423.52 | 431.95 | -37.94 | -37.28 | -29.39 | -44.00 | 381.82 | 379.55 | 387.51 | 389.70 |
| 7 | 496.57 | 501.53 | 497.02 | 492.24 | -44.39 | -44.65 | -45.78 | -45.10 | 444.69 | 445.85 | 454.28 | 462.52 |
| 8 | 568.75 | 572.47 | 568.32 | 569.43 | -50.28 | -52.02 | -53.89 | -58.18 | 507.84 | 512.98 | 524.01 | 530.83 |
| 9 | 640.79 | 642.79 | 642.25 | 642.76 | -54.33 | -56.26 | -54.81 | -62.79 | 571.04 | 573.80 | 592.54 | 598.26 |
| 10 | 714.61 | 718.77 | 718.82 | 711.92 | -61.34 | -62.71 | -63.65 | -71.63 | 637.36 | 638.54 | 658.56 | 659.98 |

| CVP2 | SG7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |

| CVP2 | SG8 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 4.66 | 3.54 | 6.21 | -0.73 | -3.07 | -1.68 | -1.68 | -5.13 | 2.59 | 9.14 | 5.86 | 11.47 |
| 1 | 64.27 | 63.17 | 61.40 | 49.32 | -2.32 | -3.14 | 16.72 | -4.40 | 60.01 | 65.09 | 52.97 | 61.53 |
| 2 | 123.16 | 119.85 | 127.64 | 114.10 | -8.21 | -7.57 | -3.88 | -13.97 | 114.48 | 111.47 | 119.21 | 126.30 |
| 3 | 185.71 | 183.16 | 185.06 | 175.94 | -9.68 | -11.99 | -7.57 | -13.96 | 169.69 | 175.51 | 182.51 | 181.51 |
| 4 | 246.09 | 246.50 | 243.92 | 250.26 | -14.10 | -14.93 | -14.20 | -16.18 | 229.30 | 227.05 | 240.66 | 238.18 |
| 5 | 308.66 | 306.11 | 315.31 | 309.90 | -14.84 | -18.61 | -9.77 | -16.18 | 285.26 | 286.68 | 299.54 | 297.80 |
| 6 | 370.43 | 368.68 | 374.95 | 373.17 | -17.78 | -20.82 | -6.84 | -20.60 | 340.47 | 341.22 | 356.22 | 353.76 |
| 7 | 431.66 | 431.99 | 436.04 | 423.99 | -21.46 | -28.18 | -19.34 | -19.85 | 399.39 | 401.56 | 416.64 | 417.84 |
| 8 | 492.73 | 490.89 | 497.87 | 490.98 | -25.14 | -29.65 | -20.08 | -34.58 | 453.83 | 461.24 | 479.87 | 479.64 |
| 9 | 556.04 | 552.68 | 559.01 | 552.08 | -28.08 | -34.08 | -20.81 | -41.94 | 509.77 | 514.26 | 540.23 | 536.32 |
| 10 | 617.09 | 613.09 | 618.58 | 611.02 | -32.50 | -37.75 | -25.22 | -33.11 | 571.61 | 575.27 | 602.10 | 597.42 |

| CVP2 | SG9 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 195.46 | 314.49 | 485.37 | 555.59 | 8.70 | 0.93 | 30.98 | 78.19 | 148.66 | 213.48 | 532.20 | 629.14 |
| 1 | 117.75 | 197.63 | 174.04 | 104.45 | 59.28 | -43.59 | -0.66 | 34.50 | 79.99 | 159.57 | 213.05 | 255.70 |
| 2 | 161.31 | 217.75 | 212.04 | 166.54 | 27.52 | -6.29 | -53.33 | -8.51 | 97.15 | 76.66 | 213.61 | 217.09 |
| 3 | 254.71 | 256.71 | 264.86 | 232.45 | -22.13 | -45.41 | -78.49 | -150.48 | 183.73 | 234.12 | 187.21 | 165.03 |
| 4 | 324.13 | 358.45 | 293.43 | 337.60 | -5.71 | -50.04 | -83.47 | 97.62 | 316.62 | 273.10 | 253.85 | 325.25 |
| 5 | 400.56 | 466.25 | 432.22 | 386.74 | -21.95 | -31.76 | -54.37 | -244.96 | 358.18 | 365.41 | 365.70 | 349.80 |
| 6 | 479.68 | 560.40 | 518.47 | 414.20 | -34.69 | -61.84 | -85.13 | -65.51 | 445.12 | 431.39 | 416.83 | 449.53 |
| 7 | 562.16 | 658.44 | 602.46 | 541.44 | -35.79 | -95.45 | -66.37 | -38.09 | 483.19 | 525.33 | 456.46 | 516.04 |
| 8 | 633.02 | 732.10 | 660.97 | 627.09 | -54.25 | -125.91 | -180.44 | -336.33 | 576.01 | 625.46 | 529.06 | 595.91 |
| 9 | 732.53 | 782.62 | 744.30 | 678.78 | -38.38 | -102.64 | -122.85 | -306.43 | 620.68 | 662.21 | 604.74 | 637.08 |
| 10 | 823.11 | 918.01 | 837.61 | 793.32 | -44.10 | -105.41 | -200.05 | -87.88 | 723.13 | 715.81 | 663.33 | 687.11 |

| CVP2 | SG10 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 2.31 | -0.71 | 2.94 | -9.85 | -0.12 | -1.54 | -0.66 | -7.45 | -2.57 | 3.61 | -10.76 | 0.50 |
| 1 | 62.46 | 62.03 | 55.15 | 31.84 | -6.20 | -5.42 | 7.09 | -16.30 | 53.34 | 55.09 | 31.49 | 46.26 |
| 2 | 125.56 | 122.00 | 122.84 | 111.20 | -12.48 | -12.98 | -10.25 | -18.88 | 107.39 | 107.12 | 109.52 | 119.86 |
| 3 | 186.61 | 186.02 | 185.94 | 177.81 | -20.41 | -20.18 | -18.37 | -24.42 | 164.95 | 168.55 | 168.37 | 165.43 |
| 4 | 250.65 | 249.34 | 243.85 | 243.45 | -24.84 | -26.64 | -23.54 | -24.23 | 224.89 | 223.74 | 223.90 | 231.10 |
| 5 | 312.09 | 312.42 | 310.07 | 310.26 | -29.64 | -29.77 | -29.62 | -43.24 | 278.60 | 280.38 | 284.78 | 290.14 |
| 6 | 373.27 | 373.68 | 374.67 | 372.21 | -37.20 | -39.00 | -25.57 | -39.55 | 334.69 | 335.26 | 340.86 | 343.86 |
| 7 | 435.61 | 439.00 | 440.53 | 428.71 | -42.92 | -46.01 | -37.19 | -45.08 | 388.42 | 394.46 | 395.92 | 404.04 |
| 8 | 497.38 | 497.86 | 497.35 | 488.30 | -51.22 | -54.68 | -46.97 | -61.50 | 446.87 | 451.90 | 453.40 | 467.66 |
| 9 | 561.22 | 557.77 | 557.18 | 547.53 | -55.65 | -58.20 | -49.92 | -65.74 | 498.16 | 504.68 | 509.29 | 516.73 |
| 10 | 624.45 | 624.81 | 617.08 | 609.58 | -63.40 | -64.10 | -56.92 | -73.12 | 557.94 | 559.38 | 562.67 | 565.44 |

| CVP2 | SG11 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 160.01 | 215.69 | 357.70 | 411.94 | 26.57 | 54.53 | -11.12 | 96.47 | 122.66 | 126.19 | 457.10 | 525.62 |
| 1 | 68.52 | 137.15 | 130.10 | 65.21 | 47.38 | 18.58 | 16.69 | 83.04 | 52.15 | 105.14 | 157.59 | 188.57 |
| 2 | 107.32 | 193.40 | 176.91 | 103.19 | 18.04 | 21.95 | -84.86 | 11.06 | 82.10 | 28.58 | 134.98 | 124.23 |
| 3 | 207.86 | 212.46 | 220.62 | 178.13 | -5.77 | -9.28 | -74.43 | -103.23 | 147.21 | 193.12 | 169.40 | 162.01 |
| 4 | 266.28 | 326.18 | 233.69 | 289.77 | 23.44 | 11.48 | -91.59 | 84.33 | 265.17 | 203.20 | 212.03 | 248.57 |
| 5 | 342.73 | 412.91 | 368.21 | 274.86 | 4.75 | -3.84 | -39.23 | -142.06 | 304.78 | 303.93 | 323.31 | 277.54 |
| 6 | 418.99 | 497.55 | 454.26 | 299.37 | -6.19 | -4.35 | -88.64 | -32.33 | 381.60 | 354.71 | 356.71 | 372.81 |
| 7 | 482.24 | 580.98 | 510.17 | 405.35 | -11.07 | -14.45 | -105.85 | 12.14 | 413.94 | 427.96 | 377.48 | 422.50 |
| 8 | 545.15 | 650.56 | 566.28 | 476.59 | -5.36 | -9.79 | -165.83 | -223.12 | 472.22 | 524.19 | 441.79 | 475.98 |
| 9 | 610.86 | 690.75 | 625.58 | 532.88 | 24.77 | -3.56 | -124.86 | -195.26 | 518.18 | 527.88 | 523.35 | 522.86 |
| 10 | 687.96 | 801.18 | 695.83 | 610.84 | 5.16 | -3.06 | -199.26 | -17.54 | 608.06 | 573.74 | 582.48 | 580.81 |

| CVP2 | SG12 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 55.29 | 44.83 | 65.33 | 41.18 | -3.17 | -4.42 | -13.20 | -10.11 | 46.49 | 52.38 | 39.20 | 44.04 |
| 1 | 139.24 | 140.69 | 149.77 | 115.36 | -7.14 | -6.60 | 10.71 | -12.97 | 130.40 | 135.09 | 113.02 | 127.61 |
| 2 | 230.47 | 230.91 | 246.05 | 230.50 | -16.24 | -17.58 | -15.97 | -23.40 | 210.35 | 209.70 | 219.34 | 236.00 |
| 3 | 322.04 | 322.57 | 334.02 | 315.83 | -25.24 | -26.54 | -24.47 | -26.26 | 291.94 | 297.68 | 303.64 | 304.19 |
| 4 | 416.91 | 421.89 | 418.51 | 421.22 | -29.07 | -31.71 | -34.26 | -36.93 | 382.30 | 378.14 | 387.10 | 389.46 |
| 5 | 524.85 | 523.62 | 524.17 | 527.45 | -37.89 | -40.39 | -39.06 | -46.67 | 475.23 | 475.44 | 485.11 | 491.16 |
| 6 | 631.11 | 629.96 | 627.91 | 640.74 | -46.85 | -50.00 | -36.98 | -53.92 | 572.19 | 573.40 | 579.62 | 582.30 |
| 7 | 737.71 | 739.49 | 740.33 | 728.16 | -55.53 | -59.37 | -55.63 | -56.22 | 669.96 | 672.53 | 676.74 | 691.38 |
| 8 | 841.53 | 845.04 | 845.22 | 842.75 | -63.05 | -68.37 | -64.82 | -70.30 | 768.28 | 771.48 | 782.33 | 793.03 |
| 9 | 949.39 | 950.74 | 955.37 | 951.25 | -68.55 | -74.75 | -68.65 | -78.24 | 861.31 | 864.17 | 883.67 | 891.46 |
| 10 | 1055.03 | 1058.84 | 1069.63 | 1054.73 | -78.38 | -82.55 | -79.22 | -92.74 | 959.66 | 962.17 | 979.46 | 983.76 |

| CVP2 | SG13 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 263.47 | 292.59 | 461.24 | 555.79 | 4.82 | 38.84 | -58.73 | 87.79 | 229.82 | 226.10 | 518.45 | 604.64 |
| 1 | 123.30 | 152.89 | 225.66 | 262.23 | 89.24 | -20.92 | 20.05 | 106.44 | 124.45 | 173.68 | 218.20 | 250.89 |
| 2 | 134.95 | 225.67 | 207.30 | 199.36 | 31.12 | 22.24 | -99.75 | 30.92 | 129.47 | 74.46 | 160.40 | 81.01 |
| 3 | 249.53 | 239.35 | 254.21 | 186.00 | 36.73 | -6.90 | -19.12 | -90.50 | 222.08 | 277.05 | 234.96 | 213.50 |
| 4 | 346.16 | 380.36 | 311.73 | 400.32 | 42.67 | 37.03 | -44.54 | 117.13 | 369.25 | 278.45 | 310.48 | 327.34 |
| 5 | 439.79 | 474.62 | 471.37 | 407.92 | 48.99 | 13.31 | 35.70 | 24.47 | 441.49 | 423.73 | 434.63 | 394.57 |
| 6 | 528.83 | 579.92 | 571.64 | 455.21 | 37.75 | 49.02 | -3.46 | 61.54 | 545.62 | 487.56 | 477.74 | 498.16 |
| 7 | 610.52 | 674.98 | 636.84 | 577.03 | 53.08 | 10.31 | -46.45 | 145.25 | 615.49 | 586.14 | 523.57 | 570.07 |
| 8 | 680.30 | 754.76 | 722.31 | 639.48 | 59.67 | 27.08 | -25.27 | -118.52 | 674.21 | 712.42 | 622.89 | 620.30 |
| 9 | 767.26 | 800.94 | 790.19 | 729.75 | 85.59 | 43.14 | 16.36 | -144.49 | 759.69 | 734.72 | 720.33 | 690.30 |
| 10 | 870.92 | 918.37 | 861.75 | 802.98 | 108.44 | 36.77 | -65.49 | 187.86 | 871.88 | 807.36 | 808.85 | 795.67 |

| CVP2 | SG14 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 1.39 | -2.85 | -1.64 | -13.36 | -1.26 | -1.64 | -4.21 | -2.34 | -4.64 | 2.67 | 0.63 | 2.68 |
| 1 | 62.48 | 61.70 | 59.63 | 35.13 | -2.32 | -3.95 | 14.08 | -4.31 | 56.04 | 61.88 | 48.67 | 55.33 |
| 2 | 123.52 | 126.84 | 126.68 | 116.24 | -9.37 | -10.17 | -6.29 | -14.13 | 111.54 | 109.78 | 119.01 | 128.38 |
| 3 | 188.36 | 188.35 | 188.65 | 180.00 | -12.27 | -15.55 | -11.99 | -17.26 | 171.61 | 176.56 | 184.46 | 180.75 |
| 4 | 253.48 | 253.75 | 252.78 | 256.01 | -16.46 | -17.68 | -19.00 | -18.32 | 233.64 | 229.06 | 241.21 | 240.96 |
| 5 | 317.60 | 316.33 | 324.13 | 312.93 | -18.12 | -22.56 | -13.56 | -23.38 | 289.68 | 290.71 | 306.34 | 301.44 |
| 6 | 379.34 | 379.91 | 387.82 | 379.04 | -24.29 | -26.24 | -13.61 | -30.06 | 349.11 | 347.22 | 361.80 | 357.90 |
| 7 | 442.58 | 445.43 | 451.71 | 432.11 | -27.42 | -33.57 | -26.60 | -26.15 | 406.05 | 407.27 | 419.47 | 423.50 |
| 8 | 506.07 | 506.29 | 512.56 | 497.71 | -32.21 | -38.08 | -31.99 | -41.90 | 462.71 | 468.78 | 485.16 | 483.43 |
| 9 | 567.99 | 567.18 | 575.17 | 563.58 | -36.22 | -41.63 | -31.16 | -49.50 | 519.28 | 522.10 | 548.22 | 542.72 |
| 10 | 632.70 | 632.98 | 636.88 | 622.01 | -39.26 | -46.56 | -35.99 | -45.86 | 580.50 | 579.57 | 608.39 | 600.40 |

| CVP2 | SG15 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 107.04 | 140.89 | 202.32 | 206.98 | -11.37 | -7.42 | 17.66 | -13.94 | 67.81 | 69.25 | 186.64 | 246.31 |
| 1 | 90.63 | 114.54 | 73.14 | 58.67 | 6.69 | -11.74 | -16.49 | -15.17 | 58.13 | 71.79 | 94.35 | 88.78 |
| 2 | 125.18 | 141.35 | 116.34 | 94.56 | -1.51 | 4.24 | -20.28 | -13.93 | 90.88 | 77.55 | 116.22 | 95.69 |
| 3 | 169.90 | 170.69 | 164.61 | 134.64 | -24.81 | -9.58 | -7.49 | -67.32 | 147.95 | 154.89 | 151.78 | 121.29 |
| 4 | 229.97 | 229.53 | 202.50 | 209.19 | -2.24 | 1.48 | -23.43 | 14.99 | 218.69 | 198.66 | 186.64 | 238.65 |
| 5 | 272.81 | 294.47 | 258.69 | 296.26 | -10.63 | -3.04 | -22.06 | -94.02 | 257.26 | 243.52 | 252.64 | 240.40 |
| 6 | 320.45 | 351.92 | 320.84 | 310.70 | -9.66 | 3.13 | -17.26 | -31.19 | 316.63 | 290.78 | 298.29 | 319.64 |
| 7 | 385.47 | 423.46 | 379.19 | 386.82 | -6.29 | -8.01 | -16.77 | -36.05 | 348.30 | 351.48 | 337.45 | 341.32 |
| 8 | 443.40 | 460.36 | 410.65 | 411.78 | -35.87 | -29.34 | -52.55 | -126.77 | 414.05 | 412.97 | 391.14 | 426.78 |
| 9 | 500.11 | 502.48 | 477.39 | 460.98 | -18.31 | -4.47 | -14.42 | -146.80 | 457.86 | 458.86 | 440.37 | 448.43 |
| 10 | 559.54 | 592.62 | 527.41 | 525.83 | -36.24 | -5.16 | -47.41 | -64.27 | 525.25 | 487.40 | 494.77 | 495.97 |

| CVP2 | SG16 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 27.84 | 29.27 | 37.32 | 23.37 | 0.61 | 0.52 | 5.90 | -13.82 | 15.81 | 16.15 | 28.43 | 47.02 |
| 1 | 70.21 | 71.98 | 60.02 | 41.97 | -4.83 | -0.86 | 1.38 | -18.56 | 54.59 | 55.73 | 51.27 | 55.77 |
| 2 | 123.68 | 123.80 | 114.54 | 100.48 | -9.66 | -3.90 | -7.50 | -13.63 | 105.48 | 100.77 | 108.20 | 108.18 |
| 3 | 174.52 | 174.10 | 170.60 | 157.60 | -18.51 | -9.84 | -4.70 | -23.12 | 160.57 | 160.92 | 165.21 | 153.17 |
| 4 | 231.88 | 229.86 | 228.10 | 215.00 | -11.60 | -6.80 | -14.14 | -16.26 | 216.88 | 213.12 | 211.27 | 224.05 |
| 5 | 283.88 | 289.40 | 277.24 | 283.83 | -15.37 | -13.20 | -18.97 | -32.24 | 268.67 | 263.61 | 269.11 | 262.32 |
| 6 | 339.23 | 346.70 | 340.63 | 331.52 | -18.28 | -12.24 | -12.20 | -25.19 | 323.80 | 314.98 | 319.27 | 320.47 |
| 7 | 400.20 | 410.36 | 399.49 | 388.53 | -20.02 | -16.66 | -20.68 | -30.26 | 373.44 | 372.13 | 373.54 | 367.95 |
| 8 | 459.68 | 461.03 | 450.75 | 435.00 | -33.48 | -26.61 | -27.03 | -45.73 | 430.52 | 426.80 | 430.95 | 435.07 |
| 9 | 516.66 | 515.80 | 510.72 | 488.93 | -29.97 | -20.17 | -20.49 | -56.88 | 481.74 | 480.75 | 483.91 | 478.69 |
| 10 | 574.97 | 581.54 | 565.01 | 545.82 | -40.75 | -23.76 | -29.61 | -52.78 | 540.10 | 528.85 | 537.34 | 530.13 |

| CVP2 | SG17 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 121.30 | 144.64 | 169.22 | 61.37 | 15.90 | 29.09 | 5.91 | 8.08 | 113.12 | 85.57 | 189.06 | 244.20 |
| 1 | 95.00 | 109.46 | 112.48 | -37.45 | 5.93 | 17.67 | -13.46 | -6.90 | 73.89 | 77.31 | 103.77 | 121.98 |
| 2 | 137.51 | 163.98 | 187.63 | 12.70 | 11.10 | 17.45 | -47.26 | -18.40 | 119.30 | 96.04 | 113.28 | 151.00 |
| 3 | 212.31 | 206.30 | 219.18 | 182.98 | 0.07 | 7.39 | -32.40 | -47.48 | 188.16 | 190.19 | 193.72 | 180.26 |
| 4 | 283.59 | 288.12 | 262.02 | 239.37 | 4.49 | -10.29 | -37.15 | 4.82 | 276.43 | 241.26 | 222.38 | 260.37 |
| 5 | 342.44 | 365.00 | 339.13 | 201.60 | 6.25 | 5.40 | -16.04 | -78.35 | 327.14 | 303.48 | 315.56 | 300.76 |
| 6 | 408.05 | 456.67 | 428.01 | 241.08 | -2.24 | -7.84 | -46.11 | -31.03 | 404.35 | 364.99 | 365.21 | 381.51 |
| 7 | 486.02 | 528.73 | 495.06 | 347.40 | -3.35 | -6.23 | -37.46 | -40.97 | 452.21 | 433.46 | 407.96 | 422.49 |
| 8 | 565.05 | 583.15 | 550.31 | 389.54 | -0.90 | -3.09 | -66.48 | -99.16 | 525.05 | 526.54 | 481.05 | 510.23 |
| 9 | 623.95 | 633.59 | 634.92 | 461.45 | 18.47 | -3.40 | -62.47 | -119.37 | 591.05 | 556.64 | 544.37 | 558.37 |
| 10 | 697.88 | 730.95 | 687.14 | 526.22 | -1.87 | 2.22 | -81.55 | -56.42 | 662.64 | 602.36 | 611.77 | 617.50 |

| CVP2 | SG18 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 32.60 | 34.88 | 31.15 | -14.86 | -0.24 | 2.77 | -2.17 | -14.33 | 29.46 | 26.41 | 26.79 | 40.63 |
| 1 | 65.86 | 66.94 | 65.69 | 16.64 | -6.98 | 2.64 | -4.43 | -15.39 | 57.09 | 58.01 | 54.82 | 65.34 |
| 2 | 109.83 | 112.35 | 122.77 | 67.13 | -5.04 | -2.31 | -13.94 | -16.22 | 99.20 | 99.72 | 100.49 | 113.60 |
| 3 | 160.20 | 160.52 | 161.75 | 147.64 | -9.24 | -5.59 | -11.08 | -14.01 | 148.90 | 149.04 | 154.20 | 149.99 |
| 4 | 214.35 | 212.64 | 213.27 | 200.26 | -11.87 | -16.21 | -16.67 | -22.46 | 200.24 | 195.42 | 190.04 | 199.12 |
| 5 | 265.15 | 266.76 | 261.85 | 220.42 | -12.80 | -12.84 | -18.52 | -27.31 | 247.00 | 241.98 | 246.19 | 243.64 |
| 6 | 317.38 | 322.01 | 322.83 | 270.64 | -18.11 | -19.81 | -21.29 | -27.91 | 298.91 | 291.55 | 290.90 | 292.44 |
| 7 | 372.55 | 376.88 | 376.59 | 327.01 | -21.39 | -21.89 | -22.63 | -37.23 | 346.24 | 342.34 | 340.65 | 341.24 |
| 8 | 428.13 | 426.77 | 426.46 | 370.61 | -24.39 | -24.15 | -28.72 | -34.42 | 397.94 | 395.96 | 394.71 | 396.82 |
| 9 | 479.31 | 478.09 | 482.85 | 426.96 | -23.00 | -27.25 | -32.79 | -48.37 | 447.45 | 439.76 | 443.48 | 444.48 |
| 10 | 532.29 | 535.96 | 531.94 | 476.33 | -30.86 | -28.63 | -39.02 | -51.97 | 497.14 | 488.46 | 491.19 | 493.07 |

| CVP2 | SG19 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 110.60 | 127.08 | 209.08 | 203.74 | -32.10 | -23.11 | -27.79 | 2.23 | 94.93 | 71.45 | 176.60 | 227.69 |
| 1 | 71.18 | 85.97 | 131.60 | 102.75 | 1.55 | -30.63 | -12.46 | 18.15 | 72.37 | 81.91 | 103.18 | 110.61 |
| 2 | 97.07 | 162.04 | 131.59 | 137.93 | -2.84 | -4.40 | -39.11 | 2.99 | 95.53 | 70.65 | 117.79 | 61.77 |
| 3 | 167.44 | 163.89 | 189.86 | 141.44 | 9.13 | -7.81 | -11.33 | -33.28 | 160.13 | 179.49 | 162.36 | 149.62 |
| 4 | 239.64 | 244.02 | 246.62 | 271.80 | 1.40 | 7.99 | -12.44 | 33.69 | 241.26 | 194.92 | 215.81 | 235.07 |
| 5 | 285.70 | 301.76 | 309.13 | 272.39 | 11.91 | 3.14 | 18.61 | 2.99 | 285.82 | 270.76 | 283.51 | 255.78 |
| 6 | 340.47 | 380.19 | 392.20 | 306.95 | -4.37 | 16.01 | -3.00 | 17.25 | 354.99 | 318.84 | 329.93 | 334.42 |
| 7 | 399.81 | 436.43 | 442.50 | 418.14 | 0.33 | 0.36 | -9.13 | 50.31 | 400.68 | 377.31 | 363.12 | 381.26 |
| 8 | 458.27 | 494.15 | 502.61 | 458.84 | 2.01 | -1.02 | -6.54 | -32.52 | 455.06 | 459.83 | 437.38 | 427.09 |
| 9 | 510.07 | 525.96 | 562.41 | 498.97 | 12.22 | 8.54 | 4.93 | -58.79 | 507.59 | 486.48 | 500.08 | 476.66 |
| 10 | 579.80 | 597.55 | 630.05 | 558.96 | 16.25 | 2.74 | -21.36 | 50.15 | 579.73 | 532.71 | 542.87 | 543.99 |

| CVP2 | SG20 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 30.71 | 33.15 | 39.11 | 38.30 | -11.50 | -9.90 | -2.07 | -1.51 | 25.99 | 22.64 | 33.45 | 51.80 |
| 1 | 60.11 | 63.10 | 66.84 | 54.00 | -8.55 | -9.72 | 1.43 | -1.13 | 58.16 | 60.73 | 53.97 | 68.80 |
| 2 | 112.23 | 132.05 | 113.21 | 122.25 | -9.66 | -8.61 | -6.89 | -6.49 | 107.14 | 102.87 | 111.63 | 105.20 |
| 3 | 172.66 | 172.17 | 177.73 | 163.28 | -6.89 | -10.83 | -11.31 | -11.86 | 165.18 | 169.96 | 166.90 | 164.90 |
| 4 | 235.52 | 234.67 | 238.69 | 242.72 | -13.73 | -10.46 | -12.97 | -10.56 | 224.86 | 213.42 | 216.80 | 227.19 |
| 5 | 289.31 | 291.77 | 288.78 | 283.41 | -10.77 | -13.42 | -7.07 | -13.33 | 276.82 | 273.86 | 272.43 | 268.40 |
| 6 | 345.80 | 356.10 | 355.53 | 337.16 | -20.20 | -14.15 | -15.56 | -17.20 | 335.05 | 326.25 | 324.73 | 328.32 |
| 7 | 404.92 | 414.33 | 414.12 | 408.73 | -21.31 | -20.44 | -18.90 | -9.09 | 388.87 | 382.79 | 374.72 | 384.37 |
| 8 | 464.59 | 472.38 | 470.86 | 464.56 | -24.26 | -25.25 | -23.89 | -21.65 | 444.84 | 444.40 | 438.22 | 441.63 |
| 9 | 520.23 | 522.61 | 529.32 | 513.35 | -25.00 | -24.88 | -25.00 | -34.77 | 498.26 | 493.02 | 495.88 | 494.86 |
| 10 | 581.36 | 584.22 | 591.36 | 570.72 | -27.40 | -28.76 | -27.96 | -25.34 | 557.41 | 546.90 | 543.07 | 551.79 |

| CVP2 | SG21 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 18.82 | 0.36 | 17.44 | -10.40 | -4.08 | 1.06 | 8.77 | 10.08 | 12.13 | 1.63 | -13.80 | -16.30 |
| 1 | -19.66 | -25.18 | -13.83 | -15.39 | 21.08 | 27.70 | 4.88 | 38.20 | 4.73 | 1.63 | -23.61 | -23.15 |
| 2 | -55.92 | -61.44 | -53.78 | -57.77 | 48.28 | 56.75 | 66.11 | 66.13 | 1.03 | 2.00 | -22.31 | -28.14 |
| 3 | -94.77 | -97.71 | -87.83 | -95.89 | 79.55 | 85.62 | 82.77 | 86.11 | -6.74 | -10.58 | -13.06 | -11.86 |
| 4 | -128.08 | -128.63 | -120.56 | -124.73 | 109.51 | 113.92 | 111.45 | 114.60 | -15.06 | -13.73 | -12.51 | -14.08 |
| 5 | -160.46 | -160.63 | -147.01 | -151.20 | 135.06 | 139.46 | 126.06 | 149.57 | -17.28 | -19.09 | -23.24 | -20.19 |
| 6 | -193.17 | -197.45 | -177.19 | -188.55 | 166.32 | 169.45 | 154.56 | 177.71 | -23.95 | -19.28 | -28.05 | -19.08 |
| 7 | -222.48 | -229.46 | -208.08 | -215.22 | 191.65 | 199.59 | 190.07 | 206.16 | -23.95 | -27.98 | -29.16 | -25.74 |
| 8 | -255.77 | -258.33 | -239.35 | -251.11 | 216.46 | 231.78 | 222.63 | 236.52 | -22.84 | -28.53 | -38.78 | -30.73 |
| 9 | -287.04 | -289.94 | -265.09 | -281.82 | 244.01 | 255.52 | 244.46 | 271.49 | -31.16 | -32.42 | -36.74 | -34.06 |
| 10 | -319.58 | -325.50 | -296.33 | -310.72 | 271.23 | 281.40 | 263.30 | 285.18 | -33.01 | -35.01 | -40.08 | -36.47 |

| CVP2 | SG22 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 13.24 | 5.48 | 16.78 | -8.53 | -7.25 | 3.25 | 14.90 | 19.68 | -1.45 | -13.23 | -17.83 | -16.76 |
| 1 | 2.36 | -0.38 | 15.40 | 16.12 | 17.49 | 33.25 | 6.03 | 44.29 | 24.64 | 18.95 | -12.01 | -17.68 |
| 2 | -0.55 | -3.52 | 5.24 | 11.24 | 44.58 | 64.78 | 62.19 | 77.98 | 49.14 | 49.88 | 30.96 | 17.67 |
| 3 | -3.05 | -3.20 | -7.40 | -2.29 | 80.36 | 90.19 | 89.87 | 92.84 | 77.81 | 78.54 | 73.98 | 72.37 |
| 4 | -3.92 | -2.13 | 1.41 | 3.34 | 116.72 | 127.80 | 116.00 | 116.16 | 106.37 | 105.79 | 107.58 | 98.45 |
| 5 | -5.86 | -0.11 | 15.90 | 15.16 | 140.47 | 149.72 | 117.14 | 165.09 | 133.99 | 130.58 | 129.92 | 127.07 |
| 6 | -4.58 | -3.06 | 18.54 | 11.55 | 172.46 | 181.00 | 155.98 | 200.46 | 160.03 | 158.51 | 154.99 | 161.76 |
| 7 | -5.21 | -4.17 | 10.93 | 6.94 | 195.74 | 218.65 | 194.45 | 219.39 | 187.10 | 183.74 | 181.81 | 183.06 |
| 8 | -7.06 | -3.75 | 6.86 | 7.63 | 224.85 | 252.07 | 236.78 | 246.60 | 214.18 | 213.92 | 203.64 | 197.12 |
| 9 | -9.23 | -2.42 | 9.22 | 12.02 | 253.12 | 276.69 | 246.56 | 295.76 | 237.95 | 236.27 | 233.78 | 223.34 |
| 10 | -9.92 | -7.31 | 6.22 | 10.31 | 281.59 | 303.81 | 268.83 | 305.87 | 264.49 | 262.02 | 258.65 | 254.08 |

| CVP2 | SG23 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 2.37 | -14.66 | 2.21 | -27.13 | -6.01 | 4.05 | 10.43 | 10.84 | -8.33 | -20.56 | -37.55 | -44.31 |
| 1 | -20.37 | -27.94 | -11.40 | -6.60 | 25.81 | 35.41 | 7.25 | 48.14 | 4.12 | 1.03 | -24.04 | -31.91 |
| 2 | -42.46 | -51.28 | -43.25 | -40.65 | 59.39 | 70.97 | 80.33 | 87.01 | 20.41 | 25.71 | -1.30 | -14.61 |
| 3 | -69.75 | -74.25 | -61.98 | -72.84 | 97.66 | 104.09 | 102.48 | 110.29 | 31.80 | 26.49 | 23.74 | 23.25 |
| 4 | -90.93 | -94.78 | -90.33 | -93.11 | 136.58 | 139.96 | 139.60 | 137.28 | 39.96 | 40.88 | 39.41 | 29.43 |
| 5 | -114.08 | -117.74 | -107.30 | -106.91 | 166.52 | 169.71 | 153.70 | 192.11 | 53.70 | 48.63 | 36.74 | 36.30 |
| 6 | -135.63 | -146.89 | -130.74 | -135.03 | 205.03 | 206.20 | 191.85 | 225.14 | 61.04 | 62.29 | 46.47 | 51.01 |
| 7 | -155.90 | -170.87 | -153.79 | -157.41 | 235.67 | 243.82 | 237.72 | 253.97 | 75.43 | 66.81 | 64.47 | 59.14 |
| 8 | -180.74 | -190.71 | -174.41 | -186.28 | 267.84 | 282.00 | 278.62 | 297.89 | 88.57 | 78.02 | 62.75 | 59.87 |
| 9 | -204.77 | -213.88 | -190.61 | -206.57 | 301.25 | 311.66 | 300.48 | 345.02 | 92.90 | 87.39 | 75.20 | 65.59 |
| 10 | -229.61 | -243.56 | -218.54 | -228.41 | 335.08 | 343.55 | 327.06 | 354.70 | 103.10 | 97.20 | 84.43 | 79.38 |

| CVP2 | SG24 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 11.65 | -0.25 | 17.84 | -8.36 | -8.94 | 6.34 | 15.52 | 19.64 | -5.63 | -20.55 | -25.98 | -18.54 |
| 1 | -5.18 | -8.97 | 12.08 | 26.00 | 25.84 | 38.62 | 3.25 | 54.69 | 20.90 | 17.10 | -8.45 | -10.83 |
| 2 | -7.86 | -13.63 | -3.42 | 7.92 | 59.24 | 78.67 | 80.09 | 99.07 | 53.23 | 54.37 | 34.91 | 21.91 |
| 3 | -11.45 | -15.66 | -8.17 | -9.75 | 102.79 | 111.53 | 109.26 | 115.66 | 89.21 | 88.50 | 83.80 | 83.54 |
| 4 | -13.34 | -14.97 | -10.61 | -4.58 | 146.87 | 153.77 | 146.90 | 147.96 | 123.52 | 120.80 | 123.28 | 115.09 |
| 5 | -17.50 | -16.08 | 0.36 | 5.52 | 176.97 | 183.48 | 156.30 | 208.48 | 157.30 | 152.18 | 145.61 | 147.19 |
| 6 | -18.14 | -23.37 | -0.51 | -5.50 | 218.49 | 222.80 | 198.20 | 247.44 | 187.38 | 184.52 | 175.87 | 183.38 |
| 7 | -19.85 | -28.30 | -8.17 | -9.24 | 249.64 | 264.85 | 248.92 | 272.48 | 218.96 | 212.55 | 206.55 | 209.42 |
| 8 | -26.86 | -29.64 | -10.80 | -11.96 | 284.55 | 306.92 | 296.71 | 313.46 | 251.78 | 245.61 | 230.30 | 228.22 |
| 9 | -30.97 | -34.35 | -12.23 | -8.69 | 320.68 | 338.00 | 315.34 | 369.00 | 276.88 | 272.38 | 265.54 | 254.79 |
| 10 | -34.43 | -42.61 | -16.52 | -11.69 | 356.51 | 371.73 | 339.48 | 384.31 | 306.58 | 300.00 | 293.25 | 295.38 |

| CVP2 | SG25 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -3.56 | -8.40 | -37.39 | -38.08 | -4.87 | 2.56 | 9.55 | -5.58 | -1.07 | -13.09 | -42.80 | -57.71 |
| 1 | -12.40 | -11.99 | -31.57 | -2.01 | 22.59 | 30.41 | 10.32 | 22.88 | 18.56 | 14.13 | -15.04 | -29.68 |
| 2 | -14.71 | -20.79 | -39.65 | -23.82 | 50.72 | 61.74 | 67.83 | 34.99 | 41.23 | 43.15 | 13.27 | -4.33 |
| 3 | -23.70 | -27.42 | -38.66 | -34.08 | 84.37 | 89.67 | 87.36 | 62.68 | 58.96 | 56.85 | 54.93 | 49.81 |
| 4 | -30.40 | -32.56 | -49.54 | -46.50 | 118.17 | 121.63 | 120.92 | 52.25 | 76.70 | 78.38 | 79.33 | 61.54 |
| 5 | -36.90 | -37.82 | -60.09 | -43.72 | 143.48 | 146.08 | 131.57 | 147.73 | 100.81 | 99.60 | 86.92 | 74.66 |
| 6 | -42.23 | -48.92 | -71.44 | -55.34 | 176.68 | 177.84 | 164.24 | 173.45 | 120.33 | 123.15 | 108.70 | 98.08 |
| 7 | -48.00 | -57.71 | -83.04 | -70.24 | 203.38 | 210.39 | 203.75 | 195.84 | 143.34 | 139.42 | 134.73 | 111.51 |
| 8 | -57.27 | -62.64 | -98.37 | -85.02 | 231.28 | 243.54 | 240.39 | 224.65 | 163.19 | 158.84 | 144.83 | 116.13 |
| 9 | -66.76 | -71.17 | -110.69 | -93.12 | 259.77 | 269.10 | 256.91 | 196.20 | 178.33 | 177.77 | 166.84 | 138.13 |
| 10 | -76.21 | -85.80 | -123.55 | -103.65 | 289.47 | 296.77 | 280.85 | 216.64 | 195.74 | 195.79 | 185.93 | 162.99 |

| CVP2 | SG26 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 101.20 | 52.09 | -13.11 | -8.55 | 25.37 | 154.85 | 11.52 | 17.33 | 179.22 | -7.07 | 1548.82 | -21.68 |
| 1 | 82.64 | 52.09 | -14.70 | 29.04 | -38.93 | -23.64 | 4.10 | 53.09 | 249.41 | -1.18 | 1575.84 | 0.01 |
| 2 | 26.75 | 52.09 | -22.11 | 5.06 | 14.02 | 43.53 | 76.29 | 93.72 | 135.09 | 37.63 | 1613.17 | 28.04 |
| 3 | 80.15 | -12.65 | -16.90 | -12.59 | 14.02 | 66.59 | 101.25 | 109.98 | 123.32 | 70.54 | 91.43 | 85.77 |
| 4 | 97.35 | -166.18 | -17.33 | -6.53 | 20.33 | 28.83 | 138.76 | 141.34 | 73.75 | 111.18 | 137.02 | 115.00 |
| 5 | 109.12 | -183.29 | -22.48 | 2.39 | -35.99 | -27.07 | 151.19 | 198.70 | 73.31 | 137.66 | 159.45 | 140.01 |
| 6 | 74.72 | -268.62 | -26.83 | -4.69 | -77.18 | -71.70 | 188.41 | 233.94 | 111.56 | 186.60 | 196.22 | 174.14 |
| 7 | 96.46 | -200.95 | -35.47 | -8.09 | -85.57 | -6.48 | 236.68 | 259.81 | 214.11 | 201.85 | 236.34 | 203.86 |
| 8 | 102.79 | -236.25 | -47.06 | -14.34 | -9.51 | -21.19 | 279.70 | 300.01 | 255.71 | 233.69 | 259.47 | 225.81 |
| 9 | 173.40 | -247.48 | -40.93 | -14.89 | -53.21 | 63.16 | 298.08 | 350.75 | 302.78 | 254.29 | 293.11 | 252.83 |
| 10 | 253.28 | -318.64 | -46.87 | -16.27 | 5.20 | 48.93 | 321.34 | 365.64 | 173.34 | 261.24 | 322.65 | 289.42 |

| CVP2 | SG27 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 25.09 | 27.86 | 21.75 | 21.24 | -1.51 | 2.95 | 16.41 | 20.57 | 32.15 | 22.35 | 180.35 | 0.27 |
| 1 | -12.17 | -9.20 | -8.46 | 16.64 | 32.36 | 30.92 | 13.82 | 51.73 | 23.22 | 22.53 | 175.45 | -12.15 |
| 2 | -38.60 | -42.14 | -42.68 | -27.72 | 59.85 | 67.54 | 70.17 | 85.64 | 26.79 | 27.86 | 182.52 | -11.77 |
| 3 | -67.03 | -70.78 | -63.89 | -67.87 | 92.28 | 96.36 | 90.74 | 100.10 | 26.33 | 24.00 | 20.53 | 21.49 |
| 4 | -93.48 | -94.97 | -109.56 | -93.13 | 129.88 | 131.57 | 127.89 | 132.94 | 27.54 | 29.76 | 31.57 | 23.39 |
| 5 | -115.33 | -117.17 | -125.22 | -104.84 | 157.46 | 159.43 | 143.67 | 176.77 | 37.14 | 37.84 | 23.62 | 27.82 |
| 6 | -136.33 | -146.04 | -150.50 | -130.31 | 193.91 | 193.39 | 172.88 | 212.99 | 43.23 | 47.24 | 40.85 | 40.60 |
| 7 | -158.22 | -170.94 | -177.52 | -155.57 | 223.75 | 227.24 | 218.13 | 239.13 | 54.22 | 51.32 | 50.76 | 44.98 |
| 8 | -182.90 | -189.10 | -204.03 | -180.93 | 253.92 | 261.89 | 251.66 | 272.02 | 63.70 | 58.84 | 50.14 | 44.44 |
| 9 | -205.91 | -210.59 | -221.65 | -200.56 | 284.81 | 291.25 | 272.31 | 316.32 | 67.95 | 68.68 | 59.88 | 51.55 |
| 10 | -228.79 | -239.83 | -245.74 | -221.35 | 317.62 | 321.96 | 298.47 | 337.01 | 75.89 | 77.90 | 66.99 | 68.00 |

| CVP2 | SG28 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -5.60 | -9.98 | -12.37 | -23.34 | -8.86 | -0.33 | 17.04 | 19.97 | -12.04 | -23.48 | -39.06 | -32.25 |
| 1 | -15.20 | -17.38 | -10.89 | 16.56 | 30.32 | 30.71 | 9.64 | 57.69 | 15.32 | 13.49 | -2.10 | -13.77 |
| 2 | -15.94 | -21.81 | -16.81 | -8.53 | 61.37 | 72.86 | 74.67 | 93.91 | 46.36 | 46.75 | 31.17 | 11.35 |
| 3 | -18.90 | -24.03 | -12.36 | -27.01 | 99.07 | 106.14 | 99.84 | 109.41 | 73.72 | 75.57 | 77.00 | 69.01 |
| 4 | -21.12 | -22.55 | -25.68 | -15.95 | 143.41 | 143.09 | 136.81 | 141.22 | 106.23 | 105.90 | 114.70 | 102.27 |
| 5 | -25.55 | -25.51 | -19.03 | -14.45 | 172.26 | 173.40 | 150.83 | 195.92 | 137.29 | 136.95 | 128.00 | 125.93 |
| 6 | -28.52 | -33.64 | -21.97 | -24.82 | 212.92 | 212.61 | 186.34 | 228.48 | 161.69 | 166.58 | 162.01 | 158.48 |
| 7 | -34.42 | -40.30 | -30.84 | -30.72 | 244.68 | 246.59 | 231.40 | 254.28 | 190.55 | 188.74 | 190.90 | 180.70 |
| 8 | -41.08 | -43.99 | -42.67 | -41.81 | 278.72 | 288.73 | 274.28 | 298.67 | 216.40 | 216.86 | 210.79 | 192.49 |
| 9 | -49.21 | -53.61 | -38.97 | -45.50 | 311.95 | 319.11 | 294.24 | 345.98 | 236.36 | 239.05 | 238.88 | 217.63 |
| 10 | -54.39 | -63.96 | -46.37 | -51.41 | 346.00 | 350.87 | 318.59 | 362.24 | 262.23 | 264.86 | 269.97 | 255.33 |

| CVP2 | SG29T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 8.25 | 8.04 | 31.21 | 37.06 | 8.22 | 4.25 | 17.51 | 9.28 | 16.52 | 24.89 | 58.04 | 77.17 |
| 1 | 82.72 | 78.09 | 82.57 | 65.87 | -13.40 | -13.13 | 3.29 | -16.04 | 80.53 | 78.45 | 91.87 | 102.82 |
| 2 | 163.73 | 156.98 | 163.65 | 157.09 | -28.13 | -30.52 | -33.80 | -44.53 | 146.30 | 146.64 | 166.33 | 175.05 |
| 3 | 242.96 | 243.96 | 236.78 | 231.61 | -46.21 | -48.23 | -49.70 | -56.99 | 218.63 | 220.49 | 226.94 | 226.87 |
| 4 | 323.17 | 322.46 | 318.22 | 318.30 | -61.87 | -67.01 | -69.87 | -61.96 | 289.30 | 289.72 | 287.08 | 293.70 |
| 5 | 403.07 | 401.41 | 389.93 | 397.35 | -78.61 | -76.26 | -85.76 | -98.03 | 361.10 | 360.29 | 356.24 | 369.18 |
| 6 | 482.14 | 482.62 | 465.50 | 481.43 | -94.09 | -98.53 | -96.88 | -106.87 | 432.35 | 429.83 | 424.98 | 432.34 |
| 7 | 562.62 | 564.91 | 549.76 | 545.07 | -111.28 | -114.46 | -113.98 | -126.42 | 505.75 | 503.94 | 503.02 | 515.36 |
| 8 | 644.94 | 643.47 | 625.61 | 629.99 | -124.35 | -132.27 | -136.10 | -143.95 | 579.05 | 576.94 | 584.96 | 594.28 |
| 9 | 725.41 | 726.56 | 707.90 | 712.36 | -139.35 | -146.33 | -150.65 | -157.61 | 651.05 | 650.59 | 653.14 | 666.94 |
| 10 | 807.94 | 807.38 | 787.12 | 788.57 | -156.19 | -159.80 | -169.27 | -181.60 | 724.40 | 726.61 | 724.09 | 737.12 |

| CVP2 | SG29-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 32.05 | 31.32 | 86.97 | 23.45 | -3.66 | 6.55 | 16.54 | 10.53 | 34.74 | 20.88 | 72.27 | 53.15 |
| 1 | 40.96 | 38.32 | 61.43 | 38.14 | 7.65 | 17.07 | -7.25 | 1.31 | 64.94 | 63.87 | 32.49 | 22.87 |
| 2 | 71.71 | 65.31 | 88.97 | 68.11 | 19.29 | 34.33 | 18.38 | 50.27 | 109.07 | 106.81 | 83.26 | 108.31 |
| 3 | 109.25 | 104.04 | 107.85 | 113.70 | 36.21 | 45.56 | 34.16 | 40.99 | 162.45 | 162.07 | 152.72 | 160.71 |
| 4 | 144.37 | 139.48 | 138.81 | 128.46 | 60.36 | 70.40 | 64.95 | 67.43 | 218.30 | 213.51 | 204.79 | 198.87 |
| 5 | 175.67 | 173.18 | 176.22 | 169.65 | 69.69 | 81.02 | 47.97 | 62.56 | 275.12 | 267.63 | 257.09 | 254.78 |
| 6 | 216.43 | 207.87 | 227.88 | 199.45 | 91.07 | 97.63 | 78.31 | 103.42 | 329.05 | 321.95 | 312.68 | 307.39 |
| 7 | 253.62 | 243.81 | 248.98 | 230.54 | 100.37 | 120.99 | 89.47 | 96.67 | 383.11 | 375.21 | 353.46 | 368.50 |
| 8 | 288.05 | 276.09 | 279.86 | 256.36 | 116.29 | 139.91 | 115.76 | 105.49 | 438.07 | 435.04 | 400.26 | 406.85 |
| 9 | 322.04 | 315.05 | 324.35 | 316.92 | 128.10 | 151.03 | 115.48 | 141.57 | 490.88 | 478.31 | 463.32 | 464.35 |
| 10 | 360.36 | 346.06 | 357.43 | 343.25 | 137.11 | 159.17 | 121.49 | 147.22 | 546.34 | 537.76 | 514.42 | 514.76 |

| CVP2 | SG29L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 8.02 | 9.69 | 13.09 | -14.20 | 1.35 | 9.50 | 10.12 | 17.45 | 13.96 | 3.90 | 27.34 | 10.19 |
| 1 | -12.93 | -11.72 | -16.82 | -6.91 | 36.23 | 35.74 | 12.53 | 37.56 | 25.11 | 36.04 | 2.73 | 3.32 |
| 2 | -20.50 | -17.20 | -27.40 | -25.57 | 68.14 | 72.95 | 82.10 | 102.72 | 51.03 | 49.00 | 21.91 | 50.96 |
| 3 | -29.09 | -32.67 | -30.00 | -26.32 | 104.74 | 107.66 | 100.60 | 117.34 | 74.62 | 73.57 | 68.26 | 75.81 |
| 4 | -38.10 | -39.64 | -42.03 | -50.00 | 143.74 | 143.73 | 152.57 | 139.04 | 102.94 | 100.24 | 114.19 | 92.34 |
| 5 | -49.16 | -46.65 | -48.21 | -58.97 | 178.36 | 175.78 | 172.30 | 182.00 | 124.93 | 125.46 | 134.90 | 107.95 |
| 6 | -57.42 | -56.22 | -55.27 | -70.95 | 214.22 | 217.28 | 207.52 | 226.19 | 152.10 | 159.03 | 161.33 | 141.68 |
| 7 | -65.14 | -67.60 | -68.09 | -82.15 | 251.03 | 253.63 | 245.40 | 258.51 | 177.80 | 176.81 | 182.17 | 156.80 |
| 8 | -75.03 | -77.78 | -80.81 | -93.94 | 285.33 | 288.70 | 287.57 | 287.61 | 203.61 | 205.45 | 192.96 | 178.89 |
| 9 | -86.97 | -89.34 | -88.90 | -101.42 | 320.17 | 324.16 | 313.39 | 334.10 | 226.79 | 226.26 | 238.06 | 209.92 |
| 10 | -96.86 | -99.84 | -98.93 | -110.02 | 355.19 | 356.04 | 354.00 | 370.00 | 252.24 | 250.79 | 265.07 | 236.07 |

