



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	ABERDEEN, SD	<b>Accident Number:</b>	DCA00MA005
<b>Date &amp; Time:</b>	10/25/1999, 1213 CDT	<b>Registration:</b>	N47BA
<b>Aircraft:</b>	Learjet 35	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	6 Fatal
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled		

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## Analysis

The full report is available on the NTSB Web site. See <http://www.nts.gov/publicn/publicn.htm> for details. SUMMARY On October 25, 1999, about 1213 central daylight time (CDT), a Learjet Model 35, N47BA, operated by Sunjet Aviation, Inc., of Sanford, Florida, crashed near Aberdeen, South Dakota. The airplane departed Orlando, Florida, for Dallas, Texas, about 0920 eastern daylight time (EDT). Radio contact with the flight was lost north of Gainesville, Florida, after air traffic control (ATC) cleared the airplane to flight level (FL) 390. The airplane was intercepted by several U.S. Air Force (USAF) and Air National Guard (ANG) aircraft as it proceeded northwestbound. The military pilots in a position to observe the accident airplane at close range stated (in interviews or via radio transmissions) that the forward windshields of the Learjet seemed to be frosted or covered with condensation. The military pilots could not see into the cabin. They did not observe any structural anomaly or other unusual condition. The military pilots observed the airplane depart controlled flight and spiral to the ground, impacting an open field. All occupants on board the airplane (the captain, first officer, and four passengers) were killed, and the airplane was destroyed.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Incapacitation of the flight crewmembers as a result of their failure to receive supplemental oxygen following a loss of cabin pressurization, for undetermined reasons.

## Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: CLIMB - TO CRUISE

### Findings

1. (C) AIR COND/HEATING/PRESSURIZATION - LOSS,TOTAL
2. REASON FOR OCCURRENCE UNDETERMINED

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Occurrence #2: DECOMPRESSION  
Phase of Operation: CLIMB - TO CRUISE

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Occurrence #3: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: CLIMB - TO CRUISE

### Findings

3. OXYGEN SYSTEM - UNDETERMINED
4. INCAPACITATION(ANOXIA/HYPOXIA) - FLIGHTCREW

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Occurrence #4: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL  
Phase of Operation: CRUISE

### Findings

5. FLUID,FUEL - EXHAUSTION

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Occurrence #5: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

### Findings

6. TERRAIN CONDITION - GROUND

## Factual Information

The full report is available on the NTSB Web site. See <http://www.nts.gov/publicn/publicn.htm> for details. HISTORY OF FLIGHT

On October 25, 1999, the flight crew was scheduled to begin a 2-day trip sequence consisting of five flights. The flights on the first day were to be from Orlando Sanford International Airport (SFB), Sanford, Florida, to Orlando International Airport (MCO), Orlando, Florida; from MCO to Dallas-Love Field Airport (DAL), Dallas, Texas; and from DAL to William P. Hobby Airport, Houston, Texas.

The first flight of the day, a visual flight rules positioning flight operating under 14 Code of Federal Regulations (CFR) Part 91, was scheduled to depart SFB about 0800 EDT bound for MCO, which is approximately 15 nautical miles (nm) away. According to the Sunjet Aviation customer service representative on duty at SFB on the day of the accident, the captain reported for duty at SFB about 0630 EDT, and the first officer arrived about 0645 EDT. She stated that both pilots were in a good mood and appeared to be in good health.

A Sunjet Aviation line service technician stated that the captain asked him to pull the airplane out of the hangar, fuel it to 5,300 pounds fuel weight, connect a ground power unit to the airplane, and put a snack basket and cooler on the airplane. The first officer arrived at the airplane just before the fueling process started and stayed in the cockpit while the airplane was being fueled. The first officer then went inside the terminal building while the captain performed the preflight inspection of the airplane.

