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Chicago's O'Hare Runway Configuration Management System (RCMS)

Volume I - Description of the Operational Software

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DOT/FAA/CT-86/15-1

ATLANTIC CITY INTERNATIONAL AIRPORT
ATLANTIC CITY, N.J. 08405

July 1987

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1. Report No. DOT/FAA/CT-86/15-I	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle CHICAGO'S O'HARE RUNWAY CONFIGURATION MANAGEMENT SYSTEM (RCMS) -- VOLUME I - DESCRIPTION OF THE OPERATIONAL SOFTWARE		5. Report Date July 1987	
		6. Performing Organization Code	
		8. Performing Organization Report No. DOT/FAA/CT-86/15-I	
7. Author(s) Anthony Bradley, Helen Monk, and Edward Jaggard		10. Work Unit No. (TRAIS)	
9. Performing Organization Name and Address Computer Resource Management, Inc. 2110-C Gallows Road Vienna, Virginia 22180		11. Contract or Grant No. Contract #DTEA03-85-C-00046	
		13. Type of Report and Period Covered	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration Technical Center Atlantic City International Airport, New Jersey 08405		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract Volume I of this report describes the proposed Runway Configuration Management System (RCMS) operational software for review by the facility personnel. It also serves as an input to RCMS functional specifications for the Traffic Management System (TMS) program. Using interactive computer logic, RCMS helps supervisors select runway configurations which reduce aircraft delays by optimizing throughput capacity in dynamic operational environments. Volume II of this report is the "User's Guide" to the RCMS.			
17. Key Words Airports Runways Capacity		18. Distribution Statement Document is available to the U.S. Public through the National Technical Information Service, Springfield, Virginia 22161	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages	22. Price

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EXECUTIVE SUMMARY

The operational software for the Chicago O'Hare Runway Configuration Management System (RCMS), described in Volume I, was prepared in response to operational requirements expressed by both facility and regional personnel from the Federal Aviation Administration (FAA) Great Lakes Region.

The software was developed for the three modes of operation -- the current mode, the planning mode, and the forecast mode. Each mode was designed to perform certain functions for an RCMS user.

The current mode is intended to be responsive to the existing airport conditions and the changes which may occur within a short period of time (for example, an equipment failure). The software examines configuration eligibility after any significant change in runway or equipment status to determine the impact on the current situation. The user is informed of this status through a screen of data which is refreshed without an operator's intervention.

The planning mode provides the user with the capability to plan equipment, runway, and weather changes throughout the facility day. It operates in concert with the current mode and forecast mode to prohibit undesirable reactions to current and future selected configurations.

The forecast mode offers an unrestrained examination of both configuration selection and plans. It enables the user to resolve conflicts before submitting the data to the current mode of operation.

This software was the starting point for the operational evaluation of the RCMS at the Chicago O'Hare Airport.

Volume II of this report, the user's guide, is organized by computer terminal operation, modes of operation, and external inputs (supporting programs) to RCMS.

1. INTRODUCTION.

1.1 PURPOSE.

This report describes the proposed Runway Configuration Management System (RCMS) operational software to undergo test and evaluation at the Chicago O'Hare Federal Aviation Administration (FAA) Tower Facility (ORD). It will also serve as an input to RCMS functional specifications for the Traffic Management System (TMS) program.

1.2 BACKGROUND.

RCMS is a planning tool for Chicago O'Hare International Airport. Using interactive computer logic, RCMS helps supervisors select runway configurations which reduce aircraft delays by optimizing throughput capacity in dynamic operational environments.

The formation of the O'Hare Delay Task Force, to identify the causes of and the potential solutions to air traffic delays at Chicago, provided the impetus for this system. MITRE Corporation conducted the initial RCMS effort as described in Federal Aviation Administration Report No. FAA-EM-82028 (Volumes I and II), dated October 1982. AEM-100 requested the FAA Technical Center to purchase a computer and to set up the system for evaluation by the Chicago O'Hare personnel. Later, the effort was expanded to make the system operationally acceptable to the facility personnel.

2. DISCUSSION.

2.1 RCMS DESCRIPTION.

RCMS incorporates both the operational requirements and improvements to three interconnected PL/1 software application programs developed by the MITRE corporation. The following describes the computer, the hardware, the software, and the data bases which comprise RCMS.

Computer and Hardware Equipment. RCMS consists of an IBM 4321 processor and the support equipment shown in figure 1. The computer runs under the Virtual Machine/Special Product (VM/SP) Operating System which is a user-oriented, time-sharing processor. Details of the final computer configuration will be documented when the system is installed at the facility. The computer hardware and the associated licensed software are maintained under contract with IBM.

Software Programs. The RCMS software is comprised of three different types of application programs: a background program, a foreground program, and several supporting programs.

The background software runs independently, that is, without a terminal operator or a user. As the executive program of RCMS, it interfaces with the other programs through the data bases.

The foreground program consists of user-oriented software which generates two types of screen data for facility personnel -- the write full screen (WFS) data and the static panel data. The WFS is refreshed every 2 minutes or is updated when a significant event occurs or when a panel changes. Users may alter the fixed panels but not the WFS panel.

Data Bases. The master data base, the WFS data base, the personal computer (PC) data base, and the forecast mode data base enable the software programs and the users to exchange data and to transfer results. Their contents are described in appendix A, RCMS Library.

The master data base is the main channel of communication for RCMS. It contains the updated information required by each program for the current and planning modes of operation. Protocol messages control the exchange of data. The background and foreground programs attach to and detach from this data base during their read and write functions. When accessing the master data base, each program assumes the responsibility of resolving the data.

The WFS data base is a one-way channel from the background program to a user program. It contains the screen data and the messages for the user viewing the Master Auto Panel (PF-1). There are three types of messages -- alerts, advisories, and ordinary -- which the user may display one at a time. Alerts and advisories are indicated via a ringing bell and/or the highlighting of screen data.

The PC data base provides the equipment status and readings to the background program through the master data base. The PC User program automatically updates the PC data base and resolves the master data base.

The forecast mode data base is very similar to the master data base. It is independent of all other data bases and provides a user the opportunity to exercise WHAT IF conditions in the forecast mode. Configurations, weather

conditions, and equipment outages can be planned for an entire day rather than an immediate look-ahead time. The entire day's demand data is available through a DEMAND file generated by a supporting program. Portions of the forecast mode data base -- selected configurations and revised planning logs -- can be inserted into the master data base for use in the current mode. The background program processes the data as user input and performs its normal functions to establish current conditions, determine configuration eligibility, and resolve the master data base.

Figures 2 and 3 show the relationship of the data bases to the software programs and to the modes of operation.

2.2 BACKGROUND PROGRAM OPERATION.

The current background program controls the flow of data among all users, determines configuration eligibility, generates messages for the users, and either accepts or rejects a plan submitted by a user. The following sections describe the operation of the current background program for the current and planning modes. There is a separate background program for the forecast mode, called the forecast background program; its special features enable the user to exercise WHAT IF conditions.

2.2.1 Auto Startup and Restart.

The background program is designed to run without the intervention of a user. It is initialized by the computer operator and then placed in a wake-up mode. If the program does stop for some reason, a restart feature enables the operator to resume the operation with the existing master data base rather than the initial data.

2.2.2 Software Routines and Functions.

The current background program operates every quarter-hour or when activated by a wake-up call if a significant event occurs. The flowchart for the current background program is shown in figure 4. The PC program and assorted supporting programs resolve the appropriate data bases and pass information to the users via the master data base. Application of the sensor data to the RCMS logic is shown in appendix B.

The background program determines the eligibility of 62 configurations -- a maximum of 80 may be defined. A conflict occurs if a selected configuration is ineligible. The user is alerted if current conditions cause the conflict; he can then review a list of alternate eligible configurations. If new planning data generates a conflict, the plan is rejected and the plan is reset to the previous acceptable plan.

During the execution of the current background program, ordinary and advisory messages are generated for the user. Management of the data bases guarantees continually updated data and acceptable inputs from the users and the supporting programs. Table 1 describes the critical routines in the current background program.

TABLE 1. CRITICAL ROUTINES FOR CURRENT BACKGROUND PROGRAM

<u>ROUTINE</u>	<u>DESCRIPTION</u>
ADDPLAN	Adds plans to work tables APTSTAT(96) & PEQUIP(96) from PLAN(96).
ASMDISC	Assembly program to run the background program in disconnected mode.
ASSLNK2	Assembly program to link to the WFS data base.
ASSLNK7	Assembly program to link to the master data base.
ASSULK2	Assembly program to unlink from the WFS data base.
ASSULK7	Assembly program to unlink from the master data base.
BACKGR4	Main procedure in the current background program.
BLDPLAN	Builds PLAN(96) from planning logs & sets PSTATUS (planning status).
CLEAR96	Clears 96 bins in APTSTAT & PEQUIP.
CMPMSG	Generates runway composite messages.
CTIME	Converts quarter-hour to four-character time (HHMM).
CTIME4	Converts four-character time (HHMM) to quarter-hour.
CURMSG	Generates current messages (planned and unplanned) using runway and equipment status codes in APTSTAT & PEQUIP.
ELIG	Determines configuration eligibility for the quarter-hour.
GENA	Generates alert and advisory messages.
GENQ	Generates quarter-hour messages for PF-4.
GETMINS	Initializes the arrival runway minimums in RWYMIN.
INITOLD	Saves a copy of the master data base.
MINIMA	Calculates arrival runway minimums for the quarter-hour.
MLOOP	Performs "do loop" for nine quarter-hours to calculate eligibility.
MODUP	Computes current time and controls plan building, plan testing, data base management, eligibility logic, and message generation.
NEWDAY	Clears data base. Initializes equipment status, trigger values, and configuration data.

TABLE 1. ROUTINES FOR CURRENT BACKGROUND PROGRAM (Continued)

<u>ROUTINE</u>	<u>DESCRIPTION</u>
READM	Reads the master data base.
RESTART	Reads master data base. Initializes selected data items for old day.
SETCUR	Sets current data into APTSTAT & PEQUIP for specified quarter-hours.
TSTPLAN	Tests a plan by calculating eligibility.
UPDATEM	Resolves current & planning panels. Updates the master data base.
WFS	Generates the WFS data and writes to the WFS data base. Calls ASSLNK2, WRITWFS, and ASSULK2.
WIND	Calculates crosswinds & tailwinds for each runway for the quarter-hour.
WRITEM	Writes to the master data base.
WRITWFS	Assembly program to write the WFS data base.

2.2.3 Configuration Eligibility Processing.

Configuration eligibility is determined for 9 quarter-hours -- the current quarter-hour and each quarter-hour during the next 2 hours (figures 5A and 5B). The background program constructs 96 bins of information representing the airfield conditions for each quarter-hour in the facility day. It assumes that the current airfield conditions will continue through the entire day. As planned activities and changes are introduced, they overlay the existing conditions for the appropriate quarter-hours.

The background program then determines eligibility based on runway closures, arrival runway minimums which are affected by equipment outages, surface and braking conditions, and weather conditions (CAB ceiling and CAB visibility). The eligibility status and the reasons for ineligibility are inserted in the master data base.

A message on the WFS panel alerts the user when a selected configuration becomes ineligible. Portions of the WFS are highlighted to help the user resolve the problem. For example, if an arrival runway in the current configuration is closed, three areas of the screen are highlighted -- the menu item for PF-7 (runway conditions panel), the alert message "CURRENT CONFIGURATION IS INELIGIBLE AT HHMM DUE TO CA" and the word "CURRENT" in the configuration description at the top of the screen.

2.2.4 Message Processing and Handling.

Assorted messages are generated and/or updated by the background program. Table 2 describes the message types and their location on the panels. Message packing, for distribution within the master and WFS data bases, is a separate function from the message generation.

The background program adds or refreshes messages in the data bases during each update cycle. The protocol messages (table 3) are placed in the message line area of the user's screen. In the current mode, they contain the update time and the user's identification. In the planning and forecast modes, they provide the plan status and prevent other users from modifying an unresolved plan.

TABLE 2. MESSAGE TYPES

<u>MESSAGE TYPE</u>	<u>LOCATION ON THE PANELS</u>
1. Alert Message	PF-1 Master Auto Panel Message Line PF-4 Message Panel
2. Planned Configuration	PF-1 Master Auto Panel Message Line PF-4 Message Panel
3. Quarter-Hour Messages	PF-1 Master Auto Panel Message Line PF-4 Message Panel
5. New Planned Outages	PF-1 Master Auto Panel Message Line
6. New Current Outages (Equipment or Runway)	PF-1 Master Auto Panel Message Line PF-4 Message Panel
7. Current and Planned Runway or Equipment Outages (Historical Information)	PF-4 Message Panel PF-7 Runway Conditions Panel (Scroll Area) or PF-8 Equipment Panel (Scroll Area)
8. Runway Composite Messages	PF-1 Master Auto Panel PF-2 Master Panel (Scroll Area)
9. Runway Remarks	PF-3 Current and Planned Eligible Configurations
10. Reasons for Configuration Ineligibility	PF-9 Current and Planned Ineligible Configurations (Selected from PF-3)
11. Planned Weather Change	PF-3 Current and Planned Eligible Configurations (Next Change) PF-6 Weather Panel (Next Three Changes)
12. Protocol Messages	PF-2 - PF-10 Static Panel Message Lines

TABLE 3. MESSAGE LINE PROTOCOL

CURRENT MODE

1. "Screen Updated by [User ID] at [Time]"

PLANNING & FORECAST MODES

1. "Available for Input [User ID] Reviewed Plan [Time]"
2. "Available for Input [User ID] Filed Plan [Time]"
3. "Available for Input [User ID] Forced Plan [Time]"
4. "[User ID] Controls Plan [User ID] Reviewing Plan [Time]"
5. "[User ID] Controls Plan [User ID] Plan Accepted [Time]"
6. "[User ID] Controls Plan [User ID] Plan Rejected [Time]"
7. "[User ID] Controls Plan [User ID] Plan Submitted [Time]"

Notes

[User ID] is either AT, AF or CAB
[Time] is Hours, Minutes (HHMM) -- GMT

2.2.5 Data Base Management.

A data base is controlled when it is accessed to transfer information. The foreground program reads and displays the WFS data base which is written by the background program. The foreground program reads and writes only that part of the master data base required for the panel the user is displaying or modifying. The background program reads and writes the entire master data base. The current and planning data is resolved when a user changes a panel or when the background program accesses the master data base.

For the current data, the background program applies the hierarchy of information (table 4) to the current data and to the master data base. It resolves conflicting data by determining what changes occurred since the last update and by applying the most critical condition to the data. Each user resolves the current data in a similar way.

Planning data is rigidly controlled by a protocol between a user and the background program. Plans, submitted by a user from a planning log, are accepted or rejected by the background program based on the eligibility of the selected configurations. No user may enter a plan controlled by another user. The background program maintains the integrity of the master data base by replacing the rejected plan with the previously acceptable plan. The user is prohibited from changing screens until the plan is either accepted or rejected.

Forecast data is controlled just like planning data, with these two exceptions. While a user is in the forecast mode, no other user may modify any planning log or any forecast planning log. A user may force a forecast planning log submission into the current mode; that data will be accepted unconditionally.

TABLE 4. RESOLUTION OF CURRENT INFORMATION

DEFINITION OF STATUS VALUES

'b' (Blank)	- Equipment or Runway Available
'X'	- Equipment Monitor Detection of Out-of-Service
'F'	- Equipment Monitor Detection of Failure
'O'	- Equipment or Runway Removed-from-Service by User (User has Overwrite Capability)
'R'	- Equipment or Runway Returned-to-Service in Plan
'I'	- Equipment or Runway Put In-Service by User (User has Overwrite Capability)
'P'	- Planned Equipment or Runway Out-of-Service
'N'	- CAT Operations not Available
'Y'	- CAT Operations Selected by User

PRIORITY OF CURRENT STATUS VALUES

'b'	Replaces	'X' and 'F' (Previous PC Status)
'X' and 'F'	Replaces	'b'
'P'	Replaces	'b', 'X', and 'F'
'R'	Conflicts with	'O' in Current Quarter-Hour
'P'	Conflicts with	'I' in Current Quarter-Hour
'I'	Replaces all others	*
'O'	Replaces all others	*
'N'	Replaces	'Y'
'Y'	Replaces	'b'

*Only designated users on selected panels have this overwrite capability.

RESOLUTION OF CURRENT STATUS VALUES

1. The priority of current status values is applied whenever the master data base is accessed (e.g., when a user enters new data on a panel).
2. If an 'I' or an 'O' is removed by a user, then 'b', 'X', 'F', and 'P' priority determines the new value.
3. If an 'I' or an 'O' is changed in master data base by designated user, then the master data base entry holds for the current data. (A user may not view a current panel for an extended period of time without considering the effects of changes occurring in the interim time period.)

2.3 FOREGROUND PROGRAM OPERATION.

The foreground program controls the panels selected by and presented to the user. In addition to displaying current data, it enables the user to submit plans for operating the airport and to select current and future configurations throughout the day. The following describes its operation.

2.3.1 Logon Functions and Software Routines.

A user can logon to the software program designed for a particular position or area of responsibility (AT, CAB, AF, etc.). A built-in executive routine starts the program which displays the WFS (PF-1) or the user's primary panel. Each user can select most of the screens, but a user may not need the full capabilities of the foreground program. Therefore, individual user programs will be constructed after the facility personnel provide their recommendations on panel formats and program operation.

The user controls the panel selection through program function (PF) keys. A PF key menu appears on each panel as a quick reference for the user; the function of a particular PF key may change from panel to panel. A cursor function enables the user to enter panel data and a scroll function permits the user to view additional messages or data. A message line on the bottom of the screen provides the status of the panel (update time, planning status, input errors, etc.)

The flowchart of the foreground program is shown in figures 6A and 6B. Appendix C contains the following foreground program documentation -- the PL/1 and assembler language programs used in the foreground user programs, the calling sequence of the programs in the foreground user, and the list of panels and their associated PF keys.

2.3.2 User Modes of Operation.

The foreground program has three modes of operation: current, planning, and forecast. Selection of a PF key initiates the appropriate mode of operation. The protocol messages on the current and planning panels establish communications among the users and between the foreground and the background programs. Protocols for all modes of operation regulate the access and transfer of data in the master data base (table 3).

Current Mode.

The current mode is the normal mode of operation. Typically, the user views the WFS data which is automatically updated every 2 minutes or whenever something significant occurs. The user remains in current mode when selecting a current panel with the PF key. However, a static panel is displayed and no update occurs until the user hits a PF key -- either the same key or another key.

Data entered through a current panel is checked for format errors. If it contains no errors, the data is then resolved with current data, PC data, and planning data. Then the background program is activated to determine configuration eligibility and to generate appropriate messages.

Planning Mode.

The planning mode is entered through the planning/forecast selection panel. The the PF-12 key enables the user to submit planning data directly to the current mode, through the master data base, from any of three planning logs -- weather, runway closure, or equipment.

Unlike the current mode, the user controls the planning panels upon entering the planning mode. No user may enter a plan which another user controls. Once the user submits a plan, he must remain on that panel until the background program determines the plan's acceptability. If the new plan causes a selected configuration to become ineligible within 9 quarter-hours, it is replaced with the previously accepted plan; otherwise, the plan is accepted.

The planning mode logic is straightforward. If a new plan is entered by a user, a complete recycle of the entire day's activities takes place. The new plan is broken down and reassembled in a time-ordered pattern intermixing all three planning panel inputs. This overall plan is then tested to determine if it generates a conflict within 9 quarter-hours. If there is a conflict, the overall current conditions are reconstructed with the previously acceptable plan. Resolution of the overall plan is a user task. If the user cannot pinpoint the problem to a specific item in the plan, he may employ the forecast mode. Within the forecast mode, all plans are accepted and screen data further defines the source of the conflict.

