File No. 1-0036

C I V I L A E R O N A U T I C S B O A R D
AIRCRAFT ACCIDENT REPORT

Adopted: May 14, 1963 Released: May 17, 1963

THE FLYING TIGER LINE INC., LOCKHEED CONSTELLATION
MODEL L-1049H, N 6911C, ADAK, ALASKA,
MARCH 15, 1962

SYNOPSIS

A Lockheed Constellation, model L-1049H, N 6911C, owned by The Flying Tiger Line Inc., and being operated under contract with the Military Air Transport Service, crashed during the hours of darkness at Adak, Alaska, March 15, 1962, at 1214 G.m.t. Impact and subsequent fire destroyed the aircraft. There were seven occupants, all crew members. Six received minor injuries and one, the duty flight engineer, was trapped in the cockpit and died in the fire.

This was a scheduled cargo flight, designated by the carrier as Flight No. FTL 7816/14. It originated at Travis Air Force Base, California, for Kadena Air Force Base, Okinawa, with stops planned at Cold Bay, Alaska, Adak, Alaska, and Misawa, Japan.

Shortly after departure from Travis Air Force Base, buffeting developed and the aircraft was landed back at Travis. Inspection disclosed an open hydraulic reservoir access door. This was closed and secured and the flight proceeded uneventfully to Cold Bay, Alaska. The flight from Cold Bay to the vicinity of Adak was also uneventful, with the copilot flying the aircraft from the left seat and the captain acting as copilot in the right seat.

Instrument weather prevailed at Adak and a ground controlled approach (GCA) was started. The flight was advised several times that it was below the glide slope and then was advised to execute a missed approach. The aircraft's captain replied that the field was in sight.

The approach continued, visually. At a point 328 feet short of the runway threshold and four feet below its level the landing gear struck rocks. The main landing gear was torn off and the aircraft slid about 2,000 feet on the runway coming to rest just off its edge. A severe fire developed.

The Board determines that the probable cause of this accident was the pilot's misjudgment of distance and altitude during the final approach for landing.

Investigation

A Lockheed Constellation, model L-1049H, N 6911C, owned by The Flying Tiger Line Inc., crashed during a landing approach to the Adak Naval Station, Adak, Alaska, during the hours of darkness on March 15, 1962, at 1214 G.m.t. 1/ The flight, designated by the carrier as FTL 7816/14, was scheduled to carry freight from Travis Air Force Base, California, to Kadena Air Force Base, Okinawa, with stops at Cold Bay and Adak, both in Alaska, and Misawa, Japan, under contract with the Military Air Transport Service. The flight was conducted under the provisions of Part 42 of the Civil Air Regulations.

A multiple crew was carried. It consisted of Captain Morgan W. Hughes (in command), Captain Thomas M. Mitchell, Copilot Wayne W. Lowe, Flight Engineer Henry Guttman, Flight Engineer James M. Johnstone, Navigator Michael E. Green, and Navigator Kenneth Drusch.

The flight departed Travis AFB for Cold Bay, Alaska, at 2100, March 14. Its gross weight was 142,050 pounds and the center of gravity was at 24.8 percent of the MAC (Mean Aerodynamic Chord), which was within the prescribed limits of 23 percent and 32 percent for the existing gross weight. The maximum allowable takeoff gross weight was 142,100 pounds.

Shortly after takeoff, buffeting developed. Captain Hughes and Flight Engineer Guttman decided that the buffeting was probably caused by an open hydraulic reservoir access door. Captain Hughes decided to return to Travis AFB where he elected to land overweight rather than to dump fuel. The maximum allowable landing weight was 119,975 pounds and the aircraft's gross weight was well above that figure.

1/ All times herein are Greenwhich Mean based on the 24-hour clock.

Captain Mitchell, flying from the left seat, made the landing at 2132, and commented to the crew that the aircraft ". . . surely was noseheavy - probably due to excessive weight . . . ."

Examination at the ramp disclosed that the hydraulic reservoir access door on the right side was open. The door was secured, the fuel tanks topped off, and a satisfactory overweight landing inspection was made by a qualified company representative.

