



National Transportation Safety Board Aviation Accident Final Report

Location:	MARIANNA, FL	Accident Number:	MIA00FA129
Date & Time:	04/05/2000, 0930 CDT	Registration:	N86BE
Aircraft:	LEARJET 35A	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	3 Fatal

Flight Conducted Under: Part 91: General Aviation - Instructional

Analysis

The pilot canceled the IFR flight plan as the aircraft crossed the VOR and reported the airport in site. The last radio contact with Air Traffic Control was at 0935:16. The crew did not report any problems before or during the accident flight. The distance from the VOR to the airport was 4 nautical miles. Witnesses saw the airplane enter right traffic at a low altitude, for a landing on runway 36, then turn right from base leg to final, less than a 1/2-mile from the approach end of the runway. Witnesses saw the airplane pitch up nose high, and the right wing dropped. The airplane then struck trees west of the runway, struck wires, caught fire, and impacted on a hard surface road. This was a training flight for the left seat pilot to retake a Learjet type rating check ride he had failed on March 24, 2000. He failed the check ride, because while performing an ILS approach in which he was given a simulated engine failure, and he was transitioning from instruments to VFR, he allowed the airspeed to decrease to a point below Vref [landing approach speed]. According to the company's training manual, "...if a crewmember fails to meet any of the qualification requirements because of a lack in flight proficiency, the crewmember must be returned to training status. After additional or re-training, an instructor recommendation is required for reaccomplishing the unsatisfactory qualification requirements." The accident flight was dispatched by the company as a training flight. On the accident flight a company check airman was in the right seat, and the check ride was set up for 0800, April 5, 2000. The flight arrived an hour and a half late. The left seat pilot's, and the company's flight records did not indicate any training flights, or any other type of flights, for the pilot from March 24, 2000, the date of the failed check flight, and the accident flight on April 5, 2000. The accident flight was the first flight that the left seat pilot was to receive retraining, and was the only opportunity for him to demonstrate the phase of flight that he was unsuccessful at during the check flight on March 24th. Examination of the airframe and engine did not reveal any discrepancies.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain control of the airplane while on final approach resulting in the airplane striking trees. Factors in this accident were: improper planning of the approach, and

not obtaining the proper alignment with the runway.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings

1. (F) PLANNED APPROACH - IMPROPER - PILOT IN COMMAND
2. (F) PROPER ALIGNMENT - NOT OBTAINED - PILOT IN COMMAND
3. PRESSURE INDUCED BY CONDITIONS/EVENTS - DUAL STUDENT
4. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
5. IMPROPER TRANSITION/UPGRADE TRAINING - DUAL STUDENT
6. OBJECT - TREE(S)
7. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On April 5, 2000, at 0937 central daylight time a Learjet 35A, N86BE, operated by Bankair Inc., operating as a 14 CFR Part 91 training flight, crashed in the vicinity of Marianna, Florida. Visual meteorological conditions prevailed and an IFR flight plan was filed. The airplane was destroyed. The crew of two pilots and one passenger/pilot were fatally injured. The airplane initially departed from Opa Locka, Florida, at 0940 eastern daylight time, on the day of the accident.

The purpose of this flight was for the commercial-rated pilot in the left seat to retake a Learjet type rating check ride he had failed on March 24, 2000. The airline transport-rated pilot in the right seat was a company check airman, and the commercial-rated pilot in the jump seat had no access to the controls.

An employee at Chipola Aviation, where the check was to have been given, stated that, "...he set up an appointment for Bankair Inc. to have a check ride for [0800], April 5, 2000...on that date at approximately [0830] I realized that they had not arrived as yet...[I called] Bankair Inc. and ask[ed] what time their aircraft had left and what time it was expected here...a man (unknown)...said that they were running about an hour and a half late."

When the flight arrived in the Marianna area the pilot canceled the IFR flight plan as the aircraft crossed the Marianna VOR and reported the airport in site. The last radio contact between N86BE and Cairns Army Radar Approach Control (ARAC) was at 0935:16. The crew did not report any problems before or during the accident flight. The distance from the VOR to the airport was 4 nautical miles.