Forecast Mode.

The forecast mode uses a separate forecast background program to allow the user full access to the existing data base in an off-line environment. All the planning functions are available without interfering with the current background and other user foreground programs.

The forecast mode is executed through a specific control panel. It permits the user to communicate directly with another user and to operate independently of the current mode, the master data base, and the background program. The user may insert runway conditions, equipment outages, and weather conditions throughout the facility day using the planning panels. Once a compatible plan and eligible configurations are generated in the forecast mode, the user may forward the new selected configurations and plans to the current mode through the control panel. Then the user is notified of the current mode's acceptance or rejection of the submitted data based on the eligibility of the selected configurations. In addition, designated users have the option of forcing the revised plans and configurations into the current mode. Submissions are made through positive action by the user; a default submission returns to the current data and previous plans.

Selection of the master auto panel (PF-1) cancels the forecast mode and returns the user to the current status panel. The user does not have to submit forecast data or save forecast data.

The forecast mode logic depends on user selections (for example, today's forecast or a forecast for another day). The user can work with another user or work independently. The look-ahead start time can be specified for the forecast session. In addition, re-entry selections to the current background program can include the submission of plans and/or configurations for the entire day's activities.

The forecast mode has its own panels. The user can view and arrange the entire day's activities, look at the day's demand data, and review configuration selection and eligibility for any quarter-hour. The user can change configurations or plan equipment outages to determine if any conflicts occur over extended time periods. By coordinating with others, the user can resolve the day's plans with some assurance of operational compatibility.

The configuration eligibility process in the forecast background program is identical to the eligibility process in the current background program with one exception; it covers up to 96 quarter-hours (from the selected look-ahead time to the end of the day).

2.3.3 Panel Descriptions and User Functions.

The panels shown in figures 7 to 32 comprise the user's interaction with RCMS. The user function associated with the panels is explained in the following subsections. However, there are some common functions for the panels; namely, scrolling, entering data into the data base, and recalling the original data after typing in new data.

The scroll function is initiated by hitting the ENTER key. Panel data is entered into the master data base through the PF-12 key. If a user types in data and wishes to see the original data, the PF-11 RECALL key returns the screen to its initial state. All panels contain a menu of PF keys available to the user, some of which have different functions on different panels. The panels are described below.

Master Auto Panel (PF-1).

The master auto panel (figure 7) summarizes the airfield conditions and displays composite messages for the active runways. No user inputs are allowed. The screen is updated every 2 minutes or when a significant event occurs. Alerts, advisories, and any ordinary messages are displayed on the message line. The user can scroll through the advisory and ordinary messages by pressing the "enter" key. Alert messages are forced onto the screen along with highlighted areas pertaining to the causes of any conflicts. The user may select any panel listed in the menu of PF keys.

Master Panel (PF-2).

The master panel (figure 8) is a static display of the master auto panel with some differences. The user can enter a 30-character note under the NOTE PAD heading, adjacent to the arrival runway minimums. A scroll function enables the user to examine composite messages for all 12 runways.

Configuration Panels (PF-3 and PF-9).

The eligible current configuration panel (figure 9) displays all eligible configurations available to the user through the scroll function. It also contains abbreviated remarks concerning the runway conditions and equipment status. If there is a planned weather change within an hour, a message will appear near the bottom of the screen. The planned eligible configuration panels for the next 5 quarter-hours provide the same information and options. The PF-3 key enables the user to advance the screen to the next quarter-hour.

The eligible configurations are listed in order. Appearing first are those configurations with the same runway headings (flow direction) as the selected configuration. If the capacity satisfies the demand, if the configuration has no wind condition, and if the configuration is not affected by Midways' operations, the configuration is highlighted. The highlighted configurations are the recommended configurations. The remaining configurations are listed in the order of the clockwise flow direction within a given flow direction, the simplest configurations (from an operational aspect) appear first.

If no configurations (with the same flow direction as the selected configuration) are recommended (highlighted), the foreground program highlights the eligible configurations in the next clockwise flow direction which satisfy the capacity, wind, and Midway requirements.

The user may select a new eligible configuration by typing the desired configuration number on the screen and by using the PF-12 key to enter the data.

If the user selects a new configuration, the foreground program automatically updates succeeding quarter-hours throughout the day. This update follows these rules to insure that user selections are maintained in the RCMS.

a. The newly selected configuration replaces only the old configuration selection in each quarter-hour. A planned configuration change in any quarter-hour will remain in that quarter-hour and no further changes will occur after that time.

b. The configuration selected by the user must be eligible for at least an hour. Beyond that hour, configuration eligibility is not a factor in configuration selection. For example, if a new configuration is selected for the second quarter-hour and there are no planned configuration changes, the new configuration will be entered from the second quarter-hour to the end of the day. However, an alert message will be generated if the configuration becomes ineligible.

With the PF-9 key, the user may view the list of ineligible configurations for each quarter-hour (figures 11 and 12). Reasons for the ineligibility are included for each configuration. No user inputs are allowed on this panel.

User Message Panel (PF-4).

The user message panel (figure 13) displays up to 20 recent alert and advisory messages and up to 60 current equipment and runway messages, accessible through the scroll functions. No user inputs are allowed on this panel.

Demand Panel (PF-5).

The demand panel (figure 14) shows the arrival and departure demand for the next six hours. The data is broken down into eight quarter-hour periods and six hour-long periods. The traffic demand is displayed for each arrival and departure fix, and for three aircraft categories under each arrival fix (total, number of heavy, and number of light). No user inputs are allowed on this panel.

Weather Panel (PF-6).

The weather panel (figure 15) allows the user to enter current weather, forecast weather, CAB ceiling, and CAB visibility. The CAB visibility and CAB ceiling are

some of the criteria for the configuration eligibility. Repeating the PF-6 key displays the local weather forecasts (figure 16).

Runway Conditions Panel (PF-7).

The runway conditions panel (figure 17) allows the user to take a runway out of service (OTS) or to indicate the surface and braking conditions for the airfield. A local remarks area is provided for runway related comments. The user may scroll through 36 messages which give both current and planned runway outages.

Equipment Panel (PF-8).

The equipment panel (figure 18) contains the equipment status and the arrival runway minimums. The user may enter an overwrite character ("I" for in-service, "O" for out-of-service). A field may contain an existing out-of-service "X" detected by the 3270 PC interface equipment or it may be blank (in-service). When the data is entered, new arrival runway minimums are calculated and displayed.

A "Y" (yes) may be entered for CAT II and CAT III operations to indicate the runway is in that mode operation. An "N" indicates the operation is not available due to an equipment outage. The user can examine up to 60 messages concerning current and planned equipment outages by employing the scroll function.

Trigger Value Panel (PF-9).

The trigger value panel (figure 19) allows the user to set various parameters as boundaries above which the background program generates advisory messages.

The user can select crosswind and tailwind advisory levels for both arrivals and departures. A message is generated when one of these thresholds is exceeded.

The warning times for some messages (equipment OTS and RTS, runway OTS and RTS, and planned configurations changes for various reasons) can be specified by the user. These times determine when the user is advised of the upcoming event.

Triggered advisory levels for various parameters (demand, wind, ceiling, visibility, and RVR readings) can be preset by the user. A message is generated when the particular threshold is exceeded. Asterisks (***) indicate that the trigger value was exceeded since it was last set by the user.

Planning/Forecast Selection Panel (PF-10).

The planning mode can be entered directly from the planning/forecast selection panel (figure 20). The weather, runway closure, and equipment planning logs are shown in figures 21, 22, and 23.

After changing a planning panel, the plan can be submitted directly to the background program for acceptance or rejection in the current mode.

The forecast control panel (figure 24) provides the user with a variety of options dealing with the sharing of the forecast mode data base, reviewing and changing plans over a seven-day period, testing today's activities, returning to today's day file (the last stored version of today's forecast), or submitting data to the master data base in the current mode.

Upon entering the forecast mode, the user may select the master data base for "today's" activity or the day file for "today." The user may also choose another day file (for any day within the next six days) to plan outages and select configurations.

After selecting an initial option using the PF-12 key, a summary of the day's configurations is presented along with their eligibility status. A selected start time may be entered so the user can examine any six quarter-hours in detail or change the selected configurations.

If the user selects "today's" activity, the master data base is read into the forecast mode data base and the user controls all planning logs. While in the forecast mode, the user can access any planning log. After changing a planning log, the user can enter it into the forecast mode through the PF-12 key. This WHAT IF option has no constraints; the user can resolve conflicts (configuration ineligibility) by changing configuration selections and/or planned outages. After resolving the conflicts, the user may re-enter the plan or submit all the plans and selected configurations to the current mode through the forecast control panel (PF-10).

The background program treats any submission from the forecast mode as a plan to be accepted or rejected. If the user specifies a forced entry on the control panel, the current background program unconditionally accepts the plan and generates alert messages if any selected configurations are ineligible within 9 quarter-hours.

The following panels are available to the user in the forecast mode:

a. Forecast Status Panel (PF-2). This panel (figure 25) summarized the weather, runway conditions, and equipment status of the particular quarter-hour selected by the user.

b. Forecast Configuration Panel (PF-3). This panel (figure 26) is identical to the eligible configuration panel in the current mode, except it contains both eligible and ineligible configurations.

The configurations are listed in order. Appearing first are those configurations with the runway headings (flow direction) that best satisfy the eligibility, wind, capacity, and Midway requirements. If the configuration is eligible, if the flow direction is best for the wind direction and speed, if the capacity satisfies demand, if the configuration has no wind conditions, and if the configuration is not affected by Midways' operation, the configuration is highlighted. The highlighted configurations are the recommended configurations. The remaining configurations are listed in order of the clockwise flow direction. Within a given flow direction, the simplest configurations (from an operational aspect) appear first.

c. Forecast Demand (PF-5). This panel (figure 27) is identical to the demand panel in the current mode, except it describes the conditions starting at the quarter-hour selected by the user.

d. Forecast Planning Logs (PF-6, PF-7, and PF-8). The forecast planning logs for the weather, runway closure, and equipment accept user input in any order (figures 28, 29, and 30). The software does the appropriate sorting. Users may input 16 weather items, 16 runway closure items, and 31 equipment

items. The USERID is inserted in the log. If the plan is accepted, the ACCEPT TIME is placed next to each entry.

2.4 SUPPORTING PROGRAMS.

The following supporting programs are employed by the RCMS operational software to automate inputs and/or coordinate activities with distant data sources.

2.4.1 Central Flow Control Facility.

The Central Flow Control Facility will be requested to send the demand data for the Chicago O'Hare Airport every hour. This data will contain the aircraft call sign, the aircraft type, the arrival fix, the departure fix, the estimated time at the arrival fix, and the estimated gate departure time. The DEMAND user will process the data, write it to the master data base, and generate a file containing the entire day's demand for the forecast mode. The Central Flow Control Facility will also have access to all data base information.

2.4.2 PERSONAL COMPUTER (PC3270).

The PC user program collects the status and equipment readings from the Facility Sensor Equipment (figure 31); this data is written to the PC data base and resolved in the master data base for the current background program. In some cases, this process utilizes averaging techniques and rejects unconfirmed data. The PC data base and the master data base are updated periodically or whenever the PC program determines there is a significant change in newly acquired data.

2.4.3 City of Chicago.

The City of Chicago is treated like another foreground user. When the city submits new panel data, the program creates a file which is compatible with their present television screen distribution system. Using a PC program, city personnel can transfer this file, through a keyboard interface device, to the existing TV displays. This permits consistent interpretation of data for both systems.

The City of Chicago RCMS interactive screens include the runway conditions panel (PF-7), the equipment panel (PF-8), and the runway closure and equipment planning logs. In addition, a taxiway/notam panel (figure 32) is accessible from the runway conditions panel and the equipment panel to describe the status of the taxiway system. The taxiway/notam panel can be viewed by selecting the PF-9 key from the PF-7 or PF-8 panel.

2.4.4 Weather Data.

The presentation of weather information and its processing within the RCMS software program depends upon the origin and type of data. There are three sources of weather data: the manual entries into the RCMS panels, the 3270 PC sensor interface, and the National Weather Service (NWS) interface via the Center Weather Service Unit (CWSU).

Table 5 describes the weather data, its source, and its mode of operation within RCMS. Table 6 describes the application and mode of operation for each type of weather information.

The weather information is applied in the RCMS software to:

- a. Determine the eligibility of current and planned configurations.
- b. Advise the user of weather conditions by presenting both the weather information and triggered advisories for specified conditions.
- c. Construct a weather planning log.

In the current mode, RCMS uses CAB ceiling and CAB visibility to determine configuration eligibility. In the planning/forecast mode, it uses the CAB ceiling and visibility, modified by the weather planning/forecast log entries, to determine eligibility.

RCMS generates a wind comment for an eligible configuration when there are excessive crosswinds or tailwind for a runway in the configuration. The planning/forecast mode uses the centerfield wind, modified by the wind entries in the weather planning/forecast log.

Triggered advisories are generated when CAB ceiling or visibility changes or when crosswinds, tailwinds, or PC sensor data (for wind, ceiling, RVR readings) exceed a level preset by the user.

The weather forecast log can be changed by manual entry of planned weather or by automatic entry of the ORD FT reports. At the user's request, RCMS translates the ORD FT weather reports into wind, ceiling, and visibility entries in the weather forecast log.

The NWS provides several types of reports: SA (Surface Observations), FT (Terminal Forecasts), and SW (Selected Weather Warnings). Included in the SW reports are AWW (Severe Weather Forecast Alerts) and WST (Convection Segments). An attempt will be made to have the weather data updated when special bulletins are issued. This arrangement demands upon the session level interface currently being defined with the Center Weather Service Unit.

2.4.5 Remote Terminal.

The remote terminal for the RCMS can support program development throughout the RCMS effort. A software programmer can develop and test an application program before introducing it into the operational environment.

TABLE 5. DESCRIPTION OF WEATHER DATA

<u>SOURCE OF DATA</u>	<u>DEFINITION OF WEATHER DATA</u>	<u>MODE OF OPERATION</u>
WX Panel (from CAB)	Ceiling and Visibility	Current
WX Planning Log (from AT & CAB)	Planning Ceiling, Visibility, and Wind	Planning
WX Forecast Log (from AT & CAB)	Forecast Ceiling, Visibility and Wind	Forecast
<u>3270 PC Interface</u> (Automated Inputs from Field Equipment)		
LLWAS	Center Field Wind	Current
Field Ceilometer	Computer Ceilometer Reading	Current
RVR	Runway Visual Range Reading	Current
DASE	Digital Altimeter Reading	Current
<u>NWS Interface via CWSU</u> (Computerized Weather Reports)		
SA Reports	ORD - Surface Weather Report	Current
FT Reports	ORD - Terminal Forecast	Forecast
SA Reports	Nearby Airports Weather Report	Current
FT Reports	Nearby Airports Forecast	Forecast
AWW Reports	Severe Weather Forecast Alerts	Forecast
WST Reports	Convection Segments	Current

TABLE 6. RCMS APPLICATION OF WEATHER DATA

<u>APPLICATION</u>	<u>MODE OF OPERATION</u>	<u>SOURCE OF DATA</u>
Current Configuration Eligibility	Current	CAB Ceiling and Visibility
Planned/Forecast Configuration Eligibility	Planning /Forecast	CAB Ceiling and Visibility modified by weather planning/forecast log
Wind Comment for Eligible Configurations	Current	LLWAS Center Field Wind resulting in excessive crosswinds and tailwinds for a runway in the configuration
Wind Comment for Eligible Configurations	Planning /Forecast	LLWAS Center Field Wind modified by weather planning/forecast log, resulting in excessive crosswinds or tailwinds for a runway in the configuration
Weather Information for RCMS Panels	Current	NWS computerized weather reports for ORD and nearby airports
Triggered Advisories	Current	3270 PC equipment by RCMS generated readings reaching preset trigger values for wind, ceiling, RVR, crosswind, tailwind -- or -- any change in CAB ceiling or visibility
Weather Planning Log	Planning	Manual entry
Weather Forecast Log	Forecast	Manual entry or automatic entry of planned weather and ORD FT reports

