



Aviation Investigation Preliminary Report

Location:	Scottsdale, AZ	Accident Number:	WPR25FA088
Date & Time:	February 10, 2025, 14:38 Local	Registration:	N81VN
Aircraft:	GATES LEARJET CORP. 35A	Injuries:	1 Fatal, 3 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Executive/Corporate		

On February 10, 2025, about 1438 mountain standard time, a Gates Learjet 35A, was substantially damaged when it was involved in an accident near Scottsdale, Arizona. The captain was fatally injured, the first officer (FO) and one passenger were seriously injured, one passenger sustained minor injuries; and an occupant inside a parked airplane sustained serious injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 corporate flight.

The captain was the airplane's regular pilot, and he had flown with the FO consistently since June. The purpose of the accident flight was to transport the passengers to Arizona for a local event. A review of FAA ADS-B data disclosed that the flight originated from Florida the morning of the accident and made a refueling stop in Austin, Texas. After the airplane was refueled with 440 gallons of JET A, it departed and reached a peak altitude of 41,500 ft mean seal level (msl) as it continued on a northwestern flight path toward Scottsdale. Around 1434:20, at an altitude of 2,800 ft above ground level (agl), the airplane turned onto an extended final approach path to runway 21 at Scottsdale Airport (SDL), Scottsdale, Arizona.

Investigators obtained security camera footage and numerous videos from personal cell phone cameras. A witness provided video taken from a golf course near the final approach path that captured the airplane for 11 seconds starting at 1437:52. The airplane can be seen on final approach with the left landing gear trailing aft from its normal position. Additionally, there is a circular bright spot seen above the landing gear strut, consistent with the landing gear light illuminating the bottom of the wing flap and the landing gear strut positioned facing aft (see figure 1).

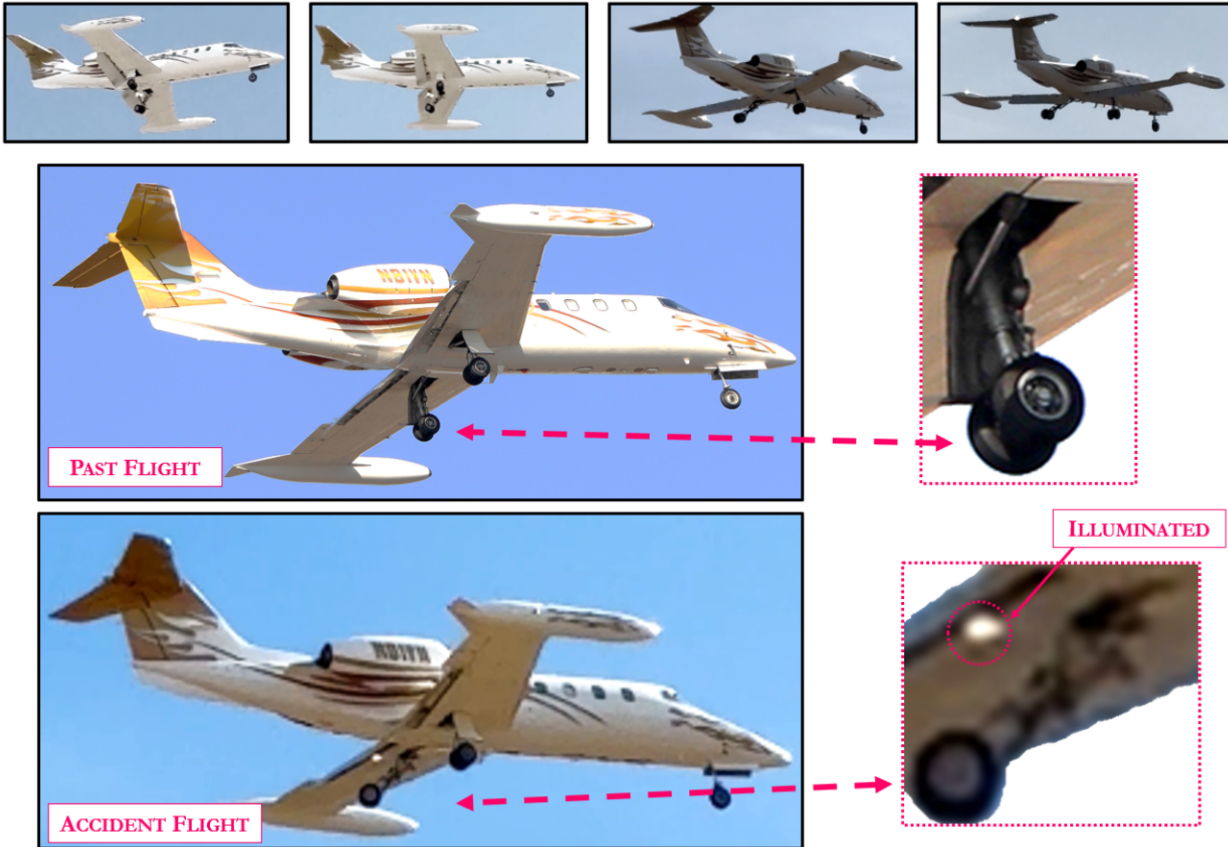


Figure 1: Excerpts from a witness supplied video showing the left landing gear askew while on approach to the runway. (Past Flight Photo Source: www.jetphotos.com)

