Crew hurry because of waking up late

SA-None File No. 1-0002

AIRCRAFT ACCIDENT REPORT

TEXAS INTERNATIONAL AIRLINES, INC.
DOUGLAS DC-9, N1308T
HARLINGEN, TEXAS
JANUARY 11, 1970

Adopted: December 2, 1970

NATIONAL TRANSPORTATION SAFETY BOARD
Washington, D. C. 20591
Report Number: NTSB-AAR-70-28

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TEXAS INTERNATIONAL AIRLINES, INC.
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NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.--20591

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Safety Information

For Release:

SB 71-7
(202) 426-8787

Office of the Chairman

ADVANCE For

AM Newspapers
Thursday, Feb. 4, 1971

The National Transportation Safety Board released today its report on a predawn approach accident in which a Texas International Airlines Douglas DC-9 nearly crashed on approach to Harlingen, Texas, on January 11, 1970.

The aircraft struck a 30-to-35-foot-high tree and two 29-foot power poles more than two miles short of Harlingen Industrial Airport. The crew was able to abort the approach, climb away, and continue safely to a landing at Houston even though the substantially damaged DC-9 was carrying pieces of tree, pole and wire imbedded in its underside. Harlingen visibility at the time of the approach, 0700, was reported as one-half mile in fog.

All 41 persons aboard the aircraft escaped injury.

The Safety Board determined that the probable cause was . . .

> ". . . the continuation of the descent, during actual instrument conditions, through the Minimum Descent Altitude and into ground obstructions as a result of inadequate flightcrew monitoring of the aircraft altimeters. A contributing factor was a lack of awareness by the flightcrew of the actual meteorological conditions, caused by crew fatigue, and company workload priorities which prevented normal air-to-ground communications and deferred the dissemination of essential meteorological information."

The Safety Board's investigation showed that the captain and first officer had logged 4:35 hours of flight time the day before

(over)

4

the accident. They had remained overnight at McAllen -- departure point for McAllen-Harlingen-Houston-Dallas Flight 926. But they could have had only about four hours' sleep before the accident flight, the Board found. The pilots had arrived at the McAllen airport at the 0630 scheduled departure time for Flight 926. and in about 2t minutes performed their pre-flight duties. taxiied out and took off. The Board held that both the rest period and the flight preparation had been "inadequate."

The Harlingen weather report received by the captain before the takeoff from McAllen was an 0500 report of clear skies and visibility of five miles. An 0600 report of one-mile visibility at Harlingen was not made to McAllen because of "the heavy work-load at the company's Harlingen station. " the Hoard said. Thus both the captain and the first officer, who was flying the 35-mile McAllen-Harlingen segment, were "not aware of the actual weather conditions at Harlingen" when they began their approach, the Board found.

During the descent, the first officer was primarily occupied with establishing and maintaining proper heading and -- believing visibility to be about five miles -- "looking out of the cockpit for airport lights," the Board said. "The variance of altitude during this period, " as shown by flight data recorder evidence, "Indicates inadequate monitoring and control. "

The captain. who during cruise had been unable tn contact his company's Harlingen station, did make radio contact during the approach. Told that Harlingen at 0655 had half-mile visibility in fog, the captain replied that the last weather the crew had received was clear skies and five miles, and Flight 326 was then on final approach. It was at about this point, the Board determined. that the captain ordered the first officer to level off. The Board said it believes the order was given by the captain "as a result of his receipt of the new weather information. " Impact with the tree and poles came a fer seconds later.

The Board's investigation developed no failure or malfunction of the aircraft. its powerplants or systems. Flight data recorder evidence showed that the aircraft had been within 130 feet of known. assigned or published altitudes from takeoff at McAllen to landing at Houston. Investigation and testing of two possible sources of out-of-tolerance leakage in the aircraft static pressure systems led to a Board conclusion that neither would have had "appreciable effect" on the cockpit altimeter readings.

Findiog that some altimeters in Texas International aircraft bore low-altitude warning markings but others did not, the Safety

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Board on Sovember 20, 1970. recommended that the Federal Aviation Administration consider requiring standardization of such markings on all instruments in an air carrier or air taxi operator's fleet. FAA agreed that pilots should be able to expect "standardization of critical flight instrument presentations." and said it was "carefully considering" how this could be achieved. The Board also noted that FAA had raised Texas International's landing minimums aher the accident, and that the carrier had taken steps "to improve and increase pilot proficiency. ,,

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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D. C. 20591
AIRCRAFT ACCIDENT REPORT

Adopted: December 2, 1970

TEXAS INTERNATIONAL AIRLINES, INC.
DOUGLAS DC-9, N1308T
HARLINGEN, TEXAS
JANUARY 11, 1970

SYNOPSIS

Texas International Airlines, Inc. (TXI), Douglas DC-9, N1308T, Flight 926, struck a tree and two power poles, 12,000 feet short of the runway threshold, during a predawn instrument approach to Harlingen Industrial Airpark, Harlingen, Texas, at 0700 c.s.t. on January 11, 1970. After the aircraft struck the tree and power poles, the flightcrew executed a "missed approach" and proceeded to Intercontinental Airport, Houston, Texas, where a safe landing was made. The aircraft sustained substantial damage as a result of striking the tree and poles. Forty-one persons -- four crewmembers and 37 passengers -- were aboard the aircraft. There were no injuries.

TXI Flight 926 is a regularly scheduled domestic passenger/cargo flight which originates at McAllen, Texas, and terminates at Dallas, Texas, with scheduled en route stops at Harlingen and Houston, Texas. Flight 926 of January 11 took off from McAllen at 0651. The scheduled flight departure time was 0630.

Reported weather conditions at Harlingen at the time the accident occurred were: sky partially obscured, visibility 1/2 mile in fog.

The Safety Board determines that the probable cause of this accident was the continuation of the descent, during actual instrument conditions, through the Minimum Descent Altitude and into ground obstructions as a result of inadequate flightcrew monitoring of the aircraft altimeters. A contributing factor was a lack of awareness by the flightcrew of the actual meteorological conditions, caused by crew fatigue, and company workload priorities which prevented normal air-to-ground communications and deferred the dissemination of essential meteorological information.

1. INVESTIGATION

1.1 History of Flight

Texas International Airlines (TXI) Flight 926 is a regularly scheduled domestic passenger/cargo flight which operates between McAllen, Texas (MFE), and Dallas, Teras. with scheduled en route stops at Harlingen (HRL) and Houston, Texas (IAH). The flight originates at McAllen and the aircraft and crew are the same that terminate in McAllen in the late afternoon of the previous day and remain overnight. Scheduled departure of TXI 926 is 0630.

On January 11, 1970, the flightcrew of TXI Flight 926 arrived at the McAllen Airport about 0630. The captain stated that upon his arrival at the airport, he ". . . went to Operations, signed my release, checked the weather and got all the available flight papers." The first officer (F/O) checked the airplane. The flightcrew then met in the cockpit, ran checklists, and started engines. In a statement dated January 13, 1970, the captain stated, "We received our clearance from MFE at the ramp which was 'cleared to V-208 maintain 2000 feet,' set our altimeters, accomplished our check lists, etc. Departure was normal with the F/O at the controls for this segment." The flight took off at MFE about 0651.