Several witnesses saw the airplane enter right traffic at a low altitude, for a landing on runway 36. The airplane was seen in a right turn from base leg to final, less than a 1/2-mile from the approach end of the runway. Witnesses saw the airplane pitch up nose high, the right wing dropped, and the airplane struck trees right wing low. The trees were located to the left (west) of centerline runway 36. The airplane traveled through the trees, struck wires, caught fire, and came to rest on a hard surface road.

Witnesses in the area stated that they saw the airplane fly past runway 36 centerline, below the tree line west of the runway, and then observed the airplane right wing low, as if it was attempting to realign with the runway, and than impact the trees with the right wing. Other descriptions from witnesses had the airplane low and fast.

The accident occurred during the hours of daylight about 01 degrees, 29 minutes north, and 075 degrees, 32 minutes west.

PERSONNEL INFORMATION

The pilot-in-command (right seat), age 38, was employed by Bankair in April 1994. He held an airline transport pilot certificate for airplane multi-engine land, type rated in the Learjet, with commercial privileges for airplane single-engine land. He held a flight instructor certificate with ratings for airplane single-engine, multi-engine, and instrument-airplane. He was FAA approved and designated a company check airman on July 15, 1997 for the LR-25B, LR-35A, and the LR-25D. His most recent Federal Aviation Administration (FAA) first-class medical certificate was issued on March 16, 2000, with no limitations. On January 12, 2000,

he satisfied the training and proficiency check ride requirements for pilot-in-command (PIC) in the Mitsubishi MU-2-30, 35, 36, and 60.

According to company records, the PIC had accrued 11,831 flight hours at the time of the accident, of which 4,356 hours were in the Learjet, and 4,137 hours were as PIC in the Learjet. In addition, he recorded 194 hours in the last 90 days, 71 hours in the last 30 days, and 1 hour in the last 24 hours. His last proficiency check on the Learjet was July 7, 1999.

The left seat pilot, age 31, was employed by Bankair in November 1999. He held a commercial pilot certificate with ratings for airplane single-engine land, multi-engine land, and instrument-airplane. He held a flight instructor certificate with ratings for airplane single-engine, multi-engine, and instrument-airplane. His most recent FAA first-class medical certificate was issued on September 30, 1999, with no limitations.

According to company records, the left seat pilot had accrued 1,776 flight hours at the time of the accident, of which 343 hours were as second-in-command in the Learjet. In addition, he recorded 48 hours in the last 90 days, 21 hours in the last 30 days, and 1 hour in the last 24 hours.

Training records revealed that the company provided two training flights for a total time of 2.4 hours on March 21 and 22, 2000, in preparation for the pilot's Learjet type-rating check flight on March 24. His last proficiency check was on the Learjet on November 10, 1999.

On March 24, 2000, the left seat pilot, was given a Learjet type rating check flight, that he did not successfully complete. The check pilot at Chipola Aviation, at the request of the NTSB investigator-in-charge (IIC) wrote the following account of the flight. "...I was conducting a Learjet check ride for [the left seat pilot] which was the applicant...the next approach was the ILS in which I gave a single [engine] during the approach in which all was normal until short final when he was transitioning from instrument to VFR. The applicant lowered the full flaps. At this point the airspeed began to decrease to the point of Vref ["Landing approach speed," or the indicated airspeed that the aircraft should be at 50 feet above the landing area in the landing configuration] minus. The airspeed should have been close to Vref plus 20. Acting as copilot I was calling out that the airspeed was low, and that he needed to add power. There was no correction until the airspeed was below Vref...the applicant attempted to correct the airspeed with pitch instead of power, which would have been the correct way. By lowering the nose this set up a high rate of decent. This is very difficult to correct in a Learjet. The aircraft was somewhere less than 300 feet agl. I took the controls, added full power and was able to stop the decent prior to touchdown. At the bottom of the decent I got a slight stick shaker. The applicant reverted back to his single engine days when you used pitch to correct airspeed...at this time I discontinued the flight check...I explained to him and his instructor what he did, why he did this and how to correct it..."

According to Bankair's training manual, page A-8, under Programmed Flight Training Hours-Reduction, the third sentence states, "...if a crewmember fails to meet any of the qualification requirements because of a lack in flight proficiency, the crewmember must be returned to training status. After additional or re-training, an instructor recommendation is required for reaccomplishing the unsatisfactory qualification requirements."

