

REPORT OF THE CIVIL AERONAUTICS BOARD
of the
Investigation of an Accident Involving Aircraft in
Scheduled Air Carrier Operation

A Lockheed, Model 18-08 (Lodestar), NC 25632, owned and operated by United Air Lines Transport Corporation, was slightly damaged in an accident which occurred near Newhall, California, on January 5, 1941, about 9:30 a.m. The crew, consisting of Captain William E. Davis, First Officer Berkeley Brandt, Jr., and Stewardess Frances M. Litaker, was not injured. Captain Davis held an airline transport certificate with a Class 4M Land rating and had accumulated about 5000 flying hours. First Officer Brandt held a commercial pilot certificate and had flown about 1500 hours. There were no passengers aboard.

United Air Lines Trip 26 departed Oakland, California, at 7:35 a.m. for Burbank, California, with intermediate stops scheduled at San Francisco, Fresno, and Bakersfield, California. The trip was cleared for instrument and/or over the top flight to Burbank, with instrument let-down procedure approved at Burbank. The weather en route was entirely favorable for this type flight. Due to the fact that there were no passengers, mail, or cargo to be taken on or off at any of the intermediate stops, such stops were cancelled while en route. The flight arrived over Bakersfield, which is approximately 92 miles from Burbank, at an altitude of 8000 feet, on top of the overcast, at 9:02 a.m. Shortly after passing over Bakersfield, Captain Davis changed his flight plan and climbed to 10,000 feet, requesting authorization for this change. About ten minutes later, Airway Traffic Control instructed Trip 26, through the company radio, to remain at 8000 feet. The captain stated that at the time this message was received he had just passed the Lebec Marker and was in position to begin his descent to Burbank. He then informed Burbank that he planned to begin the descent at a rate which would place him over Newhall at 6500 feet according to company procedure.

At 9:23 a.m. the captain received a message from Airway Traffic Control clearing Trip 26 from Newhall to the Burbank Tower and advising the trip to use Standard Instrument Approach.^{1/} At 9:23 Davis advised Burbank that he was over Newhall, on top, at 6500 feet, and asked for continuous localizer operation. Burbank acknowledged the message and sent it to Airway Traffic Control. The evidence indicates that Captain Davis then asked the dispatcher in Burbank for information regarding the weather and that they discussed weather conditions over the two-way radio at some length. While talking to the dispatcher, Captain Davis made a right turn to approximately 160 degrees, throttled the engines, extended the landing gear, and started descending at a rate between 700 and 800 feet per minute, in an effort to reach 4500 feet as soon as possible, to avoid being too high over the Burbank localizer. The turn to 160 degrees, rather than to the customary direction of 140 degrees, was made to offset

^{1/} Approach and landing procedure when low ceilings and visibility exist is as follows: Pilots will maintain an altitude of not less than 4500 feet sea level pending definite location of the Seagus radio range station. Planes arriving from the north will follow the Seagus range

the influence of a strong southwest wind which had been forecast.

The captain subsequently stated that he switched the radio receiver to 278 kilocycles, the frequency of the Burbank localizer, and that the localizer did not sound normal. He asked the first officer to dial 278 kilocycles on the auxiliary receiver; the localizer sounded the same on that instrument. The captain later stated that he became concerned over the situation, especially since he did not receive a signal from the Newhall Pass Fan Marker, and that he then thought it advisable to discontinue the instrument let-down. He had by this time leveled out at 4500 feet. He glanced out the window and saw something dark which, he subsequently stated, he thought was a break. He glanced at the altimeter which read, so he states, 4200 feet and pulled the nose up. He opened his side window for better vision but could see nothing. He then looked ahead and, at that instant, saw a tree in line with the left motor, just as the aircraft struck it with the left propeller and landing gear. He pulled up rapidly and opened the throttles wide. The first officer raised the landing gear. After the initial zoom and subsequent leveling off, the captain turned right to 270 degrees and held that heading until he had reached an altitude of approximately 5500 feet. He then turned left to 180 degrees and climbed straight ahead until he was on top of the overcast.

As the airplane was apparently not damaged to any appreciable extent, the captain and first officer attempted to establish radio contact with Burbank again. Being able to operate the auxiliary receiver on the top antenna, the pilot called Burbank to advise that he was climbing out. He also asked Burbank to check the localizer because, Captain Davis subsequently stated, he feared that the "N" signal was being received in all quadrants. The crew did not report, by radio, that the airplane had struck a tree.