A review of surveillance videos and ADS-B data showed that at 1438:16, the airplane touched down on runway 21 just before the aiming point markings with full flaps extended. It immediately entered a left-wing-low attitude and began veering left, exiting the runway surface. The airplane traveled over the rock-covered runway-safety-area islands located between the runway and taxiways. The airplane crossed Taxiway Bravo, collided with the windsock, and entered the ramp area where it struck the right side of a parked Gulfstream G200 (see figures 2 and 3). The airplane was not equipped with thrust reversers and the drag chute was not deployed.

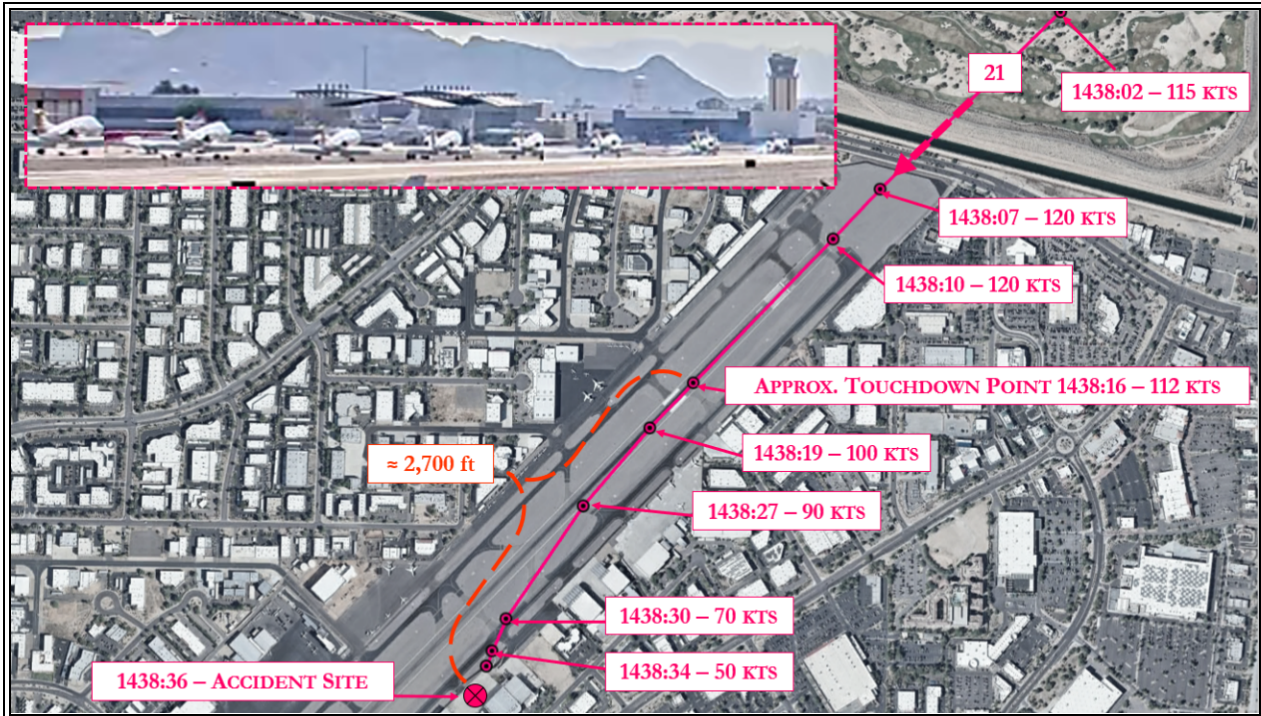


Figure 2: ADS-B derived flight path and groundspeeds with video excerpts showing the airplane at touchdown



Figure 3: Video excerpts showing the landing rollout to impact

Security camera recordings showed that the airplane came to rest at 1438:36 with the nose embedded between the right side of the Gulfstream's fuselage and the inboard trailing edge of the right wing. The

engines on the accident airplane continued to operate. The airport's emergency response fire truck arrived at 1440:53 and sprayed fire retardant on the front of the G200 about 5 minutes later. The passengers reported that the right-seated passenger (wearing a seatbelt) regained consciousness first and woke up the left-seated passenger who had been thrown forward in the passenger cabin. The Scottsdale Fire Department arrived on-scene about 1447:30. The right-seated passenger eventually was able to remove the right emergency exit and at 1448:37, with the right engine still running, she egressed over the right wing carrying two small dogs. She then turned back and went to retrieve the second passenger. At 1458:11 the airport fire truck sprayed foam on the right engine to shut it down and the FO was removed from the cockpit about 1700 and transported to the hospital.