The accident flight was dispatched by Bankair as a training flight. The left seat pilot's, and Bankair's flight records did not indicate any training flights, or any other type of flights, for the pilot from March 24, 2000, the date of the failed check flight, and the accident flight on

April 5, 2000.

There was a memo for record in the left seat pilot's records that stated, "...3-24-00 did not successfully complete first attempt at type ride...retraining scheduled...retesting scheduled for 4-4-00." Since the flight from Opa Locka to Marianna was dispatched as a training flight, with the company check pilot in the right seat, this flight was considered the left seat pilot's retraining flight. In addition, the reason the left seat pilot was unsuccessful on the check ride March 24th, was that on short final he used pitch not power to bring the airspeed up to Vref. The flight into Marianna was the first approach that the left seat pilot would have had an opportunity to receive retraining, and the only opportunity to demonstrate the phase of flight that he was unsuccessful at during the check flight on March 24. There was no record found to indicate that the left seat pilot received an instructors recommendation before the accident flight.

AIRCRAFT INFORMATION

The aircraft total time at the accident was 13,262.3 hours. The last inspection was on February 10, 2000, and the total time at that inspection was 12,885 hours.

The airframe inspection history showed that on February 10, 2000, the 300 hour, 600 hour, 1200 hour, and 2400 hour inspections were completed. On June 6, 1997 the 12 year and 12,000 hour inspection were completed. The inspections were performed in accordance with Bankair's approved maintenance program.

The engine inspection history revealed that the left engine, serial number: P74686 had under gone a 150-hour inspection at 13,236 hours. The 300 hour and 600 hour inspections were completed at 13,077.

The engine inspection history revealed that the right engine, serial number: P89263 had under gone a 150-hour inspection at 13,236 hours. The 300 hour and 600 hour inspections were completed at 13,077.

Both Aeronca Thrust Reversers had under gone a 150-hour inspection at 13,236 hours. The 300 and 600-hour inspections were completed at 13,077 hours.

METEOROLOGICAL INFORMATION

The reported weather at Marianna at 0853 was; clear skies, visibility 10 sm, winds were from 070 degrees at 5 knots, temperature 54 degrees F, dew point 32 degrees F, and the altimeter was 30.26 inches Hg.

MEDICAL AND PATHOLOGICAL INFORMATION

Dr. Marie Hermann performed autopsies on both pilots, at the Medical Examiners Office, Panama City, Florida, on April 6, 2000. According to the autopsy reports the cause of death on both pilots was "multiple blunt impact injuries."

Toxicological tests were conducted at the Federal Aviation Administration, Research Laboratory, Oklahoma City, Oklahoma, and revealed, "No ethanol detected in Vitreous...no drugs detected in Blood."

WRECKAGE INFORMATION

The airplane crashed 1.25 nautical miles southwest of the approach end of runway 36, coming to rest on a road parallel to runway 36. The path through the trees and wreckage along

the road was on an approximate heading of 345 degrees magnetic. Portions of the wing and stabilizer were found on the ground below the trees. The first ground impact point was 760 feet from the initial impact with the treetops and on the upward slope of a stream bank. Impact marks indicated that the right wing had impacted the ground at this point forcing the nose section into the ground. The aircraft struck a wire. A portion of the wire was found wedged between the right tip tank and the right outboard wing section on the aft side. The aircraft continued on a heading of about 345 degrees breaking apart until it came to rest, with the nose of the airplane heading about 150 degrees, 1,241 feet from the initial tree impact point.

Examination of the airframe and cockpit revealed that they were both heavily fire damaged. The top portion of the cockpit separated and was found before the main wreckage of the aircraft fuselage. The upper portion of the fuselage and the cockpit forward of approximately frame 22 were destroyed. The engines were still attached to the pylons and fuselage. The wing was still attached to the fuselage, but had rotated to the left. There was no evidence found to indicate any pre-impact fire.

The right wing tip tank and extension separated from the right wing at approximately Wing Station (WS) 125 and both were found near the initial ground impact point.