(magnetic course 137 degrees), to the cone of silence. On hearing the surge in volume, pilots will lower the landing gear maintaining 4500 feet altitude for two minutes, at which time the north leg of the Burbank localizer will be tuned in (compass course 122 degrees magnetic), airspeed reduced to 110 m.p.h. and altitude lost in order to intersect the Palmdale leg of the Los Angeles range at 2000 feet. After crossing the Palmdale leg, pilots will close throttles and descend, keeping on the "on course" signal of the north leg of the Burbank localizer. If the ground is not visible at the allowable minimum, pilots will promptly turn right and climb up for another approach. If, after completing two approaches, a landing cannot be accomplished, they will make no additional approaches unless authorized by the dispatcher, but will proceed to the nearest or most favorable alternate terminal as authorized by the dispatcher in charge.

After the aircraft arrived on top of the overcast at about 6000 feet altitude, the captain and first officer oriented themselves and subsequently effected a landing at Burbank via the Los Angeles radio range. The landing was uneventful except for the malfunctioning of one brake which necessitated ground-looping in order to stop. The aircraft was then towed back to the hangar.

Captain Davis' course from the time he took his 160-degree departure from what he mistakenly thought was the Newhall cone of silence was such that he could only have entered the influence of the Newhall Fan Marker along its southwesterly edge. The Newhall Range itself was functioning normally at that time. This was ascertained by the captain of United Air Lines Trip No. 71 which left Burbank, northbound, at 9:22 a.m. He reported, at the request for information by the Burbank Control Tower that the Newhall Fan Marker was functioning normally. This report was received while Trip 71 was still contact. The captain of a Western Air Express plane reported at 9:47 a.m. that the Newhall range was emitting normal "A" and "N" quadrant signals while that flight was over Grand Central Air Terminal.

The testimony of the pilot definitely establishes that he mistook the termination of a multiple of the Newhall Range located about nine miles north for the Newhall cone of silence; his subsequent navigation offers conclusive evidence of this mistake. The existence and the limitations of this multiple of the Newhall Range are well known and well established. The range was flight-checked the following day by personnel of the Civil Aeronautics Administration and found to be operating normally. His testimony also revealed that he had, four or five minutes before changing his course to 160 degrees, passed through an area of broken clouds, allowing a view of the terrain below, and that he had an opportunity to check his ground position at that time. The aircraft's barograph indicated that the aircraft descended to an altitude of about 3,400 feet, the altitude of the terrain on which the tree was struck. The site of the tree was about five and one half miles southwest of the Newhall Range Station, and approximately four miles west of the course.

After passing the Newhall Range Station, southbound, the Newhall Fan Marker's zone should be entered in approximately one minute. The captain's action in not definitely checking the Newhall Range Station by its noise level build-up, as well as its cone of silence, was a mistake. He then arbitrarily added 20° to his turn to allow for wind drift. Although this is a large correction, it would not, in itself, have caused the accident had not the original mistake been made. However, this was followed by a second mistake when the captain failed to realize that he was not where he should have been when he did not hear the Newhall Fan Marker within one minute after his initial change of course.

The Civil Air Regulations require strict adherence to the prescribed and approved company approach procedure which, with respect to Burbank, specifies that 4500 feet shall be the minimum altitude during the early stage of the approach. The fact that the aircraft struck trees at an altitude of 3400 feet, and that the barograph indicated an altitude of about 3400 feet at approximately that time, clearly shows that Captain Davis did not adhere to the 4500-foot minimum. A careful check of the aircraft's two altimeters, made the day following the accident, disclosed that one read about five feet too high and the other about 55 feet too low. These small irregularities were not pertinent to the accident.