The flight departed Travis AFB at 2230 for Cold Bay, Alaska, with Captain Hughes in the left pilot seat. There was no further buffeting and the nonstop flight to Cold Bay was without incident. The landing there was at 0805, March 15, 1962. This landing was made by Captain Hughes, who stated, "the landing was solid as I was unable to make a normal flare due to the nose heavy condition."

The crew filed an instrument flight plan to Adak, listing three hours holding in lieu of an alternate airport. According to Captain Hughes, it was his intention to return to Cold Bay if he could not land at Adak. The estimated flight time en route was 2 hours and 30 minutes and the flight departed Cold Bay at 0919. The gross weight at takeoff was 123,249 pounds and the center of gravity was at 22.8 percent of the MAC which was within the prescribed limits of 21 percent and 32 percent for the existing gross weight.

N 6911C contacted Adak Approach Control at 1137, giving its position as 100 miles northeast, at 12,000 feet, and estimating Adak at 1206. Adak Approach Control transmitted the following clearance: "Tiger 911 is cleared

to the Adak Low Frequency Range via direct to descend and maintain eight thousand immediately. Report reaching eight thousand . . . ." The flight replied "Roger, understand . . .," and repeated the clearance.

At 1144, Adak Approach Control gave the flight the following weather: "Two thousand five hundred scattered, estimated ceiling three thousand five hundred, overcast, visibility four, light rain and fog, temperature 42, dewpoint 38, wind east southeast one zero, peak gusts one eight, altimeter two niner eight zero. Runways clear of ice and snow. Braking action good reported by P2V . . . ." This was acknowledged.

Soon after reporting at 8,000 feet the flight received the following from Adak Approach Control: "Tiger niner one one is cleared to the Adak Low Frequency Range via direct. Descend and maintain seven thousand immediately. Hold southwest. Expect approach clearance at one two zero six. Adak weather same as previously outlined. Expect circling approach runway one eight. Wind now east southeast eight, peak gusts one five. Expect GCA frequencies one three four point one megacycles and three zero three niner kilocycles. Remain this frequency until further advised . . . ." The flight acknowledged.

Subsequently, Adak GCA established radar contact with the flight and precision approach was commenced with Copilot Lowe flying from the left seat and Captain Hughes occupying the right seat. At this point, Captain Hughes requested and received clearance for a straight-in approach to runway 23. The landing gear had been extended and locked and the wing flaps extended 60 percent.

The GCA approach was routine to a point approximately three miles from touchdown where the flight was advised that it was going slightly above glidepath.

The flight next was told that it was coming down on glide slope followed immediately by "below glide slope." Six other transmissions by GCA advised the flight it was below glide slope followed by advice to execute a missed approach. At about the same time Captain Hughes advised GCA "Roger we have the field in sight, thank you 911." The distance from touchdown at the time of this transmission was approximately 1-3/4 miles. The captain estimated the altitude at which he became contact as 400 feet. The airport altitude is 17 feet m.s.l.

The remainder of the approach was conducted under visual flight conditions by Copilot Lowe. He asked Captain Hughes, serving as copilot, for 80 percent flaps (from 60 percent then being carried), but the captain did not comply. Near the approach end of the runway, Captain Hughes remarked to Copilot Lowe, "you are too low," and Mr. Lowe added power as Captain Hughes pulled back on the yoke. Almost concurrently the right landing gear struck rocks short of the runway.

Initial contact was at a point approximately 328 feet from the threshold lights and 4 feet below the elevation of runway 23. This runway is 7,610 feet long. The second contact was with the right inboard tire on a rock approximately 8 feet forward of initial impact. The aircraft then struck an embankment at the runway threshold approximately 4 feet below the elevation of the runway and the main gear separated. As the aircraft continued forward

it veered to the right leaving the runway at the 1,000-foot marker. The right wing was torn off while the main portion continued forward until coming to rest on a heading of approximately 30 degrees, at a point approximately 2,000 feet from the approach end of the runway.

Fire came from the aircraft following the separation of the main gear and continued after the aircraft had stopped. Six of the seven crew members evacuated the burning wreckage without serious injury. The seventh, working Flight Engineer Johnstone, was trapped in the cockpit area.