| CVP2 | SG30T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 18.01 | 22.86 | 58.58 | 57.89 | 3.85 | -2.99 | -14.77 | -11.12 | 21.19 | 32.57 | 78.97 | 69.99 |
| 1 | 89.29 | 87.23 | 89.64 | 61.90 | -9.75 | -15.79 | -3.57 | -23.50 | 82.66 | 85.26 | 84.53 | 85.02 |
| 2 | 167.84 | 163.69 | 170.61 | 154.35 | -21.98 | -29.42 | -33.04 | -37.83 | 142.95 | 142.89 | 156.82 | 163.29 |
| 3 | 246.47 | 248.42 | 242.03 | 235.21 | -40.15 | -43.91 | -47.79 | -51.19 | 213.20 | 216.40 | 221.87 | 219.66 |
| 4 | 326.74 | 326.18 | 320.83 | 317.26 | -54.39 | -58.80 | -62.74 | -57.07 | 283.88 | 283.68 | 285.81 | 288.59 |
| 5 | 407.02 | 405.93 | 392.41 | 396.79 | -65.05 | -68.38 | -74.83 | -98.54 | 352.29 | 352.81 | 356.42 | 363.64 |
| 6 | 486.56 | 489.59 | 471.00 | 484.22 | -80.46 | -86.36 | -87.63 | -97.94 | 423.00 | 423.05 | 424.18 | 425.13 |
| 7 | 568.18 | 572.69 | 557.07 | 547.92 | -92.73 | -101.82 | -109.39 | -109.93 | 494.41 | 495.00 | 498.53 | 504.86 |
| 8 | 651.69 | 651.81 | 634.41 | 630.27 | -106.29 | -119.52 | -128.30 | -138.85 | 565.73 | 566.76 | 576.43 | 580.34 |
| 9 | 733.94 | 736.29 | 717.09 | 712.65 | -119.32 | -129.49 | -136.99 | -154.68 | 636.68 | 638.10 | 648.35 | 653.85 |
| 10 | 817.00 | 818.99 | 796.32 | 794.00 | -134.17 | -142.56 | -153.65 | -163.69 | 708.14 | 712.39 | 718.88 | 721.67 |

| CVP2 | SG30-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 24.04 | 21.31 | 44.96 | 25.03 | -12.17 | 7.71 | 5.73 | 16.06 | 29.27 | 21.35 | 34.67 | 35.31 |
| 1 | 38.52 | 42.43 | 44.68 | 47.36 | 1.25 | 17.73 | -10.51 | 23.58 | 63.29 | 54.73 | 29.01 | 26.82 |
| 2 | 75.56 | 68.38 | 76.47 | 76.65 | 5.15 | 29.43 | 19.51 | 49.24 | 101.26 | 97.81 | 84.33 | 82.61 |
| 3 | 109.16 | 109.05 | 105.16 | 108.17 | 26.31 | 40.11 | 33.63 | 40.61 | 148.42 | 150.86 | 138.50 | 143.83 |
| 4 | 144.54 | 142.81 | 135.41 | 143.48 | 47.24 | 61.88 | 41.80 | 50.63 | 198.35 | 196.36 | 194.33 | 196.27 |
| 5 | 178.38 | 179.80 | 172.77 | 188.60 | 55.00 | 62.62 | 32.23 | 67.34 | 252.35 | 248.36 | 239.86 | 240.46 |
| 6 | 219.88 | 213.45 | 214.55 | 223.26 | 74.45 | 79.89 | 53.54 | 90.14 | 301.18 | 296.64 | 286.28 | 287.73 |
| 7 | 256.41 | 253.14 | 240.04 | 254.01 | 81.26 | 97.15 | 69.74 | 88.96 | 351.80 | 348.71 | 333.03 | 350.24 |
| 8 | 288.60 | 288.05 | 266.35 | 281.30 | 85.91 | 120.41 | 88.44 | 99.37 | 404.64 | 403.16 | 378.96 | 384.19 |
| 9 | 324.39 | 327.29 | 313.91 | 332.92 | 99.42 | 127.35 | 85.79 | 130.60 | 447.67 | 444.76 | 429.64 | 433.25 |
| 10 | 363.12 | 356.85 | 348.55 | 366.88 | 108.15 | 132.77 | 90.10 | 131.21 | 498.50 | 496.20 | 475.55 | 486.02 |

| CVP2 | SG30L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 7.68 | 0.73 | -4.13 | -11.54 | -11.93 | 1.53 | 16.20 | 17.51 | -2.99 | -18.56 | -3.37 | 6.87 |
| 1 | -11.13 | -11.58 | -12.05 | 22.36 | 29.56 | 37.37 | 6.77 | 57.54 | 20.40 | 18.51 | 24.12 | 30.69 |
| 2 | -16.65 | -18.80 | -28.64 | -5.12 | 63.89 | 80.94 | 81.44 | 101.01 | 51.24 | 49.12 | 45.81 | 54.07 |
| 3 | -25.56 | -29.45 | -30.48 | -24.04 | 108.41 | 116.70 | 110.04 | 120.42 | 81.42 | 79.48 | 73.91 | 86.74 |
| 4 | -31.64 | -32.76 | -35.34 | -31.20 | 153.94 | 157.76 | 152.71 | 155.32 | 112.20 | 110.33 | 113.14 | 99.85 |
| 5 | -40.89 | -36.81 | -42.31 | -33.70 | 185.98 | 189.21 | 174.95 | 215.54 | 142.34 | 139.47 | 130.35 | 117.96 |
| 6 | -45.92 | -49.40 | -52.22 | -49.82 | 227.28 | 232.76 | 214.53 | 251.82 | 170.87 | 171.49 | 159.49 | 156.64 |
| 7 | -52.21 | -57.99 | -66.18 | -56.99 | 261.63 | 273.00 | 262.74 | 281.99 | 200.13 | 194.81 | 189.61 | 179.76 |
| 8 | -61.36 | -63.88 | -79.66 | -61.43 | 296.88 | 315.49 | 304.94 | 323.79 | 229.86 | 224.55 | 209.99 | 205.35 |
| 9 | -73.05 | -73.92 | -82.88 | -66.05 | 336.31 | 350.46 | 331.30 | 378.01 | 251.31 | 248.42 | 238.09 | 229.96 |
| 10 | -81.39 | -86.66 | -88.81 | -79.07 | 374.55 | 385.55 | 361.20 | 401.92 | 278.90 | 273.92 | 264.47 | 261.84 |

| CVP2 | SG31T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -6.54 | -22.98 | -55.41 | -52.53 | -3.78 | -13.67 | -4.07 | -22.10 | -12.25 | -11.67 | -44.17 | -41.20 |
| 1 | 88.28 | 76.04 | 62.11 | 59.87 | -11.37 | -10.60 | 20.98 | -21.49 | 72.29 | 67.48 | 71.07 | 91.14 |
| 2 | 172.30 | 163.89 | 155.55 | 153.23 | -16.21 | -22.61 | -4.99 | -36.99 | 152.35 | 157.97 | 154.38 | 185.61 |
| 3 | 247.96 | 248.52 | 249.26 | 236.00 | -27.20 | -29.26 | -15.94 | -14.46 | 224.59 | 220.56 | 232.39 | 234.16 |
| 4 | 334.94 | 331.14 | 337.15 | 325.08 | -36.27 | -44.34 | -32.00 | -59.75 | 294.38 | 298.70 | 300.72 | 300.07 |
| 5 | 418.45 | 409.69 | 401.51 | 404.67 | -48.56 | -47.09 | -30.64 | -32.80 | 369.64 | 372.02 | 368.35 | 369.97 |
| 6 | 499.11 | 491.53 | 477.65 | 490.41 | -59.31 | -59.34 | -28.13 | -64.18 | 442.11 | 447.72 | 442.30 | 434.90 |
| 7 | 583.03 | 576.54 | 570.98 | 556.65 | -68.48 | -71.16 | -51.86 | -72.68 | 520.28 | 519.05 | 523.26 | 520.28 |
| 8 | 667.19 | 657.40 | 653.78 | 643.84 | -75.42 | -83.54 | -49.49 | -51.47 | 595.26 | 592.34 | 605.49 | 606.57 |
| 9 | 750.10 | 741.49 | 739.91 | 724.37 | -83.05 | -92.12 | -63.03 | -71.95 | 665.41 | 666.66 | 677.73 | 683.42 |
| 10 | 832.92 | 825.13 | 821.24 | 804.79 | -94.74 | -99.23 | -58.32 | -105.69 | 740.72 | 744.17 | 749.94 | 745.57 |

| CVP2 | SG31-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 16.00 | 9.28 | 1.26 | -1.83 | -2.01 | -5.61 | -7.48 | -2.18 | 26.07 | 23.78 | -15.51 | -11.70 |
| 1 | 41.96 | 35.23 | 33.72 | 38.02 | 15.75 | 1.41 | -3.30 | 22.84 | 54.59 | 50.57 | 21.70 | 32.34 |
| 2 | 79.45 | 70.02 | 71.38 | 73.02 | 17.84 | 13.92 | 43.25 | 30.75 | 98.07 | 104.57 | 78.48 | 81.26 |
| 3 | 112.18 | 108.96 | 111.57 | 99.86 | 25.38 | 25.84 | 39.91 | 49.06 | 142.76 | 145.67 | 129.91 | 133.02 |
| 4 | 147.07 | 143.81 | 146.95 | 150.90 | 40.16 | 37.64 | 35.54 | 23.26 | 190.79 | 186.11 | 190.14 | 196.22 |
| 5 | 183.30 | 176.12 | 178.01 | 191.47 | 48.91 | 47.83 | 36.14 | 60.14 | 239.13 | 236.48 | 229.95 | 240.17 |
| 6 | 222.65 | 214.96 | 213.51 | 238.56 | 66.26 | 56.26 | 48.28 | 62.85 | 283.64 | 283.80 | 269.43 | 274.75 |
| 7 | 262.33 | 250.59 | 256.16 | 259.33 | 71.46 | 61.87 | 62.93 | 74.04 | 333.21 | 333.41 | 320.56 | 342.18 |
| 8 | 289.05 | 286.27 | 286.38 | 288.44 | 81.65 | 80.57 | 92.50 | 94.79 | 386.47 | 382.76 | 360.35 | 372.79 |
| 9 | 332.87 | 324.51 | 329.86 | 331.79 | 87.14 | 84.88 | 85.43 | 110.32 | 430.61 | 426.67 | 411.41 | 422.51 |
| 10 | 371.85 | 357.44 | 363.63 | 372.06 | 96.44 | 88.91 | 91.66 | 103.90 | 473.58 | 473.75 | 454.80 | 470.88 |

| CVP2 | SG31L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 17.43 | 7.24 | 20.15 | -6.18 | -7.52 | 4.28 | 15.41 | 20.96 | 2.25 | -11.50 | -17.40 | -10.36 |
| 1 | -4.95 | -8.93 | 10.36 | 16.66 | 22.52 | 35.16 | 1.38 | 49.99 | 19.90 | 14.19 | -12.57 | -17.65 |
| 2 | -16.10 | -20.82 | -10.96 | -1.91 | 52.62 | 71.90 | 71.63 | 89.22 | 41.72 | 42.19 | 18.31 | 11.37 |
| 3 | -27.29 | -29.22 | -24.89 | -24.99 | 92.04 | 100.98 | 99.98 | 105.28 | 65.87 | 65.27 | 57.50 | 63.43 |
| 4 | -35.65 | -35.40 | -29.30 | -26.10 | 132.29 | 141.56 | 131.93 | 132.97 | 89.68 | 87.99 | 87.26 | 85.85 |
| 5 | -45.68 | -42.18 | -24.66 | -21.79 | 158.50 | 167.76 | 136.60 | 188.18 | 114.54 | 110.00 | 103.42 | 109.03 |
| 6 | -51.67 | -54.72 | -30.83 | -37.57 | 195.98 | 202.84 | 175.49 | 225.03 | 135.67 | 133.58 | 124.00 | 137.18 |
| 7 | -59.34 | -64.25 | -43.79 | -46.68 | 222.66 | 242.80 | 220.74 | 246.71 | 159.52 | 154.01 | 145.02 | 157.08 |
| 8 | -71.04 | -70.79 | -51.59 | -56.57 | 255.19 | 281.40 | 267.46 | 282.54 | 183.79 | 179.20 | 160.36 | 172.90 |
| 9 | -80.52 | -79.06 | -53.45 | -56.90 | 287.84 | 308.77 | 281.21 | 334.88 | 201.67 | 197.97 | 186.17 | 189.71 |
| 10 | -89.62 | -92.44 | -70.07 | -64.01 | 319.75 | 339.11 | 304.06 | 347.46 | 223.87 | 218.78 | 206.40 | 221.29 |

| CVP2 | SG32T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 17.39 | 12.94 | 38.04 | 33.23 | 0.24 | -4.76 | -9.32 | -14.86 | 13.78 | 24.35 | 59.09 | 52.19 |
| 1 | 97.88 | 94.65 | 88.02 | 61.59 | -13.66 | -12.75 | 9.60 | -25.46 | 88.93 | 93.00 | 85.46 | 94.88 |
| 2 | 181.49 | 177.89 | 180.01 | 163.44 | -24.22 | -28.80 | -31.64 | -43.83 | 158.07 | 156.65 | 165.01 | 176.33 |
| 3 | 264.32 | 265.27 | 260.84 | 254.49 | -39.51 | -41.17 | -47.03 | -50.56 | 232.10 | 234.71 | 240.42 | 242.44 |
| 4 | 349.49 | 348.40 | 341.33 | 341.63 | -53.60 | -55.11 | -60.05 | -55.26 | 307.30 | 307.74 | 310.07 | 313.95 |
| 5 | 434.91 | 433.19 | 420.92 | 426.79 | -61.51 | -66.00 | -58.00 | -91.39 | 381.17 | 382.05 | 385.99 | 392.11 |
| 6 | 519.80 | 521.87 | 501.58 | 517.70 | -80.06 | -80.51 | -71.49 | -97.86 | 457.61 | 458.45 | 460.20 | 461.19 |
| 7 | 606.79 | 610.28 | 592.20 | 582.66 | -90.19 | -96.27 | -95.85 | -105.56 | 535.04 | 535.66 | 535.85 | 543.87 |
| 8 | 697.13 | 694.68 | 677.05 | 678.40 | -104.80 | -113.61 | -122.58 | -128.54 | 612.55 | 613.34 | 622.97 | 631.42 |
| 9 | 784.51 | 785.24 | 763.09 | 769.30 | -117.12 | -121.77 | -122.49 | -149.23 | 689.55 | 691.25 | 702.53 | 712.05 |
| 10 | 874.50 | 874.79 | 855.03 | 852.76 | -130.42 | -134.50 | -135.91 | -159.88 | 768.09 | 772.78 | 779.45 | 785.94 |

| CVP2 | SG32-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 14.96 | 15.19 | 23.96 | 24.64 | -3.87 | -1.69 | -3.48 | 7.31 | 28.93 | 27.51 | 31.35 | 22.94 |
| 1 | 33.70 | 34.86 | 26.93 | 39.28 | 18.75 | 1.26 | -2.56 | 28.10 | 56.95 | 55.90 | 33.76 | 37.41 |
| 2 | 75.62 | 69.92 | 67.17 | 64.74 | 17.27 | 16.11 | 30.63 | 33.85 | 97.01 | 93.92 | 82.73 | 75.79 |
| 3 | 114.38 | 110.92 | 103.35 | 98.69 | 25.25 | 27.25 | 29.91 | 35.87 | 144.50 | 150.11 | 132.81 | 132.92 |
| 4 | 148.90 | 145.82 | 135.42 | 146.69 | 43.23 | 40.04 | 28.06 | 37.93 | 196.60 | 190.20 | 195.50 | 193.57 |
| 5 | 183.77 | 181.60 | 166.58 | 178.06 | 54.55 | 46.53 | 40.10 | 49.61 | 244.30 | 243.26 | 235.57 | 233.63 |
| 6 | 224.15 | 220.74 | 202.21 | 228.48 | 70.32 | 58.42 | 46.24 | 60.20 | 291.60 | 290.63 | 276.93 | 271.14 |
| 7 | 263.41 | 256.55 | 234.86 | 249.48 | 77.17 | 62.11 | 58.28 | 72.41 | 340.61 | 340.88 | 327.46 | 330.35 |
| 8 | 293.62 | 293.10 | 250.25 | 278.41 | 84.61 | 80.85 | 72.37 | 75.02 | 393.44 | 392.50 | 369.11 | 362.22 |
| 9 | 335.36 | 330.90 | 306.12 | 322.38 | 92.21 | 88.67 | 76.64 | 92.27 | 439.81 | 437.03 | 421.42 | 415.45 |
| 10 | 376.13 | 365.45 | 342.81 | 356.00 | 103.53 | 91.62 | 79.03 | 106.74 | 485.07 | 486.84 | 466.73 | 465.91 |

| CVP2 | SG32L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -1.29 | -8.79 | -14.60 | -30.15 | -8.12 | 5.66 | 16.83 | 23.61 | -6.78 | -26.45 | -24.25 | -15.39 |
| 1 | -23.58 | -25.56 | -20.32 | 10.29 | 30.95 | 39.99 | 3.40 | 60.31 | 9.60 | 4.34 | 9.68 | 4.34 |
| 2 | -32.07 | -38.79 | -42.81 | -18.51 | 65.68 | 84.20 | 86.46 | 107.47 | 36.63 | 37.49 | 35.53 | 32.36 |
| 3 | -45.09 | -49.44 | -55.63 | -47.71 | 111.66 | 119.93 | 116.48 | 125.22 | 64.85 | 64.32 | 58.03 | 63.73 |
| 4 | -56.93 | -58.72 | -56.23 | -58.17 | 158.02 | 163.53 | 158.71 | 159.37 | 90.29 | 88.61 | 89.20 | 71.62 |
| 5 | -71.14 | -71.15 | -74.97 | -68.63 | 190.01 | 196.88 | 170.33 | 225.27 | 116.95 | 113.48 | 99.86 | 89.18 |
| 6 | -82.97 | -89.90 | -85.04 | -89.35 | 235.39 | 239.53 | 212.78 | 264.96 | 137.47 | 137.99 | 122.16 | 117.42 |
| 7 | -95.62 | -106.09 | -105.56 | -94.68 | 268.91 | 282.92 | 267.41 | 291.74 | 162.16 | 156.72 | 155.94 | 141.51 |
| 8 | -112.98 | -116.74 | -130.81 | -118.95 | 306.63 | 328.70 | 318.91 | 338.14 | 186.21 | 181.61 | 164.97 | 151.95 |
| 9 | -128.38 | -133.90 | -133.39 | -133.75 | 345.70 | 361.93 | 339.24 | 397.13 | 202.79 | 201.15 | 185.69 | 167.94 |
| 10 | -144.55 | -153.85 | -158.24 | -146.19 | 384.58 | 398.20 | 366.03 | 414.70 | 224.89 | 220.84 | 206.04 | 194.97 |

| CVP2 | SG33T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 73.06 | 64.59 | 89.79 | 89.89 | -0.61 | 1.16 | 0.39 | 2.61 | 64.69 | 75.27 | 123.33 | 110.67 |
| 1 | 124.26 | 116.78 | 123.01 | 99.58 | -11.86 | -10.98 | 10.08 | -13.86 | 113.45 | 116.45 | 124.27 | 124.12 |
| 2 | 190.61 | 188.18 | 192.17 | 174.08 | -27.44 | -27.97 | -38.94 | -38.00 | 166.90 | 162.71 | 175.89 | 184.54 |
| 3 | 265.13 | 264.60 | 261.20 | 254.09 | -40.94 | -42.89 | -47.89 | -51.07 | 231.56 | 234.04 | 238.70 | 241.61 |
| 4 | 344.86 | 341.86 | 334.20 | 336.31 | -56.32 | -57.81 | -65.11 | -55.22 | 300.43 | 300.32 | 302.97 | 305.23 |
| 5 | 426.18 | 423.01 | 412.30 | 414.49 | -67.81 | -71.50 | -57.06 | -81.00 | 369.86 | 371.43 | 372.52 | 376.42 |
| 6 | 509.62 | 508.95 | 491.57 | 504.66 | -86.96 | -84.83 | -77.39 | -95.60 | 444.30 | 445.67 | 443.80 | 442.51 |
| 7 | 595.92 | 597.00 | 580.50 | 572.46 | -99.56 | -102.18 | -101.90 | -102.49 | 521.14 | 521.46 | 522.93 | 528.67 |
| 8 | 686.32 | 681.05 | 663.50 | 664.69 | -113.27 | -118.04 | -124.49 | -131.25 | 597.94 | 599.12 | 609.10 | 612.29 |
| 9 | 774.52 | 771.81 | 753.67 | 755.14 | -125.41 | -128.98 | -129.71 | -151.96 | 675.21 | 676.37 | 684.57 | 694.31 |
| 10 | 865.50 | 861.11 | 842.68 | 839.96 | -138.49 | -142.38 | -141.22 | -147.86 | 753.80 | 758.65 | 761.85 | 765.70 |

| CVP2 | SG33-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 37.87 | 21.19 | 44.00 | 40.75 | -1.89 | -9.31 | -1.29 | 8.67 | 36.09 | 32.34 | 65.62 | 39.18 |
| 1 | 50.97 | 50.32 | 50.64 | 54.96 | 12.51 | 1.61 | 18.49 | 33.10 | 68.24 | 71.83 | 75.19 | 71.51 |
| 2 | 78.14 | 79.07 | 79.71 | 70.25 | 16.74 | 14.57 | 41.85 | 22.32 | 103.07 | 105.13 | 108.21 | 103.79 |
| 3 | 111.85 | 113.40 | 113.76 | 103.37 | 25.89 | 28.55 | 30.99 | 38.34 | 148.73 | 154.13 | 148.34 | 153.95 |
| 4 | 144.93 | 145.00 | 151.74 | 148.64 | 40.42 | 42.62 | 24.44 | 39.23 | 198.27 | 190.00 | 210.06 | 209.72 |
| 5 | 175.82 | 178.62 | 177.42 | 179.40 | 46.14 | 48.80 | 61.31 | 53.39 | 244.92 | 240.08 | 238.48 | 237.45 |
| 6 | 211.04 | 213.41 | 212.22 | 224.76 | 55.57 | 65.11 | 63.27 | 50.38 | 293.23 | 287.65 | 292.26 | 281.46 |
| 7 | 248.37 | 249.97 | 250.07 | 248.09 | 64.20 | 68.58 | 60.43 | 71.08 | 344.68 | 336.54 | 351.49 | 349.77 |
| 8 | 284.58 | 289.08 | 285.55 | 281.21 | 71.68 | 84.89 | 80.26 | 85.53 | 396.34 | 390.05 | 395.14 | 389.54 |
| 9 | 322.21 | 326.63 | 333.88 | 327.70 | 81.44 | 94.15 | 88.07 | 101.79 | 444.74 | 436.84 | 446.22 | 451.78 |
| 10 | 362.91 | 365.27 | 368.87 | 360.99 | 95.33 | 98.32 | 93.81 | 101.93 | 491.84 | 489.11 | 499.86 | 500.04 |

| CVP2 | SG33L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -13.04 | -5.86 | -8.77 | -18.86 | -0.22 | 1.55 | 0.80 | 12.52 | -4.77 | -16.34 | -16.63 | -16.79 |
| 1 | -30.55 | -22.82 | -24.60 | 0.47 | 32.20 | 34.24 | 3.92 | 52.20 | 4.97 | 8.22 | 7.27 | 0.35 |
| 2 | -38.70 | -39.87 | -44.30 | -20.07 | 67.83 | 75.33 | 85.56 | 97.33 | 30.54 | 38.07 | 34.98 | 24.33 |
| 3 | -52.76 | -52.22 | -56.55 | -49.98 | 106.73 | 111.02 | 103.33 | 112.74 | 55.88 | 56.98 | 51.75 | 52.09 |
| 4 | -67.95 | -63.91 | -55.76 | -68.33 | 146.21 | 151.86 | 148.09 | 148.89 | 79.44 | 76.09 | 76.99 | 63.97 |
| 5 | -85.37 | -78.49 | -84.59 | -76.39 | 180.56 | 185.63 | 157.39 | 196.96 | 102.37 | 96.45 | 87.05 | 82.04 |
| 6 | -101.99 | -98.38 | -97.87 | -97.99 | 222.16 | 223.20 | 196.17 | 239.69 | 119.79 | 115.48 | 107.08 | 107.81 |
| 7 | -116.74 | -116.97 | -115.19 | -114.35 | 255.85 | 263.80 | 245.56 | 269.92 | 138.99 | 132.71 | 129.19 | 119.15 |
| 8 | -138.44 | -129.78 | -135.45 | -136.62 | 291.28 | 304.70 | 290.60 | 308.74 | 161.06 | 154.43 | 135.44 | 132.18 |
| 9 | -154.47 | -146.87 | -146.23 | -148.17 | 326.12 | 337.65 | 311.79 | 363.19 | 177.46 | 173.72 | 162.78 | 143.59 |
| 10 | -171.27 | -164.81 | -165.45 | -161.79 | 362.41 | 371.30 | 334.81 | 371.71 | 195.85 | 189.66 | 181.62 | 174.01 |

| CVP2 | SG34T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 70.52 | 63.58 | 98.40 | 104.09 | 1.58 | 9.63 | 2.94 | 13.76 | 75.49 | 80.33 | 145.58 | 143.06 |
| 1 | 102.97 | 95.89 | 109.90 | 105.29 | -6.94 | -15.60 | -9.82 | -9.23 | 102.96 | 102.40 | 125.70 | 129.09 |
| 2 | 165.02 | 163.20 | 165.18 | 159.35 | -35.76 | -31.06 | -62.46 | -40.55 | 150.06 | 145.36 | 158.14 | 169.77 |
| 3 | 234.03 | 233.68 | 227.23 | 221.91 | -53.44 | -55.31 | -52.73 | -58.18 | 210.15 | 210.85 | 213.94 | 218.73 |
| 4 | 308.33 | 307.49 | 300.50 | 302.91 | -68.98 | -70.43 | -85.41 | -71.54 | 274.13 | 272.82 | 271.89 | 275.09 |
| 5 | 381.92 | 381.25 | 368.17 | 374.38 | -88.96 | -92.50 | -90.24 | -85.65 | 338.71 | 338.27 | 334.77 | 343.23 |
| 6 | 457.01 | 458.47 | 439.08 | 452.77 | -111.16 | -106.33 | -113.47 | -112.74 | 406.76 | 406.30 | 401.18 | 397.48 |
| 7 | 533.76 | 536.49 | 518.48 | 513.74 | -128.42 | -129.83 | -145.49 | -127.80 | 476.57 | 474.33 | 470.00 | 479.39 |
| 8 | 613.08 | 611.44 | 590.57 | 595.48 | -146.12 | -146.86 | -154.98 | -155.18 | 545.84 | 544.02 | 550.95 | 551.92 |
| 9 | 691.28 | 691.44 | 669.94 | 674.93 | -160.68 | -163.00 | -172.06 | -185.85 | 615.89 | 613.49 | 614.94 | 628.21 |
| 10 | 771.42 | 770.59 | 747.88 | 749.38 | -176.60 | -180.58 | -190.39 | -167.05 | 687.90 | 688.52 | 683.65 | 693.18 |

| CVP2 | SG34-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 22.31 | 19.32 | 51.37 | 41.16 | 3.96 | 4.14 | 20.14 | 16.34 | 28.60 | 44.36 | 66.59 | 52.69 |
| 1 | 38.92 | 40.77 | 38.05 | 45.61 | 8.55 | 0.75 | 31.88 | 25.43 | 53.95 | 63.72 | 58.19 | 59.14 |
| 2 | 68.63 | 66.30 | 71.78 | 47.05 | 4.79 | 7.16 | 23.57 | 1.86 | 91.03 | 93.38 | 91.05 | 87.78 |
| 3 | 98.19 | 100.51 | 102.00 | 82.47 | 7.58 | 9.66 | 12.81 | 10.58 | 125.66 | 130.19 | 124.97 | 129.68 |
| 4 | 126.27 | 130.27 | 125.94 | 132.44 | 8.28 | 7.39 | -1.67 | 9.00 | 161.85 | 160.50 | 173.01 | 174.24 |
| 5 | 153.89 | 160.16 | 158.93 | 153.34 | 11.39 | 12.45 | 32.53 | 21.35 | 199.78 | 202.88 | 191.85 | 190.43 |
| 6 | 184.86 | 194.23 | 192.91 | 189.29 | 14.31 | 19.55 | 30.68 | 10.53 | 240.30 | 243.35 | 239.09 | 229.76 |
| 7 | 218.77 | 226.63 | 221.55 | 209.31 | 16.54 | 11.98 | 9.75 | 25.71 | 282.93 | 283.49 | 291.35 | 282.32 |
| 8 | 248.73 | 262.18 | 257.65 | 243.61 | 16.54 | 21.59 | 33.32 | 16.15 | 324.26 | 327.29 | 332.75 | 322.40 |
| 9 | 282.71 | 292.98 | 297.17 | 275.78 | 19.51 | 24.42 | 34.16 | 15.55 | 366.08 | 368.01 | 368.16 | 373.59 |
| 10 | 317.27 | 326.80 | 320.12 | 305.97 | 24.38 | 25.16 | 32.30 | 40.42 | 406.69 | 414.51 | 409.40 | 410.91 |

| CVP2 | SG34L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -11.06 | 1.15 | 7.12 | 0.44 | 12.59 | 9.91 | 13.12 | 26.85 | 2.71 | 3.71 | 2.78 | -3.06 |
| 1 | -19.67 | -13.05 | -15.31 | -4.72 | 34.98 | 36.95 | 21.54 | 44.12 | 13.56 | 20.80 | 7.34 | -4.04 |
| 2 | -28.84 | -29.11 | -29.00 | -22.83 | 69.81 | 69.36 | 90.10 | 100.96 | 37.63 | 43.89 | 42.81 | 23.70 |
| 3 | -40.71 | -38.61 | -39.42 | -36.90 | 102.54 | 103.87 | 84.58 | 98.02 | 60.44 | 64.79 | 56.68 | 54.99 |
| 4 | -54.12 | -49.93 | -54.69 | -56.91 | 134.32 | 137.66 | 140.40 | 141.46 | 81.76 | 80.86 | 81.36 | 71.33 |
| 5 | -67.25 | -62.03 | -69.77 | -64.41 | 169.16 | 172.76 | 161.61 | 179.59 | 104.90 | 104.00 | 93.88 | 82.08 |
| 6 | -80.04 | -76.04 | -81.37 | -77.58 | 205.94 | 205.09 | 198.22 | 220.71 | 123.90 | 123.49 | 106.22 | 122.13 |
| 7 | -92.49 | -89.36 | -96.64 | -90.48 | 238.50 | 242.08 | 236.52 | 255.44 | 144.31 | 144.01 | 133.34 | 122.42 |
| 8 | -106.92 | -99.09 | -110.51 | -107.75 | 272.19 | 276.77 | 265.14 | 277.67 | 167.38 | 167.22 | 132.61 | 147.27 |
| 9 | -121.36 | -113.42 | -120.71 | -118.37 | 305.38 | 310.40 | 296.43 | 336.93 | 185.40 | 190.09 | 173.30 | 154.06 |
| 10 | -134.94 | -126.66 | -136.35 | -130.06 | 339.41 | 344.40 | 315.16 | 337.77 | 204.16 | 206.11 | 194.92 | 184.56 |

| CVP2 | SG35T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 101.24 | 92.14 | 138.90 | 131.94 | 4.16 | -0.72 | -1.17 | -10.44 | 82.46 | 90.21 | 162.12 | 163.00 |
| 1 | 134.39 | 127.29 | 130.49 | 100.79 | -7.98 | -11.55 | -4.71 | -18.06 | 114.59 | 119.05 | 130.59 | 132.96 |
| 2 | 186.93 | 183.28 | 183.90 | 165.05 | -18.26 | -24.15 | -30.51 | -36.15 | 160.29 | 159.04 | 169.65 | 179.36 |
| 3 | 249.41 | 250.80 | 244.21 | 237.55 | -33.93 | -35.50 | -39.25 | -44.42 | 219.35 | 220.92 | 222.74 | 224.36 |
| 4 | 321.08 | 320.90 | 313.00 | 309.49 | -46.48 | -47.91 | -54.97 | -45.17 | 282.94 | 282.08 | 278.53 | 282.43 |
| 5 | 394.59 | 395.70 | 386.07 | 381.16 | -55.36 | -56.75 | -49.53 | -81.02 | 347.31 | 346.81 | 343.62 | 347.66 |
| 6 | 471.00 | 475.27 | 461.89 | 464.40 | -70.89 | -69.08 | -69.15 | -84.97 | 417.19 | 415.28 | 408.90 | 408.08 |
| 7 | 551.56 | 557.62 | 544.97 | 527.58 | -80.60 | -82.60 | -86.54 | -93.56 | 489.16 | 486.64 | 482.57 | 487.30 |
| 8 | 636.48 | 637.47 | 622.94 | 612.72 | -92.19 | -97.99 | -108.48 | -117.56 | 561.85 | 560.63 | 559.81 | 566.17 |
| 9 | 720.46 | 724.46 | 705.99 | 697.16 | -102.46 | -105.18 | -108.25 | -135.13 | 635.27 | 634.07 | 632.44 | 641.04 |
| 10 | 807.02 | 809.99 | 788.87 | 777.11 | -114.37 | -116.00 | -120.33 | -132.81 | 711.01 | 711.90 | 705.40 | 709.34 |

| CVP2 | SG35-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 70.06 | 73.37 | 71.63 | 91.30 | -10.26 | -3.47 | 17.55 | 20.22 | 71.51 | 68.23 | 103.95 | 92.48 |
| 1 | 63.56 | 66.82 | 55.65 | 81.64 | 17.33 | 4.97 | -3.59 | 40.01 | 83.36 | 81.00 | 84.91 | 77.57 |
| 2 | 87.58 | 87.36 | 76.50 | 81.79 | 16.63 | 22.63 | 33.33 | 42.75 | 113.78 | 107.29 | 97.45 | 99.11 |
| 3 | 115.02 | 113.46 | 103.12 | 103.30 | 31.31 | 35.64 | 39.29 | 46.41 | 152.84 | 153.09 | 141.53 | 150.71 |
| 4 | 145.13 | 143.90 | 129.40 | 147.37 | 51.32 | 49.34 | 36.78 | 49.25 | 198.40 | 190.96 | 201.77 | 202.36 |
| 5 | 176.20 | 177.90 | 166.60 | 175.20 | 60.81 | 57.98 | 60.41 | 72.10 | 245.98 | 242.25 | 239.11 | 233.39 |
| 6 | 217.60 | 215.06 | 193.92 | 216.99 | 78.60 | 74.52 | 59.77 | 77.22 | 295.59 | 292.28 | 284.44 | 277.63 |
| 7 | 254.10 | 251.86 | 227.55 | 245.06 | 85.93 | 79.90 | 80.94 | 90.11 | 349.13 | 341.13 | 338.01 | 345.85 |
| 8 | 287.71 | 289.58 | 251.70 | 277.95 | 95.60 | 102.15 | 92.28 | 100.90 | 403.17 | 393.95 | 386.25 | 378.71 |
| 9 | 325.62 | 329.31 | 297.99 | 321.43 | 107.31 | 110.35 | 99.34 | 117.80 | 447.95 | 438.74 | 434.19 | 440.95 |
| 10 | 369.44 | 362.61 | 334.93 | 356.39 | 121.24 | 117.03 | 111.95 | 144.37 | 497.37 | 491.06 | 483.83 | 489.63 |

| CVP2 | SG35L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 33.55 | 46.35 | 13.84 | 49.89 | -8.21 | 2.22 | 18.40 | 23.31 | 36.79 | 23.62 | 25.07 | 31.93 |
| 1 | 7.86 | 14.89 | -1.58 | 68.42 | 32.82 | 35.26 | 3.80 | 62.11 | 43.90 | 40.31 | 36.59 | 29.00 |
| 2 | -0.88 | -4.26 | -21.52 | 20.47 | 65.03 | 80.02 | 81.72 | 103.84 | 65.55 | 67.13 | 52.62 | 41.73 |
| 3 | -7.85 | -13.19 | -24.58 | -13.27 | 109.17 | 115.02 | 110.79 | 120.32 | 92.09 | 91.70 | 89.43 | 90.94 |
| 4 | -12.36 | -17.19 | -24.07 | -10.06 | 153.86 | 155.72 | 150.98 | 154.54 | 119.59 | 120.11 | 126.04 | 113.71 |
| 5 | -15.14 | -19.97 | -44.66 | -5.83 | 184.83 | 189.46 | 165.23 | 218.06 | 155.71 | 153.71 | 138.87 | 138.15 |
| 6 | -14.86 | -27.31 | -55.67 | -18.65 | 229.58 | 229.87 | 202.80 | 253.72 | 184.62 | 186.38 | 170.75 | 174.51 |
| 7 | -15.01 | -31.03 | -65.29 | -26.09 | 263.16 | 270.27 | 256.26 | 281.37 | 219.45 | 213.97 | 202.90 | 200.93 |
| 8 | -21.37 | -30.66 | -79.00 | -30.27 | 299.62 | 314.38 | 304.50 | 326.51 | 250.89 | 245.32 | 230.83 | 222.10 |
| 9 | -25.23 | -36.74 | -73.33 | -25.67 | 337.73 | 346.98 | 324.20 | 381.44 | 276.17 | 276.10 | 266.98 | 252.86 |
| 10 | -28.30 | -45.16 | -75.28 | -26.70 | 374.39 | 381.34 | 350.09 | 400.96 | 304.38 | 304.39 | 295.91 | 295.29 |

| CVP2 | SG36T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 12.96 | 6.80 | 23.08 | 14.95 | 2.37 | -3.76 | -1.64 | -19.43 | 7.89 | 13.92 | 44.32 | 43.40 |
| 1 | 87.73 | 83.43 | 77.06 | 57.77 | -10.88 | -10.78 | 3.47 | -23.48 | 78.34 | 81.03 | 84.03 | 94.96 |
| 2 | 167.43 | 165.27 | 160.22 | 150.41 | -18.92 | -23.80 | -17.35 | -42.12 | 144.83 | 144.36 | 157.67 | 172.93 |
| 3 | 246.63 | 247.44 | 235.41 | 238.85 | -33.85 | -33.75 | -29.17 | -38.73 | 217.55 | 219.25 | 224.90 | 225.93 |
| 4 | 328.45 | 325.22 | 323.07 | 317.01 | -42.17 | -46.77 | -49.11 | -52.63 | 289.27 | 288.33 | 289.43 | 292.23 |
| 5 | 408.65 | 404.52 | 388.66 | 395.39 | -50.96 | -53.28 | -41.86 | -71.92 | 358.25 | 356.96 | 360.80 | 363.22 |
| 6 | 488.39 | 487.07 | 464.71 | 481.46 | -66.12 | -65.28 | -52.04 | -85.04 | 430.50 | 428.15 | 428.91 | 427.18 |
| 7 | 570.90 | 569.88 | 549.42 | 544.74 | -75.73 | -79.50 | -75.56 | -94.05 | 502.58 | 500.98 | 504.22 | 507.30 |
| 8 | 653.34 | 647.87 | 626.97 | 632.06 | -86.99 | -94.57 | -87.88 | -102.98 | 575.71 | 574.14 | 582.70 | 589.04 |
| 9 | 735.92 | 732.99 | 707.29 | 716.27 | -96.01 | -100.35 | -88.21 | -125.86 | 647.92 | 646.24 | 656.77 | 663.53 |
| 10 | 820.29 | 816.58 | 789.42 | 793.90 | -107.68 | -110.53 | -98.75 | -134.74 | 721.76 | 722.37 | 727.97 | 728.76 |

| CVP2 | SG36-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 17.33 | 0.57 | 3.45 | -11.35 | -18.18 | -10.12 | 24.36 | 26.75 | -2.54 | -1.20 | 12.04 | -14.05 |
| 1 | 40.03 | 35.44 | 39.95 | 31.72 | 6.11 | 5.50 | 7.71 | 42.22 | 48.74 | 50.60 | 49.66 | 32.56 |
| 2 | 83.33 | 81.31 | 87.21 | 77.45 | 6.01 | 17.57 | 36.84 | 35.42 | 101.45 | 96.56 | 83.64 | 87.18 |
| 3 | 123.22 | 120.09 | 123.67 | 119.22 | 24.28 | 29.93 | 37.55 | 44.64 | 151.33 | 152.63 | 148.95 | 157.75 |
| 4 | 161.97 | 160.15 | 158.84 | 176.25 | 39.94 | 40.79 | 31.39 | 37.84 | 204.63 | 198.18 | 217.61 | 214.33 |
| 5 | 199.68 | 202.56 | 217.85 | 204.09 | 47.03 | 48.43 | 67.14 | 68.23 | 254.48 | 251.33 | 263.24 | 246.49 |
| 6 | 245.64 | 243.21 | 253.44 | 251.05 | 58.87 | 62.93 | 58.20 | 59.94 | 306.50 | 305.13 | 314.05 | 298.95 |
| 7 | 285.87 | 284.51 | 293.81 | 284.50 | 66.23 | 65.35 | 81.45 | 75.82 | 359.44 | 353.54 | 365.78 | 368.95 |
| 8 | 326.72 | 325.11 | 322.62 | 326.68 | 71.27 | 86.51 | 85.37 | 95.77 | 414.64 | 408.83 | 417.44 | 397.53 |
| 9 | 362.76 | 365.40 | 374.63 | 376.56 | 81.71 | 91.10 | 91.66 | 100.99 | 457.15 | 451.45 | 471.61 | 465.07 |
| 10 | 407.24 | 399.89 | 417.99 | 415.98 | 94.72 | 98.03 | 114.21 | 126.07 | 507.63 | 502.82 | 521.87 | 519.80 |

| CVP2 | SG36L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 0.16 | -6.31 | -10.20 | -24.38 | -6.26 | 2.01 | 20.20 | 23.24 | -11.40 | -18.27 | -54.98 | -39.05 |
| 1 | -16.07 | -16.01 | -9.40 | 11.61 | 29.69 | 31.10 | 9.99 | 56.10 | 11.73 | 12.55 | -13.26 | -18.07 |
| 2 | -20.73 | -25.98 | -17.61 | -11.52 | 55.47 | 70.07 | 71.59 | 87.19 | 37.41 | 40.24 | 17.82 | 10.09 |
| 3 | -29.54 | -33.02 | -21.19 | -36.41 | 91.83 | 99.50 | 93.71 | 102.76 | 59.18 | 60.61 | 56.46 | 59.12 |
| 4 | -37.28 | -37.18 | -40.77 | -24.94 | 132.09 | 134.41 | 128.85 | 134.04 | 81.92 | 83.00 | 89.23 | 81.17 |
| 5 | -45.85 | -43.05 | -33.31 | -29.42 | 157.65 | 164.15 | 146.92 | 184.38 | 106.55 | 108.73 | 97.15 | 102.01 |
| 6 | -52.51 | -54.98 | -40.68 | -42.37 | 196.39 | 200.20 | 176.63 | 213.30 | 126.26 | 132.35 | 125.49 | 130.27 |
| 7 | -61.95 | -66.03 | -51.95 | -49.14 | 225.69 | 232.40 | 219.30 | 238.39 | 149.45 | 149.69 | 148.41 | 151.41 |
| 8 | -72.29 | -71.39 | -66.50 | -64.61 | 255.13 | 271.88 | 262.18 | 280.87 | 169.53 | 171.48 | 164.17 | 158.10 |
| 9 | -83.72 | -84.25 | -67.29 | -72.02 | 287.53 | 299.87 | 277.75 | 324.55 | 184.63 | 190.55 | 182.91 | 176.66 |
| 10 | -93.73 | -98.34 | -78.85 | -78.42 | 319.19 | 330.42 | 303.02 | 341.75 | 205.42 | 209.67 | 203.95 | 210.64 |

| CVP2 | SG37T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -4.86 | -7.42 | 6.73 | -3.77 | -3.16 | -3.16 | -11.01 | -14.73 | -5.50 | 3.24 | 106.96 | 25.75 |
| 1 | 78.54 | 77.67 | 69.28 | 46.23 | -13.85 | -10.26 | 0.58 | -22.69 | 73.07 | 75.59 | 152.08 | 83.76 |
| 2 | 165.53 | 161.55 | 163.47 | 147.64 | -23.34 | -24.55 | -27.13 | -31.76 | 143.41 | 142.08 | 237.66 | 170.97 |
| 3 | 248.54 | 249.95 | 245.11 | 238.36 | -32.92 | -33.68 | -38.64 | -39.15 | 218.26 | 221.15 | 228.78 | 230.00 |
| 4 | 332.44 | 331.53 | 331.97 | 323.40 | -44.64 | -44.37 | -46.97 | -46.51 | 292.80 | 293.28 | 301.48 | 297.30 |
| 5 | 415.52 | 414.13 | 402.52 | 403.58 | -48.51 | -54.97 | -49.24 | -70.23 | 364.70 | 366.64 | 375.11 | 372.75 |
| 6 | 496.84 | 499.40 | 481.35 | 492.71 | -62.42 | -65.92 | -60.60 | -77.31 | 438.29 | 440.27 | 448.09 | 438.79 |
| 7 | 579.13 | 583.19 | 568.70 | 557.37 | -70.73 | -79.44 | -77.29 | -85.89 | 511.93 | 513.51 | 526.16 | 521.31 |
| 8 | 663.75 | 663.58 | 644.52 | 644.08 | -83.95 | -91.02 | -97.94 | -99.16 | 584.63 | 586.33 | 607.26 | 601.65 |
| 9 | 746.19 | 747.26 | 729.43 | 726.32 | -95.82 | -99.11 | -99.33 | -115.63 | 656.46 | 660.04 | 680.05 | 677.75 |
| 10 | 830.04 | 831.07 | 819.60 | 805.48 | -105.68 | -110.91 | -112.39 | -129.16 | 729.96 | 735.29 | 752.11 | 744.74 |

| CVP2 | SG37-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 9.81 | 8.01 | 19.52 | 12.45 | -2.53 | -0.24 | -12.53 | 1.25 | 23.16 | 22.74 | 10.91 | 9.98 |
| 1 | 34.49 | 34.12 | 30.86 | 28.43 | 12.06 | 2.17 | -14.20 | 21.70 | 53.84 | 52.11 | 18.25 | 22.39 |
| 2 | 77.15 | 70.60 | 73.32 | 72.07 | 12.06 | 12.35 | 30.67 | 32.66 | 95.00 | 97.27 | 79.11 | 72.19 |
| 3 | 116.53 | 114.42 | 109.70 | 106.55 | 21.16 | 23.13 | 26.83 | 36.37 | 142.48 | 148.69 | 130.68 | 133.19 |
| 4 | 152.84 | 151.38 | 145.88 | 156.66 | 34.12 | 37.62 | 26.04 | 28.25 | 194.17 | 187.23 | 193.77 | 197.58 |
| 5 | 190.75 | 187.46 | 182.02 | 199.75 | 46.90 | 42.27 | 25.24 | 41.35 | 242.70 | 239.23 | 238.04 | 246.78 |
| 6 | 231.96 | 229.75 | 220.88 | 250.88 | 61.91 | 51.62 | 29.34 | 54.04 | 288.75 | 286.41 | 277.86 | 282.72 |
| 7 | 272.68 | 266.51 | 261.86 | 272.09 | 67.43 | 56.72 | 46.33 | 64.52 | 337.10 | 337.77 | 327.78 | 349.57 |
| 8 | 301.64 | 303.54 | 290.24 | 302.99 | 73.67 | 76.00 | 64.26 | 70.90 | 389.76 | 387.91 | 367.61 | 376.39 |
| 9 | 345.93 | 343.37 | 330.79 | 349.82 | 76.73 | 79.88 | 63.20 | 87.58 | 436.50 | 431.83 | 420.62 | 427.59 |
| 10 | 386.55 | 377.89 | 365.41 | 389.31 | 86.58 | 81.26 | 59.84 | 88.69 | 478.74 | 479.51 | 464.67 | 479.07 |

| CVP2 | SG37L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 15.62 | 5.50 | 19.40 | -7.84 | -8.88 | 3.05 | 14.34 | 20.09 | -1.77 | -15.88 | -28.91 | -16.17 |
| 1 | -3.92 | -7.69 | 11.28 | 18.43 | 21.63 | 35.03 | -0.52 | 48.65 | 19.41 | 13.71 | -20.32 | -22.11 |
| 2 | -11.77 | -16.28 | -7.20 | 2.65 | 52.27 | 72.42 | 71.43 | 89.88 | 44.11 | 44.49 | 18.92 | 11.55 |
| 3 | -20.04 | -21.99 | -18.95 | -17.55 | 92.48 | 102.28 | 100.05 | 105.56 | 71.22 | 70.58 | 63.16 | 67.49 |
| 4 | -25.65 | -25.43 | -22.47 | -17.17 | 133.61 | 143.23 | 133.16 | 135.05 | 97.49 | 95.62 | 95.57 | 92.33 |
| 5 | -32.99 | -29.65 | -13.98 | -8.77 | 160.55 | 169.88 | 138.48 | 189.79 | 124.58 | 119.67 | 114.51 | 119.49 |
| 6 | -36.47 | -39.92 | -16.95 | -21.86 | 198.26 | 205.61 | 177.22 | 227.42 | 147.84 | 145.29 | 137.35 | 149.55 |
| 7 | -41.77 | -46.70 | -28.42 | -28.92 | 225.16 | 246.03 | 223.17 | 248.87 | 173.63 | 167.71 | 160.65 | 170.74 |
| 8 | -50.92 | -50.92 | -35.89 | -36.31 | 257.64 | 284.89 | 269.36 | 284.87 | 199.52 | 194.67 | 178.16 | 186.55 |
| 9 | -58.21 | -56.72 | -39.52 | -33.75 | 290.70 | 312.72 | 284.36 | 337.66 | 219.07 | 215.06 | 205.14 | 205.96 |
| 10 | -64.66 | -67.83 | -47.31 | -40.07 | 322.79 | 343.38 | 305.96 | 350.89 | 243.16 | 237.48 | 226.94 | 238.56 |