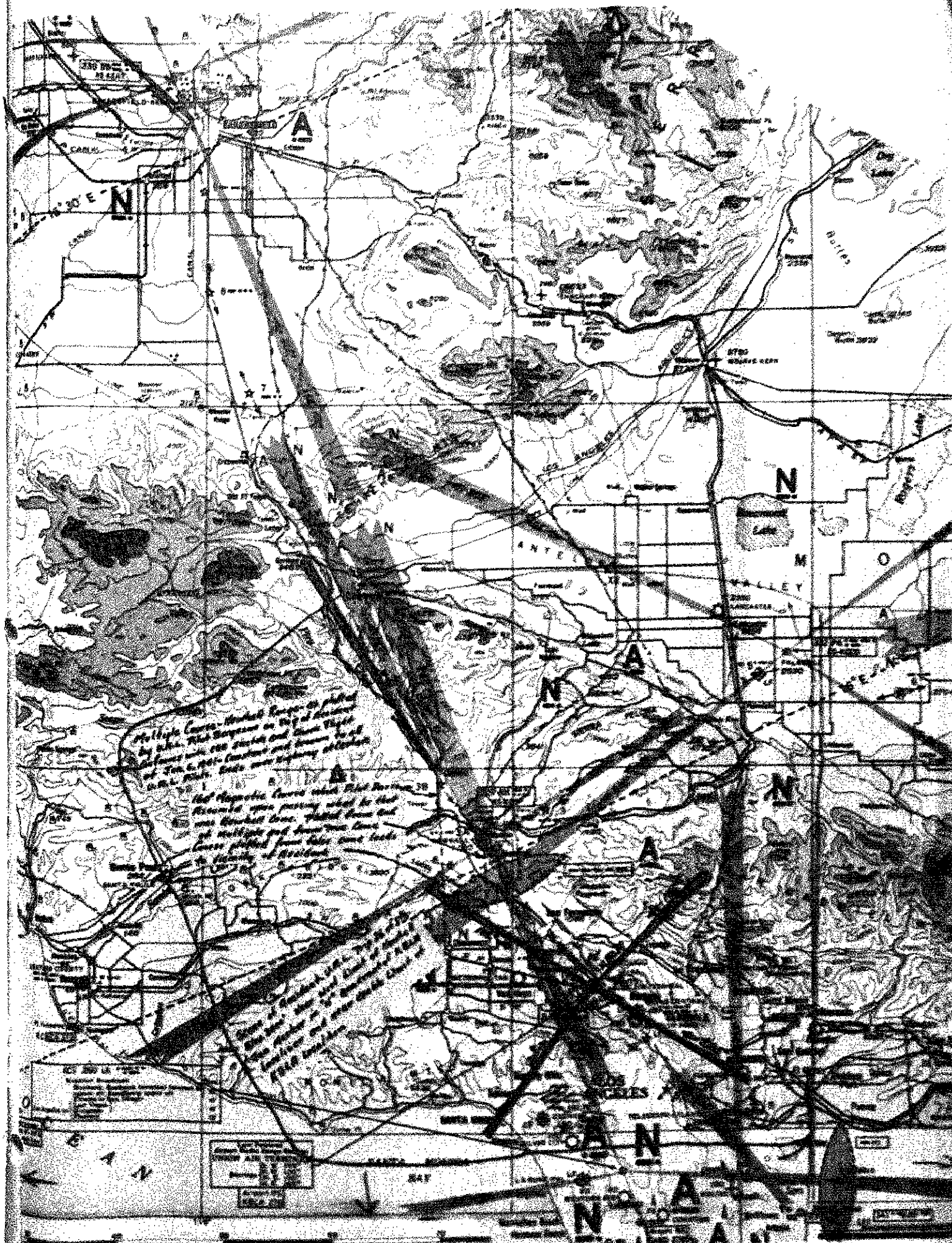
Captain Davis' testimony, as well as that of First Officer Brandt, indicates an extreme laxness in cockpit procedure, with no specific division of duties between captain and first officer, particularly during instrument approaches. In this case, Captain Davis was endeavoring to fly a let-down procedure on the radio range, and at the same time to carry on a two-way conversation with his dispatcher.

PROBABLE CAUSE:

Failure of pilot to comply with the approved let-down procedure.

BY THE BOARD

Secretary



Multiple Curves - Model Report plotted by this. The Diagram on top of page 10 shows the 100' contour and shows that at Ten 2, 1941 - contour and lower level of the 100' line. Data was taken at this point.

Old Magnetic Curve used that section 20 records were taken when to that was marked line. Plotted from old at multiple and from new line. Curve plotted from this and looks to vicinity of 100' contour.

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