Two crash and rescue trucks were at the scene within an estimated 30 seconds after the crash. The crews extinguished the visible fire within about 10 minutes. However, fire quickly broke out again and, fed by acetone and oxygen in the cargo, became uncontrollable. Continuing attempts to free the imprisoned engineer were futile and he died in the fire.

The computed gross weight of the aircraft at the time of the accident, allowing for fuel consumption, was 115,150 pounds which was about 4,800 pounds under the maximum allowable landing weight.

Immediately after the accident, and because thereof, a special weather observation was made and it showed: Ceiling indefinite 1,000 feet, sky obscured, visibility 3 miles, light drizzle, fog, temperature 40 degrees, dewpoint 38 degrees, wind east-southeast 12, gusts to 18, altimeter 29.80, relative humidity 92 percent.

The weather minimums for The Flying Tiger Line's operation at Adak are 400 feet ceiling and 3/4 of a mile visibility. (Navy minimums at Adak are 200 feet and one-half mile.)

Interrogation of the crew following the accident brought forth the allegation that turbulence during the final portion of the approach was a factor causing difficulty in visually aligning the aircraft with the runway. The crew also believed that the actual weather was not as good as the last weather given them although there was no implication that it was not well above their authorized minimums. Captain Hughes also claimed that the phraseology employed by the Navy GCA controller, in not stating exact distances above or below the glidepath, was unfamiliar to him although he had made one previous GCA approach to Adak.

On March 17, 1962, two days after the accident, the Adak GCA facility was flight checked by the Federal Aviation Agency. It was found to be operating satisfactorily and within tolerances. The FAA flight inspectors also tested the proficiency of the GCA controller who was on duty at the time of the accident and found him to be "well above average" on all Precision Approach Radar (PAR) runs and "satisfactory" for Airport Surveillance Radar (ASR) approaches.

The Adak airport is a facility of the U. S. Navy and no resident FAA inspector is stationed there. Air traffic services for civil aircraft are provided by Navy personnel to the satisfaction of the FAA in accordance with a current letter of agreement between the FAA and the Commanding Officer of the Adak Naval Station.

Investigation disclosed that all pertinent lighting at Adak Airport was turned on and functioning normally at the time of the accident. Runway 23 does not have approach lights.

Investigation of the aircraft structure, of its various systems, and of its powerplants disclosed no evidence of any malfunction of any nature. All four propellers were found in low pitch. A review of maintenance records of aircraft and powerplants disclosed no significant irregularity. The crew stated that they experienced no mechanical difficulty of any type during the flight from Cold Bay or during the final approach. There was neither evidence nor suspicion that the cargo had shifted prior to or during the approach.

Copilot Lowe had never previously landed at Adak. Captain Hughes had made one GCA approach and landing there. However, it was during daylight and to a different runway.

Examination of the detailed itinerary of this flight and of the preflight rest periods of all crew members indicates that rest and off-duty requirements had been met.

Analysis

An analysis of the evidence adduced in connection with this investigation leads clearly to the conclusion that the accident was caused by faulty piloting judgment during the landing approach.

The aircraft was fully airworthy and in landing configuration. All of its components, including powerplants, functioned normally. All airport facilities, including lighting and the GCA radar, also functioned normally. The operator of that radar performed his duties properly and in accordance with his prescribed Navy procedures, which were acceptable to the FAA. The runway was of adequate length. The weather was definitely better than the minimums authorized by the FAA for the subject operation.

It is probably true that some turbulence prevailed during the latter part of the approach, as the crew claimed, but, with the existing wind velocities, its intensity should not have been enough to seriously affect control of the aircraft.

The overweight landing made at Travis AFB at the start of the flight was followed by an overweight landing inspection which disclosed no damage. The incident may therefore be dismissed as not being germane to this accident. The nose heaviness evident at both the Travis and Cold Bay landings, which was commented on at the time, and therefore familiar to all crew members can be attributed to the cargo loading. Because the cargo had not been rearranged, a somewhat similar nose heaviness should logically have been anticipated at Adak. However, the center of gravity of the aircraft was located within prescribed limits.

