File No. 1-0002

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: April 8, 1963 Released: April 10, 1963

THE FLYING TIGER LINE INC., LOCKHEED SUPER CONSTELLATION 1049H
N 6921C, BETWEEN GUAM AND THE PHILIPPINE ISLANDS,
MARCH 15, 1962

SYNOPSIS

On March 15, 1962, sometime after its last position report at 1422 G.m.t. (22 minutes past midnight, local time), a Flying Tiger Line Inc., Lockheed 1049H, N 6921C, operated as Military Air Transport Service Flight 739/14, disappeared west of the position 13°14' North Latitude and 140°00' East Longitude en route from Agana Naval Air Station, Guam, to Clark Air Force Base, Philippine Islands.

A widespread and intensive search was initiated after the aircraft failed to arrive at Clark Air Force Base at 1916 G.m.t., its estimated time of arrival. The flight was officially declared missing at 2227 G.m.t. which was the estimated fuel exhaustion time for the aircraft. All occupants, 96 military passengers and a crew of 11, are missing and presumed dead.

Crew members of a surface vessel witnessed what appeared to have been a midair explosion at 1530 G.m.t., near the position and at the time estimated by the pilot of N 6921C for his next scheduled position report.

No wreckage or debris which could be definitely associated with the aircraft has been found.

The Board is unable to determine the probable cause of this accident from the evidence now available.

Investigation

Flying Tiger Line (FTL) Flight 7815/13, operating as Military Air Transport Service (MATS) Charter Flight 739/14, was a Lockheed Super Constellation, model 1049H, U. S. Registry N 6921C. The flight originated at Travis Air Force Base, Fairfield-Suisun, California, with refueling stops scheduled at Honolulu, Wake Island, Guam, Philippine Islands, and was to terminate at Saigon, Viet-Nam.

It departed Travis Air Force Base at 0545 [1], on March 14, 1962, with 96 military passengers and a multiple-crew [2] of 11 under the command of Captain Gregory P. Thomas. The remaining crew members were: First Officer Robert J. Wish, Second Officer Robbie J. Gayzaway, Flight Engineer George M. Nau, Flight Engineer Clayton E. McClellan, Navigator William T. Kennedy, Navigator Grady R. Burt, Jr., Stewardesses Shirley Bolo, Diane Hernandez, Joyce Osland, and Joan Lambrose. The four stewardesses were replaced at Wake Island by Stewardesses Patricia Wassum, Hildegarde Muller, Barbara Wamsley, and Christel Reiter.

The loading and departure [3] of the aircraft at Travis Air Force Base were conducted normally and in accordance with MATS and FTL operating procedures.

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

2/ The flight crew consisted of three pilots, two flight engineers, two navigators, and four stewardesses.

3/ The actual departure and arrival times at the en route stops are as follows:

Arrived	Station	Departed
14/0308	Travis AFB	14/0545
14/1744	Honolulu	14/2040
15/0354	Wake Island	15/0515
15/1114	Guam	15/1257

There was no maintenance required or performed on the aircraft. No cargo was boarded other than passenger baggage which consisted of personal articles, clothing, etc. Ninety-three of the 96 passengers were members of the U. S. Army, mainly highly trained electronics and communications specialists; the other three were members of the Armed Forces of Viet-Nam.

The military personnel had been briefed at their home stations and again before boarding the aircraft, regarding regulations concerning materials which are prohibited from being carried on board a MATS charter aircraft, i.e., lighter fluid, flashbulbs, loaded weapons, etc. As far as can be determined, all of these regulations had been complied with. A subsequent security check of all passengers, including the foreign nationals, was completed by the U. S. Army Security Service. This disclosed no suspect areas.

The aircraft arrived in Honolulu at 1744 after a routine flight of about 12 hours. Minor maintenance was required on the ignition systems of engines No. 1 (cylinder No. 18) and No. 3 (cylinder No. 6) which consisted of replacing several coils, leads, and plugs. At the request of the flight engineer, a check was made of the air conditioning system. The ducting was disconnected and the expansion turbine was checked for freedom of rotation. No discrepancy of this system was noted and there were no reports at the two subsequent stops that would have indicated any further difficulty.