The captain stated: "Off the ground we performed our after takeoff checklist and climbed to 2000 intercepted our airway and proceeded to Harlingen. About halfway between McAllen and Harlingen I called the Harlingen station and received no reply. Around this time I contacted Brownsville Approach Control and received an approach clearance. They cleared us for a VOR approach to Harlingen. We took our approach plates out and checked the latest HRL weather to secure our altimeter setting. 2/ We did not have an altimeter setting from the Company and I don't believe we got one from Brownsville. We ran our approach and descent checklist and left 2000 for 1600, minimum enroute altitude for that airway. We crossed the VOR at 1600, set up 108° radial in both our selector windows, and proceeded on our approach. We were making [to make] a circling approach, gear was up and we had not run the before landing checklist. Also the configuration of the aircraft at the time we started the approach was 15° flaps out and I started calling out altitudes at 100' intervals beginning at 500' above minimums and continued to do so until approaching approximately 100' of above minimums (minimums for HRL were 635 or 680 with a BRO altimeter setting). 3/ At this point, my altimeter was reading 725 to 750 feet. I checked the copilot's altimeter at this time. His altimeter was a little below 700, say approximately 675. At this point the discrepancy in the altimeters was equivalent to about 50'. I advised First Officer Gibbons to hold approach at that altitude, which he did.

2/ All times used herein are central standard, based on the 24-hour clock.

3/ The 0455 Harlingen weather, including altimeter setting was provided with dispatch release for the flight from McAllen.

NOTE: Minimum descent altitude at Harlingen (HRL) is 635 feet m.s.l. using a Harlingen (HRL) altimeter setting or 680 feet m.s.l. if the Brownsville (BRO) altimeter setting is used.

"Moments later we incurred a bump, a thud, as if a bird had hit s, that's what it sounded like or felt like to us, it wasn't a real ad one. Then I said, 'lets get out of here, missed approach, they ven't got it'. 4/ We executed a missed approach to the left, ran our hecklist, climbed to our missed approach altitude and proceeded to the OR. I advised Brownsville approach, we had made a missed approach and equested clearance to Houston."

The first officer stated: "We ran the Before Takeoff as per rocedure and we were ready to go. McAllen cleared us for takeoff for e right turn out on course. We climbed out, I was flying and after ran-the After Takeoff we turned on course. I seem to recall some wers sticking up north of tarn, but I can't say for sure because it was ark. I made a right turn intercepted victor 20 south and proceeded on ourse 2000.

"Captain Capps called McAllen and reported level at 2000. Later e Captain called BRO and got a clearance for an approach to HRL. We n the approach and descent checklist and we started letting down to r altitude for crossing the VOR (1600). After crossing the VOR, we gan to let down to our minimum approach altitude which without the mpany's altimeter setting, I believe, is 635. With Brownsville's ltimeter reading, its minimum is 680. 5/ The checklist had been run, e approach and descent and everything was looking real fine.

"As I was making the approach, the Captain started calling out our titudes to me at about 500 feet above minimums and he proceeded to do is each 100'. As I approached within probably 100' minimum altitude, e Captain told me, 'Gib, hold it there'. So I leveled off and ortly after this, we had a bump. It was nothing more than a - I'd t worse bumps on the road, I know that. The Captain then told me, let's t out of here. I pushed the throttles forward, pitched up to 15 and ecuted a missed approach."

BRO APC 6/ cleared Flight 926 to Houston Intercontinental Airport (IAH) an altitude of 23,000 feet. As the flight was approaching 12,000 t in the climb to 23,000 feet, the cabin pressurization warning light e on. The crew requested 11,000 feet cruise altitude, which was proved, and proceeded to Houston at that altitude.

Two passengers, sitting on the left side of the aircraft, called a ewardess' attention to a "gash" in the leading edge of the left wing. stewardess advised the captain of this condition. Shortly afterward, first officer came to the cabin, visually inspected the wing, and n returned to the cockpit to continue the flight to Houston. A passger later stated that the man who came back to look at the hole got of the right seat.

Weather minimums for landing.

Brownsville Approach Control was unable to obtain the latest Harlingen weather. Flight 926 did not request the Brownsville altimeter setting and none was provided.

Brownsville Approach Control.

When the flightcrew lowered the landing gear during the approach to land at Houston, the hydraulic system low pressure warning lights came on and an unsafe condition was indicated for the nose gear and left main landing gear. The crew extended the landing gear using the manual extension procedure and a safe-to-land gear indication was obtained for all landing gears, About 0810 the aircraft landed safely at Houston.

After the aircraft rolled clear of the landing runway, the crew stopped on the taxiway and maintained engine power on until ground personnel could install safety pins in the landing gear linkage. When the landing gear safety pins were in place the engines were shut down and the aircraft was towed to the terminal where the passengers and the crew deplaned in a normal manner.

1.2 Injuries to Persons

There were no injuries to the four crewmembers or to the 37 passengers on board.

1.3 Damage to Aircraft

Damage to the aircraft was substantial and was confined primarily to the wings, the fuselage underside, and the underside of the No. 1 engine nacelle. This damage consisted mainly of tears, holes, and buckling.

Several pieces of tree limbs and pieces of telephone poles were found embedded in the tears and holes. A piece of copper wire, with an insulator attached, was embedded in the leading edge of the left wing and trailed over the top and bottom of the wing.

1.4 Other Damage

Other damage occurred in proximity to the home of a ground witness. This home is located about 12,000 feet short of the threshold of Runway 13 at Harlingen Industrial Airport, approximately on the 108° radial of the HRL VOR. 7/ A hackberry tree about 30 to 35 feet tall, in the backyard of the home, was destroyed. Two power poles 29 feet high, located in front of the home, had about 4 to 6 feet of their tops broken off, which necessitated the replacement of both poles and several hundred feet of utility wires. A jeep parked at the residence sustained a shattered windshield.

1.5 Flightcrew Information

Captain Jerry Eugene Capps, aged 40, holds ATR Certificate No. 1243323, AMEL, with ratings in Convair 240, 340, 440, E-3, cv-600, and DC-9 aircraft. He also holds commercial privileges for ASEL. His total flight time was 15,715 hours, with total time in the E-9 of 818

7/ Harlingen very high frequency omnidirectional radio range.

hours. His last line check and proficiency flight check were passed satisfactorily on April 14, 1969, and December 3, 1969, respectively. His last first-class medical examination was passed satisfactorily on July 25, 1969, with no limitations or waivers noted.

First Officer Gerald Forest Gibbons, aged 35, holds Commercial Pilot Certificate No. 1370654 with airplane single-and multiengine land and Instrument rating. His total flight time was 7,363 hours, with total time in the DC-9 of 454 hours. His last line check and proficiency flight check were passed satisfactorily on October 2, 1969, and November 4, 1969, respectively. His last first-class medical examination was passed satisfactorily on September 15, 1969, with no limitations or waivers noted.

Crew Activities

Both the captain and the first officer had flown 4:35 hours on the [illegible]. They had arrived at McAllen about 1700 on January 10 as the crew of TXI Flight 967 which terminated at McAllen. The TXI Harlingen Station Manager and his wife, the captain, the first officer, both stewardesses, and the parents of one of the stewardesses spent the evening of January 10 in Mexico where they dined together.

Both stewardesses and the one stewardess' parents returned to McAllen about 2230. According to the TXI Harlingen Station Manager, he and his wife [illegible] the captain and first officer at their motel [illegible] about midnight, and then drove to their home in Harlingen about 35 miles away.

TXI [illegible]ees based at McAllen saw the captain and the first officer eating [illegible] at a restaurant near the crew's motel between 0415 and 0500. Both were wearing civilian clothes at that time.

The first officer stated in part: "We all reported darn to the motel office to leave for the airport . . . This was probably at 6:00 or right close to it, and the Captain hadn't returned yet. The 600 crew 8/ had to leave and I sent the two hostesses out with that crew in the cab. Then I took the master key from the motel manager and went up and opened Jerry's door and said we were ready to go. [illegible] finish packing [illegible] clothes on. He had just [illegible]."

The captain stated in part: "I, myself, had fallen asleep after having breakfast. My First Officer woke me up. The Manager of the hotel took us to the airport."

An extensive investigation into the flightcrew's activities on the night of January 10 accounted for all their activities and whereabouts except during the period between midnight and about 0415 on January 11, 1970.

