National Transportation Safety Board
Aviation Accident Factual Report

Location:	Leakey, TX	**Accident Number:**	FTW02LA136
Date & Time:	05/02/2002, 1430 CDT	**Registration:**	N397QS
Aircraft:	Cessna 560	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	6 None
Flight Conducted Under:	Part 91: General Aviation - Executive/Corporate		

On May 2, 2002, at 1430 central daylight time, a Cessna 560 Ultra jet airplane, N397QS, fractionally owned by private individuals who delegated the management of the airplane to NetJets Aviation, Inc., of Columbus, Ohio, was destroyed when it overran the departure end of Runway 15 at the Real County Airport (49R), near Leakey, Texas. The airline transport pilot-in-command (PIC), the first officer (FO), and their four passengers were not injured. Visual meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed for the Title 14 Code of Federal Regulations (CFR) Part 91corporate flight. The cross-country flight originated from Houston, Texas, at 1315.

According to information provided to the NTSB in the Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1/2), the PIC set up for a right hand pattern, visual approach to Runway 15. On the downwind leg, the PIC asked the FO for flaps "fifteen degrees," and landing gear "down" before proceeding with the landing checklist. The aircraft descended from 3,100 feet at the downwind to base position of the pattern, which positioned the aircraft on an approximate 3- mile final approach. While on final, the PIC called for flaps "thirty-five degrees." The PIC reported that the approach speed and descent rate were "normal," and the aircraft was on short final over the trees at the "desired speed." Once the trees were clear, the aircraft descended to the runway at idle power. During the descent the PIC noticed a 16-knot increase in speed above reference. The PIC elected to continue "because the aircraft was close to the runway" and the PIC thought he had "extra landing distance to work with beyond what was required." According to NetJets, this was the first time that the PIC and FO had landed at Leakey.

The PIC reported that the aircraft "floated beyond the desired touchdown point," and "at this point [the pilots were] committed to stopping the aircraft." Passing the last third of the runway, the aircraft turned to the right "without" input from the pilots, overran the departure end, and collided with trees. Once the aircraft left the runway, the PIC stowed the thrust reversers and attempted to shut down the engines. Due to the "violent ride," the PIC managed to shut down one engine. A post-impact fire consumed the aircraft after the crew assisted to evacuate the occupants.

Two eye-witnesses, who were co-located at the airport, about midfield and to the east of Runway 15, observed the aircraft approach and land. Witness #1 observed the aircraft approach from the north, "coming in very fast, and did not touch down until half way down the airstrip." The witness added, that the aircraft "continued at a fast rate of speed" and it became evident that the aircraft "could not stop before reaching the end." Several seconds later, the witness saw the aircraft "hit the natural barrier at the end of the strip," and then observed smoke and flames. Witness #2 observed the airplane coming from the north, and when it "went by us, it was still in the air." He stated that the aircraft "hit hard" when it landed, and heard the "loud sound" of reverse thrust "just for a second." He added that when he heard the reverse thrust sound, the aircraft "made a shake," and the tires started smoking for a second." He stated to witness #1 that, "they are not going to make it, there is no way they can." After that, he observed the aircraft "rolling through the barrier" across the road, and saw flames and smoke. Both witnesses proceeded to the accident site to assist.

According to publications, Runway 15 was a 3,975-foot long by 50- foot wide, asphalt surface, and at the time of the accident, the landing surface was dry. There were small to medium sized trees located approximately 200 feet from the runway threshold. The Runway 15 threshold was displaced 240 feet and the reciprocal runway (33) threshold was displaced 270 feet.

The NTSB did not travel to the accident site. The on-site portion of the investigation was attended by representatives of the FAA, NetJets, and Cessna, on May 3, 2002. The information they provided is summarized below.

GPS measurements at the accident site confirmed the published 3,975-foot total length. FAA representatives identified the initial touch down area of the aircraft about 2,100 feet from the threshold of the runway, as indicated by tire tracks and the relative position of the eye-witnesses. Approximately 1,000 feet from the departure end of the runway, tire tracks, corresponding to the right landing gear, indicated that the tire was sliding. The surface area of the sliding tracks was in an area of soft tar and asphalt on the right side of the runway. The tracks departed to the right side of the runway and continued on a magnetic heading of 166 degrees to the final resting position of the aircraft. Tire tracks indicated the aircraft started turning to the right near the displaced threshold of Runway 33 (about 270 feet from the end of the paved surface). Physical evidence showed that the aircraft passed through a gated fence at the end of the pavement, continued through a ditch, crossed a paved two-lane highway, went over another ditch, and impacted trees and a second fence. Approximately 6-feet of the outer section of the left wing was found near a 6-8 inch damaged tree. Vegetation from the damaged tree forward along the energy path was burned. The aircraft came to rest approximately 320 feet beyond the end of the paved runway surface.

