File No. 1-0007

CIVIL AERONAUTICS BOARD

AIRCRAFT ACCIDENT REPORT

ADOPTED: October 28, 1964 **RELEASED:** November 2, 1964

PACIFIC AIR LINES, INC.
FAIRCHILD F-27, N2770R
NEAR SAN RAMON, CALIFORNIA
MAY 7, 1964

SYNOPSIS

A Pacific Air Lines, Inc., Fairchild F-27, N2770R, operating as Flight 773, crashed near San Ramon, California, at approximately 0649, May 7, 1964, while en route from Reno, Nevada, to San Francisco, California. None of the 44 occupants aboard, including the three crew members and 41 passengers, survived the crash. The aircraft was destroyed by impact.

The flight proceeded in a routine manner until approximately 26 nautical miles from its destination, the San Francisco International Airport. At that point, a message was received by Oakland Approach Control and the radar target associated with Flight 773 disappeared from the controller's radar scope. The recorded message, later determined to have been that of the copilot of N2770R was: "... Skipbers shot. We're ben shot. (I was) Try'in ta help."

A .357 Smith and Wesson Magnum revolver identified as having belonged to one of the passengers on the flight was found in the wreckage area. It contained six empty cartridges, which had been fired from the weapon.

The Board determines the probable cause of this accident was the shooting of the captain and first officer by a passenger during flight.

Investigation

A Pacific Air Lines, Inc., (PC) Fairchild F-27, N2770R, operating as Flight 773, crashed near San Ramon, California, at approximately 0649,[1/] May 7, 1964, while en route from Reno, Nevada, to San Francisco, California. None of the 44 occupants aboard, including the three crew members and 41 passengers, survived the crash. The aircraft was destroyed by impact.

1/ All times herein are Pacific standard based on the 24-hour clock.

N2770R arrived at Reno, Nevada, the previous day at 1940 as Flight 756 from San Francisco International Airport. After its arrival, the aircraft was refueled with approximately 264 gallons of kerosene bringing total fuel aboard to approximately 754 gallons. Tests of fuel samples taken from underground fuel storage tanks and refueling trucks used in the refueling of N2770R disclosed no contamination. The crews of other aircraft, which had been refueled from the same sources, reported no fuel problems.

Persons who had contact with the crew of Flight 773 at Reno on the morning of May 7, 1964, noted nothing unusual during their preparation for the flight. Both the captain and first officer were cheerful and their behavior was, in all respects, as observed on previous occasions.

Thirty-three passengers boarded Flight 773 at Reno, Nevada, for the flight to Stockton. The crew consisted of the captain, first officer, and flight attendant. There were no discrepancies appearing on the aircraft log prior to departure from Reno. An Instrument Flight Rules (IFR) flight plan was filed to Stockton. Prior to departure, the flight received an IFR clearance to the Stockton Airport to maintain 14,000 feet, and a VFR climb was approved. Departure from Reno was at 0554. The flight from Reno to Stockton was routine and arrival was at 0628. The jump seat was not occupied upon departure from Reno.

The left engine only was shut down since this was a stop of short duration. Two passengers deplaned and ten passengers boarded for a total of 44 persons aboard including the three crew members. The jump seat was not occupied and the captain and first officer were observed to be in their respective seats at departure. Weight and balance were computed to be within limits. No refueling was accomplished nor required at Stockton. The only discrepancies noted in the aircraft log of Flight 773 found in the wreckage were "Oxygen pressure low" and "Cabin pressure fluctuating".

Pacific Flight 773 was cleared by the Oakland Air Route Traffic Control Center (ARTCC) to the San Francisco Airport, to climb in VFR conditions to 6,000 feet, and maintain 6,000 feet. The clearance was acknowledged correctly by the crew and departure was at 0638.

During its climb, the flight reported leaving 2,000 feet and was instructed by Stockton tower to contact Oakland ARTCC on 124.2 mcs. After contacting Oakland Center, the flight was instructed to maintain 5,000 feet. Oakland ARTCC established radar contact with the aircraft six miles from Stockton and at 0643, the flight reported reaching its assigned altitude of 5,000 feet.

