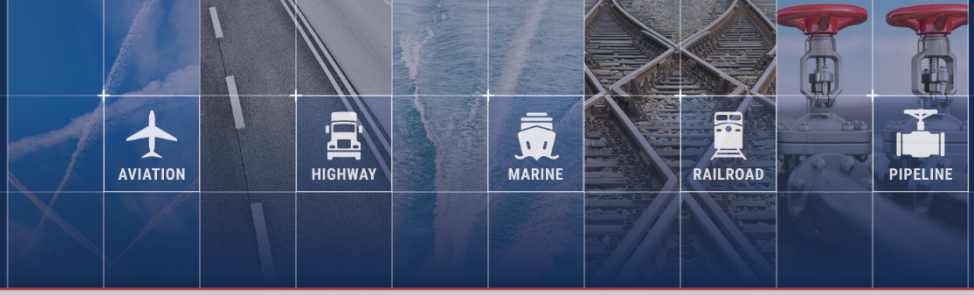

Aviation Investigation Final Report

Location:	Rochester, New York	**Accident Number:**	ERA23LA126
Date & Time:	February 11, 2023, 12:50 Local	**Registration:**	N600C
Aircraft:	GATES LEARJET CORP 55	**Aircraft Damage:**	Substantial
Defining Event:	Hard landing	**Injuries:**	6 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Neither pilot reported identifying any mechanical issues with the airplane before the flight. The flight was uneventful and both pilots described the landing as being firm, with the copilot stating the landing was in the touchdown zone on the runway. The pilot reported that after landing he knew something was wrong because the left wing was low. The pilots taxied the airplane to the ramp where they discovered fuel leaking from the left wing.

A review of airport surveillance video revealed that the airplane touched down around the displaced threshold, bounced, and touched down again. Examination of the runway revealed skid marks beginning in the displaced threshold about 110 ft before the landing surface of the runway. Fractured airplane parts were scattered over and beyond the ground scars and tire markings. Postaccident examination of the airplane revealed it sustained structural and skin damage to the left wing, the landing gear strut, and both left main wheels.

One passenger said that she heard altitudes called out during the landing approach, and just before touchdown, she heard a crewmember announce, “too fast, too fast!” She stated the airplane contacted the runway so hard the oxygen masks deployed and compartments inside the airplane opened. The airplane bounced, and the second landing was bumpy. She also stated that fuel was leaking from the airplane when they were deplaned.

Although the pilots’ subsequent statements indicated that they observed that the airplane’s left wing was “lower” during takeoff on the accident flight, surveillance video of the airplane from the departure airport did not indicate any anomalies. Given the available evidence, it is likely that the pilots failed to attain a proper landing flare and touchdown point, which resulted in a hard landing short of the runway.

Probable Cause and Findings

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

The pilots' failure to attain a proper landing flare and touchdown point, which resulted in a hard landing short of the runway.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Landing flare - Not attained/maintained
Aircraft	Descent/approach/glide path - Not attained/maintained

Factual Information

History of Flight

Landing	Hard landing (Defining event)

On February 11, 2023, at 1250 eastern standard time, a Gates Learjet Corp 55, N600C, was substantially damaged when it was involved in an accident near Rochester, New York. The airline transport pilots, three adult passengers, and an infant child were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The crewmembers were interviewed by Federal Aviation Administration (FAA) aviation safety inspectors. They each stated that their individual inspections of the airplane revealed there were no mechanical deficiencies with the airplane before departure from Palm Beach International Airport (PBI), West Palm Beach, Florida. The copilot described the flight as "uneventful" and reported that the airplane landed in the touchdown zone "firmly, but not exceptionally so." He did not realize that the airplane was damaged until after landing, when he saw fuel leaking from the airplane after deplaning.

In a written statement, the pilot, who was flying the airplane, described a "stable approach" and stated that the landing was "firm," but that after landing, the crew could "tell something was wrong as the aircraft was leaning to the left." Once they deplaned, they "found the left strut assembly collapsed, damage to the [landing gear] attach point, damage to the left wing, and damage to the fuel tank."

In written and verbal statements provided to the National Transportation Safety Board, the FAA, and their insurance company days after the accident, the pilot said that during the departure roll at PBI he "noticed the left wing was down," applied aileron to compensate, and "didn't think much of it at the time." The copilot also "noticed" and provided a nearly identical statement.

Review of surveillance video showed the airplane parked on the ramp at PBI through its engine start, and taxi from parking to the taxiway. The airplane was in a level attitude, no damage to the wings was evident, and the airplane was not leaking any fluids while parked or during taxi.