8/ A TXI Convair 600 flightcrew.

1.6 Aircraft Information

Douglas E-9-31, N1308T, is owned by General Electric Credit Corporation and operated by Texas International Airlines, Inc. The aircraft manufacture date is December 15, 1968. The aircraft had accumulated a total flying time of 2,281 hours. The last major maintenance inspection was accomplished on December 30, 1969. This inspection included a test of the pitot static system. The inspection was satisfactory, with no discrepancies noted.

The aircraft maintenance inspection records and the aircraft logbook pages for December 1969 and January 1970 were reviewed. Particular emphasis was placed on repeat/trend type items and discrepancies covering the pitot/static/altimeter systems. This review disclosed no open or uncorrected discrepancies, no "trend" type items, and no prior malfunctions of the aforementioned systems or their components.

1.7 Meteorological Information

There is no Weather Bureau station at Harlingen, Texas. Harlingen weather observations are made by Texas International Airlines personnel and sent via teletype to other stations. These observations are made at 5 minutes prior to the hour and transmitted on the hour. The following observations were made at Harlingen on January 11, 1970:

0455 clear, 5 miles visibility with fog
0555 clear, 1 mile visibility with fog
0655 partial obscuration with 1/2 mile visibility in fog, temperature 48°F., dew point 47°F., wind 310" at 6 knots, altimeter setting 29.91.

(The 0455 observation was with the flight papers for TXI Flight 926. The 0555 observation was not.)

Mr. Elder Black, a TXI employee at Harlingen, stated in part: "The six o'clock weather was taken by Joe Reyna, but was not sent due to being rushed by telephones, ticket counter, and trying to get passengers checked in."

Mr. Joe Reyna, a TXI employee at Harlingen, stated in part: "I came on duty at 6:00 am, checked the weather with Mr. Black, we both agreed that we had about one mile visibility, with the sky and stars visible. Mr. Black had already sent the weather report . . ." Mr. Reyna further stated: "The McAllen agent, Mr. Johnny Vasquez, advised me that flight 926 was trying to contact us on the company radio, I then went to the operations room to monitor (sic) the radio. I called for flight 926, and they answered immediately, flight 926 asked what our late weather was so I gave them the 0655 observation, which I had just taken. I advised 926 that Harlingen had -X 9/ skies and about 1/2 mile visibility with fog. I gave the wind direction as 310 degrees at six knots. Flight 926 then replied that the last weather they had was clear

9/ Partial obscuration - sky more than 1/10 but less than 10/10 obscuration.

skies and five mile visibility and that he was on final . . . about five minutes later I heard the flight going over."

The weather at MFE (35 miles west of HRL) at the time TXI 926 departed was: sky partially obscured, visibility 1/4 mile in fog. TXI 638 departed MFE about 1 minute prior to TXI 926 and reported the top of the fog was 700 feet m.s.l. 10/ and clear above. The captain of TXI 638 made an IFR approach to Harlingen Industrial Airpark (which was missed) a few minutes after TXI 926 made its approach. He stated: "The cloud tops were 450' MSL on my altimeter."

The ground witness whose tree was struck by Flight 926 stated that after the impact he went outside and "it was so foggy I couldn't see more than 50 yards." He also stated that it was dark and he had his house lights on until the aircraft struck the parer poles and the lights went out. He said that both of the electric clocks in his house had stopped at 7 o'clock.

The altimeter setting at McAllen was 30.01 at 1700 on January 10, 1970, the approximate time that the crew landed to terminate Flight 967. 11/

1.8 Aids to Navigation

The Harlingen (HRL) VOR is located 8.1 miles from the threshold of Runway 13 at Harlingen Industrial Airpark. The inbound radial from the VOR to Runway 13 is 108°. The accident occurred approximately on this radial.

The Jeppesen Approach Chart available to the crew for the VOR approach to Runway 13 at Harlingen (see Appendix B) shows the airport elevation is 35 feet. The VOR crossing altitude inbound is 1,600 feet m.s.l., and the minimum descent m.s.l. altitude and minimum visibility for a E-9 aircraft making a circle-to-land approach are 600 feet and 1 1/2 miles, respectively, using the Harlingen altimeter setting or 680 feet and 1 1/2 miles, respectively, when the Brarnsville altimeter setting is used.

On January 11, 1970, the Brownsville CS/T 12/ reported that the HRL VOR was operating normally.

1.9 Communications

There were no reported technical difficulties with communications. The crew did encounter some operational difficulty when trying to contact the TXI Company radio at Harlingen where all of the TXI personnel were busy in connection with the anticipated arrival of TXI Flights 926 and 638.

10/ Mean sea level.
11/ The same aircraft and crew were used for Flight 926 of January 11.
12/ Brownsville Combined Station and Tower Facility.

1.10 Aerodrome and Ground Facilities

Harlingen Industrial Airpark has no control tower. IFR traffic into and out of Harlingen is controlled by Brownsville Approach Control.

1.11 Flight Recorders

N1308T, Flight 926, was equipped with a Fairchild Model A100 cockpit voice recorder (CVR), S/N 1388. This recorder was removed and sent to the National Transportation Safety Board, Washington, D. C., for examination and evaluation of the tape, The CVR contains approximately a 30-minute supply of tape in a continuous loop. When electrical power is applied to the CVR, the tape is erased immediately prior to passing over the recording heads. Therefore, only the last 30 minutes of conversation and sounds, prior to power interruption, are recorded on the tape. The aircraft was flown for over an hour after the accident occurred. Electrical power was continued on the aircraft after the landing at Houston, and subsequently electrical power was applied to the aircraft by ground personnel while the CVR circuit was energized and the recorder was still installed; therefore, no useful information could be obtained from the voice recorder tape.

N1308T was equipped with a Fairchild flight data recorder (FDR), 5424-502, S/N 5034. The magazine from this recorder was removed and sent to the National Transportation Safety Board, Washington, D. C., for examination and a tape readout of that portion of the flight record pertinent to this accident. The findings of the readout, based on the latest available calibration data, disclosed that the altitude and airspeed parameters were out of calibration on the high side by a significant amount (see Section 1.15 Tests and Research). A data graph was prepared from the readout of the accident flight record (see Appendix C).

1.12 Aircraft Wreckage

Not involved. Small miscellaneous pieces of the aircraft - mostly wing and fuselage skin - were found at the accident site.

1.13 Fire

Not involved.

1.14 Survival Aspects

Not involved.

1.15 Tests and Research

Altimeter/Static System Tests

Aircraft damage precluded an in-flight altimeter/static system check; however, on the day following the date of the accident a Barfield test set was coupled into the captain's and first officer's altimeter/static

systems by removing the caps from the drain port lines within the nose gear wheel well (unpressurized area) and fastening the test set to the ports in turn. The static ports were taped over. Leaks in excess of 275 feet per minute (f.p.m.) in both systems were encountered. Maximum allowable leakage is 175 f.p.m. TXI mechanics stated that they had previously had difficulty with certain aircraft in securing an airtight connection between this test set fixture and the static drain ports. The test set was removed and the drain ports recapped. The captain's and first officer's altimeters were removed from the aircraft and the test set connected to the lines normally fastened to the *two* altimeters. At this point, one of the mechanics assisting found that the "B" nut employed to fasten the captain's static line to the starboard static port in the forward cargo compartment (pressurized area) was not properly torqued. The "B" nut was tightened 3/4 of a turn which properly torqued it, Notwithstanding this correction, both systems still had out-of-tolerance leaks. It was determined that the source of leakage was at the static drain port caps in the nose gear wheel well area.

