Aviation Investigation Final Report

Location:	BOCA RATON, Florida	**Accident Number:**	MIA00FA190
Date & Time:	June 23, 2000, 11:41 Local	**Registration:**	N220JC
Aircraft:	Learjet 55	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The Learjet departed from an uncontrolled airport about 2 minutes before the accident on a on a VFR climb and was not talking to ATC. The Extra EA-300S departed VFR from a controlled airport and requested and received a frequency change from the control tower 2 minutes after departure. Review of radar data revealed that the Extra climbed to 2,500 feet on a heading of 346 degrees before descending to 2,400 at 1141:25. The Learjet was observed on radar in a right crosswind departure passing through 700 feet on a heading of 242 degrees at 1141:02. At 1141:16, the Learjet was at 1,400 feet heading 269. At 1141:30, the Extra is observed on radar at 2,400 feet, in a right turn heading 360 degrees. The Learjet is observed on radar at 1141:28 in a climbing left turn passing through 2,300 feet. The last radar return on both aircraft was at 1141:30.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The failure of the pilot's of both airplanes to maintain a visual lookout (while climbing and maneuvering) resulting in an in-flight collision and subsequent collision with residences and terrain.

Findings

Occurrence #1: MIDAIR COLLISION
Phase of Operation: CLIMB

Findings
1. (C) VISUAL LOOKOUT - NOT MAINTAINED - FLIGHTCREW
2. (C) VISUAL LOOKOUT - NOT MAINTAINED - PILOT OF OTHER AIRCRAFT

Occurrence #2: MIDAIR COLLISION
Phase of Operation: DESCENT - UNCONTROLLED

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
3. TERRAIN CONDITION - GROUND
4. OBJECT - RESIDENCE

Factual Information

HISTORY OF FLIGHT

On June 23, 2000, at about 1141 eastern daylight time, a Learjet 55, N220JC, registered to Universal Jet Aviation Inc., operating as a 14 CFR Part 91 repositioning flight, and a Extra Flugzeugbau GMBH, EA-300S, N300XS, registered to a private owner, operating as a 14 CFR Part 91 personal flight, experienced an in-flight collision about 2.5 nautical miles southwest of the Boca Raton Airport (BCT), Boca Raton, Florida. Visual meteorological conditions prevailed. An IFR flight plan had been filed for N220JC, but it had not been activated with air traffic control. No flight plan was filed for N300XS. Both airplanes were destroyed. The airline transport rated pilot-in-command (PIC), commercial pilot co-pilot (CP), and commercial pilot observer/passenger in N220JC was fatally injured. The commercial pilot in N300XS was fatally injured. N220JC departed BCT about 2 minutes before the accident, and N300XS departed Pompano Beach Airpark (PMP) Pompano Beach, Florida, about 4 minutes before the accident.

A witness located at the BCT airport stated the Learjet departed BCT at about 1135. The pilot made a right crosswind, followed by a 45-degree turn departing the traffic pattern. The witness observed a small airplane about 3 to 4 miles southwest of the airport at about 1,000 feet. All of a sudden he observed the small airplane start what appeared to be an evasive maneuver with a descending turn, and the Learjet collided with the smaller airplane, followed by an explosion.

Another witness stated he was at camp located south of Glades Road and north of Palmetto Park when he heard the sound of an airplane engine. He looked up to identify the plane since his father is always asking him what type of airplane is this, and observed a jet. He observed a propeller plane that appeared to be on the same approach path as the jet, but it appeared that they were at different altitudes, and he thought they would not hit each other. The jet was flying towards the southwest and the propeller plane was flying towards the northeast, but then he observed the left wing of the propeller plane collide with the left wing of the jet, and the propeller plane's wing started to break up. Flames shot out the back of the jet, there was a loud bang, and the jet turned into a giant fireball.