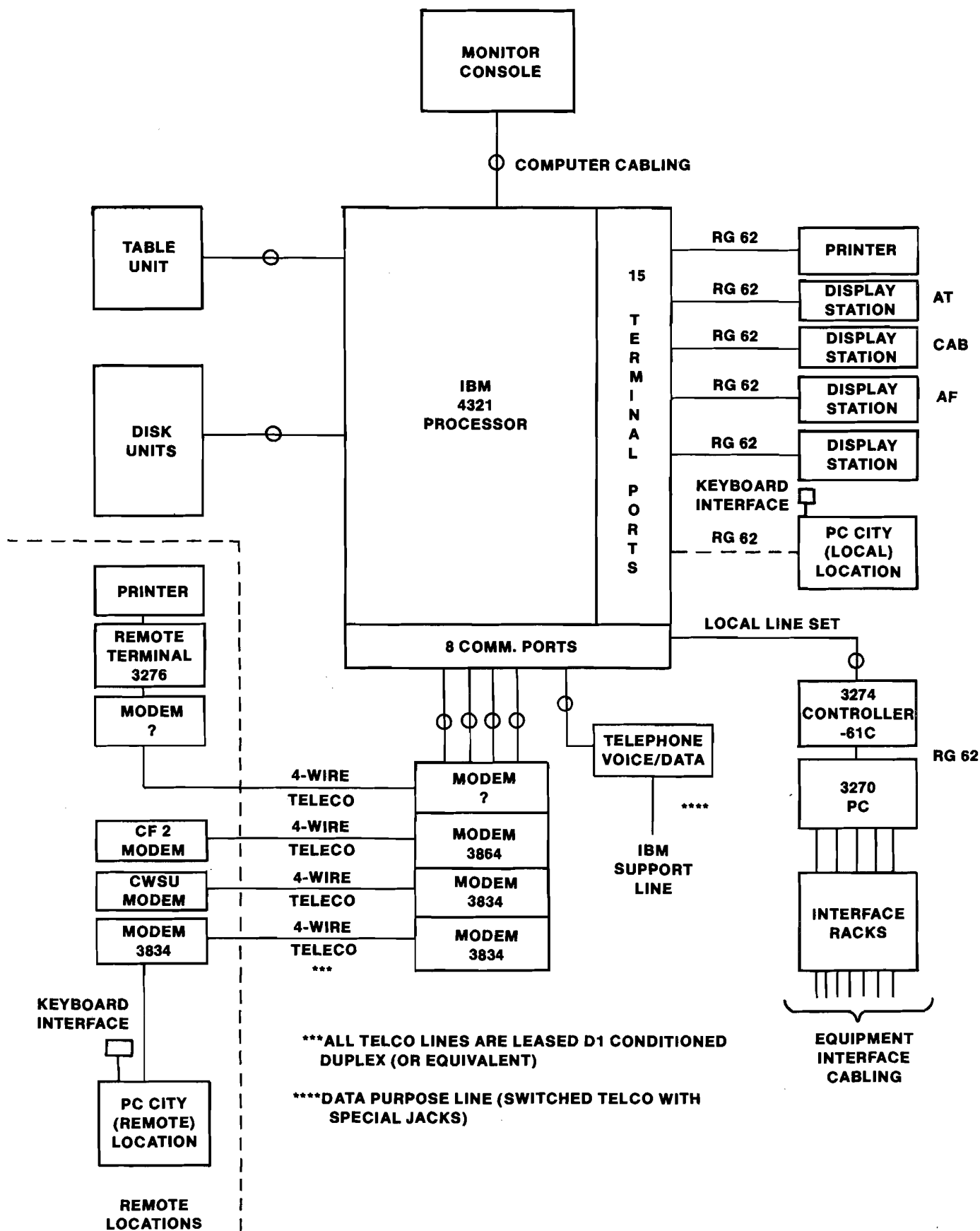


FIGURE 1. RUNWAY CONFIGURATION MANAGEMENT SYSTEM HARDWARE

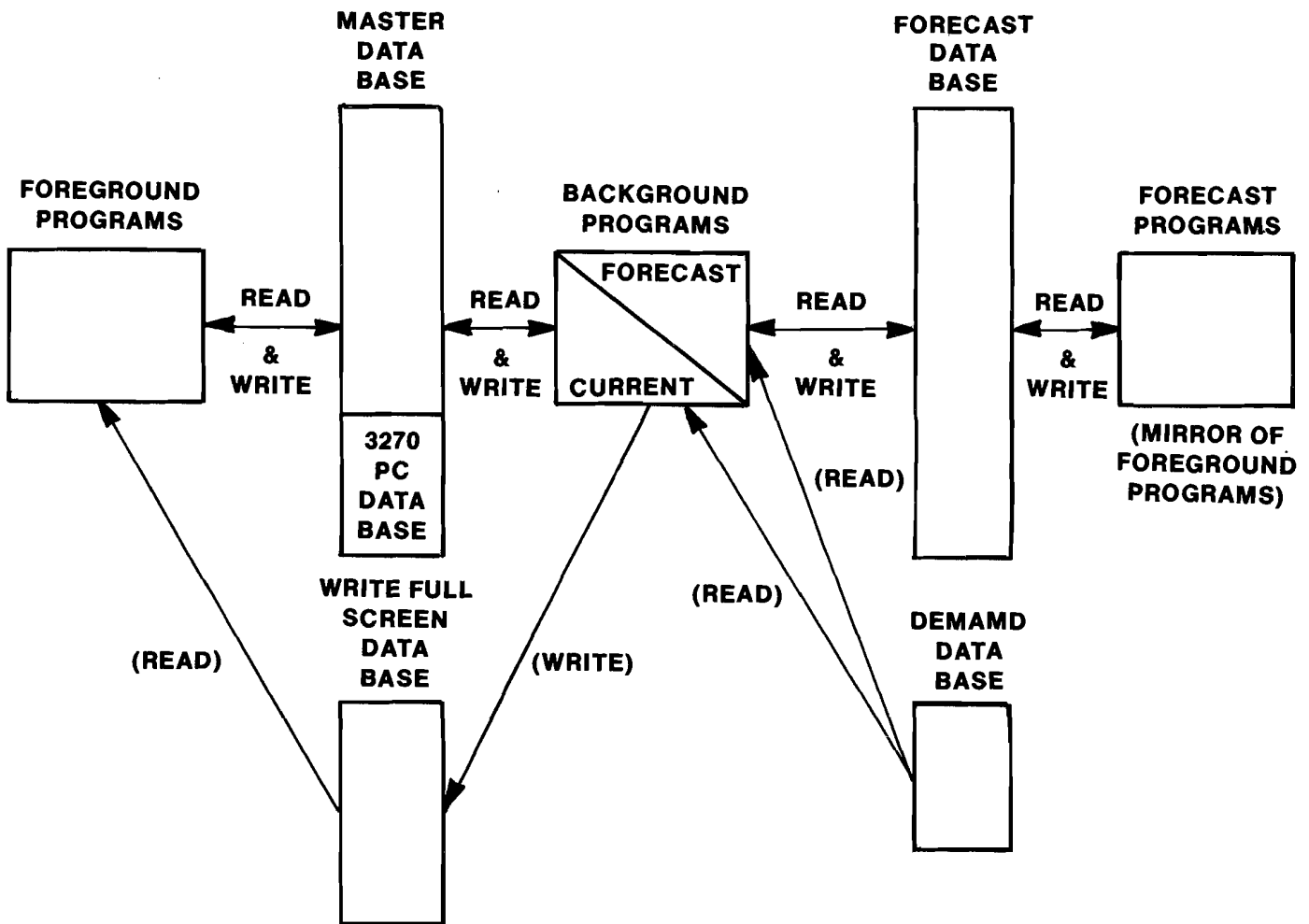


FIGURE 2. RELATIONSHIP OF DATA BASES TO SOFTWARE PROGRAMS

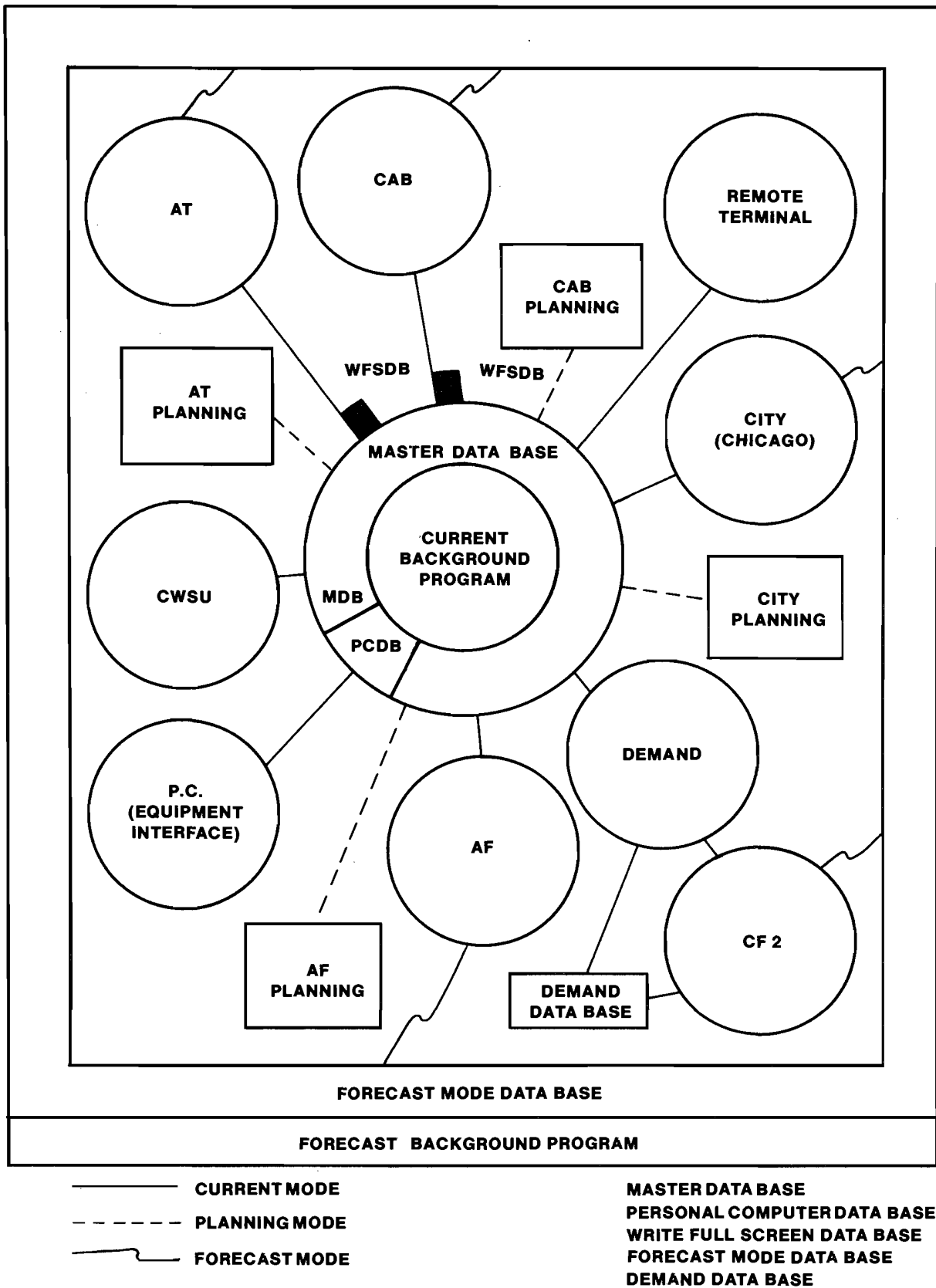


FIGURE 3. RELATIONSHIP OF DATA BASES TO MODES OF OPERATION

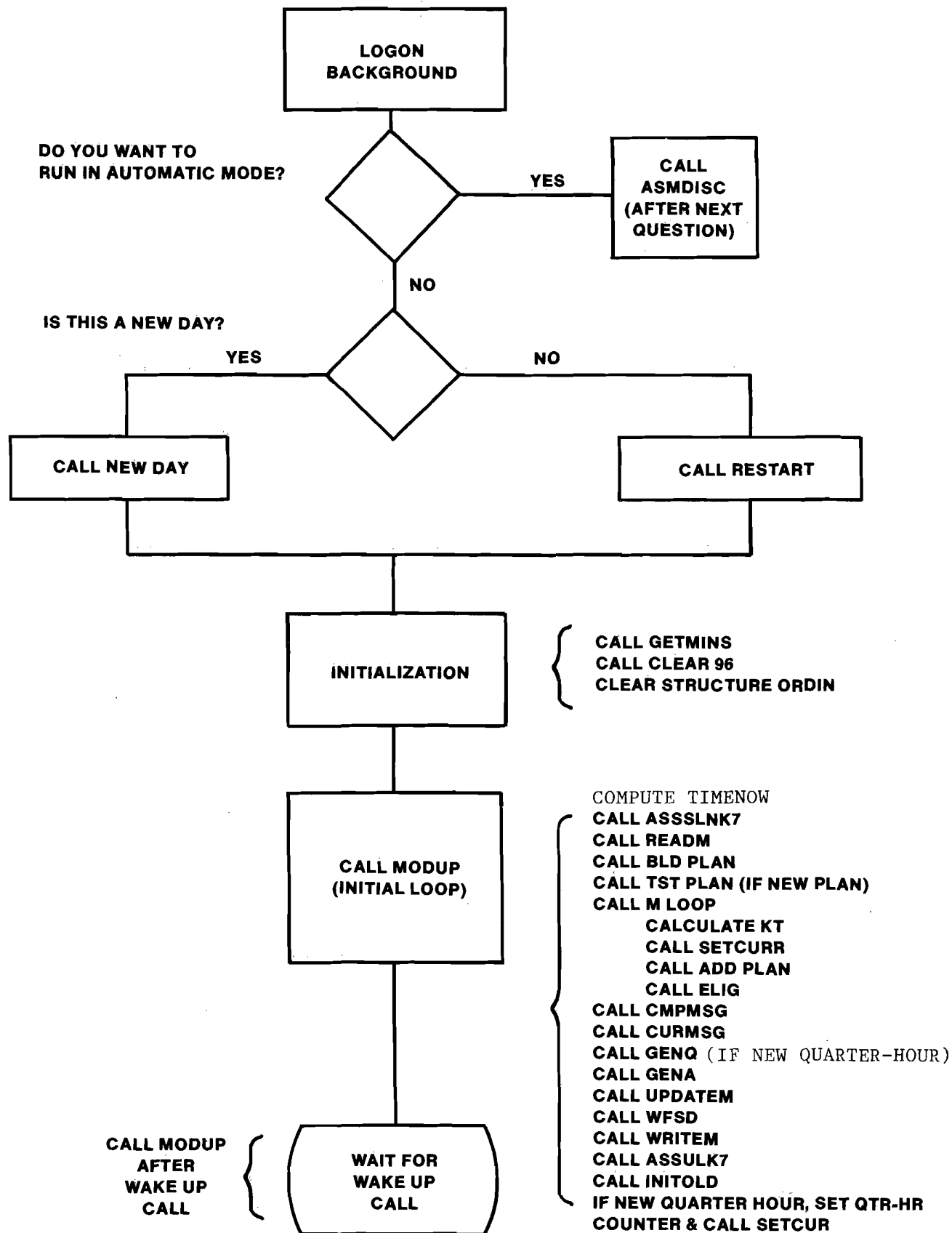


FIGURE 4. CURRENT BACKGROUND PROGRAM FLOWCHART

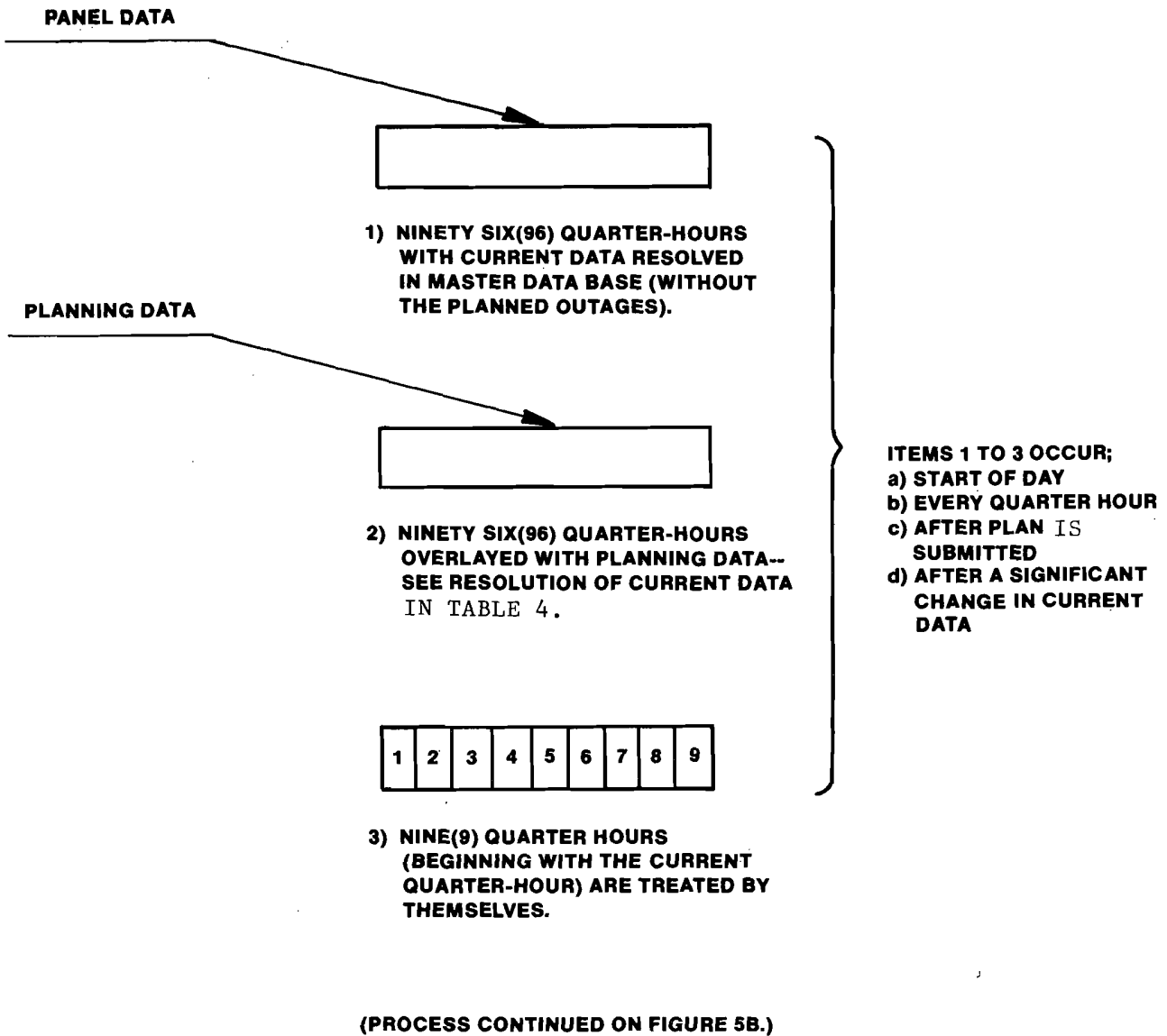


FIGURE 5A. QUARTER-HOUR PROCESSING (1 of 2 Sheets)

**FOR CURRENT MODE
NINE (9) QUARTER-HOURS**

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 4) A "DO LOOP" EXAMINES CONFIGURATION ELIGIBILITY FOR THE 9 QUARTER-HOURS
- 5) AN INELIGIBLE SELECTED CONFIGURATION IN THE 9 QUARTER-HOURS GENERATES ALERT(S) -- PROBLEM(S) SHOULD BE RESOLVED USING THE APPROPRIATE CONFIGURATION PANEL(S)

ITEMS 4 & 5
EVERY CURRENT
UPDATE

-OR-

**FOR PLANNING MODE
NINE (9) QUARTER-HOURS**

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 6) A "DO LOOP" EXAMINES CONFIGURATION ELIGIBILITY FOR THE 9 QUARTER-HOURS
- 7) AN INELIGIBLE SELECTED CONFIGURATION IN THE 9 QUARTER-HOURS CAUSES THE SUBMITTED PLAN(S) TO BE REJECTED. PREVIOUSLY ACCEPTED PLANS ARE RETAINED.

ITEMS 6 & 7
OCCUR WHEN A PLAN
IS SUBMITTED

FIGURE 5B. QUARTER-HOUR PROCESSING (2 of 2 Sheets)