The departure of the aircraft from Honolulu was delayed for 30 minutes because of complaints by the stewardesses concerning inadequate crew rest facilities aboard N 6921C. Board investigators interviewed the four

stewardesses who had attended the flight from San Francisco to Wake Island. It was learned that the aircraft contained one single bunk and one double bunk forward of the passenger compartment. Under normal conditions there are two pilots on duty in the cockpit and one off duty, with a single bunk available for his use. The double bunk is for the use of the off-duty navigator and the off-duty engineer. Additionally, there should have been two passenger seats reserved for the use of the stewardesses during the flight. However, on this flight there was only one seat provided, and when the aircraft arrived in Honolulu the senior stewardess protested. After a conference with the captain, FTL, and MATS officials, a mattress was placed on the deck under the lower bunk for the use of the stewardesses. Access to this mattress was through a small opening of approximately 18 by 24 inches.

The aircraft departed Honolulu at 2040 and arrived at Wake Island at 0354 (March 15). Minor maintenance was again required to correct discrepancies noted in the ignition systems of cylinders No. 2, No. 15, and No. 18 on the No. 1 engine and cylinder No. 4 on the No. 3 engine. This also consisted of replacing several coils, leads, and spark plugs. The aircraft was then serviced and departed for Guam at 0515.

It arrived in Guam at 1114 after a routine flight of approximately six hours. During the ground time of 1 hour and 33 minutes, the aircraft was serviced to a total of 25,552 pounds of 115/145 octane gasoline, symmetrically distributed in the four main and two auxiliary fuel tanks. Takeoff gross weight was calculated to be 132,554 pounds, which was well below the maximum allowable gross weight of 141,845 pounds, and was within the prescribed center of gravity limits of the aircraft. There were no mechanical discrepancies reported and no maintenance was required.

Preparations for the next leg of the flight were completed by the crew in a routine manner. This included filing an Instrument Flight Rules (IFR) flight plan to Clark Air Force Base, Philippine Islands, via a rhumb-line course to Jomalig, Green Airway 9 to Antipolo, Amber Airway 1 to San Fernando, direct to Clark Air Force Base, at a cruising altitude of 10,000 feet and a true airspeed of 235 knots. The estimated time en route for this flight was 6 hours and 19 minutes, and the aircraft carried a total of 9 hours and 30 minutes fuel.

The en route weather forecast prepared for the flight by the U. S. Naval Air Station, Agana, Guam, indicated generally scattered to broken cumulus clouds with bases 1,800 to 2,500 feet with tops 7,000 to 10,000 feet; broken to overcast cirrus clouds, bases at 27,000 to 30,000 feet, and visibility 15 miles. The only anticipated exception to the above conditions was over that portion of the route from 135°00' to 129°00' East Longitudes, where conditions were expected to be broken to overcast cumulus, bases 1,000 feet, tops 8,000 to 13,000 feet; broken to overcast altocumulus, bases near 14,000 feet, tops near 18,000 feet; thin broken cirrus, bases 30,000 feet, and visibility 5 to 8 miles in moderate rain showers. The freezing level was forecasted to slope from near 16,000 feet at Guam to approximately 14,000 feet at Manila. Available inflight weather reports from aircraft transiting the proposed flight route did not indicate any turbulence. The forecast prepared for the flight did not anticipate any significant turbulence at the planned cruising altitude.