An additional witness located at the Boca West Country Club stated he observed a jet that appeared to have just departed the BCT airport. The airplane was in a climb at about 1,000 feet. He then observed a smaller airplane flying towards the northeast towards the Learjet. The smaller airplane appeared to collide with the left rear tail section of the Learjet. There was a little smoke right after the collision and the Learjet split in two pieces. The smaller airplane fell to the ground in pieces. The front section of the Learjet went down nose first, and fire was coming out of the rear of the separated fuselage, followed by an explosion. He also observed a parachute in the sky, and lost sight of the Learjet when it disappeared from view below the tree

line.

Review of radio communications between PMP tower and N300XS revealed N300XS departed PMP at 1537:40 (1137:40), and requested and received a frequency change at 1540:00. There was no other recorded conversation with N300XS. Review of N220JC cockpit voice recorder reveals that N220JC departed BCT at 1139:41. The end of the recording is at 1141:37. (For additional information see Pompano Beach ATCT transcript and NTSB Group Chairman Cockpit Voice Recorder Factual Report, an attachment to this report.)

Review of radar data revealed N220JC was off the ground at BCT at 1540:53. The airplane was observed to start a right crosswind departure at 1541:02, passing through 700 feet on a heading of 242 degrees. At 1541:16, N220JC was at 1,400 feet heading 269 degrees with a ground speed of 191 knots. N300XS was observed on radar at 1538:25 off of PMP at 1,000 feet on a heading of 045 degrees. At 1540:43, N300XS was at 2,400 feet heading 341 with a ground speed of 169 knots. At 1541:11, N300XS is at 2,500 feet heading 346 degrees with a ground speed of 171 knots. N300XS descends to 2,400 feet at 1541:25 on a heading of 342 degrees with a ground speed of 172 knots. At 1541:30, N300XS is observed on radar turning to the right on a heading of 360 degrees with a ground speed of 173 knots. N220JC is observed in a climbing left turn passing through 2,300 feet on a heading of 269 degrees with a 180-knot ground speed. The last radar return on both aircraft was at 1541:30.

PERSONNEL INFORMATION

The PIC of N220JC was hired by Universal Jet Aviation on June 3, 1999, as a contract pilot, and was promoted to the Director of Training and Chief Pilot on May 26, 2000. He held an airline transport pilot certificate with ratings and limitations for airplane single engine land, airplane multiengine land, instrument airplane issued on March 23, 2000. In addition, he held a flight instructor certificate with ratings and limitations for airplane single engine, multiengine, and instrument airplane on June 26, 1998. He held a first-class medical certificate issued on March 30, 2000, with no restrictions.

The CP of N220JC was hired by Universal Jet Aviation on November 19, 1999, as an IRS 1099 contract pilot. He held a commercial pilot certificate with ratings and limitations for airplane single engine land, airplane multiengine land, and instrument airplane issued on April 26, 1999. He was issued a second-class medical certificate on March 31, 2000, with no limitations.

The observer/passenger was hired by Universal Jet Aviation on April 21, 2000, as an IRS 1099 contract pilot, and was not performing any crewmember functions at the time of the accident. He held a commercial pilot certificate with ratings and limitations for airplane single engine land, multiengine land, and instrument airplane issued on January 24, 2000. He held a second-class medical certificate issued on January 7, 2000, with no restrictions.

The pilot of N300XS held a commercial pilot certificate with ratings and limitations for

airplane single engine land, multiengine land, and instrument airplane issued on June 29, 1975. In addition he held a flight instructor certificate with a rating for airplane single engine issued on March 12, 2000. He held a second-class medical certificate issued on March 8, 2000, with no restrictions. The pilot's logbook was not located. According to friends, the pilot kept his logbook in the airplane.

AIRCRAFT INFORMATION

N220JC is a Learjet model 55, serial No. 050, manufactured in 1982. The airplane is owned and operated by Universal Jet Aviation Inc., Boca Raton, Florida. The airplane was equipped with two Garrett TFE-731-3AR-2B engines. Available maintenance records indicate the last maintenance inspection was conducted on January 20, 2000. The airplane has flown 287 hours since the last inspection and has accumulated 8,557 total airframe hours. The maintenance records revealed compliance with all manufacture's Service Bulletins and FAA Airworthiness Directives.