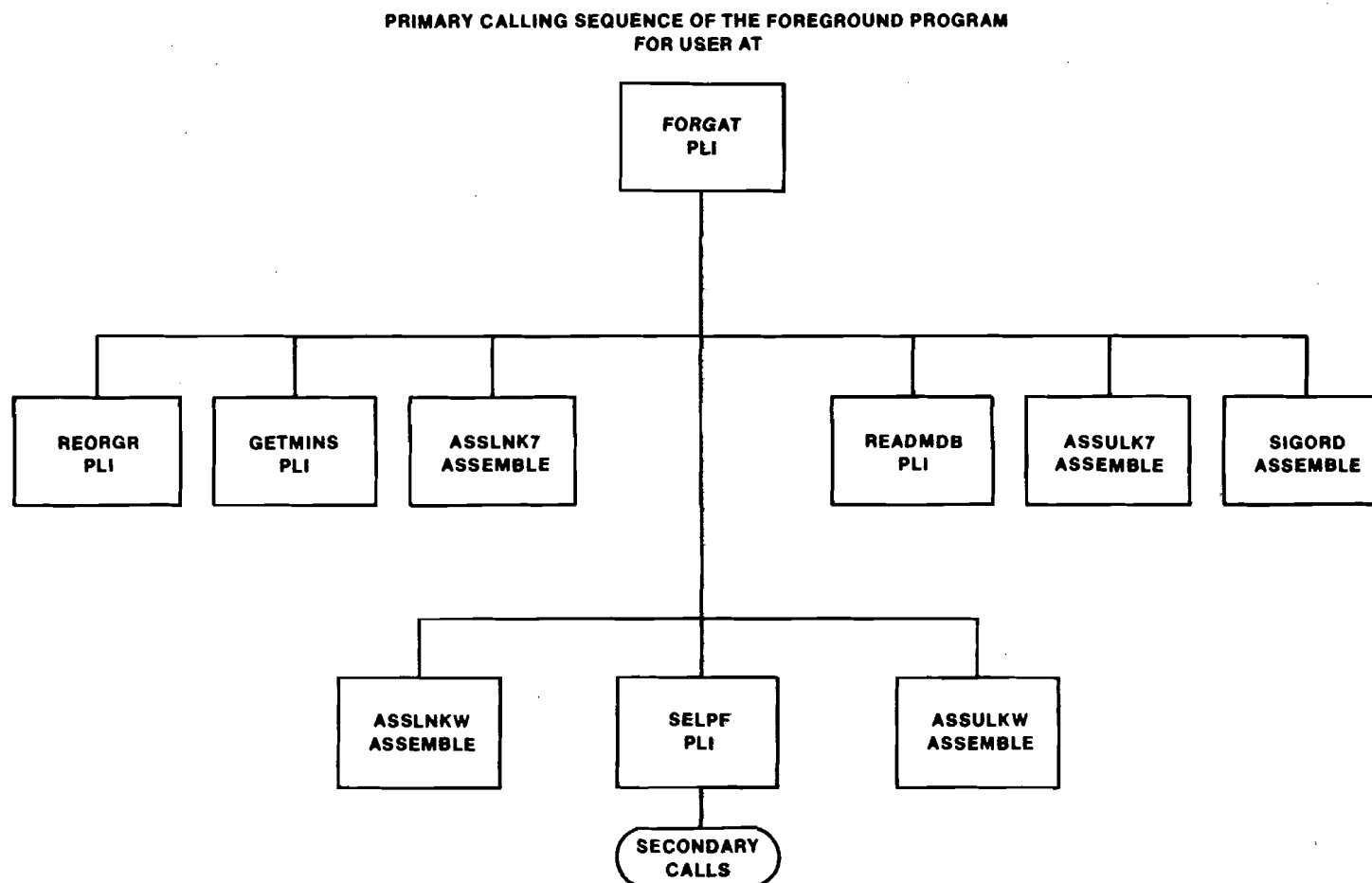
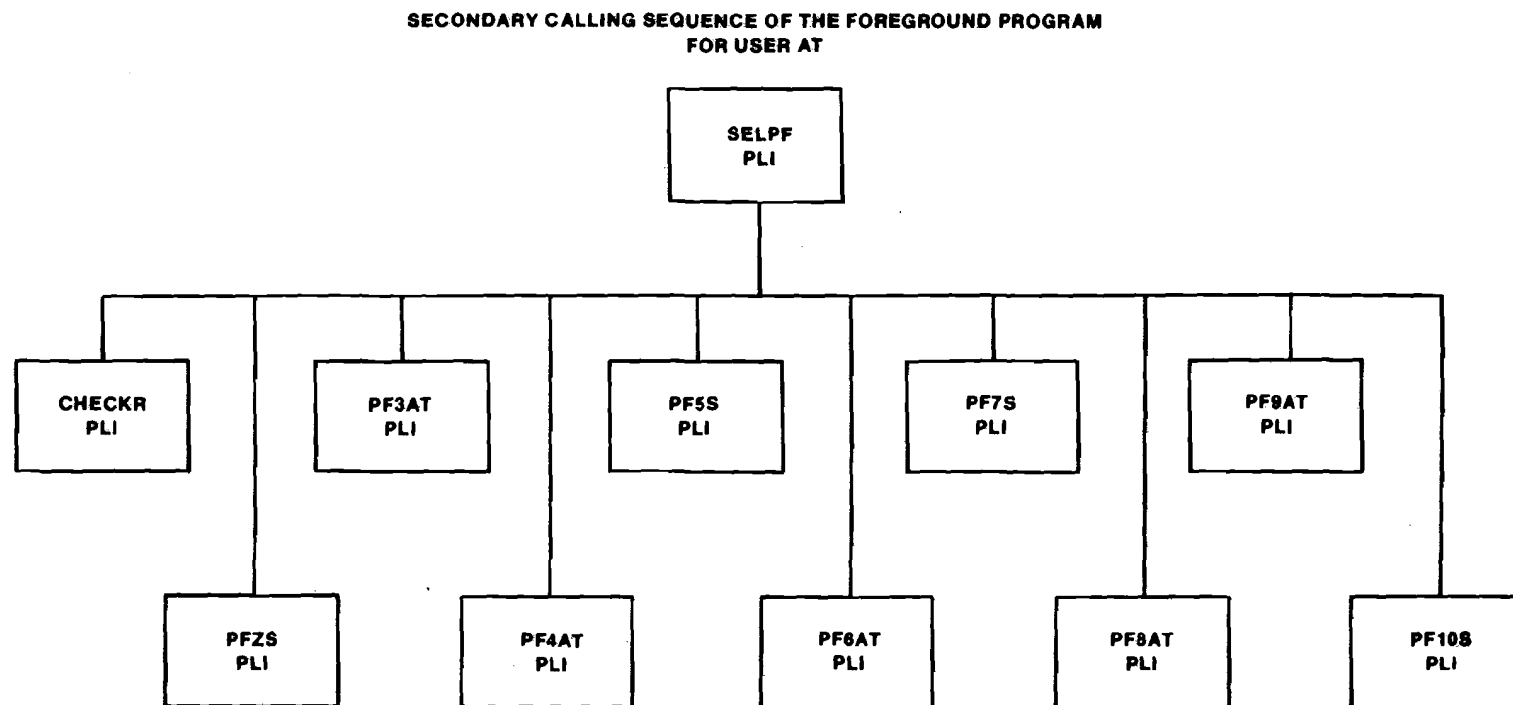


FIGURE 6. FOREGROUND PROGRAM FLOWCHART (1 of 2 Sheets)



B

FIGURE 6. FOREGROUND PROGRAM FLOWCHART (2 of 2 Sheets)


```

*****
*
*
*   STATIC DISPLAY          PF2 -- MASTER PANEL          1607 GMT          CAPACITY
*   CONFIG.  TIME ARRIVALS          DEPARTURES          TOTAL  ARR  DEP
*   CURRENT  1607 14R 22R          22L 27L          VFR  181   68  113
*   PLANNED
*
*   -----< NOTEPAD >-----
*   MINMA CEIL  VIS/RVR    MINMA CEIL  VIS/RVR    | SPECIAL MEETING AT 14:30 TO
*   14R    200   1800      22R    200   1/2      | DISCUSS RCMS
*                                     |
*   -----< ACTUAL >-----
*   1200 X 220 35                                WIND  CEILING
*                                                2705   SCT 5000
*
*   -----
*   TIME      TOTAL KUBBS CGT PLANO FARRM  TOTAL NORTH EAST SOUTH WEST  | 0 WX-PLNS
*   1200      25     3   1     1    20    25     5   5   10   5  | 0 RWY "
*   1215      25     3   1     1    20    25     5   5   10   5  | 1 EQP "
*   SCROLL  4 LINES-----
*   9L CA/CD/S/B
*
*
*
*   /PF1 MASTER AUTO/PF2 MASTER/PF3 CONFIG/PF4 MSG/PF5 DEMAND/PF6 WX/PF7 RWY COND
*   /PF8 EQUIP/PF9 TRIG/PF10 FORECAST/PF11 RECALL/PF12 ENTER/PA2 PRINT
*   SCREEN UPDATED BY AT 1312 GMT
*
*
*****

```

FIGURE 8. PF-2 MASTER PANEL

```

*****
*
*
*          PF3 -- ELIGIBLE CURRENT CONFIGURATION PANEL                      1608 GMT
*  CURRENT TIME SLOT          SELECT CNFG 29          TIME SLOT 1600 TO 1615 GMT
*  SCROLL 15 LINES          REASON NOISE  RWY MAINT  STAFFING DEMAND  OTHER
*  CNFG ARRIVALS          DEPARTURES VFR  ARR  DEP  RUNWAY REMARKS
*  SEL. 14R 22R          22L 27L          68 113          4R
*  5      4R 9R          32R 32L          70 112          4L
*  6      4R 9R          4L 32R          70 58           9R
*  7      4R 9R          4L 32R 32L      70 114          9L CA/CD/S/B
*  16     9R 14L          4R 4L          70 88           14R
*  19     9R 14R          4R 4L          71 112          14L
*  23     9R 14R 14L      4R 4L          104 89          22R
*  25     14R 14L          4L 9R          70 89           22L
*  27     9R 14R          4L 22L          72 112          27R
*  28     9R 14R 14L      4L 22L          106 89          27L
*  29     14R 22R          22L 27L          68 113          32R
*  39     9R 14R 14L      9R 22L          106 84          32L
*  41     14R 14L          22L 27L          70 112          W=WIND/M=MIDWAY/D=DAY ONLY
*  46     14R 14L          9R 22L          70 112          EN=E-NAV/EL=E-LGT/ER=E-RVR
*  49     14R 22R 27L      22L 27L          106 76          CA=CLOSED ARR/CD=CLSED DEP
*  50     22R 27L          22L 27R          70 72           S=SURFACE/B=BRAKING-----
*  51     22R 27L          27R 27L          72 36           PLANNED WX CHANGE          GMT
*  /PF1 MASTER AUTO/PF2 MASTER/PF3 ADVANCE/PF4 MSG/PF5 DEMAND/PF6 WX/PF7 RWY COND
*  /PF8 EQUIP/PF9 INELIG/PF10 FORECAST/PF11 RECALL/PF12 ENTER/PA2 PRINT
*  CNFG SELECTED BY AT 1043 GMT
*
*
*****

```

FIGURE 9. PF-3 ELIGIBLE CURRENT CONFIGURATION PANEL

```

*****
*
*
*          PF3 -- ELIGIBLE PLANNING CONFIGURATION PANEL                      1608 GMT
* PLAN TIME SLOT #2          SELECT CNFG 29          TIME SLOT 1630 TO 1645 GMT
* SCROLL 15 LINES          REASON NOISE RWY MAINT STAFFING DEMAND OTHER X
* CNFG ARRIVALS          DEPARTURES VFR ARR DEP RUNWAY REMARKS
* SEL, 14R 22R,          22L 27L          68 113 4R
* 5 4R 9R          32R 32L          70 112 4L
* 6 4R 9R          4L 32R          70 58 9R
* 7 4R 9R          4L 32R 32L          70 114 9L CA/CD/S/B
* 16 9R 14L          4R 4L          70 88 14R
* 19 9R 14R          4R 4L          71 112 14L
* 23 9R 14R 14L          4R 4L          104 89 22R
* 25 14R 14L          4L 9R          70 89 22L
* 27 9R 14R          4L 22L          72 112 27R
* 28 9R 14R 14L          4L 22L          106 89 27L
* 29 14R 22R          22L 27L          68 113 32R
* 39 9R 14R 14L          9R 22L          106 84 32L
* 41 14R 14L          22L 27L          70 112 W=WIND/M=MIDWAY/D=DAY ONLY
* 46 14R 14L          9R 22L          70 112 EN=E-NAV/EL=E-LGT/ER=E-RVR
* 49 14R 22R 27L          22L 27L          106 76 CA=CLOSED ARR/CD=CLSED DEP
* 50 22R 27L          22L 27R          70 72 S=SURFACE/B=BRAKING-----
* 51 22R 27L          27R 27L          72 36 PLANNED WX CHANGE GMT
* /PF1 MASTER AUTO/PF2 MASTER/PF3 ADVANCE/PF4 RETURN TO ELIGIBLE CURRENT CONFIG
* /PF9 INELIG/PF11 RECALL /PF12 ENTER/PA2 PRINT
* CNFG SELECTED BY AT 1043 GMT
*
*
*****

```

FIGURE 10. PF-3 (REPEATED) ELIGIBLE PLANNING CONFIGURATION
PANEL FOR NEXT QUARTER-HOUR

```

*****
*
*
*          PF9\ -- INELIGIBLE CURRENT  CONFIGURATION PANEL          1611 GMT
* CURRENT TIME SLOT                                TIME SLOT 1600 TO 1615 GMT
* SCROLL 16 LINES
*
*      ARRIVALS      DEPARTURES      REASONS
* 1      4R  9R      4L  9L 32R      C
* 2      4R  9R      4L  9L 32R 32L  C
* 3      4R  9R  9L      4L 32R      C
* 4      4R  9R  9L      4L  9L 32R  C
* 8      4R  9R      4L  9L      C
* 9      4R  9L      4L  9R      C
* 10     4R  9L      4L  9R 32R     C
* 11     4R  9R  9L      32R 32L     C
* 12     4R  9R  9L      4L  9R      C
* 13     4R  9R  9L      4L 32L      C
* 14     9R  9L      32R 32L      C
* 15     9R 14L      9R  9L      C
* 17     9R 14L      9L 22L      C
* 18     9R 14L      4L  9L 22L    C
* 20     9R 14R      4L  9L      C
* 21     9R 14R      4L  9L 22L    C
* 22     9R 14R 14L    4L  9L      C
* /PF3 CONFIG/PF9 ADVANCE/NO RECALL/NO ENTER/PA2 PRINT
*
*
*
*
*****

```

FIGURE 11. PF-9 (SELECTED FROM PF-3) INELIGIBLE PLANNING CONFIGURATION PANEL

```

*****
*
*
*      PF9  -- INELIGIBLE PLANNING CONFIGURATION PANEL      1611 GMT
*      PLAN TIME SLOT #3      TIME SLOT 1645 TO 1700 GMT
*      SCROLL 16 LINES
*
*      ARRIVALS      DEPARTURES      REASONS
*      1      4R  9R      4L  9L 32R      C
*      2      4R  9R      4L  9L 32R 32L      C
*      3      4R  9R  9L      4L 32R      C
*      4      4R  9R  9L      4L  9L 32R      C
*      8      4R  9R      4L  9L      C
*      9      4R  9L      4L  9R      C
*     10      4R  9L      4L  9R 32R      C
*     11      4R  9R  9L      32R 32L      C
*     12      4R  9R  9L      4L  9R      C
*     13      4R  9R  9L      4L 32L      C
*     14      9R  9L      32R 32L      C
*     15      9R 14L      9R  9L      C
*     17      9R 14L      9L 22L      C
*     18      9R 14L      4L  9L 22L      C
*     20      9R 14R      4L  9L      C
*     21      9R 14R      4L  9L 22L      C
*     22      9R 14R 14L      4L  9L      C
*      /PF3 CONFIG/PF4 RETURN TO INELIGIBLE CURRENT CONFIG/PF9 ADVANCE/NO  RECALL
*      /NO ENTER/PA2 PRINT
*
*
*
*****

```

FIGURE 12. PF-9 (REPEATED FROM PF-9) INELIGIBLE PLANNING CONFIGURATION PANEL FOR NEXT QUARTER-HOUR

FIGURE 16. PF-6 (REPEATED) AREA WEATHER PANEL

FIGURE 18. PF-8 EQUIPMENT PANEL

FIGURE 23. EQUIPMENT PLANNING LOG (PF-8)

```

*****
*
*
*          PF10 ---- FORECAST CONTROL PANEL
*
*          DO FORECAST MODE ( MON )
*          -----
*          USE SAVED FORECAST      X TUE
*          FILE FROM                WED
*          (USE AN X TO SELECT
*          OPTIONS)                THU
*          -----                FRI
*                                SAT
*                                SUN
*
*          SCROLL 6 LINES |-----
*          CONFIG SUMMARY -- SELECT START TIME 0900
*          START| ELIG |
*          TIME | STATUS | ARRIVALS      DEPARTURES | HOURLY CAP  PEAK DMD/CAP
*          0900 |      | 14R 22R      9L 22L 27L | 217  67 150
*          1030 |      | 14R 22R      22L 27L | 181  68 113
*          2200 |      | 4R  9R  9L    32R 32L | 162 104  58
*
*
*
*          /PF1 MASTER AUTO/PF2 STATUS/PF3 CNFG/PF4 WHAT IF/PF5 DEMAND/PF6 P-WX/PF7 P-RWY
*          /PF8 P-EQUIP/PF10 NEW PARTNER/PF11 END/PF12 ENTER/PA2 PRINT
*
*
*****

```

FIGURE 24. PF-10 FORECAST CONTROL PANEL

```

*****
*
*
*
*      PF2 -- FORECAST STATUS PANEL      TIME SLOT 0900 TO 0915      |ARRIVAL MINS
*      RWY |LOC|GS |COM|OM |MM |IM |ALS| F |DME|RVR|HIR|CL |TDZ|CA/D|S/B | CEIL  VISIB
*      ----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
*      4R  | 0 | 0 | - | 0 | 0 | - | 0 | 0 | 0 | - |   | - | - |   |   | 4500  7
*      4L  |   | - | - |   | - | - |   | - |   | - |   | - | - |   |   | 402  1
*      9R  |   |   |   |   |   |   |   |   |   |   |   |   | - | - |   |   | 200 1800
*      9L  | 0 | 0 | - | 0 | 0 | - |   |   |   |   |   |   | - | - | 00  | SB | 200 1800
*      14R |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 200 1800
*      14L |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 200 1800
*      22R |   |   | - |   |   | - |   |   |   | - |   | - | - |   |   | 200  1/2
*      22L | P | P | - | P | P | - | P | P | P | - | P | - | - |   |   | 200  1/2
*      27R |   |   |   |   |   |   |   |   |   |   |   | - | - |   |   | 200 1800
*      27L |   |   | - |   |   |   |   |   |   |   |   |   | - |   |   | 200 1800
*      32R |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 200 1800
*      32L |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 200 1800
*      14R CAT II      |14R R-MID      |UPS1
*      14R CAT III     |14R R-ROLL    |UPS2
*      14L CAT II      |14L R-MID     |UPS3
*      14L CAT III     |14L R-ROLL    |ENG1
*                      |VOR           |ENG2
*                      |MIDFIELD DME  |ENG3
*
*      /PF1 MASTER AUTO/PF2 STATUS/PF3 CNFG/PF4 WHAT IF/PF5 DEMAND/PF6 P-WX/PF7 P-RWY
*      /PF8 P-EQUIP/PF10 FORECAST/PF11 RECALL/PF12 ENTER/PA2 PRINT
*      SCREEN UPDATED BY AT 0836 GMT
*
*
*****

```

FIGURE 25. FORECAST STATUS PANEL (PF-2)

```

*****
*
*
*
*      FORECAST   PF3 -- CURRENT CONFIGURATION PANEL                                0935 GMT
*      CURRENT TIME\ SLOT      SELECT CNFG 30      TIME SLOT 0900 TO 0915 GMT
*      SCROLL 15 LINES
*      CNFG ARRIVALS      DEPARTURES      ARR  DEP      RUNWAY REMARKS
*      SEL. 14R 22R      9L 22L 27L      67  150  4R
*      1 * 4R 9R      4L 9L 32R      68  105  4L
*      2 * 4R 9R      4L 9L 32R 32L      67  159  9R
*      3 * 4R 9R 9L      4L 32R      100  54  9L CA/CD/S/B
*      4 4R 9R 9L      4L 9L 32R      101  70 14R
*      5 P 4R 9R      32R 32L      70  112 14L
*      6 4R 9R      4L 32R      70  58 22R
*      7 * 4R 9R      4L 32R 32L      70  114 22L
*      8 * 4R 9R      4L 9L      70  103 27R
*      9 * 4R 9L      4L 9R      68  112 27L
*      10 * 4R 9L      4L 9R 32R      68  111 32R
*      11 * 4R 9R 9L      32R 32L      104  58 32L
*      12 * 4R 9R 9L      4L 9R      104  80 W=WIND/M=MIDWAY/D=DAY ONLY
*      13 * 4R 9R 9L      4L 32L      104  96 EN=E-NAV/EL=E-LGT/ER=E-RVR
*      14 * 9R 9L      32R 32L      70  58 CA=CLOSED ARR/CD=CLOSED DEP
*      15 9R 14L      9R 9L      72  84 S=SURFACE/B=BRAKING-----
*      16 * 9R 14L      4R 4L      70  88 PLANNED WX CHANGE      GMT
*      /PF1 MASTER AUTO/PF2 STATUS/PF3 ADVANCE/PF4 WHAT IF/PF5 DEMAND/PF6 P-WX/PF7 P-R
*      /PF8 P-EQUIP/PF10 FORECAST/PF11 RECALL/PF12 ENTER/PA2 PRINT
*      CNFG SELECTED BY AT 0836 GMT
*
*
*****

```

FIGURE 26. FORECAST CONFIGURATION PANEL (PF-3)

FIGURE 28. FORECAST WEATHER PLANNING LOG (PF-6)

FORECAST PF7 - RUNWAY CLOSURE PLANNING LOG										1000 GMT	
RWY	BOTH	ARR	DEP	CLOSED	OPEN	SURFACE	BRAKING	REMARKS	USER ID	ACCEPT TIME	
22L	P	P	P	1800	1930			MAINT.	AT	1006	
/PF1 MASTER AUTO/PF2 STATUS/PF3 CNFG/PF4 WHAT IF/PF5 DEMAND/PF6 P-WX/PF7 P-RUN											
/PF8 P-EQUIP/PF10 FORECAST/PF11 RECALL/PF12 ENTER/PA2 PRINT											
AT CONTROLS PLAN AT PLAN ACCEPTED 1006											