The flight was issued an IFR clearance in accordance with its flight plan and departed Guam at 1257. Shortly after takeoff, radar contact with the aircraft was established by Guam Air Route Traffic Control Center. At

1304, N 6921C contacted Guam International Flight Service Station (IFSS) on 126.7 mcs., and requested that a departure message be relayed to the FTL offices in Burbank, California, Pan American Airways (PAA) Manila, and PAA Hong Kong. At approximately 1325, the flight again contacted Guam IFSS and requested a change in cruising altitude from 10,000 feet to 18,000 feet. The pilot did not give any reason for this request. He was advised to contact Guam Center on 118.5 mcs. Upon contacting Guam Center the flight was authorized to climb to and maintain 18,000 feet. At 1328, N 6921C advised Guam Center of climbing through 11,000 feet and estimated position 140°00' East Longitude at 1421. At this time Guam Center advised the flight that it was 100 miles west of Guam and that radar services were being terminated. At 1333 the flight reported to Guam IFSS on 126.7 mcs., advised them of its position 100 miles out at an altitude of 18,000 feet and repeated the 140°00' East Longitude estimate. This report was acknowledged by Guam IFSS, and the flight was then assigned the primary en route frequency of 8862.5 kcs. and a secondary frequency of 2966 kcs.

At 1422 the flight contacted Guam IFSS on 8862.5 kcs. and reported being at position 13°40' North and 140°00' East at 1416, cruising at 18,000 feet on top, and estimated position 14°00' North, 135°00' East at 1530. It further estimated Clark Air Force Base at 1916 and stated that it had 8 hours and 12 minutes of fuel remaining. This was the last radio transmission received from N 6921C. No indication of any difficulty was given in this or any of the previous messages.

At 1533, Guam IFSS was experiencing communication difficulties caused by heavy radio static while copying the 140°00' East Longitude position of U. S. Overseas Flight 400 which was en route from Guam to Okinawa. At 1539, after completing this radio contact, the operator attempted to contact N 6921C to obtain its 1530 position report. Despite numerous attempts, radio contact could not be established. At 1600, Guam Center declared the flight to be in uncertainty phase (INCERFA) status. At 1633 the flight was placed in alert phase (ALERFA) status, and at 1943 it was changed to distress phase (DETRESFA) status. Continuous attempts by all stations and aircraft in the area to contact the flight were unsuccessful.

Search and rescue operations were instituted at 1943 by the Joint Rescue Coordination Center, Agana Naval Air Station, Guam, in conjunction with Clark Joint Air Rescue Center, Clark Air Force Base, Philippine Islands. At 2227, the aircraft's fuel exhaustion time, Flight 739/14 was officially declared lost.

At 2105, on March 15, 1962, a message was received by Mackay Radio in Manila from the S/S T. L. Lenzen, a super tanker owned by Standard Oil of California, under Liberian registration, and manned by an Italian crew. The message stated that at 1530 (1-1/2 hours past midnight, local time) she had sighted a midair explosion from her position at 13°44' North and 134°49' East, and had searched the area for approximately 5-1/2 hours. Unable to contact U. S. Navy radio stations at Manila or Guam prior to this time, she then assumed the explosion must have been the result of military or naval exercises and resumed the original course.

It was established, upon interrogation of five of the crew members, that shipboard lookouts had observed a midair explosion at the approximate position and time when N 6921C was expected to reach 14°00' North and 135°00' East. It was recalled that a vapor trail, or some phenomenon resembling a vapor trail, was first observed overhead and slightly to the north of the tanker and moving in an east to west direction. The Lenzen was cruising on a heading of 077° at this time. As this vapor trail passed behind a cloud, there occurred an explosion which was described by the witnesses as intensely luminous, with a white nucleus surrounded by a reddish-orange periphery with radial lines of identically colored light. The explosion occurred in two pulses lasting between two and three seconds and from it two flaming objects of unequal brightness and size apparently fell, at disparate speeds, into the sea. During the last 10 seconds of the fall of the slower of the two objects, a small bright target was observed on the ship's radar bearing 270°, range 17 miles.

The captain of the Lenzen stated that he arrived on deck in time to observe the fall of the slower object for approximately 10 seconds before it disappeared from view. He estimated its position in reference to a star and ordered the ship's course reversed and, after aligning the heading of the vessel with the star, found his heading to be 270° - the same as the bearing of the target previously seen on the radar. The captain reported that the weather at this time was: "moonlight, clear atmosphere, 1/4 covered sky by small cumulus evenly distributed." The ship proceeded to the position of the radar target

and searched the area until 2105 at which time the original course was resumed. No signals or unusual sightings were reported.