| CVP3 | SG1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 187.54 | 151.95 | 246.03 | 147.72 | -22.05 | -76.08 | -66.30 | -70.91 | 120.31 | 90.57 | 117.12 | 205.09 |
| 1 | 107.21 | 62.09 | 109.21 | 39.15 | -53.96 | -78.28 | -57.51 | 7.57 | 41.63 | 37.22 | -11.61 | 32.87 |
| 2 | 82.82 | 69.80 | 95.27 | 70.14 | -62.77 | -82.69 | -65.94 | -112.35 | 19.05 | 41.06 | 9.84 | -45.44 |
| 3 | 105.39 | 71.64 | 120.76 | 120.74 | -69.56 | -71.32 | -85.01 | -133.81 | 7.14 | 12.80 | -8.50 | 23.52 |
| 4 | 129.03 | 121.32 | 174.49 | 138.18 | -77.07 | -91.12 | -87.76 | -38.47 | 5.70 | -6.82 | 13.69 | -6.01 |
| 5 | 169.93 | 141.86 | 192.64 | 219.60 | -98.16 | -110.19 | -86.84 | -172.13 | 44.93 | 12.81 | 23.03 | 3.91 |
| 6 | 204.04 | 175.98 | 273.53 | 223.08 | -115.22 | -128.91 | -140.38 | -136.19 | 59.06 | 1.99 | 24.13 | 5.18 |
| 7 | 228.61 | 190.46 | 304.87 | 292.73 | -142.36 | -149.81 | -147.90 | -156.55 | 43.84 | 19.06 | 53.12 | 20.61 |
| 8 | 284.00 | 229.34 | 356.52 | 285.61 | -147.14 | -173.83 | -183.47 | -239.43 | 48.59 | 15.57 | 20.30 | 8.85 |
| 9 | 312.79 | 250.43 | 380.78 | 326.69 | -198.48 | -196.58 | -200.35 | -237.41 | 45.85 | 15.57 | 21.03 | 12.32 |
| 10 | 328.39 | 276.12 | 409.39 | 414.21 | -199.76 | -231.96 | -230.24 | -282.13 | 49.32 | 12.44 | 22.32 | 28.45 |

| CVP3 | SG2 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 218.61 | 173.43 | 302.12 | 163.74 | 2.00 | -76.81 | -83.10 | -97.86 | 124.33 | 69.27 | 127.81 | 244.09 |
| 1 | 117.91 | 57.87 | 130.22 | 35.14 | -43.69 | -87.27 | -73.03 | 12.92 | 21.60 | 5.44 | -27.37 | 24.30 |
| 2 | 91.95 | 68.51 | 101.42 | 51.64 | -61.29 | -99.01 | -89.72 | -158.56 | -2.40 | 11.49 | -4.09 | -83.02 |
| 3 | 119.52 | 77.32 | 134.44 | 135.46 | -81.47 | -92.04 | -124.93 | -193.24 | -26.38 | -24.93 | -34.00 | -13.30 |
| 4 | 147.81 | 136.38 | 210.92 | 154.56 | -99.45 | -121.75 | -127.86 | -59.73 | -28.42 | -54.88 | -26.65 | -57.50 |
| 5 | 199.36 | 162.98 | 219.91 | 247.19 | -136.68 | -151.10 | -128.96 | -249.18 | 13.40 | -34.83 | -15.29 | -45.37 |
| 6 | 239.34 | 204.99 | 326.70 | 252.51 | -163.97 | -176.06 | -208.56 | -206.63 | 14.46 | -57.76 | -19.14 | -52.18 |
| 7 | 272.54 | 219.29 | 353.44 | 345.82 | -206.25 | -203.39 | -216.45 | -232.31 | 0.93 | -47.48 | -2.24 | -44.07 |
| 8 | 330.88 | 264.05 | 418.10 | 334.32 | -201.45 | -234.02 | -270.88 | -352.45 | -9.27 | -60.68 | -42.59 | -72.72 |
| 9 | 362.98 | 287.17 | 447.17 | 376.87 | -252.94 | -261.73 | -300.97 | -354.65 | -26.59 | -81.87 | -48.64 | -84.12 |
| 10 | 377.86 | 307.18 | 473.21 | 457.82 | -262.11 | -310.42 | -334.72 | -409.52 | -39.40 | -103.59 | -68.27 | -89.62 |

| CVP3 | SG3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 133.20 | 79.43 | 333.35 | 131.07 | -196.62 | -208.79 | -284.18 | -291.34 | -108.91 | -158.23 | -117.51 | 27.71 |
| 1 | 45.49 | -7.72 | 156.87 | 40.51 | -53.53 | -64.67 | -54.66 | -3.88 | -18.95 | -12.24 | -39.50 | 7.96 |
| 2 | 64.95 | 19.96 | 143.47 | 42.53 | 83.23 | 70.04 | 47.94 | -31.32 | 160.73 | 170.72 | 139.56 | 36.13 |
| 3 | 119.61 | 70.44 | 184.40 | 180.19 | 201.80 | 205.47 | 155.04 | 77.26 | 288.26 | 295.09 | 243.70 | 263.67 |
| 4 | 178.22 | 164.35 | 266.82 | 188.35 | 304.34 | 310.76 | 282.17 | 345.14 | 468.18 | 411.49 | 416.90 | 349.40 |
| 5 | 220.49 | 203.21 | 310.70 | 268.75 | 408.80 | 401.89 | 381.01 | 239.53 | 644.89 | 564.69 | 551.12 | 508.52 |
| 6 | 262.30 | 253.33 | 460.39 | 309.68 | 508.30 | 506.94 | 421.34 | 384.73 | 763.18 | 665.11 | 647.83 | 592.44 |
| 7 | 294.37 | 258.66 | 467.28 | 419.35 | 584.31 | 577.63 | 503.69 | 503.32 | 874.78 | 796.42 | 768.74 | 701.82 |
| 8 | 355.01 | 310.61 | 568.40 | 428.63 | 649.42 | 643.41 | 565.36 | 440.54 | 964.84 | 888.02 | 828.59 | 780.41 |
| 9 | 394.11 | 338.33 | 596.69 | 475.26 | 696.66 | 698.81 | 596.88 | 559.49 | 1064.01 | 964.38 | 906.78 | 843.74 |
| 10 | 421.35 | 348.87 | 644.97 | 539.44 | 755.96 | 762.56 | 662.97 | 532.39 | 1142.93 | 1041.25 | 993.98 | 923.95 |

| CVP3 | SG4 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 220.29 | 172.20 | 347.73 | 162.28 | -94.47 | -133.04 | -159.31 | -188.78 | 51.28 | -5.82 | 78.09 | 210.26 |
| 1 | 89.44 | 37.46 | 156.60 | 41.39 | -80.20 | -100.49 | -66.68 | -9.46 | -23.12 | -22.87 | -23.85 | 36.89 |
| 2 | 95.12 | 57.15 | 122.82 | 34.06 | -43.44 | -65.29 | -61.18 | -158.28 | 48.68 | 61.12 | 55.10 | -45.87 |
| 3 | 144.75 | 93.96 | 170.35 | 164.41 | -15.24 | -8.11 | -59.85 | -145.14 | 96.15 | 96.10 | 73.91 | 80.16 |
| 4 | 194.14 | 184.61 | 264.41 | 184.65 | -12.45 | -8.44 | -26.23 | 49.31 | 172.81 | 131.31 | 133.57 | 83.28 |
| 5 | 251.25 | 228.76 | 294.30 | 284.58 | 2.49 | 3.66 | -0.62 | -151.74 | 272.15 | 211.76 | 198.57 | 157.82 |
| 6 | 305.08 | 281.85 | 431.34 | 300.35 | 17.07 | 22.56 | -39.42 | -74.37 | 314.45 | 235.05 | 231.01 | 190.54 |
| 7 | 345.10 | 298.72 | 455.46 | 413.74 | 14.83 | 16.14 | -27.08 | -46.13 | 353.87 | 294.03 | 286.74 | 230.72 |
| 8 | 409.42 | 354.65 | 534.12 | 418.06 | 16.21 | 5.59 | -52.93 | -182.54 | 381.87 | 320.07 | 284.54 | 240.60 |
| 9 | 453.98 | 388.02 | 573.91 | 461.15 | -26.66 | 3.07 | -83.31 | -135.05 | 409.67 | 334.00 | 310.95 | 248.19 |
| 10 | 482.46 | 409.17 | 613.15 | 529.65 | -14.97 | -10.77 | -84.78 | -211.26 | 436.88 | 352.11 | 328.91 | 266.89 |

| CVP3 | SG5 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 210.22 | 166.80 | 293.41 | 145.52 | 5.65 | -62.27 | -78.50 | -98.20 | 109.19 | 40.04 | 118.14 | 246.03 |
| 1 | 110.79 | 50.82 | 124.76 | 28.93 | -36.94 | -74.23 | -69.55 | 13.33 | 8.19 | -16.96 | -29.72 | 25.53 |
| 2 | 92.50 | 66.09 | 96.17 | 35.85 | -53.52 | -86.96 | -87.55 | -163.16 | -4.75 | -2.12 | -5.46 | -82.68 |
| 3 | 122.29 | 82.58 | 134.29 | 134.68 | -78.99 | -83.98 | -125.76 | -201.11 | -25.82 | -29.48 | -26.32 | -14.11 |
| 4 | 155.88 | 144.27 | 219.06 | 158.17 | -97.79 | -114.88 | -128.45 | -62.12 | -22.96 | -56.34 | -25.71 | -58.55 |
| 5 | 212.66 | 176.43 | 225.66 | 248.76 | -137.84 | -146.22 | -131.07 | -257.29 | 20.84 | -34.43 | -9.14 | -37.27 |
| 6 | 254.50 | 221.62 | 335.25 | 258.34 | -165.97 | -169.18 | -214.83 | -219.76 | 19.97 | -54.50 | -9.28 | -42.01 |
| 7 | 293.30 | 239.35 | 361.29 | 357.57 | -206.12 | -196.86 | -222.25 | -240.98 | 14.38 | -46.11 | 4.05 | -34.86 |
| 8 | 347.29 | 285.45 | 427.67 | 349.06 | -203.84 | -223.25 | -274.21 | -366.66 | 3.42 | -59.03 | -27.62 | -59.24 |
| 9 | 381.71 | 309.97 | 459.39 | 389.57 | -247.54 | -247.05 | -307.44 | -373.03 | -16.88 | -83.59 | -32.66 | -75.53 |
| 10 | 397.36 | 327.36 | 482.80 | 454.74 | -260.83 | -292.82 | -337.36 | -424.15 | -30.59 | -109.91 | -57.95 | -88.13 |

| CVP3 | SG6 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 18.31 | 15.81 | 22.57 | 17.31 | -9.84 | 0.80 | -3.86 | -5.79 | 18.66 | 11.05 | 9.39 | 17.09 |
| 1 | 50.13 | 45.79 | 56.22 | 51.00 | -27.95 | -16.35 | -19.68 | -12.80 | 35.12 | 30.34 | 28.00 | 37.49 |
| 2 | 90.84 | 87.59 | 95.45 | 89.13 | -47.02 | -36.43 | -39.39 | -36.37 | 56.77 | 52.91 | 56.60 | 55.63 |
| 3 | 133.92 | 131.60 | 141.30 | 138.82 | -67.06 | -54.91 | -61.30 | -61.26 | 78.04 | 75.84 | 81.71 | 84.80 |
| 4 | 177.39 | 177.29 | 187.50 | 184.31 | -85.25 | -79.52 | -80.51 | -76.75 | 101.49 | 96.56 | 105.00 | 106.62 |
| 5 | 223.63 | 220.92 | 234.44 | 231.43 | -104.69 | -100.51 | -99.67 | -99.35 | 129.38 | 122.78 | 132.31 | 136.70 |
| 6 | 268.35 | 266.58 | 281.60 | 281.30 | -121.43 | -119.60 | -125.19 | -119.98 | 154.30 | 145.51 | 158.34 | 163.09 |
| 7 | 313.06 | 308.76 | 328.88 | 331.15 | -138.89 | -138.86 | -142.11 | -138.27 | 180.71 | 171.54 | 186.61 | 190.27 |
| 8 | 357.84 | 354.24 | 374.82 | 373.35 | -161.00 | -157.41 | -164.02 | -163.71 | 205.68 | 195.92 | 214.30 | 222.13 |
| 9 | 402.22 | 398.07 | 422.94 | 417.91 | -195.79 | -175.22 | -183.24 | -182.23 | 230.42 | 220.68 | 240.52 | 244.48 |
| 10 | 445.18 | 441.21 | 469.51 | 462.70 | -212.15 | -195.05 | -202.13 | -194.90 | 258.32 | 246.40 | 265.09 | 274.00 |

| CVP3 | SG7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 262.22 | 216.37 | 328.68 | 199.61 | -33.29 | -66.07 | -59.24 | -43.35 | 170.54 | 100.74 | 174.06 | 276.47 |
| 1 | 103.04 | 46.51 | 173.32 | 64.55 | -85.84 | -85.81 | -39.70 | 33.82 | 19.39 | -2.86 | 3.51 | 44.83 |
| 2 | 92.82 | 69.77 | 100.23 | 59.24 | -94.13 | -97.22 | -50.96 | -159.91 | 3.09 | 6.00 | 7.18 | -77.86 |
| 3 | 122.63 | 81.54 | 136.31 | 147.53 | -114.10 | -98.34 | -109.83 | -214.36 | -11.76 | -14.79 | -10.22 | -5.00 |
| 4 | 153.01 | 141.89 | 232.44 | 180.74 | -161.71 | -152.41 | -127.94 | -52.05 | -24.86 | -48.73 | -4.36 | -46.40 |
| 5 | 222.92 | 173.02 | 232.08 | 289.19 | -188.32 | -186.40 | -114.27 | -258.51 | 15.68 | -29.73 | 16.98 | -28.54 |
| 6 | 278.28 | 216.17 | 338.39 | 293.59 | -211.22 | -216.20 | -195.37 | -235.88 | 16.45 | -45.40 | 23.90 | -27.35 |
| 7 | 305.96 | 241.36 | 379.73 | 393.53 | -250.43 | -245.06 | -191.59 | -270.46 | 8.11 | -34.55 | 41.84 | -17.13 |
| 8 | 361.91 | 286.20 | 436.75 | 389.58 | -275.25 | -286.79 | -245.22 | -367.96 | 9.22 | -37.43 | 11.39 | -36.78 |
| 9 | 393.11 | 303.33 | 479.57 | 433.00 | -360.86 | -314.50 | -274.01 | -385.78 | -13.46 | -58.77 | 21.87 | -50.75 |
| 10 | 405.24 | 321.41 | 496.61 | 521.20 | -376.25 | -365.94 | -312.35 | -436.87 | -20.92 | -88.45 | -7.44 | -63.34 |

| CVP3 | SG8 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 161.56 | 131.68 | 208.21 | 95.63 | 2.10 | -30.41 | -51.29 | -58.51 | 85.58 | 15.82 | 88.02 | 201.50 |
| 1 | 88.43 | 45.55 | 89.00 | 19.88 | -25.16 | -39.15 | -44.03 | 11.27 | 14.56 | -19.21 | -16.79 | 32.50 |
| 2 | 84.81 | 63.68 | 78.37 | 25.51 | -34.04 | -47.80 | -60.24 | -116.92 | 17.44 | 2.86 | 5.08 | -40.97 |
| 3 | 113.16 | 87.08 | 116.97 | 117.26 | -58.03 | -51.65 | -87.70 | -145.55 | 10.16 | 2.04 | 13.44 | 22.61 |
| 4 | 151.21 | 142.04 | 193.35 | 147.55 | -69.16 | -73.04 | -89.66 | -48.19 | 23.35 | -9.82 | 16.66 | -7.84 |
| 5 | 205.16 | 176.61 | 207.22 | 218.80 | -97.46 | -96.16 | -94.30 | -188.09 | 65.80 | 13.58 | 38.66 | 28.77 |
| 6 | 243.53 | 219.38 | 291.55 | 236.89 | -118.34 | -110.64 | -156.48 | -164.60 | 73.13 | 10.74 | 50.38 | 34.83 |
| 7 | 283.08 | 244.79 | 320.36 | 319.94 | -141.19 | -131.57 | -161.28 | -172.11 | 82.65 | 22.69 | 68.19 | 48.12 |
| 8 | 327.97 | 286.55 | 375.90 | 323.01 | -143.71 | -146.49 | -192.74 | -267.53 | 85.08 | 20.31 | 60.36 | 50.91 |
| 9 | 362.59 | 311.56 | 406.99 | 358.55 | -176.27 | -158.26 | -219.07 | -278.75 | 74.91 | 12.52 | 66.13 | 39.98 |
| 10 | 381.07 | 330.22 | 428.06 | 399.63 | -187.21 | -186.42 | -238.48 | -308.92 | 77.34 | -2.45 | 50.29 | 35.40 |

| CVP3 | SG9 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 23.19 | 19.97 | 26.59 | 18.49 | 3.87 | 0.93 | -5.65 | -3.32 | 17.36 | 3.52 | 10.31 | 28.51 |
| 1 | 54.61 | 48.63 | 56.34 | 53.38 | -11.75 | -12.29 | -18.52 | -8.28 | 37.20 | 28.50 | 27.03 | 38.97 |
| 2 | 97.59 | 93.26 | 98.78 | 91.22 | -26.81 | -27.54 | -34.32 | -33.25 | 66.97 | 60.29 | 61.55 | 60.82 |
| 3 | 144.61 | 141.20 | 148.74 | 147.97 | -45.19 | -41.69 | -50.30 | -53.28 | 95.26 | 92.08 | 98.09 | 101.24 |
| 4 | 192.94 | 192.31 | 201.82 | 196.30 | -58.96 | -59.69 | -62.97 | -58.79 | 127.20 | 119.64 | 128.22 | 127.87 |
| 5 | 244.21 | 239.87 | 251.97 | 246.45 | -76.78 | -75.12 | -76.20 | -80.28 | 164.14 | 152.87 | 162.73 | 168.31 |
| 6 | 292.69 | 289.28 | 301.97 | 300.09 | -92.40 | -88.54 | -98.78 | -95.34 | 195.53 | 182.82 | 196.15 | 200.25 |
| 7 | 341.89 | 335.76 | 353.00 | 355.52 | -107.46 | -104.34 | -110.72 | -107.10 | 228.96 | 214.58 | 229.82 | 232.63 |
| 8 | 390.05 | 385.00 | 402.14 | 400.38 | -119.96 | -117.93 | -127.81 | -132.26 | 260.43 | 244.15 | 263.07 | 272.44 |
| 9 | 438.18 | 431.66 | 452.56 | 446.85 | -137.77 | -131.16 | -144.71 | -148.61 | 288.88 | 274.46 | 295.03 | 297.02 |
| 10 | 483.24 | 476.35 | 501.05 | 491.73 | -150.26 | -146.58 | -159.96 | -157.41 | 321.97 | 303.36 | 322.40 | 330.44 |

| CVP3 | SG10 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -21.26 | -20.96 | -9.29 | -27.46 | -2.07 | 7.82 | 1.44 | -5.91 | -6.66 | -8.89 | -19.39 | -24.72 |
| 1 | -26.54 | -25.78 | -23.43 | -28.06 | 33.04 | 32.52 | 34.16 | 37.28 | 22.81 | 14.74 | 17.57 | 13.23 |
| 2 | -36.09 | -36.88 | -26.96 | -27.69 | 67.51 | 66.41 | 74.32 | 66.71 | 53.54 | 48.17 | 55.79 | 47.51 |
| 3 | -48.11 | -49.65 | -35.91 | -34.53 | 104.21 | 103.18 | 109.95 | 105.31 | 81.40 | 80.08 | 89.93 | 86.63 |
| 4 | -64.41 | -65.77 | -48.67 | -48.07 | 146.44 | 146.09 | 148.29 | 144.26 | 110.30 | 110.84 | 120.23 | 114.54 |
| 5 | -79.25 | -75.36 | -66.62 | -47.02 | 184.22 | 181.28 | 187.66 | 176.64 | 141.71 | 145.35 | 153.86 | 153.40 |
| 6 | -91.86 | -93.17 | -72.32 | -68.32 | 219.66 | 217.32 | 221.72 | 219.24 | 171.67 | 168.90 | 186.17 | 183.63 |
| 7 | -109.26 | -109.79 | -87.65 | -73.00 | 256.66 | 252.35 | 258.69 | 254.49 | 202.10 | 198.13 | 219.17 | 215.26 |
| 8 | -127.95 | -122.92 | -98.56 | -85.16 | 294.01 | 288.17 | 300.18 | 289.52 | 228.09 | 230.49 | 242.17 | 239.40 |
| 9 | -140.89 | -140.09 | -108.12 | -96.50 | 327.77 | 324.75 | 333.22 | 322.15 | 252.99 | 254.59 | 276.32 | 273.56 |
| 10 | -159.68 | -162.96 | -126.20 | -113.58 | 358.94 | 356.12 | 369.57 | 355.77 | 276.02 | 274.29 | 302.99 | 291.10 |

| CVP3 | SG11 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 13.46 | 14.16 | 16.55 | 20.47 | -0.39 | 5.25 | -1.43 | -1.79 | 22.56 | 19.00 | 17.42 | 19.95 |
| 1 | -2.71 | -3.30 | -3.84 | 2.83 | 35.25 | 39.43 | 39.35 | 37.53 | 41.48 | 39.76 | 42.40 | 41.08 |
| 2 | -20.54 | -23.69 | -22.40 | -18.85 | 73.47 | 74.36 | 72.97 | 70.79 | 60.97 | 57.96 | 59.30 | 57.43 |
| 3 | -37.62 | -39.49 | -42.43 | -37.77 | 109.50 | 110.00 | 112.30 | 109.73 | 81.18 | 80.20 | 78.58 | 74.52 |
| 4 | -55.82 | -57.14 | -55.29 | -55.78 | 146.05 | 148.76 | 147.59 | 145.36 | 105.60 | 104.27 | 99.35 | 96.20 |
| 5 | -73.28 | -71.83 | -75.50 | -69.37 | 184.27 | 186.59 | 185.79 | 178.45 | 128.95 | 129.62 | 123.59 | 120.83 |
| 6 | -86.32 | -86.35 | -89.65 | -87.38 | 221.76 | 223.75 | 222.68 | 217.76 | 154.66 | 155.90 | 149.30 | 145.99 |
| 7 | -100.27 | -100.68 | -103.98 | -97.29 | 259.79 | 261.06 | 259.99 | 255.61 | 181.11 | 181.24 | 172.67 | 170.46 |
| 8 | -114.62 | -114.65 | -118.47 | -109.06 | 295.84 | 298.33 | 297.47 | 291.81 | 208.71 | 210.45 | 198.76 | 193.76 |
| 9 | -125.09 | -126.41 | -129.88 | -122.10 | 333.11 | 335.48 | 332.78 | 327.82 | 235.89 | 236.17 | 225.77 | 222.22 |
| 10 | -136.86 | -139.47 | -143.85 | -137.18 | 364.53 | 369.63 | 372.46 | 361.00 | 264.03 | 261.39 | 252.96 | 241.87 |

| CVP3 | SG12 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -6.08 | -7.20 | 3.59 | -1.08 | -23.70 | -18.28 | -30.16 | -34.53 | -20.99 | -31.09 | -56.16 | -44.87 |
| 1 | -1.31 | 0.24 | 0.83 | 1.54 | 69.27 | 65.60 | 61.83 | 57.28 | 71.76 | 61.55 | 57.05 | 54.66 |
| 2 | -3.60 | -0.86 | 3.22 | 4.85 | 156.86 | 151.59 | 150.01 | 153.53 | 158.29 | 150.13 | 144.86 | 141.64 |
| 3 | -4.06 | -2.01 | 6.30 | 5.44 | 243.03 | 235.00 | 245.16 | 241.10 | 246.39 | 238.22 | 234.75 | 232.46 |
| 4 | -1.63 | -1.28 | 4.28 | 9.12 | 336.35 | 333.42 | 331.91 | 322.97 | 335.41 | 325.28 | 322.46 | 320.75 |
| 5 | -0.57 | -2.29 | 8.04 | 14.49 | 419.82 | 417.35 | 412.81 | 420.42 | 421.48 | 412.39 | 407.20 | 405.08 |
| 6 | -3.51 | -2.42 | 3.91 | 18.44 | 501.27 | 502.47 | 498.42 | 498.93 | 505.86 | 500.36 | 489.54 | 487.81 |
| 7 | -3.42 | -2.24 | 10.43 | 21.33 | 584.74 | 581.50 | 576.05 | 582.25 | 588.32 | 580.23 | 567.19 | 566.34 |
| 8 | -4.06 | -1.00 | 13.00 | 22.34 | 666.99 | 662.98 | 666.76 | 667.46 | 670.40 | 661.77 | 649.27 | 648.72 |
| 9 | -4.61 | -2.98 | 12.95 | 22.98 | 759.67 | 741.29 | 744.50 | 747.16 | 750.40 | 740.00 | 724.93 | 722.83 |
| 10 | -7.14 | -6.05 | 13.83 | 23.53 | 823.22 | 817.43 | 822.37 | 810.53 | 836.44 | 808.29 | 800.77 | 793.71 |

| CVP3 | SG13 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 27.27 | 24.45 | 20.00 | 18.10 | -1.23 | -8.95 | -24.86 | -29.01 | 18.75 | 6.18 | -27.30 | -7.81 |
| 1 | 15.90 | 9.82 | -1.08 | -4.09 | 111.54 | 99.20 | 103.25 | 101.49 | 119.70 | 108.11 | 96.97 | 99.18 |
| 2 | 3.34 | -0.99 | -5.94 | -0.15 | 223.93 | 210.23 | 211.51 | 211.57 | 218.67 | 210.45 | 196.78 | 194.50 |
| 3 | -5.00 | -9.47 | -8.74 | -8.44 | 329.20 | 317.49 | 329.29 | 322.16 | 321.21 | 312.85 | 304.23 | 306.64 |
| 4 | -10.41 | -15.21 | -12.45 | -11.24 | 442.86 | 436.47 | 440.81 | 432.13 | 430.43 | 420.32 | 414.26 | 410.97 |
| 5 | -14.87 | -19.65 | -18.55 | -4.78 | 552.15 | 549.00 | 551.51 | 548.05 | 541.41 | 530.85 | 518.90 | 519.39 |
| 6 | -16.92 | -24.65 | -25.70 | -17.57 | 658.69 | 659.88 | 661.94 | 658.25 | 653.76 | 641.79 | 624.85 | 625.87 |
| 7 | -21.82 | -28.36 | -22.86 | -20.13 | 767.61 | 766.43 | 770.73 | 768.63 | 756.43 | 746.61 | 728.76 | 727.96 |
| 8 | -22.01 | -29.10 | -26.79 | -22.75 | 881.20 | 876.56 | 887.33 | 879.74 | 864.96 | 852.77 | 831.07 | 834.52 |
| 9 | -21.55 | -33.59 | -29.82 | -24.49 | 1002.88 | 981.92 | 993.21 | 983.88 | 967.75 | 956.92 | 928.98 | 932.89 |
| 10 | -25.05 | -37.31 | -34.64 | -21.01 | 1094.75 | 1080.29 | 1098.28 | 1079.01 | 1080.08 | 1048.25 | 1029.64 | 1026.94 |

| CVP3 | SG14 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -3.14 | -5.13 | 10.68 | -6.99 | -76.56 | -37.58 | -57.28 | -57.49 | -53.69 | -59.03 | -91.59 | -75.41 |
| 1 | -3.70 | -2.66 | -0.28 | -5.89 | 50.38 | 75.47 | 70.05 | 63.07 | 62.06 | 56.43 | 53.55 | 54.28 |
| 2 | -13.60 | -12.15 | -10.14 | -16.34 | 170.94 | 190.67 | 186.34 | 188.56 | 169.70 | 165.28 | 156.48 | 152.16 |
| 3 | -21.99 | -19.80 | -11.84 | -22.44 | 288.87 | 300.18 | 306.65 | 300.66 | 276.32 | 272.17 | 263.01 | 257.89 |
| 4 | -26.86 | -26.28 | -23.35 | -25.75 | 413.72 | 428.01 | 420.74 | 406.73 | 385.54 | 378.95 | 370.02 | 369.04 |
| 5 | -32.96 | -34.49 | -30.46 | -34.14 | 527.00 | 540.36 | 527.59 | 532.93 | 489.32 | 484.30 | 473.27 | 467.65 |
| 6 | -43.37 | -40.59 | -39.27 | -37.53 | 631.29 | 651.56 | 640.40 | 631.57 | 588.04 | 589.88 | 568.22 | 563.76 |
| 7 | -48.50 | -45.95 | -41.42 | -45.37 | 732.19 | 755.41 | 739.37 | 741.77 | 684.44 | 681.12 | 655.11 | 654.56 |
| 8 | -55.89 | -51.36 | -43.92 | -52.11 | 825.10 | 859.35 | 851.26 | 842.29 | 778.52 | 774.85 | 749.03 | 745.40 |
| 9 | -62.72 | -58.93 | -49.21 | -59.86 | 936.91 | 956.12 | 946.36 | 946.11 | 865.76 | 863.82 | 831.76 | 828.77 |
| 10 | -69.24 | -68.25 | -55.31 | -69.18 | 1011.40 | 1050.13 | 1041.56 | 1017.80 | 954.65 | 938.30 | 916.50 | 902.87 |

| CVP3 | SG15 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -10.34 | -9.62 | -15.89 | -1.49 | -12.90 | -6.06 | -15.02 | -14.42 | -16.63 | -16.39 | -28.93 | -27.22 |
| 1 | 1.72 | 0.01 | -7.22 | 1.62 | 46.97 | 50.75 | 51.04 | 43.62 | 53.98 | 51.60 | 49.80 | 47.47 |
| 2 | 2.32 | -2.19 | -5.30 | 0.39 | 109.01 | 110.16 | 107.89 | 111.40 | 112.15 | 108.48 | 105.21 | 107.93 |
| 3 | 0.67 | -1.23 | -7.22 | -5.53 | 166.08 | 166.32 | 170.81 | 172.96 | 169.69 | 167.65 | 162.50 | 160.03 |
| 4 | -1.35 | -5.63 | -10.80 | -7.87 | 228.61 | 229.77 | 228.42 | 218.61 | 229.44 | 228.73 | 219.19 | 219.27 |
| 5 | -4.38 | -6.96 | -13.73 | -11.12 | 287.67 | 289.53 | 285.25 | 288.51 | 285.04 | 286.48 | 275.27 | 275.05 |
| 6 | -3.92 | -8.47 | -20.24 | -12.45 | 345.63 | 347.01 | 345.70 | 342.06 | 342.78 | 346.46 | 331.19 | 331.88 |
| 7 | -4.01 | -8.75 | -21.16 | -15.34 | 404.51 | 403.32 | 401.67 | 401.48 | 400.92 | 401.81 | 381.89 | 385.51 |
| 8 | -5.94 | -9.98 | -24.28 | -13.64 | 461.97 | 461.42 | 459.80 | 459.25 | 457.87 | 460.50 | 439.66 | 441.00 |
| 9 | -3.69 | -10.03 | -25.29 | -16.53 | 516.39 | 515.77 | 513.04 | 514.82 | 513.40 | 515.70 | 492.48 | 494.87 |
| 10 | -2.86 | -11.08 | -26.71 | -21.94 | 563.90 | 568.36 | 571.54 | 562.94 | 569.58 | 566.44 | 547.13 | 542.00 |

| CVP3 | SG16 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 1.46 | -1.17 | 9.53 | -4.00 | -12.50 | -20.28 | -35.41 | -38.32 | -8.06 | -23.86 | -59.01 | -49.27 |
| 1 | -0.54 | -0.14 | -0.30 | -5.30 | 97.52 | 82.63 | 81.52 | 75.68 | 96.65 | 81.92 | 73.96 | 71.22 |
| 2 | -6.78 | -5.38 | -4.43 | -5.58 | 201.94 | 187.37 | 186.62 | 189.54 | 198.36 | 184.62 | 174.35 | 170.05 |
| 3 | -10.83 | -9.65 | -0.99 | -6.45 | 304.35 | 288.33 | 297.91 | 294.88 | 301.57 | 287.67 | 279.31 | 275.15 |
| 4 | -12.33 | -11.77 | -5.71 | -3.86 | 413.45 | 405.46 | 404.27 | 394.47 | 410.25 | 393.40 | 385.74 | 383.33 |
| 5 | -14.01 | -16.00 | -6.99 | -4.14 | 516.32 | 511.29 | 505.14 | 513.30 | 516.07 | 500.57 | 489.11 | 484.84 |
| 6 | -19.39 | -19.26 | -12.16 | -5.24 | 615.21 | 616.88 | 612.24 | 611.39 | 620.10 | 608.94 | 588.97 | 585.43 |
| 7 | -22.06 | -21.92 | -9.19 | -6.49 | 715.65 | 715.54 | 709.58 | 714.89 | 721.26 | 706.54 | 682.47 | 679.81 |
| 8 | -25.80 | -23.34 | -9.09 | -8.77 | 815.68 | 815.02 | 816.74 | 817.25 | 820.51 | 804.27 | 780.28 | 777.95 |
| 9 | -28.60 | -27.37 | -10.62 | -10.83 | 935.33 | 908.65 | 909.98 | 913.33 | 918.34 | 897.04 | 869.03 | 863.83 |
| 10 | -31.80 | -32.26 | -12.54 | -12.83 | 1020.41 | 998.39 | 1002.76 | 990.82 | 1024.26 | 978.50 | 957.22 | 945.78 |

| CVP3 | SG17 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 45.48 | 7283.88 | 412.35 | -281.55 | -4606.13 | 283.89 | -10.71 | -278.16 | -1535.61 | -3491.52 | -160.56 | 195.23 |
| 1 | 143.04 | 7193.30 | 218.70 | -204.36 | -416.43 | 189.01 | 116.78 | 51.34 | -541.13 | -3504.99 | 95.39 | 187.17 |
| 2 | 451.97 | 7059.56 | 45.12 | -151.41 | -734.17 | 206.59 | 240.33 | 27.16 | 189.22 | 9144.96 | 45.94 | 282.07 |
| 3 | 766.27 | 7118.39 | 153.98 | -198.48 | -833.76 | 138.95 | 395.78 | 433.80 | 865.68 | 6707.41 | 146.51 | 519.61 |
| 4 | 928.62 | 7012.95 | -10.77 | -169.76 | -1265.02 | 64.70 | 436.51 | 184.36 | 1470.93 | 5141.23 | 384.23 | 416.64 |
| 5 | 526.04 | 32245.27 | 80.43 | -281.55 | -1721.07 | 263.33 | 554.64 | 277.87 | 2380.55 | 17744.48 | 390.65 | 645.40 |
| 6 | 757.97 | 35955.47 | 138.72 | -296.26 | -2383.08 | 235.32 | 670.24 | 427.91 | 3080.19 | 17791.56 | 805.38 | 637.29 |
| 7 | 786.86 | 36405.64 | 159.86 | -701.51 | -2606.70 | -97.19 | 708.06 | 472.04 | 3518.54 | 21540.61 | 904.43 | 753.55 |
| 8 | 902.14 | 35831.89 | 237.43 | -481.61 | -3096.60 | -461.97 | 887.50 | 504.41 | 3887.69 | 22058.40 | 960.33 | 937.37 |
| 9 | 1393.50 | 36435.06 | 195.17 | -552.21 | -2771.46 | 566.35 | 1016.54 | 542.65 | 3466.25 | 22317.30 | 766.16 | 1176.34 |
| 10 | 2167.99 | 37152.92 | 203.99 | -520.58 | -3280.48 | 393.49 | 1184.23 | 949.75 | 3952.43 | 23661.00 | 807.35 | 1311.66 |

| CVP3 | SG18 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -13.05 | -9.03 | -13.83 | -19.01 | -13.02 | -13.66 | -8.89 | -14.17 | -24.38 | -22.75 | -23.50 | -23.71 |
| 1 | -24.70 | -21.97 | -27.47 | -30.85 | 55.85 | 53.99 | 60.43 | 54.80 | 31.33 | 30.84 | 38.35 | 39.24 |
| 2 | -41.91 | -38.86 | -44.31 | -47.59 | 123.31 | 120.19 | 123.75 | 119.47 | 82.43 | 86.38 | 82.71 | 81.63 |
| 3 | -60.54 | -57.67 | -62.75 | -68.93 | 186.53 | 184.75 | 190.25 | 186.21 | 134.37 | 136.37 | 131.69 | 127.76 |
| 4 | -80.05 | -79.20 | -82.80 | -86.73 | 254.06 | 253.84 | 253.01 | 247.08 | 184.12 | 186.99 | 181.08 | 177.04 |
| 5 | -100.06 | -91.77 | -104.60 | -107.15 | 320.70 | 319.39 | 318.92 | 313.64 | 230.08 | 237.31 | 226.15 | 219.51 |
| 6 | -120.29 | -110.95 | -126.54 | -129.13 | 384.58 | 383.43 | 384.54 | 377.33 | 276.31 | 286.78 | 272.21 | 265.00 |
| 7 | -138.96 | -129.45 | -146.08 | -148.44 | 447.91 | 445.21 | 445.51 | 439.55 | 321.64 | 329.06 | 312.48 | 308.76 |
| 8 | -160.13 | -150.28 | -166.11 | -174.61 | 510.74 | 508.67 | 510.67 | 503.98 | 369.45 | 377.33 | 359.28 | 350.35 |
| 9 | -180.41 | -170.52 | -187.24 | -197.09 | 576.40 | 569.67 | 571.84 | 565.28 | 413.83 | 424.14 | 401.31 | 397.11 |
| 10 | -200.71 | -191.10 | -209.54 | -219.59 | 629.82 | 629.46 | 635.53 | 618.93 | 454.26 | 464.61 | 450.32 | 434.36 |

| CVP3 | SG19 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -8.60 | -2.96 | -3.54 | -18.28 | -145.25 | -72.36 | -75.81 | -84.34 | -59.01 | -59.74 | -71.33 | -66.23 |
| 1 | -29.77 | -25.96 | -33.91 | -41.29 | -39.43 | 24.45 | 30.91 | 21.85 | 15.16 | 13.50 | 21.98 | 21.37 |
| 2 | -58.85 | -56.33 | -61.70 | -67.42 | 58.11 | 113.77 | 117.77 | 110.77 | 76.85 | 77.57 | 76.62 | 75.46 |
| 3 | -89.03 | -85.96 | -89.31 | -98.89 | 148.55 | 195.29 | 201.90 | 193.75 | 136.48 | 136.12 | 130.52 | 124.07 |
| 4 | -119.04 | -118.37 | -121.15 | -126.68 | 238.33 | 274.04 | 270.04 | 262.36 | 188.34 | 187.11 | 177.47 | 169.89 |
| 5 | -149.42 | -147.63 | -155.93 | -156.50 | 324.11 | 343.39 | 337.73 | 333.25 | 234.75 | 234.39 | 221.97 | 212.25 |
| 6 | -180.51 | -177.63 | -186.68 | -189.81 | 405.46 | 411.59 | 408.48 | 398.59 | 281.28 | 283.54 | 267.05 | 255.84 |
| 7 | -208.84 | -205.79 | -215.56 | -217.03 | 487.19 | 477.49 | 472.21 | 468.89 | 327.29 | 327.67 | 305.96 | 298.07 |
| 8 | -239.96 | -234.51 | -245.15 | -252.75 | 521.86 | 545.53 | 544.34 | 532.39 | 375.23 | 376.26 | 353.63 | 338.66 |
| 9 | -268.86 | -263.40 | -274.09 | -286.43 | 536.15 | 610.39 | 608.27 | 600.85 | 420.28 | 422.27 | 395.40 | 385.17 |
| 10 | -297.60 | -293.43 | -305.38 | -319.95 | 589.71 | 674.01 | 674.34 | 650.57 | 464.33 | 461.58 | 442.33 | 418.30 |

| CVP3 | SG20 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 0.17 | -1.58 | 4.72 | -3.55 | -88.48 | -60.72 | -71.44 | -72.25 | -71.24 | -73.22 | -89.77 | -82.45 |
| 1 | -0.19 | -3.23 | -3.03 | -6.69 | 20.46 | 41.26 | 45.39 | 36.16 | 32.95 | 30.74 | 34.47 | 34.41 |
| 2 | -3.51 | -5.81 | -7.26 | -8.72 | 126.66 | 143.66 | 145.69 | 142.76 | 131.30 | 131.09 | 126.09 | 124.19 |
| 3 | -6.46 | -8.57 | -6.89 | -9.27 | 225.76 | 237.70 | 246.40 | 239.72 | 225.89 | 224.45 | 218.25 | 216.07 |
| 4 | -7.00 | -9.48 | -10.20 | -10.54 | 325.67 | 336.69 | 335.72 | 325.80 | 316.19 | 311.90 | 306.63 | 299.45 |
| 5 | -9.20 | -13.53 | -15.36 | -13.67 | 418.08 | 424.25 | 421.07 | 420.46 | 398.15 | 394.50 | 385.89 | 379.02 |
| 6 | -13.45 | -14.82 | -17.74 | -14.22 | 504.41 | 508.87 | 507.44 | 498.87 | 477.79 | 477.88 | 463.55 | 454.79 |
| 7 | -15.11 | -16.85 | -18.49 | -10.56 | 590.74 | 590.42 | 587.01 | 585.56 | 554.35 | 552.73 | 534.54 | 528.56 |
| 8 | -15.10 | -18.50 | -19.80 | -16.43 | 660.59 | 672.99 | 675.71 | 666.36 | 633.28 | 629.85 | 612.21 | 604.42 |
| 9 | -17.13 | -22.55 | -23.64 | -24.16 | 734.32 | 751.13 | 754.21 | 749.18 | 707.39 | 704.39 | 681.60 | 674.27 |
| 10 | -20.43 | -27.15 | -27.51 | -28.20 | 800.77 | 827.06 | 833.35 | 811.19 | 779.08 | 771.02 | 757.06 | 740.53 |

| CVP3 | SG21 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -5.05 | -6.25 | 5.47 | -8.62 | -111.38 | -92.39 | -102.51 | -109.27 | -106.11 | -105.27 | -125.90 | -119.82 |
| 1 | -12.22 | -10.67 | -7.43 | -13.24 | -16.37 | -12.47 | -5.50 | -20.34 | -28.03 | -27.22 | -20.95 | -19.85 |
| 2 | -22.90 | -22.64 | -23.45 | -25.76 | 66.12 | 68.97 | 74.77 | 67.71 | 42.72 | 44.99 | 44.21 | 39.60 |
| 3 | -33.22 | -32.77 | -27.31 | -34.59 | 145.72 | 138.93 | 150.66 | 139.86 | 108.63 | 108.18 | 104.75 | 97.81 |
| 4 | -42.61 | -42.34 | -40.76 | -43.42 | 213.09 | 209.06 | 208.70 | 198.18 | 161.61 | 157.17 | 153.02 | 144.76 |
| 5 | -52.55 | -53.76 | -53.09 | -55.21 | 267.41 | 261.51 | 258.01 | 255.86 | 203.45 | 199.12 | 193.67 | 179.60 |
| 6 | -66.00 | -64.44 | -62.85 | -63.49 | 314.37 | 311.86 | 311.67 | 299.31 | 242.26 | 241.29 | 229.75 | 214.55 |
| 7 | -75.38 | -74.94 | -72.79 | -71.97 | 362.25 | 359.75 | 357.20 | 353.63 | 281.30 | 277.53 | 262.98 | 250.00 |
| 8 | -86.44 | -84.33 | -80.71 | -83.93 | 412.58 | 409.05 | 414.82 | 400.22 | 319.69 | 316.20 | 302.39 | 284.89 |
| 9 | -96.75 | -95.56 | -89.73 | -98.85 | 474.95 | 455.70 | 463.13 | 452.88 | 356.29 | 352.10 | 336.45 | 319.08 |
| 10 | -108.17 | -108.64 | -100.97 | -111.37 | 513.62 | 504.26 | 513.03 | 484.78 | 390.41 | 383.14 | 374.02 | 347.25 |

| CVP3 | SG22 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 20.86 | 16.63 | 11.09 | 11.93 | -453.76 | -174.57 | -181.88 | -194.22 | -148.35 | -161.61 | -181.40 | -157.16 |
| 1 | 20.90 | 13.82 | -1.99 | 0.59 | -341.02 | -79.59 | -70.38 | -82.73 | -55.94 | -65.86 | -67.06 | -56.00 |
| 2 | 15.76 | 10.11 | 3.20 | 9.69 | -232.32 | -6.68 | -1.78 | -10.84 | 6.95 | 6.57 | 3.92 | 7.41 |
| 3 | 14.11 | 8.27 | 9.99 | 10.10 | -139.27 | 45.12 | 53.06 | 32.68 | 65.60 | 64.00 | 61.03 | 68.96 |
| 4 | 15.44 | 10.65 | 11.28 | 14.18 | -57.51 | 68.29 | 63.00 | 55.15 | 90.82 | 83.06 | 88.05 | 82.46 |
| 5 | 18.92 | 11.66 | 11.69 | 24.52 | 21.21 | 82.09 | 75.79 | 64.45 | 116.65 | 103.76 | 110.20 | 114.63 |
| 6 | 21.68 | 14.24 | 11.69 | 25.44 | 95.93 | 96.33 | 89.80 | 73.73 | 141.38 | 125.16 | 128.06 | 129.76 |
| 7 | 24.44 | 17.18 | 19.68 | 35.17 | 171.39 | 110.38 | 101.16 | 101.19 | 158.60 | 145.48 | 152.68 | 155.86 |
| 8 | 32.52 | 21.95 | 22.25 | 32.74 | 17.03 | 128.59 | 127.84 | 97.20 | 182.72 | 165.45 | 173.35 | 177.70 |
| 9 | 37.89 | 23.47 | 24.73 | 33.33 | -135.08 | 144.83 | 143.94 | 125.53 | 202.40 | 190.66 | 191.16 | 202.42 |
| 10 | 38.90 | 24.80 | 26.52 | 41.60 | -128.60 | 161.75 | 159.10 | 118.77 | 229.11 | 208.41 | 215.18 | 217.80 |

| CVP3 | SG23 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -13.16 | -9.29 | -5.43 | -9.79 | -83.78 | -44.90 | -56.74 | -65.60 | -31.34 | -36.48 | -64.65 | -63.22 |
| 1 | -33.36 | -28.57 | -37.01 | -34.39 | 22.54 | 53.89 | 57.27 | 49.53 | 46.52 | 41.36 | 37.62 | 33.91 |
| 2 | -62.75 | -60.70 | -67.49 | -55.69 | 118.75 | 145.74 | 148.33 | 143.55 | 110.26 | 103.08 | 97.46 | 98.16 |
| 3 | -93.03 | -90.63 | -87.50 | -88.18 | 211.71 | 232.77 | 240.34 | 233.13 | 173.61 | 164.98 | 159.12 | 154.91 |
| 4 | -124.08 | -123.70 | -125.88 | -113.16 | 304.05 | 320.52 | 321.53 | 313.70 | 234.71 | 223.38 | 215.87 | 213.48 |
| 5 | -156.96 | -155.46 | -158.74 | -142.36 | 396.23 | 404.21 | 398.97 | 395.44 | 289.28 | 278.99 | 271.10 | 266.76 |
| 6 | -188.53 | -186.86 | -191.81 | -174.67 | 482.16 | 485.28 | 485.71 | 475.13 | 344.51 | 337.20 | 323.42 | 320.71 |
| 7 | -219.54 | -217.70 | -222.09 | -204.95 | 569.02 | 563.15 | 559.39 | 555.92 | 401.06 | 391.51 | 374.72 | 373.30 |
| 8 | -252.62 | -247.82 | -251.78 | -229.76 | 630.42 | 643.15 | 645.67 | 635.97 | 456.06 | 447.51 | 430.72 | 424.08 |
| 9 | -281.08 | -277.20 | -279.92 | -258.40 | 689.85 | 719.06 | 722.12 | 715.11 | 513.85 | 503.51 | 482.68 | 481.13 |
| 10 | -310.86 | -307.90 | -308.57 | -288.91 | 755.40 | 795.38 | 801.44 | 778.65 | 586.99 | 554.49 | 537.95 | 525.74 |

| CVP3 | SG24 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 13.54 | 9.04 | 14.61 | 2.98 | -60.86 | -39.34 | -54.57 | -58.05 | -21.12 | -33.00 | -70.67 | -64.02 |
| 1 | 7.30 | 5.92 | -1.73 | -6.57 | 51.70 | 65.34 | 66.79 | 62.77 | 78.05 | 67.79 | 56.95 | 58.27 |
| 2 | 0.50 | -0.87 | -11.28 | 0.60 | 154.16 | 166.57 | 166.67 | 168.93 | 172.11 | 161.29 | 151.12 | 151.16 |
| 3 | -4.09 | -5.65 | 0.47 | -0.51 | 257.60 | 263.88 | 271.17 | 266.77 | 268.51 | 256.81 | 248.58 | 247.03 |
| 4 | -7.21 | -7.85 | -6.87 | 4.64 | 358.57 | 365.40 | 365.96 | 356.70 | 363.20 | 347.53 | 340.41 | 339.21 |
| 5 | -7.21 | -11.34 | -11.10 | 6.66 | 458.47 | 460.66 | 454.79 | 458.47 | 454.14 | 438.76 | 428.31 | 425.75 |
| 6 | -10.70 | -13.91 | -15.51 | 5.92 | 550.84 | 554.43 | 552.35 | 544.96 | 543.70 | 530.03 | 512.76 | 511.45 |
| 7 | -11.80 | -15.56 | -13.30 | 7.94 | 645.41 | 642.58 | 637.24 | 639.70 | 631.10 | 615.72 | 595.14 | 595.31 |
| 8 | -13.46 | -15.93 | -14.22 | 7.57 | 727.21 | 733.78 | 734.36 | 728.03 | 719.39 | 701.66 | 681.44 | 681.66 |
| 9 | -13.46 | -18.14 | -12.75 | 6.84 | 813.62 | 818.89 | 820.56 | 820.20 | 804.89 | 788.33 | 763.15 | 763.47 |
| 10 | -16.21 | -21.44 | -14.59 | 8.13 | 888.54 | 905.30 | 909.80 | 893.09 | 910.39 | 865.81 | 845.23 | 838.20 |