A post-impact fire consumed most of the fuselage and the inner section of the left wing. Flight control continuity was confirmed from the cockpit controls to the elevator and rudder surfaces, and aileron continuity was confirmed from the cockpit to the bellcrank area. The flap control switch in the cockpit was in the takeoff/approach position. The left main tire was found in the

vicinity of the left wing debris, and the right main landing gear, including the strut, wheel, brake, and tire was found on the right side of the energy path, about 60-feet from the second fence. The right tire was inflated and a flat area on the tread was observed. The speed brake actuators were found in the spoiler extended position. The gauge on the pneumatic pressure container for emergency brake and landing gear actuator indicated in the red zone, about 1,000 psi (normal green range 1,700-2,000 psi).

On May 8, 2002, the right Wheel speed Transducer, Power Brake/Antiskid Valve, BIT Display Unit, and Antiskid Control Unit of the antiskid brake system were removed at Air Salvage of Dallas, under the supervision of the NTSB IIC. The parts were shipped to the component manufacturer (Crane Aerospace Hydro-Aire Inc.) for evaluation under the surveillance of the FAA. Component test and evaluation showed that all components operated normally, and were capable of providing their intended function at the time of the accident. The complete test and evaluation report is a supplement to this report.

The aircraft was equipped with a cockpit voice recorder. The cockpit voice recorder (CVR) group (NTSB, NetJets, FAA,, Cessna) convened in Washington, D.C., on May 14, 2002, and prepared a transcript for the last 10 minutes of the 2-hour duration recording. The complete CVR report is a supplement to this report.

According to the flight manual, based 29.74 in HG, 1,808 PA, 30 degrees Celsius, zero wind, and an aircraft landing weight of 14, 500 lbs., the calculated total stopping distance (air and ground distance) at reference speed (Vref), was estimated at 2,955 feet. According to the Cessna 560 Ultra flight manual, the "total distance" is based on full flaps, speed brakes after touchdown, Vref at 50 feet over the runway threshold, idle thrust when crossing the threshold, and no thrust reverse.

Pilot Information

Certificate:	Airline Transport	**Age:**	33, 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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	02/05/2002
Occupational Pilot:		**Last Flight Review or Equivalent:**	10/20/2001
Flight Time:	4835 hours (Total, all aircraft), 733 hours (Total, this make and model)		

Co-Pilot Information

Certificate:	Airline Transport	**Age:**	33, 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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	06/19/2001
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	5136 hours (Total, all aircraft), 345 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N397QS
Model/Series:	560	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Transport	**Serial Number:**	560-0531
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	04/22/2002, AAIP	**Certified Max Gross Wt.:**	16500 lbs
Time Since Last Inspection:	16.8 Hours	**Engines:**	2 Turbo Jet
Airframe Total Time:	2356.6 Hours	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	JT15D-5D
Registered Owner:	Robert E. Allen and 10 co-owners	**Rated Power:**	3045 lbs
Operator:	Netjets (as program manager)	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	7 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.75 inches Hg	**Temperature/Dew Point:**	30°C
Precipitation and Obscuration:			
Departure Point:	Houston, TX (HOU)	**Type of Flight Plan Filed:**	IFR
Destination:	Leakey, TX (49R)	**Type of Clearance:**	None
Departure Time:	1315 CDT	**Type of Airspace:**	Class E

Airport Information

Airport:	Real County (49R)	**Runway Surface Type:**	Asphalt
Airport Elevation:	1640 ft	**Runway Surface Condition:**	Dry
Runway Used:	15	**IFR Approach:**	Visual
Runway Length/Width:	3975 ft / 50 ft	**VFR Approach/Landing:**	Full Stop

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Destroyed
Passenger Injuries:	4 None	**Aircraft Fire:**	In-Flight
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	6 None	**Latitude, Longitude:**	29.745278, -99.750833

Administrative Information

Investigator In Charge (IIC):	Alexander Lemishko
Additional Participating Persons:	Gary E Stamper; Flight Standards District Office (SW17); San Antonio, TX
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.ntsb.gov/pubdms/.