At 0645:10, the Oakland ARTCC controller instructed Flight 773 to turn left to a heading of 235 degrees for a vector to the San Francisco final approach course. At 0646:49, a handoff[2/] of Flight 773 was accomplished from

---

2/ A transfer of identity and control of an aircraft from one radar traffic control facility to another.

Oakland ARTCC to Oakland Approach Control. At this time, the aircraft's radar target indicated the aircraft was three miles southeast of the Altamont Intersection.

At 0647:53, the flight established radio contact with Oakland Approach Control who transmitted appropriate control instructions and the current altimeter setting, and advised that the aircraft's transmission was garbled. At 0648:09, Flight 773 responded: "Roger, how do you read now?"

The approach controller replied: "It's still has the same . . . , sounds like overmodulation."

Immediately following this transmission, at 0648:15, a high-pitched message was heard and recorded on the Oakland Approach Control tape. The content of this message was not clear; however, on the basis of laboratory analysis, the most probable message was determined to be: "Skipbers shot. We're ben shot. (I was) Try 'in ta help."3/ The approach controller requested that the speaker "say again". No other transmissions were heard from Flight 773.

Shortly thereafter, the radar target of Flight 773 was observed to become weak and then to disappear from the scope at a point approximately 18-1/2 nautical miles from the Oakland radar antenna site.4/ The approach controller attempted to contact the flight but without success.

A message was then broadcast to Flight 773 advising that radar contact had been lost, and an alternate navigational routing to San Francisco was provided.

Another aircraft in the immediate vicinity, United Flight 593, was queried to determine whether that crew had Flight 773 in sight. Their report was negative. At 0651:20, United Flight 593 reported: "There's a black cloud of smoke coming up through the undercast at ... three-thirty-four o'clock position right now. Looks like oil or gasoline fire."

At 0649:25,5/ a seismograph station located at Camp Parks, California, approximately 2-1/2 nautical miles south of the accident site recorded a disturbance of undetermined origin.

3/ The Board sent the original tape to the Bell Telephone Laboratories for further analysis. On the basis of spectrogram comparisons provided by earlier recordings known to be the captain and first officer, it was determined that the final message matched best the voice of the first officer. "I was" is shown in parenthesis to emphasize the uncertainty of these two words. The two utterances of "shot" and the one of "help" are probably the most reliable of the several words of the message.

4/ This mileage is based on the ASR antenna site located on the southerly side of runway 29 at Oakland Airport.

5/ The seismograph is located at 37°43'50" north latitude, 121°54'10" west longitude. Accuracy of the recorded time is within five seconds in any 24-hour period.

At 0720, the Oakland ARTCC watch supervisor received information that the wreckage of Flight 773 had been located.

Witnesses along the path of flight and near the impact area describe a generally westward flight path prior to impact. They describe extreme and abrupt changes in attitude of Flight 773 coupled with erratic powerplant sounds and a large ball of fire following the final impact. Weather conditions at the time were described as overcast sky with good visibility.

The aircraft struck the up-slope of a 25.2 degree hill at a relative angle of 90.2 degrees. The wreckage was confined to the east slope of the 800 foot hill and strewn 1,050 feet up the slope along a 500 foot width from the main crater on approximately a 270 degree magnetic heading. The aircraft heading at impact was 245 degrees magnetic. The main crater was at the 640 foot elevation.6/

All of the aircraft's flight control surfaces were found around the main impact crater. The elevator and rudder trim actuators were found in the 3 degree nose-down and 1-2/3 degrees nose-left positions, respectively. Impact damage was so extensive that aileron trim could not be determined.

The landing gear cockpit indicator was found with the "up" position in all three windows. The gimbal nuts on the flap jackscrews indicated flaps were in a retracted position. Examination revealed no evidence of any failure or malfunction of the aircraft or any of its components prior to impact. There was no in-flight fire nor evidence of operational causal factors.

Both engines were severely damaged by impact. Examination of rotating parts damage indicated that the right engine was at a high rotational speed but that the left engine had little or no rotation at time of impact. Contrasting left and right propeller blade damage tended to confirm that the right engine was developing power at impact while the left engine was not. However, there was no evidence to indicate that either powerplant had not been capable of normal operation.