| CVP3 | SG25 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -5.05 | -4.91 | 2.98 | -16.84 | -12.88 | -12.69 | -25.19 | -27.30 | -26.90 | -27.59 | -53.41 | -54.18 |
| 1 | -9.38 | -8.14 | -6.55 | -19.15 | 98.82 | 91.85 | 98.74 | 84.68 | 76.30 | 77.06 | 76.75 | 72.62 |
| 2 | -16.19 | -15.73 | -18.75 | -21.91 | 208.27 | 201.35 | 202.70 | 200.37 | 178.81 | 178.21 | 171.35 | 164.23 |
| 3 | -24.20 | -23.19 | -18.10 | -26.33 | 315.30 | 305.37 | 311.90 | 307.86 | 281.17 | 279.14 | 270.91 | 263.31 |
| 4 | -31.29 | -30.32 | -27.03 | -28.44 | 423.90 | 424.64 | 420.57 | 409.99 | 389.36 | 383.73 | 375.68 | 368.06 |
| 5 | -39.58 | -38.79 | -35.82 | -33.78 | 533.64 | 533.96 | 526.01 | 527.31 | 491.77 | 488.46 | 476.32 | 463.29 |
| 6 | -49.29 | -46.48 | -41.53 | -38.61 | 637.85 | 641.97 | 636.70 | 627.09 | 592.24 | 592.48 | 571.85 | 558.60 |
| 7 | -56.78 | -54.03 | -47.42 | -47.22 | 743.16 | 746.93 | 737.65 | 735.16 | 689.26 | 687.42 | 662.56 | 649.70 |
| 8 | -63.79 | -60.33 | -54.69 | -57.53 | 849.12 | 851.43 | 847.54 | 840.83 | 784.97 | 782.23 | 757.55 | 741.79 |
| 9 | -71.84 | -68.71 | -60.49 | -67.43 | 965.03 | 950.40 | 947.79 | 943.38 | 875.29 | 873.18 | 842.98 | 826.20 |
| 10 | -79.95 | -77.65 | -66.38 | -73.00 | 1052.49 | 1048.81 | 1046.46 | 1027.66 | 964.14 | 953.09 | 932.08 | 906.09 |

| CVP3 | SG26 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 21.35 | 19.16 | 10.00 | -0.02 | -4.86 | -8.71 | -23.20 | -21.05 | 23.56 | 11.96 | -27.95 | -16.23 |
| 1 | 15.29 | 11.81 | -9.67 | -17.67 | 108.73 | 101.96 | 102.88 | 103.03 | 126.14 | 115.98 | 96.68 | 96.45 |
| 2 | 4.26 | 1.51 | -11.87 | -10.69 | 219.39 | 210.67 | 208.75 | 212.80 | 222.52 | 215.10 | 195.00 | 189.44 |
| 3 | -2.73 | -4.74 | -8.75 | -8.48 | 324.61 | 314.70 | 323.85 | 321.96 | 323.44 | 315.88 | 304.33 | 303.43 |
| 4 | -6.59 | -7.49 | -10.96 | -4.99 | 439.47 | 433.24 | 433.27 | 426.87 | 432.74 | 420.49 | 413.36 | 407.11 |
| 5 | -9.34 | -11.72 | -15.73 | -0.39 | 547.57 | 543.12 | 541.49 | 543.28 | 543.09 | 529.10 | 517.52 | 512.49 |
| 6 | -11.92 | -13.93 | -19.04 | -1.50 | 651.81 | 653.37 | 650.54 | 653.76 | 654.43 | 640.32 | 622.64 | 616.66 |
| 7 | -12.65 | -14.66 | -20.15 | -3.52 | 760.64 | 759.64 | 758.87 | 765.34 | 759.76 | 745.76 | 724.43 | 718.84 |
| 8 | -12.47 | -14.66 | -24.19 | -10.50 | 871.40 | 867.47 | 871.73 | 872.50 | 868.39 | 851.09 | 828.11 | 824.57 |
| 9 | -13.57 | -17.42 | -26.95 | -13.26 | 990.81 | 970.71 | 976.78 | 975.63 | 972.17 | 956.79 | 926.45 | 921.34 |
| 10 | -15.96 | -20.54 | -29.34 | -10.13 | 1085.30 | 1072.27 | 1079.17 | 1072.64 | 1084.98 | 1051.49 | 1028.29 | 1015.45 |

| CVP3 | SG27 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -0.67 | -2.14 | 3.59 | -13.21 | 23.02 | 2.14 | -9.40 | -8.64 | 11.04 | -0.31 | -35.32 | -33.04 |
| 1 | -1.86 | -0.58 | -2.80 | -13.39 | 115.87 | 91.14 | 96.16 | 87.38 | 100.50 | 91.14 | 78.58 | 76.59 |
| 2 | -4.76 | -4.17 | -7.03 | -8.94 | 206.93 | 184.50 | 185.65 | 187.75 | 190.14 | 179.94 | 168.01 | 163.07 |
| 3 | -7.89 | -6.97 | -0.18 | -6.09 | 296.21 | 274.41 | 282.25 | 283.89 | 282.07 | 271.36 | 263.34 | 258.70 |
| 4 | -9.13 | -8.34 | -2.48 | -1.58 | 388.30 | 377.63 | 378.68 | 372.79 | 380.24 | 368.13 | 362.70 | 358.17 |
| 5 | -11.19 | -10.87 | -4.41 | 0.91 | 480.61 | 475.91 | 472.64 | 481.08 | 476.72 | 467.21 | 458.33 | 449.84 |
| 6 | -14.96 | -13.22 | -5.00 | 2.61 | 568.87 | 573.15 | 572.81 | 574.53 | 573.11 | 567.15 | 551.30 | 544.38 |
| 7 | -17.08 | -14.87 | -4.00 | 1.77 | 665.09 | 667.40 | 664.61 | 670.78 | 667.11 | 659.34 | 640.14 | 632.59 |
| 8 | -18.83 | -15.79 | -3.59 | -1.94 | 768.14 | 760.88 | 763.70 | 770.99 | 760.16 | 750.21 | 731.39 | 723.19 |
| 9 | -21.49 | -19.24 | -4.87 | -5.71 | 880.23 | 849.23 | 854.43 | 859.79 | 852.58 | 838.28 | 815.04 | 804.92 |
| 10 | -24.30 | -22.69 | -6.02 | -5.34 | 964.45 | 936.12 | 942.69 | 941.59 | 950.31 | 917.90 | 900.36 | 884.34 |

| CVP3 | SG28 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -7.68 | -3.84 | -11.96 | -5.17 | -7.74 | 3.78 | -3.44 | -3.65 | -2.90 | -5.63 | -12.44 | -20.76 |
| 1 | 1.15 | 3.52 | -10.48 | -4.43 | 41.56 | 50.13 | 48.07 | 43.44 | 50.81 | 48.07 | 45.68 | 38.84 |
| 2 | -1.06 | -1.63 | -12.69 | -1.48 | 93.06 | 96.51 | 95.15 | 100.09 | 97.18 | 93.70 | 88.35 | 85.18 |
| 3 | -3.27 | -2.37 | -13.42 | -8.10 | 143.11 | 146.54 | 147.39 | 147.91 | 140.59 | 141.54 | 133.22 | 130.80 |
| 4 | -8.42 | -8.25 | -20.78 | -12.53 | 195.34 | 199.50 | 195.22 | 192.78 | 192.80 | 191.58 | 180.31 | 179.36 |
| 5 | -14.31 | -9.72 | -25.93 | -14.00 | 246.11 | 246.56 | 245.24 | 247.97 | 238.44 | 239.39 | 224.43 | 222.05 |
| 6 | -17.25 | -13.40 | -31.09 | -18.41 | 299.82 | 296.65 | 292.28 | 294.32 | 289.18 | 288.69 | 267.83 | 265.44 |
| 7 | -17.98 | -15.61 | -37.70 | -22.82 | 346.91 | 345.95 | 340.12 | 341.41 | 338.47 | 332.06 | 311.27 | 308.90 |
| 8 | -20.93 | -17.08 | -44.30 | -23.56 | 391.10 | 396.69 | 390.88 | 395.11 | 383.42 | 379.89 | 356.89 | 353.72 |
| 9 | -20.19 | -15.61 | -46.53 | -27.24 | 443.30 | 444.56 | 440.20 | 442.20 | 430.48 | 431.39 | 401.03 | 398.57 |
| 10 | -20.20 | -16.35 | -48.00 | -28.72 | 485.98 | 493.08 | 489.50 | 488.47 | 476.14 | 476.36 | 448.85 | 442.71 |

| CVP3 | SG29 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 2.17 | 0.21 | 13.84 | 7.92 | -7.83 | -14.18 | -19.83 | -18.45 | -11.22 | -15.19 | -36.03 | -31.62 |
| 1 | 1.44 | 1.87 | 7.41 | 8.10 | 75.93 | 66.28 | 75.30 | 65.31 | 69.79 | 67.26 | 61.87 | 62.06 |
| 2 | -0.58 | -0.52 | 1.35 | 3.69 | 160.78 | 150.82 | 153.90 | 154.05 | 151.58 | 147.56 | 140.83 | 139.00 |
| 3 | -3.16 | -3.09 | 7.23 | 4.79 | 242.94 | 231.09 | 238.60 | 239.25 | 234.41 | 228.60 | 226.02 | 222.96 |
| 4 | -3.71 | -3.08 | 4.84 | 7.73 | 324.85 | 319.41 | 321.48 | 316.36 | 318.67 | 310.91 | 311.82 | 307.45 |
| 5 | -4.99 | -4.92 | 3.37 | 10.85 | 407.14 | 401.30 | 401.16 | 404.19 | 400.63 | 392.80 | 393.50 | 384.27 |
| 6 | -7.01 | -5.66 | 4.84 | 13.98 | 484.48 | 481.31 | 484.99 | 482.26 | 481.22 | 475.28 | 471.73 | 463.03 |
| 7 | -8.49 | -6.03 | 6.68 | 16.36 | 564.57 | 560.85 | 562.18 | 562.52 | 558.73 | 551.63 | 547.88 | 540.48 |
| 8 | -7.38 | -6.03 | 9.98 | 17.83 | 646.57 | 639.60 | 645.19 | 647.57 | 637.85 | 628.59 | 625.95 | 617.13 |
| 9 | -9.03 | -7.31 | 12.19 | 17.28 | 736.51 | 714.81 | 724.61 | 721.59 | 714.57 | 704.45 | 698.68 | 688.51 |
| 10 | -10.68 | -10.25 | 13.29 | 19.68 | 807.42 | 790.23 | 799.00 | 796.36 | 794.38 | 773.87 | 773.62 | 759.03 |

| CVP3 | SG30 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 3.22 | 4.74 | 11.40 | 11.24 | -2.61 | 1.03 | -15.84 | -13.76 | 7.50 | 12.01 | -1.88 | 0.23 |
| 1 | -1.33 | -2.01 | 3.30 | -5.40 | 29.50 | 33.46 | 10.39 | 10.30 | 32.76 | 36.77 | 20.67 | 18.72 |
| 2 | -12.77 | -12.71 | -6.07 | -4.21 | 62.93 | 66.44 | 34.73 | 34.49 | 56.65 | 61.52 | 33.74 | 30.68 |
| 3 | -23.79 | -23.27 | -13.01 | -13.21 | 97.16 | 100.43 | 57.58 | 54.12 | 80.58 | 82.89 | 45.28 | 41.86 |
| 4 | -35.65 | -35.55 | -22.51 | -20.49 | 132.94 | 136.62 | 79.06 | 75.95 | 106.15 | 108.89 | 60.55 | 57.30 |
| 5 | -47.50 | -45.51 | -30.32 | -26.01 | 166.24 | 169.63 | 100.75 | 95.31 | 130.82 | 134.92 | 75.50 | 69.91 |
| 6 | -56.08 | -54.97 | -34.26 | -32.76 | 201.74 | 203.70 | 119.93 | 114.33 | 157.54 | 161.61 | 90.79 | 82.92 |
| 7 | -63.98 | -63.79 | -41.16 | -37.60 | 235.73 | 237.60 | 139.71 | 133.07 | 184.27 | 188.33 | 104.81 | 97.18 |
| 8 | -72.94 | -71.28 | -45.46 | -41.90 | 268.69 | 271.52 | 159.09 | 152.13 | 210.76 | 217.49 | 119.32 | 109.15 |
| 9 | -80.61 | -78.40 | -49.70 | -45.98 | 298.80 | 304.94 | 178.92 | 170.08 | 239.27 | 245.28 | 134.02 | 125.88 |
| 10 | -87.70 | -86.31 | -52.87 | -49.14 | 329.30 | 338.54 | 196.47 | 186.31 | 264.46 | 271.96 | 152.71 | 141.49 |

| CVP3 | SG31 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -15.56 | -19.57 | -7.00 | -17.13 | 14.67 | 13.25 | 14.02 | 7.37 | 4.40 | 2.18 | 0.89 | 4.76 |
| 1 | -21.57 | -23.66 | -12.05 | -19.01 | 47.04 | 47.51 | 50.25 | 45.48 | 32.36 | 32.12 | 44.05 | 40.21 |
| 2 | -30.62 | -30.04 | -24.30 | -26.26 | 82.35 | 80.90 | 80.36 | 68.17 | 62.63 | 62.52 | 69.16 | 66.06 |
| 3 | -41.08 | -46.89 | -35.78 | -31.17 | 109.91 | 112.72 | 113.66 | 108.71 | 92.11 | 87.27 | 94.77 | 95.17 |
| 4 | -61.25 | -63.07 | -44.87 | -44.45 | 143.79 | 146.69 | 147.46 | 149.51 | 123.96 | 115.56 | 126.91 | 123.00 |
| 5 | -75.90 | -74.27 | -64.71 | -51.06 | 180.48 | 182.64 | 188.36 | 173.72 | 156.99 | 147.74 | 159.59 | 155.20 |
| 6 | -88.39 | -90.61 | -66.65 | -66.71 | 216.16 | 220.41 | 226.89 | 217.85 | 188.65 | 173.78 | 192.18 | 182.36 |
| 7 | -102.52 | -109.44 | -83.03 | -69.14 | 253.59 | 257.93 | 261.25 | 253.11 | 219.74 | 202.19 | 223.30 | 223.77 |
| 8 | -117.64 | -123.35 | -88.25 | -85.40 | 289.80 | 294.88 | 298.30 | 287.50 | 248.94 | 235.98 | 252.55 | 245.50 |
| 9 | -131.00 | -136.90 | -104.15 | -99.64 | 326.78 | 331.60 | 336.76 | 326.16 | 281.43 | 263.39 | 284.04 | 284.36 |
| 10 | -148.10 | -154.92 | -121.55 | -103.96 | 361.27 | 369.40 | 376.15 | 362.32 | 310.06 | 289.52 | 319.72 | 308.69 |

| CVP3 | SG32T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -42.77 | -38.12 | -43.26 | -25.03 | -1.34 | -1.46 | 1.80 | 16.89 | -47.24 | -41.29 | -21.06 | -22.57 |
| 1 | 40.30 | 43.57 | 39.21 | 41.08 | -28.54 | -27.01 | -26.58 | -28.48 | 12.33 | 14.83 | 9.84 | 13.78 |
| 2 | 122.17 | 123.60 | 123.73 | 126.97 | -55.28 | -53.53 | -55.70 | -40.26 | 63.60 | 63.16 | 63.27 | 73.99 |
| 3 | 200.18 | 203.77 | 200.51 | 200.08 | -82.22 | -80.96 | -85.19 | -72.76 | 112.45 | 113.54 | 114.12 | 119.28 |
| 4 | 275.80 | 278.65 | 270.25 | 274.73 | -113.58 | -112.83 | -113.64 | -121.78 | 155.82 | 158.52 | 158.27 | 166.57 |
| 5 | 347.51 | 351.42 | 351.43 | 340.94 | -140.32 | -140.61 | -140.59 | -127.79 | 194.22 | 197.64 | 198.12 | 209.86 |
| 6 | 419.08 | 422.58 | 411.86 | 422.67 | -167.66 | -169.94 | -168.81 | -169.87 | 231.92 | 235.56 | 236.53 | 249.36 |
| 7 | 487.21 | 491.87 | 483.84 | 487.00 | -196.60 | -196.41 | -195.56 | -197.85 | 272.07 | 273.67 | 274.21 | 288.06 |
| 8 | 553.80 | 559.45 | 545.59 | 556.41 | -223.77 | -224.69 | -227.66 | -219.96 | 309.23 | 312.22 | 315.79 | 335.34 |
| 9 | 619.05 | 626.03 | 614.84 | 618.63 | -255.76 | -251.05 | -255.75 | -250.96 | 348.26 | 349.54 | 352.46 | 368.59 |
| 10 | 684.70 | 693.69 | 682.65 | 678.91 | -276.96 | -278.08 | -281.48 | -266.37 | 383.15 | 391.52 | 390.33 | 411.49 |

| CVP3 | SG32-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 2.41 | -2.03 | 0.20 | 12.52 | -15.22 | 2.10 | -6.57 | 1.93 | -2.81 | -3.74 | -20.60 | -13.33 |
| 1 | 37.32 | 38.62 | 26.86 | 29.86 | 25.10 | 32.52 | 29.12 | 28.90 | 67.01 | 64.43 | 50.18 | 53.88 |
| 2 | 68.25 | 66.87 | 58.05 | 78.39 | 52.81 | 65.19 | 62.97 | 85.01 | 129.84 | 126.51 | 115.45 | 120.80 |
| 3 | 103.01 | 103.52 | 105.72 | 105.63 | 97.28 | 94.60 | 98.71 | 105.32 | 196.45 | 194.98 | 186.35 | 187.74 |
| 4 | 141.10 | 140.02 | 129.39 | 147.06 | 124.94 | 134.37 | 131.20 | 121.32 | 263.99 | 263.07 | 254.52 | 263.01 |
| 5 | 175.66 | 175.52 | 175.44 | 185.46 | 163.06 | 166.24 | 162.01 | 176.01 | 330.44 | 330.71 | 320.59 | 327.73 |
| 6 | 212.12 | 208.82 | 200.23 | 228.76 | 197.60 | 199.07 | 191.06 | 194.87 | 395.83 | 398.10 | 381.50 | 391.27 |
| 7 | 246.41 | 244.29 | 237.55 | 257.18 | 233.53 | 230.82 | 223.18 | 225.60 | 461.79 | 461.92 | 447.99 | 453.89 |
| 8 | 280.98 | 281.45 | 268.29 | 295.51 | 263.19 | 264.06 | 262.68 | 269.36 | 525.56 | 526.14 | 511.02 | 521.09 |
| 9 | 314.97 | 313.24 | 304.48 | 330.46 | 290.51 | 295.24 | 294.22 | 298.08 | 591.03 | 594.77 | 571.39 | 581.96 |
| 10 | 349.69 | 348.18 | 342.51 | 365.45 | 321.29 | 328.52 | 323.80 | 332.24 | 660.27 | 655.63 | 631.57 | 646.54 |

| CVP3 | SG32L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 9.88 | 5.76 | 31.31 | 18.28 | -33.81 | -23.62 | -37.02 | -37.36 | -26.90 | -35.76 | -44.56 | -27.20 |
| 1 | 7.63 | 5.40 | 12.88 | 5.48 | 66.66 | 66.53 | 62.06 | 60.63 | 64.41 | 57.86 | 58.28 | 56.48 |
| 2 | -3.38 | -2.35 | 2.42 | -7.35 | 158.64 | 156.96 | 154.31 | 154.37 | 148.00 | 146.11 | 139.93 | 130.61 |
| 3 | -7.46 | -8.31 | 2.61 | -7.86 | 247.46 | 244.54 | 251.07 | 241.38 | 234.43 | 231.29 | 223.62 | 218.89 |
| 4 | -3.47 | -4.78 | 0.27 | -0.57 | 346.90 | 346.04 | 339.65 | 328.55 | 324.48 | 317.88 | 310.26 | 303.49 |
| 5 | -0.99 | -6.85 | 2.84 | 5.21 | 431.28 | 432.52 | 421.51 | 423.87 | 410.40 | 405.48 | 393.47 | 384.42 |
| 6 | -4.93 | -6.98 | 2.37 | 7.50 | 514.92 | 521.41 | 510.22 | 500.40 | 493.54 | 493.43 | 473.52 | 464.16 |
| 7 | -4.57 | -8.45 | 6.27 | 8.42 | 601.73 | 603.73 | 589.59 | 588.44 | 574.74 | 572.06 | 547.95 | 539.02 |
| 8 | -5.76 | -9.14 | 8.89 | -0.43 | 684.03 | 687.86 | 682.75 | 671.16 | 653.84 | 650.61 | 626.77 | 617.31 |
| 9 | -8.19 | -13.54 | 5.27 | -2.54 | 780.07 | 768.47 | 762.06 | 755.71 | 727.69 | 725.62 | 697.75 | 684.91 |
| 10 | -13.33 | -18.54 | 3.20 | -2.50 | 844.46 | 849.46 | 840.93 | 815.88 | 805.37 | 789.80 | 769.10 | 750.38 |

| CVP3 | SG33T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -44.32 | -36.21 | -33.89 | -21.79 | 15.19 | 6.13 | 12.63 | 20.91 | -45.05 | -35.55 | -14.17 | -11.62 |
| 1 | 40.14 | 45.54 | 38.95 | 45.62 | -29.84 | -36.14 | -36.84 | -33.11 | -2.08 | 1.66 | -2.74 | -4.69 |
| 2 | 121.25 | 124.84 | 123.91 | 122.12 | -74.45 | -80.03 | -81.35 | -73.64 | 32.46 | 33.30 | 34.48 | 38.77 |
| 3 | 197.33 | 203.04 | 200.28 | 195.69 | -119.09 | -124.24 | -126.48 | -118.66 | 63.34 | 65.72 | 69.21 | 70.03 |
| 4 | 270.33 | 276.18 | 269.08 | 272.08 | -167.82 | -172.88 | -170.74 | -173.21 | 87.73 | 93.54 | 95.79 | 107.30 |
| 5 | 340.88 | 347.89 | 351.78 | 338.03 | -214.46 | -215.55 | -212.95 | -206.32 | 109.55 | 115.14 | 119.32 | 131.87 |
| 6 | 410.29 | 418.35 | 411.90 | 419.59 | -258.34 | -258.74 | -254.02 | -253.55 | 131.42 | 137.63 | 142.03 | 149.80 |
| 7 | 477.48 | 486.92 | 483.96 | 482.46 | -303.37 | -300.01 | -295.34 | -298.57 | 153.59 | 159.00 | 165.42 | 173.56 |
| 8 | 541.98 | 553.62 | 544.48 | 545.44 | -340.40 | -343.26 | -341.10 | -335.42 | 174.25 | 180.71 | 190.57 | 205.52 |
| 9 | 607.02 | 620.72 | 613.30 | 610.15 | -379.33 | -384.79 | -382.49 | -381.23 | 196.90 | 202.74 | 212.56 | 225.41 |
| 10 | 672.96 | 688.69 | 682.42 | 672.27 | -414.72 | -425.75 | -423.66 | -410.89 | 215.84 | 229.88 | 235.96 | 254.97 |

| CVP3 | SG33-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 4.58 | -0.09 | 15.81 | 10.38 | -107.53 | -90.72 | -93.20 | -88.00 | -107.06 | -102.34 | -101.70 | -98.01 |
| 1 | 31.62 | 30.07 | 23.34 | 18.09 | -85.36 | -74.98 | -73.05 | -67.85 | -61.76 | -58.37 | -61.08 | -68.69 |
| 2 | 55.76 | 54.21 | 47.07 | 48.42 | -71.18 | -55.79 | -53.09 | -45.13 | -17.45 | -12.60 | -15.79 | -10.77 |
| 3 | 83.85 | 82.80 | 84.33 | 76.51 | -45.70 | -43.21 | -40.10 | -39.99 | 22.11 | 27.02 | 23.67 | 25.49 |
| 4 | 113.60 | 112.28 | 105.26 | 109.92 | -42.40 | -35.59 | -37.62 | -37.61 | 49.44 | 53.33 | 51.17 | 49.63 |
| 5 | 140.92 | 140.18 | 140.14 | 137.09 | -40.61 | -44.04 | -42.44 | -42.88 | 66.17 | 69.47 | 66.71 | 65.25 |
| 6 | 169.69 | 168.00 | 166.04 | 168.67 | -48.55 | -55.51 | -57.22 | -55.74 | 76.98 | 80.30 | 76.07 | 73.32 |
| 7 | 197.58 | 196.09 | 192.79 | 189.77 | -58.97 | -68.05 | -68.83 | -70.56 | 87.26 | 89.65 | 89.14 | 80.88 |
| 8 | 226.79 | 226.02 | 217.35 | 214.57 | -63.83 | -80.90 | -78.33 | -79.56 | 96.48 | 99.56 | 96.66 | 92.41 |
| 9 | 254.88 | 251.54 | 246.94 | 242.84 | -100.14 | -93.66 | -89.81 | -94.15 | 106.56 | 111.86 | 104.56 | 102.12 |
| 10 | 280.97 | 278.37 | 275.95 | 270.77 | -110.97 | -105.68 | -105.82 | -102.45 | 108.41 | 121.63 | 114.47 | 114.60 |

| CVP3 | SG33L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 21.23 | 14.47 | 54.67 | 18.00 | -15.30 | -24.26 | -39.17 | -42.81 | -15.83 | -27.14 | -36.38 | -3.72 |
| 1 | 2.34 | -2.95 | 10.27 | -7.32 | 98.42 | 86.54 | 88.11 | 91.83 | 79.38 | 74.82 | 72.58 | 80.10 |
| 2 | -7.57 | -8.82 | -6.42 | -12.63 | 210.68 | 197.58 | 196.87 | 188.34 | 185.27 | 182.16 | 171.97 | 169.58 |
| 3 | -12.52 | -15.42 | -4.95 | -10.43 | 317.32 | 306.16 | 311.91 | 300.38 | 292.03 | 287.68 | 277.40 | 276.37 |
| 4 | -12.34 | -15.79 | -7.52 | -10.06 | 434.14 | 429.58 | 426.41 | 423.04 | 406.96 | 397.21 | 388.76 | 376.33 |
| 5 | -11.24 | -21.29 | -12.65 | -8.60 | 543.47 | 541.61 | 532.57 | 527.28 | 515.43 | 506.86 | 492.88 | 481.13 |
| 6 | -16.74 | -24.23 | -13.39 | -11.35 | 646.20 | 651.62 | 643.22 | 635.50 | 619.01 | 614.91 | 592.64 | 587.09 |
| 7 | -19.49 | -28.63 | -12.65 | -9.88 | 749.30 | 755.65 | 745.26 | 745.37 | 720.26 | 713.89 | 685.04 | 679.51 |
| 8 | -21.70 | -31.75 | -11.37 | -12.81 | 855.05 | 861.05 | 856.04 | 845.34 | 819.85 | 811.66 | 784.09 | 776.75 |
| 9 | -25.73 | -37.99 | -17.24 | -22.17 | 985.02 | 960.58 | 955.55 | 951.73 | 912.03 | 904.47 | 871.95 | 859.56 |
| 10 | -33.44 | -45.33 | -22.19 | -25.84 | 1067.39 | 1059.53 | 1056.25 | 1030.56 | 1007.90 | 985.76 | 960.36 | 939.71 |

| CVP3 | SG34T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -34.72 | -32.83 | -29.11 | -24.72 | 4.00 | 7.89 | 12.81 | 20.90 | -10.23 | -10.11 | 5.71 | 6.34 |
| 1 | 55.89 | 56.32 | 58.42 | 54.50 | -33.79 | -26.92 | -25.52 | -24.77 | 45.07 | 44.54 | 42.17 | 47.84 |
| 2 | 147.79 | 147.65 | 146.64 | 143.82 | -70.88 | -64.26 | -65.95 | -53.25 | 98.84 | 97.01 | 96.86 | 103.45 |
| 3 | 236.91 | 237.15 | 234.31 | 227.08 | -106.39 | -99.20 | -103.70 | -96.21 | 153.50 | 153.16 | 152.78 | 156.83 |
| 4 | 322.60 | 323.98 | 311.53 | 310.37 | -143.11 | -140.28 | -138.84 | -144.20 | 205.18 | 205.44 | 203.96 | 209.66 |
| 5 | 406.47 | 406.30 | 403.78 | 386.12 | -177.78 | -176.03 | -175.23 | -164.25 | 256.75 | 256.96 | 255.10 | 263.97 |
| 6 | 488.60 | 487.56 | 472.43 | 477.09 | -210.57 | -210.78 | -211.22 | -209.55 | 308.08 | 308.32 | 303.88 | 313.83 |
| 7 | 568.15 | 567.72 | 555.46 | 548.20 | -244.18 | -245.59 | -245.68 | -243.30 | 359.62 | 359.09 | 356.39 | 363.79 |
| 8 | 647.08 | 646.60 | 627.42 | 623.27 | -281.31 | -280.05 | -280.94 | -276.50 | 410.32 | 408.98 | 409.95 | 424.98 |
| 9 | 725.78 | 725.47 | 708.43 | 697.36 | -324.71 | -312.59 | -314.26 | -310.98 | 461.82 | 460.89 | 458.74 | 468.41 |
| 10 | 803.45 | 805.16 | 790.05 | 771.36 | -352.17 | -343.88 | -347.59 | -334.89 | 512.69 | 513.63 | 508.26 | 525.07 |

| CVP3 | SG34-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -19.31 | -15.63 | -19.41 | -12.27 | -55.80 | -36.26 | -40.23 | -32.00 | -34.03 | -34.14 | -46.83 | -50.51 |
| 1 | 26.20 | 26.67 | 25.09 | 29.17 | -25.42 | -5.88 | 0.20 | -8.26 | 41.97 | 41.52 | 27.42 | 28.32 |
| 2 | 66.77 | 66.22 | 66.94 | 68.67 | 8.04 | 20.17 | 20.18 | 23.82 | 103.37 | 100.98 | 92.86 | 96.55 |
| 3 | 105.30 | 103.89 | 103.46 | 107.89 | 28.77 | 45.10 | 47.81 | 55.30 | 168.03 | 165.04 | 155.94 | 162.79 |
| 4 | 141.89 | 142.66 | 139.85 | 146.08 | 61.86 | 64.07 | 66.20 | 57.36 | 228.86 | 223.16 | 215.90 | 217.97 |
| 5 | 179.68 | 176.74 | 178.99 | 178.57 | 84.87 | 84.32 | 77.28 | 90.92 | 284.80 | 278.87 | 268.11 | 272.26 |
| 6 | 213.94 | 212.49 | 206.15 | 221.01 | 104.35 | 100.89 | 104.62 | 105.40 | 342.15 | 334.97 | 320.17 | 325.03 |
| 7 | 248.20 | 247.88 | 247.37 | 259.12 | 123.10 | 118.03 | 118.34 | 126.85 | 398.25 | 391.95 | 371.20 | 381.76 |
| 8 | 285.08 | 281.61 | 280.50 | 293.61 | 126.05 | 131.36 | 131.81 | 139.27 | 454.44 | 446.40 | 428.03 | 442.73 |
| 9 | 320.65 | 316.81 | 313.74 | 325.51 | 132.24 | 144.76 | 145.85 | 161.40 | 508.11 | 499.56 | 479.18 | 491.44 |
| 10 | 354.24 | 352.97 | 349.85 | 362.02 | 144.00 | 160.87 | 162.85 | 165.31 | 569.59 | 555.96 | 531.24 | 540.38 |

| CVP3 | SG34L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -7.80 | -7.59 | -3.41 | -8.19 | -55.60 | -43.80 | -52.28 | -53.65 | -59.03 | -59.16 | -80.27 | -84.80 |
| 1 | -12.75 | -13.45 | -12.95 | -8.75 | 50.60 | 56.73 | 61.24 | 51.26 | 38.74 | 38.21 | 40.05 | 30.57 |
| 2 | -22.10 | -22.81 | -23.04 | -15.35 | 155.51 | 160.05 | 162.29 | 160.23 | 131.60 | 133.44 | 126.24 | 118.96 |
| 3 | -33.29 | -33.08 | -30.01 | -24.34 | 255.36 | 255.79 | 263.19 | 258.52 | 220.00 | 221.34 | 212.22 | 209.04 |
| 4 | -42.28 | -43.17 | -41.20 | -31.12 | 354.20 | 359.40 | 357.51 | 348.91 | 307.07 | 306.64 | 299.00 | 292.49 |
| 5 | -53.47 | -54.73 | -54.22 | -41.21 | 449.77 | 451.43 | 449.00 | 449.46 | 386.35 | 387.87 | 375.98 | 369.21 |
| 6 | -65.58 | -65.00 | -63.76 | -48.91 | 539.29 | 541.80 | 539.48 | 534.38 | 464.44 | 469.68 | 450.62 | 443.08 |
| 7 | -76.21 | -75.45 | -73.30 | -54.05 | 628.44 | 629.49 | 625.93 | 624.81 | 540.01 | 544.46 | 520.98 | 514.56 |
| 8 | -85.76 | -84.99 | -81.54 | -60.10 | 711.25 | 718.02 | 719.64 | 714.87 | 616.08 | 620.58 | 596.18 | 588.35 |
| 9 | -97.13 | -97.47 | -93.29 | -71.66 | 803.35 | 802.12 | 804.09 | 800.52 | 688.65 | 693.03 | 663.49 | 655.95 |
| 10 | -108.51 | -109.95 | -104.84 | -81.93 | 875.16 | 884.03 | 888.28 | 871.50 | 756.43 | 758.49 | 737.23 | 720.69 |

| CVP3 | SG35T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 14.97 | 19.35 | -305.51 | 13.74 | 44.89 | 27.55 | 28.43 | 35.76 | 25.10 | 31.23 | 180.63 | 10.25 |
| 1 | 81.46 | 84.23 | -223.57 | 82.54 | 13.50 | -4.57 | -10.66 | -17.87 | 61.85 | 60.34 | 124.52 | 57.46 |
| 2 | 142.26 | 143.26 | -159.12 | 140.57 | -17.38 | -33.15 | -34.61 | -18.06 | 92.38 | 88.90 | 98.12 | 105.85 |
| 3 | 199.86 | 203.55 | -99.02 | 190.34 | -45.92 | -59.90 | -59.38 | -44.25 | 124.31 | 123.09 | 110.39 | 129.16 |
| 4 | 259.35 | 261.41 | 315.07 | 256.11 | -73.58 | -83.21 | -82.69 | -90.17 | 157.91 | 160.99 | 144.63 | 171.46 |
| 5 | 321.00 | 325.15 | 645.52 | 317.44 | -100.42 | -104.03 | -101.96 | -80.40 | 192.15 | 197.59 | 160.98 | 211.76 |
| 6 | 386.21 | 389.53 | 445.71 | 390.16 | -124.93 | -125.57 | -121.62 | -113.94 | 230.90 | 236.41 | 191.21 | 251.10 |
| 7 | 451.49 | 456.01 | 421.59 | 445.57 | -148.83 | -145.16 | -141.08 | -136.60 | 272.19 | 275.83 | 227.33 | 290.43 |
| 8 | 515.96 | 522.31 | 361.59 | 510.59 | -157.70 | -165.38 | -163.56 | -143.76 | 313.36 | 317.72 | 266.78 | 341.25 |
| 9 | 584.19 | 591.04 | 505.09 | 574.08 | -164.78 | -185.04 | -182.06 | -170.00 | 355.63 | 358.64 | 305.00 | 377.82 |
| 10 | 652.85 | 661.03 | 636.16 | 639.57 | -183.52 | -205.99 | -202.70 | -177.63 | 396.73 | 403.32 | 350.83 | 428.74 |

| CVP3 | SG35-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 8.18 | 10.37 | -0.25 | 12.11 | -33.75 | -28.25 | -32.22 | -24.38 | -15.27 | -10.26 | -30.29 | -41.95 |
| 1 | 42.17 | 41.96 | 41.06 | 46.81 | -4.75 | 0.77 | 3.02 | -8.22 | 48.28 | 48.84 | 37.11 | 32.78 |
| 2 | 68.43 | 67.48 | 72.28 | 72.33 | 27.02 | 26.32 | 26.34 | 31.46 | 95.69 | 93.31 | 87.77 | 93.36 |
| 3 | 93.76 | 93.37 | 95.60 | 97.12 | 46.70 | 50.56 | 56.29 | 67.25 | 148.21 | 144.39 | 140.08 | 143.51 |
| 4 | 121.32 | 120.95 | 123.51 | 125.97 | 78.82 | 73.68 | 75.95 | 66.87 | 198.30 | 193.06 | 190.60 | 191.07 |
| 5 | 150.36 | 147.38 | 155.65 | 150.02 | 101.04 | 96.62 | 90.44 | 109.12 | 242.58 | 238.40 | 235.73 | 237.38 |
| 6 | 178.99 | 177.68 | 177.34 | 188.03 | 119.59 | 115.02 | 121.98 | 125.65 | 292.13 | 287.43 | 281.45 | 283.08 |
| 7 | 209.26 | 208.54 | 215.33 | 220.69 | 138.88 | 134.86 | 138.72 | 148.60 | 340.43 | 336.61 | 325.41 | 332.56 |
| 8 | 240.88 | 237.92 | 245.94 | 252.31 | 151.21 | 150.45 | 153.40 | 168.25 | 390.10 | 384.91 | 377.38 | 385.91 |
| 9 | 273.39 | 270.06 | 277.22 | 280.59 | 172.83 | 165.53 | 170.14 | 190.47 | 438.54 | 431.37 | 424.03 | 430.30 |
| 10 | 305.01 | 303.52 | 311.37 | 314.05 | 184.61 | 182.77 | 189.61 | 198.31 | 493.51 | 480.51 | 470.67 | 473.63 |

| CVP3 | SG35L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -6.53 | -6.43 | -0.88 | -7.62 | -54.35 | -43.06 | -51.74 | -52.38 | -57.17 | -58.02 | -77.50 | -79.59 |
| 1 | -12.58 | -13.78 | -12.28 | -10.75 | 48.90 | 54.71 | 60.70 | 51.63 | 37.11 | 36.76 | 37.71 | 30.10 |
| 2 | -21.77 | -22.79 | -22.57 | -17.00 | 151.07 | 155.29 | 157.89 | 155.66 | 128.13 | 129.05 | 122.21 | 114.96 |
| 3 | -31.89 | -32.71 | -28.27 | -23.62 | 247.80 | 248.08 | 256.23 | 252.10 | 214.86 | 214.73 | 206.88 | 203.93 |
| 4 | -39.60 | -41.71 | -38.19 | -30.04 | 344.62 | 348.56 | 347.42 | 339.89 | 299.87 | 297.07 | 291.25 | 284.97 |
| 5 | -49.52 | -52.55 | -50.50 | -39.04 | 437.06 | 437.64 | 435.58 | 436.60 | 377.46 | 376.05 | 366.72 | 359.63 |
| 6 | -61.47 | -62.29 | -59.69 | -46.58 | 524.53 | 525.24 | 524.75 | 519.29 | 453.67 | 455.44 | 439.65 | 431.42 |
| 7 | -71.39 | -72.77 | -68.33 | -50.81 | 611.09 | 610.15 | 608.24 | 608.04 | 527.36 | 528.15 | 507.76 | 501.94 |
| 8 | -80.21 | -82.32 | -75.68 | -57.24 | 691.48 | 695.53 | 698.64 | 695.51 | 601.56 | 601.65 | 581.08 | 573.83 |
| 9 | -91.06 | -94.27 | -86.70 | -68.63 | 780.44 | 777.40 | 781.41 | 779.30 | 672.05 | 671.84 | 646.86 | 639.54 |
| 10 | -102.27 | -106.77 | -98.28 | -78.73 | 850.73 | 857.62 | 863.73 | 848.20 | 739.22 | 735.41 | 718.71 | 702.01 |

| CVP3 | SG36T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -61.25 | -57.98 | -50.57 | -26.86 | 15.18 | 7.29 | 13.89 | 21.23 | -66.18 | -61.49 | -34.57 | -20.46 |
| 1 | 38.63 | 39.14 | 30.94 | 33.16 | -27.77 | -34.57 | -35.85 | -33.11 | -6.87 | -8.08 | -14.74 | -11.47 |
| 2 | 133.56 | 132.58 | 132.83 | 131.56 | -71.65 | -77.37 | -77.71 | -70.57 | 41.80 | 39.49 | 39.41 | 52.78 |
| 3 | 221.66 | 223.09 | 223.34 | 216.18 | -115.19 | -120.33 | -121.78 | -115.90 | 84.94 | 84.30 | 87.86 | 92.08 |
| 4 | 307.25 | 308.90 | 302.28 | 304.88 | -162.73 | -169.15 | -167.47 | -171.79 | 118.69 | 122.13 | 125.87 | 132.28 |
| 5 | 388.63 | 392.03 | 396.46 | 380.88 | -210.51 | -213.24 | -210.86 | -204.39 | 148.82 | 152.96 | 158.16 | 167.91 |
| 6 | 468.27 | 471.16 | 462.42 | 471.94 | -256.04 | -255.70 | -251.19 | -252.68 | 178.72 | 182.88 | 188.81 | 199.11 |
| 7 | 544.95 | 547.18 | 544.06 | 540.73 | -300.11 | -296.19 | -292.34 | -296.87 | 208.83 | 211.31 | 218.96 | 227.79 |
| 8 | 617.35 | 620.80 | 613.52 | 614.22 | -342.83 | -337.79 | -335.48 | -331.85 | 236.07 | 238.85 | 251.09 | 266.67 |
| 9 | 690.61 | 694.06 | 689.46 | 682.69 | -369.47 | -377.58 | -375.13 | -376.09 | 265.41 | 267.12 | 278.63 | 290.14 |
| 10 | 762.12 | 767.95 | 764.18 | 750.88 | -402.93 | -416.97 | -414.69 | -406.61 | 292.44 | 299.69 | 307.82 | 325.56 |

| CVP3 | SG36-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 0.56 | -4.34 | 5.10 | 10.26 | -117.71 | -93.56 | -98.92 | -102.67 | -114.94 | -116.08 | -104.49 | -81.79 |
| 1 | 28.50 | 22.96 | 18.30 | 22.64 | -89.88 | -67.09 | -66.77 | -69.51 | -58.47 | -57.20 | -60.69 | -51.66 |
| 2 | 66.76 | 61.11 | 55.91 | 55.76 | -63.41 | -48.14 | -52.05 | -59.50 | -3.07 | -4.43 | -6.12 | 1.67 |
| 3 | 101.15 | 95.97 | 93.16 | 95.11 | -51.65 | -34.15 | -34.20 | -39.56 | 47.93 | 43.98 | 44.91 | 48.51 |
| 4 | 136.16 | 133.20 | 131.78 | 135.30 | -37.03 | -35.12 | -36.03 | -40.21 | 81.69 | 76.46 | 76.57 | 80.29 |
| 5 | 173.38 | 171.40 | 169.71 | 170.80 | -38.59 | -40.36 | -48.42 | -49.42 | 105.52 | 98.18 | 96.96 | 103.62 |
| 6 | 208.50 | 205.71 | 196.20 | 210.06 | -45.47 | -49.89 | -51.19 | -62.40 | 124.67 | 116.94 | 113.83 | 121.39 |
| 7 | 245.63 | 238.78 | 235.02 | 245.67 | -56.34 | -61.45 | -65.35 | -68.86 | 142.79 | 133.47 | 128.51 | 141.03 |
| 8 | 278.55 | 269.65 | 263.54 | 276.52 | -91.56 | -72.05 | -76.40 | -86.71 | 160.14 | 148.98 | 149.57 | 162.99 |
| 9 | 310.29 | 301.03 | 294.69 | 303.72 | -90.47 | -83.83 | -89.01 | -94.14 | 175.24 | 163.47 | 164.38 | 175.90 |
| 10 | 340.42 | 332.76 | 325.56 | 332.88 | -109.32 | -92.42 | -97.22 | -111.76 | 193.03 | 179.45 | 177.22 | 187.68 |

| CVP3 | SG36L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 17.83 | 12.70 | 38.09 | 10.34 | -26.14 | -32.71 | -46.46 | -46.32 | -32.46 | -36.14 | -55.50 | -35.69 |
| 1 | 0.75 | -2.40 | -0.58 | -6.28 | 91.39 | 80.85 | 87.05 | 84.67 | 69.98 | 70.55 | 61.31 | 60.68 |
| 2 | -4.81 | -7.04 | -11.73 | -9.72 | 206.50 | 197.90 | 198.84 | 194.67 | 181.43 | 182.26 | 167.99 | 157.49 |
| 3 | -9.31 | -11.95 | -5.31 | -6.79 | 319.85 | 309.75 | 314.34 | 308.19 | 290.29 | 290.29 | 276.90 | 270.65 |
| 4 | -11.65 | -12.09 | -7.14 | -4.81 | 435.21 | 437.05 | 432.03 | 428.44 | 406.94 | 403.50 | 391.25 | 385.62 |
| 5 | -14.45 | -15.21 | -11.41 | -3.34 | 549.09 | 551.14 | 541.21 | 538.73 | 516.96 | 515.08 | 496.28 | 485.27 |
| 6 | -18.31 | -17.37 | -9.99 | -4.63 | 657.09 | 661.85 | 650.90 | 646.54 | 619.75 | 622.53 | 593.33 | 583.33 |
| 7 | -19.45 | -20.91 | -12.19 | -4.12 | 760.69 | 767.84 | 755.09 | 755.81 | 720.95 | 721.64 | 687.49 | 676.97 |
| 8 | -20.60 | -22.70 | -13.02 | -7.66 | 871.35 | 874.66 | 867.11 | 861.97 | 821.04 | 821.00 | 784.65 | 772.69 |
| 9 | -25.97 | -28.44 | -16.19 | -10.96 | 990.36 | 975.97 | 968.22 | 966.66 | 914.63 | 915.59 | 873.54 | 859.83 |
| 10 | -31.07 | -34.13 | -19.77 | -13.49 | 1076.61 | 1075.79 | 1068.50 | 1052.38 | 1004.92 | 999.91 | 965.00 | 944.30 |

| CVP3 | SG37T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 27.27 | 25.29 | 15.94 | 33.50 | -50.55 | -32.77 | -21.96 | -20.48 | -5.27 | 1.68 | 1.72 | 29.04 |
| 1 | 66.75 | 67.98 | 79.31 | 113.46 | -75.94 | -59.92 | -58.10 | -69.45 | 8.49 | 11.42 | 15.34 | 61.04 |
| 2 | 104.36 | 105.58 | 104.76 | 102.83 | -104.51 | -88.88 | -87.04 | -74.69 | 17.65 | 19.44 | 14.28 | 30.92 |
| 3 | 141.13 | 146.53 | 137.73 | 132.26 | -132.14 | -119.92 | -120.38 | -109.25 | 26.42 | 28.61 | 20.51 | 22.62 |
| 4 | 179.48 | 184.50 | 166.71 | 172.21 | -167.58 | -160.35 | -160.51 | -167.75 | 25.92 | 31.59 | 24.96 | 27.52 |
| 5 | 219.11 | 226.89 | 212.93 | 185.19 | -205.00 | -202.75 | -201.82 | -184.83 | 23.30 | 31.77 | 24.23 | 34.95 |
| 6 | 262.07 | 271.60 | 208.47 | 238.02 | -240.23 | -244.03 | -241.68 | -238.16 | 26.56 | 36.91 | 28.35 | 19.22 |
| 7 | 307.50 | 318.43 | 277.04 | 277.11 | -274.76 | -283.52 | -282.18 | -279.47 | 35.14 | 43.19 | 32.76 | 27.34 |
| 8 | 353.01 | 366.12 | 331.35 | 324.96 | -319.60 | -324.26 | -323.68 | -311.89 | 43.02 | 53.33 | 45.83 | 41.92 |
| 9 | 402.31 | 416.57 | 379.44 | 368.52 | -383.18 | -363.51 | -362.64 | -353.85 | 55.45 | 63.97 | 49.59 | 51.09 |
| 10 | 452.89 | 467.93 | 416.90 | 414.00 | -418.07 | -401.72 | -401.25 | -384.32 | 65.08 | 80.76 | 58.81 | 69.53 |

| CVP3 | SG37-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -8.76 | -4.02 | -15.32 | -8.53 | -162.61 | -95.42 | -94.88 | -102.83 | -109.93 | -104.90 | -107.78 | -122.21 |
| 1 | 20.62 | 25.73 | 28.71 | 34.77 | -136.76 | -76.15 | -73.63 | -92.55 | -63.49 | -57.96 | -45.94 | -46.79 |
| 2 | 41.18 | 43.33 | 45.23 | 44.86 | -114.37 | -65.65 | -67.21 | -67.21 | -35.01 | -33.70 | -23.75 | -15.06 |
| 3 | 56.39 | 59.66 | 56.61 | 57.52 | -106.81 | -60.35 | -58.38 | -56.40 | -6.02 | -8.71 | -3.41 | -1.28 |
| 4 | 73.30 | 73.98 | 70.00 | 72.41 | -96.36 | -73.58 | -73.77 | -84.31 | 0.17 | -7.06 | -5.22 | -1.83 |
| 5 | 92.04 | 86.84 | 85.79 | 81.95 | -101.50 | -91.03 | -99.12 | -85.58 | -8.98 | -15.16 | -11.12 | -4.19 |
| 6 | 107.80 | 104.28 | 94.07 | 105.26 | -109.76 | -111.19 | -109.61 | -117.69 | -12.68 | -17.91 | -14.97 | -7.88 |
| 7 | 124.85 | 124.10 | 118.64 | 125.42 | -120.59 | -131.57 | -134.37 | -131.27 | -13.59 | -21.42 | -19.69 | -5.82 |
| 8 | 142.68 | 142.27 | 135.46 | 146.00 | -168.66 | -151.40 | -153.08 | -154.03 | -14.28 | -23.44 | -15.10 | -2.75 |
| 9 | 164.88 | 163.93 | 155.16 | 160.68 | -228.15 | -171.95 | -173.99 | -168.71 | -15.04 | -25.83 | -15.47 | -4.24 |
| 10 | 185.47 | 185.99 | 177.00 | 178.15 | -256.59 | -187.01 | -188.86 | -193.68 | -11.71 | -24.50 | -17.31 | -9.01 |

| CVP3 | SG37L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -8.23 | -9.19 | -10.48 | -25.91 | -16.84 | -3.72 | -16.19 | -18.07 | -15.14 | -11.43 | -49.35 | -69.25 |
| 1 | -8.22 | -6.43 | -3.34 | -1.73 | 84.50 | 90.13 | 93.20 | 74.49 | 78.34 | 80.73 | 83.35 | 69.49 |
| 2 | -27.10 | -26.60 | -25.52 | -20.97 | 185.86 | 189.35 | 189.05 | 194.02 | 162.17 | 162.89 | 159.01 | 150.84 |
| 3 | -44.52 | -42.37 | -37.43 | -39.30 | 286.56 | 285.57 | 292.82 | 295.34 | 251.97 | 250.54 | 242.73 | 234.26 |
| 4 | -60.10 | -60.15 | -58.69 | -53.04 | 390.09 | 395.88 | 393.31 | 380.89 | 344.64 | 339.64 | 331.28 | 327.92 |
| 5 | -76.23 | -78.29 | -77.20 | -72.65 | 492.74 | 496.09 | 489.30 | 503.01 | 429.74 | 427.76 | 417.00 | 407.52 |
| 6 | -94.74 | -93.87 | -93.70 | -83.83 | 591.91 | 594.28 | 592.71 | 588.23 | 514.91 | 518.68 | 499.28 | 490.67 |
| 7 | -109.22 | -107.98 | -106.53 | -97.39 | 688.32 | 692.18 | 686.25 | 690.32 | 602.70 | 602.20 | 579.13 | 571.10 |
| 8 | -123.89 | -121.37 | -117.71 | -107.84 | 784.65 | 789.98 | 790.16 | 793.88 | 689.01 | 688.16 | 664.36 | 653.80 |
| 9 | -137.45 | -134.93 | -131.09 | -123.79 | 888.76 | 883.93 | 884.46 | 891.39 | 772.33 | 771.00 | 742.99 | 729.96 |
| 10 | -150.66 | -150.70 | -143.18 | -136.62 | 965.84 | 977.50 | 978.30 | 971.82 | 851.25 | 843.95 | 823.63 | 803.63 |