N300XS is an Extra-Flugzeugbau GMBH model EA-300S, serial No. 05, manufactured in 1992. The airplane is owned and was operated by the deceased pilot. The airplane was equipped with a Lycoming AE10-540-L1B5 engine. A friend of the deceased pilot who is a qualified aircraft and power plant mechanic stated he performed the last annual inspection on N300XS on March 6, 2000. He further stated the aircraft logbooks were in the airplane at the time of the accident. The aircraft logbooks were not located. METEOROLOGICAL INFORMATION

The nearest weather reporting facility at the time of the accident was Palm Beach International Airport, West Palm Beach, Florida. The 1123 surface weather observation was: 25,000 scattered, visibility 10 miles, temperature 92 degrees Fahrenheit, dew point temperature 68 degrees Fahrenheit, wind variable at 5 knots, and altimeter 30.09 inHg. Visual meteorological conditions prevailed at the time of the accident.

FLIGHT RECORDERS

N220JC was equipped with a Fairchild model A100A cockpit voice recorder. The recorder was forwarded to the NTSB laboratory for analysis. The recording consisted of 4 channels of good quality audio information. (For additional information see NTSB Group Chairman Cockpit Voice Recorder Factual Report an attachment to this report.)

WRECKAGE AND IMPACT INFORMATION

The paint scheme of N220JC was white with blue stripes. The paint scheme of N300XS was red with thick white stripes and thin blue stripes. In addition, N300XS had red stars on the fuselage, wing, and horizontal stabilizer.

Examination of the crash site revealed N220JC and N300XS collided about 2.5 nautical

miles south west of BCT in the vicinity of Estancia West (gated community) located in Boca Raton, Florida, at latitude 26 degrees 48 minutes 443 seconds North, longitude 82 degrees 01 minutes 206 seconds West. The crash debris line was on a heading of 240-degrees magnetic, and extended about 1/2 mile. The engine assembly of 300XS was located near the edge of a lake located in the back yard of a residence at 7197 Encina Lane in Estancia West. Numerous composite components from N300XS were located in Estancia South (gated community) between 6878 and 6964 Giralda Circle. The right engine of N220JC was located in the front yard of 6964 Giralda Circle. Composite fragments from N300XS were located on the Boca Grove Plantation golf course (gated community) between the 15th and 14th hole. N220JC right engine inlet and the aft pressure bulkhead were located in the vicinity of the 14th green. A segment of N220JC fuselage roof from fuselage station 378 to fuselage station 401 was located next to the 14th hole adjacent to Mandarin Drive. The pilot of N300XS was located in front of a private residence located at 21144 Ormond Court. The tail section of N220JC separated at fuselage station 392.5 and was located in the vicinity of the 17th tee adjacent to 21198 Hamlin Drive. The rudder and tail wheel of N300XS was located underneath N200JC tail section. The left and right engine of N220JC had separated from the airplane. The right engine was located in the street in between private condominiums located at 7369, 7330, and 7883 Orange Wood Range. The left engine was located buried in the ground to the south of the 14th hole located across the street from 7369 Orange Wood Range. The cockpit/fuselage from fuselage station 40.77 to fuselage station 392.5 impacted the east side of a private condominium located at 7883 Orange Wood Range. The cockpit penetrated a 4 to 6 inch concrete roof of the auxiliary generator room. The airplane came to rest on a heading of 355 degrees magnetic, at latitude 26 degrees 48 minutes 443 seconds North, longitude 82 degrees 01 minutes 443 seconds West. The landing gear was in the retracted position and the flaps were extended 8 degrees. The left, right, and fuselage fuel tanks had ruptured and the fuselage sustained extensive fire damage.