FIGURE 29. FORECAST RUNWAY CLOSURE PLANNING LOG (PF-7)

FIGURE 30. FORECAST EQUIPMENT PLANNING LOG (PF-8)

FIGURE 31. EQUIPMENT STATUS AND READING PANEL

```

*****
*
*
*   SCROLL   9   LINES          PF9 -- TAXIWAY/NOTAM PANEL          0901 GMT
*   TAXIWAY          SURFACE   BRAKING          PAVEMENT AND SAFETY REMARKS
*   -----
*   18-36           |           |           |
*   TWYS            |           |           |
*   RMPS            |           |           |
*   ALPHA           |           |           |
*   INDIA           |   ICE     |   POOR    |   UNSAFE CONDITIONS
*                   |           |           |
*                   |           |           |
*                   |           |           |
*   -----
*   SCROLL   6   LINES          NOTAMS
*   UFN AIRPORT CLOSED UNTIL DECEMBER 25, 1978
*
*
*
*   /PF8 EQUIP/NO RECALL/PF12 ENTER/PA2 PRINT
*   SCREEN UPDATED BY USER AT   AT 0846
*
*****

```

FIGURE 32. TAXIWAY/NOTAM PANEL

APPENDIX A
RCMS LIBRARY

LIBPDS

```

DCL 1 FELIG(96) LIKE ELTABLE STATIC EXTERNAL, /*FPF3-ELIG INFO-9-11-86*/ MAS00220
/ / / MAS00230

DCL 1 FORCAST          STATIC EXTERNAL, /*FORECAST INFO    -- 9-11-86*/ MAS00240
  2 STARTQH            FIXED BIN(15),    /*START QTR HR*/ MAS00250
  2 MSG                CHAR(79);         MAS00260
/ / / MAS00270

DCL 1 FSURF           LIKE SURF          STATIC EXTERNAL, /*FPF7-SURF INFO-9-16-86*/ MAS00220
/ / / MAS00230

DCL 1 FRWYEQP        LIKE RWYEQP        STATIC EXTERNAL, /*FPF8-REQP INFO-9-16-86*/ MAS00220
/ / / MAS00230

DCL 1 CABVIS,         /*CAB VISIBILITIES -- 7-28-86*/ CAB00010
  2 DISPLAY(25)        CHAR(6)          INIT CAB00020
    (' 7', '4', '3', '2-3/4', '2-1/2', '2-1/4', CAB00030
     '2', '1-7/8', '1-3/4', '1-5/8', '1-1/2', '1-3/8', CAB00040
     '1-1/4', '1-1/8', '1', '7/8', '3/4', '5/8', CAB00050
     '1/2', '3/8', '5/16', '1/4', '3/16', '1/8', CAB00060
     '1/16'), CAB00070
  2 VALUE(25)          BIN FLOAT(21)    INIT CAB00080
    ( 36961., 21120., 15840., 14520., 13200., 11880., CAB00090
      10560., 9900., 9240., 8580., 7920., 7260., CAB00100
      6600., 5940., 5280., 4620., 3960., 3300., CAB00110
      2640., 1980., 1650., 1320., 990., 660., CAB00120
      330.), CAB00130
/ / / CAB00140

DCL MAXCNFG FIXED BIN(15) INIT(62), /*MAX # CONFIG IN CNFGRQ--7-14-86*/ JUN00010
/ / / JUN00020

DCL RWYNAME(12) CHAR(3) /*RUNWAY NAMES -- 7-14-86*/ JUN00030
  INIT (' 4R', ' 4L', ' 9R', ' 9L', '14R', '14L', JUN00040
        '22R', '22L', '27R', '27L', '32R', '32L'), JUN00050
/ / / JUN00060

DCL 1 RWYMIN (12)      STATIC          EXTERNAL, /*ARR MINS--10-85*/ RWY00010
  2 CATIII,             /* CAT III */ RWY00020
  3 NONE,               /* NONE OTS */ RWY00030
  4 CEIL                BIN FLOAT (21), RWY00040
  4 VIS                 BIN FLOAT (21), RWY00050
  2 CATII,              /* CAT II */ RWY00060
  3 NONE,               /* NONE OTS */ RWY00070
  4 CEIL                BIN FLOAT (21), RWY00080
  4 VIS                 BIN FLOAT (21), RWY00090
  3 RVRMID,             /* RVR MIDPOINT OTS */ RWY00100
  4 CEIL                BIN FLOAT (21), RWY00110
  4 VIS                 BIN FLOAT (21), RWY00120
  3 RVRMR,              /* RVR MIDPOINT & RVR ROLLOUT OTS */ RWY00130
  4 CEIL                BIN FLOAT (21), RWY00140
  4 VIS                 BIN FLOAT (21), RWY00150
  3 IM1,                /* INNER MARKER 1 OTS */ RWY00160

```

4	CEIL	BIN FLOAT (21),	RWY00180
4	VIS	BIN FLOAT (21),	RWY00190
3	IM2,	/* INNER MARKER 2 OTS */	RWY00200
4	CEIL	BIN FLOAT (21),	RWY00210
4	VIS	BIN FLOAT (21),	RWY00220
			RWY00230
2	CAT I,	/* CAT I */	RWY00240
3	NONE,	/* NONE OTS */	RWY00250
4	CEIL	BIN FLOAT (21),	RWY00260
4	VIS	BIN FLOAT (21),	RWY00270
3	GS,	/* GLIDE SLOPE OTS */	RWY00280
4	CEIL	BIN FLOAT (21),	RWY00290
4	VIS	BIN FLOAT (21),	RWY00300
3	TDZL,	/* TOUCHDOWN ZONE LIGHTS OTS */	RWY00310
4	CEIL	BIN FLOAT (21),	RWY00320
4	VIS	BIN FLOAT (21),	RWY00330
3	RCLS,	/* RWY CENTERLINE LIGHTS OTS */	RWY00340
4	CEIL	BIN FLOAT (21),	RWY00350
4	VIS	BIN FLOAT (21),	RWY00360
3	ALS,	/* ALS OTS */	RWY00370
4	CEIL	BIN FLOAT (21),	RWY00380
4	VIS	BIN FLOAT (21),	RWY00390
3	FLASHER,	/* FLASHERS OTS */	RWY00400
4	CEIL	BIN FLOAT (21),	RWY00410
4	VIS	BIN FLOAT (21),	RWY00420
3	OM,	/* OUTER MARKER OTS */	RWY00430
4	CEIL	BIN FLOAT (21),	RWY00440
4	VIS	BIN FLOAT (21),	RWY00450
3	MM,	/* MIDDLE MARKER OTS */	RWY00460
4	CEIL	BIN FLOAT (21),	RWY00470
4	VIS	BIN FLOAT (21),	RWY00480
3	RVRTD,	/* RVR TOUCHDOWN OTS */	RWY00490
4	CEIL	BIN FLOAT (21),	RWY00500
4	VIS	BIN FLOAT (21),	RWY00510
			RWY00520
2	LOC,	/* LOCALIZER */	RWY00530
3	NONE,	/* NONE OTS */	RWY00540
4	CEIL	BIN FLOAT (21),	RWY00550
4	VIS	BIN FLOAT (21),	RWY00560
3	ALS,	/* LOCALIZER & ALS OTS */	RWY00570
4	CEIL	BIN FLOAT (21),	RWY00580
4	VIS	BIN FLOAT (21),	RWY00590
			RWY00600
2	VOR,	/* VOR */	RWY00610
3	NONE,	/* NONE OTS */	RWY00620
4	CEIL	BIN FLOAT (21),	RWY00630
4	VIS	BIN FLOAT (21),	RWY00640
3	ALS,	/* VOR & ALS OTS */	RWY00650
4	CEIL	BIN FLOAT (21),	RWY00660
4	VIS	BIN FLOAT (21),	RWY00670
3	FLASHER,	/* VOR & FLASHER OTS */	RWY00680
4	CEIL	BIN FLOAT (21),	RWY00690
4	VIS	BIN FLOAT (21),	RWY00700
			RWY00710
2	NDB,	/* NON-DIRECTIONAL BEACON */	RWY00720

```

3 NONE,                                     /* NONE OTS */RWY00730
4 CEIL      BIN FLOAT (21),                RWY00740
4 VIS       BIN FLOAT (21),                RWY00750
3 RAIL,                                     /* RAIL OTS */RWY00760
4 CEIL      BIN FLOAT (21),                RWY00770
4 VIS       BIN FLOAT (21),                RWY00780
3 ALS,                                     /* ALS OTS */RWY00790
4 CEIL      BIN FLOAT (21),                RWY00800
4 VIS       BIN FLOAT (21),                RWY00810
3 RAD_DME,   /* RADAR DME OTS */RWY00820
4 CEIL      BIN FLOAT (21),                RWY00830
4 VIS       BIN FLOAT (21),                RWY00840
/ /

MOD00280
/* BLANK=NO PLAN, 'TEST'=PLAN IN TEST, 'PLAN'=PREVIOUSLY ACCEPTED PLN*/MOD00290
/* OR PLAN FORCED BY USER */
DCL 1 PSTATUS      STATIC EXTERNAL,        /*7-16-86*/MOD00300
2 ANYPLAN          CHAR(4),                MOD00310
2 CFLOG            CHAR(4),                MOD00320
2 WXLOG            CHAR(4),                MOD00320
2 CLSLOG           CHAR(4),                MOD00330
2 EQPLOG           CHAR(4),                MOD00340
/ /

DCL 1 PLAN (96)    STATIC EXTERNAL, /*PLANNED FLAGS -- 8-01-86*/PLA00010
2 WX,              PLA00020
3 DIR              BIN FLOAT(21),          PLA00030
3 SPD              BIN FLOAT(21),          PLA00040
3 CEIL             BIN FLOAT(21),          PLA00050
3 VIS              BIN FLOAT(21),          PLA00060
2 RUNWAY(12),      PLA00070
3 TWRCLOS,         PLA00080
4 ARR              CHAR(1),                PLA00090
4 DEP              CHAR(1),                PLA00100
3 SURF             CHAR(5),                PLA00110
3 BRAK             CHAR(5),                PLA00120
3 LOC              CHAR(1),                PLA00130
3 GS               CHAR(1),                PLA00140
3 COM              CHAR(1),                PLA00150
3 OM               CHAR(1),                PLA00160
3 MM               CHAR(1),                PLA00170
3 IM               CHAR(1),                PLA00180
3 ALS              CHAR(1),                PLA00190
3 FLASHER          CHAR(1),                PLA00200
3 DME              CHAR(1),                PLA00210
3 RVR              CHAR(1),                PLA00220
3 RVRMID           CHAR(1), /* TOUCHDOWN RVR */PLA00230
3 RVRROLL          CHAR(1), /*INDIVIDUAL RVR -- MID POINT */PLA00240
3 HIRL             CHAR(1), /*INDIVIDUAL RVR -- ROLL OUT */PLA00250
3 CL               CHAR(1),                PLA00260
3 TDZ              CHAR(1),                PLA00270
/ /

DCL 1 APTSTAT(96) STATIC EXTERNAL, /*AIRPORT STATUS -- 7-09-86*/APT00010
2 ACTUAL,          APT00020
APT00030

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      3 DIR      BIN FLOAT(21),      APT00040
      3 SPD      BIN FLOAT(21),      APT00050
      3 CEIL     BIN FLOAT(21),      APT00060
      3 VIS      BIN FLOAT(21),      APT00070
2 RUNWAY(12),      APT00080
  3 TWRCLOS,      APT00090
    4 ARR      CHAR(1),      APT00100
    4 DEP      CHAR(1),      APT00110
  3 SURF      CHAR(5),      APT00120
  3 BRAK      CHAR(5),      APT00130
/ /
DCL 1 PEQUIP(96) STATIC EXTERNAL, /*EQUIPMENT STATUS -- 7-03-86*/ MAS00500
  2 RUNWAY(12),      MAS00510
    3 CATII     CHAR(1), /*Y=IN SER,N=NOT AVAIL,' '=AVAILABLE*/MAS00530
    3 CATIII    CHAR(1), /*Y=IN SER,N=NOT AVAIL,' '=AVAILABLE*/MAS00540
    3 LOC      CHAR(1),      MAS00550
    3 GS       CHAR(1),      MAS00560
    3 COM      CHAR(1),      MAS00570
    3 OM       CHAR(1),      MAS00580
    3 MM       CHAR(1),      MAS00590
    3 IM       CHAR(1),      MAS00600
    3 ALS      CHAR(1),      MAS00610
    3 FLASHER   CHAR(1),      MAS00620
    3 DME      CHAR(1),      MAS00630
    3 RVR      CHAR(1),      /* TOUCHDOWN RVR */MAS00640
    3 RVRMID    CHAR(1), /*INDIVIDUAL RVR -- MID POINT */MAS00650
    3 RVRROLL   CHAR(1), /*INDIVIDUAL RVR -- ROLL OUT */MAS00660
    3 HIRL     CHAR(1),      MAS00670
    3 CL       CHAR(1),      MAS00680
    3 TDZ      CHAR(1),      MAS00690
    3 CONVERT,      MAS00700
      4 CEILMIN  BIN FLOAT(21),      MAS00710
      4 VISMIN   BIN FLOAT(21),      MAS00720
  2 VOR      CHAR(1),      MAS00730
  2 MID_DME   CHAR(1),      MAS00740
  2 UPS(3)    CHAR(1),      MAS00750
  2 ENG(3)    CHAR(1),      MAS00760
/ /
DCL 1 STATUS CONNECTED, /*AIRPORT STATUS -- LIKE APTSTAT -- 7-09-86*/ STA00010
  2 ACTUAL,      STA00020
    3 DIR      BIN FLOAT(21),      STA00030
    3 SPD      BIN FLOAT(21),      STA00040
    3 CEIL     BIN FLOAT(21),      STA00050
    3 VIS      BIN FLOAT(21),      STA00060
  2 RUNWAY(12),      STA00080
    3 TWRCLOS,      STA00090
      4 ARR     CHAR(1),      STA00100
      4 DEP     CHAR(1),      STA00110
    3 SURF     CHAR(5),      STA00120
    3 BRAK     CHAR(5),      STA00130
/ /
DCL 1 EQUIP CONNECTED, /*EQUIPMENT STATUS -- LIKE PEQUIP-- 7-03-86*/ EQU00010

```

```

2 RUNWAY(12), EQU00030
3 CATII CHAR(1), /*Y=IN SER,N=NOT AVAIL,' '=AVAILABLE*/EQU00040
3 CATIII CHAR(1), /*Y=IN SER,N=NOT AVAIL,' '=AVAILABLE*/EQU00050
3 LOC CHAR(1), EQU00060
3 GS CHAR(1), EQU00070
3 COM CHAR(1), EQU00080
3 OM CHAR(1), EQU00090
3 MM CHAR(1), EQU00100
3 IM CHAR(1), EQU00110
3 ALS CHAR(1), EQU00120
3 FLASHER CHAR(1), EQU00130
3 DME CHAR(1), EQU00140
3 RVR CHAR(1), /* TOUCHDOWN RVR */EQU00150
3 RVRMID CHAR(1), /*INDIVIDUAL RVR -- MID POINT */EQU00160
3 RVRROLL CHAR(1), /*INDIVIDUAL RVR -- ROLL OUT */EQU00170
3 HIRL CHAR(1), EQU00180
3 CL CHAR(1), EQU00190
3 TDZ CHAR(1), EQU00200
3 CONVERT, EQU00210
4 CEILMIN BIN FLOAT(21), EQU00220
4 VISMN BIN FLOAT(21), EQU00230
2 VOR CHAR(1), EQU00240
2 MID_DME CHAR(1), EQU00250
2 UPS(3) CHAR(1), EQU00260
2 ENG(3) CHAR(1), EQU00270

```

```

DCL 1 CNFG CONNECTED, /*CONFIG INFO -- LIKE CONFIG(PF3) -- 7-14-86*/MAS02020
2 ACCTIME CHAR(4), /*ACCEPT TIME OF CONFIG CHANGE */MAS02030
2 CONFIND FIXED BIN(15), /*CONFIG NUM FOR QTR HR*/ MAS02050
2 FORCE CHAR(1), /*FORCED CONFIG CHANGE Y=YES,N=NO*/ MAS02060
2 REASON, /*' '=NO AND '='=YES*/ MAS02070
3 NOISE CHAR(1), MAS02080
3 RMAINT CHAR(1), MAS02090
3 STAFF CHAR(1), MAS02100
3 DEMAND CHAR(1), MAS02110
3 OTHER CHAR(1), MAS02120
2 MID_13R CHAR(1), /*MIDWAY FLAG -- 5-20-85*/ MAS02130

```

```

DCL 1 ELIGIB CONNECTED,/*ELIGIB INFO--LIKE ELTABLE(PF3) -- 7-14-86*/MAS02140
2 PW_TIME CHAR(4), /*' '=NO CHANGE, ELSE USE TIME*/ MAS02150
2 ELIG, MAS02160
3 CNT FIXED BIN(15), MAS02170
3 ID BIT(80), MAS02180
2 NOTELIG, MAS02190
3 WX BIT(80), MAS02200
3 RWYCLOS BIT(80), MAS02210
3 SRFBRK BIT(80), MAS02220
2 WINDCND BIT(80), MAS02230
2 RWYRHK(12) CHAR(26), MAS02240

```

```

DCL 1 MPANEL STATIC EXTERNAL, /*PF2 -- MASTER PANEL -- 7-03-86*/ MAS01220
2 NOTEPAD(3) CHAR(30), /*FOR USER GENERATED NOTES */ MAS01230
MAS01240

```

START OF
MASTER DATA
BASE

```

2 ACT_WX,          /*ACTUAL WEATHER -- FOR TRIGGERS*/      MAS01250
3 DIR              CHAR(3), /*VIA LLWAS*/      MAS01260
3 SPD              CHAR(2), /*VIA LLWAS*/      MAS01270
3 CEIL             CHAR(8), /*VIA CEILOMETER -- AAANNNNN*/ MAS01280
2 RWYMSG(12)       CHAR(79), /*COMPOSITE RWY MSG*/      MAS01290
2 MSG              CHAR(79); MAS01300
/*REST OF PF2 DATA IS TAKEN FROM OTHER PANELS*/      MAS01310
/*PF3 -- CONFIG, ELIGIB */      MAS01320
/*PF5 -- DEMAND*/      MAS01330
/*PF6 -- WEATHER -- CURRENT, FORECAST*/      MAS01340
/*PF8 -- MINIMA CEILING, VISIBILITY, RVR*/      MAS01350
/*NOTE -- WIND DIRECTION -- SCREEN PGMS CONVERT IT TO 2 CHAR*/MAS01360
/ /

DCL 1 CONFIG(94) STATIC EXTERNAL, /*PF3 -- CONFIG INFO -- 7-03-86*/MAS01430
2 ACCTIME          CHAR(4), /*ACCEPT TIME OF CONFIG CHANGE */MAS01440
2 CONFIND          FIXED BIN(15), /*CONFIG NUM FOR QTR HR*/ MAS01450
2 FORCE            CHAR(1), /*FORCED CONFIG CHANGE Y=YES,N=NO*/ MAS01460
2 REASON,          /*' ' =NO AND '*' =YES*/      MAS01470
3 NOISE           CHAR(1), MAS01480
3 RMAINT           CHAR(1), MAS01490
3 STAFF            CHAR(1), MAS01500
3 DEMAND           CHAR(1), MAS01510
3 OTHER            CHAR(1), MAS01520
2 MID_13R          CHAR(1); /*MIDWAY FLAG -- 5-20-85*/      MAS01530
/ /

DCL 1 ELTABLE(9) STATIC EXTERNAL, /*PF3 -- ELIGIB INFO -- 7-03-86*/MAS01550
2 PW_TIME          CHAR(4), /*' ' =NO CHANGE, ELSE USE TIME*/ MAS01560
2 ELIG,            MAS01570
3 CNT              FIXED BIN(15), MAS01580
3 ID               BIT(80), MAS01590
2 NOTELIG,         MAS01600
3 WX               BIT(80), MAS01610
3 RWYCLOS          BIT(80), MAS01620
3 SRFBRK           BIT(80), MAS01630
2 WINDCND          BIT(80), MAS01640
2 RWYRHK(12)       CHAR(26); MAS01650
/ /

DCL 1 MESSAGE STATIC EXTERNAL, /*PF4 -- MESSAGE PANEL -- 5-18-85*/MAS01670
2 AT_ADV,          MAS01680
3 COUNT            BIN FLOAT(21), MAS01690
3 TABLE(20)       CHAR(79), MAS01700
2 CAB_ADV,         MAS01710
3 COUNT            BIN FLOAT(21), MAS01720
3 TABLE(20)       CHAR(79), MAS01730
2 CURRENT,         MAS01740
3 COUNT            BIN FLOAT(21), MAS01750
3 TABLE(60)       CHAR(79), MAS01760
2 MSG              CHAR(79); MAS01770
/ /

DCL 1 DEMAND STATIC EXTERNAL, /*PF5 -- DEMAND PANEL -- 7-03-86*/MAS01790
2 TABLE(14),      MAS01800