The test equipment was removed from the altimeter connecting lines and new altimeters were installed. The test equipment was then reconnected to the drain ports in the nose gear wheel well after the caps were removed and a small thin piece of Teflon tape was wrapped around the threads prior to torqueing the test fitting. By use of this procedure the captain's and first officer's NORMAL, ALTERNATE, and AUXILIARY static pressure systems were tested. All systems were within allowable tolerances.

Both altimeters removed from the aircraft were bench tested in accordance with the Kollsman Instrument Corporation Service Manual.

The accuracy of the altimeters was within the manufacturer's specifications. Neither altimeter was marked with low altitude warning markings. 13/

All nine NORMAL, ALTERNATE, and AUXILIARY static pressure system drain points were checked for the presence of moisture. None was noted. A heat test of all N O W , ALTERNATE, and AUXILIARY static ports on the left and right sides of the fuselage was conducted. All ports were hot to the touch. Static port heater current draw indicated 9 amperes on the cockpit ammeter, which is normal for this system. A heat check was performed on the captain's and first officer's auxiliary and alternate pitot tubes. All were hot to the touch and indicated normal current draw on the cockpit ammeter. A heat check was also performed on the RAT 14/ probe and was found to be hot to the touch.

Because of the leakage at the static pressure system drain fitting caps located in the nose gear wheel well, the Douglas Aircraft Company was asked to determine what effect this would have on the altimeter

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13/ A crosshatching pattern or similar marking to indicate altitudes from 0 to 1,000 feet.

14/ Ram air temperature.

indications in the cockpit. In response to this inquiry, Douglas representatives stated: "A detailed flow analysis was therefore made of the DC-9 static system, assuming the leakage associated with a missing drain fitting cap in order to determine the magnitude of the error in indicated altitude. The results indicate that . . . at typical approach conditions with the landing gear retracted and having the cap entirely missing from the static system drain fitting . . . the barometric altimeter connected to that static system will indicate an altitude that is approximately 70 feet higher than normal. The remaining barometric altimeter, if connected to an integral static system, will indicate normally. It is noted that if the subject cap is simply slightly loose, rather than entirely missing, the error will be significantly less. . . ."

Flight Data Recorder Tests

As previously noted in Section 1.11 Flight Recorders, the FDR readout, based on the current calibration of the recorder, dated May 23, 1969, disclosed that the altitude and airspeed parameter recordings were indicating on the high side. As an example, measurement of the zero airspeed position was 1.769 inches from zero reference on the recording compared with the current calibration level of 1.755 inches, thus reflecting a difference of /64 knots. This difference was seen to decrease as the airspeed increased. Table I, following, presents measured values of altitude on the ground at McAllen and Houston using the May 23, 1969, calibration. Recorded pressure altitude is based on the standard barometric pressure of 29.92 inches of mercury (Hg) which is the base setting of the recorder altitude sensor. Corrected m.s.l. altitude is based on the actual barometric pressure of 29.86 inches of mercury, the actual altimeter setting at both stations.

TABLE I

AIRPORT	MEASURED READINGS	RECORDED PRESSURE ALTITUDE	CORRECTED MEAN SEA LEVEL ALTITUDE	PUBLISHED AIRPORT ELEVATION	DIFFERENCE
Miller Int'l.	0.236 in.	675 ft.	625 ft.	106 ft.	/519 ft.
Houston Intercontinental	0.239 in.	725 ft.	675 ft.	98 ft.	1577 ft.

Because of the marked disparity noted in the altitude and airspeed parameters in relation to the May 23, 1969, calibration, the subject flight recorder and the foil medium containing the flight record in question were forwarded to the manufacturer, Fairchild Industrial Products, for examination and determination of the recorder calibration as it then stood. This examination was conducted on January 29, 1970, at the Fairchild facilities in Los Angeles, California, and a new calibration was obtained which corroborated the condition noted above. The

recorder condition was not altered in any form during this examination. The altitude and airspeed data obtained during the original readout were recomputed using the recorder calibration received from Fairchild.

Subsequent to the Fairchild examination, arrangements were made with Texas International Airlines to install the recorder in an aircraft on a regularly scheduled flight with the Investigator-in-Charge of this accident riding in the cockpit to monitor and record altitudes and airspeeds during the flight. The test was conducted on Texas International Airlines Flight 915, February 17, 1970, between Love Field, Dallas, Texas, and Houston Intercontinental Airport, Houston, Texas, with one en route stop at Jefferson County Airport, Beaumont/Port Arthur, Texas. The aircraft was a Douglas Model DC-9-30, N8961. A previously mused spool of foil recording medium was installed in the recorder. The foil medium was removed at termination of the flight and was forwarded, together with the flight log prepared by the Investigator-in-Charge, to the National Transportation Safety Board for examination and readout of the test flight data.

Readout of the recorder test flight record was performed separately on the two flight segments. The readout time periods were 38:30 minutes and 24:00 minutes respectively for Love Field - Jefferson County Airport and Jefferson County Airport - Houston Intercontinental Airport. Results of the readout reflected that the recorder retained the identical disparities noted in the original readout of the accident flight record. The zero airspeed position was measured as 1.769 inches from zero reference and the recorded altitudes at each airport were determined to be high based on the current calibration. Table II, following, presents measured values of altitudes on the ground at the three airports noted above. The following actual barometric pressure6 were used to determine the corrected m.s.l. altitudes: (1) 30.00 in. Hg - Love Field, (2) 30.13 in. Hg - Jefferson County Airport, (3) 30.11 in. Hg - Houston Intercontinental Airport.

TABLE II

AIRPORT	MEASURED READINGS	RECORDED PRESSURE ALTITUDE	CORRECTED MEAN SEA LEVEL ALTITUDE	PUBLISHED AIRPORT ELEVATION	DIFFERENCE
Love Field	0.255 in.	975 ft.	1050 ft.	485 ft.	+565 ft.
Jefferson Co.	0.220 in.	425 ft.	625 ft.	16 ft.	+609 ft.
Houston Intercontinental	0.225 in.	500 ft.	675 ft.	98 ft.	+577 ft.

The results of the Fairchild examination of the recorder, on January 29, 1970, reflect that a permanent shift had occurred in the altitude and airspeed styli reference positions at some previous time. The entire record was examined from the accident flight on Side 2 of the foil back to the first recorded traces on Side 1, where the foil was first installed. This condition was seen to prevail throughout.. As noted above, exmination of the recorder test flight record reflected that the condition was unchanged.

A data graph was prepared from the readout of the accident flight record based on the calibration of the recorder as determined by the Fairchild examination. The altitude data are based on an actual barometric pressure of 29.86 inches Hg to convert pressure altitude to m.s.l. altitude. A time span of 25 minutes (between 30:00 minutes and 55:00 minutes after liftoff at Miller International Airport, McAllen, Texas) was omitted from the data graph since it reflects an essentially steady cruise altitude and airspeed en route to Houston Intercontinental Airport.

A data graph was also prepared from the readout of the recorder test flight record based on the calibration of the recorder as determined by the Fairchild examination. The altitude data for the first segment was based on an actual barometric pressure of 30.00 inches Hg for the takeoff and climb to 18,000 feet out of Love Field (Dallas) and 30.13 inches Hg for the descent from 18,000 feet to landing at Jefferson Co. Airport (Beaumont/Port Arthur) to convert pressure altitude to m.s.l. altitude. Altitudes above 18,000 feet are pressure altitude uncorrected (29.92 inches Hg). Altitude data for the second segment (Jefferson Co. Airport - Houston Intercontinental Airport) are based on an actual barometric pressure of 30.11 inches Hg to convert pressure altitude to m.s.l. altitude.

The parameters of altitude, airspeed and magnetic heading are uncorrected for instrument, system or position error and, therefore, are indicated values.

2. ANALYSIS AND CONCLUSIONS

2.1 Analysis

The initial investigation of this accident eliminated the aircraft structure, powerplants, and systems (other than the altimeter/pitot/static systems) as factors which could be related to the cause of the accident.

