



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	CHICAGO, IL	<b>Accident Number:</b>	CHI99LA078
<b>Date &amp; Time:</b>	01/28/1999, 2318 CST	<b>Registration:</b>	N130F
<b>Aircraft:</b>	Gates Learjet 35	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled		

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## Analysis

The second pilot turned onto a 4 mile final from the end of the runway. The second pilot said at one mile from the end of the runway, the airplane was stabilized on the glide slope and localizer inbound course, at a landing approach speed of 122 knots. Crossing the runway threshold, the pilot-in-command called out to the second pilot, 'Ref (landing approach speed), three green, cleared to land.' Approximately 3 feet above the runway surface, the pilot-in-command called out 'Ref minus 10 [knots indicated airspeed]'. As he spoke, the pilot-in-command said he felt a slight increase in sink [rate], followed immediately by a violent roll to the right. The right tip tank struck the runway surface. Examination of the airplane revealed no anomalies.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the second pilot's failure to maintain adequate airspeed which resulted in an inadvertent stall mush.

## Findings

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Occurrence #1: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

1. (C) AIRSPEED - INADEQUATE - COPILOT/SECOND PILOT
2. (C) STALL/MUSH - INADVERTENT - COPILOT/SECOND PILOT
3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - COPILOT/SECOND PILOT

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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

4. TERRAIN CONDITION - RUNWAY

## Factual Information

On January 28, 1999, at 2318 central standard time, a Gates Learjet 35, N130F, operated by an airline transport pilot as U. S. Check flight 251, sustained substantial damage when during landing, the airplane's right wing struck the runway. Visual meteorological conditions prevailed at the time of the accident. The on-demand air taxi flight was being conducted under 14 CFR Part 135. An IFR flight plan was on file. The first pilot and second pilot reported no injuries. The cross-country flight originated at Columbus, Ohio, at 2329 eastern standard time, and was en route to Chicago, Illinois.

In his written statement, the pilot-in-command said that Chicago Terminal Radar Approach Control (TRACON) had cleared the airplane for the visual approach to runway 4R at Chicago Midway Airport, Chicago, Illinois. The second pilot was flying the airplane. The pilot-in-command said they turned onto an approximate 4 mile final from the end of the runway. The second pilot descended on the localizer and glideslope. The approach was stabilized about three miles out from the end of the runway. The pilot-in-command said that he called out to the second pilot, as they were crossing the runway threshold, "Ref (landing approach speed), three green, cleared to land." The pilot-in-command said, "the AOA (angle of attack) indication was normal. [The] descent rate was normal." The pilot-in-command said that the airplane was approximately 3 feet above the runway surface when he called out "Ref minus 10 [knots indicated airspeed]. Just as I spoke I felt a slight increase in sink [rate], followed immediately by a violent roll to the right. The right tip tank struck the runway surface."

In his written statement, the second pilot said that at approximately one mile from the end of the runway, the airplane was stabilized at "Vref" (landing approach speed) of 122 knots, and on the glide slope and localizer inbound course. "We crossed the threshold [of the runway], and about 1 to 1 and 1/2 seconds later, I pulled the thrust levers to idle [power]. Just before touchdown, at about Vref minus 5 knots, the plane rolled hard to the right. I immediately put in left correction and pushed the thrust levers forward. An instant later, we hit on the right side, and then the main wheels touched down. I then pulled the thrust levers back to idle."

Federal Aviation Administration (FAA) inspectors examined the airplane at Chicago Midway Airport. The airplane's right wing, approximately 18 inches inboard of the tip tank was bent upward approximately 10 degrees. A 2 inch deep, chordwise-running groove was observed in the top wing skin running from the leading edge aft to the outboard edge of the right aileron. Heavy wrinkling in the upper wing skin was observed approximately 18 inches either side of the groove. The bottom wing skin, in the vicinity of the bend also showed skin wrinkling. The outboard edge of the right aileron was bent upward slightly. The right tip tank showed a laterally-running, inward dent and fracture, located in the bottom, center skin. Longitudinally running metal scrapes were also observed along the bottom, center line of the tip tank.

The airplane's flight control system was examined. The examination revealed complete continuity and no anomalies. Examination of the engines, engine's controls, and other airplane systems revealed no anomalies.

The Gates Learjet 35/36 Aircrew Flight Manual Landing Approach Speed Vref table for an airplane with the Century III wing and FC-200 autopilot showed for a 13,975 pound airplane, an approach speed of 123 knots indicated airspeed (KIAS). The Gates Learjet 35/36 Aircrew Flight Manual Stall Speeds table for an airplane with the Century III wing and FC-200 autopilot incorporating the "Softflite" kit, configured with landing gear down and the flaps at

40 degrees, showed for a 13,975 pound airplane, a stall speed of 95 KIAS.

## Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Instructor; Commercial	<b>Age:</b>	44, 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, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--w/ waivers/lim.	<b>Last Medical Exam:</b>	07/13/1998
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	9100 hours (Total, all aircraft), 6379 hours (Total, this make and model), 3887 hours (Pilot In Command, all aircraft), 170 hours (Last 90 days, all aircraft), 53 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	Gates Learjet	<b>Registration:</b>	N130F
<b>Model/Series:</b>	35 35	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	35-044
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	12/22/1998, AAIP	<b>Certified Max Gross Wt.:</b>	18500 lbs
<b>Time Since Last Inspection:</b>	118 Hours	<b>Engines:</b>	2 Turbo Jet
<b>Airframe Total Time:</b>	8956 Hours	<b>Engine Manufacturer:</b>	Garrett
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	TFE731
<b>Registered Owner:</b>	AIRNET SYSTEMS INC.	<b>Rated Power:</b>	3500 lbs
<b>Operator:</b>	AIRNET SYSTEMS INC.	<b>Air Carrier Operating Certificate:</b>	On-demand Air Taxi (135)

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	MDW, 619 ft msl	Observation Time:	2318 CST
Distance from Accident Site:	1 Nautical Miles	Direction from Accident Site:	220°
Lowest Cloud Condition:	Clear / 0 ft agl	Temperature/Dew Point:	1° C / -4° C
Lowest Ceiling:	None / 0 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	7 knots, 40°	Visibility (RVR):	0 ft
Altimeter Setting:	30 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	COLUMBUS, OH (CMH)	Type of Flight Plan Filed:	IFR
Destination:	(MDW)	Type of Clearance:	IFR
Departure Time:	2329 EST	Type of Airspace:	Class B

## Airport Information

Airport:	CHICAGO MIDWAY AIRPORT (MDW)	Runway Surface Type:	Concrete
Airport Elevation:	619 ft	Runway Surface Condition:	Dry
Runway Used:	4R	IFR Approach:	Localizer Only
Runway Length/Width:	6446 ft / 150 ft	VFR Approach/Landing:	None

## Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	DAVID C BOWLING	Adopted Date:	09/07/2000
Additional Participating Persons:	DERRICK D CHEATHAM; WEST CHICAGO, IL		
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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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