In a telephone interview, one passenger stated that she had previously flown on the accident airplane with a different flight crew. The accident crew was contracted by the airplane's owner from Canandaigua Air Center, LLC. She said the normal convention was for one pilot to "work the iPad" while the other flew the airplane. She noticed that captain was "preoccupied with the iPad" but was also in control of the airplane. He later handed the iPad to the copilot.

During the approach, the passenger said that she could hear altitudes called out, which sounded automated, and just before touchdown, she heard “too fast, too fast, which sounded like a person.” She stated that the airplane “slammed” onto the runway, the oxygen masks deployed, compartments inside the airplane opened, and the baby started screaming. The airplane bounced, and the second landing was “very bumpy.” She said the pilot shouted an expletive after landing, was “apologizing profusely” as they deplaned, and that they were “rushed” to their van because the airplane was leaking fuel.

A review of airport surveillance video revealed that the airplane touched down around the runway 28 displaced threshold before the landing surface of the runway, bounced, and continued about 270 ft before it touched down and rolled out on the runway (see Figure 1).

Figure 1 - View of Ground Scars and Rubber Transfer Marks Consistent with Left Main Landing Gear

Examination of photographs revealed skid marks, ground scars, and fractured and broken parts associated with the left main landing gear wheel assembly, the retaining system for its

brakes, a fractured piece from the strut cylinder and a fractured piece of its snap ring (retainer) (see Figure 2).

Figure 2 - View of Fractured Landing Gear Leg and Fractured Brake Caliper Retention Caps

The initial ground scar and skid marks, which were consistent with the dimensions of the left main landing gear tires, began in the displaced threshold about 110 ft before the landing surface of the runway. The fractured parts were scattered over and beyond the ground scars and tire markings. One of the FAA inspectors described the structural and skin damage to the left wing and provided photographs of the torn structure, fractured hardware, and “sheared-off” rivets of the left-wing aft spar. Visual examination of the fracture surfaces depicted in the photographs revealed signatures consistent with overstress.

The pilot held an airline transport pilot certificate with a rating for airplane multi-engine land. He held multiple type ratings, including one for the accident airplane. He was issued an FAA second-class medical certificate on December 9, 2022. The pilot reported 13,550 total hours of flight experience, of which 300 hours were in the accident airplane make and model.

The copilot held an airline transport pilot certificate with a rating for airplane multi-engine land. He was issued an FAA second-class medical certificate on June 13, 2022. The copilot reported 17,000 total hours of flight experience, of which 30 were in the accident airplane make and model. He was not type-rated in the accident airplane make and model.

Airport firefighters were dispatched when the ground operations supervisor heard a “loud bang” as the airplane landed and saw what he thought was smoke coming from the landing gear. Upon reaching the airplane, firefighters observed an active fuel leak as the passengers were deplaning. A statement from the fire department indicated that fuel was “pouring” from the area just forward of the left main landing gear well. The fuel spill was estimated at 25 gallons. Firefighting personnel also reported a “trail of fuel” from runway 28 to the ramp where the airplane parked, and tire marks as well as multiple pieces of metal debris in the displaced threshold.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	53,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	December 9, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	13550 hours (Total, all aircraft), 300 hours (Total, this make and model), 60 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Airline transport	**Age:**	59,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	June 13, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	17000 hours (Total, all aircraft), 30 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	GATES LEARJET CORP	**Registration:**	N600C
Model/Series:	55	**Aircraft Category:**	Airplane
Year of Manufacture:	1982	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	55-047
Landing Gear Type:	Retractable - Tricycle	**Seats:**	13
Date/Type of Last Inspection:	June 30, 2022 Continuous airworthiness	**Certified Max Gross Wt.:**	21750 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo fan
Airframe Total Time:	10504 Hrs as of last inspection	**Engine Manufacturer:**	Honeywell
ELT:	Installed, not activated	**Engine Model/Series:**	TFE-731
Registered Owner:	On file	**Rated Power:**	3700 Lbs thrust
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KROC,559 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	12:54 Local	**Direction from Accident Site:**	10°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 2600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.33 inches Hg	**Temperature/Dew Point:**	-1°C / -7°C
Precipitation and Obscuration:			
Departure Point:	West Palm Beach , FL (PBI)	**Type of Flight Plan Filed:**	IFR
Destination:	Rochester, NY	**Type of Clearance:**	IFR
Departure Time:	10:27 Local	**Type of Airspace:**	Class C

Airport Information

Airport:	Rochester International ROC	**Runway Surface Type:**	Asphalt
Airport Elevation:	559 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	28	**IFR Approach:**	None
Runway Length/Width:	6402 ft / 150 ft	**VFR Approach/Landing:**	Straight-in

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	4 None	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	6 None	**Latitude, Longitude:**	43.119144,-77.671869(est)

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	James Seymour; FAA/FSDO; Rochester, NY
Original Publish Date:	October 3, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=106733