The captain's verbal statement on the day of the accident that at the time the "thud" was experienced "both altimeters read 750 feet" immediately made the aircraft's altimeter/pitot/static systems suspect and the investigation centered around the examination of these systems. The captain subsequently stated that "at this point" his altimeter was reading "725 to 750 feet" and the copilot's altimeter was reading "a little below 700, say approximately 675." Regardless of which of the two statements is accepted, the magnitude of the error involved is about

600-to-700 feet as the aircraft was actually about 60 feet m.s.l. when it struck the tree and parer poles. The ground elevation is about 35 feet m.s.l. and the aircraft struck the tree and poles about 25 feet above *ground* level.

Tests of the aircraft's altimeter/pitot/static systems revealed *two* possible sources of out-of-tolerance leakage: First, the "B" nut employed to fasten the captain's static pressure line to the starboard static port in the forward cargo compartment was found not properly torqued. The nut was properly torqued by tightening 3/4 of a turn which indicates that the leakage, if *any*, was not substantial. This fitting is in a pressurized area and, as there was no indicated malfunction of the pressurization system prior to the accident, *any* leakage in flight would most probably have occurred as a result of positive pressure in the cargo compartment entering the captain's static pressure system. As the aircraft was not flown above 2,000 feet from McAllen to Harlingen, the cargo compartment was probably not pressurized and no leakage would have occurred at the fitting. If the cargo compartment had been pressurized, and if leakage had affected the captain's altimeter indication, it would have caused the captain's altimeter reading. The captain stated that his altimeter read higher than the first officer's. Consideration was given to the possibility that a negative pressure existed in the cargo compartment. Under this condition, leakage at the "B" nut would have caused a higher-than-normal reading in the captain's altimeter. This could have accounted for the discrepancy in the altimeter indications as stated by the captain which was on the order of 50-to-75 feet. The first officer's altimeter would not have been affected by this improperly torqued fitting. The first officer was flying the aircraft and should have been controlling altitude by reference to his altimeter. *Also,* the rate of leakage at the static system drain fitting caps (described next as the second possible source of leakage) was the same before and after the "B" nut was properly torqued. Therefore, the Board determines that this discrepancy did not adversely affect the altitude indications in the cockpit.

The second possible source of out-of-tolerance leakage was at the static pressure system drain fitting caps located in the nose gear wheel well, in an unpressurized area. Tests conducted by the Douglas Aircraft Company showed that, under aircraft configuration and flight conditions similar to that of TXI 926 during approach at Harlingen, with a cap "entirely missing from the static system drain fitting . . . the barometric altimeter connected to that static system will indicate an altitude that is approximately 70 feet higher than normal. The remaining barometric altimeter, connected to an integral static system, will indicate normally. It is noted that if the subject cap is simply Slightly loose, rather than entirely missing, the error will be significantly less . . . ."

A complete check of the aircraft's altimeter/pitot/static systems revealed no other discrepancies.

A readout of the FDR record disclosed that the altitude and airspeed parameters were substantially out of tolerance on the high side in relation to the most recent calibration data available, dated May 23, 1969. Consequently, the subject recorder was forwarded to the manufacturer, Fairchild Industrial Products, for examination. Their findings confirmed that the altitude and airspeed recording styli reference positions were permanently shifted to much higher values than the standard tolerances. Fairchild determinated the calibration of the FDR in an "as is" condition. Subsequently the subject FDR was tested on another aircraft of the same type involved in the accident. The FDR readout of the record made during this test flight confirmed that the FDR was in the same condition as noted originally. The test flight readout data were computed using both the May 23, 1969, calibration and the Fairchild calibration data for comparison. Altitude and airspeed values derived from the Fairchild data matched closely with those listed in the flight log prepared by the Investigator-in-Charge while those derived from the May 23, 1969, calibration substantially exceeded the logged values.

The original FDR readout of the accident flight was recomputed and plotted using Fairchild's recalibration data as the more accurate data. Examination of the accident flight altitude profile shows a known altitude error of about 181 feet low; i.e., the altitude shown at takeoff from MFE is -75 feet, the field elevation at MFE is +106 feet m.s.l. The reason for this error was not determined. A data graph was prepared with the altitude profile raised 181 feet to correct for this error (see Appendix C). The following m.s.l. altitude values are shown: takeoff at MFE, 106 feet; en route cruise to Harlingen, about 1,931 feet (clearance was for 2,000 feet); cross the VOR, 1,531 feet (the crew stated that they crossed the VOR at the published crossing altitude of 1,600 feet); low point during approach at Harlingen, 56 feet (aircraft struck tree and poles about 60 feet m.s.l.); en route cruise to Houston, about 11,130 feet (clearance was for 11,000 feet); landing at Houston, 181 feet (airport elevation is 98 feet m.s.l.). These indicated altitude values are reasonable and are all within 130 feet of known values or assigned altitudes throughout the flight.

The static pressure source for the FDR in N1308T is the alternate static pressure system with static ports which are separate from and several feet forward of the other static ports which are fuselage mounted on the lower sides of the aircraft. The FDR pitot pressure source is the rudder limiter "Q-head" which is mounted in the lower half of the aircraft's vertical stabilizer leading edge. Thus, the FDR is isolated from the pitot and static pressure systems normally providing input to the pneumatically-operated cockpit flight instruments. Therefore, being isolated and analogous to an "independent judging firm," if the FDR indicates that the aircraft is at a certain altitude which is known to be assigned, such as 2,000 feet between McAllen and Harlingen, 1,600 feet over the HRL VOR, and 11,000 feet between Harlingen and Houston, it is reasoned that the cockpit altimeters must also be reading

at or near that altitude during these relatively stabilized flight conditions. The test flight of the HDR bears this out. The crew of Flight 926, by reference to their altimeters, apparently had no difficulty in maintaining the assigned cruise altitudes of 2,000 feet between McAllen and Harlingen, 1,600 feet over the HRL VOR, and 11,000 feet between Harlingen and Houston, within acceptable tolerances. No physical evidence was found to explain why the captain's and first officer's altimeters would be reading 600 to 700 feet higher than the actual and corrected HDR recorded altitude of 56 feet m.s.l. at the time the aircraft struck the tree and parer poles.

While there was no recorded conversation of the crew of Flight 926, requesting or receiving an altimeter setting prior to the accident, the captain did indicate in a statement dated January 13, 1970, that "We . . ., set our altimeters, . . ." but he did not indicate what information was utilized or what settings were used. If the altimeters were set, they were probably set to field elevation while on the ground at McAllen. When the flight, on which N1308T was used, was terminated on the day preceding the accident the altimeter setting was 30.01. At the time of the accident, the altimeter setting at HRL was 29.91, the equivalent of about 100 feet of altitude. Therefore, if the crew had not set their altimeters prior to departure at MFE their altimeters would have been reading about 100 feet high. This would cause the aircraft to actually be 100 feet lower than the indicated altitude. The recorded cruise altitude between McAllen and Harlingen was 1,931 feet, which was 69 feet lower than the assigned altitude of 2,000 feet. The first officer who was flying the aircraft did not state that he set his altimeter prior to the accident but the captain stated that he did set his. This could account for the aircraft's being flown at a lower altitude than recorded and for the discrepancy stated by the captain relative to the readings of the two altimeters. The captain's and first officer's altimeters operate independently of each other, each with its *own* system and the maximum error involved with either altimeter indication was 100 feet. Subsequent to the accident the altimeters, with identical altimeter settings set in the window of each, indicated within 5 feet of the same altitude.