Examination of the propeller blade bottom bearing races and of the propeller dome piston positions indicated that blade angles at impact had been approximately 55 degrees and 45 degrees for the left and right propellers, respectively. Propeller performance data indicate that at the high impact airspeed evidenced by the flight recorder, 45 degrees would have been an appropriate blade angle at an engine speed of approximately 13,000 r.p.m. However, the 55 degrees left propeller blade angle is not consistent with normally powered operation of the propeller.

The cockpit area was so completely destroyed by impact that only four small pieces of the instrument panel were retrieved. No single portion of more than eight square inches was recovered. Portions of the seat frame tubing from the captain's seat were recovered. Microscopic examination of this tubing at

---

6/ The coordinates of the main crater were 37°45'34" north latitude, 121°52'24" west longitude.

the Federal Bureau of Investigation (FBI) laboratory disclosed silvery metallic smears in an indentation in the tubing. Spectrographic analyses of these smears revealed the presence of lead and antimony. The FBI report concluded that the indentation in the tubing was produced by a bullet. (See Attachment II.)

A search of the wreckage area disclosed the presence of a .357 Smith and Wesson Model 27 Magnum revolver S/N S210645, containing six empty cartridges which had been fired by the weapon. It had a broken frame, jammed cylinder, and missing pistol grips, and human tissue was adhering to it. Clothing fibers were embedded in and adhering to the tissue.

The gun with ammunition and a cleaning kit had been purchased by passenger Francisco Paula Gonzales on the evening of May 6, 1964. Mr. Gonzales had advised both friends and relatives that he would die on either Wednesday, the 6th of May, or Thursday, the 7th of May. He referred to his impending death on a daily basis throughout the week preceding the accident. On the evening of May 6, passenger Gonzales departed San Francisco International Airport aboard a Pacific Air Lines flight for Reno, Nevada, with a return reservation for Flight 773 on the following morning. Shortly before boarding the flight to Reno, Gonzales displayed the gun to numerous friends at the airport and told one person he intended to shoot himself. Various persons saw Mr. Gonzales board the Pacific Air Lines flight at San Francisco International Airport on the evening of May 6 carrying the small package which contained the gun and ammunition. On that same evening he had purchased two insurance policies at the San Francisco Airport in the total amount of $105,000. Another passenger aboard Gonzales' flight from San Francisco to Reno remembered that Gonzales was carrying a small package and was seated in the front seat behind the pilots' compartment. While at Reno, Nevada, Mr. Gonzales spent the night visiting various gambling establishments. Mr. Gonzales gambled that night and one casino employee asked how he was doing to which Gonzales replied, "... it would not make any difference after tomorrow". Several persons recalled that Gonzales had a large bulge in his clothing and others reported that he was carrying a small package while in Reno. A janitor at a gambling club where passenger Gonzales was known to have spent a part of the evening discovered a cardboard carton for a Smith and Wesson .357 Magnum revolver and a gun cleaning kit in the wastepaper container. Both of these items were identified by the seller as part of passenger Gonzales' purchase on the preceding evening.

Interviews with relatives, associates, and acquaintances revealed that Gonzales was disturbed and depressed over marital and financial difficulties and that he cried continuously during the evening of May 5, 1964. A credit check showed Gonzales to have been deeply in debt and that nearly half of his salary was committed for loan payments.

Thorough background investigations were conducted of the other occupants of Flight 773, including the crew. Those investigations revealed no undue health problems, unusual purchases or holdings of insurance, or indications of despondency by any other person aboard the Pacific Air Lines Flight 773 from Reno to San Francisco.

The Board and the FBI conducted a thorough screening, vacuuming, and sluicing operation at the wreckage site. All human remains were X-rayed for metal. Fragments which could not be identified on the X-rays were extracted and inspected visually or by laboratory analysis. No bullets or unusual types of fractures were found. Toxicologic studies were essentially negative. Alcohol determination on the remains of the captain was negative. Alcohol and drug determinations on the remains of the owner of the pistol were negative. Spectrographic examinations were made on speciments of human tissue recovered at the crash site from the vicinity where the remains identified as those of passenger Gonzales were found. In one specimen, the lead present in the sample was markedly elevated compared to the other metal components in the tissue, indicating that the object causing the wound was lead or predominantly lead. No spectrographic examinations could be made of the captain and first officer because of the lack of identifiable human remains.