The fuselage of N220JC separated into two sections. The nose of the airplane aft to fuselage station 392.5 with the left and right wings was located at the main wreckage site, and was severely damaged by ground impact forces and post-crash fire. The left wing's body fairing was found along the wreckage path. It is normally in three sections. The forward and mid section was recovered. There was red paint transfer marks with a conical edge, 11 inches wide and 16 inches long, on the forward section. There were longitudinal red paint marks on the middle portion with the heaviest concentration being 11 inches wide. The aft section of the airplane, from fuselage station 392.5 to the empennage, was found approximately 150 yards from the main wreckage. There were indications of an in-flight and post crash fire, i.e. puddle metal, blistered fuselage tank, and ground impact damage to the belly and left side. From fuselage station 426.28 and traveling aft to fuselage station 575.66 there was bare metal, paint discoloration, and sooting.

There were numerous pieces of the fuselage, which varied in size, which separated from N220JC, and were found along the crash debris line. The majority of these pieces had red paint transfer marks. One of the pieces contained stringer #11 and another contained stringer #8. The stringer locations put the pieces in the vicinity of the crown of the airplane. The width of

the red paint marks are approximately 9 inches to 10 inches. There was a lavatory panel that had red paint marks on the upper section along with sooting.

The aft pressure bulkhead (APB) separated into three sections. The largest section of the APB consisted of the right side and upper left side, except for a 12 inch by 6-inch section (second piece). The third section was the lower left side, which was 23 inches long by 21 inches wide. The rivet lines were pulled in tension, and there were red paint transfer marks. There was blue water (fluid utilized in the lavatory) on the pieces. The left side of the lower bulkhead was pushed aft 30 degrees. The top of the aft pressure bulkhead was pushed forward 30 degrees. The third section had blue and red paint transfer marks in the upper left corner, along with transverse scrape marks. The left side of this piece had a 24-inch wide section of the fuselage that was three frames long attached. In this location, between the APB and the first frame, this piece was crushed accordian style with red paint transfer marks, and sooting was present. The air-conditioning duct located on top and forward of the APB had orange and red paint transfer marks. The upper fuselage section that ties into the APB had faint blue and red paint transfer marks, and sooting was present.

The empennage was resting on its left side, with the left horizontal stabilizer imbedded in the ground. Pieces of N300XS were visible underneath the vertical stabilizer. There was extensive fire damage from fuselage station 392.5 back to fuselage station 575.66. Sooting was present on both the upper and lower surface of the horizontal stabilizer. The right horizontal stabilizer leading edge had a 10-inch wide impact mark. The upper surface had braded imprints in the sooting. There was 20-inch wide compression damage on the lower inboard trailing edge of the right elevator. The left horizontal stabilizer sustained ground impact damage to the outboard leading edge, and the upper surface was buckled. The inboard leading edge of the horizontal stabilizer sustained impact damage. Adjacent to the impact damage on the upper surface of the left horizontal stabilizer there were multiple longitudinal imprints in the soot. There were transfer marks from the deicing boots.

The vertical stabilizer had multiple impact marks. The first was on the leading edge and was about 26 inches long. The second mark was 32 inches up the leading edge, and was 13 inches long. The damage progressed back 14 inches on the left side. The skin was buckled and pushed to the right side. There were red paint transfer marks that were predominately oriented in the vertical direction. There were diagonal blue paint transfer marks located just past the lower aft corner of the impact damage. About 21 inches aft of the impact mark there is a 4.5-inch long rubber transfer mark. The third was on top of the vertical stabilizer in the vicinity of the elevators. The vertical stabilizer's forward, lower left rivet line is opened up for about 51 inches. Fragments of N300XS right horizontal stabilizer was embedded in this area. N300XS right horizontal stabilizer penetrated N220JC vertical stabilizer left side all the way through to the right side. The rudder was torn from its lower hinge and the left bracket was pushed 80 degrees left. The rudder hinge at water line (WL) 92.341 was pushed into the right side of the rudder. The rudder torque tube was fractured. N300XS rudder and tail wheel assembly was found under N220JC left vertical stabilizer. The rudder and tail wheel of N300XS matched the impact marks that were located on N220JC vertical stabilizer.