The center and aft portions of the left wing tip tank remained attached to the left wing. Tree impact damage was observed on the vertical stabilizer. The horizontal stabilizer remained attached to the vertical stabilizer.

All flight controls were accounted for at the accident scene. The horizontal stabilizer trim position was measured at minus 6.37 degrees. The horizontal stabilizer actuator tolerance was minus 8.5 degrees to minus 1.9 degrees. Based on the estimated airplane weight of 15,271 pounds, 16.35 percent MAC C.G., and flaps at 40 degrees, the recorded stabilizer position equated to an approximate trimmed speed of 145 knots.

Both spoiler actuators were in the down and locked position when examined. The spoiler switch on the quadrant was found in the "Extend" position. The right spoiler actuator measured " 0.8 inch, which equated to the retracted position.

The left flap was destroyed in the post-crash fire. However, a measurement was taken of the remaining structure and indicated about 14.5 degrees down. The right flap was broken loose from the right wing after the right wing had impacted the ground. The right flap actuator was measured at 5.2 inches, which equated to about 14 degrees extension. The flap indicator case was crushed trapping the indicator needle at about 20 degrees. The flap actuators had no internal locking mechanism. A compromised flap hydraulic system can allow the flaps to move from their last selected position. The damage on the lower surface of the flaps suggested they were extended about 20 degrees or more at impact. The flap selector handle was bent and in the full down position.

The left and right ailerons were destroyed by post-crash fire, and the aileron trim actuator was retained for additional examination in an attempt to determine position.

Both elevators were still attached to the horizontal stabilizer with damage to the leading edges.

The rudder trim measured 0.45 inch from centerline of the trim tab to centerline of the rudder. This measurement equated to about 5 degrees left rudder trim. The rudder trim travel and tab tolerance was 15 degrees, plus or minus 1 degree.

Throttle quadrant as found in the wreckage revealed that the left throttle was forward and the right throttle was aft. The left throttle was near the full forward position. The right throttle was just above idle. A disassembly of the throttle quadrant was accomplished.

The throttle quadrant faceplate was removed and the outboard surface of the cutout, in the faceplate, for the left throttle had a scrape mark with a portion of metal peeled back. The outboard surface of the faceplate cutout for the right throttle had a scrape mark running from the forward portion of the quadrant to the aft portion. This scrape mark became heavier toward the aft portion of the quadrant. There was a slight indentation in the outboard surface in this area.

The landing gear selector switch was noted to be in the down position. The landing gear were inspected and the following items were noted:

The left-hand landing gear door was located about 474 feet from the beginning of the accident sequence.

The left main gear was torn from the airplane and was the first landing gear found along the wreckage path about 728 feet.

The nose gear tire and strut were also torn from the aircraft about 1,000 feet from initial tree impact.

The right main gear was torn from the airplane and found beyond the main wreckage of the aircraft about 1330 feet from initial tree impact.

Examination of the fuel system revealed that the left tip tank flapper valves were still in position, and the right tip tank flapper valves were destroyed by fire. There were four flapper valves total with two in each tip tank.

TEST AND RESEARCH

Under the direction of the NTSB, the aileron trim actuator was shipped to Learjet's facility for examination in Wichita, Kansas. Examination of the aileron trim actuator revealed the trimmed position at the time of the accident was about 1.32 degrees left wing down. The aileron trim range was plus or minus 8 degrees.

The teardown and inspection of the two Honeywell Model TFE731-2-2B engines, Serial Number P-75686C (left) and Serial Number P-89263 (Right), was conducted at the Honeywell Product Safety and Integrity Investigation Laboratory in Phoenix, Arizona, on May 16, 2000. The inspection was conducted at the request of, and under the supervision of, the National Transportation Safety Board.

The teardown and examination of the engines disclosed that the type and degree of damage to both engines was indicative of engine operation and rotation at impact. No pre-impact conditions or discrepancies were found which would have interfered with the operation of either engine. (See Honeywell's factual teardown report, an attachment to this report).

The fuel controls were tested at the Honeywell Product Safety and Integrity Investigation Laboratory in Phoenix, Arizona, on May 18, 2000. No discrepancies were found on the right fuel control. The left fuel control revealed that it was over limits on one test sequence, and for a low speed, during manual mode testing. It was determined and verified that the values were not significant and would not have negatively impacted engine operations (See Honeywell Product Safety and Integrity Investigation Laboratory's report an attachment

to this report.)