An analysis of all of the facts indicates that the aircraft's altimeters were reading within 130 feet of the actual, assigned, or recorded altitude for the entire flight from McAllen to Houston, Texas. The Board finds that the evidence does not substantiate that both of the altimeters were in error and indicating 600 to 700 feet higher than actual altitude during the short period of time in which the accident occurred. (Seven hundred and fifty feet m.s.l. is about the altitude the aircraft should have been if they were 100 feet above minimums as stated by the crew.)

The crew of Flight 926 made no statement relative to their activities during the night preceding the accident. The Harlingen Station Manager, a friend of the captain's, stated that he dropped the

captain and first officer off at their motel in McAllen about midnight, after having dimer in Mexico,, The captain and first officer were observed in civilian clothes eating breakfast at a restaurant near their motel approximately between 0415 and 0500. The crew's whereabouts or activities for the period between midnight and 0400 was not determined. The evidence clearly shows that the flightcrew rest was inadequate.

The captain and first officer arrived at the airport about 0630 for an 0630 scheduled departure and, therefore, only minimal flight preparation was accomplished. The captain picked up the flight papers in TXI Operations. These contained the 0500 HRL weather, sharing clear skies/visibility 5 miles with fog, but did not contain the 0600 HRL weather, sharing clear skies/visibility 1 mile with fog. The 0600 HRL weather report was not disseminated to McAllen due to the heavy workload of company personnel at the TXI Harlingen station in connection with the anticipated arrival and departure of two flights. Had the captain been less rushed, he would most likely have noted this discrepancy and could have obtained the latest HRL weather by radio or telephone prior to departure. The weather at McAllen at 0630, which the crew was well aware of, was sky partially obscured and visibility 1/4 mile in fog. It should have been readily apparent to them that the weather at Harlingen (about 35 miles away) would most likely be worse than the 0500 report: clear skies and 5 miles visibility in fog.

Flight 926 took off from McAllen at 0651, about 21 minutes after the flightcrew arrived at the airport. About 4 minutes after departure the captain contacted BRO APC and received a VOR approach clearance to Harlingen. En route to Harlingen the captain attempted to contact the company radio at Harlingen but was unsuccessful. The evidence shows that initially he was unsuccessful because of the workload at Harlingen, but ultimately he did contact the station.

The first officer's only knowledge of the weather was the 0500 HRL weather, which shared 5 miles visibility, and his actual observations of the weather during the flight. He probably made a mental note of the 700-foot fog top during the departure climbout from McAllen. The sky was clear above. The top of the fog at Harlingen was 450 feet m.s.l. Examination of the HDR readout shows the following: after Flight 926 passed the HRL VOR it started a descent from 1,600 feet and turned to the right from a heading of 075° to intercept the 108° radial. During the next 35 seconds, the turn continued to a heading of about 142° and the descent continued to an altitude of about 600 feet, where the flaps were extended to 15". (At this point, because the circling minimums were 600 feet and 1½ miles visibility, the first officer should have leveled the aircraft and continued at 600 feet until the runway was in sight.) A few seconds after the flaps were extended, the first officer realized that he had passed through the 108° radial and started a turn to the left. About 5 seconds after commencing this turn, the aircraft entered the fog. The turn continued to the left to a heading of about 97° and this heading was held for about 40 seconds until the accident occurred. During this 40-second period, the altitude varied from 200 feet to 300 feet to 250 feet to 56 feet where the accident occurred.

The Board believes that the descent below minimums was made by the first officer because he believed the visibility to be about 5 miles and he was expecting to see the runway and airport lights about 1 minute after passing the VOR. For the first 20 seconds after entering the fog, the first officer was faced with reintercepting the 108° radial and his attention was probably devoted primarily to this activity and looking out of the cockpit for the runway and airport lights, while the aircraft continued to descend to 200 feet. After the aircraft was established on the 108° radial, the first officer most likely devoted most of his attention to heading control and looking out of the cockpit for airport lights, as the variance of altitude during this period indicates inadequate monitoring and control.

After the aircraft passed the VOR, the captain's attention was initially devoted primarily to attempting to contact Harlingen on the company radio, extending the flaps for the first officer and looking out of the cockpit for the runway and airport lights as he too believed the visibility to be 5 miles. This belief is substantiated by a company employee at Harlingen who stated, "The McAllen agent, Mr Johnny Vasquez, advised me that flight 926 was trying to contact us on the company radio, I then went to the operations room to moniter (sic) the radio. I called for flight 926, and they answered immediately, flight 926 asked what our late weather was so I gave them the 0655 observation, which I had just taken. I advised 926 that Harlingen had -X skies and about 1/2 mile visibility with fog. I gave the wind direction as 310 degrees at six knots. Flight 926 then replied that the last weather they had was clear skies and five mile visibility and that he was on final. . . ." This occurred at the approximate point where the captain stated, "Gib, hold it there," and shortly before 0700 when the aircraft struck the tree and power poles. Contrary to the captain's view that his statement, "Gib, hold it there," was made as a result of his observation of a discrepancy in the altimeter readings, the Board believes that the statement was made as a result of his receipt of the new weather information. The accident occurred a few seconds later and before the crew could adequately evaluate the situation and take corrective action.

2.2 Conclusions

(a) Findings

1. There was no failure or malfunction of the aircraft or its powerplants.

2. The two possible sources of out-of-tolerance leakage found in the aircraft static pressure systems would have had no appreciable effect on the cockpit altitude indicators. With the exception of these two possible discrepancies, the remainder of the altimeter/pitot/static systems functioned normally.

3. There was no failure or malfunction of any of the other aircraft systems.

* CONCLUSIONS

4. The crew was properly certificated for the flight and examination of crew data showed they were qualified.

5. [redacted]

6. [redacted]

7. [redacted]

8. The 0500 Harlingen weather was reported as clear with 5 miles visibility. This was the latest weather information immediately available to the crew prior to departure from McAllen and they made no attempt to procure the latest Harlingen weather prior to the 0651 departure.

9. The 0600 Harlingen weather report, reported 1 mile visibility. This report was not disseminated because of the heavy workload at the company's Harlingen station.

10. After departure from McAllen the crew was not able to contact the Harlingen TXI company radio because, due to the heavy workload at Harlingen, the company radio was unattended.

11. The first officer, who was flying the aircraft, was not aware of the actual weather conditions at Harlingen. The latest Harlingen weather he was aware of was that contained in the 0500 report.

12. The captain was not aware of the actual weather conditions at Harlingen until he was informed of them by a Harlingen TXI agent who radioed the information a few seconds prior to the accident.

13. The FDR showed that the aircraft was flown within 130 feet of the known, assigned, or published altitudes for the entire flight from takeoff at McAllen to landing at Houston.

(b) Probable Cause

The Safety Board determines that the probable cause of this accident was the continuation of the descent, during actual instrument conditions, through the Minimum Descent Altitude and into ground obstructions as a result of inadequate flightcrew monitoring of the aircraft altimeters. A contributing factor was a lack of awareness by the flightcrew of the actual meteorological conditions, caused by crew fatigue, and company workload priorities which prevented normal air-to-ground communications and deferred the dissemination of essential meteorological information.

3. RECOMMENDATIONS AND CORRECTIVE MEASURES.

During the course of this investigation the Board noted that some altimeters installed on Texas International Airlines, Inc., aircraft were "crosshatched" adjacent, to the zero to 1,000 feet altitude range, while others were not.

On November 20, 1970, the Safety Board sent a letter to the Administrator of the FAA recommending that, in order to preclude any misreading or misinterpretation of altimeters at low altitudes, he consider requiring standardization of altimeter low altitude warning markings within an air carrier or air taxi operator if feasible, or in any case within their particular type aircraft. (See Appendix D.)

On January 16, 1970, the Federal Aviation Administration amended the operations specifications of Texas International Airlines, Inc., by increasing their altitude and visibility landing minimums by 100 feet and 1/4 mile.