```

3 TIME,		MAS01820
4 START	CHAR(4),	MAS01830
4 END	CHAR(4),	MAS01840
3 ARR,		MAS01850
4 TOTAL	CHAR(3),	MAS01860
4 KUBBS(3)	CHAR(2),	MAS01870
4 CGT(3)	CHAR(2),	MAS01880
4 PLANO(3)	CHAR(2),	MAS01890
4 FARMH(3)	CHAR(2),	MAS01900
3 DEP,		MAS01910
4 TOTAL	CHAR(3),	MAS01920
4 NORTH	CHAR(2),	MAS01930
4 EAST	CHAR(2),	MAS01940
4 SOUTH	CHAR(2),	MAS01950
4 WEST	CHAR(2),	MAS01960
2 MSG	CHAR(79),	MAS01970
DCL 1 WEATHER STATIC EXTERNAL, /*PF6 -- WEATHER PANEL -- 7-03-86*/		MAS01980
2 CURRENT,		MAS01990
3 TIME	CHAR(4),	MAS02000
3 SKY	CHAR(2),	MAS02010
3 CEIL(3)	CHAR(8),	MAS02020
3 VIS	CHAR(10),	MAS02030
3 ATMOS	CHAR(12),	MAS02040
3 BAROM	CHAR(3),	MAS02050
3 TEMP	CHAR(3),	MAS02060
3 DEW	CHAR(3),	MAS02070
3 WIND,		MAS02080
4 DIR	CHAR(3),	/*SCREEN PGM CONVERTS DIR TO 2 CHAR*/MAS02090
4 SPD	CHAR(2),	MAS02100
3 ALTIM	CHAR(4),	MAS02110
3 OTHER	CHAR(12),	MAS02120
2 CWX	CHAR(79),	MAS02130
2 FORCAST,		MAS02140
3 TIME	CHAR(4),	/*LIKE WEATHER.CURRENT*/MAS02150
3 SKY	CHAR(2),	MAS02160
3 CEIL(3)	CHAR(8),	MAS02170
3 VIS	CHAR(10),	MAS02180
3 ATMOS	CHAR(12),	MAS02190
3 BAROM	CHAR(3),	MAS02200
3 TEMP	CHAR(3),	MAS02210
3 DEW	CHAR(3),	MAS02220
3 WIND,		MAS02230
4 DIR	CHAR(3),	/*SCREEN PGM CONVERTS DIR TO 2 CHAR*/MAS02240
4 SPD	CHAR(2),	MAS02250
3 ALTIM	CHAR(4),	MAS02260
3 OTHER	CHAR(12),	MAS02270
2 FWX	CHAR(60),	MAS02280
2 CAB,		MAS02290
3 VIS	CHAR(6),	MAS02300
3 CEIL	CHAR(5),	/*IN MILES*/MAS02310
2 PW_CHANGE(3),		MAS02320
3 TIME	CHAR(4),	/*PLANNED WX CHANGE */MAS02330
3 NAME	CHAR(4),	MAS02340
		/*CEIL, VIS, WIND */MAS02350

```

      3 VALUE      CHAR(6),      /*NOTE -- WIND SPD/DIR = 4 CHAR*/MAS02360
      2 MSG        CHAR(79),      MAS02370
/ /
MAS02380
DCL 1 ADDWX STATIC EXTERNAL, /*PF6 -- ADDED WX PANEL -- 7-03-86*/MAS02390
      2 RWY(12),      MAS02400
      3 RVR(3)      CHAR(4),      MAS02410
      2 DAS_ORD      CHAR(4),      MAS02420
      2 DAS_MID      CHAR(4),      MAS02430
      2 MSG        CHAR(79),      MAS02440
/ /
MAS02450
DCL 1 SURF STATIC EXTERNAL, /*PF7 -- RWY COND PANEL -- 7-03-86*/MAS02460
      2 RUNWAY(13), /*RUNWAY(13) = ALL*/MAS02470
      3 ARR          CHAR(1),      MAS02480
      3 DEP          CHAR(1),      MAS02490
      3 SURF         CHAR(5),      MAS02500
      3 BRAK         CHAR(5),      MAS02510
      3 REMARKS      CHAR(40),     MAS02520
      2 SURFMSG(36) CHAR(79),     MAS02530
      2 MSG          CHAR(79),     MAS02540
/ /
MAS02550
DCL 1 TAXIWAY STATIC EXTERNAL, /*PF78 -- TAXIWAY PANEL -- 7-03-86*/MAS02560
      2 ZONE(37),      MAS02570
      3 TWY          CHAR(20),     MAS02580
      3 SURF         CHAR(5),      MAS02590
      3 BRAK         CHAR(5),      MAS02600
      3 REMARKS      CHAR(36),     MAS02610
      2 NOTAM(25)    CHAR(49),     MAS02620
      2 MSG          CHAR(79),     MAS02630
/ /
MAS02640
DCL 1 RWYEQP STATIC EXTERNAL, /*PF8 -- EQUIP PANEL -- 7-03-86*/MAS02650
      2 RUNWAY(12),      MAS02660
      3 CATII        CHAR(1), /*Y=IN SER,N=NOT AVAIL,' '=AVAILABLE*/MAS02670
      3 CATIII       CHAR(1), /*Y=IN SER,N=NOT AVAIL,' '=AVAILABLE*/MAS02680
      3 LOC          CHAR(1),      MAS02690
      3 GS           CHAR(1),      MAS02700
      3 COM          CHAR(1),      MAS02710
      3 OM           CHAR(1),      MAS02720
      3 MM           CHAR(1),      MAS02730
      3 IM           CHAR(1),      MAS02740
      3 ALS          CHAR(1),      MAS02750
      3 FLASHER      CHAR(1),      MAS02760
      3 DME          CHAR(1),      MAS02770
      3 RVR          CHAR(1), /* TOUCHDOWN RVR */MAS02780
      3 RVRMID       CHAR(1), /*INDIVIDUAL RVR -- MID POINT */MAS02790
      3 RVRROLL      CHAR(1), /*INDIVIDUAL RVR -- ROLL OUT */MAS02800
      3 HIRL         CHAR(1),      MAS02810
      3 CL           CHAR(1),      MAS02820
      3 TDZ          CHAR(1),      MAS02830
      3 CEILMIN      CHAR(4),      MAS02840
      3 VISMIN       CHAR(6),      MAS02850
      3 RVRMIN       CHAR(4),      MAS02860

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2 VOR	CHAR(1),	MAS02870
2 MID_DME	CHAR(1),	MAS02880
2 UPS(3)	CHAR(1),	MAS02890
2 ENG(3)	CHAR(1),	MAS02900
2 EQPMMSG(60)	CHAR(79),	MAS02910
2 MSG	CHAR(79);	MAS02920
/ /		
DCL 1 TRIG STATIC EXTERNAL,	/*PF9 -- TRIGGERS -- 7-03-86*/	MAS02930
2 CRSS,		MAS02940
3 ARR	CHAR(2),	MAS02950
3 DEP	CHAR(2),	MAS02960
2 TAIL,		MAS02970
3 ARR	CHAR(2),	MAS02980
3 DEP	CHAR(2),	MAS02990
2 MSGTIME,		MAS03000
3 EQPOTS	CHAR(3),	MAS03010
3 EQPRTS	CHAR(3),	MAS03020
3 RWYOTS	CHAR(3),	MAS03030
3 RWYRTS	CHAR(3),	MAS03040
3 NOISE	CHAR(3),	MAS03050
3 RMAINT	CHAR(3),	MAS03060
3 STAFF	CHAR(3),	MAS03070
3 DEMAND	CHAR(3),	MAS03080
3 OTHER	CHAR(3),	MAS03090
2 AT_VAL,		MAS03100
3 TOTDMD	CHAR(3),	MAS03110
3 ARRDMD	CHAR(3),	MAS03120
3 DEPDMD	CHAR(3),	MAS03130
3 WIND,		MAS03140
4 DIR	CHAR(3),	/*SCREEN PGM CONVERTS DIR TO 2 CHAR*/MAS03150
4 SPD	CHAR(2),	MAS03160
3 CEIL	CHAR(5),	MAS03170
3 RVR	CHAR(4),	MAS03180
2 AT_FLG,		MAS03190
3 TOTDMD	CHAR(1),	/*' '=NOT TRIGGERED & '*'=TRIGGERED*/MAS03200
3 ARRDMD	CHAR(1),	MAS03210
3 DEPDMD	CHAR(1),	MAS03220
3 WIND	CHAR(1),	MAS03230
3 CEIL	CHAR(1),	MAS03240
3 RVR	CHAR(1),	MAS03250
2 CAB_VAL,		MAS03260
3 TOTDMD	CHAR(3),	/*LIKE PARAM.AT_VAL*/MAS03270
3 ARRDMD	CHAR(3),	MAS03280
3 DEPDMD	CHAR(3),	MAS03290
3 WIND,		MAS03300
4 DIR	CHAR(3),	/*SCREEN PGM CONVERTS DIR TO 2 CHAR*/MAS03310
4 SPD	CHAR(2),	MAS03320
3 CEIL	CHAR(5),	MAS03330
3 RVR	CHAR(4),	MAS03340
2 CAB_FLG,		MAS03350
3 TOTDMD	CHAR(1),	/*LIKE PARAM.AT_FLG-- ' '=NOT TRIG & '*'= TRIG*/MAS03360
3 ARRDMD	CHAR(1),	MAS03370
3 DEPDMD	CHAR(1),	MAS03380
3 WIND	CHAR(1),	MAS03390
		MAS03400

```

      3 CEIL      CHAR(1),      MAS03410
      3 RVR       CHAR(1),      MAS03420
      2 MSG       CHAR(79),     MAS03430

```

```

DCL 1 CFLOG STATIC EXTERNAL, /PF9 --CONFIG PLAN LOG -- 7-03-86* MAS03440
      2 CONFIND(96) FIXED BIN(15), /*CONFIG INDEX /*MAS03450
      2 MSG       CHAR(79),     MAS03460
                                   MAS03470

```

```

DCL 1 WXLOG STATIC EXTERNAL, /PF9 -- WX PLAN LOG -- 7-03-86 /*MAS03480
      2 TABLE(16), /*MAS03490
      3 START      CHAR(4), /*START TIME /*MAS03510
      3 END        CHAR(4), /*END TIME /*MAS03520
      3 CEIL      CHAR(5), /*MAS03530
      3 VIS        CHAR(6), /*MAS03540
      3 DIR        CHAR(3), /*SCREEN PGM CONVERTS IT TO 2 CHAR*/*MAS03550
      3 VEL        CHAR(2), /*MAS03560
      3 REMARKS    CHAR(25), /*MAS03570
      3 USER       CHAR(3), /*MAS03580
      3 ACCTIME    CHAR(4), /*MAS03590
      2 MSG       CHAR(79),     MAS03600

```

```

DCL 1 CLSLOG STATIC EXTERNAL, /PF9 -- RWY CLOSURE LOG -- 7-03-86*/*MAS03610
      2 TABLE(16), /*MAS03620
      3 RWY        CHAR(3), /*MAS03630
      3 ARR        CHAR(1), /*MAS03640
      3 DEP        CHAR(1), /*MAS03650
      3 CLSTIME    CHAR(4), /*MAS03660
      3 OPNTIME    CHAR(4), /*MAS03670
      3 SURF       CHAR(5), /*MAS03680
      3 BRAK       CHAR(5), /*MAS03690
      3 REMARKS    CHAR(9), /*MAS03700
      3 USER       CHAR(3), /*MAS03710
      3 ACCTIME    CHAR(4), /*MAS03720
      2 MSG       CHAR(79),     MAS03730
                                   MAS03740

```

```

DCL 1 EQPLOG STATIC EXTERNAL, /PF9 -- EQUIP PLAN LOG -- 7-03-86*/*MAS03750
      2 TABLE(31), /*MAS03760
      3 RWY        CHAR(3), /*MAS03770
      3 EQUIPMENT  CHAR(4), /*MAS03780
      3 OTS        CHAR(4), /*MAS03790
      3 RTS        CHAR(4), /*MAS03800
      3 REMARKS    CHAR(30), /*MAS03810
      3 USER       CHAR(3), /*MAS03820
      3 ACCTIME    CHAR(4), /*MAS03830
      2 MSG       CHAR(79),     MAS03840
                                   MAS03850

```

```

DCL 1 PCSTAT STATIC EXTERNAL, /*PC EQUIP STATUS PANEL -- 7-09-86*/*PCS00010
      2 RUNWAY(12), /*PCS00020
      3 CATII      CHAR(1), /*Y=IN SER,N=NOT AVAIL,' '=AVAILABLE*/*PCS00030
      3 CATIII     CHAR(1), /*Y=IN SER,N=NOT AVAIL,' '=AVAILABLE*/*PCS00040
                                   MAS00050

```

3 LOC	CHAR(8),		PCS00060
3 GS	CHAR(7),		PCS00070
3 LOM	CHAR(1),	/*LOM = COM + OM	*/PCS00080
3 OM	CHAR(1),		PCS00090
3 MM	CHAR(1),		PCS00100
3 IM	CHAR(1),		PCS00110
3 ALS	CHAR(1),		PCS00120
3 FLASHER	CHAR(1),		PCS00130
3 DME	CHAR(1),		PCS00140
3 R_READ(3)	CHAR(6),	/*RVR READINGS -- TD, MID, ROLL	*/PCS00150
3 RVR	CHAR(1),	/* TOUCHDOWN RVR	*/PCS00160
3 RVRMID	CHAR(1),	/*INDIVIDUAL RVR -- MID POINT	*/PCS00170
3 RVRROLL	CHAR(1),	/*INDIVIDUAL RVR -- ROLL OUT	*/PCS00180
3 HIRL	CHAR(1),		PCS00190
2 MIDWAY,			PCS00200
3 FLG_ILS	CHAR(1),		PCS00210
3 FLG_LOC	CHAR(1),		PCS00220
3 FLG_NDB	CHAR(1),		PCS00230
3 FLG_31L	CHAR(1),		PCS00240
3 FLG_22L	CHAR(1),		PCS00250
3 FLG_13R	CHAR(1),		PCS00260
3 FLG_4R	CHAR(1),		PCS00270
2 WIND,			PCS00280
3 DIR	CHAR(3),	/*SCREEN PGM CONVERTS TO 2 CHAR	*/ PCS00290
3 SPD	CHAR(2),		PCS00300
2 GUST	CHAR(2),		PCS00310
2 MID_DME	CHAR(1),		PCS00320
2 VOR_4R	CHAR(1),		PCS00330
2 DAS_ORD	CHAR(4),		PCS00340
2 DAS_MID	CHAR(4),		PCS00350
2 CAT_14R	CHAR(10),	/*14R -- CAT II/III READINGS	*/ PCS00360
2 CAT_14L	CHAR(10),	/*14L -- CAT II/III READINGS	*/ PCS00370
2 CEIL(2)	CHAR(8),	/*CEILOMETER -- AAANNNNN	*/ PCS00380
2 UPS(3)	CHAR(1),		PCS00390
2 ENG(3)	CHAR(1),		PCS00400
2 MSG	CHAR(79);		PCS00410

DCL 1 PLNSTAT STATIC EXTERNAL,
2 RUNWAY(12),

/*PLAN STATUS -- 7-03-86*/MAS04250
/*CLOSURE & EQP STATUS */MAS04260

3 ARR	CHAR(1),	MAS04270
3 DEP	CHAR(1),	MAS04280
3 LOC	CHAR(1),	MAS04290
3 GS	CHAR(1),	MAS04300
3 COM	CHAR(1),	MAS04310
3 OM	CHAR(1),	MAS04320
3 MM	CHAR(1),	MAS04330
3 IM	CHAR(1),	MAS04340
3 ALS	CHAR(1),	MAS04350
3 FLASHER	CHAR(1),	MAS04360
3 DME	CHAR(1),	MAS04370
3 RVR	CHAR(1),	/* TOUCHDOWN RVR */MAS04380
3 RVRMID	CHAR(1),	/*INDIVIDUAL RVR -- MID POINT */MAS04390
3 RVRROLL	CHAR(1),	/*INDIVIDUAL RVR -- ROLL OUT */MAS04400
3 HIRL	CHAR(1),	MAS04410