Both engines separated from N220JC and fragments were found along the crash debris line. There was evidence that both engines were operating at the time of impact. The engine assemblies were found separate from the cowlings.

N220JC left engine upper after body had red and blue paint transfer marks. There were pieces of N300XS promotional photos, a 10-inch by 4-inch piece of N300XS lower right wing and a 37 inch by 1 1/2 inch section of N300XS right wing spar found ingested in the left engine. The left engine inlet cowl nose ring was found separately, and sustained extensive compression damage. Numerous pieces of N300XS wing and wing spar were embedded in the ring, and there was evidence of red and blue paint transfer marks. Honeycomb pieces of the left engine inlet were found separately and red paint transfer marks were present on the interior and exterior surfaces. The left engine's upper cowling separated into five sections. Only four sections were recovered. An outboard section was not recovered. All of the recovered sections had red paint transfer marks that were linear and about 9 inches wide. The red marks on the inboard and outboard sections were longitudinal while the marks on top were circumferential in direction. The forward section had red paint marks on the interior outboard side. The outboard section was curled up and outboard. There was fire damage and sooting on three of the four sections. The lower cowling had blue paint transfer marks along with a few red paint transfer marks, and light sooting was present. There was evidence and crushing which was forward to aft.

There was no evidence of paint transfer marks on the right engine. The nose inlet cowl was found separately and in one piece. There was evidence of a decal transfer mark at the 3 o'clock position. There was impact/compression damage in the same area as the decal transfer mark. This mark was matched to a decal that is located on a section of the upper fuselage that separated from N220JC. There was no fire damage or paint transfer marks located on this piece.

Numerous composite pieces from N300XS were recovered and were identified as being from the upper fuselage. A 36-inch long piece of red composite with the words "Aeroshell" and its symbol were recovered. Sooting was present on the upper surface. Comparison of the composite piece with the promotional photo revealed it was located on the aft upper fuselage behind the cockpit. Another upper fuselage 23-inch section was identified as being located forward of the cockpit.

The firewall was still attached to the fuselage main spar and had evidence of fire damage. The four sections of the engine cowling upper surface were identified, and the frame from the cockpit area was recovered.

The right wing of N300XS was extremely fragmented and sections were located in N220JC left engine. The left wing was in larger sections and was reconstructed. There were seven pieces, which were identified as the left wing. The body of the wing had a 45-degree zipper tear 1/3 of the way outboard, and the leading edge was open. The left aileron separated

from the left wing, and a 12-inch portion of the aileron was missing. The lower surface of the left aileron sustained ground impact damage, and the attachments points were bent outboard 15 degrees.

The left horizontal stabilizer was recovered with damage to the inboard section. The inboard leading edge was opened up for 22 1/2 inches. The inboard close out rib was gone. The elevator's outboard trailing edge had impact damage for 9 inches, and the lower surface was missing. Sooting was present on the upper surface and the inboard rear spar sustained fire damage. The upper surface had a vertical crack that extended from the trailing edge to 2 1/2 inches of the leading edge. The crack is 22 1/2 inches from the leading edge. Red paint transfer marks were located near the inboard section of the upper surface.

The right horizontal stabilizer was found fragmented inside N220JC vertical stabilizer. There were pieces ranging in size from 1 inch by 1 inch up to 10 inches by 8 inches. There was one red painted composite piece that was crushed accordian fashion, with three folds that were 1 1/2 inches wide. The horizontal stabilizer was identified by the spar size, paint scheme, phone number, ribs and process of elimination.

The rudder of N300XS was located about 2 feet aft of N220JC's tail section. The tailwheel assembly of N300XS was found underneath the tail section of N220JC

Visual examination of N300XS engine assembly revealed no evidence of a precrash mechanical failure or malfunction. No paint transfer marks were present on the engine assembly. (For additional information see NTSB Airworthiness Group Chairperson's Factual Report, an attachment to this report.)