About 0725 EDT, an instrument flight rules flight plan was filed with the St. Petersburg Automated Flight Service Station for the second flight of the day, MCO to DAL, which would operate under 14 CFR Part 135. The flight plan indicated that N47BA was scheduled to depart MCO about 0900 EDT; follow a route over Cross City, Florida, to 32 degrees, 51 minutes north and 96 degrees, 51 minutes west; and proceed directly to DAL. The requested altitude was 39,000 feet. The flight plan also indicated that there would be five persons on board (two pilots and three passengers) and 4 hours and 45 minutes of fuel.

According to a witness, the accident airplane departed SFB about 0754 EDT. The flight arrived at MCO about 0810 EDT. An Aircraft Service International Group employee at MCO stated that after the airplane arrived, the captain told him that they were picking up passengers and did not require additional fuel. According to this witness, the passengers arrived about 30 minutes later and boarded the airplane. The Sunjet Aviation director of operations indicated that an additional passenger who was not on the original charter flight request boarded the accident airplane at MCO. Several bags were placed on board the airplane, including what the Aircraft Service International Group employee described as a big golf bag weighing about 30 pounds.

According to ATC radio transmissions, the flight departed MCO about 0919 EDT bound for DAL. At 0921:46 EDT, the flight contacted the Jacksonville Air Route Traffic Control Center (ARTCC) and reported climbing through an altitude of 9,500 feet to 14,000 feet.

At 0921:51 EDT, the controller instructed N47BA to climb and maintain FL 260. N47BA acknowledged the clearance by stating, "two six zero bravo alpha." At 0923:16 EDT, the controller cleared N47BA direct to Cross City and then direct to DAL. N47BA acknowledged the clearance. At 0926:48 EDT, N47BA was issued instructions to change radio frequency and contact another Jacksonville ARTCC controller. N47BA acknowledged the frequency change.

At 0927:10 EDT, N47BA called the Jacksonville ARTCC controller and stated that the flight was climbing through an altitude of FL 230. At 0927:13 EDT, the controller instructed N47BA to climb and maintain FL 390. At 0927:18 EDT, N47BA acknowledged the clearance by stating, "three nine zero bravo alpha." This was the last known radio transmission from the airplane. The sound of the cabin altitude aural warning was not heard on the ATC recording of this transmission.

At 0933:38 EDT (6 minutes and 20 seconds after N47BA acknowledged the previous clearance), the controller instructed N47BA to change radio frequencies and contact another Jacksonville ARTCC controller. The controller received no response from N47BA. The controller called the flight five more times over the next 4 1/2 minutes but received no response.

About 0952 CDT, a USAF F-16 test pilot from the 40th Flight Test Squadron at Eglin Air Force Base (AFB), Florida, was vectored to within 8 nm of N47BA. About 0954 CDT, at a range of 2,000 feet from the accident airplane and an altitude of about 46,400 feet, the test pilot made two radio calls to N47BA but did not receive a response. About 1000 CDT, the test pilot began a visual inspection of N47BA. There was no visible damage to the airplane, and he did not see ice accumulation on the exterior of the airplane. Both engines were running, and the rotating beacon was on. He stated that he could not see inside the passenger section of the airplane because the windows seemed to be dark. Further, he stated that the entire right cockpit windshield was opaque, as if condensation or ice covered the inside. He also indicated that the left cockpit windshield was opaque, although several sections of the center of the windshield seemed to be only thinly covered by condensation or ice; a small rectangular section of the windshield was clear, with only a small section of the glare shield visible through this area. He did not see any flight control movement. About 1012 CDT, he concluded his inspection of N47BA and proceeded to Scott AFB, Illinois.

About 1113 CDT, two Oklahoma ANG F-16s with the identification "TULSA 13 flight" were vectored to intercept the accident airplane by the Minneapolis ARTCC. The TULSA 13 lead pilot reported to the Minneapolis ARTCC controller that he could not see any movement in the cockpit. About 1125 CDT, the TULSA 13 lead pilot reported that the windshield was dark and that he could not tell if the windshield was iced.