On January 19, 1970, management personnel at Texas International Airlines, Inc., implemented procedures to improve and increase pilot proficiency.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

/s/ JOHN H. REED
Chairman

/s/ OSCAR M. LAUREL
Member

/s/ FRANCIS H. McADAMS
Member

/s/ LOUIS M. THAYER
Member

/s/ ISABEL A. BURGESS
Member

December 2, 1970.

APPENDIX A

INVESTIGATION AND HEARING

1. Investigation

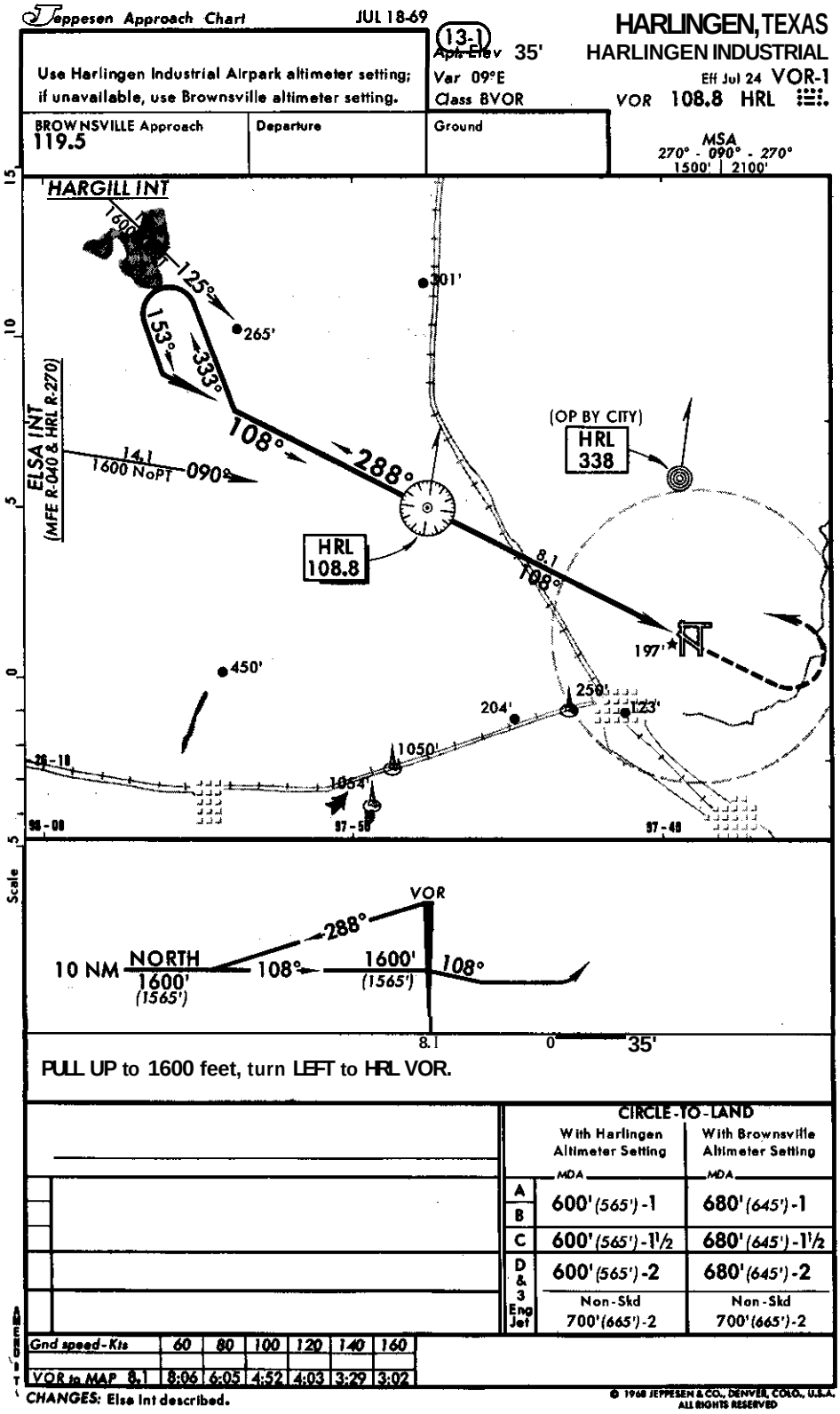
The Board received notification of the accident at approximately 0905 c.s.t. on January 11, 1970, from the Federal Aviation Administration. An investigator from the NTSB Field Office in Fort Worth, Texas, was immediately dispatched to Houston, Texas, where the aircraft had landed. Formal worldng groups were not convened for the investigation of this accident; however, various representatives of the Federal Aviation Administration; Texas International Airlines, Inc.; the Air Line Pilots Association; McDonnell Douglas Corporation; and Fairchild Camera and Instrument Corporation participated in the investigation and provided technical assistance. The on-scene investigation, which was accomplished at both Houston and Harlingen, Texas, was completed January 14, 1970.

2. Hearing

A public hearing was not held.

3. Preliminary Report

A preliminary aircraft accident report summarizing the facts, circumstances, and conditions of the accident as they were known at the time, was published on February 24, 1970.