The subsequent search, one of the most extensive ever conducted in the history of aviation, covered 144,000 square miles and utilized 1,300 people, 48 aircraft, and 8 surface vessels. A total of 377 air sorties were flown which involved over 3,417 flying hours. Despite the thoroughness of the search, nothing was found which could conceivably be linked to the missing aircraft or its occupants.

The aircraft's emergency equipment included: five 25-man liferafts, 120 lifevests, 1 emergency transmitter (Gibson Girl), and 1 flare gun with 25 cartridges. Four of the liferafts were stored in the wing compartments; the other was carried in the main cabin.

The historical, maintenance and inspection records of the aircraft were examined. It was found that N 6921C was properly certificated and in an airworthy condition; that all inspections had been performed within the approved time limitations; and all Airworthiness Directives had been complied with.

Records did indicate that on the previous flight from Honolulu to Travis Air Force Base on March 12, 1962, the aircraft had returned to Honolulu with the No. 4 engine propeller feathered. This was due to a significant power loss, a drop of 19.21 BMEP on that engine, which occurred after 3 hours and 27 minutes of flight. The coils, plugs, leads, and Y lead were replaced on the No. 17 cylinder of the No. 4 engine in Honolulu, and the flight then continued on to Travis Air Force Base without incident. The flight crew who

had flown N 6921C on this flight, when interviewed by Board investigators, stated that there were no indications of impending failure in any of the aircraft systems, structures, or engines and that the aircraft appeared to be airworthy in all respects at that time.

On March 13, 1962, prior to the departure of Flight 739/14, a terminal check was conducted on N 6921C at the FTL maintenance base, San Francisco International Airport. The records indicated that the aircraft departed San Francisco for Travis Air Force Base in an airworthy condition.

Flight line and ramp areas of the en route airports used by N 6921C at Honolulu, Wake Island, and Guam were examined by Board investigators. It was found that access to these areas and to non-military aircraft parked therein was possible, without challenge, to anyone desiring entry. It was reported that the aircraft was left unattended in a dimly lighted area for a period of time while at Guam.

Analysis

A review of all records pertaining to the aircraft and crew as well as a complete evaluation of the circumstances surrounding the disappearance of the aircraft produced the following significant findings: N 6921C was airworthy; the crew was qualified and currently certificated; the flight was operated in accordance with company procedures except that there was a lack of adequate crew rest facilities on the aircraft; minor maintenance was performed on the aircraft at Honolulu and at Wake Island, and no maintenance was required at Guam; there were no emergency messages received from N 6921C; a midair explosion, witnessed by crew members of the tanker S/S T. L. Lenzen, occurred at an approximate time and location which

coincided with the estimated position of the aircraft; weather was not a factor in the disappearance; and no wreckage or debris was found that could be associated with the aircraft.

Because no portion of the structure of N 6921C has been recovered, it is impossible to determine whether a mechanical/structural failure, or sabotage, occurred in flight. If such a failure did occur it can be reasonably assumed that it happened suddenly and without warning to the crew. The last message received from Flight 739/14, a regularly scheduled position report, indicated that it was cruising normally at an altitude of 18,000 feet; the message gave no indication of any existing or impending difficulty. It appears to be more than coincidence that the explosion witnessed by crew members of the Lenzen occurred near the position and at the time estimated by the aircraft's crew for their next position report. It is, therefore, the opinion of the Board that this witnessed phenomenon was most likely N 6921C in the process of demolishment.

A summation of all relevant factors tends to indicate that the aircraft was destroyed in flight. However, due to the lack of any substantiating evidence the Board is unable to state with any degree of certainty the exact fate of N 6921C.

Probable Cause

The Board is unable to determine the probable cause of this accident from the evidence now available.

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 unreported aircraft at approximately 2200 G.m.t., March 15, 1962. An investigation was immediately initiated in accordance with the provisions of Title VII of the Federal Aviation Act of 1958.