The entire planned flight from Travis AFB to Okinawa was lengthy enough to require a multiple crew of qualified airmen. Such a multiple crew was carried. At the time of the accident the total elapsed time from departing Travis was 15 hours and 14 minutes, about half of the total planned time. None of the three pilots had been on continuous duty and maximum duty time had not been exceeded. Crew fatigue, therefore, cannot logically be considered as having been a significant factor in the accident.

While on final approach Copilot Lowe asked Captain Hughes to lower the flaps to 80 percent (from 60 percent). The captain stated, however that 60 percent flap was retained in anticipation of a possible go-around. It is certainly a captain's prerogative to accept or reject requests as he deems

best. If 80 percent flap had been used, as requested, the aircraft's stall speed would have been decreased slightly, but it is doubtful if this factor alone would have allowed the aircraft to reach the runway threshold. Thus this item also appears to be not germane inasmuch as the captain obviously thought it best not to increase the flap extension, and Copilot Lowe later stated that the choppy weather would have made it difficult for him to differentiate between 60 percent and 80 percent flap.

When Captain Hughes told the controller that he had the field in sight, very shortly after being advised to make a missed approach, he did, in fact, assume full responsibility for the conduct of the flight. At that moment the GCA controller was relieved of further responsibility for the approach.

In regard to Captain Hughes' contention that the phraseology used by the GCA controller was unfamiliar to him, it should be pointed out that Captain Hughes had made one previous GCA approach at Adak. Further, the fact that there were seven successive advisories of being below glidepath, followed by advice to make a missed approach, should certainly have sufficed to alert the captain to the persistent under flying of the glidepath. Thus the alleged unfamiliarity with the GCA phraseology cannot be demonstrably linked to this accident.

This flight was being operated under Part 42 of the Civil Air Regulations which permits landing at airports where the captain in command has not had specific landing experience.

Probable Cause

The Board determines that the probable cause of this accident was the pilots' misjudgment of distance and altitude during the final approach for landing.

BY THE CIVIL AERONAUTICS BOARD:

/s/ ALAN S. BOYD
Chairman

/s/ ROBERT T. MURPHY
Vice Chairman

/s/ CHAN GURNEY
Member

/s/ G. JOSEPH MINETTI
Member

/s/ WHITNEY GILLILLAND
Member

SUPPLEMENTAL DATA

Investigation

The Civil Aeronautics Board was notified of the accident immediately after occurrence. An investigation was initiated at once in accordance with the provisions of Title VII of the Federal Aviation Act of 1958.

The Carrier

The Flying Tiger Line Inc., is a scheduled air carrier incorporated in the State of Delaware with its principal business offices at Burbank, California. It operates under a currently effective certificate of public convenience and necessity issued by the Civil Aeronautics Board, and an air carrier operating certificate issued by the Federal Aviation Agency. These certificates authorize the company to transport cargo by air over numerous routes within the Continental limits of the United States. The subject flight was conducted under an exemption granted by the Civil Aeronautics Board which authorizes the carrier to engage in interstate, overseas, and foreign air transportation of persons and cargo pursuant to contracts with any department of the military establishment.

The Aircraft

The aircraft was a Lockheed Constellation, model L-1049H, Serial No. 4804, N 6911C, and was manufactured January 6, 1957. Total operational time on the aircraft was 16,038 hours of which 3,446 hours had been since the last overhaul. The last operational check and the last terminal check inspection had been 14.6 hours prior to the accident.

The engine was Wright model 988TC18-EA3. The times since overhaul of all four engines were within prescribed limits. The propellers were Hamilton Standard model 43H60-363. Their times since overhaul were within prescribed limits.

Flight Personnel

All seven crew members had had adequate rest prior to departing Travis AFB. All held appropriate certificates and ratings from the FAA. Captain Morgan W. Hughes, age 41, who was in command and who was in the right pilot seat, had a total flight time of 13,000 hours of which 3,055 hours had been in L-1049H Constellations. Copilot Wayne W. Lowe, age 46, who made the approach from the left pilot seat, had a total of 19,000 hours of which 1,211 hours had been in L-1049H Constellations.