The passenger cabin and cargo compartment floor of the Fairchild F-27 is approximately 17-1/2 inches lower than the cockpit floor. However, the jump seat, when folded away, provides a step of approximately 7-1/2 inches above the cargo compartment floor. The pilot seat of the F-27 has approximately a 4-inch vertical adjustment. Therefore, the bullet indentation was approximately 48 to 52 inches above the passenger cabin and cargo compartment floor or approximately 31 to 35 inches above the cockpit floor, depending on the adjustment of the seat at the time. These measurements place the bullet indentation directly in line of fire between the captain's back and anyone standing in the aisleway between and slightly to the rear of the captain's and first officer's seats. For the practical purposes of this report, the door between the passenger compartment and the cargo compartment may be considered the cockpit door. There is no door between the cargo compartment and the flight deck.

There are two entrance doors to the cabin of the F-27. Passenger entrance and exit is via a combined stair-door in the left rear of the passenger compartment. A cargo compartment is located between the passenger compartment and the cockpit. Access to this area is through a cargo loading door on the front left side of the fuselage or through the door in the bulkhead separating the passengers from the cargo compartment. The front cargo door serves as an exit for passengers in times of emergency. For this reason, the door between the passenger and cargo compartments is placarded as follows: "This door should be unlocked at all times during takeoff and landing". The door is located 12 feet 2 inches from the cockpit and is equipped with a sliding type fastener on the cargo compartment side. In order to unlock or lock the door in flight, it would be necessary for one of the flight crew members to leave his duty station.

The flight recorder aboard Flight 773 was recovered intact from the wreckage although it sustained severe crushing damage. The flight recorder was read out using the Civil Aeronautics Board flight recorder readout machine. (See Attachment I.)

A readout of the flight recorder tape indicates that the flight was normal from takeoff at 0638 until approximately 10 minutes after departure

from Stockton. At this time, the recorder traces indicate the aircraft was cruising at 5,000 feet indicated altitude on a magnetic heading of approximately 230 degrees and at an airspeed of approximately 213 knots. The first erratic indications on the tape appear commensurate with the high-pitched transmission by the copilot which occurred at 0648:15. At this point on the flight recorder tape, the four traces for altitude, airspeed, heading, and acceleration begin to make sharp positive excursions. The altitude trace begins a sharp excursion indicating a descent from 5,300 to 2,100 feet within 22.5 seconds or at a descent rate of approximately 9,000 feet-per-minute. During the same time interval, the airspeed trace indicates an increase to 335 knots and the heading trace indicates a change to approximately 265 degrees occurred. The vertical acceleration trace indicates a decrease first to approximately minus 0.4 g, and then an increase to plus 2-1/2 g during this same period.

The altitude trace then indicates a climb to approximately 3,200 feet in 15 seconds or at a rate of 4,400 feet-per-minute, during which the airspeed trace indicates a decrease to approximately 265 knots. The heading trace continued a change to approximately 285 degrees. Vertical acceleration continued to vary from plus 2-1/2 g to minus 0.4 g. From this point to the end of the recorded tracings, all traces were abnormal.

Analysis

Investigation revealed that the crew was properly qualified for the flight and that the aircraft was properly dispatched. Examination of records and the investigation disclosed that the aircraft and powerplants were maintained in accordance with existing Pacific Air Lines and Federal Aviation Agency approved directives and procedures, and that the aircraft and powerplants were in an airworthy condition prior to the occurrence of this accident.

As indicated above, there was no substantive evidence developed during the investigation to indicate that power failure was a causal factor in the accident. The evidenced asymmetric power condition is not deemed unusual when the conditions in the cockpit prior to impact are taken into consideration. A likely explanation would be accidental left engine control movement by at least one of the cockpit occupants immediately before impact, resulting in loss of power output and consequent propeller auto-feathering action in process at moment of impact.

The flight recorder tape indicated normal flight until 0648 when a steep descent began. Fifteen seconds later, the first officer broadcast his last high-pitched transmission. That transmission and the flight recorder record of a momentary interruption in the dive 22 seconds after it began, were the only indications of the flight crew's actions during the final minute of flight. This evidence does not furnish sufficient parameters to determine the specific time point at which both pilots became completely incapacitated. Such a measurement is not essential to the determination of the cause of this accident. This evidence does, however, indicate the improbability of pilot suicide.