ADDITIONAL INFORMATION

Calculations of the airplane's performance based on the estimated airplane weight of 15,271 pounds, the Vref speed was about 128 KIAS (knots indicated airspeed). (Ref: AFM FM-102, Page 5-72). The airspeed bugs were found at 121 and 124.

The stall speed for a 30-degree banked coordinated turn at 15,000 pounds with 40-degree flaps was about 106 KIAS. The stall speed for a 30-degree banked coordinated turn at 15,000 pounds with 20-degree flaps was about 112 KIAS. The stall speed for a 40-degree banked coordinated turn at 15,000 pounds with 40-degree flaps was about 112 KIAS. The stall speed for a 40-degree banked coordinated turn at 15,000 pounds with 20-degree flaps was about 118 KIAS. The stall speed for a 50-degree banked coordinated turn at 15,000 pounds with 40-degree flaps was about 122 KIAS. The stall speed for a 50-degree banked coordinated turn at 15,000 pounds with 20-degree flaps was about 128 KIAS. (Ref: AFM FM-102, Page 5-27).

The airplane was released to Mrs. Jeanne Cook, chief pilot/owner of Bankair Inc., on March 7, 2000. Both engines were released to Mr. Chris Cartwright, General Manager, Atlanta Air Salvage, at the request of the owner's Insurance Company, on June 16, 2000. Two ITT indicators were released to Mr. Chris Cartwright, General Manager, Atlanta Air Salvage, at the request of the owner's Insurance Company, on May 25, 2000. The flap indicator, N2 indicators, aileron trim actuator, fuel flow indicator, and RAM indicator, were released to Mr. Chris Cartwright, General Manager, Atlanta Air Salvage, at the request of the owner's Insurance Company, on June 16, 2000.

Pilot Information

Certificate:	Airline Transport; Flight Instructor	Age:	38, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	03/16/2000
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	01/05/2000
Flight Time:	11831 hours (Total, all aircraft), 1905 hours (Total, this make and model), 11562 hours (Pilot In Command, all aircraft), 194 hours (Last 90 days, all aircraft), 71 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Student Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	31, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	09/30/1999
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	LEARJET	Registration:	N86BE
Model/Series:	35A 35A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	194
Landing Gear Type:	Retractable - Tricycle	Seats:	3
Date/Type of Last Inspection:	02/10/2000, AAIP	Certified Max Gross Wt.:	13262 lbs
Time Since Last Inspection:	377 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	13262 Hours at time of accident	Engine Manufacturer:	Garrett
ELT:	Not installed	Engine Model/Series:	TFE-731-2-2B
Registered Owner:	BANKAIR INC.	Rated Power:	3500 lbs
Operator:	BANKAIR INC.	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:		Operator Designator Code:	BKAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MAI, 100 ft msl	Distance from Accident Site:	
Observation Time:	0953 CDT	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	70°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.26 inches Hg	Temperature/Dew Point:	12° C / 0° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	OPA-LOCKA, FL (OPF)	Type of Flight Plan Filed:	IFR
Destination:	MARIANNA, FL (MAI)	Type of Clearance:	IFR
Departure Time:	0930 EDT	Type of Airspace:	Class E

Airport Information

Airport:	MARIANNA MUNI (MAI)	Runway Surface Type:	Asphalt
Airport Elevation:	100 ft	Runway Surface Condition:	Dry
Runway Used:	36	IFR Approach:	Global Positioning System; VOR/DME; Visual
Runway Length/Width:	4896 ft / 100 ft	VFR Approach/Landing:	Full Stop

Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Fatal	Latitude, Longitude:	1.483333, -75.533333

Administrative Information

Investigator In Charge (IIC):	ALAN J YURMAN	Report Date:	01/02/2002
Additional Participating Persons:	WILLIAM H HATTAWAY; FAA; Birmingham, AL Phil Hensley; Honeywell; Phoenix, AR James W Tidball; LearJet; Wichita, KS		
Publish Date:	01/25/2011		
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).