MEDICAL AND PATHOLOGICAL INFORMATION

Dr. Jon R. Thogmartin, Chief Medical Examiner, District 15, West Palm Beach, Florida, performed postmortem examination of the PIC of N220JC, on June 24, 2000. The cause of death was multiple blunt trauma. The Forensic Toxicology Research Section, Oklahoma City, Oklahoma, performed postmortem toxicology of specimens from the PIC. These studies were negative for cyanide, ethanol, basic, acidic, and neutral drugs. Carbon monoxide testing was not performed.

Dr. Jon R. Thogmartin, Chief Medical Examiner, District 15, West Palm Beach, Florida, performed postmortem examination of the CP of N220JC, on June 24, 2000. The cause of death was massive multiple blunt trauma. The Forensic Toxicology Research Section, Oklahoma City, Oklahoma, performed postmortem toxicology of specimens from the CP. These studies were negative for ethanol, basic, acidic, and neutral drugs. Carbon monoxide and cyanide testing was not performed.

Dr. Jon R. Thogmartin, Chief Medical Examiner, District 15, West Palm Beach, Florida, performed postmortem examination of the commercial pilot observer/passenger of N220JC,

on June 24, 2000. The cause of death was multiple blunt trauma. The Forensic Toxicology Research Section, Oklahoma City, Oklahoma, performed postmortem toxicology of specimens from the observer/passenger. These studies were negative for ethanol, basic, acidic, and neutral drugs. Carbon monoxide testing was not performed. No cyanide was detected.

Dr. Jon R. Thogmartin, Chief Medical Examiner, District 15, West Palm Beach, Florida, conducted postmortem examination of the pilot of N300XS, on June 24, 2000. The cause of death was massive trauma. The Forensic Toxicology Research Section, Oklahoma City, Oklahoma, performed postmortem toxicology of specimens from the pilot. These studies were negative for ethanol, basic, acidic, and neutral drugs. Carbon monoxide and cyanide testing was not performed.

TEST AND RESEARCH

According to Bombardier Aerospace a visibility study was accomplished for the Learjet Model 55 aircraft, and the pilot compartment visibility meets the requirements of CFR Part 25.773 (NC). The pilot visibility is listed as being 130 degrees to the left of the zero reference point with a + 26.5 degrees and a -19 degree vertical span. The 90-degree left position has a vertical span of +46.3 degrees and -36.5 degrees. The 60-degree left position has a vertical span of +52.0 degrees and -37.8 degrees. The 30-degree left position has a vertical span of +41.3 degrees and -30 degrees. The 0 degree reference line has a vertical span of +22.8 degrees and -17.5 degrees. The 37.5-degree right position has a vertical span of +10.0 degrees and -9.0 degrees. (For additional information see Bombardier Aerospace letter dated August 10, 2000, an attachment to this report.)

ADDITIONAL INFORMATION

The wreckage of N220JC was released to Mr. Dennis C. Krueger, ACE U.S.A., Leaf River, Illinois, on June 25, 2000. The wreckage of N300XS was released to Mr. Scott Weinstein, President, Land Renovations Inc., Davie, Florida, on June 25, 2000. The Fairchild cockpit voice recorder from N220JC was released to Mr. N. Young, ACE U.S.A., Leaf River, Illinois, on November 2, 2000.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	40,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 30, 2000
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	15180 hours (Total, all aircraft), 12180 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Learjet	**Registration:**	N220JC
Model/Series:	55 55	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	050
Landing Gear Type:	Retractable - Tricycle	**Seats:**	9
Date/Type of Last Inspection:	January 20, 2000 AAIP	**Certified Max Gross Wt.:**	21250 lbs
Time Since Last Inspection:	287 Hrs	**Engines:**	2 Turbo fan
Airframe Total Time:	8557 Hrs	**Engine Manufacturer:**	Garrett
ELT:	Installed, not activated	**Engine Model/Series:**	TFE731-3AR-2B
Registered Owner:	UNIVERSAL JET AVIATION INC.	**Rated Power:**	3700 Lbs thrust
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PBI ,19 ft msl	**Distance from Accident Site:**	38 Nautical Miles
Observation Time:	11:23 Local	**Direction from Accident Site:**	190°
Lowest Cloud Condition:	Scattered / 2500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	33°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(BCT)	**Type of Flight Plan Filed:**	IFR
Destination:	FORT PIERCE (FPR)	**Type of Clearance:**	None
Departure Time:	11:39 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	In-flight
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	3 Fatal	**Latitude, Longitude:**	26.349546,-80.159942(est)