```

      3 CL          CHAR(1),          MAS04420
      3 TDZ         CHAR(1),          MAS04430
/ /
/ /
      DCL DAYLITE CHAR(3) STATIC EXTERNAL, /#DAYLITE SAVINGS TIME--YES,NO#/MAS04440
/ /
/ /
      DCL 1 CNFGRQ(62) STATIC EXTERNAL,   /#FAATC DEFINITION -- 7-14-86#/ CNF00010
      2 ID          BIT(24),             /# 12 ARR BITS & 12 DEP BITS #/ CNF00020
      2 FLOW_INDX    FIXED BIN(15),       /# 1=A 2=AB 3=B 4=BC 5=C #/ CNF00030
      2 FLOW         CHAR(2),             /# A, AB, B, BC, C #/ CNF00040
      2 ARR(4)       CHAR(3),             CNF00050
      2 DEP(4)       CHAR(3),             CNF00060
      2 VFR_CAP(3)   CHAR(3), /#VFR CAPACITY 1=TOT 2=ARR 3=DEP#/ CNF00070
      2 IFR_CAP(3)   CHAR(3), /#IFR CAPACITY 1=TOT 2=ARR 3=DEP#/ CNF00080
/ /
      DCL 1 AREAWX STATIC EXTERNAL, /#PF6A -- AREA WX PANEL -- 2-11-87#/ ARE00010
      2 DATA(21)    CHAR(79),           ARE00020
      2 MSG          CHAR(79),           ARE00030
/ /

```

END OF
MASTER
DATA BASE

APPENDIX B

APPLICATION OF SENSOR DATA TO RCMS LOGIC

RCMS LOGIC APPLICATION

CURRENT DATA

ALSF-2 (14R only)

ALSF/SSALR switch	System selection
Light switch	Switch on or off (OTS)
Flasher switch	Switch on or off (OTS)

ALSF-1 (14L only)

Light switch	Switch on or off (OTS)
Flasher switch	Switch on or off (OTS)

SALSR (27L, 32R, 32L)

SALSR switch	Switch on or off (OTS)
SFL switch	Switch on or off (OTS)
4L SALSR being replaced with Lion Lighting System	

MALSR (4R, 9R, 9L, 22R, 22L, 27R)

MALSR switch	Switch on or off (OTS)
Flasher switch on 4R, 9L, 22R, 27R only	Switch on or off (OTS)
9R & 22L follow brightness	
22L will have flasher switch eventually	

RCMS LOGIC APPLICATION

CURRENT DATA

LOC (all runways)

Main	System on (primary channel)
Standby	System on (secondary channel)
Abnormal-off	No failure
steady	Failure
flashing (TI equipment)	Out-of-service for maintenance
Trans 1	Transmitter on or off (Both
Trans 2	transmitters required for
	CAT III operations)
Alarm	Failure

IM (14R & 14L only)

Switch on or off (OTS)

MM (all runways except 4L)

14R, 14L, 27L, 32R are monitored

Switch on or off (OTS)

OM (all runways)

14R & 14L are monitored

Switch on or off (OTS)

LOM/NDB (14R & 14L Monitored)

Switch on or off (OTS)

RCMS LOGIC APPLICATION

CURRENT DATA

GS (all runways except 4L)

Main	System on (primary channel)
Standby	System on (secondary channel)
Abnormal-off	No failure
steady	Failure
flashing (TI equipment)	

Out-of-service (OTS) for maintenance

Trans 1	Switch on or off (OTS)
Trans 2	Switch on or off (OTS)

DME (9R, 14R, 14L, 32L, 27L)

Normal	Switch on or off (OTS)
	DME failure if associated localizer is on

<u>DME Midfield (Wilcox model)</u>	Switch on or off (OTS)
------------------------------------	------------------------

<u>VOR</u>	Switch on or off (OTS)
------------	------------------------

Manual Panel (14R & 14L)

CAT II and CAT III after completing checklist, user may enter 'Y' into CAT II or CAT III for 14R or 14L

a. ILS	e. CAT II	i. ALS EG
b. RVR	f. CAT III	j. City EG
c. Other 14 up	g. City lights	
d. IM	h. Equipment EG	

RICU Unit (14R)

CAT II & CAT III	Light on or off indicates availability
------------------	--

Uninterrupted Power Sources

4R LOC, 4R GS (monitored), 9R GS	If off, then system has 15 minutes of operation
----------------------------------	---

RCMS LOGIC APPLICATION

CURRENT DATA

DASE (Chicago O'Hare and Midway)

A1 - A7	
B1 - B7	Numeric values for altimeter setting
A1 - A7	Numeric values for altimeter setting
B1 - B7	Numeric values for altimeter setting

LLWAS (Centerfield Wind)

Wind direction	Numeric value - degrees displayed on PF-1
Wind velocity	Numeric value - knots displayed on PF-1
Gust value	Numeric value - knots

No crosswind advisory messages are generated if the wind is gusting.

Ceilometer (Two field units)

Cloud height conditions & ceiling 18 bits of data for the 2 ceilometers
(Scattered, broken, or overcast)

RCMS LOGIC APPLICATION

CURRENT DATA

Midway Light Panel

ILS	Not presently used
LOC	Not presently used
NBD	Not presently used
31L	Not presently used
22L	Not presently used
13R	If light is on, 13R operations affect departures on 22L & 27L
4R	Not presently used

Engine Generator

Eng 1 (14R Engine)	Required for CAT II and CAT III
Eng 2 (14L Engine)	Required for CAT II and CAT III
Eng 3 (ASR-7 Engine)	Required for CAT II and CAT III

High Intensity Runway Lights (runway edge lights)

9R, 9L, 14R, 14L, 27R, 27L, 32R, 32L	Switch on or off (OTS) depending on monitored by RVR the brightness level
4R, 4L, 22R, 22L are not monitored	

Touchdown RVR

9R, 9L, 14R, 14L, 27R, 27L, 32R, 32L	Readings of RVR, HIRL, Daylight, and status bit
4R, 4L, 22R, 22L are not monitored	

Mid RVR

14R and 14L	Readings of RVR, HIRL, Daylight, and status bit
-------------	---

APPENDIX C

FOREGROUND PROGRAM DOCUMENTATION

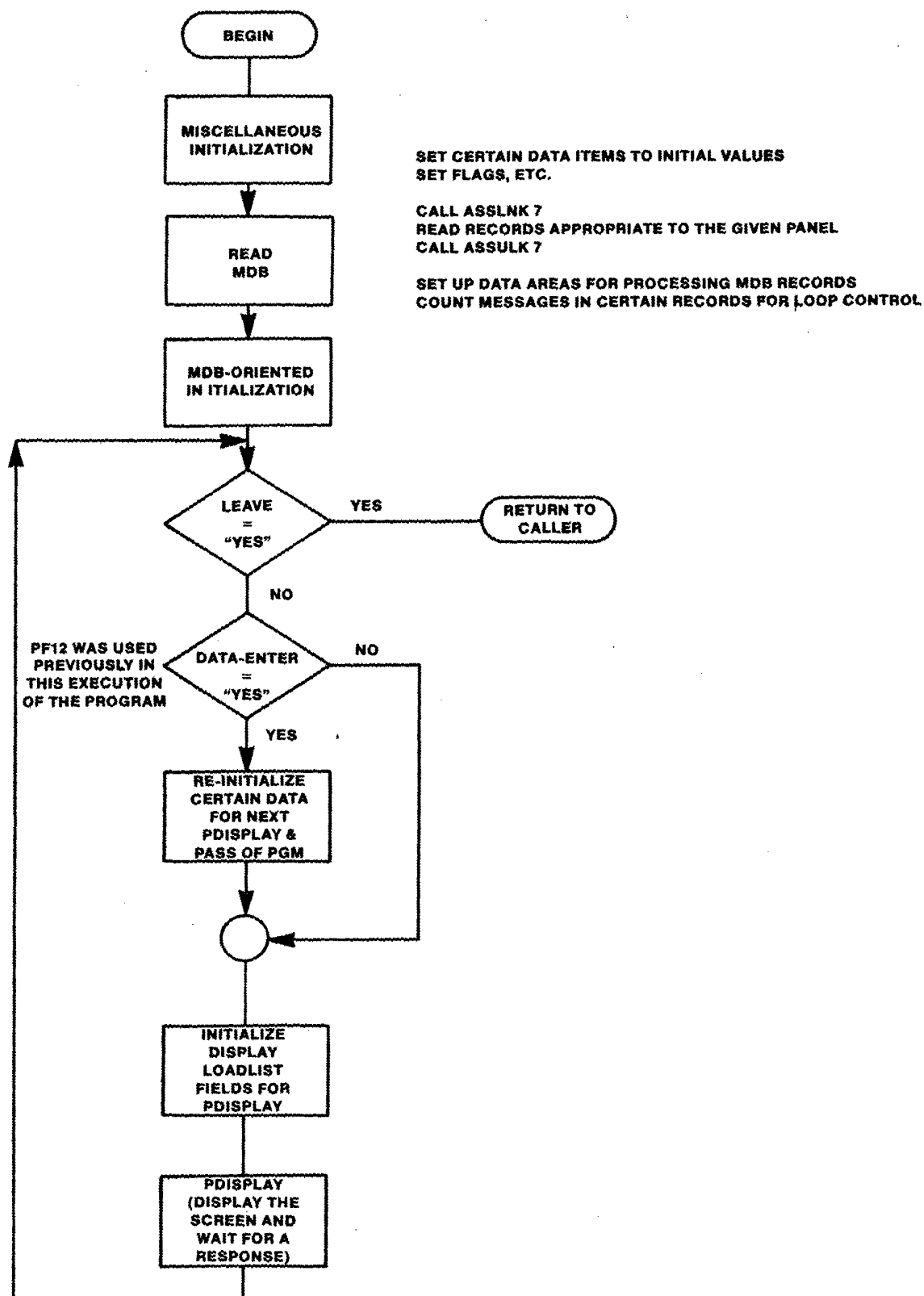


FIGURE C-1. GENERIC SCREEN PROGRAM FLOW CHART (1 of 2 Sheets)

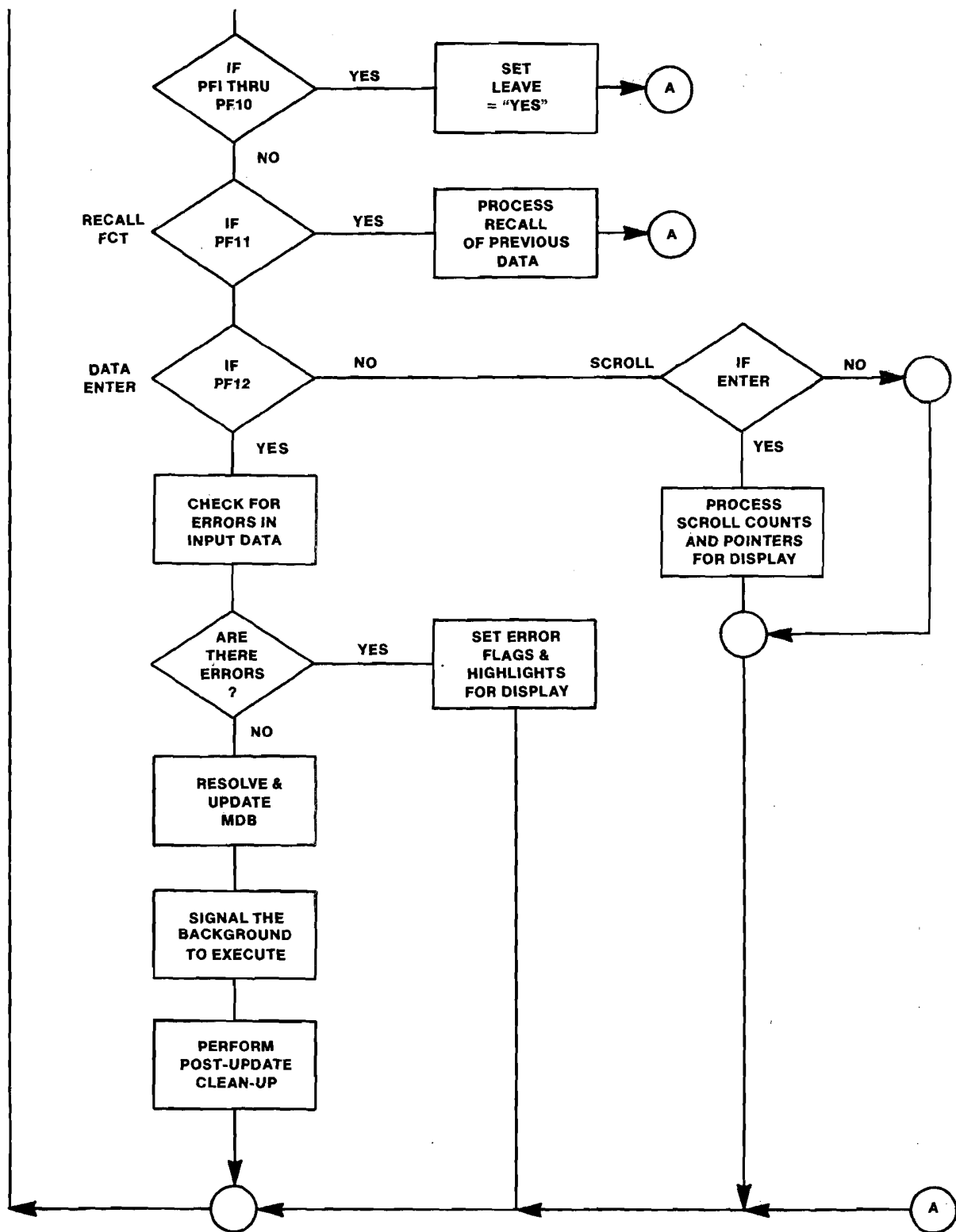


FIGURE C-1. GENERIC SCREEN PROGRAM FLOW CHART (2 of 2 Sheets)

FILE: ASM1

DOC

A

VM/SP CONVERSATIONAL MONITOR SYSTEM

ASSEMBLER LANGUAGE PROGRAMS USED IN THE FOREGROUND USER PROGRAMS

AREDCHS	TEST MASTDB DATA ON CMS7 TO SEE IF IT NEEDS TO BE REORGANIZED
ASMERSC	ERASE CITY DATA FILE IN USER CITY (ERASE CITY DATA D)
ASMERSE	ERASE OLD FORECAST WORK FILES IN CMS8 (FILE FWRK & FILE FCAST)
ASMERSR	ERASE OLD REORG FILE IN CMS7 - USED WHEN REORGANIZING MASTDB DATA
ASMFWRK	COPY FWRK DATA C TO ORDDATA DATA B (NOTE: THIS PGM OBSOLETE)
ASMRENF	EXECUTE RENF EXEC (RENAME FILE FCAST C FILE FWRK C)
ASMTWRK	MOVE R FWRK - USED IN FORECAST (NOTE: THIS PGM NEEDS MODIFICATION)
ASNRENA	EXECUTE NRENA EXEC - USED IN REORGANIZING MASTDB DATA
ASSLNK2	LINK TO CMS2 WRITE FULL SCREEN DATA (ACC 198 C)
ASSLNK7	LINK TO CMS7 MASTER DATA BASE (ACC 197 B)
ASSLNK8	LINK TO CMS8 FORECAST FILES (ACC 198 C)
ASSLNKC	LINK TO CITY USER (CMS15) (ACC 199 D)
ASSLNKS	LINK TO FORECAST FILES IN USER ERIC (CMS8) (ACC 197 B)
ASSLNKW	LINK TO CMS2 (WFS DATA) FOR THE WFS PGM (ACC 200 W)
ASSULK2	UNLINK - REL C & DET 198
ASSULK7	UNLINK - REL B & DET 197
ASSULK8	UNLINK - REL C & DET 198
ASSULKC	UNLINK - REL D & DET 199
ASSULKW	UNLINK - REL W & DET 200
ERROR	CALLED BY SCREEN PROCESSING PROGRAMS TO HANDLE ERRORS
PUNCH	SEND A SPECIAL MESSAGE TO CURRENT BACKGROUND TO WAKE IT UP
PUNCHF	SEND A SPECIAL MESSAGE TO FORECAST BACKGROUND TO WAKE IT U
SIGORD	SEND A SPECIAL MESSAGE TO CURRENT BACKGROUND TO WAKE IT UP
WAKE3	ISSUE A WAKEUP COMMAND FOR 3 SECONDS (WAKEUP +00:03)
WAKE10	ISSUE A WAKEUP COMMAND FOR 10 SECONDS (WAKEUP +00:10)
WFS	CREATE AND MAINTAIN THE MASTER AUTO PANEL (PF1)
WFSMSG	SCREEN UTILITY TO ALLOW USER TO WRITE A MSG ANYWHERE ON THE SCREEN

PLI LANGUAGE PROGRAMS USED IN THE FOREGROUND USER PROGRAMS

CHECKR	TEST THE SIZE OF THE MASTER DATA BASE TO SEE IF IT NEEDS TO BE REORGANIZED.
CITYFIL	UPDATE THE FILE CITY DATA WITH LATEST MASTDB CHANGES
CTIME	UTILITY PROGRAM - CONVERT QUARTER HOUR (1-96) TO CHARACTER DISPLAY
CTIME4	UTILITY PROGRAM - CONVERT TIME TO A FIXED BINARY QUARTER HOUR
FORCAT	INITIALIZATION (AND MAIN) PROGRAM FOR THE FOREGROUND USER 'AT'
FPF2	FORECAST PANEL PROGRAM - STATUS PANEL
FPF3	FORECAST PANEL PROGRAM - CONFIGURATION PANEL
FPF5	FORECAST PANEL PROGRAM - DEMAND PANEL
FPF6	FORECAST PANEL PROGRAM - WEATHER PLANNING PANEL
FPF7	FORECAST PANEL PROGRAM - RUNWAY CONDITIONS PLANNING PANEL
FPF8	FORECAST PANEL PROGRAM - RUNWAY EQUIPMENT PLANNING PANEL
GETMINS	INITIALIZES ARRIVAL RUNWAY MINIMUMS STRUCTURE (RWYMIN)
MINIMA	CALCULATES ARRIVAL RUNWAY MINIMA FOR THE QUARTER HOUR
MTOFWRK	CREATE A FORECAST WORK FILE FROM THE MASTER DATA BASE
PF2S	CURRENT MODE PANEL PROGRAM - MASTER PANEL
PF3AT	CURRENT MODE PANEL PROGRAM - CONFIGURATION PANEL
PF4AT	CURRENT MODE PANEL PROGRAM - MESSAGE PANEL
PF5S	CURRENT MODE PANEL PROGRAM - DEMAND PANEL
PF6AT	CURRENT MODE PANEL PROGRAM - WEATHER PANEL
PF7S	CURRENT MODE PANEL PROGRAM - RUNWAY CONDITIONS PANEL
PF8AT	CURRENT MODE PANEL PROGRAM - RUNWAY EQUIPMENT PANEL
PF9AT	CURRENT MODE PANEL PROGRAM - TRIGGER VALUES PANEL
PF9TAXI	CURRENT MODE PANEL PROGRAM - TAXIWAY/NOTAM PANEL FOR CITY
PF10S	CURRENT MODE PANEL PROGRAM - PLANNING/FORECAST MODE ENTRY
READMDB	READ ALL THE RECORDS IN THE MASTER DATA BASE
READWFS	READ THE WRITE FULL SCREEN DATA FILE
REORGR	REORGANIZE THE MASTER DATA BASE
RESL	RESOLVE THE MASTER DATA BASE
SELPF	THIS IS THE MAIN 'LOOP' OF THE FOREGROUND USER PROGRAM. IT CALLS THE APPROPRIATE PANEL PROGRAM IN RESPONSE TO A USER'S REQUEST FOR A PANEL.
SUBEQF	PROGRAM THAT SUBMITS A RUNWAY EQUIPMENT PLAN FROM THE FORECAST MODE TO THE CURRENT MODE.
SUBRWY	PROGRAM THAT SUBMITS A RUNWAY CONDITIONS PLAN FROM THE FORECAST MODE TO THE CURRENT MODE.
SUBWX	PROGRAM THAT SUBMITS A WEATHER PLAN FROM THE FORECAST MODE TO THE CURRENT MODE.
WRITWFS	WRITE A NEW WRITE FULL SCREEN DATA FILE (USED FOR UPDATING

FIRST LEVEL CALLING SEQUENCE OF THE PLI PROGRAMS IN THE FOREGROUND USER
PLI PROGRAMS ARE LISTED SEQUENTIALLY

CHECKR

AREDCMS ASSEMBLE
ASSLNK7 ASSEMBLE
ASSULK7 ASSEMBLE
REORGR PLI

CITYFIL

ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK7 ASSEMBLE
ASSULK8 ASSEMBLE
ASHERSC ASSEMBLE

CTIME

NO CALLS

CTIME4

NO CALLS

FORGAT

ASSLNK7 ASSEMBLE
ASSULK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK8 ASSEMBLE
SIGORD ASSEMBLE
READMDB PLI
REORGR PLI
GETMINS PLI
SELPF PLI

FFF2

ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
PUNCHF ASSEMBLE
WAKE10 ASSEMBLE
CTIME PLI
CTIME4 PLI
MINIMA PLI

FFF3

ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCHF ASSEMBLE
WAKE10 ASSEMBLE
CTIME PLI
CTIME4 PLI

FFF5

ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE

FFF6

ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
PUNCHF ASSEMBLE
WAKE3 ASSEMBLE
WAKE10 ASSEMBLE
CTIME4 PLI

FFF7

ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
PUNCHF ASSEMBLE
WAKE3 ASSEMBLE
WAKE10 ASSEMBLE
CTIME4 PLI

FFF8

ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
PUNCHF ASSEMBLE
WAKE3 ASSEMBLE
CTIME4 PLI

GETMINS

NO CALLS

MINIMA

NO CALLS

MTOFWRK

ASHERSF ASSEMBLE
ASMRENF ASSEMBLE
RENF EXEC
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
CTIME4 PLI

PF2S

ASSLNK2 ASSEMBLE
ASSLNK7 ASSEMBLE
ASSULK7 ASSEMBLE
ASSULK2 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
CTIME PLI
CTIME4 PLI
READWFS PLI
WRITWFS PLI

PF3AT

ASSLNK7 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
WAKE10 ASSEMBLE
CTIME PLI
CTIME4 PLI

PF4AT
 ASSLNK7 ASSEMBLE
 ASSULK7 ASSEMBLE
 ERROR ASSEMBLE
 PF5S
 ASSLNK7 ASSEMBLE
 ASSULK7 ASSEMBLE
 ERROR ASSEMBLE
 SIGORD ASSEMBLE
 WAKE10 ASSEMBLE
 PF6AT
 ASSLNK7 ASSEMBLE
 ASSULK7 ASSEMBLE
 ERROR ASSEMBLE
 SIGORD ASSEMBLE
 WAKE10 ASSEMBLE
 PF7S
 ASSLNK7 ASSEMBLE
 ASSULK7 ASSEMBLE
 ERROR ASSEMBLE
 PUNCH ASSEMBLE
 RESL PLI
 PF8AT
 ASSLNK7 ASSEMBLE
 ASSULK7 ASSEMBLE
 ERROR ASSEMBLE
 PUNCH ASSEMBLE
 MINIMA PLI
 PF9TAXI PLI
 PF9AT
 ASSLNK7 ASSEMBLE
 ASSULK7 ASSEMBLE
 ERROR ASSEMBLE
 SIGORD ASSEMBLE
 PF9TAXI
 ASSLNK7 ASSEMBLE
 ASSULK7 ASSEMBLE
 ERROR ASSEMBLE
 SIGORD ASSEMBLE
 CITYFIL PLI
 RESL PLI
 PF10S
 ASMFWRK ASSEMBLE
 ASMTWRK ASSEMBLE
 ASSLNK7 ASSEMBLE
 ASSLNK8 ASSEMBLE
 ASSLNK5 ASSEMBLE
 ASSULK2 ASSEMBLE
 ASSULK7 ASSEMBLE
 WFSMSG ASSEMBLE
 CTIME PLI
 CTIME4 PLI
 MTOFWRK PLI
 FPF2 PLI
 FPF3 PLI
 FPF5 PLI
 FPF6 PLI
 FPF7 PLI
 FPF8 PLI
 SUBREQ PLI
 SUBRWY PLI
 SUBWX PLI

READMDB
 NO CALLS
 READWFS
 NO CALLS
 REORGR
 ASMERSR ASSEMBLE
 ASNRENA ASSEMBLE
 NRENA EXEC
 ASSLNK7 ASSEMBLE
 ASSULK7 ASSEMBLE
 RESL
 NO CALLS
 SELPF
 CHECKR PLI
 PF2S PLI
 PF3AT PLI
 PF4AT PLI
 PF5S PLI
 PF6AT PLI
 PF7S PLI
 PF8AT PLI
 PF9AT PLI
 PF10S PLI
 SUBEQF
 ASSLNK7 ASSEMBLE
 ASSLNK8 ASSEMBLE
 ASSULK2 ASSEMBLE
 ASSULK7 ASSEMBLE
 PUNCH ASSEMBLE
 WAKE3 ASSEMBLE
 WAKE10 ASSEMBLE
 SUBRWY
 ASSLNK7 ASSEMBLE
 ASSLNK8 ASSEMBLE
 ASSULK2 ASSEMBLE
 ASSULK7 ASSEMBLE
 PUNCH ASSEMBLE
 WAKE3 ASSEMBLE
 WAKE10 ASSEMBLE
 SUBWX
 ASSLNK7 ASSEMBLE
 ASSLNK8 ASSEMBLE
 ASSULK2 ASSEMBLE
 ASSULK7 ASSEMBLE
 PUNCH ASSEMBLE
 WAKE3 ASSEMBLE
 WAKE10 ASSEMBLE
 WRITWFS
 NO CALLS

COMPLETE CALLING STRUCTURE OF THE 'AT' FOREGROUND USER PROGRAM