About 1133 CDT, a TULSA 13 airplane maneuvered in front of the accident airplane, and the pilot reported, "we're not seeing anything inside, could be just a dark cockpit though...he is not reacting, moving or anything like that he should be able to have seen us by now."

About 1138 CDT, the TULSA 13 lead pilot stated, "my wingman is going to make a final pass and then we are going to head back to the [midair refueling] tanker." The TULSA 13 wingman reported, "we did not get close enough to see any icing on the window due to our configuration...we did get up behind him but did not see anything." About 1139 CDT, TULSA 13 flight departed for the tanker.

About 1150 CDT, two North Dakota ANG F-16s with the identification "NODAK 32 flight" were vectored to intercept N47BA. (TULSA 13 flight had returned from refueling, and both TULSA 13 and NODAK 32 flights maneuvered in close proximity to N47BA.) About 1157 CDT, the TULSA 13 lead pilot reported, "we've got two visuals on it. It's looking like the cockpit window is iced over and there's no displacement in any of the control surfaces as far as the ailerons or trims." About 1201 CDT, TULSA 13 flight returned to the tanker again.

At 1210:41 CDT, the sound of an engine winding down, followed by sounds similar to a stickshaker and an autopilot disconnect, can be heard on N47BA's cockpit voice recorder (CVR), which recorded the final 30 minutes of cruise flight. The CVR also captured the continuous activation of the cabin altitude aural warning, which ceased at 1212:26 CDT. At 1211:01 CDT, ATC radar indicated that N47BA began a right turn and descent. One NODAK 32 airplane remained to the west, while one TULSA 13 airplane broke away from the tanker and followed N47BA down. At 1211:26 CDT, the NODAK 32 lead pilot reported, "the target is descending and he is doing multiple aileron rolls, looks like he's out of control...in a severe descent, request an emergency descent to follow target." The TULSA 13 pilot reported, "It's soon to impact the ground he is in a descending spiral."

### Pilot Information

<b>Certificate:</b>	Airline Transport; Commercial	<b>Age:</b>	, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last Medical Exam:</b>	06/16/1999
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	09/21/1999
<b>Flight Time:</b>	4280 hours (Total, all aircraft), 60 hours (Total, this make and model), 35 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

### Co-Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	27, Female
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 1 With Waivers/Limitations	<b>Last Medical Exam:</b>	10/01/1999
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	04/15/1999
<b>Flight Time:</b>			

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Learjet	Registration:	N47BA
Model/Series:	35 35	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	35-060
Landing Gear Type:	Retractable - Tricycle	Seats:	
Date/Type of Last Inspection:	06/12/1999, AAIP	Certified Max Gross Wt.:	
Time Since Last Inspection:	179 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	10506 Hours	Engine Manufacturer:	Allied Signal
ELT:		Engine Model/Series:	TFE731-2-2B
Registered Owner:	JETSHARES ONE, INC	Rated Power:	3500 lbs
Operator:	SUNJET AVIATION INC	Air Carrier Operating Certificate:	On-demand Air Taxi (135)
Operator Does Business As:		Operator Designator Code:	SJ8A

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:		Observation Time:	
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:	Unknown	Temperature/Dew Point:	
Lowest Ceiling:	Unknown	Visibility	
Wind Speed/Gusts, Direction:		Visibility (RVR):	
Altimeter Setting:		Visibility (RVV):	
Precipitation and Obscuration:			
Departure Point:	ORLANDO, FL (MCO)	Type of Flight Plan Filed:	IFR
Destination:	DALLAS, TX (DAL)	Type of Clearance:	IFR
Departure Time:	0919 EST	Type of Airspace:	

## Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	4 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	6 Fatal	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC): ROBERT P BENZON Adopted Date: 11/28/2000

Additional Participating Persons:

Publish Date:

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](mailto: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.

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