Administrative Information

Investigator In Charge (IIC):	Smith, Carrol A.
Additional Participating Persons:	EDWARD W ROWLETT; FORT LAUDERDALE, FL RALPH WITZKE; FORT LAUDERDALE, FL
Original Publish Date:	May 18, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49505

Aviation Investigation Final Report

Location:	BOCA RATON, Florida	**Accident Number:**	MIA00FA190
Date & Time:	June 23, 2000, 11:41 Local	**Registration:**	N300XS
Aircraft:	Extra EA-300S	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The Learjet departed from an uncontrolled airport about 2 minutes before the accident on a on a VFR climb and was not talking to ATC. The Extra EA-300S departed VFR from a controlled airport and requested and received a frequency change from the control tower 2 minutes after departure. Review of radar data revealed that the Extra climbed to 2,500 feet on a heading of 346 degrees before descending to 2,400 at 1141:25. The Learjet was observed on radar in a right crosswind departure passing through 700 feet on a heading of 242 degrees at 1141:02. At 1141:16, the Learjet was at 1,400 feet heading 269. At 1141:30, the Extra is observed on radar at 2,400 feet, in a right turn heading 360 degrees. The Learjet is observed on radar at 1141:28 in a climbing left turn passing through 2,300 feet. The last radar return on both aircraft was at 1141:30.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The failure of the pilot's of both airplanes to maintain a visual lookout (while climbing and maneuvering) resulting in an in-flight collision and subsequent collision with residences and terrain.

Findings

Occurrence #1: MIDAIR COLLISION
Phase of Operation: MANEUVERING

Findings
1. (C) VISUAL LOOKOUT - NOT MAINTAINED - PILOT IN COMMAND
2. (C) VISUAL LOOKOUT - NOT MAINTAINED - PILOT OF OTHER AIRCRAFT

Occurrence #2: MIDAIR COLLISION
Phase of Operation: DESCENT - UNCONTROLLED

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
3. TERRAIN CONDITION - GROUND
4. OBJECT - RESIDENCE

Factual Information

Same as narrative MIA00FA190A.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	57,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 8, 2000
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	4200 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Extra	**Registration:**	N300XS
Model/Series:	EA-300S EA-300S	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:		**Serial Number:**	05
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	March 6, 2000 Annual	**Certified Max Gross Wt.:**	2095 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	AE10-540-L1B5
Registered Owner:	JOHN W. LILLBERG	**Rated Power:**	300 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PBI ,19 ft msl	**Distance from Accident Site:**	38 Nautical Miles
Observation Time:	11:23 Local	**Direction from Accident Site:**	190°
Lowest Cloud Condition:	Scattered / 2500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	33°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	POMPANO BEACH (PMP)	**Type of Flight Plan Filed:**	None
Destination:	BOYNTON BEACH (1X4)	**Type of Clearance:**	None
Departure Time:	11:37 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	In-flight
Ground Injuries:	N/A	**Aircraft Explosion:**	In-flight
Total Injuries:	1 Fatal	**Latitude, Longitude:**	26.349546,-80.159942(est)

Administrative Information

Investigator In Charge (IIC):	Smith, Carrol A.
Additional Participating Persons:	EDWARD W ROWLETT; FORT LAUDERDALE, FL RALPH WITZKE; FORT LAUDERDALE, FL
Original Publish Date:	May 18, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49505