| CVP3 | SG38T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -0.65 | 3.67 | 9.00 | 16.14 | 5.80 | 5.03 | 10.55 | 19.45 | 8.52 | 8.66 | 32.94 | 48.17 |
| 1 | 65.42 | 66.25 | 73.22 | 75.22 | -33.66 | -30.76 | -28.35 | -26.25 | 41.92 | 42.04 | 47.44 | 56.24 |
| 2 | 147.28 | 149.01 | 149.01 | 145.13 | -69.45 | -65.82 | -64.69 | -62.95 | 88.01 | 88.67 | 90.56 | 94.58 |
| 3 | 227.82 | 228.65 | 226.46 | 220.18 | -107.08 | -102.34 | -107.27 | -106.62 | 133.70 | 137.32 | 135.13 | 140.29 |
| 4 | 307.50 | 308.30 | 299.13 | 295.08 | -146.90 | -143.08 | -143.06 | -145.70 | 178.26 | 182.48 | 180.47 | 184.15 |
| 5 | 385.18 | 385.60 | 385.75 | 365.36 | -183.06 | -179.77 | -176.63 | -175.44 | 222.88 | 227.24 | 223.94 | 230.78 |
| 6 | 462.04 | 463.05 | 452.59 | 452.53 | -217.74 | -216.33 | -215.87 | -219.67 | 267.27 | 272.39 | 267.05 | 273.52 |
| 7 | 538.14 | 539.40 | 532.56 | 521.85 | -253.35 | -250.65 | -249.28 | -255.09 | 312.96 | 317.50 | 312.80 | 317.63 |
| 8 | 614.55 | 615.02 | 602.54 | 594.57 | -289.16 | -286.42 | -287.27 | -291.42 | 358.37 | 362.83 | 359.78 | 373.35 |
| 9 | 690.35 | 691.18 | 679.37 | 665.04 | -332.05 | -318.93 | -320.14 | -327.21 | 404.76 | 408.71 | 403.27 | 410.56 |
| 10 | 766.41 | 769.08 | 759.20 | 736.50 | -360.35 | -353.23 | -357.03 | -355.22 | 442.99 | 457.07 | 449.34 | 463.59 |

| CVP3 | SG38-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -6.36 | -3.99 | 4.11 | 1.59 | -14.27 | -11.77 | -7.05 | -13.76 | -4.24 | -13.21 | -6.90 | 0.66 |
| 1 | 27.43 | 27.78 | 32.76 | 32.07 | 26.68 | 29.91 | 25.46 | 28.29 | 67.20 | 57.11 | 62.32 | 59.79 |
| 2 | 62.13 | 63.76 | 64.89 | 62.36 | 60.47 | 59.12 | 59.98 | 57.67 | 134.98 | 125.44 | 123.09 | 126.99 |
| 3 | 95.36 | 98.28 | 95.74 | 93.02 | 86.56 | 93.27 | 96.15 | 89.62 | 203.10 | 192.67 | 190.64 | 192.36 |
| 4 | 129.90 | 130.05 | 126.77 | 128.46 | 127.87 | 125.40 | 128.29 | 119.91 | 271.73 | 259.88 | 255.83 | 254.79 |
| 5 | 166.64 | 165.13 | 160.01 | 156.01 | 158.72 | 157.34 | 158.95 | 159.39 | 337.69 | 325.78 | 318.78 | 322.94 |
| 6 | 198.57 | 197.82 | 183.89 | 188.87 | 190.85 | 193.55 | 194.54 | 186.20 | 403.75 | 394.46 | 382.11 | 387.18 |
| 7 | 232.34 | 230.51 | 222.62 | 223.01 | 221.52 | 222.93 | 220.44 | 213.01 | 470.59 | 459.79 | 443.69 | 450.05 |
| 8 | 260.27 | 263.01 | 251.78 | 256.99 | 252.76 | 253.58 | 258.45 | 251.38 | 535.69 | 525.15 | 515.11 | 522.87 |
| 9 | 295.53 | 295.70 | 285.23 | 283.99 | 285.39 | 283.90 | 285.82 | 278.56 | 601.01 | 586.85 | 574.97 | 577.90 |
| 10 | 325.31 | 327.50 | 316.81 | 313.02 | 305.25 | 313.99 | 321.26 | 302.38 | 682.62 | 647.02 | 635.01 | 639.40 |

| CVP3 | SG38L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 15.78 | 12.65 | 19.19 | 6.93 | -50.09 | -32.49 | -50.43 | -52.57 | -10.34 | -17.74 | -60.38 | -57.48 |
| 1 | 3.43 | 5.03 | -7.33 | -13.76 | 59.49 | 68.71 | 69.56 | 66.60 | 78.97 | 73.06 | 57.14 | 57.06 |
| 2 | -13.41 | -13.78 | -26.56 | -13.94 | 160.95 | 169.16 | 166.92 | 172.17 | 161.66 | 155.05 | 140.23 | 140.97 |
| 3 | -27.03 | -26.77 | -23.39 | -25.51 | 262.75 | 266.44 | 271.75 | 271.31 | 248.11 | 239.74 | 228.03 | 226.02 |
| 4 | -38.97 | -38.42 | -40.69 | -29.50 | 362.21 | 367.65 | 365.91 | 359.93 | 335.76 | 324.70 | 311.65 | 311.33 |
| 5 | -49.35 | -49.35 | -54.50 | -38.08 | 460.84 | 463.29 | 453.84 | 461.15 | 419.27 | 410.21 | 392.46 | 389.10 |
| 6 | -60.59 | -59.81 | -65.62 | -48.91 | 552.03 | 556.38 | 552.61 | 548.85 | 502.51 | 495.21 | 470.18 | 469.14 |
| 7 | -68.98 | -69.18 | -73.55 | -55.61 | 645.65 | 645.79 | 637.83 | 644.34 | 585.07 | 575.73 | 545.67 | 545.43 |
| 8 | -78.03 | -76.47 | -82.38 | -63.97 | 728.70 | 737.83 | 734.60 | 734.19 | 666.61 | 655.95 | 625.56 | 623.87 |
| 9 | -87.02 | -86.20 | -88.87 | -72.00 | 821.42 | 823.55 | 820.58 | 825.88 | 745.43 | 736.21 | 699.90 | 700.21 |
| 10 | -95.98 | -95.44 | -97.36 | -78.11 | 898.61 | 911.76 | 909.97 | 903.88 | 839.83 | 809.01 | 774.06 | 767.29 |

| CVP3 | SG39T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -50.05 | -48.33 | -51.01 | -33.36 | 0.26 | 1.58 | 4.29 | 12.74 | -51.96 | -46.89 | -33.14 | -39.53 |
| 1 | 41.83 | 42.08 | 42.52 | 50.81 | -27.61 | -26.29 | -28.90 | -32.18 | 12.04 | 12.33 | 14.17 | 17.32 |
| 2 | 128.39 | 128.27 | 129.81 | 133.69 | -56.22 | -54.37 | -56.22 | -41.18 | 67.27 | 66.81 | 68.45 | 79.12 |
| 3 | 210.35 | 210.97 | 210.50 | 206.67 | -83.20 | -82.61 | -83.92 | -73.63 | 117.88 | 118.92 | 119.78 | 123.87 |
| 4 | 289.05 | 289.27 | 280.73 | 283.34 | -112.53 | -113.78 | -112.54 | -120.38 | 162.59 | 165.87 | 166.18 | 174.30 |
| 5 | 364.29 | 365.05 | 367.10 | 351.75 | -141.51 | -142.74 | -140.03 | -123.88 | 203.70 | 207.30 | 207.78 | 219.43 |
| 6 | 438.89 | 439.33 | 429.86 | 435.18 | -168.65 | -171.11 | -168.33 | -165.37 | 243.65 | 248.93 | 247.93 | 261.04 |
| 7 | 511.28 | 510.67 | 504.27 | 500.97 | -197.72 | -199.45 | -196.63 | -194.52 | 285.09 | 288.33 | 289.24 | 299.61 |
| 8 | 580.11 | 580.36 | 570.18 | 572.35 | -224.52 | -227.53 | -225.97 | -216.03 | 324.04 | 328.86 | 331.61 | 349.06 |
| 9 | 649.80 | 650.24 | 641.44 | 637.27 | -254.64 | -254.79 | -253.18 | -245.87 | 365.09 | 367.55 | 368.83 | 383.50 |
| 10 | 717.92 | 719.64 | 712.96 | 701.16 | -279.38 | -281.54 | -279.54 | -264.33 | 401.08 | 410.00 | 410.28 | 430.63 |

| CVP3 | SG39-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -23.67 | -22.30 | -32.69 | -28.56 | -4.49 | 13.28 | 4.54 | 7.36 | -1.71 | -6.57 | -31.28 | -34.44 |
| 1 | 27.49 | 32.08 | 20.21 | 22.68 | 26.13 | 39.87 | 39.40 | 31.24 | 74.11 | 69.92 | 51.79 | 54.46 |
| 2 | 75.89 | 76.98 | 68.06 | 74.57 | 53.41 | 59.85 | 53.54 | 62.37 | 138.15 | 128.94 | 117.39 | 126.58 |
| 3 | 119.96 | 121.93 | 118.15 | 121.53 | 69.59 | 81.53 | 84.30 | 91.43 | 209.05 | 198.40 | 192.67 | 196.16 |
| 4 | 163.97 | 166.20 | 161.09 | 173.16 | 101.49 | 101.36 | 103.78 | 93.17 | 278.57 | 265.82 | 257.34 | 263.52 |
| 5 | 209.50 | 209.38 | 209.85 | 216.00 | 127.07 | 129.96 | 118.79 | 139.92 | 345.51 | 333.16 | 322.41 | 330.55 |
| 6 | 250.67 | 250.99 | 239.81 | 264.85 | 152.61 | 157.58 | 159.12 | 155.17 | 415.55 | 403.97 | 387.05 | 397.51 |
| 7 | 292.01 | 293.65 | 289.15 | 309.46 | 182.82 | 182.15 | 180.16 | 188.14 | 484.10 | 471.29 | 448.79 | 465.00 |
| 8 | 331.31 | 332.86 | 324.67 | 350.26 | 198.87 | 209.73 | 208.31 | 215.87 | 552.35 | 535.94 | 520.70 | 538.98 |
| 9 | 371.35 | 373.09 | 364.04 | 386.17 | 227.57 | 232.85 | 232.80 | 244.02 | 617.28 | 600.96 | 582.27 | 597.01 |
| 10 | 409.46 | 414.10 | 404.04 | 423.54 | 245.78 | 263.42 | 262.19 | 268.68 | 700.01 | 664.10 | 640.18 | 653.30 |

| CVP3 | SG39L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -7.16 | -8.51 | 1.27 | -16.25 | -7.03 | -8.17 | -19.76 | -16.40 | -23.01 | -26.69 | -49.08 | -55.18 |
| 1 | -8.43 | -9.14 | -8.11 | -17.03 | 81.93 | 76.01 | 84.98 | 72.94 | 63.36 | 62.58 | 58.24 | 48.66 |
| 2 | -7.79 | -7.87 | -11.36 | -12.09 | 171.49 | 164.98 | 166.71 | 164.44 | 150.59 | 148.83 | 139.91 | 131.93 |
| 3 | -7.29 | -7.59 | -1.80 | -4.35 | 256.99 | 246.89 | 253.04 | 251.14 | 236.26 | 234.41 | 226.87 | 223.94 |
| 4 | -4.96 | -4.20 | 0.17 | 3.80 | 342.14 | 340.83 | 339.67 | 332.75 | 324.98 | 319.46 | 314.21 | 309.39 |
| 5 | -4.26 | -5.16 | -1.02 | 9.52 | 429.38 | 427.15 | 422.38 | 423.31 | 410.02 | 405.28 | 397.45 | 389.29 |
| 6 | -6.42 | -5.53 | 0.26 | 12.45 | 511.81 | 512.11 | 510.41 | 505.42 | 493.26 | 491.01 | 476.01 | 469.47 |
| 7 | -8.53 | -6.81 | 0.12 | 11.98 | 597.49 | 596.79 | 591.23 | 592.41 | 573.40 | 570.77 | 552.41 | 547.67 |
| 8 | -8.43 | -7.54 | 0.39 | 9.06 | 682.69 | 681.03 | 680.78 | 679.28 | 653.08 | 649.48 | 632.13 | 625.71 |
| 9 | -11.77 | -11.61 | -1.11 | 6.27 | 778.06 | 761.85 | 764.06 | 761.01 | 729.17 | 726.00 | 704.40 | 695.61 |
| 10 | -15.94 | -15.96 | -2.81 | 7.01 | 851.83 | 842.83 | 844.38 | 833.65 | 807.57 | 795.28 | 778.72 | 764.57 |

| CVP3 | SG40T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 4.14 | 6.83 | 0.51 | 4.88 | -6.29 | -4.06 | 6.78 | 0.81 | -10.94 | -4.67 | 2.72 | -4.69 |
| 1 | 60.71 | 62.10 | 63.27 | 59.68 | -19.65 | -17.28 | -17.07 | -21.51 | 30.64 | 33.62 | 37.31 | 36.12 |
| 2 | 112.20 | 112.66 | 113.56 | 109.82 | -35.01 | -32.56 | -30.91 | -24.39 | 66.67 | 68.57 | 72.26 | 78.83 |
| 3 | 160.95 | 163.12 | 161.11 | 154.06 | -48.28 | -43.37 | -45.01 | -41.30 | 102.77 | 102.16 | 103.25 | 100.57 |
| 4 | 209.19 | 210.83 | 202.81 | 200.26 | -63.60 | -60.65 | -61.23 | -66.14 | 135.58 | 138.96 | 136.53 | 138.84 |
| 5 | 258.80 | 262.15 | 260.42 | 244.07 | -79.15 | -75.06 | -74.54 | -65.96 | 166.60 | 172.75 | 169.53 | 170.59 |
| 6 | 311.06 | 314.47 | 304.25 | 303.88 | -90.82 | -88.97 | -89.08 | -91.71 | 200.31 | 207.29 | 202.51 | 202.53 |
| 7 | 364.90 | 366.51 | 359.62 | 352.52 | -106.04 | -103.33 | -104.72 | -108.86 | 235.58 | 240.19 | 235.56 | 234.24 |
| 8 | 416.30 | 420.08 | 407.81 | 402.93 | -120.18 | -117.42 | -120.90 | -118.43 | 269.17 | 275.51 | 272.71 | 273.06 |
| 9 | 470.97 | 475.72 | 464.52 | 452.39 | -142.94 | -133.32 | -136.40 | -134.66 | 305.32 | 308.68 | 305.02 | 303.02 |
| 10 | 526.05 | 532.30 | 522.19 | 501.65 | -158.72 | -149.25 | -149.54 | -145.77 | 336.89 | 345.52 | 341.68 | 342.16 |

| CVP3 | SG40-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 15.51 | 16.25 | 3.88 | -3.64 | -3.84 | 12.19 | 9.53 | 0.11 | 34.79 | 32.03 | 7.17 | -2.54 |
| 1 | 37.23 | 42.55 | 30.72 | 22.66 | 37.42 | 49.62 | 50.59 | 41.01 | 92.13 | 89.72 | 76.72 | 73.40 |
| 2 | 54.77 | 55.69 | 45.88 | 44.93 | 74.31 | 80.49 | 75.45 | 78.59 | 138.87 | 131.56 | 123.07 | 129.63 |
| 3 | 69.38 | 71.75 | 66.14 | 64.29 | 102.05 | 114.64 | 117.77 | 120.57 | 196.37 | 184.13 | 179.52 | 175.08 |
| 4 | 84.90 | 86.37 | 81.26 | 86.00 | 144.05 | 146.22 | 147.52 | 137.95 | 254.85 | 241.65 | 232.04 | 231.70 |
| 5 | 105.35 | 106.99 | 102.85 | 104.80 | 180.95 | 186.57 | 173.83 | 189.96 | 312.50 | 301.18 | 288.44 | 286.07 |
| 6 | 124.89 | 127.11 | 112.85 | 129.97 | 218.33 | 225.86 | 226.19 | 217.86 | 376.07 | 365.86 | 346.71 | 343.98 |
| 7 | 148.10 | 149.53 | 141.55 | 155.35 | 259.59 | 262.17 | 257.25 | 260.09 | 439.39 | 426.81 | 400.92 | 404.68 |
| 8 | 169.26 | 171.44 | 159.24 | 173.78 | 287.56 | 301.61 | 296.83 | 298.76 | 502.98 | 487.34 | 468.65 | 468.80 |
| 9 | 194.12 | 197.05 | 183.15 | 191.88 | 326.27 | 334.45 | 331.73 | 338.78 | 564.76 | 547.51 | 526.57 | 523.33 |
| 10 | 217.65 | 223.50 | 208.74 | 213.94 | 352.05 | 374.88 | 373.07 | 371.00 | 643.70 | 606.67 | 582.26 | 573.83 |

| CVP3 | SG40L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 12.88 | 12.32 | 14.46 | -6.62 | 8.12 | 7.24 | 1.49 | -3.91 | 21.02 | 22.88 | -2.53 | -15.10 |
| 1 | -3.75 | -3.03 | -3.26 | -19.77 | 87.61 | 82.53 | 90.09 | 77.23 | 81.52 | 84.27 | 81.70 | 68.58 |
| 2 | -24.95 | -23.68 | -26.64 | -34.57 | 166.76 | 162.97 | 165.59 | 162.33 | 143.66 | 145.71 | 140.15 | 131.62 |
| 3 | -45.42 | -44.15 | -40.16 | -47.17 | 246.23 | 239.74 | 245.37 | 242.35 | 209.43 | 207.65 | 202.32 | 193.01 |
| 4 | -64.25 | -63.71 | -60.44 | -62.34 | 324.26 | 326.89 | 325.39 | 318.43 | 278.93 | 276.37 | 271.32 | 263.02 |
| 5 | -83.25 | -81.25 | -81.64 | -76.04 | 405.45 | 408.58 | 403.81 | 405.54 | 346.85 | 347.46 | 340.01 | 324.74 |
| 6 | -101.53 | -97.71 | -95.70 | -91.03 | 484.48 | 489.78 | 488.90 | 480.95 | 418.17 | 420.61 | 406.74 | 390.93 |
| 7 | -116.89 | -114.14 | -111.24 | -107.10 | 565.24 | 571.43 | 566.24 | 563.65 | 487.39 | 489.11 | 472.15 | 457.88 |
| 8 | -131.32 | -127.85 | -124.76 | -126.10 | 647.17 | 653.67 | 652.95 | 650.56 | 557.80 | 559.54 | 543.41 | 523.35 |
| 9 | -146.13 | -142.31 | -136.81 | -141.09 | 739.10 | 731.45 | 734.52 | 730.30 | 627.13 | 628.19 | 608.52 | 587.04 |
| 10 | -160.01 | -156.74 | -149.61 | -152.59 | 808.81 | 810.75 | 811.07 | 798.28 | 696.26 | 691.06 | 677.77 | 648.94 |

| CVP4 | SG1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 92.16 | 245.67 | 284.32 | 244.97 | -105.86 | -26.19 | -146.64 | -0.83 | 126.32 | 106.43 | 197.84 | 228.15 |
| 1 | 79.82 | 141.86 | 164.87 | 155.24 | -94.07 | -35.41 | -95.57 | -24.78 | 42.09 | 58.49 | 30.98 | 112.04 |
| 2 | 106.55 | 171.91 | 149.55 | 117.28 | -106.23 | -60.67 | -58.17 | -180.50 | 7.26 | 7.98 | -50.51 | 19.14 |
| 3 | 219.87 | 227.41 | 196.15 | 179.02 | -119.68 | -100.30 | -99.63 | -84.49 | 61.07 | 56.47 | 31.18 | 50.84 |
| 4 | 270.18 | 312.19 | 242.47 | 292.21 | -131.67 | -126.47 | -106.27 | -217.93 | 136.09 | 108.09 | 62.29 | 99.52 |
| 5 | 333.75 | 372.87 | 333.70 | 351.35 | -168.72 | -147.30 | -155.49 | -213.32 | 141.24 | 161.73 | 120.75 | 144.31 |
| 6 | 393.24 | 446.25 | 418.50 | 426.41 | -205.19 | -174.79 | -183.70 | -226.58 | 189.36 | 168.00 | 118.17 | 196.10 |
| 7 | 483.25 | 544.86 | 509.57 | 510.46 | -220.32 | -201.51 | -220.76 | -332.00 | 208.52 | 172.81 | 121.85 | 180.80 |
| 8 | 540.56 | 585.41 | 534.14 | 557.65 | -285.93 | -229.91 | -258.55 | -246.13 | 218.86 | 216.84 | 157.28 | 210.13 |
| 9 | 617.73 | 715.43 | 578.02 | 619.22 | -318.21 | -288.01 | -257.10 | -386.04 | 246.49 | 254.11 | 155.01 | 237.96 |
| 10 | 688.74 | 745.80 | 658.59 | 679.43 | -349.18 | -309.88 | -309.61 | -427.83 | 290.56 | 247.64 | 163.36 | 239.60 |

| CVP4 | SG2 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 118.49 | 302.82 | 343.83 | 293.29 | -163.12 | -44.25 | -183.27 | -31.21 | 160.03 | 124.66 | 214.31 | 312.03 |
| 1 | 113.21 | 164.34 | 183.62 | 177.52 | -146.31 | -67.48 | -136.15 | -63.09 | 41.24 | 80.08 | 11.66 | 135.82 |
| 2 | 135.07 | 201.96 | 176.22 | 113.15 | -158.97 | -99.88 | -91.41 | -291.12 | -19.12 | -10.13 | -100.64 | 6.12 |
| 3 | 260.77 | 274.47 | 224.49 | 203.56 | -195.98 | -171.60 | -161.28 | -148.98 | 34.17 | 27.72 | -18.93 | 18.48 |
| 4 | 331.94 | 370.89 | 279.67 | 327.09 | -221.89 | -217.03 | -197.32 | -353.79 | 103.86 | 64.59 | 15.32 | 63.51 |
| 5 | 414.04 | 441.30 | 395.61 | 401.72 | -285.45 | -255.02 | -259.59 | -356.17 | 95.34 | 123.42 | 58.85 | 97.44 |
| 6 | 486.99 | 526.67 | 504.02 | 494.12 | -346.01 | -306.96 | -312.04 | -371.22 | 142.52 | 114.34 | 48.71 | 150.94 |
| 7 | 591.02 | 644.27 | 606.34 | 594.22 | -373.83 | -357.13 | -369.52 | -557.01 | 151.92 | 103.91 | 38.23 | 116.97 |
| 8 | 661.06 | 696.45 | 627.06 | 642.15 | -475.85 | -401.23 | -433.99 | -421.10 | 148.10 | 138.90 | 68.64 | 136.75 |
| 9 | 760.54 | 857.65 | 672.23 | 705.94 | -538.56 | -490.00 | -444.70 | -651.01 | 163.72 | 170.99 | 42.05 | 152.61 |
| 10 | 835.98 | 884.33 | 772.17 | 770.95 | -580.73 | -538.51 | -525.64 | -704.79 | 209.58 | 153.70 | 22.91 | 146.70 |

| CVP4 | SG3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 82.08 | 203.79 | 218.65 | 299.77 | -175.04 | -56.82 | -207.88 | -39.18 | 35.04 | -5.70 | -2.69 | 291.83 |
| 1 | 86.25 | 107.82 | 185.97 | 102.61 | -64.06 | 6.82 | -77.44 | 37.58 | 42.31 | 119.58 | -4.16 | 180.74 |
| 2 | 138.96 | 156.48 | 142.04 | 96.97 | 67.08 | 127.81 | 48.19 | -94.35 | 134.39 | 160.12 | 7.46 | 154.17 |
| 3 | 303.17 | 290.16 | 261.83 | 197.37 | 85.80 | 104.55 | 98.77 | 124.85 | 349.39 | 359.13 | 244.53 | 320.44 |
| 4 | 406.67 | 439.13 | 338.46 | 369.20 | 190.96 | 177.82 | 142.33 | 48.29 | 562.35 | 522.16 | 433.80 | 527.22 |
| 5 | 515.52 | 534.58 | 466.36 | 481.39 | 183.58 | 230.43 | 219.28 | 137.98 | 719.36 | 733.09 | 595.18 | 716.05 |
| 6 | 614.39 | 629.47 | 594.84 | 559.13 | 250.01 | 275.86 | 251.21 | 275.26 | 884.45 | 852.15 | 686.93 | 866.78 |
| 7 | 720.01 | 753.86 | 715.74 | 709.18 | 332.31 | 305.20 | 277.30 | 123.02 | 1020.96 | 971.91 | 777.55 | 951.32 |
| 8 | 809.87 | 833.78 | 780.22 | 748.68 | 309.43 | 382.20 | 318.45 | 366.27 | 1110.37 | 1115.28 | 928.28 | 1082.09 |
| 9 | 921.65 | 992.22 | 808.28 | 794.45 | 348.39 | 389.98 | 330.87 | 196.87 | 1226.37 | 1237.30 | 959.83 | 1192.11 |
| 10 | 1019.69 | 1015.79 | 896.52 | 842.74 | 390.09 | 408.72 | 384.69 | 307.18 | 1356.40 | 1304.94 | 1014.86 | 1276.34 |

| CVP4 | SG4 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 118.39 | 187.67 | 291.01 | 269.32 | -220.95 | -78.75 | -132.62 | -66.52 | 59.15 | -25.16 | 51.37 | 247.87 |
| 1 | 107.18 | 102.39 | 173.66 | 88.32 | -88.30 | -40.04 | -58.81 | -40.03 | 21.11 | 20.12 | -29.22 | 79.06 |
| 2 | 141.70 | 158.57 | 173.60 | 83.07 | -53.11 | 9.25 | 5.50 | -129.29 | 46.26 | 48.98 | -56.09 | 61.60 |
| 3 | 259.76 | 248.73 | 230.67 | 187.31 | -32.30 | -8.90 | 10.45 | -1.08 | 159.66 | 161.50 | 87.89 | 149.71 |
| 4 | 340.90 | 373.44 | 296.54 | 308.11 | -8.12 | 20.72 | 25.60 | -97.56 | 283.76 | 251.56 | 201.57 | 260.59 |
| 5 | 435.62 | 446.92 | 401.99 | 402.43 | -20.23 | 33.48 | 29.00 | -52.09 | 351.17 | 373.80 | 283.47 | 356.57 |
| 6 | 511.67 | 520.09 | 514.27 | 483.73 | -19.27 | 44.69 | 36.92 | -11.61 | 442.85 | 422.13 | 321.71 | 446.92 |
| 7 | 614.69 | 626.08 | 617.84 | 596.23 | 3.44 | 41.74 | 46.72 | -117.64 | 504.50 | 466.07 | 355.77 | 467.92 |
| 8 | 682.72 | 689.43 | 660.56 | 633.54 | -41.42 | 68.93 | 41.41 | 9.08 | 538.76 | 542.66 | 437.60 | 537.91 |
| 9 | 781.19 | 838.21 | 696.59 | 682.19 | -54.09 | 32.21 | 48.62 | -129.62 | 590.50 | 607.72 | 429.42 | 590.62 |
| 10 | 860.00 | 859.85 | 790.64 | 734.56 | -43.31 | 28.41 | 55.09 | -106.17 | 668.13 | 624.63 | 445.71 | 626.31 |

| CVP4 | SG5 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 362.78 | 184.50 | 313.32 | 193.86 | -257.50 | -47.56 | -168.85 | -57.13 | -96.78 | -12.13 | 230.31 | 481.92 |
| 1 | 328.73 | 56.48 | 162.89 | 139.10 | -250.60 | -74.73 | -131.79 | -71.95 | -210.06 | -39.90 | 60.71 | 326.28 |
| 2 | 377.72 | 150.51 | 171.02 | 65.87 | -261.27 | -97.66 | -84.59 | -296.61 | -226.40 | -102.57 | -40.33 | 176.69 |
| 3 | 559.89 | 299.67 | 213.91 | 193.76 | -318.80 | -172.47 | -156.75 | -140.71 | -10.64 | 39.26 | 31.98 | 187.56 |
| 4 | 1141.06 | 412.44 | 269.25 | 300.59 | -251.94 | -216.89 | -202.74 | -346.35 | 154.95 | 122.21 | 72.19 | 246.45 |
| 5 | 1674.97 | 536.97 | 382.82 | 380.21 | -380.23 | -255.21 | -254.02 | -347.47 | 200.45 | 260.04 | 109.00 | 315.89 |
| 6 | 1952.06 | 654.21 | 492.09 | 474.35 | -474.66 | -309.58 | -306.60 | -346.80 | 229.74 | 255.76 | 115.12 | 451.98 |
| 7 | 2307.32 | 745.15 | 585.37 | 582.27 | -577.34 | -361.22 | -362.57 | -540.87 | 194.40 | 245.32 | 105.99 | 459.07 |
| 8 | 2576.88 | 834.80 | 605.87 | 583.24 | -685.69 | -402.05 | -426.97 | -392.31 | 230.25 | 168.99 | 138.99 | 566.38 |
| 9 | 2581.83 | 986.74 | 647.55 | 606.77 | -752.35 | -488.52 | -444.40 | -633.37 | 251.90 | 298.25 | 130.39 | 608.32 |
| 10 | 2659.74 | 1014.47 | 744.26 | 770.78 | -792.82 | -542.37 | -518.85 | -679.75 | 261.42 | 357.20 | 183.61 | 617.63 |

| CVP4 | SG6 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 13.93 | 18.58 | 5.71 | 15.15 | -14.67 | -6.41 | -3.42 | -9.71 | 9.03 | 3.54 | -1.24 | 6.21 |
| 1 | 49.13 | 48.90 | 43.96 | 50.94 | -23.24 | -18.80 | -14.80 | -20.86 | 29.53 | 34.19 | 19.58 | 33.34 |
| 2 | 87.63 | 89.26 | 81.74 | 85.95 | -31.66 | -29.35 | -24.20 | -37.71 | 53.85 | 54.32 | 42.21 | 55.91 |
| 3 | 133.12 | 132.76 | 123.93 | 129.98 | -46.22 | -44.41 | -39.46 | -43.56 | 83.93 | 84.13 | 74.84 | 86.86 |
| 4 | 175.67 | 176.59 | 168.55 | 175.32 | -58.75 | -59.38 | -55.62 | -63.66 | 113.59 | 111.42 | 106.70 | 116.36 |
| 5 | 219.87 | 219.01 | 213.13 | 219.90 | -73.96 | -72.52 | -68.79 | -75.44 | 140.11 | 143.10 | 139.51 | 146.77 |
| 6 | 263.51 | 262.14 | 258.84 | 265.43 | -88.82 | -87.41 | -82.10 | -86.72 | 170.91 | 169.45 | 150.38 | 178.64 |
| 7 | 307.05 | 307.27 | 303.43 | 310.95 | -100.72 | -102.98 | -95.68 | -109.66 | 197.24 | 194.73 | 176.58 | 205.72 |
| 8 | 351.82 | 349.10 | 345.85 | 352.59 | -120.57 | -116.17 | -110.46 | -115.06 | 225.45 | 225.82 | 209.74 | 233.75 |
| 9 | 396.55 | 398.90 | 386.40 | 394.79 | -136.47 | -133.46 | -121.77 | -139.49 | 251.41 | 254.06 | 233.66 | 263.42 |
| 10 | 440.62 | 439.04 | 416.63 | 437.50 | -147.39 | -146.64 | -136.29 | -149.96 | 283.50 | 280.95 | 262.82 | 292.33 |

| CVP4 | SG7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | | | 468.80 | | | | -150.35 | 45916.87 | | | 314.55 | |
| 1 | | | 330.64 | | | | -112.65 | 13540.93 | | | 188.49 | |
| 2 | | | 330.59 | | | | -76.37 | -1201.30 | | | 73.32 | |
| 3 | | | 350.70 | | | | -134.15 | -12112.52 | | | 119.15 | |
| 4 | | | 387.03 | | | | -152.98 | -16622.83 | | | 154.52 | |
| 5 | | | 492.54 | | | | -200.70 | -23258.74 | | | 217.17 | |
| 6 | | | 585.43 | | | | -259.94 | -28753.48 | | | 240.65 | |
| 7 | | | 660.56 | | | | -301.16 | -32658.94 | | | 263.73 | |
| 8 | | | 668.51 | | | | -359.70 | -30837.74 | | | 289.18 | |
| 9 | | | 713.08 | | | | -342.63 | -35891.86 | | | 468.54 | |
| 10 | | | 1198.51 | | | | -427.43 | -46946.56 | | | 344.80 | |

| CVP4 | SG8 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 109.47 | 234.28 | 218.80 | 236.15 | -118.70 | -33.58 | -106.50 | -27.15 | 149.79 | 105.28 | 122.48 | 246.23 |
| 1 | 112.45 | 135.61 | 116.40 | 151.73 | -104.74 | -57.87 | -86.99 | -46.65 | 66.62 | 100.84 | 21.27 | 127.71 |
| 2 | 119.09 | 161.39 | 133.93 | 98.77 | -90.00 | -65.97 | -45.43 | -216.72 | 26.87 | 26.49 | -45.97 | 37.88 |
| 3 | 200.08 | 217.35 | 165.81 | 172.71 | -126.82 | -118.98 | -100.25 | -100.61 | 72.47 | 52.26 | 9.40 | 48.94 |
| 4 | 263.37 | 285.10 | 213.46 | 245.18 | -145.97 | -149.15 | -141.24 | -255.28 | 112.94 | 78.02 | 52.14 | 87.21 |
| 5 | 334.02 | 346.21 | 300.01 | 307.01 | -190.16 | -174.20 | -167.74 | -253.46 | 112.81 | 136.95 | 85.70 | 121.08 |
| 6 | 388.47 | 403.65 | 388.55 | 399.61 | -228.41 | -213.26 | -200.73 | -249.35 | 152.31 | 136.22 | 102.86 | 168.94 |
| 7 | 465.79 | 492.00 | 456.38 | 476.91 | -242.42 | -250.06 | -237.93 | -401.67 | 193.22 | 136.94 | 103.67 | 163.05 |
| 8 | 522.47 | 542.80 | 479.76 | 512.25 | -309.41 | -273.65 | -282.96 | -284.98 | 197.63 | 172.30 | 140.66 | 182.20 |
| 9 | 606.35 | 668.75 | 513.12 | 558.63 | -354.35 | -333.33 | -299.40 | -465.43 | 212.36 | 203.96 | 119.46 | 202.08 |
| 10 | 656.44 | 687.12 | 579.67 | 606.45 | -381.59 | -375.19 | -341.43 | -493.04 | 263.16 | 206.17 | 103.10 | 216.06 |

| CVP4 | SG9 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 23.77 | 31.69 | 18.79 | 25.94 | -19.98 | -7.32 | -9.62 | -12.33 | 21.19 | 15.62 | 9.11 | 23.28 |
| 1 | 57.14 | 56.44 | 52.34 | 56.66 | -27.60 | -21.90 | -20.05 | -21.94 | 37.85 | 46.50 | 28.54 | 45.66 |
| 2 | 94.56 | 96.82 | 92.08 | 88.22 | -31.60 | -30.62 | -24.93 | -45.69 | 61.89 | 63.07 | 49.63 | 64.77 |
| 3 | 142.80 | 143.25 | 134.62 | 138.43 | -48.35 | -47.47 | -42.67 | -44.35 | 95.76 | 95.52 | 83.79 | 97.48 |
| 4 | 189.44 | 189.85 | 181.99 | 184.07 | -61.37 | -62.73 | -61.17 | -71.18 | 128.66 | 125.71 | 119.04 | 129.70 |
| 5 | 237.23 | 236.03 | 230.07 | 231.68 | -77.34 | -76.22 | -73.02 | -82.20 | 159.52 | 163.08 | 154.44 | 164.31 |
| 6 | 283.06 | 280.98 | 279.54 | 280.52 | -92.74 | -92.30 | -87.28 | -90.31 | 193.96 | 191.05 | 175.07 | 199.51 |
| 7 | 330.73 | 330.11 | 326.39 | 330.27 | -104.47 | -108.62 | -102.17 | -120.48 | 224.40 | 218.82 | 204.18 | 230.25 |
| 8 | 377.98 | 375.39 | 370.91 | 372.54 | -125.28 | -121.88 | -119.15 | -119.21 | 256.07 | 255.36 | 241.18 | 261.09 |
| 9 | 428.51 | 430.85 | 412.45 | 417.30 | -142.19 | -140.68 | -132.38 | -151.06 | 284.89 | 287.43 | 264.58 | 294.23 |
| 10 | 473.30 | 471.61 | 454.64 | 462.11 | -154.46 | -155.82 | -146.22 | -160.90 | 322.94 | 318.52 | 292.74 | 327.29 |

| CVP4 | SG10 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -14.01 | -3.65 | -13.81 | -15.13 | -31.13 | -18.48 | -30.89 | -14.97 | -16.61 | -18.99 | -24.34 | 5.55 |
| 1 | -13.22 | -13.06 | -16.67 | -30.72 | 21.61 | 30.97 | 18.47 | 24.92 | 25.40 | 32.86 | 14.83 | 37.14 |
| 2 | -18.15 | -24.86 | -30.46 | -39.03 | 67.30 | 77.00 | 66.07 | 56.41 | 60.96 | 56.53 | 41.81 | 64.41 |
| 3 | -31.92 | -38.20 | -41.56 | -47.42 | 98.42 | 101.54 | 100.03 | 109.43 | 95.24 | 89.14 | 79.52 | 96.31 |
| 4 | -40.77 | -48.75 | -53.76 | -55.00 | 142.88 | 139.90 | 132.87 | 128.65 | 127.14 | 119.05 | 114.18 | 131.02 |
| 5 | -50.32 | -63.48 | -60.39 | -66.79 | 168.90 | 177.37 | 169.20 | 166.09 | 158.68 | 150.03 | 145.37 | 161.83 |
| 6 | -63.77 | -75.16 | -65.93 | -77.04 | 207.07 | 211.91 | 198.35 | 216.06 | 193.02 | 179.00 | 177.29 | 196.50 |
| 7 | -72.10 | -85.80 | -80.41 | -86.36 | 244.71 | 245.28 | 229.78 | 230.63 | 224.73 | 209.48 | 206.67 | 227.50 |
| 8 | -85.10 | -96.41 | -94.82 | -103.06 | 274.60 | 288.30 | 262.24 | 281.76 | 255.56 | 237.47 | 237.47 | 260.91 |
| 9 | -92.75 | -107.77 | -114.70 | -124.60 | 305.61 | 313.43 | 300.31 | 300.97 | 287.27 | 271.09 | 258.27 | 292.65 |
| 10 | -103.32 | -129.21 | -129.05 | -143.17 | 343.62 | 346.18 | 334.73 | 345.18 | 317.74 | 296.90 | 278.44 | 324.17 |

| CVP4 | SG11 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -6.43 | -6.93 | -8.06 | -7.89 | -2.02 | -2.62 | 0.44 | 3.09 | -9.55 | -6.03 | -9.80 | -1.01 |
| 1 | -4.86 | -9.10 | -9.07 | -12.36 | 40.01 | 40.57 | 41.11 | 42.17 | 33.31 | 36.13 | 30.17 | 36.10 |
| 2 | -10.77 | -14.37 | -12.90 | -15.54 | 88.76 | 87.65 | 83.09 | 93.01 | 73.22 | 73.00 | 69.40 | 77.51 |
| 3 | -21.75 | -21.29 | -23.43 | -21.45 | 134.03 | 133.52 | 130.38 | 133.79 | 111.87 | 110.39 | 105.70 | 111.54 |
| 4 | -29.23 | -32.87 | -33.31 | -36.91 | 183.59 | 181.17 | 176.48 | 185.71 | 144.85 | 147.61 | 143.78 | 149.88 |
| 5 | -37.99 | -40.81 | -39.40 | -41.62 | 229.39 | 226.61 | 225.93 | 231.28 | 184.93 | 185.79 | 178.23 | 184.49 |
| 6 | -43.34 | -50.37 | -45.58 | -50.85 | 275.68 | 273.93 | 270.42 | 277.77 | 220.79 | 222.71 | 216.45 | 221.76 |
| 7 | -52.53 | -58.95 | -57.35 | -57.08 | 320.75 | 320.05 | 313.53 | 324.83 | 258.97 | 261.36 | 252.88 | 260.34 |
| 8 | -59.31 | -63.38 | -63.54 | -66.40 | 366.52 | 365.32 | 357.44 | 369.53 | 296.66 | 295.98 | 288.11 | 296.74 |
| 9 | -66.55 | -72.66 | -71.62 | -74.89 | 412.15 | 407.83 | 397.41 | 414.43 | 332.25 | 332.97 | 321.46 | 333.30 |
| 10 | -73.25 | -78.66 | -79.51 | -82.41 | 453.86 | 449.79 | 444.55 | 456.98 | 367.18 | 369.86 | 356.43 | 372.40 |

| CVP4 | SG12 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -1.00 | 1.65 | -3.56 | 1.00 | 5.65 | 7.23 | 4.87 | 21.85 | -2.32 | -1.43 | -9.65 | 7.79 |
| 1 | 1.86 | -4.72 | -2.73 | -7.16 | 70.61 | 72.82 | 67.90 | 79.17 | 66.58 | 69.59 | 54.38 | 69.74 |
| 2 | -4.19 | -4.86 | -7.39 | -7.30 | 149.07 | 153.44 | 142.69 | 156.86 | 138.10 | 136.46 | 127.95 | 142.82 |
| 3 | -8.07 | -8.50 | -11.55 | -11.13 | 224.97 | 226.41 | 216.95 | 227.04 | 212.12 | 207.65 | 192.07 | 211.87 |
| 4 | -12.68 | -10.77 | -18.19 | -17.35 | 306.29 | 303.13 | 290.41 | 307.27 | 276.85 | 281.22 | 265.94 | 282.73 |
| 5 | -16.83 | -15.01 | -18.60 | -18.60 | 380.02 | 378.85 | 361.78 | 380.48 | 348.48 | 349.98 | 335.16 | 351.87 |
| 6 | -20.24 | -20.55 | -20.86 | -23.02 | 455.41 | 455.70 | 431.89 | 459.57 | 417.69 | 417.60 | 397.06 | 422.73 |
| 7 | -23.00 | -21.65 | -28.15 | -23.95 | 533.72 | 534.90 | 504.56 | 536.91 | 489.18 | 488.93 | 465.25 | 491.87 |
| 8 | -27.06 | -24.05 | -28.94 | -29.16 | 612.02 | 612.74 | 577.25 | 612.60 | 559.06 | 558.47 | 528.59 | 562.41 |
| 9 | -27.94 | -25.11 | -34.38 | -34.32 | 685.05 | 684.18 | 647.88 | 686.32 | 628.14 | 628.75 | 593.65 | 634.83 |
| 10 | -30.84 | -30.19 | -41.07 | -39.90 | 756.21 | 754.25 | 725.77 | 762.55 | 698.40 | 697.60 | 658.27 | 705.84 |

| CVP4 | SG13 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -5.59 | 33.72 | 10.83 | 11.33 | -28.77 | -15.03 | -27.36 | -0.35 | -14.51 | -8.63 | -16.80 | -4.88 |
| 1 | -1.69 | 14.18 | 10.00 | 6.04 | 76.35 | 84.60 | 82.85 | 91.81 | 86.71 | 100.13 | 79.35 | 102.40 |
| 2 | 1.07 | 17.63 | 9.49 | 4.61 | 195.71 | 201.64 | 194.42 | 195.49 | 189.04 | 188.60 | 184.92 | 199.34 |
| 3 | 12.62 | 15.19 | 10.26 | 6.36 | 303.48 | 305.65 | 297.03 | 308.91 | 306.87 | 299.95 | 291.78 | 305.18 |
| 4 | 10.41 | 18.68 | 9.31 | 7.94 | 423.75 | 413.98 | 407.65 | 412.62 | 410.00 | 413.70 | 398.71 | 414.70 |
| 5 | 9.35 | 22.01 | 16.30 | 12.67 | 524.38 | 522.37 | 511.24 | 521.96 | 515.78 | 521.13 | 509.14 | 522.78 |
| 6 | 11.74 | 22.70 | 25.38 | 14.02 | 630.23 | 627.90 | 613.68 | 632.97 | 618.34 | 619.16 | 607.35 | 628.66 |
| 7 | 18.94 | 31.08 | 24.92 | 22.58 | 736.41 | 734.15 | 713.04 | 733.00 | 723.28 | 720.29 | 708.49 | 729.07 |
| 8 | 18.52 | 34.72 | 28.61 | 20.14 | 839.75 | 840.20 | 813.40 | 844.36 | 823.59 | 824.15 | 805.16 | 830.13 |
| 9 | 21.33 | 44.82 | 27.60 | 21.39 | 942.27 | 932.63 | 907.95 | 935.65 | 924.64 | 928.27 | 899.50 | 933.69 |
| 10 | 30.68 | 43.61 | 32.29 | 21.56 | 1037.70 | 1032.00 | 1013.97 | 1034.55 | 1026.82 | 1022.51 | 996.63 | 1034.19 |

| CVP4 | SG14 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -7.54 | -11.83 | -414.78 | 868.01 | -12.70 | -7.39 | -5.48 | -37.13 | -323.22 | -430.42 | -523.13 | -331.64 |
| 1 | -124.41 | -28.62 | -410.31 | 814.90 | 73.17 | 99.99 | 96.14 | 88.82 | -220.20 | -290.37 | -356.63 | -277.78 |
| 2 | -66.51 | -1.22 | -420.40 | 811.34 | 189.18 | 224.75 | 201.52 | 193.21 | -99.98 | -170.80 | -93.42 | 22.18 |
| 3 | -105.50 | 110.59 | -371.89 | 341.77 | 308.78 | 339.24 | 323.00 | 278.09 | 118.14 | -19.69 | 145.69 | 41.00 |
| 4 | -95.51 | -153.92 | 57.09 | 158.90 | 445.64 | 461.73 | 443.64 | 436.22 | 342.23 | 257.08 | 152.22 | -104.34 |
| 5 | -79.53 | -137.33 | 42.76 | 158.28 | 561.65 | 580.85 | 562.41 | 485.87 | 211.46 | 97.63 | 185.02 | -86.51 |
| 6 | -72.87 | -120.14 | -73.77 | 125.31 | 675.84 | 699.05 | 672.33 | 617.12 | 221.15 | 1.65 | 357.49 | -148.92 |
| 7 | -112.39 | -133.09 | 71.61 | 28.19 | 784.69 | 819.51 | 784.68 | 736.15 | 267.14 | 72.14 | 184.68 | -155.60 |
| 8 | -163.57 | -128.11 | -424.46 | 180.32 | 902.66 | 935.64 | 893.26 | 797.47 | 359.79 | 84.50 | 279.38 | -318.14 |
| 9 | -199.78 | -99.22 | -379.85 | 238.74 | 990.31 | 1042.67 | 995.13 | 930.67 | 462.47 | 165.37 | 367.48 | -155.40 |
| 10 | -234.92 | -108.12 | -167.97 | 745.37 | 1086.31 | 1145.14 | 1104.93 | 991.15 | 545.46 | 251.39 | 470.62 | -47.38 |

| CVP4 | SG15 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -16.45 | -19.53 | -25.74 | -24.29 | 5.33 | 2.07 | 3.14 | 6.97 | -23.98 | -18.49 | -26.76 | -23.34 |
| 1 | -6.14 | -10.96 | -9.51 | -12.91 | 47.20 | 47.31 | 47.06 | 48.57 | 34.93 | 34.62 | 29.46 | 32.64 |
| 2 | -2.92 | -7.51 | -7.76 | -3.93 | 96.33 | 97.90 | 88.64 | 108.39 | 84.86 | 83.44 | 79.40 | 86.28 |
| 3 | -8.96 | -9.03 | -10.03 | -7.93 | 145.62 | 147.34 | 137.06 | 144.27 | 128.76 | 126.67 | 120.86 | 127.39 |
| 4 | -10.44 | -14.94 | -12.28 | -17.93 | 199.34 | 197.90 | 184.55 | 205.19 | 165.73 | 169.55 | 163.88 | 169.50 |
| 5 | -14.77 | -17.55 | -16.29 | -18.44 | 248.28 | 246.90 | 235.71 | 251.83 | 212.09 | 210.65 | 204.45 | 210.28 |
| 6 | -15.55 | -22.21 | -19.61 | -23.92 | 298.23 | 298.16 | 281.55 | 300.49 | 252.83 | 254.75 | 244.50 | 251.53 |
| 7 | -20.29 | -27.28 | -26.52 | -26.82 | 346.59 | 348.58 | 326.03 | 356.14 | 295.83 | 299.01 | 286.54 | 296.27 |
| 8 | -22.64 | -26.64 | -26.06 | -29.91 | 397.26 | 398.94 | 372.82 | 396.53 | 339.73 | 338.34 | 325.22 | 337.22 |
| 9 | -26.83 | -33.82 | -28.32 | -33.36 | 447.05 | 445.62 | 414.20 | 451.50 | 381.88 | 380.08 | 365.68 | 379.25 |
| 10 | -27.01 | -33.64 | -33.15 | -36.54 | 492.02 | 492.47 | 465.85 | 499.67 | 420.63 | 423.53 | 407.98 | 423.25 |