Air 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 holds 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

N 6921C, a Lockheed 1049H, Super Constellation, serial No. 4817 was owned and operated by The Flying Tiger Line Inc., and was currently certificat by the Federal Aviation Agency. It was manufactured on May 19, 1957, and had a total of 17,224 flying hours. The aircraft was equipped with four Wright 988TC18-EA 3 engines, and four Hamilton Standard 43H60-363 propellers.

The No. 1 engine had a total of 10,474 hours, with 1,531 hours since overhaul. The No. 2 engine had a total of 8,384 hours, with 1,074 hours since overhaul. The No. 3 engine had a total of 9,928 hours, with 706 hours since overhaul. The No. 4 engine had a total of 9,758 hours, with 102 hours since overhaul.

As far as can be determined at this time, the aircraft, engines, and propellers had been maintained as prescribed and were within their time limitations.

The date of the last major airframe overhaul was October 5, 1959, and the last major check was performed on February 17, 1962.

Flight Personnel

Captain Gregory P. Thomas, age 48, was employed by The Flying Tiger Line Inc., on July 7, 1950. He held a valid airline transport pilot certificate with ratings for DC-3, DC-4, DC-6, DC-7, 1049H, and C-46 aircraft. Captain Thomas had a total of 19,500 flying hours, of which 3,562 were in Lockheed 1049H aircraft and had approximately 254 hours of flight time in the last 90 days. His last proficiency check in the 1049H was dated December 19, 1961. Captain Thomas held a first-class medical certificate, with no limitations, dated January 4, 1962.

First Officer Robert J. Wish, age 48, was employed by The Flying Tiger Line Inc., on January 25, 1951. He held a valid airline transport pilot certificate with ratings for C-46, DC-4, and 1049H aircraft. First Officer Wish had a total of 17,500 flying hours, of which 3,374 were in Lockheed 1049H aircraft. He held a first-class medical certificate, with no limitations, dated December 21, 1961. His last proficiency check in the 1049H was dated November 30, 1961.

Second Officer Robbie J. Gayzaway, age 39, was employed by The Flying Tiger Line Inc., on January 7, 1953. He held a valid airline transport pilot certificate with a 1049H rating. Second Officer Gayzaway had a total of 5,500 flying hours, of which 900 were in 1049H aircraft. He had flown approximately 139 hours in the last 90 days. His first-class medical certificate, with no limitations, was dated June 12, 1961.

George M. Nau, Flight Engineer, age 38, was employed by The Flying Tiger Line Inc., on December 15, 1956. He had approximately 1,235 flight engineer hours in 1049H aircraft and satisfactorily passed his last proficiency check on January 25, 1962. He held a valid FAA flight engineer's certificate, No. 1370717. His second-class medical certificate, with no limitations, was dated April 27, 1961.

Clayton E. McClellan, Flight Engineer, age 33, was employed by The Flying Tiger Line Inc., on April 4, 1960. He had approximately 1,090 flight engineer hours in 1049H aircraft and satisfactorily passed his last proficiency check on August 4, 1961. He held a valid FAA flight engineer's certificate, No. 1393016. His second-class medical certificate, with no limitations, was dated October 5, 1961.

William T. Kennedy, Navigator, age 45, was employed by The Flying Tiger Line Inc., on February 13, 1962. He held valid navigator and radio telephone licenses. His last proficiency check as a navigator was on February 18, 1962. Mr. Kennedy passed a second-class medical examination on August 21, 1961.

Grady R. Burt, Jr., Navigator, age 35, was employed by The Flying Tiger Line Inc., on February 14, 1962. He held valid navigator and radio telephone

licenses. His last proficiency check as a navigator was on February 17, 1962, and he passed a second-class medical examination, with no limitations, on June 23, 1961. Cabin attendants assigned to the crew consisted of Stewardesses Patricia Wassum, Hildegarde Muller, Barbara Jean Wamsley, and Christel Diana Reiter. All boarded the flight at Wake Island after relieving the stewardesses who attended the flight from San Francisco. An examination of company records indicated they all had completed training courses in L-1049H emergency equipment and ditching procedures.