```
FORGAT
  ASSLNK7 ASSEMBLE
  ASSULK7 ASSEMBLE
  ASSLNKW ASSEMBLE
  ASSULKW ASSEMBLE
  SIGORD ASSEMBLE
  READMDR FLI
    NO CALLS
  REORGR FLI
    ASMERSR ASSEMBLE
    ASHRENA ASSEMBLE
      NRENA EXEC
    ASSLNK7 ASSEMBLE
    ASSULK7 ASSEMBLE
  GETMINS FLI
    NO CALLS
  SELPF FLI
    CHECKR FLI
      AREDCMS ASSEMBLE
      ASSLNK7 ASSEMBLE
      ASSULK7 ASSEMBLE
      REORGR FLI
    PF2S FLI
      ASSLNK2 ASSEMBLE
      ASSLNK7 ASSEMBLE
      ASSULK7 ASSEMBLE
      ASSULK2 ASSEMBLE
      ERROR ASSEMBLE
      PUNCH ASSEMBLE
      CTIME FLI
        NO CALLS
      CTIME4 FLI
        NO CALLS
      READWFS FLI
        NO CALLS
      WRITWFS FLI
        NO CALLS
    PF3AT FLI
      ASSLNK7 ASSEMBLE
      ASSULK7 ASSEMBLE
      ERROR ASSEMBLE
      PUNCH ASSEMBLE
      WAKE10 ASSEMBLE
      CTIME FLI
        NO CALLS
      CTIME4 FLI
        NO CALLS
    PF4AT FLI
      ASSLNK7 ASSEMBLE
      ASSULK7 ASSEMBLE
      ERROR ASSEMBLE
    PF5S FLI
      ASSLNK7 ASSEMBLE
      ASSULK7 ASSEMBLE
      ERROR ASSEMBLE
      SIGORD ASSEMBLE
      WAKE10 ASSEMBLE

  PF6AT FLI
    ASSLNK7 ASSEMBLE
    ASSULK7 ASSEMBLE
    ERROR ASSEMBLE
    SIGORD ASSEMBLE
    WAKE10 ASSEMBLE
  PF7S FLI
    ASSLNK7 ASSEMBLE
    ASSULK7 ASSEMBLE
    ERROR ASSEMBLE
    PUNCH ASSEMBLE
    RESL FLI
      NO CALLS
  PF8AT FLI
    ASSLNK7 ASSEMBLE
    ASSULK7 ASSEMBLE
    ERROR ASSEMBLE
    PUNCH ASSEMBLE
    MINIMA FLI
      NO CALLS
    PF9TAXI FLI
      ASSLNK7 ASSEMBLE
      ASSULK7 ASSEMBLE
      ERROR ASSEMBLE
      SIGORD ASSEMBLE
      CITYFIL FLI
        ASSLNK7 ASSEMBLE
        ASSLNKC ASSEMBLE
        ASSULK7 ASSEMBLE
        ASSULKC ASSEMBLE
        ASMERSC ASSEMBLE
      RESL FLI
        NO CALLS
  PF9AT FLI
    ASSLNK7 ASSEMBLE
    ASSULK7 ASSEMBLE
    ERROR ASSEMBLE
    SIGORD ASSEMBLE
  PF10S FLI
    ASMFWRK ASSEMBLE
    ASMTWRK ASSEMBLE
    ASSLNK7 ASSEMBLE
    ASSLNK8 ASSEMBLE
    ASSLNKS ASSEMBLE
    ASSULK2 ASSEMBLE
    ASSULK7 ASSEMBLE
    WFSMSG ASSEMBLE
    CTIME FLI
      NO CALLS
    CTIME4 FLI
      NO CALLS
```

MTOWRK PLI
ASMSRSF ASSEMBLE
ASMRNF ASSEMBLE
RENF EXEC
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
CTIME4 PLI
NO CALLS
FFP2 PLI
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
PUNCHF ASSEMBLE
WAKE10 ASSEMBLE
CTIME PLI
NO CALLS
CTIME4 PLI
NO CALLS
MINIMA PLI
NO CALLS
FFP3 PLI
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCHF ASSEMBLE
WAKE10 ASSEMBLE
CTIME PLI
NO CALLS
CTIME4 PLI
NO CALLS
FFP5 PLI
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
FFP6 PLI
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
PUNCHF ASSEMBLE
WAKE3 ASSEMBLE
WAKE10 ASSEMBLE
CTIME4 PLI
NO CALLS
FFP7 PLI
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
PUNCHF ASSEMBLE
WAKE3 ASSEMBLE
WAKE10 ASSEMBLE
CTIME4 PLI
NO CALLS

FFP8 PLI
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
ERROR ASSEMBLE
PUNCH ASSEMBLE
PUNCHF ASSEMBLE
WAKE3 ASSEMBLE
CTIME4 PLI
NO CALLS
SUBEQP PLI
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
PUNCH ASSEMBLE
WAKE3 ASSEMBLE
WAKE10 ASSEMBLE
SUBRWY PLI
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
PUNCH ASSEMBLE
WAKE3 ASSEMBLE
WAKE10 ASSEMBLE
SUBWX PLI
ASSLNK7 ASSEMBLE
ASSLNK8 ASSEMBLE
ASSULK2 ASSEMBLE
ASSULK7 ASSEMBLE
PUNCH ASSEMBLE
WAKE3 ASSEMBLE
WAKE10 ASSEMBLE

THIS LIST IS FOR THE FOREGROUND PANELS WHICH ARE INVOKED BY MEANS OF HITTING CERTAIN FUNCTION KEYS WHILE THE FOREGROUND PROGRAM IS RUNNING.

THE PANELS ARE LISTED IN SUCH A WAY THAT THE PRIMARY PANELS' NAMES BEGIN IN COLUMN ONE. THEN EACH PANEL WHICH CAN BE INVOKED FROM WITHIN THE PRIMARY PANEL IS LISTED INDENTED TO COLUMN FIVE. IN MOST CASES, THESE ARE OTHER PRIMARY PANELS (THESE WILL BE NOTED BY THE LETTER 'P' IN PARENTHESES). IN SOME PRIMARY PANELS, HOWEVER, A PROGRAM FUNCTION KEY MAY BE USED FOR SOMETHING OTHER THAN A PRIMARY FUNCTION. THESE WILL BE NOTED WITH THE LETTER 'S' (SECONDARY) IN PARENTHESES.

PF1 - MASTER AUTO PANEL

- PF1 - MASTER AUTO PANEL (P)
- PF2 - MASTER PANEL (STATIC) (P)
- PF3 - CONFIGURATION PANEL (P)
- PF4 - MESSAGE PANEL (P)
- PF5 - DEMAND PANEL (P)
- PF6 - WEATHER PANEL (P)
- PF7 - RUNWAY CONDITIONS PANEL (P)
- PF8 - RUNWAY EQUIPMENT PANEL (P)
- PF9 - TRIGGER VALUES PANEL (P)
- PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
- PF11 - CLEAR THE SCREEN AND RE-DISPLAY MASTER AUTO PANEL

PF2 - MASTER PANEL (STATIC)

- PF1 - MASTER AUTO PANEL (P)
- PF2 - MASTER PANEL (STATIC) (P)
- PF3 - CONFIGURATION PANEL (P)
- PF4 - MESSAGE PANEL (P)
- PF5 - DEMAND PANEL (P)
- PF6 - WEATHER PANEL (P)
- PF7 - RUNWAY CONDITIONS PANEL (P)
- PF8 - RUNWAY EQUIPMENT PANEL (P)
- PF9 - TRIGGER VALUES PANEL (P)
- PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
- PF11 - RECALL
- PF12 - ENTER
- PA2 - PRINT SCREEN

PF3 - CONFIGURATION PANEL

- PF1 - MASTER AUTO PANEL (P)
- PF2 - MASTER PANEL (STATIC) (P)
- PF3 - CONFIGURATION PANEL FOR NEXT QUARTER HOUR (UP TO 5) (S)
- PF4 - MESSAGE PANEL (P)
- PF5 - DEMAND PANEL (P)
- PF6 - WEATHER PANEL (P)
- PF7 - RUNWAY CONDITIONS PANEL (P)
- PF8 - RUNWAY EQUIPMENT PANEL (P)
- PF9 - INELIGIBLE CONFIGURATIONS (S)
- PF3 - RETURN TO PF3 CONFIGURATION PANEL
- PF9 - ADVANCE TO INELIGIBLE CONFIGURATIONS FOR NEXT QUARTER HOUR
- PA2 - PRINT SCREEN
- PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
- PF11 - RECALL
- PF12 - ENTER
- PA2 - PRINT SCREEN

PF4 - MESSAGE PANEL

- PF1 - MASTER AUTO PANEL (P)
- PF2 - MASTER PANEL (STATIC) (P)
- PF3 - CONFIGURATION PANEL (P)
- PF4 - MESSAGE PANEL (P)
- PF5 - DEMAND PANEL (P)
- PF6 - WEATHER PANEL (P)
- PF7 - RUNWAY CONDITIONS PANEL (P)
- PF8 - RUNWAY EQUIPMENT PANEL (P)
- PF9 - TRIGGER VALUES PANEL (P)
- PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
- PA2 - PRINT SCREEN

PF5 - DEMAND PANEL

- PF1 - MASTER AUTO PANEL (P)
- PF2 - MASTER PANEL (STATIC) (P)
- PF3 - CONFIGURATION PANEL (P)
- PF4 - MESSAGE PANEL (P)
- PF5 - DEMAND PANEL (P)
- PF6 - WEATHER PANEL (P)
- PF7 - RUNWAY CONDITIONS PANEL (P)
- PF8 - RUNWAY EQUIPMENT PANEL (P)
- PF9 - TRIGGER VALUES PANEL (P)
- PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
- PA2 - PRINT SCREEN

PF6 - WEATHER PANEL

- PF1 - MASTER AUTO PANEL (P)
- PF2 - MASTER PANEL (STATIC) (P)
- PF3 - CONFIGURATION PANEL (P)
- PF4 - MESSAGE PANEL (P)
- PF5 - DEMAND PANEL (P)
- PF6 - AREA WEATHER PANEL (S)
- PF6 - LOCAL WEATHER PANEL (P)
- PF12 - ENTER
- PA2 - PRINT SCREEN
- PF7 - RUNWAY CONDITIONS PANEL (P)
- PF8 - RUNWAY EQUIPMENT PANEL (P)
- PF9 - TRIGGER VALUES PANEL (P)
- PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
- PF11 - RECALL
- PF12 - ENTER
- PA2 - PRINT SCREEN

PF7 - RUNWAY CONDITIONS PANEL

- PF1 - MASTER AUTO PANEL (P)
- PF2 - MASTER PANEL (STATIC) (P)
- PF3 - CONFIGURATION PANEL (P)
- PF4 - MESSAGE PANEL (P)
- PF5 - DEMAND PANEL (P)
- PF6 - WEATHER PANEL (P)
- PF7 - RUNWAY CONDITIONS PANEL (P)
- PF8 - RUNWAY EQUIPMENT PANEL (P)

PF9 - TAXIWAY/NOTAMS FOR CITY (S)
PF7 - RUNWAY CONDITIONS PANEL (P)
PF12 - ENTER
PA2 - PRINT SCREEN
PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
PF11 - RECALL
PF12 - ENTER
PA2 - PRINT SCREEN

PF8 - RUNWAY EQUIPMENT PANEL
PF1 - MASTER AUTO PANEL (P)
PF2 - MASTER PANEL (STATIC) (P)
PF3 - CONFIGURATION PANEL (P)
PF4 - MESSAGE PANEL (P)
PF5 - DEMAND PANEL (P)
PF6 - WEATHER PANEL (P)
PF7 - RUNWAY CONDITIONS PANEL (P)
PF8 - RUNWAY EQUIPMENT PANEL (P)
PF9 - TAXIWAY/NOTAMS FOR CITY (S)
PF8 - RUNWAY EQUIPMENT PANEL (P)
PF12 - ENTER
PA2 - PRINT SCREEN
PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
PF11 - RECALL
PF12 - ENTER
PA2 - PRINT SCREEN

PF9 - TRIGGER VALUES PANEL
PF1 - MASTER AUTO PANEL (P)
PF2 - MASTER PANEL (STATIC) (P)
PF3 - CONFIGURATION PANEL (P)
PF4 - MESSAGE PANEL (P)
PF5 - DEMAND PANEL (P)
PF6 - WEATHER PANEL (P)
PF7 - RUNWAY CONDITIONS PANEL (P)
PF8 - RUNWAY EQUIPMENT PANEL (P)
PF9 - TRIGGER VALUES PANEL (P)
PF10 - PLANNING/FORECAST MODE ENTRY PANEL (P)
PF11 - RECALL
PF12 - ENTER
PA2 - PRINT SCREEN

PF10 - PLANNING/FORECAST MODE ENTRY PANEL
***** INITIALLY COMING TO THIS PANEL *****
PF1 - MASTER AUTO PANEL (P)
PF6 - WEATHER PLANNING PANEL (S)
PF7 - RUNWAY CONDITIONS PLANNING PANEL (S)
PF8 - RUNWAY EQUIPMENT PLANNING PANEL (S)
PF11 - END THE PROGRAM
***** AFTER SELECTION OF FORECAST MODE *****
PF1 - MASTER AUTO PANEL (P)
PF2 - FORECAST STATUS PANEL (S)
PF3 - FORECAST CONFIGURATION PANEL (S)
NORMAL PF3 SELECTIONS, BUT NO PF9 INELIGIBLE CONFIGS PANEL
PF4 - WHAT IF (S)
PF5 - DEMAND (S)
PF6 - FORECAST WEATHER PLANNING PANEL (S)
PF7 - FORECAST RUNWAY CONDITIONS PLANNING PANEL (S)
PF8 - FORECAST RUNWAY EQUIPMENT PLANNING PANEL (S)
PF11 - END THE PROGRAM
PF12 - ENTER
PA2 - PRINT SCREEN

APPENDIX D

GLOSSARY

ALS	APPROACH LIGHTING SYSTEM
ALSF	APPROACH LIGHTING SYSTEM WITH FLASHERS
CL	CENTERLINE LIGHTING
DASE	DIGITAL ALTIMETER SYSTEM
DME	DISTANCE MEASURING EQUIPMENT
EG	ENGINE GENERATOR
F	FLASHERS
FFM	FAR FIELD MONITOR
GS	GLIDE SLOPE
HHMM	HOURLY-MINUTE-MINUTE
HIRL	HIGH INTENSITY RUNWAY LIGHTS (RUNWAY EDGE LIGHTS)
IM	INNER MARKER
LLWAS	LOW LEVEL WIND SHEAR ALERT SYSTEM
LOC	LOCALIZER
LOM	COMPASS LOCATOR AT THE OUTER MARKER
MALSR	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RAIL (FLASHERS)
MM	MIDDLE MARKER
NDB	NONDIRECTIONAL RADIO BEACON
OM	OUTER MARKER
OTS	OUT-OF-SERVICE
RAIL	RUNWAY ALIGNMENT INDICATOR LIGHTS
RTS	RETURN-TO-SERVICE
RVR	RUNWAY VISUAL RANGE
RWY	RUNWAY
SFL	SEQUENCE FLASHING LIGHTS
SSALR	SIMPLIFIED SHORT APPROACH LIGHTING SYSTEM WITH RAIL (FLASHERS)
TDZ	TOUCHDOWN ZONE LIGHTS
VOR	VERY HIGH FREQUENCY OMNI-RANGE

COMPASS LOCATORS ARE LOM/NDB

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