The results of the FBI's thorough investigation are set forth in the factual portion of the report. The total evidence clearly indicates that the captain and first officer of Flight 773 were shot by a passenger. As a result, the uncontrolled aircraft began the descent which ended in impact with the hill.

In the initial stages of the investigation, the FBI joined the CAB Investigators in a search for evidence so that the apparent criminal aspects of the accident could be properly pursued.

Probable Cause

The Board determines the probable cause of this accident was the shooting of the captain and first officer by a passenger during flight.

Corrective Action

Prior to the accident7/ the FAA adopted certain amendments to Parts 40, 41, and 42, of the Civil Air Regulations. These amendments, which became effective August 6, 1964, required that the door separating the passenger cabin from the crew compartment on all scheduled air carrier and commercial aircraft must be kept locked during flight. An exception to the rule will be during landing or takeoff on certain aircraft such as the Fairchild F-27 where the door leads to an emergency passenger exit.

BY THE CIVIL AERONAUTICS BOARD:

/s/ ALAN S. BOYD
Chairman

/s/ ROBERT T. MURPHY
Vice Chairman

/s/ G. JOSEPH MINETTI
Member

/s/ WHITNEY GILLILLAND
Member

GURNEY, Member, did not take part in the adoption of this report.

7/ May 1, 1964.

SUPPLEMENTAL DATA

Investigation

The Civil Aeronautics Board was notified of this accident immediately after it occurred. Investigators were immediately dispatched to the scene and an investigation was initiated in accordance with the provisions of Title VII of the Federal Aviation Act of 1958, as amended.

Air Carrier

Pacific Air Lines, Inc., is incorporated in the State of Arizona. It held a certificate of public convenience and necessity issued by the Civil Aeronautics Board to engage in the transportation of persons, property, and mail between various points within the continental United States including the route involved. The carrier also possesses a valid air carrier operating certificate issued by the Federal Aviation Agency.

Flight Personnel

Captain Ernest A. Clark, age 52, held valid airline transport pilot certificate No. 33313 with type ratings in Douglas DC-3, Martin 202/404, and Fairchild F-27 aircraft. His physical qualifications were current and without waivers. He originally qualified in the F-27 on March 10, 1959. He had a total of 20,434:12 flying hours of which 2,793:40 hours were in F-27 aircraft. His last proficiency check in F-27 aircraft was on September 8, 1963.

First Officer Ray E. Andress, age 31, held valid commercial pilot certificate No. 1331370, with instrument rating. His physical qualifications were current. He originally qualified in the F-27 on April 15, 1959, and had his last proficiency check on February 16, 1964. He had a total of 6,640:41 flying hours of which 988:17 were in the F-27 aircraft.

Majorie E. Schafer, age 30, was the flight attendant aboard the flight.

Aircraft

The aircraft, N2770R, serial No. 36, owned and operated by Pacific Air Lines, Inc., was manufactured in 1959 by the Fairchild Aircraft Corporation, Hagerstown, Maryland, and purchased by Pacific Air Lines from Fairchild on February 24, 1959. The aircraft at time of delivery had 24:30 hours. It had a total flight time of 10,252:16 hours computed to its last flight out of Stockton, California. Flight time accumulated since the last mid-period inspection on May 3, 1964, was 14:51 hours.

The aircraft was powered with two Rolls-Royce RDA7MF-528 engines with the following statistics:

Position	Serial No.	TSO	TT	Date of Installation	Date of Last Overhaul
1	13544	1,525:12	6,217·45	12/6/63	10/16/63
2	13569	2,720:22	5,436:01	1/30/64	5/31/62
					Hot Section Insp.
					1/17/64

The aircraft was equipped with two Rotol R193/4/30 - 4/50 four-blade propellers with the following statistics:

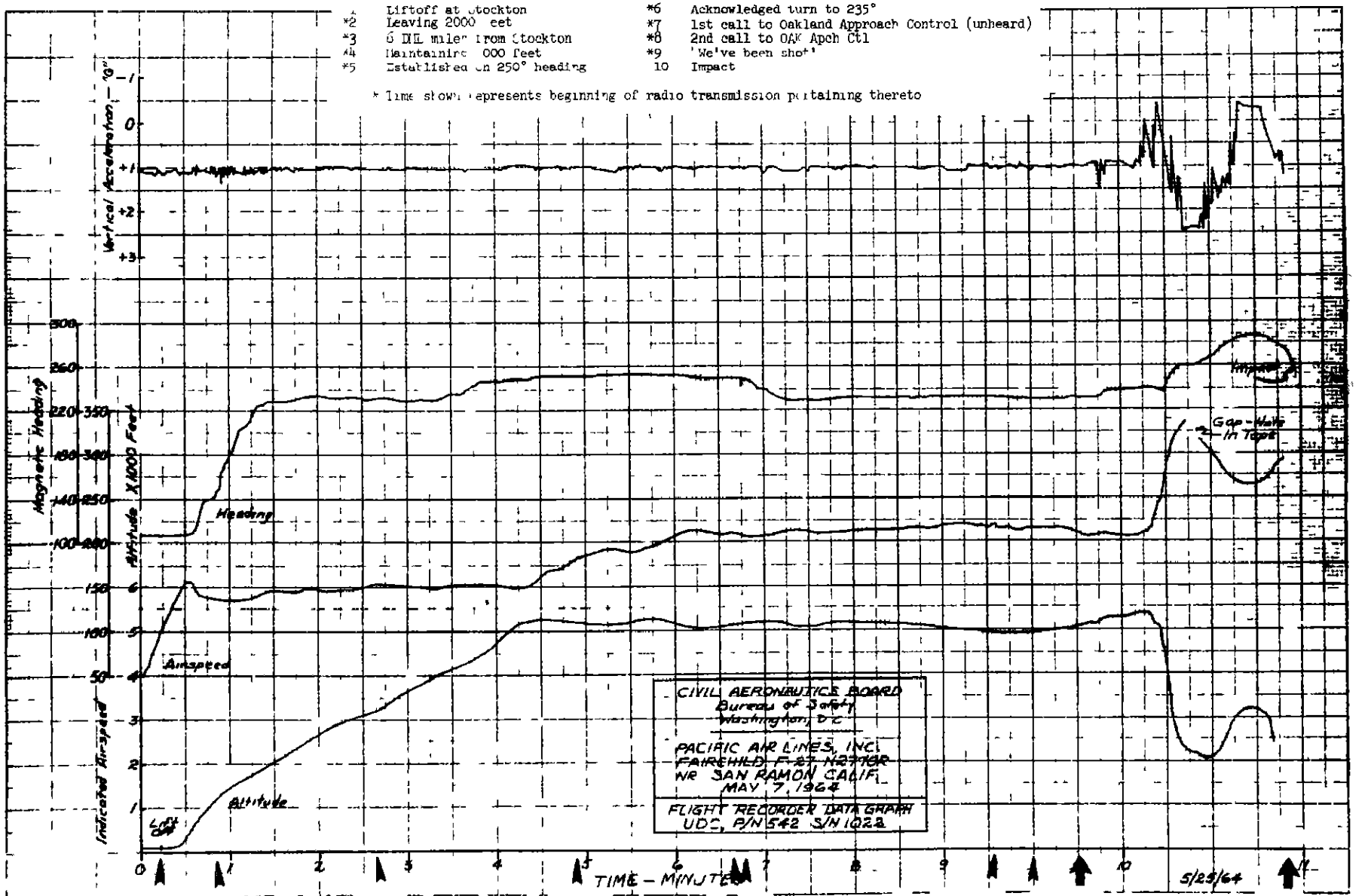
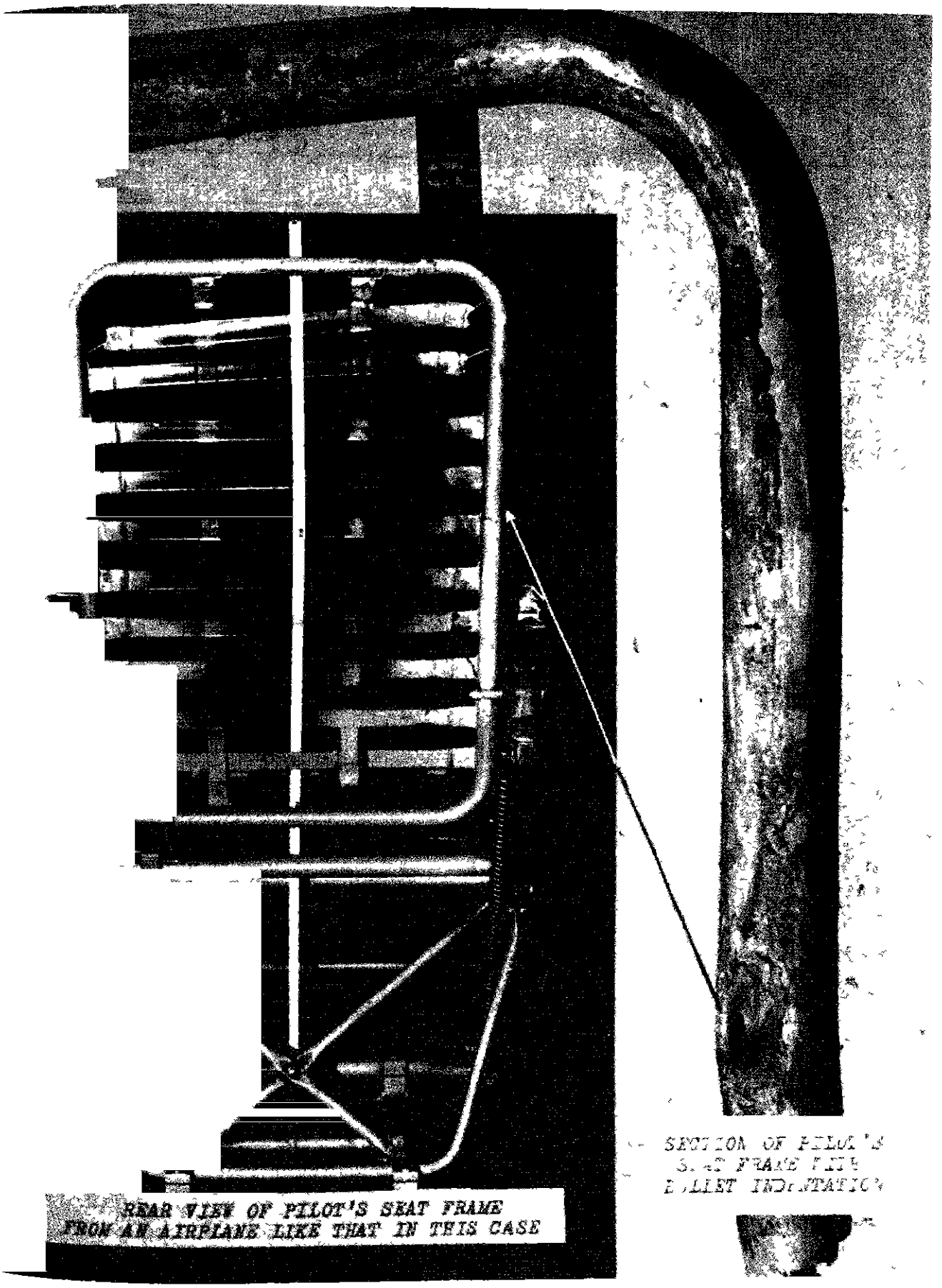
Position	Hub S/N	TSO	TT	Date of Installation	Date last Overhauled
1	193/59/43	1,510:07	7,434:12	4/11/64	7/18/63
2	193/59/58	1,879:45	7,910:52	4/30/64	8/9/63

ATTACHMENT I

Legend

1	Liftoff at Stockton	*6	Acknowledged turn to 235°
*2	Leaving 2000 feet	*7	1st call to Oakland Approach Control (unheard)
*3	6 DME miles from Stockton	*8	2nd call to OAK Apch Ctl
*4	Maintaining 3000 feet	*9	'We've been shot'
*5	Established on 250° heading	10	Impact

* Time shown represents beginning of radio transmission pertaining thereto



ATTACHMENT II