| CVP4 | SG16 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -6.79 | -2.37 | -10.39 | -6.74 | 2.47 | 2.38 | 13.62 | 13.96 | -12.92 | -13.36 | -22.65 | -10.00 |
| 1 | -5.23 | -8.64 | -9.46 | -13.55 | 69.51 | 70.00 | 77.53 | 74.43 | 55.56 | 58.81 | 45.68 | 57.86 |
| 2 | -11.63 | -10.22 | -14.99 | -15.71 | 147.49 | 150.75 | 148.08 | 156.11 | 125.33 | 123.29 | 120.02 | 128.86 |
| 3 | -18.55 | -19.10 | -20.34 | -21.01 | 223.99 | 225.41 | 224.17 | 225.23 | 196.86 | 191.24 | 182.77 | 195.42 |
| 4 | -25.27 | -25.24 | -28.17 | -30.45 | 308.29 | 303.59 | 302.00 | 308.59 | 258.59 | 263.01 | 254.83 | 264.02 |
| 5 | -33.46 | -31.59 | -31.49 | -34.23 | 382.79 | 380.51 | 379.73 | 384.37 | 328.57 | 329.84 | 321.93 | 331.10 |
| 6 | -39.31 | -40.94 | -36.28 | -42.70 | 459.38 | 457.99 | 455.09 | 462.76 | 394.10 | 393.73 | 381.27 | 397.66 |
| 7 | -45.62 | -46.06 | -46.28 | -46.62 | 535.97 | 536.12 | 531.67 | 541.37 | 460.65 | 459.76 | 446.97 | 462.89 |
| 8 | -53.45 | -51.35 | -49.78 | -55.60 | 614.72 | 613.26 | 607.22 | 614.07 | 525.29 | 523.49 | 507.74 | 527.44 |
| 9 | -57.59 | -56.93 | -57.80 | -63.34 | 687.88 | 684.24 | 677.66 | 688.89 | 588.56 | 588.25 | 568.84 | 593.08 |
| 10 | -63.77 | -64.81 | -67.93 | -72.32 | 759.18 | 755.74 | 754.90 | 764.69 | 653.34 | 651.25 | 629.60 | 658.47 |

| CVP4 | SG17 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 4.09 | 16.98 | -0.32 | 2.26 | 6.32 | 10.21 | -13.42 | 15.93 | 1.47 | 21.27 | 17.76 | 14.74 |
| 1 | -2.70 | 10.55 | 4.45 | -2.89 | 94.31 | 99.16 | 80.73 | 95.62 | 87.60 | 93.70 | 135.99 | 94.77 |
| 2 | -5.40 | 0.13 | -0.23 | -4.73 | 186.74 | 186.86 | 169.12 | 190.14 | 166.05 | 168.41 | 184.56 | 170.95 |
| 3 | -11.22 | -8.89 | -6.97 | -8.50 | 278.70 | 275.62 | 262.19 | 276.80 | 252.45 | 250.57 | 242.53 | 250.36 |
| 4 | -15.17 | -11.22 | -15.81 | -23.44 | 373.33 | 370.51 | 354.99 | 372.06 | 333.00 | 333.31 | 326.60 | 333.88 |
| 5 | -24.45 | -20.33 | -15.76 | -28.76 | 466.79 | 459.54 | 446.98 | 468.41 | 416.85 | 418.54 | 409.42 | 416.54 |
| 6 | -29.31 | -24.46 | -17.18 | -32.95 | 558.56 | 554.46 | 535.10 | 558.54 | 497.32 | 498.72 | 488.82 | 499.35 |
| 7 | -32.27 | -26.62 | -21.27 | -32.77 | 650.53 | 647.27 | 625.46 | 654.36 | 584.66 | 582.03 | 571.53 | 582.04 |
| 8 | -37.79 | -28.36 | -22.57 | -40.30 | 746.53 | 742.27 | 710.97 | 749.05 | 666.40 | 665.26 | 653.42 | 663.65 |
| 9 | -37.41 | -28.83 | -27.30 | -43.10 | 843.90 | 832.97 | 796.40 | 839.81 | 749.85 | 751.45 | 734.26 | 750.17 |
| 10 | -42.24 | -34.93 | -31.89 | -49.34 | 927.92 | 918.92 | 886.74 | 927.07 | 836.02 | 834.50 | 813.42 | 834.69 |

| CVP4 | SG18 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -16.30 | -14.18 | 769.17 | 1349.67 | 17.81 | 17.10 | 3.42 | 19.97 | 4.48 | 17.39 | 1759.53 | 878.74 |
| 1 | -30.60 | -23.47 | 548.94 | 914.35 | 73.77 | 73.96 | 60.99 | 70.52 | 52.04 | 51.56 | 1447.63 | 564.06 |
| 2 | -46.14 | -44.39 | -61.90 | 276.69 | 130.60 | 127.97 | 116.91 | 137.88 | 92.90 | 94.22 | 560.89 | 192.86 |
| 3 | -73.48 | -71.06 | -389.79 | -51.66 | 193.06 | 190.17 | 178.96 | 189.35 | 131.40 | 131.00 | 248.84 | 153.40 |
| 4 | -95.44 | -96.61 | -525.90 | -164.80 | 253.51 | 253.48 | 241.60 | 257.85 | 167.65 | 170.23 | -71.75 | 178.89 |
| 5 | -123.24 | -121.13 | -960.77 | -230.32 | 319.11 | 312.90 | 303.22 | 319.92 | 208.12 | 208.31 | -39.87 | 211.53 |
| 6 | -146.61 | -146.09 | -1280.37 | -280.78 | 380.25 | 377.56 | 362.88 | 377.94 | 246.73 | 250.05 | -28.65 | 250.33 |
| 7 | -171.37 | -169.99 | -1352.82 | -314.75 | 441.27 | 441.65 | 424.80 | 450.00 | 291.84 | 293.65 | 20.77 | 284.95 |
| 8 | -196.83 | -191.64 | -1491.41 | -361.41 | 509.29 | 505.15 | 483.05 | 507.77 | 335.12 | 334.83 | 70.91 | 349.53 |
| 9 | -218.92 | -218.96 | -1509.61 | -363.25 | 576.81 | 569.20 | 541.83 | 578.25 | 379.72 | 381.06 | 137.31 | 408.38 |
| 10 | -243.02 | -239.68 | -1537.38 | -333.64 | 635.46 | 630.08 | 603.08 | 634.94 | 422.92 | 426.67 | 159.73 | 454.10 |

| CVP4 | SG19 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -19.99 | -9.81 | -17.96 | -23.89 | -14.95 | -15.91 | -26.34 | -1.43 | -31.30 | -18.81 | -29.23 | -19.01 |
| 1 | -37.18 | -34.23 | -41.64 | -46.27 | 75.27 | 77.70 | 66.17 | 77.54 | 42.13 | 47.61 | 36.63 | 47.21 |
| 2 | -64.73 | -62.16 | -66.25 | -69.95 | 165.86 | 168.34 | 152.34 | 174.99 | 102.79 | 104.41 | 98.97 | 109.00 |
| 3 | -103.12 | -100.23 | -101.58 | -100.33 | 254.44 | 255.46 | 241.19 | 254.14 | 159.96 | 157.32 | 147.85 | 159.11 |
| 4 | -138.81 | -137.34 | -139.70 | -145.99 | 348.22 | 345.70 | 331.62 | 348.54 | 207.86 | 212.29 | 203.65 | 213.15 |
| 5 | -178.10 | -171.28 | -171.32 | -178.20 | 434.43 | 430.82 | 417.78 | 437.29 | 264.24 | 264.79 | 254.92 | 265.14 |
| 6 | -211.17 | -209.81 | -203.88 | -215.64 | 521.31 | 520.63 | 500.10 | 522.51 | 314.05 | 316.78 | 300.24 | 318.20 |
| 7 | -247.45 | -242.99 | -243.98 | -248.65 | 605.14 | 608.46 | 584.46 | 614.05 | 369.88 | 371.61 | 353.24 | 371.66 |
| 8 | -283.38 | -272.77 | -274.30 | -283.75 | 695.39 | 696.21 | 664.69 | 697.89 | 422.08 | 420.71 | 402.04 | 423.31 |
| 9 | -314.36 | -309.07 | -306.03 | -317.93 | 781.09 | 776.95 | 741.27 | 782.86 | 474.75 | 475.18 | 453.74 | 477.33 |
| 10 | -348.57 | -341.18 | -345.02 | -352.99 | 859.88 | 857.75 | 824.27 | 862.06 | 525.67 | 528.97 | 502.87 | 531.85 |

| CVP4 | SG20 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -4.94 | 8.94 | -7.54 | -4.35 | -20.02 | -19.10 | -36.20 | -8.82 | -30.45 | -21.54 | -45.99 | -25.79 |
| 1 | 2.45 | 5.99 | 0.77 | -5.10 | 69.03 | 73.31 | 54.20 | 68.97 | 65.82 | 71.65 | 49.40 | 70.31 |
| 2 | 1.53 | 6.36 | 0.41 | -1.77 | 160.46 | 164.80 | 139.38 | 168.00 | 150.82 | 150.93 | 139.78 | 154.43 |
| 3 | 0.98 | 1.74 | -0.70 | -1.96 | 246.39 | 247.42 | 229.63 | 245.60 | 235.69 | 232.09 | 217.65 | 233.30 |
| 4 | -0.68 | 1.92 | -4.22 | -10.64 | 339.17 | 335.73 | 317.96 | 336.43 | 314.02 | 315.49 | 303.88 | 314.87 |
| 5 | -5.86 | 1.37 | -0.89 | -7.31 | 420.88 | 418.75 | 399.98 | 424.55 | 396.59 | 397.12 | 384.88 | 396.20 |
| 6 | -4.01 | -3.07 | 0.59 | -11.38 | 506.01 | 505.35 | 478.35 | 508.76 | 475.22 | 473.65 | 458.81 | 474.71 |
| 7 | -3.83 | -0.48 | -3.29 | -7.13 | 588.11 | 590.88 | 559.66 | 595.06 | 555.93 | 552.88 | 535.08 | 553.07 |
| 8 | -6.04 | 1.74 | 0.41 | -11.57 | 675.88 | 676.53 | 635.77 | 676.43 | 633.61 | 629.40 | 608.78 | 628.91 |
| 9 | -2.35 | 4.69 | -2.18 | -13.60 | 757.82 | 754.80 | 710.23 | 756.53 | 710.06 | 708.66 | 681.48 | 708.40 |
| 10 | -3.64 | 1.37 | -5.88 | -17.29 | 834.51 | 831.83 | 787.27 | 835.84 | 787.94 | 785.29 | 750.57 | 786.50 |

| CVP4 | SG21 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -15.50 | -14.97 | -27.28 | -25.54 | -60.81 | -65.14 | -108.11 | -59.14 | -75.84 | -71.14 | -107.96 | -78.28 |
| 1 | -12.91 | -20.12 | -24.34 | -32.54 | 23.51 | 24.94 | -16.92 | 14.53 | 12.19 | 16.56 | -11.42 | 11.78 |
| 2 | -26.35 | -27.49 | -33.17 | -36.42 | 88.50 | 92.17 | 51.77 | 94.62 | 62.84 | 60.95 | 49.00 | 63.37 |
| 3 | -45.49 | -47.02 | -45.69 | -49.86 | 137.12 | 139.88 | 116.28 | 135.32 | 97.48 | 95.04 | 78.50 | 93.74 |
| 4 | -62.99 | -63.40 | -63.57 | -75.65 | 191.09 | 189.04 | 172.08 | 188.42 | 124.54 | 126.37 | 119.90 | 124.71 |
| 5 | -83.05 | -79.63 | -73.88 | -85.96 | 234.02 | 233.82 | 217.73 | 239.60 | 159.89 | 158.58 | 154.55 | 156.40 |
| 6 | -96.30 | -101.18 | -88.25 | -106.42 | 283.53 | 283.62 | 258.63 | 286.16 | 191.24 | 189.90 | 167.08 | 187.88 |
| 7 | -113.83 | -115.36 | -110.91 | -119.31 | 325.92 | 332.03 | 304.43 | 334.41 | 224.19 | 222.37 | 197.71 | 219.93 |
| 8 | -131.33 | -127.70 | -121.42 | -139.57 | 378.96 | 381.44 | 341.97 | 379.57 | 256.45 | 251.03 | 230.29 | 250.35 |
| 9 | -142.73 | -144.66 | -138.74 | -157.62 | 422.83 | 423.13 | 378.36 | 422.53 | 288.83 | 284.43 | 258.23 | 279.64 |
| 10 | -157.66 | -159.94 | -151.64 | -176.76 | 466.48 | 468.12 | 418.75 | 467.38 | 317.05 | 317.56 | 287.59 | 313.50 |

| CVP4 | SG22 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | | | 316.91 | | | | -37.88 | | | | 506.70 | |
| 1 | | | 490.81 | | | | 55.23 | | | | 349.86 | |
| 2 | | | 187.48 | | | | 140.73 | | | | 239.94 | |
| 3 | | | 14.20 | | | | 214.46 | | | | 225.52 | |
| 4 | | | 3.55 | | | | 295.46 | | | | 315.69 | |
| 5 | | | 21.29 | | | | 370.66 | | | | 410.27 | |
| 6 | | | -25.72 | | | | 444.80 | | | | 492.86 | |
| 7 | | | -42.48 | | | | 518.52 | | | | 566.87 | |
| 8 | | | 43.31 | | | | 589.95 | | | | 639.48 | |
| 9 | | | 39.04 | | | | 659.10 | | | | 708.22 | |
| 10 | | | -7.70 | | | | 733.16 | | | | 794.90 | |

| CVP4 | SG23 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -32.55 | -16.52 | -21.25 | -31.86 | -13.40 | -15.06 | -25.34 | -7.78 | -31.25 | -19.36 | -65.87 | -27.28 |
| 1 | -48.05 | -43.10 | -41.92 | -52.89 | 76.79 | 76.27 | 68.21 | 78.55 | 44.56 | 57.05 | -12.12 | 53.54 |
| 2 | -76.27 | -69.85 | -67.47 | -71.71 | 177.27 | 176.82 | 162.62 | 178.69 | 111.52 | 115.53 | 118.38 | 122.00 |
| 3 | -104.85 | -107.32 | -98.36 | -104.92 | 269.88 | 271.28 | 259.25 | 267.60 | 177.05 | 175.51 | 170.03 | 178.42 |
| 4 | -136.57 | -132.39 | -133.03 | -141.08 | 369.51 | 359.98 | 353.33 | 365.47 | 228.87 | 236.24 | 232.11 | 238.61 |
| 5 | -174.20 | -163.41 | -166.18 | -167.64 | 457.90 | 450.61 | 447.20 | 455.27 | 292.11 | 291.91 | 290.95 | 296.18 |
| 6 | -205.90 | -201.80 | -200.18 | -209.72 | 551.37 | 542.79 | 535.39 | 548.37 | 348.82 | 352.62 | 343.86 | 355.74 |
| 7 | -242.84 | -237.21 | -238.19 | -242.19 | 640.52 | 634.07 | 624.33 | 639.87 | 407.44 | 412.68 | 404.83 | 415.34 |
| 8 | -278.99 | -267.47 | -265.85 | -274.66 | 732.38 | 725.67 | 710.44 | 727.93 | 466.16 | 469.37 | 459.41 | 474.43 |
| 9 | -312.17 | -307.35 | -298.69 | -310.82 | 825.07 | 810.45 | 789.40 | 818.04 | 524.77 | 527.97 | 518.17 | 534.39 |
| 10 | -344.66 | -337.58 | -331.59 | -348.43 | 912.33 | 902.63 | 884.74 | 905.49 | 581.10 | 587.14 | 576.04 | 594.85 |

| CVP4 | SG24 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -13.26 | 1.36 | -0.41 | -1.05 | -13.97 | -14.06 | -22.72 | -6.60 | -29.70 | -23.77 | -30.11 | -23.56 |
| 1 | -6.07 | -2.70 | -0.78 | -5.48 | 73.24 | 74.85 | 66.77 | 78.24 | 64.54 | 74.96 | 62.51 | 75.87 |
| 2 | -7.55 | 1.17 | -6.50 | -6.77 | 174.82 | 177.22 | 163.03 | 177.25 | 158.22 | 158.32 | 156.77 | 165.35 |
| 3 | -9.21 | -8.05 | -8.71 | -10.64 | 267.40 | 271.11 | 257.54 | 268.16 | 250.50 | 243.56 | 237.63 | 249.60 |
| 4 | -14.38 | -10.08 | -13.51 | -17.65 | 371.25 | 364.04 | 353.06 | 364.91 | 329.04 | 334.56 | 327.92 | 334.52 |
| 5 | -20.46 | -12.29 | -12.77 | -16.91 | 460.18 | 455.94 | 444.51 | 458.38 | 417.70 | 419.15 | 414.48 | 419.56 |
| 6 | -21.20 | -20.41 | -13.88 | -22.81 | 552.34 | 550.68 | 532.32 | 551.10 | 501.73 | 499.95 | 493.25 | 505.47 |
| 7 | -25.07 | -20.96 | -21.99 | -22.07 | 642.76 | 641.94 | 622.35 | 642.76 | 582.64 | 581.62 | 577.69 | 587.93 |
| 8 | -30.23 | -22.81 | -21.44 | -29.45 | 734.79 | 735.00 | 706.78 | 730.43 | 667.19 | 664.07 | 654.93 | 669.53 |
| 9 | -31.71 | -22.99 | -26.98 | -32.40 | 825.80 | 817.37 | 786.65 | 818.87 | 749.01 | 747.79 | 735.21 | 753.10 |
| 10 | -35.40 | -27.79 | -28.27 | -38.86 | 912.11 | 909.89 | 880.30 | 908.88 | 830.99 | 828.51 | 813.41 | 837.13 |

| CVP4 | SG25 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -13.64 | -4.22 | -24.52 | -27.54 | -4.35 | -5.07 | -7.67 | 1.44 | -19.54 | -15.57 | -48.46 | -37.12 |
| 1 | -9.94 | -11.30 | -24.29 | -25.60 | 102.51 | 106.40 | 96.15 | 96.80 | 87.51 | 88.59 | 68.63 | 83.56 |
| 2 | -22.24 | -19.68 | -29.01 | -30.55 | 216.04 | 224.12 | 196.58 | 224.87 | 189.53 | 187.20 | 177.93 | 191.64 |
| 3 | -39.21 | -40.31 | -40.48 | -45.53 | 333.55 | 338.78 | 314.79 | 329.10 | 294.07 | 286.25 | 272.18 | 286.82 |
| 4 | -56.23 | -55.29 | -58.57 | -70.14 | 463.06 | 458.99 | 434.84 | 460.20 | 388.98 | 391.59 | 378.28 | 387.27 |
| 5 | -76.80 | -67.47 | -69.21 | -78.65 | 575.58 | 576.34 | 548.95 | 577.25 | 494.75 | 492.16 | 477.14 | 486.08 |
| 6 | -86.32 | -88.56 | -82.95 | -100.49 | 692.41 | 693.60 | 656.82 | 695.58 | 593.66 | 589.31 | 570.02 | 584.64 |
| 7 | -102.29 | -99.34 | -103.53 | -111.40 | 806.25 | 811.96 | 767.33 | 813.23 | 693.31 | 688.82 | 672.68 | 680.66 |
| 8 | -118.90 | -110.07 | -111.64 | -130.37 | 924.08 | 928.62 | 873.47 | 918.39 | 791.07 | 782.22 | 760.69 | 776.21 |
| 9 | -128.18 | -125.11 | -126.95 | -145.49 | 1032.95 | 1035.32 | 974.16 | 1028.76 | 885.89 | 879.17 | 847.49 | 872.25 |
| 10 | -140.12 | -137.68 | -139.67 | -163.01 | 1137.48 | 1140.09 | 1078.21 | 1134.73 | 979.79 | 972.15 | 934.64 | 965.22 |

| CVP4 | SG26 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -4.65 | 28.71 | 19.99 | 11.58 | -12.55 | -4.91 | -20.04 | 11.79 | -4.89 | 3.00 | 9.87 | 3.07 |
| 1 | 1.25 | 14.96 | 6.12 | 6.86 | 85.75 | 96.37 | 84.56 | 98.62 | 89.81 | 97.81 | 96.89 | 105.34 |
| 2 | 0.34 | 15.11 | 1.42 | -2.11 | 194.50 | 200.91 | 192.81 | 196.40 | 186.58 | 185.94 | 177.43 | 192.34 |
| 3 | 5.40 | 10.11 | -0.81 | 0.01 | 299.93 | 304.72 | 293.14 | 304.98 | 297.78 | 290.14 | 280.35 | 294.09 |
| 4 | 2.26 | 8.66 | -3.43 | -2.08 | 415.17 | 410.53 | 400.08 | 407.72 | 398.61 | 399.72 | 383.55 | 399.42 |
| 5 | -2.86 | 18.00 | 0.88 | 2.97 | 516.76 | 515.10 | 502.01 | 515.37 | 503.84 | 506.62 | 487.95 | 503.61 |
| 6 | 1.82 | 11.12 | 5.82 | -2.17 | 620.13 | 620.48 | 602.12 | 622.07 | 604.95 | 602.50 | 578.47 | 606.27 |
| 7 | 3.80 | 17.14 | 3.56 | 6.42 | 722.30 | 725.91 | 702.04 | 722.53 | 705.56 | 699.22 | 676.67 | 701.76 |
| 8 | 1.22 | 19.91 | 5.81 | 0.87 | 823.32 | 829.80 | 798.97 | 831.74 | 802.77 | 799.16 | 772.13 | 798.98 |
| 9 | 6.45 | 29.32 | 4.33 | 0.74 | 926.63 | 922.80 | 895.38 | 923.24 | 898.75 | 898.69 | 862.32 | 900.40 |
| 10 | 5.93 | 26.06 | -5.74 | -1.00 | 1022.48 | 1024.34 | 995.27 | 1021.15 | 1001.15 | 991.71 | 955.76 | 996.18 |

| CVP4 | SG27 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -9.45 | -1.48 | -8.24 | -11.01 | -3.58 | -3.27 | -10.16 | 5.03 | -19.85 | -17.38 | -33.42 | -26.07 |
| 1 | -5.34 | -5.41 | -7.87 | -10.73 | 64.32 | 67.05 | 57.18 | 65.83 | 48.66 | 50.34 | 39.65 | 50.17 |
| 2 | -10.10 | -7.77 | -11.15 | -13.13 | 137.60 | 142.09 | 123.10 | 145.50 | 115.64 | 114.28 | 112.10 | 118.47 |
| 3 | -16.47 | -17.10 | -15.64 | -19.00 | 212.25 | 215.32 | 197.81 | 213.45 | 185.58 | 180.41 | 175.91 | 183.40 |
| 4 | -24.74 | -23.02 | -23.26 | -29.44 | 295.24 | 290.28 | 274.45 | 294.42 | 247.56 | 250.23 | 244.97 | 249.48 |
| 5 | -34.39 | -27.45 | -26.87 | -31.34 | 364.52 | 363.83 | 345.48 | 367.62 | 316.09 | 315.33 | 309.78 | 314.40 |
| 6 | -38.04 | -37.16 | -31.81 | -41.04 | 436.72 | 437.48 | 412.57 | 440.94 | 379.60 | 376.37 | 370.27 | 377.95 |
| 7 | -44.24 | -42.29 | -41.10 | -43.76 | 508.09 | 510.82 | 481.49 | 515.78 | 441.28 | 438.39 | 435.99 | 438.01 |
| 8 | -51.77 | -46.35 | -43.32 | -53.05 | 582.75 | 584.63 | 546.69 | 583.10 | 502.32 | 498.12 | 492.51 | 498.87 |
| 9 | -55.23 | -51.35 | -50.11 | -59.57 | 654.33 | 652.36 | 611.52 | 656.53 | 562.14 | 559.61 | 549.69 | 560.80 |
| 10 | -61.74 | -57.86 | -54.13 | -67.28 | 723.81 | 723.49 | 680.27 | 728.83 | 624.30 | 619.43 | 605.45 | 622.28 |

| CVP4 | SG28 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -12.87 | -18.74 | -20.26 | -24.28 | 13.39 | 12.89 | 18.00 | 10.36 | -14.90 | -11.25 | -18.29 | -22.48 |
| 1 | -1.06 | -6.17 | -8.42 | -6.51 | 51.87 | 53.57 | 56.49 | 50.32 | 42.06 | 45.77 | 33.52 | 42.64 |
| 2 | -0.33 | -1.00 | -3.98 | -0.58 | 99.19 | 99.45 | 95.69 | 107.27 | 90.15 | 90.89 | 90.49 | 93.73 |
| 3 | -3.31 | -3.21 | -3.99 | -5.02 | 145.07 | 146.81 | 143.08 | 142.04 | 133.11 | 130.12 | 127.54 | 132.90 |
| 4 | -7.01 | -6.93 | -6.94 | -10.18 | 196.88 | 194.14 | 189.69 | 200.57 | 173.78 | 177.51 | 171.13 | 175.13 |
| 5 | -9.97 | -6.17 | -10.65 | -11.68 | 242.04 | 238.57 | 238.50 | 244.19 | 220.36 | 218.16 | 212.60 | 216.57 |
| 6 | -8.50 | -9.13 | -12.87 | -17.58 | 290.09 | 287.48 | 285.12 | 292.25 | 261.12 | 263.30 | 249.60 | 257.98 |
| 7 | -12.17 | -12.84 | -14.35 | -21.28 | 338.21 | 337.77 | 333.33 | 346.25 | 305.48 | 308.53 | 295.56 | 304.60 |
| 8 | -15.13 | -9.88 | -12.86 | -19.80 | 389.26 | 385.18 | 382.88 | 387.73 | 350.66 | 348.36 | 337.71 | 347.56 |
| 9 | -16.62 | -15.05 | -12.12 | -20.54 | 438.14 | 434.08 | 425.90 | 441.06 | 397.23 | 393.60 | 381.29 | 391.97 |
| 10 | -13.65 | -12.84 | -21.00 | -23.51 | 485.50 | 484.24 | 476.83 | 487.56 | 437.24 | 439.43 | 425.05 | 437.79 |

| CVP4 | SG29 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -8.64 | -0.11 | -9.43 | -12.02 | 11.67 | 11.13 | 8.56 | 15.68 | 4.28 | 5.49 | -9.10 | -6.12 |
| 1 | -6.60 | -5.97 | -11.65 | -9.35 | 59.53 | 62.42 | 58.75 | 59.71 | 49.88 | 50.56 | 41.51 | 51.91 |
| 2 | -12.55 | -10.82 | -13.91 | -13.83 | 109.64 | 111.31 | 104.22 | 111.72 | 91.15 | 89.76 | 89.25 | 94.07 |
| 3 | -19.01 | -20.38 | -18.57 | -20.52 | 159.86 | 162.65 | 156.56 | 160.23 | 135.81 | 132.98 | 131.52 | 135.69 |
| 4 | -27.78 | -27.44 | -26.01 | -29.99 | 218.77 | 213.42 | 211.95 | 215.31 | 176.42 | 178.99 | 177.84 | 180.23 |
| 5 | -37.43 | -31.88 | -30.72 | -32.52 | 267.90 | 267.18 | 265.30 | 268.83 | 223.67 | 224.39 | 223.10 | 226.22 |
| 6 | -41.71 | -42.68 | -36.49 | -42.50 | 321.78 | 321.71 | 317.56 | 324.57 | 268.96 | 268.16 | 265.58 | 271.62 |
| 7 | -49.39 | -48.87 | -45.21 | -46.01 | 374.99 | 376.35 | 370.48 | 378.30 | 313.62 | 312.73 | 313.29 | 315.95 |
| 8 | -57.05 | -54.59 | -49.38 | -55.33 | 430.75 | 431.80 | 423.27 | 431.14 | 357.60 | 357.52 | 355.56 | 360.30 |
| 9 | -62.26 | -60.88 | -56.21 | -61.80 | 484.71 | 482.46 | 475.09 | 483.45 | 401.51 | 402.29 | 399.26 | 407.21 |
| 10 | -68.73 | -67.66 | -62.86 | -70.38 | 537.89 | 536.43 | 527.40 | 537.45 | 447.90 | 446.20 | 442.56 | 451.86 |

| CVP4 | SG30 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -8.58 | -9.95 | -7.24 | -17.19 | 2.91 | 5.85 | 6.85 | 7.85 | -6.30 | -2.65 | -392.20 | -10.64 |
| 1 | -1.25 | -0.15 | -5.59 | -8.02 | 37.46 | 41.55 | 40.40 | 38.43 | 37.33 | 37.04 | -333.24 | 34.96 |
| 2 | -2.72 | -3.23 | -4.46 | -5.32 | 76.37 | 79.41 | 73.85 | 83.07 | 69.78 | 70.31 | 71.45 | 73.68 |
| 3 | -10.53 | -10.81 | -9.74 | -13.21 | 116.65 | 118.79 | 111.38 | 116.12 | 101.80 | 101.39 | 100.91 | 101.40 |
| 4 | -16.12 | -16.78 | -15.13 | -16.55 | 158.55 | 158.63 | 150.35 | 161.72 | 135.78 | 136.20 | 129.99 | 134.91 |
| 5 | -22.58 | -19.13 | -19.78 | -21.80 | 197.14 | 198.06 | 188.20 | 199.43 | 166.75 | 166.22 | 164.16 | 167.41 |
| 6 | -22.93 | -24.21 | -24.67 | -28.46 | 236.87 | 238.24 | 224.54 | 239.63 | 200.18 | 203.06 | 193.62 | 200.65 |
| 7 | -29.40 | -28.94 | -26.24 | -35.25 | 275.75 | 277.75 | 261.83 | 280.76 | 235.03 | 238.03 | 229.34 | 234.44 |
| 8 | -33.41 | -30.74 | -29.35 | -36.17 | 315.12 | 318.03 | 300.10 | 318.99 | 269.43 | 268.34 | 262.43 | 268.85 |
| 9 | -39.02 | -37.50 | -32.45 | -40.33 | 354.60 | 356.23 | 335.74 | 359.17 | 305.15 | 303.31 | 295.82 | 303.20 |
| 10 | -37.38 | -37.90 | -38.17 | -43.35 | 393.06 | 396.48 | 375.02 | 396.10 | 335.64 | 338.20 | 328.69 | 336.01 |

| CVP4 | SG31 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -46.78 | -26.64 | -30.83 | -39.30 | 12.05 | 14.17 | 4.15 | 14.38 | 2.40 | 1.93 | -5.27 | -1.15 |
| 1 | -33.65 | -26.90 | -38.63 | -31.88 | 40.68 | 38.08 | 39.35 | 43.53 | 29.21 | 43.46 | 32.53 | 40.74 |
| 2 | -37.29 | -27.08 | -37.10 | -43.98 | 79.61 | 70.01 | 70.14 | 59.31 | 55.13 | 61.23 | 52.15 | 60.62 |
| 3 | -50.55 | -47.95 | -51.94 | -54.41 | 103.50 | 102.91 | 98.52 | 99.90 | 76.77 | 81.82 | 75.17 | 78.71 |
| 4 | -69.88 | -72.38 | -72.64 | -68.68 | 140.54 | 130.63 | 130.22 | 128.74 | 107.31 | 103.97 | 100.46 | 105.43 |
| 5 | -90.77 | -80.58 | -84.39 | -79.92 | 171.49 | 161.00 | 164.59 | 154.34 | 126.04 | 126.99 | 126.12 | 128.08 |
| 6 | -98.36 | -103.84 | -97.68 | -102.31 | 205.16 | 192.02 | 195.92 | 192.67 | 153.31 | 154.96 | 150.02 | 155.81 |
| 7 | -123.74 | -116.00 | -114.94 | -119.06 | 243.09 | 226.25 | 224.80 | 217.49 | 180.02 | 182.52 | 177.59 | 179.62 |
| 8 | -142.14 | -133.12 | -137.80 | -136.41 | 271.04 | 256.49 | 262.12 | 267.84 | 204.71 | 206.12 | 204.62 | 207.68 |
| 9 | -159.14 | -152.98 | -153.44 | -153.25 | 311.80 | 291.54 | 294.05 | 289.03 | 233.12 | 234.57 | 228.82 | 234.59 |
| 10 | -169.87 | -168.01 | -173.38 | -171.82 | 347.00 | 333.05 | 327.30 | 318.19 | 258.56 | 263.16 | 248.51 | 260.59 |

| CVP4 | SG32T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -89.06 | -106.67 | -124.32 | -105.49 | 6.68 | 5.16 | 21.64 | 3.89 | -99.24 | -100.11 | -109.10 | -140.60 |
| 1 | 17.92 | 17.95 | 23.58 | 20.46 | -18.11 | -19.41 | -8.59 | -23.93 | -4.25 | -9.70 | -1.76 | -17.83 |
| 2 | 125.30 | 122.99 | 125.05 | 137.25 | -42.94 | -45.46 | -45.04 | -20.53 | 74.21 | 71.42 | 82.25 | 64.57 |
| 3 | 224.40 | 220.37 | 226.99 | 227.89 | -67.50 | -68.58 | -67.30 | -73.04 | 132.29 | 135.71 | 144.98 | 136.32 |
| 4 | 312.78 | 312.25 | 325.71 | 319.87 | -93.36 | -93.51 | -94.09 | -79.84 | 190.59 | 188.68 | 199.90 | 190.61 |
| 5 | 396.90 | 396.68 | 405.36 | 407.31 | -115.94 | -117.48 | -119.25 | -108.44 | 242.75 | 236.18 | 254.73 | 245.41 |
| 6 | 478.72 | 478.61 | 483.20 | 489.46 | -139.51 | -141.43 | -140.94 | -139.77 | 292.04 | 289.13 | 304.52 | 290.70 |
| 7 | 555.04 | 552.67 | 564.01 | 567.10 | -163.16 | -166.26 | -165.32 | -147.61 | 337.32 | 335.47 | 356.06 | 343.27 |
| 8 | 632.66 | 627.54 | 644.33 | 643.26 | -186.88 | -189.27 | -187.74 | -197.91 | 385.47 | 381.78 | 405.07 | 385.85 |
| 9 | 702.97 | 697.47 | 718.28 | 719.23 | -208.26 | -209.96 | -209.75 | -199.05 | 425.73 | 422.00 | 451.04 | 430.44 |
| 10 | 774.92 | 772.07 | 792.78 | 791.77 | -229.53 | -232.37 | -232.72 | -216.65 | 467.57 | 466.72 | 496.85 | 473.30 |

| CVP4 | SG32-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -78.40 | -72.66 | -88.54 | -80.82 | -12.40 | -3.18 | 6.48 | 12.56 | -93.83 | -96.41 | -96.10 | -117.77 |
| 1 | -9.18 | 1.69 | 10.25 | -7.47 | 24.88 | 29.32 | 41.17 | 35.17 | 20.22 | 16.69 | 20.60 | 14.41 |
| 2 | 61.00 | 66.83 | 63.88 | 70.95 | 63.01 | 77.05 | 68.09 | 98.06 | 120.72 | 112.14 | 117.92 | 116.25 |
| 3 | 122.83 | 119.83 | 123.74 | 115.93 | 109.76 | 116.88 | 107.02 | 114.63 | 211.22 | 205.58 | 201.93 | 213.29 |
| 4 | 171.61 | 181.21 | 179.79 | 177.61 | 165.24 | 158.93 | 153.07 | 175.26 | 288.57 | 293.21 | 288.53 | 292.98 |
| 5 | 216.25 | 223.95 | 224.02 | 224.85 | 197.20 | 203.47 | 187.32 | 210.48 | 367.45 | 361.98 | 370.71 | 374.66 |
| 6 | 258.78 | 272.43 | 270.54 | 270.84 | 239.79 | 245.55 | 226.50 | 252.09 | 441.18 | 437.35 | 437.06 | 447.97 |
| 7 | 305.63 | 315.21 | 314.75 | 315.23 | 279.09 | 287.40 | 259.23 | 303.06 | 511.51 | 509.54 | 513.71 | 523.37 |
| 8 | 346.02 | 355.70 | 360.34 | 354.23 | 320.63 | 330.35 | 297.47 | 316.60 | 583.26 | 580.29 | 576.99 | 592.34 |
| 9 | 380.32 | 395.82 | 396.89 | 392.81 | 355.35 | 361.78 | 334.04 | 371.70 | 653.57 | 648.61 | 645.76 | 663.67 |
| 10 | 425.30 | 434.40 | 436.13 | 426.01 | 390.22 | 396.44 | 373.03 | 421.15 | 719.39 | 713.17 | 712.03 | 730.26 |

| CVP4 | SG32L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -33.74 | -18.14 | -39.29 | -30.43 | -15.47 | -10.18 | -7.91 | 10.95 | -52.88 | -56.00 | -64.78 | -58.54 |
| 1 | -11.75 | -9.96 | -12.77 | -19.69 | 72.05 | 75.61 | 73.85 | 81.81 | 50.79 | 57.19 | 40.05 | 52.04 |
| 2 | -2.13 | 3.39 | -4.27 | -6.57 | 165.69 | 174.51 | 156.51 | 181.18 | 146.43 | 142.18 | 133.23 | 146.65 |
| 3 | 11.81 | 9.86 | 6.56 | 3.80 | 255.52 | 258.96 | 246.17 | 258.12 | 241.33 | 235.34 | 218.72 | 239.08 |
| 4 | 17.43 | 22.82 | 10.71 | 13.29 | 354.56 | 349.87 | 337.39 | 353.90 | 325.04 | 329.75 | 314.00 | 328.99 |
| 5 | 21.52 | 28.78 | 21.63 | 22.81 | 438.94 | 439.42 | 422.54 | 441.32 | 412.36 | 415.79 | 403.75 | 416.23 |
| 6 | 25.75 | 31.02 | 29.82 | 26.77 | 527.63 | 528.68 | 505.40 | 532.86 | 495.22 | 494.48 | 478.48 | 499.51 |
| 7 | 32.18 | 39.94 | 31.63 | 34.77 | 615.18 | 619.59 | 590.22 | 622.59 | 578.67 | 575.99 | 557.21 | 579.77 |
| 8 | 32.56 | 42.31 | 36.24 | 33.79 | 705.65 | 709.09 | 672.15 | 706.39 | 657.60 | 654.99 | 631.14 | 658.76 |
| 9 | 39.85 | 49.11 | 34.01 | 33.42 | 788.03 | 789.12 | 751.47 | 789.98 | 735.50 | 735.50 | 702.89 | 738.93 |
| 10 | 41.53 | 46.36 | 29.59 | 29.23 | 870.46 | 870.06 | 838.29 | 877.82 | 814.17 | 813.32 | 773.78 | 818.51 |

| CVP4 | SG33T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -84.67 | -106.55 | -107.44 | -96.00 | 24.74 | 23.97 | 29.38 | 21.28 | -68.34 | -65.80 | -48.82 | -78.63 |
| 1 | 22.52 | 20.32 | 21.21 | 22.35 | -31.59 | -33.68 | -28.75 | -32.59 | 0.24 | -3.24 | 14.85 | -13.63 |
| 2 | 131.31 | 126.31 | 125.21 | 142.54 | -94.00 | -99.34 | -99.52 | -69.36 | 55.13 | 54.74 | 72.50 | 44.82 |
| 3 | 232.88 | 227.96 | 230.74 | 236.18 | -156.29 | -159.27 | -159.30 | -159.02 | 89.52 | 98.24 | 112.90 | 96.58 |
| 4 | 324.40 | 323.92 | 333.27 | 333.95 | -221.44 | -221.69 | -222.34 | -203.74 | 129.18 | 129.98 | 145.74 | 129.16 |
| 5 | 412.75 | 411.52 | 414.64 | 423.31 | -278.36 | -281.65 | -282.71 | -269.19 | 161.89 | 158.82 | 186.93 | 165.49 |
| 6 | 497.64 | 497.64 | 494.88 | 509.42 | -334.28 | -338.63 | -337.29 | -333.68 | 195.65 | 198.03 | 224.98 | 194.67 |
| 7 | 575.80 | 574.80 | 579.36 | 588.49 | -390.56 | -395.41 | -394.27 | -365.39 | 225.66 | 231.30 | 265.18 | 234.81 |
| 8 | 657.32 | 651.83 | 661.87 | 669.70 | -442.80 | -449.90 | -446.82 | -455.30 | 260.70 | 264.09 | 299.71 | 262.92 |
| 9 | 730.20 | 723.45 | 737.79 | 748.26 | -493.78 | -497.79 | -499.04 | -477.05 | 287.16 | 291.16 | 334.95 | 293.14 |
| 10 | 804.45 | 800.49 | 806.68 | 823.14 | -543.47 | -549.69 | -550.67 | -522.38 | 313.98 | 324.71 | 371.91 | 324.59 |

| CVP4 | SG33-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -79.36 | -72.81 | -72.03 | -69.22 | -43.74 | -29.48 | -71.96 | -21.56 | -101.79 | -98.62 | -90.55 | -92.85 |
| 1 | -13.65 | -2.76 | -1.79 | -11.09 | -38.91 | -34.36 | -63.27 | -32.42 | -29.59 | -28.73 | -33.28 | -33.78 |
| 2 | 57.48 | 60.36 | 53.06 | 64.01 | -55.54 | -45.92 | -80.09 | -33.54 | 19.87 | 16.63 | 13.40 | 13.56 |
| 3 | 121.75 | 116.68 | 112.44 | 112.91 | -76.24 | -73.42 | -94.21 | -69.75 | 48.55 | 50.92 | 45.71 | 52.41 |
| 4 | 169.15 | 178.22 | 168.08 | 173.68 | -94.91 | -100.54 | -110.47 | -90.61 | 74.31 | 75.00 | 72.60 | 73.99 |
| 5 | 215.67 | 219.48 | 214.09 | 220.42 | -129.13 | -125.30 | -144.46 | -117.87 | 92.40 | 88.89 | 100.40 | 98.15 |
| 6 | 257.32 | 268.25 | 260.31 | 267.36 | -151.46 | -149.05 | -171.31 | -143.45 | 111.71 | 110.63 | 121.16 | 117.26 |
| 7 | 303.12 | 310.21 | 305.45 | 309.16 | -177.80 | -174.35 | -203.33 | -159.19 | 129.06 | 128.47 | 138.95 | 138.90 |
| 8 | 343.80 | 349.78 | 346.00 | 346.87 | -198.55 | -194.39 | -234.96 | -201.27 | 147.10 | 147.02 | 150.86 | 154.21 |
| 9 | 379.23 | 389.03 | 381.49 | 384.58 | -226.11 | -222.83 | -259.70 | -212.02 | 164.59 | 163.47 | 166.42 | 171.02 |
| 10 | 420.32 | 425.03 | 402.49 | 417.23 | -249.98 | -250.65 | -293.06 | -226.80 | 175.90 | 177.66 | 179.71 | 184.56 |

| CVP4 | SG33L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -47.30 | -21.82 | -11.38 | -15.28 | -15.88 | -5.87 | -18.28 | 14.70 | -49.37 | -52.35 | -44.44 | -21.13 |
| 1 | -27.03 | -19.35 | -18.13 | -26.25 | 72.09 | 78.18 | 65.37 | 86.31 | 48.42 | 52.90 | 24.04 | 53.90 |
| 2 | -13.12 | -3.35 | -9.80 | -17.13 | 168.26 | 176.64 | 150.88 | 172.56 | 147.80 | 144.11 | 122.23 | 148.99 |
| 3 | 2.54 | 2.23 | -0.32 | -6.34 | 259.13 | 261.57 | 244.85 | 264.95 | 247.89 | 239.43 | 215.88 | 241.73 |
| 4 | 7.42 | 12.88 | 2.99 | -0.76 | 359.04 | 352.51 | 338.97 | 351.17 | 336.97 | 336.80 | 313.65 | 334.08 |
| 5 | 8.54 | 16.89 | 12.85 | 7.05 | 443.90 | 442.97 | 424.70 | 442.48 | 427.89 | 426.40 | 402.45 | 423.21 |
| 6 | 10.86 | 15.72 | 18.66 | 6.59 | 532.38 | 532.02 | 509.35 | 535.25 | 513.75 | 507.90 | 472.22 | 509.11 |
| 7 | 15.99 | 22.23 | 16.76 | 12.78 | 620.79 | 622.02 | 594.76 | 623.05 | 599.08 | 590.27 | 549.20 | 589.30 |
| 8 | 12.73 | 21.77 | 16.90 | 6.59 | 712.13 | 712.70 | 675.45 | 712.04 | 680.27 | 670.82 | 626.54 | 669.56 |
| 9 | 16.08 | 27.73 | 11.32 | 2.73 | 796.66 | 794.48 | 755.07 | 793.97 | 760.37 | 752.66 | 698.03 | 751.80 |
| 10 | 14.22 | 21.02 | 13.69 | -3.79 | 881.86 | 878.14 | 839.31 | 883.65 | 842.50 | 830.91 | 767.97 | 829.86 |

| CVP4 | SG34T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -0.78 | -6.45 | 1.18 | 11.41 | -1.73 | 3.91 | 11.92 | 0.72 | 9.62 | 3.05 | 20.24 | 10.02 |
| 1 | 64.20 | 62.79 | 71.06 | 72.75 | -34.51 | -32.38 | -23.21 | -31.51 | 44.59 | 40.97 | 49.04 | 42.16 |
| 2 | 141.68 | 139.45 | 138.66 | 149.64 | -68.91 | -68.91 | -61.11 | -62.06 | 92.17 | 89.35 | 93.74 | 85.33 |
| 3 | 223.35 | 218.84 | 216.46 | 223.73 | -103.93 | -103.45 | -97.98 | -104.84 | 136.70 | 138.86 | 141.31 | 139.70 |
| 4 | 298.77 | 298.34 | 296.71 | 302.64 | -141.57 | -139.90 | -135.60 | -138.00 | 185.94 | 184.84 | 187.47 | 184.28 |
| 5 | 374.28 | 373.16 | 367.16 | 379.27 | -175.25 | -174.76 | -172.75 | -174.64 | 231.55 | 228.91 | 238.05 | 233.22 |
| 6 | 449.57 | 448.58 | 438.39 | 455.49 | -211.74 | -209.98 | -204.53 | -213.36 | 279.78 | 277.53 | 279.69 | 277.72 |
| 7 | 522.90 | 521.39 | 514.22 | 529.13 | -244.60 | -245.68 | -238.14 | -242.98 | 323.67 | 322.15 | 327.20 | 327.73 |
| 8 | 599.50 | 594.06 | 591.92 | 604.44 | -283.94 | -281.16 | -272.73 | -289.89 | 372.91 | 370.77 | 374.16 | 371.35 |
| 9 | 672.03 | 666.60 | 664.17 | 679.98 | -317.09 | -315.67 | -304.62 | -315.55 | 415.76 | 413.92 | 420.66 | 417.73 |
| 10 | 746.79 | 742.23 | 727.59 | 753.74 | -348.90 | -346.55 | -336.39 | -345.48 | 461.29 | 461.56 | 473.08 | 464.11 |

| CVP4 | SG34-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 2.30 | -4.26 | 19.46 | 14.29 | 7.53 | -5.40 | -8.76 | 1.84 | -5.50 | -10.58 | 0.38 | -6.06 |
| 1 | 30.48 | 23.94 | 43.78 | 33.40 | 27.76 | 27.25 | 17.22 | 25.03 | 47.92 | 38.62 | 48.63 | 46.09 |
| 2 | 60.16 | 59.19 | 66.78 | 67.18 | 47.41 | 44.90 | 40.22 | 56.74 | 110.07 | 105.41 | 109.67 | 102.51 |
| 3 | 96.48 | 96.69 | 104.61 | 102.43 | 68.74 | 69.93 | 67.14 | 63.61 | 165.95 | 163.68 | 167.24 | 163.70 |
| 4 | 130.61 | 126.16 | 139.72 | 131.20 | 87.49 | 92.55 | 89.95 | 92.03 | 221.21 | 221.61 | 221.72 | 220.34 |
| 5 | 159.91 | 167.58 | 174.77 | 172.18 | 117.93 | 111.49 | 110.91 | 114.28 | 282.96 | 282.04 | 279.46 | 277.68 |
| 6 | 198.28 | 192.82 | 203.16 | 199.67 | 136.64 | 135.64 | 134.28 | 125.39 | 341.47 | 337.52 | 323.81 | 332.56 |
| 7 | 227.11 | 226.75 | 233.41 | 235.47 | 156.51 | 159.93 | 160.69 | 162.30 | 395.60 | 391.80 | 376.41 | 387.48 |
| 8 | 259.20 | 258.11 | 272.22 | 268.32 | 176.55 | 178.33 | 180.53 | 170.49 | 452.98 | 448.62 | 439.83 | 441.52 |
| 9 | 294.41 | 290.43 | 305.44 | 303.57 | 206.25 | 201.73 | 200.25 | 202.80 | 503.39 | 499.94 | 495.21 | 495.71 |
| 10 | 322.46 | 323.99 | 352.20 | 336.74 | 227.77 | 232.64 | 224.30 | 220.92 | 558.00 | 555.00 | 555.45 | 551.31 |

| CVP4 | SG34L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 0.07 | 13.78 | 6.21 | -5.04 | -6.74 | -10.12 | -23.47 | 2.14 | -16.22 | -4.64 | -39.28 | -17.94 |
| 1 | -2.45 | 1.90 | 1.93 | -11.74 | 84.43 | 86.86 | 69.07 | 83.47 | 72.74 | 77.87 | 65.18 | 74.63 |
| 2 | -13.66 | -9.92 | -7.47 | -19.13 | 179.13 | 181.66 | 158.77 | 184.88 | 152.21 | 152.50 | 149.50 | 155.44 |
| 3 | -26.46 | -25.98 | -17.52 | -31.28 | 272.00 | 270.97 | 255.44 | 271.04 | 234.34 | 231.26 | 222.16 | 230.59 |
| 4 | -38.50 | -38.03 | -31.86 | -50.55 | 371.40 | 366.98 | 352.03 | 368.68 | 311.00 | 312.29 | 300.26 | 310.14 |
| 5 | -53.95 | -45.71 | -38.84 | -56.83 | 461.15 | 457.30 | 442.84 | 464.87 | 392.11 | 392.64 | 377.37 | 389.26 |
| 6 | -61.06 | -61.03 | -47.54 | -72.56 | 553.78 | 551.24 | 529.58 | 556.94 | 469.64 | 468.60 | 452.58 | 466.66 |
| 7 | -70.85 | -68.61 | -61.55 | -78.00 | 643.91 | 643.52 | 618.20 | 650.75 | 550.74 | 547.84 | 530.71 | 543.17 |
| 8 | -82.29 | -75.17 | -67.42 | -93.13 | 740.32 | 737.62 | 703.60 | 741.65 | 627.50 | 623.43 | 607.73 | 619.00 |
| 9 | -87.22 | -82.90 | -78.41 | -103.41 | 831.23 | 824.65 | 787.18 | 830.14 | 702.81 | 702.50 | 680.00 | 697.56 |
| 10 | -97.65 | -93.51 | -63.98 | -116.06 | 916.48 | 909.65 | 872.94 | 917.45 | 781.07 | 778.57 | 744.58 | 774.74 |