Jeppesen Approach Chart
JUL 18-69
13-1
HARLINGEN, TEXAS
HARLINGEN INDUSTRIAL
Eff Jul 24 VOR-1
VOR 108.8 HRL
Use Harlingen Industrial Airpark altimeter setting; if unavailable, use Brownsville altimeter setting.
Apt Elev 35'
Var 09°E
Class BVOR
BROWNSVILLE Approach 119.5
Departure
Ground
MSA
270° - 090° - 270°
1500' | 2100'
HARGILL INT
1600
125°
153°
333°
265'
301'
ELSA INT
(MFE R-040 & HRL R-270)
14.1
1600 NoPT
090°
108°
288°
HRL
108.8
(OP BY CITY)
HRL
338
8.1
108°
197'
450'
204'
250'
123'
1050'
1054'
26-18
96-08
97-58
97-48
Scale
VOR
288°
10 NM
NORTH
1600'
(1565')
108°
1600'
(1565')
108°
8.1
0
35'
PULL UP to 1600 feet, turn LEFT to HRL VOR.
CIRCLE-TO-LAND
With Harlingen Altimeter Setting
With Brownsville Altimeter Setting
MDA
A
B
600'(565')-1
680'(645')-1
C
600'(565')-1½
680'(645')-1½
D & 3 Eng Jet
600'(565')-2
680'(645')-2
Non-Skd
700'(665')-2
Non-Skd
700'(665')-2
Gnd speed-Kts 60 80 100 120 140 160
VOR to MAP 8.1 8:06 6:05 4:52 4:03 3:29 3:02
CHANGES: Elsa Int described.
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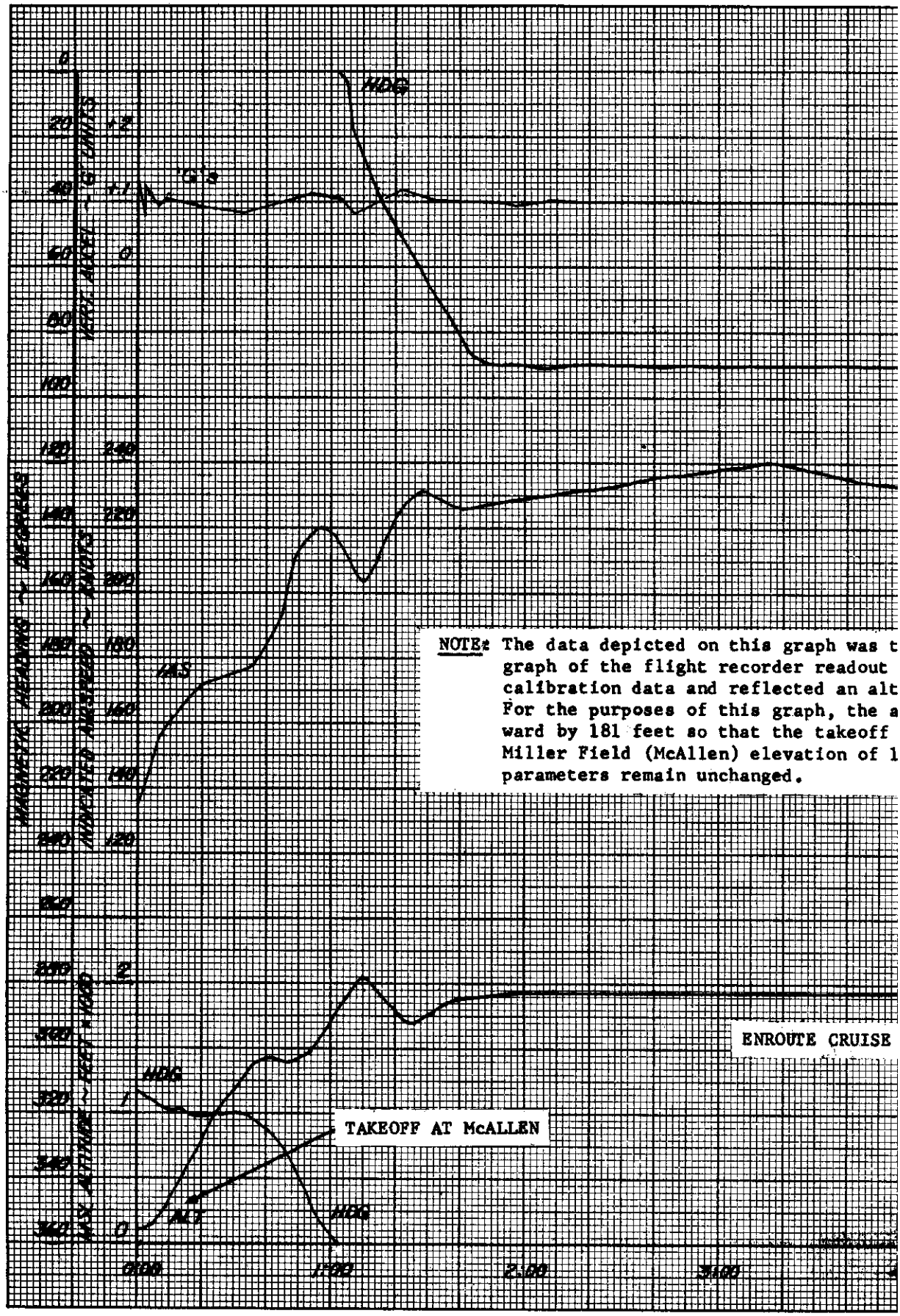
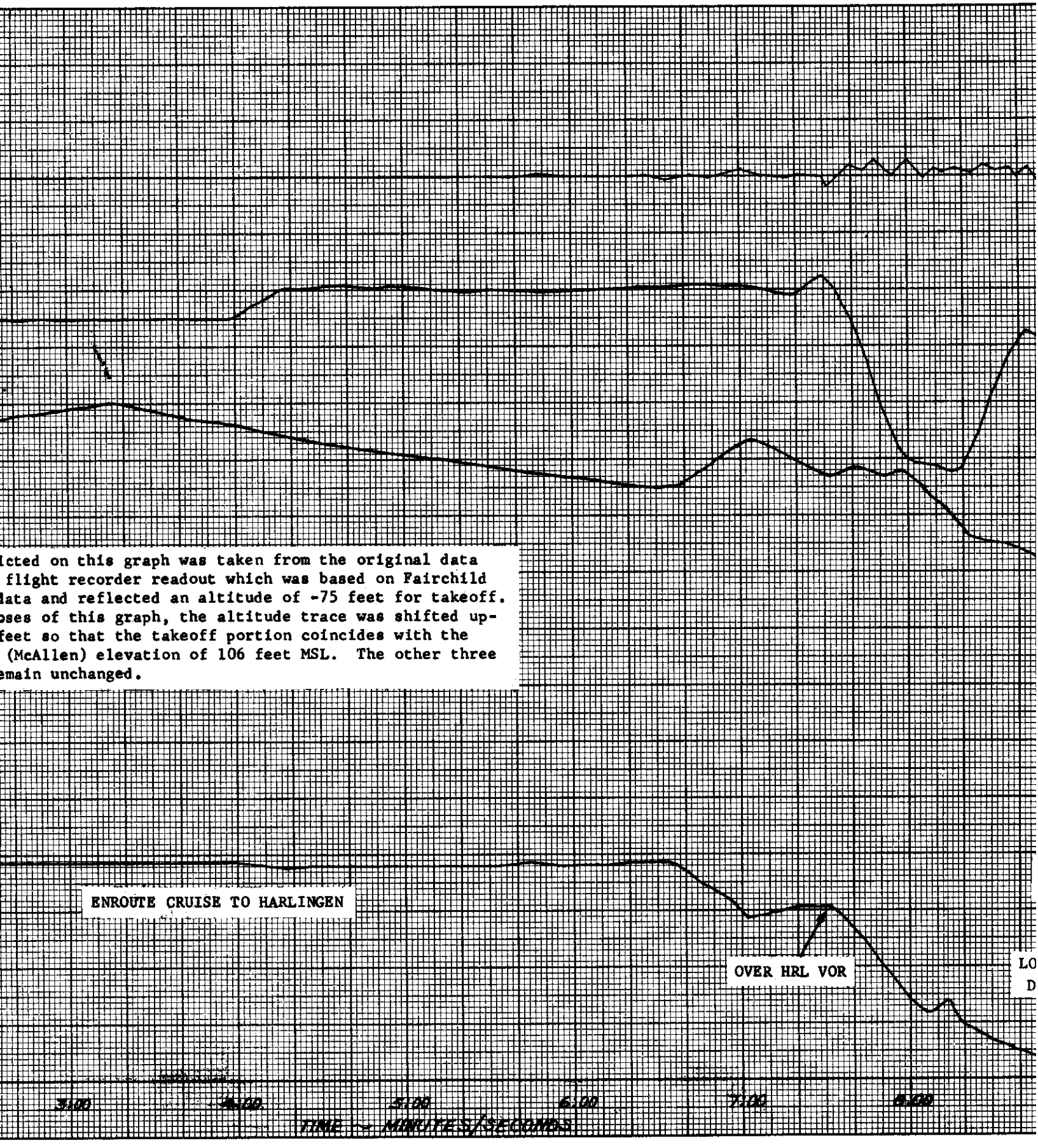

HDG
'G's
NOTE: The data depicted on this graph was t
graph of the flight recorder readout
calibration data and reflected an alt
For the purposes of this graph, the a
ward by 181 feet so that the takeoff
Miller Field (McAllen) elevation of 1
parameters remain unchanged.
ENROUTE CRUISE
TAKEOFF AT McALLEN
HDG
ALT
HDG
2.00
3.00


icted on this graph was taken from the original data
flight recorder readout which was based on Fairchild
data and reflected an altitude of -75 feet for takeoff.
oses of this graph, the altitude trace was shifted up-
feet so that the takeoff portion coincides with the
(McAllen) elevation of 106 feet MSL. The other three
emain unchanged.
ENROUTE CRUISE TO HARLINGEN
OVER HRL VOR
LO
D
5:00
6:00
7:00
8:00
TIME — MINUTES/SECONDS

APPENDIX C

NATIONAL TRANSPORTATION SAFETY BOARD
Bureau of Aviation Safety
Washington, D. C.

FLIGHT RECORDER DATA GRAPH

Texas International Airlines, Douglas DC-9
N1308K, Harlingen, Texas, January 11, 1970