| CVP4 | SG35T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 2.33 | -21.99 | -48.20 | -32.93 | 10.88 | -1.89 | 23.92 | -6.97 | -27.73 | -26.63 | -25.82 | -74.31 |
| 1 | 76.77 | 70.41 | 66.13 | 67.29 | -17.82 | -25.91 | -10.47 | -31.12 | 39.59 | 35.62 | 43.44 | 22.02 |
| 2 | 147.76 | 141.98 | 136.97 | 152.40 | -40.89 | -46.85 | -44.12 | -16.74 | 92.36 | 90.34 | 99.61 | 84.39 |
| 3 | 213.92 | 209.86 | 211.21 | 214.76 | -65.50 | -67.56 | -62.60 | -70.05 | 127.52 | 131.67 | 138.64 | 131.41 |
| 4 | 279.28 | 274.82 | 286.43 | 283.24 | -90.49 | -90.31 | -85.96 | -68.40 | 169.85 | 170.66 | 177.27 | 169.19 |
| 5 | 348.45 | 346.47 | 350.67 | 354.21 | -111.06 | -112.47 | -106.01 | -97.15 | 209.84 | 208.22 | 222.71 | 212.34 |
| 6 | 420.42 | 415.73 | 415.83 | 424.20 | -132.68 | -135.94 | -127.37 | -124.50 | 253.03 | 254.85 | 257.11 | 250.57 |
| 7 | 487.00 | 482.24 | 486.48 | 492.28 | -156.15 | -159.25 | -150.50 | -129.15 | 293.81 | 298.76 | 305.53 | 300.04 |
| 8 | 560.88 | 553.55 | 563.15 | 565.62 | -176.66 | -183.52 | -168.82 | -177.37 | 340.94 | 341.62 | 351.62 | 339.58 |
| 9 | 630.70 | 620.03 | 634.46 | 638.73 | -200.27 | -201.78 | -190.27 | -177.25 | 380.73 | 381.86 | 397.81 | 383.89 |
| 10 | 703.26 | 695.36 | 704.37 | 710.56 | -222.14 | -225.64 | -212.69 | -197.59 | 422.05 | 428.87 | 449.84 | 427.50 |

| CVP4 | SG35-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 3.21 | -12.05 | -3.39 | -7.19 | 10.21 | -13.31 | -7.99 | -4.81 | -30.37 | -31.10 | -15.26 | -51.50 |
| 1 | 38.46 | 29.16 | 43.68 | 30.94 | 33.52 | 28.96 | 19.15 | 23.29 | 43.43 | 33.46 | 49.00 | 33.79 |
| 2 | 65.58 | 62.98 | 68.58 | 69.26 | 60.54 | 54.95 | 45.76 | 79.34 | 110.17 | 105.74 | 117.42 | 101.54 |
| 3 | 94.31 | 93.42 | 104.94 | 99.27 | 87.20 | 87.31 | 83.04 | 80.04 | 161.21 | 160.24 | 170.10 | 158.50 |
| 4 | 123.24 | 115.97 | 137.25 | 122.23 | 111.31 | 117.63 | 112.39 | 126.38 | 213.35 | 214.44 | 220.72 | 212.11 |
| 5 | 149.66 | 157.17 | 168.92 | 161.42 | 148.99 | 142.82 | 142.20 | 152.29 | 272.78 | 271.91 | 276.22 | 266.74 |
| 6 | 187.20 | 179.38 | 194.52 | 185.69 | 175.17 | 172.59 | 169.84 | 168.62 | 328.82 | 326.91 | 319.65 | 317.90 |
| 7 | 214.06 | 210.62 | 222.21 | 219.88 | 199.94 | 203.42 | 201.50 | 218.64 | 381.31 | 380.38 | 374.33 | 372.44 |
| 8 | 245.69 | 241.71 | 260.98 | 251.00 | 228.41 | 227.37 | 228.56 | 224.79 | 437.71 | 433.53 | 437.62 | 424.33 |
| 9 | 279.66 | 271.33 | 294.02 | 285.47 | 261.70 | 258.62 | 252.73 | 270.67 | 486.15 | 483.76 | 493.12 | 477.01 |
| 10 | 307.00 | 305.17 | 349.26 | 318.70 | 288.68 | 292.68 | 280.71 | 292.81 | 539.02 | 539.60 | 555.63 | 530.85 |

| CVP4 | SG35L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -6.45 | 6.89 | 0.32 | -10.60 | -8.47 | -11.24 | -25.25 | 1.57 | -24.63 | -13.94 | -33.24 | -25.12 |
| 1 | -6.32 | -2.86 | -1.13 | -15.63 | 83.56 | 86.33 | 67.91 | 82.76 | 67.42 | 72.10 | 62.02 | 70.54 |
| 2 | -16.11 | -12.19 | -8.92 | -21.31 | 177.81 | 180.73 | 157.02 | 184.90 | 149.02 | 149.29 | 148.67 | 152.23 |
| 3 | -27.76 | -27.20 | -18.10 | -32.41 | 269.63 | 269.06 | 253.34 | 268.92 | 230.92 | 228.13 | 220.90 | 227.70 |
| 4 | -39.64 | -38.99 | -32.09 | -51.24 | 368.46 | 364.31 | 349.16 | 366.91 | 308.27 | 309.30 | 298.57 | 306.83 |
| 5 | -54.74 | -46.04 | -38.61 | -57.11 | 457.24 | 454.41 | 439.75 | 461.58 | 388.77 | 389.23 | 374.88 | 385.71 |
| 6 | -61.77 | -61.75 | -47.38 | -72.92 | 549.64 | 547.02 | 525.52 | 552.88 | 465.50 | 464.75 | 447.60 | 462.49 |
| 7 | -72.22 | -69.67 | -61.60 | -78.74 | 638.44 | 639.08 | 613.55 | 647.03 | 545.43 | 542.82 | 525.68 | 538.01 |
| 8 | -83.78 | -76.62 | -67.76 | -93.99 | 734.27 | 732.59 | 698.90 | 736.22 | 621.19 | 617.42 | 602.27 | 612.47 |
| 9 | -89.46 | -84.60 | -78.71 | -104.80 | 824.21 | 818.84 | 781.13 | 824.87 | 696.08 | 695.32 | 674.11 | 690.61 |
| 10 | -100.51 | -95.97 | -64.63 | -118.12 | 909.04 | 903.23 | 865.91 | 911.38 | 772.60 | 770.59 | 740.47 | 766.43 |

| CVP4 | SG36T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -58.39 | -72.32 | -77.95 | -63.07 | -9.95 | -11.33 | -7.24 | -15.07 | -73.03 | -77.27 | -79.85 | -89.88 |
| 1 | 31.83 | 31.07 | 31.50 | 36.23 | -47.37 | -49.42 | -46.22 | -50.26 | -8.27 | -14.01 | -17.26 | -17.71 |
| 2 | 126.69 | 123.82 | 120.39 | 135.96 | -89.30 | -95.53 | -93.14 | -72.04 | 44.56 | 40.42 | 35.78 | 33.47 |
| 3 | 218.25 | 214.28 | 214.60 | 220.97 | -137.85 | -141.05 | -138.01 | -141.68 | 79.13 | 82.33 | 90.15 | 81.96 |
| 4 | 300.95 | 299.90 | 305.79 | 307.97 | -191.25 | -190.48 | -188.15 | -176.22 | 116.92 | 114.30 | 124.00 | 114.54 |
| 5 | 380.96 | 381.33 | 381.28 | 389.83 | -236.24 | -239.90 | -236.23 | -230.26 | 146.88 | 142.20 | 161.78 | 148.34 |
| 6 | 458.82 | 459.29 | 454.90 | 468.56 | -284.95 | -288.94 | -281.39 | -285.96 | 176.77 | 175.17 | 186.28 | 174.07 |
| 7 | 532.07 | 531.83 | 532.30 | 542.27 | -332.69 | -338.27 | -328.70 | -315.52 | 203.56 | 204.00 | 220.79 | 207.92 |
| 8 | 608.88 | 604.01 | 609.10 | 617.65 | -379.94 | -387.34 | -375.14 | -389.39 | 234.83 | 231.99 | 251.08 | 233.23 |
| 9 | 677.28 | 672.11 | 680.12 | 691.50 | -425.14 | -429.81 | -421.89 | -412.47 | 258.64 | 254.32 | 280.49 | 258.89 |
| 10 | 746.86 | 744.22 | 743.50 | 762.14 | -469.51 | -474.57 | -467.03 | -456.10 | 282.33 | 282.92 | 310.08 | 284.61 |

| CVP4 | SG36-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -19.60 | -22.33 | -28.20 | -11.60 | -50.43 | -61.13 | -85.06 | -63.24 | -85.57 | -88.49 | -83.50 | -90.60 |
| 1 | 18.19 | 10.22 | 5.10 | 19.17 | -32.47 | -35.54 | -64.58 | -37.99 | -23.88 | -22.12 | -21.74 | -22.22 |
| 2 | 55.04 | 57.35 | 46.65 | 54.87 | -12.38 | -23.51 | -40.82 | -17.62 | 31.77 | 31.27 | 43.40 | 28.53 |
| 3 | 96.38 | 96.64 | 90.74 | 101.25 | -18.78 | -21.48 | -28.78 | -24.58 | 66.75 | 67.40 | 79.09 | 66.44 |
| 4 | 137.54 | 130.83 | 131.82 | 132.92 | -30.99 | -30.86 | -33.20 | -29.54 | 94.45 | 95.32 | 108.71 | 95.53 |
| 5 | 172.86 | 175.39 | 168.53 | 175.99 | -32.52 | -42.00 | -36.96 | -38.27 | 125.07 | 126.72 | 138.26 | 123.67 |
| 6 | 212.88 | 202.37 | 200.89 | 207.43 | -42.82 | -50.77 | -44.16 | -52.70 | 151.95 | 152.03 | 185.89 | 147.14 |
| 7 | 243.59 | 238.66 | 230.09 | 243.41 | -51.32 | -59.27 | -48.19 | -52.57 | 173.65 | 173.81 | 207.96 | 171.79 |
| 8 | 277.33 | 271.25 | 268.24 | 275.54 | -60.09 | -71.20 | -59.57 | -70.02 | 198.37 | 198.57 | 233.33 | 193.60 |
| 9 | 309.33 | 301.61 | 298.56 | 308.50 | -62.92 | -75.06 | -77.58 | -69.51 | 216.17 | 216.83 | 249.15 | 213.14 |
| 10 | 336.84 | 331.94 | 318.81 | 339.95 | -67.66 | -74.22 | -81.39 | -78.33 | 236.81 | 239.92 | 276.05 | 237.02 |

| CVP4 | SG36L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -4.45 | 14.50 | 8.86 | 3.25 | -38.94 | -32.24 | -35.50 | -13.49 | -48.86 | -43.48 | -46.87 | -40.62 |
| 1 | -5.38 | -5.11 | -6.88 | -14.16 | 70.64 | 75.88 | 67.35 | 77.16 | 48.02 | 55.85 | 45.17 | 56.29 |
| 2 | -7.67 | -1.39 | -7.11 | -16.67 | 185.87 | 195.52 | 173.87 | 192.79 | 160.88 | 162.20 | 157.86 | 166.59 |
| 3 | -4.27 | -4.69 | -4.51 | -13.97 | 300.22 | 303.69 | 291.10 | 304.52 | 275.49 | 270.82 | 264.86 | 272.33 |
| 4 | -3.95 | -1.53 | -8.61 | -19.60 | 422.04 | 415.41 | 406.94 | 416.39 | 374.54 | 379.11 | 371.30 | 374.49 |
| 5 | -8.28 | -1.20 | -4.32 | -14.67 | 523.03 | 522.75 | 511.76 | 525.67 | 477.29 | 479.62 | 467.47 | 473.03 |
| 6 | -7.44 | -7.76 | -2.65 | -20.90 | 628.18 | 628.88 | 611.97 | 634.37 | 573.89 | 572.20 | 578.13 | 569.84 |
| 7 | -8.27 | -5.16 | -9.77 | -18.02 | 731.05 | 734.99 | 714.10 | 737.36 | 668.44 | 665.68 | 670.87 | 660.18 |
| 8 | -13.30 | -6.18 | -9.68 | -27.94 | 836.83 | 839.96 | 812.02 | 838.95 | 758.30 | 757.29 | 755.75 | 750.05 |
| 9 | -10.23 | -3.20 | -16.15 | -33.57 | 936.01 | 934.90 | 907.80 | 935.90 | 846.87 | 848.93 | 837.90 | 842.26 |
| 10 | -13.49 | -11.17 | -11.26 | -42.93 | 1032.30 | 1030.15 | 1003.81 | 1037.75 | 937.87 | 935.84 | 917.09 | 931.20 |

| CVP4 | SG37T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 29.23 | 1.39 | -4.35 | 7.61 | -6.55 | -16.59 | -3.49 | -25.39 | -4.90 | -3.80 | -3.11 | -33.94 |
| 1 | 66.62 | 55.30 | 60.84 | 59.43 | -28.68 | -34.47 | -29.75 | -42.62 | 26.85 | 19.91 | 28.47 | 9.46 |
| 2 | 109.91 | 96.18 | 100.03 | 113.79 | -57.54 | -60.60 | -64.35 | -39.87 | 47.79 | 44.80 | 55.84 | 39.81 |
| 3 | 143.20 | 135.57 | 140.39 | 145.46 | -85.40 | -86.35 | -86.32 | -91.42 | 49.37 | 52.96 | 61.58 | 52.22 |
| 4 | 181.36 | 174.91 | 184.15 | 182.04 | -117.38 | -115.86 | -116.38 | -100.74 | 59.49 | 58.92 | 71.51 | 59.11 |
| 5 | 223.65 | 216.48 | 219.79 | 225.38 | -144.47 | -144.88 | -143.92 | -132.72 | 71.44 | 66.38 | 84.63 | 72.44 |
| 6 | 269.43 | 262.41 | 258.62 | 269.03 | -173.33 | -174.05 | -172.98 | -166.25 | 84.38 | 85.54 | 112.04 | 82.24 |
| 7 | 313.51 | 302.72 | 303.90 | 312.16 | -202.90 | -203.38 | -202.23 | -184.31 | 99.91 | 103.76 | 133.83 | 104.84 |
| 8 | 364.05 | 349.70 | 357.70 | 362.72 | -230.07 | -233.37 | -229.62 | -230.70 | 118.94 | 116.92 | 149.27 | 118.83 |
| 9 | 409.56 | 390.04 | 406.53 | 413.36 | -259.83 | -258.47 | -259.14 | -243.46 | 135.47 | 132.58 | 169.00 | 135.84 |
| 10 | 459.27 | 444.31 | 452.09 | 462.82 | -289.57 | -289.98 | -289.65 | -273.25 | 149.97 | 154.02 | 184.02 | 154.25 |

| CVP4 | SG37-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 21.23 | -1.68 | -7.97 | 7.51 | -11.99 | -36.25 | -38.40 | -44.12 | -36.93 | -38.60 | -25.36 | -55.50 |
| 1 | 42.94 | 26.14 | 18.88 | 33.85 | -11.66 | -21.10 | -36.34 | -28.47 | 0.84 | 0.20 | 3.79 | -8.18 |
| 2 | 52.20 | 44.09 | 37.98 | 53.95 | -5.66 | -18.90 | -31.98 | -3.74 | 21.12 | 20.94 | 41.57 | 20.55 |
| 3 | 55.55 | 52.91 | 57.80 | 67.12 | -17.90 | -20.41 | -27.20 | -28.74 | 18.56 | 19.98 | 40.94 | 22.61 |
| 4 | 69.95 | 57.67 | 92.10 | 69.33 | -34.10 | -31.70 | -37.57 | -24.21 | 16.63 | 17.83 | 46.97 | 24.68 |
| 5 | 83.21 | 79.30 | 106.92 | 90.39 | -36.53 | -43.87 | -41.20 | -35.17 | 23.83 | 22.87 | 56.25 | 29.18 |
| 6 | 105.22 | 89.63 | 117.21 | 104.30 | -46.58 | -52.73 | -49.69 | -50.50 | 27.60 | 29.89 | 99.86 | 32.02 |
| 7 | 118.47 | 105.74 | 127.86 | 121.92 | -56.27 | -61.04 | -53.92 | -48.89 | 32.05 | 35.41 | 107.19 | 41.57 |
| 8 | 140.58 | 125.20 | 168.63 | 145.38 | -62.60 | -73.25 | -63.74 | -68.63 | 40.59 | 40.48 | 115.76 | 49.88 |
| 9 | 157.78 | 136.73 | 190.07 | 168.33 | -67.15 | -75.23 | -83.22 | -65.74 | 44.25 | 43.67 | 119.68 | 53.60 |
| 10 | 175.46 | 160.96 | 206.00 | 191.44 | -72.61 | -75.67 | -86.60 | -77.02 | 49.36 | 54.17 | 127.19 | 65.30 |

| CVP4 | SG37L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 6.56 | -7.64 | 150.98 | -26.01 | 19.95 | 17.19 | 29.13 | 35.07 | -1.38 | 3.18 | 61.98 | -24.15 |
| 1 | 8.75 | -2.01 | 174.55 | -15.37 | 99.03 | 103.76 | 102.70 | 104.90 | 87.01 | 89.99 | 93.77 | 80.55 |
| 2 | -17.16 | -22.42 | 89.43 | -27.47 | 188.35 | 201.12 | 178.57 | 217.20 | 158.90 | 159.26 | 158.60 | 163.43 |
| 3 | -48.15 | -51.54 | -63.83 | -54.20 | 286.24 | 295.81 | 279.66 | 291.19 | 233.37 | 229.25 | 227.54 | 230.38 |
| 4 | -72.54 | -74.70 | -110.04 | -85.61 | 391.03 | 396.52 | 382.26 | 406.76 | 301.85 | 307.03 | 305.36 | 303.86 |
| 5 | -97.80 | -95.53 | -143.85 | -102.81 | 481.30 | 495.38 | 479.76 | 500.57 | 381.86 | 381.44 | 377.18 | 376.51 |
| 6 | -114.02 | -119.10 | -177.28 | -127.25 | 580.36 | 595.98 | 572.81 | 600.56 | 457.52 | 456.88 | 483.21 | 451.67 |
| 7 | -132.42 | -136.89 | -213.74 | -143.72 | 671.43 | 697.69 | 669.50 | 707.76 | 535.61 | 536.11 | 563.92 | 527.29 |
| 8 | -149.11 | -151.34 | -225.95 | -163.94 | 774.64 | 799.49 | 764.46 | 793.57 | 611.79 | 610.09 | 629.40 | 603.89 |
| 9 | -163.68 | -169.19 | -244.20 | -182.28 | 869.87 | 893.80 | 854.95 | 898.76 | 687.47 | 688.24 | 698.09 | 682.41 |
| 10 | -179.28 | -184.36 | -259.57 | -201.53 | 963.59 | 986.88 | 949.07 | 998.29 | 765.55 | 764.66 | 761.03 | 760.06 |

| CVP4 | SG38T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -40.38 | -53.33 | -65.32 | -50.94 | 1.52 | -0.23 | 14.02 | -4.31 | -41.85 | -46.33 | -46.78 | -67.28 |
| 1 | 50.01 | 46.07 | 53.72 | 49.34 | -30.94 | -32.14 | -25.16 | -38.22 | 24.85 | 20.08 | 27.02 | 13.53 |
| 2 | 142.43 | 138.65 | 140.73 | 148.67 | -64.37 | -68.17 | -65.35 | -55.24 | 88.95 | 85.50 | 89.37 | 79.27 |
| 3 | 235.55 | 230.34 | 232.68 | 234.91 | -99.96 | -103.28 | -98.78 | -102.73 | 143.59 | 147.30 | 148.26 | 146.52 |
| 4 | 319.78 | 318.36 | 322.63 | 322.64 | -138.39 | -136.20 | -135.62 | -130.73 | 203.35 | 200.79 | 201.72 | 199.97 |
| 5 | 402.33 | 401.17 | 400.35 | 407.22 | -169.53 | -170.88 | -172.59 | -164.30 | 254.31 | 251.32 | 258.64 | 255.90 |
| 6 | 483.89 | 483.02 | 477.22 | 488.82 | -204.76 | -206.70 | -205.02 | -204.14 | 306.52 | 304.64 | 306.43 | 304.58 |
| 7 | 562.28 | 560.21 | 558.50 | 567.64 | -237.62 | -241.95 | -239.34 | -228.84 | 355.52 | 354.13 | 358.19 | 358.92 |
| 8 | 642.71 | 637.12 | 639.95 | 646.08 | -272.51 | -275.85 | -273.14 | -278.79 | 407.01 | 404.87 | 409.67 | 404.37 |
| 9 | 719.48 | 712.20 | 715.52 | 724.98 | -306.41 | -307.11 | -301.27 | -300.08 | 451.86 | 450.19 | 455.74 | 452.90 |
| 10 | 796.39 | 790.67 | 793.14 | 801.76 | -339.20 | -343.11 | -339.93 | -330.81 | 498.39 | 499.14 | 504.69 | 499.75 |

| CVP4 | SG38-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -23.32 | -23.73 | -46.30 | -28.10 | 13.54 | 5.53 | 21.58 | -6.06 | -18.14 | -19.87 | -44.73 | -45.63 |
| 1 | 23.26 | 18.86 | 11.81 | 26.64 | 32.26 | 25.48 | 36.55 | 28.88 | 55.80 | 67.67 | 45.55 | 59.45 |
| 2 | 59.88 | 64.32 | 58.40 | 60.05 | 76.25 | 64.66 | 69.78 | 69.54 | 135.59 | 138.98 | 131.60 | 137.82 |
| 3 | 100.71 | 100.36 | 101.11 | 106.06 | 102.55 | 99.85 | 104.42 | 93.56 | 209.60 | 208.57 | 193.17 | 209.33 |
| 4 | 141.08 | 135.06 | 141.84 | 139.30 | 127.79 | 127.59 | 127.84 | 129.41 | 279.86 | 280.14 | 300.36 | 280.48 |
| 5 | 177.93 | 181.43 | 174.19 | 178.56 | 166.32 | 157.80 | 168.13 | 157.75 | 351.44 | 353.40 | 374.89 | 349.93 |
| 6 | 217.77 | 208.53 | 207.19 | 212.09 | 196.00 | 187.76 | 204.20 | 185.95 | 423.04 | 423.64 | 442.95 | 419.43 |
| 7 | 248.08 | 243.80 | 239.87 | 246.48 | 230.12 | 218.57 | 240.93 | 222.43 | 492.71 | 492.15 | 509.04 | 491.01 |
| 8 | 282.23 | 278.57 | 279.50 | 282.46 | 261.21 | 247.13 | 272.11 | 251.02 | 565.64 | 563.59 | 582.82 | 559.85 |
| 9 | 315.34 | 309.28 | 311.53 | 318.06 | 295.62 | 283.79 | 294.70 | 285.62 | 630.83 | 630.46 | 648.53 | 628.09 |
| 10 | 350.31 | 345.13 | 345.70 | 352.51 | 332.15 | 326.01 | 339.76 | 315.55 | 700.24 | 701.61 | 715.22 | 700.54 |

| CVP4 | SG38L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -18.74 | 2.69 | -6.24 | -10.86 | -10.26 | -10.60 | -18.00 | -1.35 | -25.51 | -19.22 | -34.30 | -27.80 |
| 1 | -14.83 | -6.96 | -10.57 | -15.14 | 78.63 | 80.93 | 73.46 | 83.51 | 64.60 | 74.21 | 56.41 | 73.19 |
| 2 | -21.72 | -11.99 | -20.49 | -21.06 | 181.18 | 183.41 | 168.09 | 186.88 | 152.48 | 153.16 | 149.99 | 159.16 |
| 3 | -31.13 | -27.93 | -29.20 | -31.26 | 274.84 | 279.74 | 265.60 | 276.66 | 239.91 | 233.81 | 227.47 | 238.34 |
| 4 | -42.16 | -37.66 | -40.34 | -46.53 | 381.05 | 373.00 | 363.72 | 376.85 | 313.42 | 320.78 | 314.96 | 319.32 |
| 5 | -57.53 | -45.49 | -48.77 | -54.17 | 470.78 | 467.23 | 457.92 | 471.22 | 399.08 | 400.93 | 396.19 | 396.74 |
| 6 | -65.91 | -61.75 | -56.69 | -67.96 | 565.40 | 564.05 | 547.82 | 566.74 | 480.13 | 478.68 | 473.43 | 477.84 |
| 7 | -76.16 | -68.50 | -72.20 | -74.02 | 658.33 | 657.81 | 640.53 | 661.98 | 558.13 | 557.49 | 555.22 | 556.57 |
| 8 | -89.20 | -76.65 | -77.66 | -87.53 | 752.08 | 753.53 | 727.78 | 751.24 | 637.48 | 637.43 | 629.24 | 635.03 |
| 9 | -97.35 | -84.91 | -89.35 | -97.82 | 846.05 | 838.46 | 809.76 | 843.69 | 715.19 | 716.95 | 705.63 | 715.90 |
| 10 | -107.51 | -94.68 | -97.74 | -111.09 | 936.09 | 934.67 | 907.47 | 936.98 | 794.50 | 793.51 | 778.56 | 796.13 |

| CVP4 | SG39T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -87.40 | -106.05 | -119.54 | -102.29 | 10.27 | 6.49 | 20.96 | 2.81 | -95.66 | -97.99 | -107.90 | -128.10 |
| 1 | 18.36 | 15.43 | 24.80 | 18.72 | -18.37 | -21.00 | -11.75 | -24.26 | -2.69 | -7.43 | -8.24 | -14.70 |
| 2 | 125.41 | 120.69 | 122.86 | 135.10 | -43.34 | -47.71 | -47.61 | -18.86 | 76.88 | 73.42 | 75.35 | 68.02 |
| 3 | 224.13 | 218.98 | 223.95 | 226.64 | -70.82 | -72.72 | -70.98 | -75.13 | 135.02 | 138.74 | 139.03 | 138.92 |
| 4 | 313.13 | 311.06 | 319.67 | 317.10 | -100.73 | -99.69 | -99.26 | -80.60 | 194.57 | 194.18 | 195.25 | 193.63 |
| 5 | 397.33 | 395.17 | 400.06 | 403.25 | -123.72 | -126.03 | -125.90 | -111.48 | 244.96 | 241.81 | 253.80 | 248.94 |
| 6 | 478.74 | 477.57 | 476.96 | 485.40 | -149.47 | -151.51 | -149.48 | -143.14 | 295.64 | 295.58 | 295.53 | 295.47 |
| 7 | 555.00 | 552.69 | 556.65 | 561.64 | -173.62 | -177.64 | -174.37 | -150.11 | 341.55 | 343.92 | 344.47 | 348.50 |
| 8 | 632.90 | 625.73 | 636.46 | 638.95 | -198.82 | -203.39 | -197.62 | -201.80 | 391.23 | 390.44 | 393.42 | 392.37 |
| 9 | 703.14 | 695.40 | 708.67 | 713.19 | -222.43 | -224.35 | -222.79 | -202.06 | 434.16 | 432.22 | 440.72 | 437.45 |
| 10 | 775.12 | 768.36 | 780.13 | 785.20 | -244.61 | -247.44 | -245.10 | -222.57 | 474.17 | 478.60 | 484.61 | 481.03 |

| CVP4 | SG39-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -61.22 | -72.78 | -89.13 | -71.54 | 27.31 | 9.78 | 30.62 | 9.03 | -61.57 | -70.60 | -90.64 | -102.19 |
| 1 | 10.57 | -1.94 | -0.16 | 8.88 | 43.85 | 39.11 | 48.61 | 39.41 | 35.62 | 34.47 | 27.70 | 30.95 |
| 2 | 65.94 | 66.70 | 61.33 | 70.69 | 83.23 | 71.56 | 75.55 | 93.16 | 129.01 | 124.94 | 131.24 | 125.12 |
| 3 | 120.49 | 120.77 | 121.81 | 129.52 | 108.00 | 110.25 | 111.03 | 102.27 | 209.64 | 203.78 | 204.68 | 208.21 |
| 4 | 172.15 | 166.92 | 177.58 | 172.80 | 140.72 | 138.12 | 140.35 | 152.62 | 278.29 | 282.09 | 285.55 | 282.91 |
| 5 | 216.74 | 223.03 | 222.68 | 227.93 | 178.83 | 171.09 | 178.95 | 181.23 | 362.25 | 358.05 | 363.90 | 358.52 |
| 6 | 265.53 | 259.47 | 263.91 | 269.00 | 210.13 | 204.68 | 214.64 | 208.58 | 436.09 | 429.76 | 431.52 | 428.65 |
| 7 | 304.52 | 303.03 | 301.23 | 314.54 | 244.20 | 240.49 | 255.38 | 260.57 | 503.23 | 497.69 | 495.03 | 501.38 |
| 8 | 345.60 | 343.46 | 352.67 | 356.69 | 278.08 | 270.40 | 290.45 | 270.78 | 576.85 | 568.75 | 569.11 | 569.66 |
| 9 | 386.20 | 380.32 | 392.74 | 399.21 | 319.09 | 308.46 | 314.77 | 326.38 | 639.80 | 632.10 | 638.97 | 636.31 |
| 10 | 422.21 | 422.75 | 428.99 | 438.85 | 356.86 | 356.23 | 364.36 | 362.79 | 706.65 | 701.55 | 708.41 | 707.06 |

| CVP4 | SG39L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | -34.27 | -13.80 | -39.81 | -39.09 | 1.88 | -0.44 | 1.03 | 11.77 | -30.52 | -26.31 | -63.11 | -50.75 |
| 1 | -12.37 | -8.14 | -17.11 | -18.58 | 84.47 | 86.39 | 84.27 | 84.16 | 62.29 | 66.51 | 49.05 | 65.75 |
| 2 | -7.59 | 0.73 | -8.15 | -12.40 | 168.14 | 172.25 | 160.45 | 174.49 | 144.93 | 145.08 | 139.32 | 147.87 |
| 3 | 0.15 | 2.40 | 0.66 | -4.33 | 251.62 | 254.69 | 247.86 | 253.00 | 233.30 | 228.27 | 222.88 | 231.23 |
| 4 | 2.70 | 6.29 | 3.46 | -4.79 | 347.42 | 341.16 | 338.90 | 344.00 | 310.49 | 312.79 | 311.91 | 313.77 |
| 5 | 0.75 | 12.89 | 8.79 | 6.07 | 427.18 | 426.88 | 423.76 | 430.80 | 396.26 | 396.41 | 394.47 | 396.21 |
| 6 | 4.36 | 4.68 | 11.11 | 2.18 | 512.69 | 513.50 | 506.19 | 517.85 | 475.57 | 471.79 | 474.27 | 477.29 |
| 7 | 5.17 | 9.17 | 7.63 | 8.58 | 596.51 | 600.20 | 591.44 | 603.93 | 554.46 | 548.78 | 553.21 | 553.69 |
| 8 | 1.27 | 11.31 | 10.19 | 1.15 | 684.49 | 687.49 | 674.39 | 686.55 | 630.64 | 626.06 | 627.14 | 629.13 |
| 9 | 6.23 | 16.51 | 6.47 | -0.01 | 769.67 | 767.37 | 756.29 | 770.95 | 704.50 | 703.31 | 697.83 | 707.44 |
| 10 | 2.66 | 12.66 | 12.41 | -5.86 | 852.97 | 851.42 | 840.82 | 856.09 | 783.76 | 778.10 | 771.61 | 783.71 |

| CVP4 | SG40T | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 41.77 | 25.49 | 25.07 | 34.78 | -9.55 | -12.22 | 4.65 | -19.03 | 12.63 | 15.93 | 14.43 | 5.55 |
| 1 | 74.45 | 68.95 | 65.79 | 73.86 | -24.89 | -27.20 | -16.17 | -29.44 | 43.32 | 44.06 | 36.53 | 36.04 |
| 2 | 110.43 | 103.64 | 101.22 | 116.03 | -34.56 | -38.34 | -35.71 | -26.70 | 70.90 | 71.83 | 67.94 | 68.36 |
| 3 | 140.75 | 136.18 | 137.21 | 142.36 | -46.98 | -49.48 | -47.41 | -51.17 | 88.05 | 92.26 | 87.65 | 89.18 |
| 4 | 177.28 | 173.07 | 176.66 | 178.87 | -62.14 | -63.54 | -62.60 | -52.45 | 115.25 | 115.47 | 113.41 | 113.48 |
| 5 | 217.62 | 211.38 | 212.27 | 218.32 | -75.11 | -77.14 | -75.20 | -70.67 | 138.99 | 135.55 | 141.00 | 139.58 |
| 6 | 262.72 | 258.15 | 250.42 | 261.76 | -89.35 | -93.21 | -89.99 | -86.42 | 166.37 | 168.77 | 160.16 | 164.25 |
| 7 | 303.99 | 299.24 | 295.90 | 303.03 | -103.56 | -109.61 | -105.46 | -96.74 | 195.03 | 200.02 | 189.75 | 197.28 |
| 8 | 352.89 | 345.60 | 344.84 | 353.10 | -119.30 | -127.19 | -119.41 | -121.83 | 228.29 | 227.78 | 220.98 | 225.77 |
| 9 | 397.67 | 386.76 | 391.78 | 402.59 | -137.37 | -140.62 | -138.16 | -129.94 | 258.03 | 256.95 | 254.58 | 255.01 |
| 10 | 451.17 | 439.32 | 439.04 | 452.59 | -154.11 | -160.04 | -155.42 | -146.92 | 283.83 | 290.42 | 283.07 | 285.72 |

| CVP4 | SG40-45 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 41.35 | 28.87 | 27.41 | 39.39 | 22.56 | 7.79 | 27.45 | 4.46 | 36.71 | 31.46 | 23.46 | 20.13 |
| 1 | 52.49 | 38.37 | 31.43 | 50.89 | 42.11 | 37.38 | 46.82 | 39.71 | 77.27 | 77.86 | 66.39 | 74.76 |
| 2 | 51.21 | 50.06 | 40.20 | 55.28 | 85.22 | 75.02 | 78.96 | 85.56 | 124.96 | 123.90 | 125.40 | 124.44 |
| 3 | 50.48 | 50.44 | 48.42 | 59.48 | 115.91 | 116.85 | 115.52 | 110.22 | 168.61 | 163.52 | 161.56 | 165.17 |
| 4 | 59.43 | 52.44 | 59.38 | 60.39 | 152.82 | 149.54 | 148.37 | 158.81 | 208.78 | 213.41 | 212.17 | 213.78 |
| 5 | 68.38 | 71.44 | 67.79 | 76.65 | 193.55 | 186.23 | 191.67 | 190.25 | 269.06 | 265.66 | 262.62 | 264.36 |
| 6 | 87.74 | 78.93 | 76.74 | 86.33 | 228.45 | 222.24 | 228.20 | 224.96 | 322.74 | 319.70 | 309.18 | 314.62 |
| 7 | 98.16 | 94.28 | 85.87 | 102.77 | 266.11 | 260.81 | 270.58 | 271.54 | 374.79 | 372.71 | 356.13 | 370.13 |
| 8 | 115.14 | 111.81 | 111.99 | 123.24 | 303.35 | 293.17 | 308.63 | 296.15 | 433.64 | 427.70 | 414.04 | 425.29 |
| 9 | 133.41 | 123.51 | 130.08 | 144.61 | 345.33 | 334.46 | 333.99 | 345.20 | 485.48 | 479.49 | 473.05 | 478.86 |
| 10 | 152.77 | 149.08 | 145.05 | 166.16 | 385.41 | 382.44 | 383.87 | 381.70 | 539.82 | 538.04 | 531.32 | 538.28 |

| CVP4 | SG40L | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Load Condition 1a | | | | Load Condition 1b | | | | Load Condition 1c | | | |
| Load Step | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 | Air1 | Air2 | Water1 | Water2 |
| 0 | 36.89 | 47.36 | 32.50 | 34.75 | 16.33 | 11.27 | 15.57 | 20.00 | 43.89 | 46.59 | 22.18 | 35.68 |
| 1 | 16.25 | 17.04 | -0.01 | 14.29 | 89.22 | 90.17 | 87.93 | 88.13 | 96.14 | 97.57 | 76.62 | 94.50 |
| 2 | -12.07 | -8.35 | -17.73 | -14.20 | 167.77 | 170.02 | 158.05 | 170.68 | 148.57 | 147.81 | 144.21 | 153.49 |
| 3 | -42.03 | -42.71 | -42.22 | -43.63 | 248.15 | 250.39 | 240.87 | 247.78 | 207.75 | 203.13 | 198.81 | 204.64 |
| 4 | -69.43 | -67.01 | -65.79 | -70.84 | 338.57 | 332.20 | 326.10 | 334.91 | 265.45 | 267.64 | 260.76 | 269.14 |
| 5 | -94.45 | -84.71 | -82.96 | -86.55 | 416.21 | 415.09 | 408.12 | 417.52 | 334.13 | 333.22 | 324.73 | 333.23 |
| 6 | -108.15 | -107.74 | -100.12 | -109.92 | 498.97 | 498.24 | 486.84 | 502.46 | 400.22 | 399.13 | 389.00 | 399.94 |
| 7 | -126.96 | -123.08 | -119.85 | -123.26 | 581.78 | 583.24 | 569.23 | 585.77 | 468.71 | 467.49 | 456.23 | 465.30 |
| 8 | -143.20 | -135.12 | -128.80 | -139.17 | 669.41 | 668.44 | 650.64 | 668.57 | 537.26 | 533.44 | 519.80 | 533.07 |
| 9 | -155.09 | -149.59 | -140.50 | -152.14 | 752.09 | 748.46 | 729.49 | 750.80 | 604.05 | 602.56 | 585.38 | 603.45 |
| 10 | -166.23 | -160.90 | -160.39 | -167.10 | 833.72 | 830.87 | 811.52 | 832.93 | 675.05 | 670.82 | 656.26 | 674.76 |

# APPENDIX G—FATIGUE CRACK GROWTH DATA

SUMMARY.

The fatigue crack growth was measured during the constant-amplitude loading, defined by load conditions, are defined in table G-1. The loading rate was 0.2 Hz at an R ratio (minimum load to maximum load) of 0.1. The growth of the lead crack and the multiple cracks was monitored and recorded. All the fatigue crack growth data are provided in the tables in this appendix.

For panels CVP1 and CVP2, the lead crack growth data are provided in table G-2. The crack tip positions measured from the central frame on the right- and left-hand sides of CVP2 are given in tables G-3 and G-4, respectively. For panels CVP3 and CVP4, the lead crack growth data are provided in table G-5. The crack tip positions measured from the central frame on the right- and left-hand sides of CVP4 are given in tables G-6 and G-7, respectively.

TABLE G-1. FATIGUE LOADING CONDITIONS OF PANELS

| Panel | Maximum Load | | | |
|---|---|---|---|---|
| | Pressure (psi) | Hoop (lb./in) | Frame (lb./in) | Long. (lb./in) |
| CVP1 | 10.1 | 554.6 | 111.9 | 333.3 |
| CVP2 | 10.1 | 554.6 | 111.9 | 333.3 |
| CVP3 | 8.8 | 483.2 | 97.6 | 875.7 |
| CVP4 | 8.8 | 483.2 | 97.6 | 875.7 |

TABLE G-2. LEAD CRACK GROWTH IN PANELS CVP1 AND CVP2

| CVP1 | | | CVP2 (Multiple Cracks) | | |
|---|---|---|---|---|---|
| Cycles | a, right (in) | a, left (in) | Cycle | a, right (in) | a, left (in) |
| 0 | 3.503 | 3.540 | 50 | 3.528 | 3.514 |
| 645 | 3.522 | 3.559 | 85 | 3.528 | 3.535 |
| 700 | 3.525 | 3.562 | 200 | 3.563 | 3.554 |
| 750 | 3.541 | 3.576 | 205 | 3.567 | 3.554 |
| 800 | 3.541 | 3.578 | 303 | 3.577 | 3.556 |
| 900 | 3.547 | 3.583 | 400 | 3.581 | 3.562 |
| 1000 | 3.563 | 3.589 | 500 | 3.588 | 3.562 |
| 1200 | 3.558 | 3.607 | 600 | 3.598 | 3.566 |
| 1300 | 3.577 | 3.617 | 801 | 3.607 | 3.583 |
| 1400 | 3.590 | 3.635 | 1000 | 3.637 | 3.608 |
| 1503 | 3.610 | 3.656 | 1005 | 3.638 | 3.607 |
| 1600 | 3.628 | 3.656 | 1200 | 3.640 | 3.617 |
| 1750 | 3.628 | 3.693 | 1400 | 3.653 | 3.632 |
| 1900 | 3.645 | 3.717 | 1600 | 3.668 | 3.646 |
| 2100 | 3.672 | 3.752 | 1817 | 3.696 | 3.678 |
| 2300 | 3.711 | 3.818 | 2000 | 3.734 | 3.705 |
| 2500 | 3.759 | 3.871 | 2200 | 3.799 | 3.750 |
| 2750 | 3.785 | 3.947 | 2400 | 3.840 | 3.778 |
| 3000 | 3.829 | 4.000 | 2500 | 3.872 | 3.814 |
| 3250 | 3.905 | 4.131 | 2600 | 3.917 | 3.843 |
| 3457 | 3.995 | 4.326 | 2800 | 4.016 | 3.912 |
| 3472 | 4.016 | 4.378 | 2852 | 4.092 | 3.929 |
| 3477 | 4.016 | 4.397 | 2884 | 4.196 | 3.952 |
| 3477 | 4.016 | 4.653 | 2888 | 4.725 | 3.956 |
| 3550 | 4.048 | 4.653 | 2900 | 4.740 | 3.962 |
| 3650 | 4.103 | 4.653 | 2950 | 4.758 | 4.011 |
| 3750 | 4.183 | 4.653 | 3000 | 4.784 | 4.076 |
| 3850 | 4.257 | 4.653 | 3020 | 4.791 | 4.123 |
| 3890 | 4.325 | 4.653 | 3024 | 4.791 | 4.691 |
| 3909 | 4.359 | 4.653 | 3102 | 4.827 | 4.751 |
| 3914 | 4.387 | 4.653 | 3201 | 4.869 | 4.808 |
| 3914 | 4.638 | 4.653 | 3300 | 4.928 | 4.861 |
| 4000 | 4.638 | 4.653 | 3400 | 4.988 | 4.936 |
| 4100 | 4.638 | 4.653 | 3500 | 5.059 | 4.988 |
| 4200 | 4.638 | 4.653 | 3600 | 5.130 | 5.061 |
| 4300 | 4.638 | 4.653 | 3700 | 5.224 | 5.154 |
| 4400 | 4.638 | 4.674 | 3800 | 5.303 | 5.249 |
| 4500 | 4.638 | 4.735 | 3900 | 5.491 | 5.385 |
| 4550 | 4.638 | 4.762 | 3940 | 5.640 | 5.484 |
| 4600 | 4.638 | 4.792 | 3945 | 5.671 | 5.496 |
| 4700 | 4.638 | 4.840 | 3950 | 5.703 | 5.517 |
| 4800 | 4.638 | 4.895 | 3958 | 6.226 | 5.559 |

TABLE G-2. LEAD CRACK GROWTH IN PANELS CVP1 AND CVP2 (Continued)

| CVP1 | | | CVP2 (Multiple Cracks) | | |
|---|---|---|---|---|---|
| Cycles | a, right (in) | a, left (in) | Cycle | a, right (in) | a, left (in) |
| 4825 | 4.660 | 4.912 | 3970 | 6.255 | 6.188 |
| 4900 | 4.687 | 4.957 | 3977 | 6.268 | 6.231 |
| 5000 | 4.730 | 5.041 | 4001 | 6.304 | 6.263 |
| 5100 | 4.775 | 5.115 | 4025 | 6.336 | 6.299 |
| 5200 | 4.837 | 5.225 | 4050 | 6.378 | 6.340 |
| 5300 | 4.910 | 5.305 | 4110 | 6.458 | 6.451 |
| 5400 | 4.995 | 5.408 | 4175 | 6.543 | 6.577 |
| 5500 | 5.071 | 5.528 | 4250 | 6.667 | 6.781 |
| 5600 | 5.205 | 5.696 | 4283 | 6.715 | 7.718 |
| 5690 | 5.256 | 5.792 | 4290 | 6.736 | 7.760 |
| 5707 | 5.297 | 5.850 | 4305 | 6.792 | 7.794 |
| 5715 | 5.297 | 5.914 | 4312 | 6.821 | 7.818 |
| 5715 | 5.297 | 6.167 | 4325 | 6.878 | 7.846 |
| 5800 | 5.444 | 6.167 | 4337 | 6.908 | 7.863 |
| 5923 | 5.642 | 6.167 | 4349 | 6.999 | 7.890 |
| 5971 | 5.774 | 6.167 | 4351 | 7.021 | 7.890 |
| 5983 | 5.851 | 6.167 | 4354 | 7.787 | 7.890 |
| 5990 | 5.892 | 6.167 | 4360 | 7.821 | 7.890 |
| 5990 | 6.144 | 6.167 | 4400 | 7.887 | 7.945 |
| 6045 | 6.144 | 6.167 | 4450 | 8.010 | 8.066 |
| 6050 | 6.144 | 6.185 | 4470 | 8.040 | 8.156 |
| 6100 | 6.144 | 6.258 | 4475 | 8.056 | 8.168 |
| 6150 | 6.144 | 6.351 | 4484 | 8.081 | 8.229 |
| 6200 | 6.178 | 6.429 | 4500 | 8.173 | 8.355 |
| 6250 | 6.289 | 6.549 | 4504 | 8.202 | 9.273 |
| 6300 | 6.376 | 6.655 | 4509 | 8.279 | 9.306 |
| 6350 | 6.519 | 6.808 | 4515 | 8.350 | 9.344 |
| 6400 | 6.647 | 6.995 | 4517 | 8.382 | 9.344 |
| 6425 | 6.740 | 7.102 | 4519 | 8.428 | 9.344 |
| 6475 | 6.824 | 7.267 | 4520 | 9.315 | 9.344 |
| 6490 | 6.912 | 7.410 | 4530 | 9.412 | 9.405 |
| 6490 | 6.912 | 7.652 | 4540 | 9.513 | 9.465 |
| 6525 | 7.052 | 7.652 | 4550 | 9.644 | 9.540 |
| 6560 | 7.264 | 7.652 | 4560 | 9.760 | 9.635 |
| 6569 | 7.364 | 7.652 | 4566 | 9.890 | 9.707 |
| 6575 | 7.424 | 7.652 | 4568 | 10.839 | 9.753 |
| 6575 | 7.667 | 7.652 | 4570 | 10.903 | 10.821 |
| 6600 | 7.667 | 7.652 | 4575 | 10.947 | 10.896 |
| 6625 | 7.667 | 7.652 | 4580 | 11.032 | 10.982 |
| 6628 | 7.667 | 7.696 | 4585 | 11.114 | 11.050 |
| 6650 | 7.775 | 7.780 | 4590 | 11.202 | 11.134 |
| 6710 | 8.180 | 8.122 | 4595 | 12.315 | 11.290 |
| 6760 | 8.565 | 8.462 | 4597 | 12.397 | 12.288 |

TABLE G-2. LEAD CRACK GROWTH IN PANELS CVP1 AND CVP2 (Continued)

| CVP1 | | |
|---|---|---|
| Cycles | a, right (in) | a, left (in) |
| 6760 | 8.565 | 8.462 |
| 6785 | 8.799 | 8.769 |
| 6795 | 8.902 | 8.920 |
| 6795 | 9.178 | 9.167 |
| 6800 | 9.178 | 9.167 |
| 6825 | 9.178 | 9.167 |
| 6850 | 9.178 | 9.167 |
| 6875 | 9.178 | 9.167 |
| 6900 | 9.178 | 9.167 |
| 6925 | 9.178 | 9.167 |
| 6950 | 9.178 | 9.167 |
| 6975 | 9.204 | 9.213 |
| 7000 | 9.302 | 9.351 |
| 7050 | 9.598 | 9.745 |
| 7101 | 10.256 | 10.418 |
| 7107 | 10.387 | 10.416 |
| 7107 | 10.387 | 10.416 |
| 7111 | 10.405 | 10.660 |
| 7111 | 10.654 | 10.660 |
| 7120 | 10.654 | 10.660 |
| 7158 | 10.718 | 10.829 |
| 7175 | 10.937 | 11.181 |
| 7200 | 11.414 | 11.577 |
| 7207 | 11.622 | 11.746 |
| 7213 | 11.829 | 11.917 |
| 7213 | 11.829 | 12.170 |
| 7221 | 11.923 | 12.170 |
| 7221 | 12.215 | 12.170 |
| 7230 | 12.215 | 12.170 |
| 7240 | 12.215 | 12.170 |
| 7242 | 12.215 | 12.216 |
| 7268 | 12.267 | 12.796 |

TABLE G-3. RIGHT CRACK TIP POSITION FOR CVP2

| Cycle | Lead Crack Right (in) | Rivet 3R | | Rivet 4R | | Rivet 5R | | Rivet 6R | | Rivet 7R | | Rivet 8R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip |
| 50 | 3.528 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 85 | 3.528 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 200 | 3.563 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 205 | 3.567 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 303 | 3.577 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 400 | 3.581 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 500 | 3.588 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 600 | 3.598 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 801 | 3.607 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 1000 | 3.637 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 1005 | 3.638 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 1200 | 3.640 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 1400 | 3.653 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 1600 | 3.668 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 1817 | 3.696 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2000 | 3.734 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2200 | 3.799 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2400 | 3.840 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2500 | 3.872 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2600 | 3.917 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2800 | 4.016 | 4.343 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2852 | 4.092 | 4.326 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2884 | 4.196 | 4.279 | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2888 | | | 4.725 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2900 | | | 4.740 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 2950 | | | 4.758 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3000 | | | 4.784 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3020 | | | 4.792 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3024 | | | 4.792 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3102 | | | 4.827 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |

TABLE G-3. RIGHT CRACK TIP POSITION FOR CVP2 (Continued)

| Cycle | Lead Crack Right (in) | Rivet 3R | | Rivet 4R | | Rivet 5R | | Rivet 6R | | Rivet 7R | | Rivet 8R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip |
| 3201 | | | 4.869 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3300 | | | 4.928 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3400 | | | 4.988 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3500 | | | 5.059 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3600 | | | 5.130 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3700 | | | 5.224 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3800 | | | 5.303 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3900 | | | 5.491 | 5.841 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3940 | | | 5.640 | 5.798 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3945 | | | 5.671 | 5.774 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3950 | | | 5.703 | 5.748 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3958 | | | 5.736 | 5.734 | 6.226 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3970 | | | 5.782 | 5.712 | 6.255 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 3977 | | | 5.787 | 5.709 | 6.269 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4001 | | | 5.787 | 5.691 | 6.304 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4025 | | | 5.797 | 5.686 | 6.336 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4050 | | | 5.812 | 5.678 | 6.378 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4110 | | | 5.830 | 5.660 | 6.458 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4175 | | | 5.835 | 5.651 | 6.543 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4250 | | | 5.850 | 5.650 | 6.667 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4283 | | | | 5.644 | 6.715 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4290 | | | | | 6.736 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4305 | | | | | 6.792 | 7.285 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4312 | | | | | 6.821 | 7.277 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4325 | | | | | 6.878 | 7.269 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4337 | | | | | 6.908 | 7.268 | 7.765 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4349 | | | | | 6.999 | 7.208 | 7.773 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4351 | | | | | 7.021 | 7.185 | 7.773 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4354 | | | | | | | 7.787 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4360 | | | | | | | 7.821 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |

TABLE G-3. RIGHT CRACK TIP POSITION FOR CVP2 (Continued)

| Cycle | Lead Crack Right (in) | Rivet 3R | | Rivet 4R | | Rivet 5R | | Rivet 6R | | Rivet 7R | | Rivet 8R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip |
| 4400 | | | | | | | 7.887 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4450 | | | | | | | 8.010 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4470 | | | | | | | 8.040 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4475 | | | | | | | 8.056 | 8.766 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4484 | | | | | | | 8.081 | 8.762 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4500 | | | | | | | 8.174 | 8.756 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4504 | | | | | | | 8.202 | 8.745 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4509 | | | | | | | 8.279 | 8.735 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4515 | | | | | | | 8.350 | 8.714 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4517 | | | | | | | 8.382 | 8.712 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4519 | | | | | | | 8.428 | 8.653 | 9.248 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4520 | | | | | | | | | 9.315 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4530 | | | | | | | | | 9.413 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4540 | | | | | | | | | 9.513 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4550 | | | | | | | | | 9.644 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4560 | | | | | | | | | 9.760 | 10.273 | 10.761 | 11.843 | 12.219 |
| 4566 | | | | | | | | | 9.890 | 10.227 | 10.761 | 11.843 | 12.219 |
| 4568 | | | | | | | | | | | 10.839 | 11.843 | 12.219 |
| 4570 | | | | | | | | | | | 10.903 | 11.843 | 12.219 |
| 4575 | | | | | | | | | | | 10.948 | 11.843 | 12.219 |
| 4580 | | | | | | | | | | | 11.032 | 11.843 | 12.219 |
| 4585 | | | | | | | | | | | 11.114 | 11.843 | 12.219 |
| 4590 | | | | | | | | | | | 11.202 | 11.843 | 12.219 |
| 4595 | | | | | | | | | | | | 11.843 | 12.316 |
| 4597 | | | | | | | | | | | | | 12.398 |

TABLE G-4. LEFT CRACK TIP POSITION FOR CVP2

| Cycle | Lead Crack | Rivet 3L | | Rivet 4L | | Rivet 5L | | Rivet 6L | | Rivet 7L | | Rivet 8L | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left (in) | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip |
| 50 | 3.514 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 85 | 3.535 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 200 | 3.554 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 205 | 3.554 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 303 | 3.556 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 400 | 3.562 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 500 | 3.562 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 600 | 3.566 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 801 | 3.583 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 1000 | 3.608 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 1005 | 3.607 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 1200 | 3.617 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 1400 | 3.632 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 1600 | 3.646 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 1817 | 3.678 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2000 | 3.705 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2200 | 3.750 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2400 | 3.778 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2500 | 3.814 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2600 | 3.843 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2800 | 3.912 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2852 | 3.929 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2884 | 3.952 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2888 | 3.956 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2900 | 3.962 | 4.321 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 2950 | 4.011 | 4.314 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3000 | 4.076 | 4.312 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3020 | 4.123 | 4.285 | 4.677 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3024 | | | 4.691 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3102 | | | 4.751 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |

TABLE G-4. LEFT CRACK TIP POSITION FOR CVP2 (Continued)

| Cycle | Lead Crack | Rivet 3L | | Rivet 4L | | Rivet 5L | | Rivet 6L | | Rivet 7L | | Rivet 8L | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left (in) | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip |
| 3201 | | | 4.808 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3300 | | | 4.861 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3400 | | | 4.936 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3500 | | | 4.988 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3600 | | | 5.060 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3700 | | | 5.154 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3800 | | | 5.249 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3900 | | | 5.385 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3940 | | | 5.484 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3945 | | | 5.495 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3950 | | | 5.517 | 5.812 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3958 | | | 5.559 | 5.804 | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3970 | | | | | 6.188 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 3977 | | | | | 6.231 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4001 | | | | | 6.263 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4025 | | | | | 6.299 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4050 | | | | | 6.340 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4110 | | | | | 6.451 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4175 | | | | | 6.577 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4250 | | | | | 6.781 | 7.232 | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4283 | | | | | | | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4290 | | | | | | | 7.718 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4305 | | | | | | | 7.760 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4312 | | | | | | | 7.794 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4325 | | | | | | | 7.818 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4337 | | | | | | | 7.846 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4349 | | | | | | | 7.863 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4351 | | | | | | | 7.890 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4354 | | | | | | | 7.890 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4360 | | | | | | | 7.890 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |

TABLE G-4. LEFT CRACK TIP POSITION FOR CVP2 (Continued)

| Cycle | Lead Crack | Rivet 3L | | Rivet 4L | | Rivet 5L | | Rivet 6L | | Rivet 7L | | Rivet 8L | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left (in) | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip |
| 4400 | | | | | | | 7.945 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4450 | | | | | | | 8.066 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4470 | | | | | | | 8.156 | 8.747 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4475 | | | | | | | 8.168 | 8.739 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4484 | | | | | | | 8.229 | 8.728 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4500 | | | | | | | 8.355 | 8.698 | 9.206 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4504 | | | | | | | | | 9.272 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4509 | | | | | | | | | 9.305 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4515 | | | | | | | | | 9.343 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4517 | | | | | | | | | 9.343 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4519 | | | | | | | | | 9.343 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4520 | | | | | | | | | 9.343 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4530 | | | | | | | | | 9.405 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4540 | | | | | | | | | 9.464 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4550 | | | | | | | | | 9.539 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4560 | | | | | | | | | 9.634 | 10.245 | 10.716 | 11.792 | 12.167 |
| 4566 | | | | | | | | | 9.706 | 10.227 | 10.716 | 11.792 | 12.167 |
| 4568 | | | | | | | | | 9.752 | 10.178 | 10.716 | 11.792 | 12.167 |
| 4570 | | | | | | | | | | | 10.820 | 11.792 | 12.167 |
| 4575 | | | | | | | | | | | 10.895 | 11.792 | 12.167 |
| 4580 | | | | | | | | | | | 10.981 | 11.792 | 12.167 |
| 4585 | | | | | | | | | | | 11.049 | 11.792 | 12.167 |
| 4590 | | | | | | | | | | | 11.133 | 11.792 | 12.167 |
| 4595 | | | | | | | | | | | 11.289 | 11.752 | 12.167 |
| 4597 | | | | | | | | | | | | | 12.287 |

TABLE G-5. LEAD CRACK GROWTH IN PANELS CVP3 AND CVP4

| CVP3 | | | CVP4 (Multiple Cracks | | |
|---|---|---|---|---|---|
| Cycles | a, right (in) | a, left (in) | Cycles | a, right (in) | a, left (in) |
| 0 | 3.498 | 3.552 | 0 | 3.419 | 3.749 |
| 18 | 3.502 | 3.555 | 75 | 3.419 | 3.759 |
| 50 | 3.519 | 3.555 | 162 | 3.438 | 3.778 |
| 75 | 3.521 | 3.559 | 200 | 3.448 | 3.780 |
| 100 | 3.524 | 3.559 | 300 | 3.453 | 3.794 |
| 150 | 3.533 | 3.568 | 400 | 3.474 | 3.806 |
| 200 | 3.539 | 3.574 | 500 | 3.482 | 3.828 |
| 300 | 3.545 | 3.581 | 600 | 3.493 | 3.842 |
| 400 | 3.556 | 3.587 | 700 | 3.515 | 3.863 |
| 500 | 3.566 | 3.590 | 800 | 3.524 | 3.885 |
| 600 | 3.573 | 3.602 | 900 | 3.540 | 3.903 |
| 700 | 3.583 | 3.611 | 1000 | 3.554 | 3.915 |
| 800 | 3.593 | 3.618 | 1100 | 3.564 | 3.933 |
| 1000 | 3.613 | 3.634 | 1200 | 3.590 | 3.963 |
| 1050 | 3.622 | 3.637 | 1300 | 3.608 | 3.985 |
| 1200 | 3.648 | 3.656 | 1400 | 3.631 | 4.003 |
| 1400 | 3.669 | 3.670 | 1500 | 3.639 | 4.025 |
| 1600 | 3.689 | 3.685 | 1602 | 3.662 | 4.046 |
| 1800 | 3.710 | 3.702 | 1701 | 3.675 | 4.068 |
| 2000 | 3.748 | 3.723 | 1800 | 3.693 | 4.103 |
| 2207 | 3.773 | 3.743 | 1900 | 3.713 | 4.131 |
| 2400 | 3.798 | 3.754 | 2000 | 3.743 | 4.162 |
| 2600 | 3.827 | 3.768 | 2075 | 3.756 | 4.189 |
| 2800 | 3.851 | 3.793 | 2100 | 3.769 | 4.205 |
| 3000 | 3.882 | 3.811 | 2125 | 3.772 | 4.220 |
| 3300 | 3.936 | 3.847 | 2150 | 3.774 | 4.230 |
| 3600 | 3.993 | 3.872 | 2175 | 3.789 | 4.251 |
| 3800 | 4.011 | 3.891 | 2200 | 3.800 | 4.273 |
| 4000 | 4.053 | 3.896 | 2225 | 3.808 | 4.287 |
| 4200 | 4.102 | 3.919 | 2250 | 3.811 | 4.326 |
| 4400 | 4.155 | 3.945 | 2275 | 3.821 | 4.353 |
| 4583 | 4.214 | 3.974 | 2300 | 3.831 | 4.886 |
| 4715 | 4.263 | 4.001 | 2400 | 3.868 | 4.899 |
| 4800 | 4.307 | 4.023 | 2500 | 3.917 | 4.928 |
| 4881 | 4.362 | 4.044 | 2600 | 3.964 | 4.942 |
| 4918 | 4.424 | 4.055 | 2650 | 4.033 | 4.946 |
| 4918 | 4.655 | 4.055 | 2700 | 4.086 | 4.955 |
| 5100 | 4.655 | 4.117 | 2712 | 4.607 | 4.955 |
| 5300 | 4.655 | 4.180 | 2753 | 4.619 | 4.973 |
| 5500 | 4.655 | 4.257 | 2800 | 4.634 | 4.982 |
| 5650 | 4.655 | 4.302 | 2901 | 4.661 | 4.992 |
| 5790 | 4.655 | 4.365 | 3000 | 4.667 | 5.016 |

TABLE G-5. LEAD CRACK GROWTH IN PANELS CVP3 AND CVP4 (Continued)

| CVP3 | | | CVP4 (Multiple Cracks) | | |
|---|---|---|---|---|---|
| Cycles | a, right (in) | a, left (in) | Cycles | a, right (in) | a, left (in) |
| 5925 | 4.655 | 4.412 | 3100 | 4.687 | 5.034 |
| 6125 | 4.655 | 4.446 | 3200 | 4.705 | 5.053 |
| 6125 | 4.655 | 4.627 | 3300 | 4.726 | 5.067 |
| 6250 | 4.671 | 4.627 | 3400 | 4.751 | 5.083 |
| 6400 | 4.702 | 4.627 | 3500 | 4.761 | 5.109 |
| 6550 | 4.748 | 4.636 | 3600 | 4.774 | 5.126 |
| 6575 | 4.760 | 4.654 | 3800 | 4.814 | 5.191 |
| 6700 | 4.798 | 4.689 | 4000 | 4.885 | 5.268 |
| 6800 | 4.834 | 4.727 | 4200 | 4.949 | 5.314 |
| 7000 | 4.908 | 4.803 | 4401 | 5.011 | 5.396 |
| 7100 | 4.933 | 4.821 | 4600 | 5.080 | 5.473 |
| 7300 | 5.011 | 4.895 | 4800 | 5.171 | 5.550 |
| 7508 | 5.109 | 4.994 | 5000 | 5.244 | 5.647 |
| 7700 | 5.197 | 5.064 | 5100 | 5.273 | 5.679 |
| 8000 | 5.331 | 5.191 | 5200 | 5.323 | 5.762 |
| 8254 | 5.485 | 5.325 | 5270 | 5.341 | 5.812 |
| 8450 | 5.611 | 5.439 | 5308 | 5.372 | 5.856 |
| 8500 | 5.626 | 5.425 | 5325 | 5.384 | 5.882 |
| 8750 | 5.784 | 5.572 | 5340 | 5.387 | 6.325 |
| 8852 | 5.932 | 5.637 | 5375 | 5.399 | 6.336 |
| 8852 | 6.164 | 5.637 | 5500 | 5.483 | 6.360 |
| 9045 | 6.164 | 5.888 | 5575 | 5.555 | 6.395 |
| 9045 | 6.164 | 6.119 | 5600 | 5.603 | 6.404 |
| 9100 | 6.164 | 6.119 | 5608 | 5.618 | 6.408 |
| 9200 | 6.164 | 6.119 | 5618 | 6.035 | 6.420 |
| 9300 | 6.164 | 6.119 | 5651 | 6.047 | 6.424 |
| 9400 | 6.164 | 6.119 | 5800 | 6.124 | 6.479 |
| 9627 | 6.214 | 6.119 | 6000 | 6.181 | 6.540 |
| 9800 | 6.239 | 6.119 | 6100 | 6.209 | 6.556 |
| 10000 | 6.291 | 6.119 | 6200 | 6.235 | 6.572 |
| 10250 | 6.379 | 6.119 | 6300 | 6.265 | 6.605 |
| 10350 | 6.413 | 6.137 | 6400 | 6.292 | 6.627 |
| 10500 | 6.482 | 6.195 | 6500 | 6.320 | 6.661 |
| 10750 | 6.623 | 6.308 | 6600 | 6.361 | 6.691 |
| 11000 | 6.747 | 6.413 | 6800 | 6.423 | 6.760 |
| 11257 | 6.880 | 6.518 | 7000 | 6.483 | 6.826 |
| 11500 | 7.046 | 6.652 | 7200 | 6.528 | 6.876 |
| 11750 | 7.223 | 6.782 | 7400 | 6.593 | 6.924 |
| 11875 | 7.319 | 6.851 | 7600 | 6.630 | 6.957 |
| 12012 | 7.436 | 6.939 | 8000 | 6.731 | 7.070 |
| 12012 | 7.663 | 6.939 | 8400 | 6.869 | 7.221 |
| 12264 | 7.663 | 7.084 | 8700 | 6.960 | 7.294 |

TABLE G-5. LEAD CRACK GROWTH IN PANELS CVP3 AND CVP4 (Continued)

| CVP3 | | | CVP4 (Multiple Cracks) | | |
|---|---|---|---|---|---|
| Cycles | a, right (in) | a, left (in) | Cycles | a, right (in) | a, left (in) |
| 12500 | 7.663 | 7.217 | 8800 | 7.014 | 7.336 |
| 12750 | 7.663 | 7.333 | 8900 | 7.090 | 7.397 |
| 12850 | 7.663 | 7.366 | 8950 | 7.131 | 7.439 |
| 12850 | 7.663 | 7.602 | 8965 | 7.150 | 7.455 |
| 12950 | 7.663 | 7.602 | 8975 | 7.187 | 7.490 |
| 13000 | 7.663 | 7.602 | 9000 | 7.211 | 7.509 |
| 13100 | 7.663 | 7.602 | 9050 | 7.226 | 7.825 |
| 13200 | 7.663 | 7.602 | 9100 | 7.237 | 7.831 |
| 13300 | 7.663 | 7.602 | 9200 | 7.584 | 7.849 |
| 13400 | 7.663 | 7.602 | 9500 | 7.584 | 7.914 |
| 13500 | 7.663 | 7.602 | 9750 | 7.594 | 7.946 |
| 13750 | 7.663 | 7.602 | 10000 | 7.620 | 7.970 |
| 14000 | 7.663 | 7.602 | 10250 | 7.625 | 7.988 |
| 14116 | 7.663 | 7.602 | 10500 | 7.625 | 8.001 |
| 14250 | 7.663 | 7.602 | 10750 | 7.629 | 8.025 |
| 14500 | 7.663 | 7.602 | 11000 | 7.629 | 8.046 |
| 14625 | 7.681 | 7.602 | 11410 | 7.643 | 8.096 |
| 14750 | 7.690 | 7.602 | 11800 | 7.667 | 8.146 |
| 15000 | 7.714 | 7.602 | 12200 | 7.701 | 8.201 |
| 15250 | 7.741 | 7.602 | 12600 | 7.739 | 8.267 |
| 15500 | 7.773 | 7.602 | 13000 | 7.775 | 8.309 |
| 15750 | 7.829 | 7.602 | 13400 | 7.812 | 8.363 |
| 16000 | 7.859 | 7.602 | 13800 | 7.834 | 8.407 |
| 16250 | 7.916 | 7.602 | 14200 | 7.875 | 8.456 |
| 16500 | 7.954 | 7.602 | 14600 | 7.915 | 8.511 |
| 16750 | 8.021 | 7.624 | 15000 | 7.952 | 8.572 |
| 17000 | 8.062 | 7.652 | | | |
| 17254 | 8.101 | 7.662 | | | |
| 17500 | 8.148 | 7.685 | | | |
| 18000 | 8.245 | 7.755 | | | |
| 18250 | 8.285 | 7.790 | | | |
| 18501 | 8.355 | 7.840 | | | |
| 18750 | 8.415 | 7.879 | | | |
| 19001 | 8.464 | 7.904 | | | |
| 19250 | 8.509 | 7.983 | | | |
| 19500 | 8.570 | 8.037 | | | |
| 19750 | 8.638 | 8.087 | | | |
| 20000 | 8.719 | 8.132 | | | |
| 20500 | 8.876 | 8.247 | | | |
| 20633 | 8.973 | 8.271 | | | |
| 20633 | 9.193 | 8.271 | | | |

TABLE G-6. RIGHT CRACK TIP POSITIONS FOR PANEL CVP4

| Cycles | Lead Crack | Rivet 3R | | Rivet 4R | | Rivet 5R | |
|---|---|---|---|---|---|---|---|
| | Right (in) | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip |
| 0 | 3.142 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 75 | 3.142 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 162 | 3.161 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 200 | 3.171 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 300 | 3.176 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 400 | 3.197 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 500 | 3.205 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 600 | 3.216 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 700 | 3.237 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 800 | 3.247 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 900 | 3.263 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1000 | 3.277 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1100 | 3.287 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1200 | 3.313 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1300 | 3.330 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1400 | 3.353 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1500 | 3.362 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1602 | 3.385 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1701 | 3.398 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1800 | 3.415 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 1900 | 3.436 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2000 | 3.466 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2075 | 3.479 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2100 | 3.492 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2125 | 3.495 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2150 | 3.497 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2175 | 3.512 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2200 | 3.523 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2225 | 3.531 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2250 | 3.534 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2275 | 3.544 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2300 | 3.554 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2400 | 3.591 | 4.229 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2500 | 3.640 | 4.220 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2600 | 3.687 | 4.211 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2650 | 3.756 | 4.198 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2700 | 3.809 | 4.166 | 4.595 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2712 | | | 4.608 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2753 | | | 4.619 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2800 | | | 4.634 | 5.761 | 6.035 | 7.290 | 7.584 |
| 2901 | | | 4.661 | 5.761 | 6.035 | 7.290 | 7.584 |

TABLE G-6. RIGHT CRACK TIP POSITIONS FOR PANEL CVP4 (Continued)

| Cycles | Lead Crack Right (in) | Rivet 3R | | Rivet 4R | | Rivet 5R | |
|---|---|---|---|---|---|---|---|
| | | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip |
| 3000 | | | 4.667 | 5.761 | 6.035 | 7.290 | 7.584 |
| 3100 | | | 4.687 | 5.761 | 6.035 | 7.290 | 7.584 |
| 3200 | | | 4.705 | 5.761 | 6.035 | 7.290 | 7.584 |
| 3300 | | | 4.726 | 5.761 | 6.035 | 7.290 | 7.584 |
| 3400 | | | 4.751 | 5.761 | 6.035 | 7.290 | 7.584 |
| 3500 | | | 4.761 | 5.761 | 6.035 | 7.290 | 7.584 |
| 3600 | | | 4.774 | 5.761 | 6.035 | 7.290 | 7.584 |
| 3800 | | | 4.814 | 5.761 | 6.035 | 7.290 | 7.584 |
| 4000 | | | 4.885 | 5.761 | 6.035 | 7.290 | 7.584 |
| 4200 | | | 4.949 | 5.761 | 6.035 | 7.290 | 7.584 |
| 4401 | | | 5.011 | 5.761 | 6.035 | 7.290 | 7.584 |
| 4600 | | | 5.080 | 5.761 | 6.035 | 7.290 | 7.584 |
| 4800 | | | 5.171 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5000 | | | 5.244 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5100 | | | 5.273 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5200 | | | 5.323 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5270 | | | 5.341 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5308 | | | 5.372 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5325 | | | 5.384 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5340 | | | 5.387 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5375 | | | 5.399 | 5.761 | 6.035 | 7.290 | 7.584 |
| 5500 | | | 5.483 | 5.752 | 6.035 | 7.290 | 7.584 |
| 5575 | | | 5.555 | 5.746 | 6.035 | 7.290 | 7.584 |
| 5600 | | | 5.603 | 5.727 | 6.035 | 7.290 | 7.584 |
| 5608 | | | 5.618 | 5.717 | 6.035 | 7.290 | 7.584 |
| 5618 | | | 5.653 | 5.701 | 6.035 | 7.290 | 7.584 |
| 5651 | | | | | 6.047 | 7.290 | 7.584 |
| 5800 | | | | | 6.124 | 7.290 | 7.584 |
| 6000 | | | | | 6.181 | 7.290 | 7.584 |
| 6100 | | | | | 6.209 | 7.290 | 7.584 |
| 6200 | | | | | 6.235 | 7.290 | 7.584 |
| 6300 | | | | | 6.265 | 7.290 | 7.584 |
| 6400 | | | | | 6.292 | 7.290 | 7.584 |
| 6500 | | | | | 6.320 | 7.290 | 7.584 |
| 6600 | | | | | 6.361 | 7.290 | 7.584 |
| 6800 | | | | | 6.423 | 7.290 | 7.584 |
| 7000 | | | | | 6.483 | 7.290 | 7.584 |
| 7200 | | | | | 6.528 | 7.290 | 7.584 |
| 7400 | | | | | 6.593 | 7.290 | 7.584 |
| 7600 | | | | | 6.630 | 7.290 | 7.584 |
| 8000 | | | | | 6.731 | 7.290 | 7.584 |
| 8400 | | | | | 6.869 | 7.290 | 7.584 |

TABLE G-6. RIGHT CRACK TIP POSITIONS FOR PANEL CVP4 (Continued)

| Cycles | Lead Crack | Rivet 3R | | Rivet 4R | | Rivet 5R | |
|---|---|---|---|---|---|---|---|
| | Right (in) | Left Tip | Right Tip | Left Tip | Right (in) | Left Tip | Right Tip |
| 8700 | | | | | 6.960 | 7.290 | 7.584 |
| 8800 | | | | | 7.014 | 7.277 | 7.584 |
| 8900 | | | | | 7.090 | 7.265 | 7.584 |
| 8950 | | | | | 7.131 | 7.246 | 7.584 |
| 8965 | | | | | 7.171 | 7.226 | 7.584 |
| 8975 | | | | | 7.187 | 7.219 | 7.584 |
| 9000 | | | | | 7.211 | 7.204 | 7.584 |
| 9050 | | | | | 7.226 | 7.188 | 7.584 |
| 9100 | | | | | 7.237 | 7.178 | 7.584 |
| 9200 | | | | | 7.244 | 7.171 | 7.584 |
| 9500 | | | | | 7.259 | 7.165 | 7.584 |
| 9750 | | | | | 7.259 | 7.164 | 7.594 |
| 10000 | | | | | | | 7.620 |
| 10250 | | | | | | | 7.625 |
| 10500 | | | | | | | 7.625 |
| 10750 | | | | | | | 7.628 |
| 11000 | | | | | | | 7.629 |
| 11410 | | | | | | | 7.643 |
| 11800 | | | | | | | 7.667 |
| 12200 | | | | | | | 7.701 |
| 12600 | | | | | | | 7.739 |
| 13000 | | | | | | | 7.775 |
| 13400 | | | | | | | 7.812 |
| 13800 | | | | | | | 7.834 |
| 14200 | | | | | | | 7.875 |
| 14600 | | | | | | | 7.915 |
| 15000 | | | | | | | 7.952 |

TABLE G-7. LEFT CRACK TIP POSITIONS FOR PANEL CVP4

| Cycles | Lead Crack Left (in) | Rivet 3L | | Rivet 4L | | Rivet 5L | |
|---|---|---|---|---|---|---|---|
| | | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip |
| 0 | 3.749 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 75 | 3.759 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 162 | 3.778 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 200 | 3.780 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 300 | 3.794 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 400 | 3.806 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 500 | 3.828 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 600 | 3.842 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 700 | 3.863 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 800 | 3.885 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 900 | 3.903 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1000 | 3.915 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1100 | 3.933 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1200 | 3.963 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1300 | 3.985 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1400 | 4.003 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1500 | 4.025 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1602 | 4.046 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1701 | 4.068 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1800 | 4.103 | 4.468 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 1900 | 4.131 | 4.456 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2000 | 4.162 | 4.452 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2075 | 4.189 | 4.443 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2100 | 4.205 | 4.443 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2125 | 4.220 | 4.436 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2150 | 4.230 | 4.432 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2175 | 4.251 | 4.418 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2200 | 4.273 | 4.407 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2225 | 4.287 | 4.389 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2250 | 4.326 | 4.369 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2275 | 4.353 | 4.352 | 4.868 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2300 | 4.373 | 4.337 | 4.886 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2400 | 4.396 | 4.318 | 4.899 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2500 | 4.413 | 4.304 | 4.928 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2600 | 4.415 | 4.302 | 4.942 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2650 | 4.416 | 4.301 | 4.946 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2700 | 4.420 | 4.299 | 4.955 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2712 | 4.421 | 4.298 | 4.955 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2753 | | | 4.973 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2800 | | | 4.982 | 6.018 | 6.303 | 7.524 | 7.813 |
| 2901 | 4.430 | 4.292 | 4.992 | 6.018 | 6.303 | 7.524 | 7.813 |

TABLE G-7. LEFT CRACK TIP POSITIONS FOR PANEL CVP4 (Continued)

| Cycles | Lead Crack Left (in) | Rivet 3L | | Rivet 4L | | Rivet 5L | |
|---|---|---|---|---|---|---|---|
| | | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip |
| 3000 | | | 5.016 | 6.018 | 6.303 | 7.524 | 7.813 |
| 3100 | | | 5.034 | 6.018 | 6.303 | 7.524 | 7.813 |
| 3200 | | | 5.053 | 6.018 | 6.303 | 7.524 | 7.813 |
| 3300 | | | 5.067 | 6.018 | 6.303 | 7.524 | 7.813 |
| 3400 | | | 5.083 | 6.018 | 6.303 | 7.524 | 7.813 |
| 3500 | | | 5.109 | 6.018 | 6.303 | 7.524 | 7.813 |
| 3600 | | | 5.126 | 6.018 | 6.303 | 7.524 | 7.813 |
| 3800 | | | 5.191 | 6.018 | 6.303 | 7.524 | 7.813 |
| 4000 | | | 5.268 | 6.018 | 6.303 | 7.524 | 7.813 |
| 4200 | | | 5.315 | 6.018 | 6.303 | 7.524 | 7.813 |
| 4401 | | | 5.396 | 6.018 | 6.303 | 7.524 | 7.813 |
| 4600 | | | 5.473 | 6.018 | 6.303 | 7.524 | 7.813 |
| 4800 | | | 5.550 | 6.018 | 6.303 | 7.524 | 7.813 |
| 5000 | | | 5.647 | 6.018 | 6.303 | 7.524 | 7.813 |
| 5100 | | | 5.679 | 6.018 | 6.303 | 7.524 | 7.813 |
| 5200 | | | 5.762 | 6.000 | 6.303 | 7.524 | 7.813 |
| 5270 | | | 5.812 | 5.974 | 6.303 | 7.524 | 7.813 |
| 5308 | | | 5.856 | 5.950 | 6.303 | 7.524 | 7.813 |
| 5325 | | | 5.882 | 5.937 | 6.303 | 7.524 | 7.813 |
| 5340 | | | 5.904 | 5.911 | 6.325 | 7.524 | 7.813 |
| 5375 | | | 5.926 | 5.897 | 6.336 | 7.524 | 7.813 |
| 5500 | | | | | 6.363 | 7.524 | 7.813 |
| 5575 | | | | | 6.395 | 7.524 | 7.813 |
| 5600 | | | | | 6.404 | 7.524 | 7.813 |
| 5608 | | | | | 6.408 | 7.524 | 7.813 |
| 5618 | | | | | 6.420 | 7.524 | 7.813 |
| 5651 | | | | | 6.424 | 7.524 | 7.813 |
| 5800 | | | | | 6.479 | 7.524 | 7.813 |
| 6000 | | | | | 6.540 | 7.524 | 7.813 |
| 6100 | | | | | 6.556 | 7.524 | 7.813 |
| 6200 | | | | | 6.572 | 7.524 | 7.813 |
| 6300 | | | | | 6.605 | 7.524 | 7.813 |
| 6400 | | | | | 6.627 | 7.524 | 7.813 |
| 6500 | | | | | 6.661 | 7.524 | 7.813 |
| 6600 | | | | | 6.691 | 7.524 | 7.813 |
| 6800 | | | | | 6.760 | 7.524 | 7.813 |
| 7000 | | | | | 6.826 | 7.524 | 7.813 |
| 7200 | | | | | 6.876 | 7.524 | 7.813 |
| 7400 | | | | | 6.924 | 7.524 | 7.813 |
| 7600 | | | | | 6.957 | 7.524 | 7.813 |
| 8000 | | | | | 7.070 | 7.524 | 7.813 |

TABLE G-7. LEFT CRACK TIP POSITIONS FOR PANEL CVP4 (Continued)

| Cycles | Lead Crack Left (in) | Rivet 3L | | Rivet 4L | | Rivet 5L | |
|---|---|---|---|---|---|---|---|
| | | Right Tip | Left Tip | Right Tip | Left Tip | Right Tip | Left Tip |
| 8400 | | | | | 7.221 | 7.524 | 7.813 |
| 8700 | | | | | 7.294 | 7.524 | 7.813 |
| 8800 | | | | | 7.336 | 7.524 | 7.813 |
| 8900 | | | | | 7.397 | 7.524 | 7.813 |
| 8950 | | | | | 7.439 | 7.524 | 7.813 |
| 8965 | | | | | 7.479 | 7.524 | 7.813 |
| 8975 | | | | | 7.490 | 7.515 | 7.813 |
| 9000 | | | | | 7.509 | 7.506 | 7.813 |
| 9050 | | | | | 7.538 | | 7.825 |
| 9100 | | | | | | | 7.831 |
| 9200 | | | | | | | 7.849 |
| 9500 | | | | | | | 7.914 |
| 9750 | | | | | | | 7.946 |
| 10000 | | | | | | | 7.970 |
| 10250 | | | | | | | 7.987 |
| 10500 | | | | | | | 8.001 |
| 10750 | | | | | | | 8.025 |
| 11000 | | | | | | | 8.046 |
| 11410 | | | | | | | 8.096 |
| 11800 | | | | | | | 8.146 |
| 12200 | | | | | | | 8.201 |
| 12600 | | | | | | | 8.267 |
| 13000 | | | | | | | 8.309 |
| 13400 | | | | | | | 8.363 |
| 13800 | | | | | | | 8.407 |
| 14200 | | | | | | | 8.456 |
| 14600 | | | | | | | 8.511 |
| 15000 | | | | | | | 8.571 |

# APPENDIX H—BOEING FULL-SCALE FATIGUE TEST RESULTS

Fatigue crack growth data, which was generated by Boeing[*] for wide-body panels having a radius of 127″, using a full-barrel test fixture, is summarized in this appendix. The initial damage configuration for the Boeing wide-body panels consisted of a two-bay crack in the outer rivet row of a longitudinal lap joint with and without smaller, collinear multiple cracks of length approximately 0.05″. The raw data for the Boeing full-scale test are shown in table H-1 for the a baseline panel containing only a lead crack, test 1, and a second panel containing the same lead crack configuration with the addition of multiple cracks, test 2.

For panel test 1, a 5″ saw cut was made in the central tear strap and the outer rivet row of the skin placed symmetrically across a frame. The lead crack tips terminated at fastener holes. Consequently, no cracks developed after 1170 cycles. Similar phenomena was observed in panel CVP1 after the lead crack grew into a fastener hole, and a number of cycles were required to reform a crack on the opposite side of a hole. For test 1, the lead crack tips were saw cut 0.25″ beyond the fastener holes to a length of 5.71″ and the test was resumed. Stable fatigue crack growth occurred up to 3101 cycles, where the total crack length was 36.91″, at which the fatigue loading was terminated.

For panel test 2, small multiple cracks were saw cut in the outer rivet row of the skin. In addition, a 5″ saw cut was placed symmetrically across a frame in the outer critical rivet row of the skin. The tips of the lead crack extended 0.05″ beyond the fastener holes. Unlike panel test 1, the central tear strap was intact prior to the test for panel test 2. After 281 cycles, no crack growth was observed in panel test 2 and the tear strap was cut to match the initial condition in panel test 1. The test was then resumed. Stable crack growth occurred up to 1231 cycles where the total crack length was 17.20″. At 1233 cycles, dynamic crack extension occurred, where the total crack length was 37.44″, at which the fatigue test was terminated.

To compare the results from panel tests 1 and 2, the data in table H-1 were reduced in this study so that the initial damage configurations and corresponding cycle counts in both panels matched: an initial crack of length 5.71″ with the central tear strap severed. For panel test 1, the cycle count data was shifted by 1171 cycles corresponding to a crack length of 5.71″. For test 2, the cycle count data was shifted by 451 cycles corresponding to a crack length of 5.71″, which was approximated using a linear interpolation. In addition, the final crack lengths used were matched to correspond to stable fatigue crack growth. For panel test 1, the final crack length assumed in the comparison was 17.20″, which was selected to best compare with that in panel test 2, where the final crack length for stable cracking was 17.30″. The reduced data are shown in table H-2 for panel tests 1 and 2.

[*] Gruber, M.L., Mazur, C.J, Wilkens, K.E., and Worden, R.E., "Investigation of Fuselage Structure Subjected to Widespread Fatigue Damage," DOT/FAA/AR-95/47, 1996.

TABLE H-1. BOEING DATA*

| Test 1, Baseline Panel | | | Test 2, Multiple-Crack Panel | | |
|---|---|---|---|---|---|
| Cycle No. | Length of New Growth (in) | Total Crack Length (in) | Cycle No. | Length of New Growth (in) | Total Crack Length (in) |
| 0 | intact | 5.00 | 0 | saw cut in skin only | 5.00 |
| 6 | saw cut in skin and tear strap | 5.00 | 281 | tear strap cut | 5.00 |
| 1172 | Saw cut extended | 5.72 | 369 | 0.63 | 5.63 |
| 1446 | 0.26 | 5.98 | 569 | 0.22 | 5.85 |
| 1614 | 0.14 | 6.12 | 789 | 0.25 | 6.10 |
| 1791 | 0.22 | 6.34 | 937 | 0.28 | 6.38 |
| 1961 | 0.36 | 6.70 | 968 | 0.2 | 6.58 |
| 2056 | 0.57 | 7.27 | 1111 | 1.97 | 8.55 |
| 2162 | 0.42 | 7.69 | 1190 | 2.49 | 11.03 |
| 2309 | 0.70 | 8.39 | 1231 | 6.18 | 17.20 |
| 2484 | 0.91 | 9.30 | 1233 | 20.24, dynamic crack extension | 37.44 |
| 2680 | 2.45 | 11.75 | | | |
| 2859 | 5.55 | 17.30 | | | |
| 2974 | 6.97 | 24.27 | | | |
| 3025 | 7.97 | 32.24 | | | |
| 3035 | 1.54 | 33.78 | | | |
| 3045 | 0.53 | 34.31 | | | |
| 3056 | 0.36 | 34.67 | | | |
| 3075 | 0.32 | 34.99 | | | |
| 3099 | 1.72 | 36.71 | | | |
| 3101 | 0.20 | 36.91 | | | |

* Gruber, M.L., Mazur, C.J, Wilkens, K.E., and Worden, R.E., "Investigation of Fuselage Structure Subjected to Widespread Fatigue Damage," DOT/FAA/AR-95/47, 1996.

TABLE H-2. REDUCED DATA

| Test 1, Baseline Panel | | Test 2, Multiple-Crack Panel | |
|---|---|---|---|
| Cycle Number | Total Crack Length (in) | Cycle Number | Total Crack Length (in) |
| 0 | 5.72 | 0 | 5.72 |
| 274 | 5.98 | 118 | 5.85 |
| 442 | 6.12 | 338 | 6.10 |
| 619 | 6.34 | 486 | 6.38 |
| 789 | 6.70 | 517 | 6.58 |
| 884 | 7.27 | 660 | 8.55 |
| 990 | 7.69 | 739 | 11.03 |
| 1137 | 8.39 | 780 | 17.20 |
| 1312 | 9.30 | 782 | 37.44 |
| 1508 | 11.75 | | |
| 1687 | 17.30 | | |
| 1802 | 24.27 | | |
| 1853 | 32.24 | | |
| 1863 | 33.78 | | |
| 1873 | 34.31 | | |
| 1884 | 34.67 | | |
| 1903 | 34.99 | | |
| 1927 | 36.71 | | |

# APPENDIX I—RESIDUAL STRENGTH DATA

For the residual strength tests, each panel was loaded quasi-statically to failure to measure the crack growth and residual strength. The longitudinal lap joint panels (CVP1 and CVP2) were loaded with internal pressure with reactive hoop and frame loads plus longitudinal stress 50% less than hoop stress. The circumferential butt joint panels (CVP3 and CVP4) were loaded with internal pressure with reactive hoop and frame loads plus longitudinal stress 50% higher than hoop stress. All the residual strength data are provided in the tables of this appendix.

For panels CVP1 and CVP2, the crack growth data for the lead crack are provided in table I-1. The crack tip positions measured from the central frame on the right- and left-hand sides of CVP2 are given in tables I-2 and I-3, respectively. For panels CVP3 and CVP4, the crack growth data for the lead crack are provided in table I-4. The crack tip positions measured from the central frame on the right- and left-hand sides of CVP4 are given in tables I-5 and I-6, respectively.

TABLE I-1. LEAD CRACK LENGTH FROM RESIDUAL STRENGTH TEST OF LONGITUDINAL LAP JOINT PANELS CVP1 AND CVP2

| CVP1 | | | CVP2 (Multiple Cracks) | | |
|---|---|---|---|---|---|
| Pressure (psi) | a, right (in) | a, left (in) | Pressure (psi) | a, right (in) | a, left (in) |
| 0.00 | 12.240 | 12.710 | 0.00 | 12.362 | 12.320 |
| 1.00 | 12.240 | 12.710 | 1.00 | 12.362 | 12.320 |
| 2.00 | 12.240 | 12.710 | 2.00 | 12.362 | 12.320 |
| 3.00 | 12.240 | 12.710 | 3.00 | 12.362 | 12.320 |
| 4.00 | 12.240 | 12.710 | 4.00 | 12.362 | 12.320 |
| 5.00 | 12.240 | 12.710 | 5.00 | 12.362 | 12.320 |
| 6.00 | 12.240 | 12.710 | 6.00 | 12.362 | 12.320 |
| 7.00 | 12.240 | 12.710 | 7.00 | 12.362 | 12.320 |
| 7.50 | 12.240 | 12.760 | 7.50 | 12.362 | 12.320 |
| 8.00 | 12.240 | 12.760 | 8.00 | 12.466 | 12.456 |
| 8.50 | 12.260 | 12.940 | 8.25 | 12.466 | 12.456 |
| 9.00 | 12.470 | 13.640 | 8.44 | 14.033 | 14.142 |
| 9.50 | 12.470 | 13.640 | 8.58 | 19.918 | 21.447 |
| 10.00 | 13.710 | 13.980 | 8.58 | 20.035 | 21.525 |
| 10.25 | 18.600 | 19.650 | 8.60 | 21.373 | 22.885 |
| 11.00 | 20.100 | 21.870 | 8.83 | 21.459 | 23.112 |
| 11.14 | 33.630 | 33.380 | 8.83 | 21.553 | 24.445 |
| | | | 9.02 | 23.020 | 26.002 |
| | | | 9.16 | 34.625 | 38.125 |

# TABLE I-2. RIGHT CRACK TIP POSITION FOR PANEL CVP2

| Press. (psi) | Lead Crack Right (in) | Rivet 9R | | Rivet 10R | | Rivet 11R | | Rivet 12R | | Rivet 13R | | Rivet 14R | | Rivet 15R | | Rivet 16R | | Rivet 17R | | Rivet 18R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right |
| 0.00 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 1.00 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 2.00 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 3.00 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 4.00 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 5.00 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 6.00 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 7.00 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 7.50 | 12.36 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 8.00 | 12.47 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 8.25 | 12.47 | 13.34 | 13.69 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 8.44 | 13.02 | 13.02 | 14.03 | 14.86 | 15.13 | 16.35 | 16.64 | 17.86 | 18.14 | 19.35 | 19.62 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 8.58 | | | 14.59 | 14.59 | 16.06 | 16.06 | 17.54 | 17.54 | 19.08 | 19.08 | 19.92 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 8.58 | | | | | | | | | | | 20.03 | 20.84 | 21.10 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 8.60 | | | | | | | | | | | 20.54 | 20.54 | 21.37 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 8.83 | | | | | | | | | | | | | 21.46 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 8.83 | | | | | | | | | | | | | 21.55 | 22.34 | 22.61 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 9.02 | | | | | | | | | | | | | 22.03 | 22.03 | 23.02 | 23.83 | 24.11 | 25.33 | 25.60 | 26.82 | 27.08 |
| 9.16 | | | | | | | | | | | | | | | 23.47 | 23.47 | 24.96 | 24.96 | 26.44 | 26.44 | 34.63 |

TABLE I-3. LEFT CRACK TIP POSITION FOR PANEL CVP2

| Press. (psi) | Lead Crack Left (in) | Rivet 9L | | Rivet 10L | | Rivet 11L | | Rivet 12L | | Rivet 13L | | Rivet 14L | | Rivet 15L | | Rivet 16L | | Rivet 17L | | Rivet 18L | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left |
| 0.00 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 1.00 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 2.00 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 3.00 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 4.00 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 5.00 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 6.00 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 7.00 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 7.50 | 12.32 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 8.00 | 12.46 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 8.25 | 12.46 | 13.31 | 13.70 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 8.44 | 13.00 | 13.00 | 14.14 | 14.86 | 15.16 | 16.37 | 16.65 | 17.87 | 18.15 | 19.35 | 19.65 | 20.85 | 21.14 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 8.58 | | | 14.53 | 14.53 | 16.07 | 16.04 | 17.55 | 17.55 | 19.02 | 19.02 | 20.49 | 20.50 | 21.45 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 8.58 | | | | | | | | | | | | | 21.52 | 22.34 | 22.63 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 8.60 | | | | | | | | | | | | | 21.97 | 21.97 | 22.88 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 8.83 | | | | | | | | | | | | | | | 23.11 | 23.83 | 24.11 | 25.31 | 25.60 | 26.82 | 27.10 |
| 8.83 | | | | | | | | | | | | | | | 23.47 | 23.47 | 24.45 | 25.31 | 25.60 | 26.82 | 27.10 |
| 9.02 | | | | | | | | | | | | | | | | | 24.92 | 24.92 | 26.00 | 26.82 | 27.10 |
| 9.16 | | | | | | | | | | | | | | | | | | | 26.42 | 26.42 | 38.13 |

TABLE I-4. LEAD CRACK GROWTH DURING RESIDUAL STRENGTH TESTS OF CIRCUMFERENTIAL LAP JOINT PANELS CVP3 AND CVP4

| CVP3, Run 1 | | | CVP3, Run 2 | | | CVP3, Run 3 | | | CVP4 (Multiple Cracks) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Press. (psi) | a, Right (in) | a, Left (in) | Press. (psi) | a, Right (in) | a, Left (in) | Press. (psi) | a, Right (in) | a, Left (in) | Press. (psi) | a, Right (in) | a, Left (in) |
| 0.00 | 9.618 | 9.557 | 0.00 | 10.664 | 10.878 | 0.00 | 11.074 | 12.604 | 0.00 | 9.365 | 9.600 |
| 1.76 | 9.618 | 9.557 | 4.20 | 10.664 | 10.878 | 4.20 | 11.074 | 12.604 | 2.00 | 9.365 | 9.600 |
| 3.52 | 9.618 | 9.557 | 8.40 | 10.664 | 10.878 | 12.60 | 11.074 | 12.604 | 4.00 | 9.365 | 9.600 |
| 5.28 | 9.618 | 9.557 | 12.60 | 10.664 | 10.878 | 14.70 | 11.074 | 12.604 | 6.00 | 9.365 | 9.600 |
| 6.16 | 9.618 | 9.557 | 14.70 | 10.664 | 10.878 | 15.75 | 11.074 | 12.604 | 8.00 | 9.365 | 9.600 |
| 7.04 | 9.618 | 9.557 | 15.75 | 10.664 | 10.878 | 16.27 | 11.074 | 12.604 | 10.00 | 9.365 | 9.600 |
| 7.92 | 9.618 | 9.557 | 16.27 | 10.664 | 10.878 | 16.80 | 11.074 | 12.604 | 12.00 | 9.365 | 9.600 |
| 8.80 | 9.618 | 9.557 | 16.80 | 10.664 | 10.878 | 17.32 | 11.102 | 12.656 | 14.00 | 9.365 | 9.600 |
| 9.24 | 9.618 | 9.557 | 17.32 | 10.664 | 10.878 | 17.85 | 14.015 | 13.509 | 15.00 | 9.365 | 9.600 |
| 9.68 | 9.618 | 9.557 | 17.85 | 10.664 | 10.878 | 17.85 | 14.015 | 13.908 | 16.00 | 9.365 | 9.600 |
| 10.12 | 9.618 | 9.557 | 18.38 | 10.664 | 10.878 | 17.85 | 14.236 | 14.638 | 17.00 | 9.365 | 9.600 |
| 10.56 | 9.618 | 9.557 | 18.38 | 10.824 | 11.177 | 17.33 | 14.314 | 15.035 | 18.00 | 9.365 | 9.684 |
| 11.00 | 9.618 | 9.557 | 18.38 | 10.824 | 11.920 | | | | 18.25 | 9.365 | 9.684 |
| 11.44 | 9.618 | 9.557 | 18.38 | 10.824 | 12.254 | | | | 18.50 | 9.365 | 9.684 |
| 11.88 | 9.618 | 9.557 | 17.85 | 10.824 | 12.505 | | | | 18.75 | 9.436 | 9.697 |
| 12.32 | 9.618 | 9.557 | 18.38 | 11.074 | 12.604 | | | | 19.00 | 9.436 | 9.697 |
| 12.76 | 9.618 | 9.557 | | | | | | | 19.25 | 9.436 | 9.697 |
| 13.20 | 9.750 | 9.583 | | | | | | | 19.50 | 9.436 | 9.697 |
| 13.64 | 9.750 | 9.583 | | | | | | | 19.75 | 9.436 | 9.697 |
| 13.73 | 9.750 | 9.583 | | | | | | | 20.00 | 10.736 | 11.061 |
| 14.08 | 9.750 | 9.583 | | | | | | | 20.25 | 10.736 | 11.061 |
| 14.43 | 9.788 | 9.625 | | | | | | | 20.50 | 10.736 | 11.144 |
| 14.78 | 9.788 | 9.625 | | | | | | | 20.75 | Failure | Failure |
| 15.14 | 9.788 | 9.625 | | | | | | | | | |
| 15.49 | 9.788 | 9.625 | | | | | | | | | |
| 15.84 | 9.834 | 9.719 | | | | | | | | | |
| 16.19 | 9.834 | 9.719 | | | | | | | | | |
| 16.68 | 10.049 | 10.127 | | | | | | | | | |
| 16.47 | 10.095 | 10.426 | | | | | | | | | |
| 16.47 | 10.095 | 10.664 | | | | | | | | | |
| 17.74 | 10.188 | 10.664 | | | | | | | | | |
| 17.95 | 10.429 | 10.741 | | | | | | | | | |
| 17.95 | 10.664 | 10.741 | | | | | | | | | |
| 18.37 | 10.664 | 10.802 | | | | | | | | | |
| 19.14 | 10.664 | 10.878 | | | | | | | | | |

TABLE I-5. RIGHT CRACK TIP POSITION FOR PANEL CVP4

| Press. (psi) | Lead Crack Right (in) | Rivet 7R | | Rivet 8R | | Rivet 11R | | Rivet 12R | | Rivet 13R | | Rivet 14R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right |
| 0.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 2.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 4.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 6.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 8.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 10.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 12.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 14.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 16.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 17.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 18.00 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 18.25 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 18.50 | 9.365 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 18.75 | 9.436 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 19.00 | 9.436 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 19.25 | 9.436 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 19.50 | 9.436 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 19.75 | 9.436 | 10.209 | 10.465 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 20.00 | 9.925 | 9.925 | 10.736 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 20.25 | | | 10.736 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 20.50 | | | 10.736 | 11.700 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 20.75 | | | 10.736 | 11.600 | 11.971 | 13.207 | 13.485 | 14.869 | 15.154 | 16.336 | 16.592 | 17.844 | 18.092 |
| 20.75 | | | 11.366 | 11.366 | 12.762 | 12.762 | 14.510 | 14.510 | 15.846 | 15.846 | 17.386 | 17.386 | Failure |

TABLE I-6. LEFT CRACK TIP POSITION FOR PANEL CVP4

| Press. (psi) | Lead Crack Left (in) | Rivet 7L | | Rivet 8L | | Rivet 11L | | Rivet 12L | | Rivet 13L | | Rivet 14L | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left | Right | Left |
| 0.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 2.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 4.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 6.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 8.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 10.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 12.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 14.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 16.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 17.00 | 9.600 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 18.00 | 9.684 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 18.25 | 9.684 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 18.50 | 9.684 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 18.75 | 9.697 | 10.517 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 19.00 | 9.697 | 10.453 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 19.25 | 9.697 | 10.450 | 10.795 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 19.50 | 9.697 | 10.437 | 10.852 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 19.75 | 9.697 | 10.420 | 10.855 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 20.00 | 10.117 | 10.117 | 11.061 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 20.25 | | | 11.061 | 12.031 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 20.50 | | | 11.144 | 11.955 | 12.305 | 13.533 | 13.831 | 14.944 | 15.225 | 16.611 | 16.839 | 18.090 | 18.334 |
| 20.75 | | | 11.604 | 11.604 | 13.115 | 13.116 | 14.476 | 14.476 | 16.065 | 16.065 | 17.656 | 17.656 | Failure |