Main Landing Gear

The airplane is equipped with a retractable, tricycle landing gear that is electrically controlled and hydraulically actuated. Each main gear assembly consists of a conventional oleo shock strut, dual forged wheels with multiple-disc brakes, a main gear actuator, and inboard/outboard doors hinged at the wing structure. The assembly attaches to the airplane structure through trunnion pins, with striker plates on the trunnions to actuate microswitches. The aft trunnion pins are positioned with the shoulder abutting the aft trunnion fitting (located on spar #7) and the body is aligned forward through a bushing (where there is a grease hole on the pin) and into the aft trunnion casting (see figure 4). There are shims that are placed on the pin and positioned on both sides of the aft trunnion fitting to ensure adequate movement. The pin is secured to the trunnion with a retention bolt that goes through the striker bracket, trunnion, and the pin's retention bolt holes, which is then affixed with a castellated nut and cotter pin.

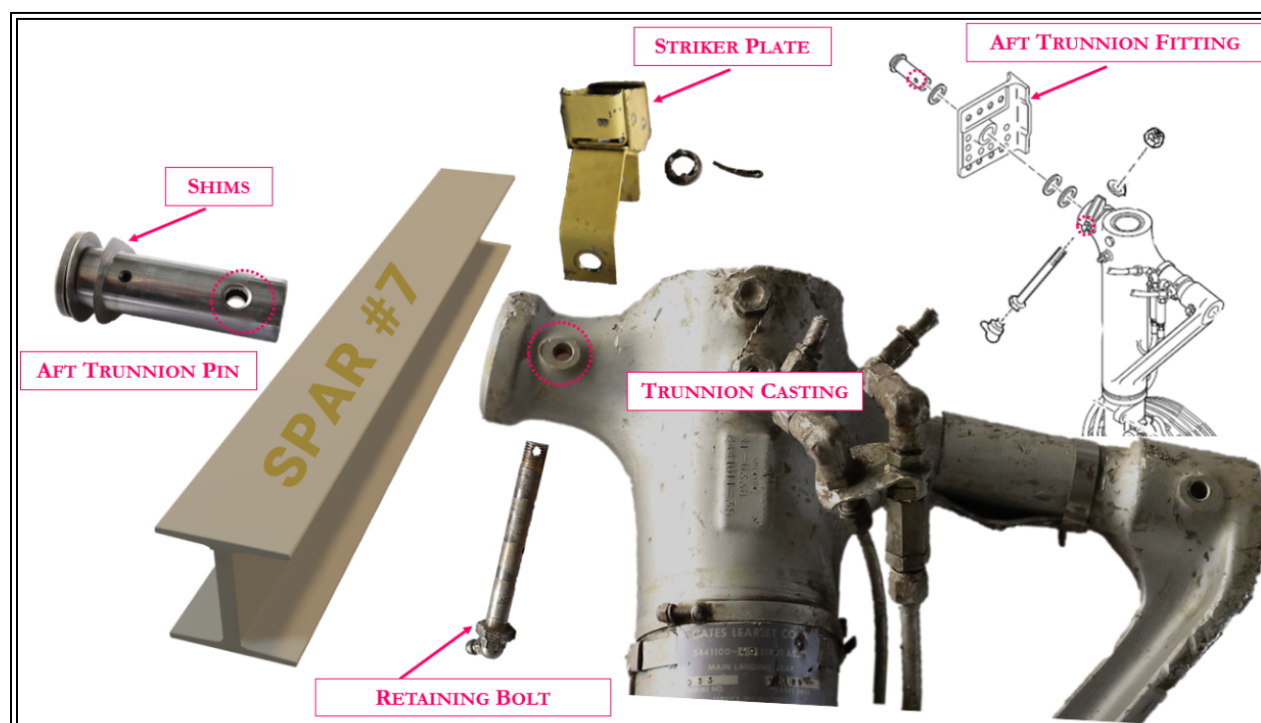


Figure 4: Left main landing gear assembly

The left main landing gear came to rest on Taxiway Bravo 10 adjacent to Taxiway Bravo (see figure 5). The forward trunnion pin remained secured in the forward trunnion casting. The aft trunnion pin was

not present within the trunnion casting, though the retaining bolt with striker bracket was secured with the castle nut and cotter pin (see figure 6). The actuator remained connected to the strut, but the inboard attachment point was no longer fastened to the airframe. The right main landing gear remained attached to the airframe and was in the down and locked position with the outboard gear door separated and located within the debris field and the inboard door in the locked position.

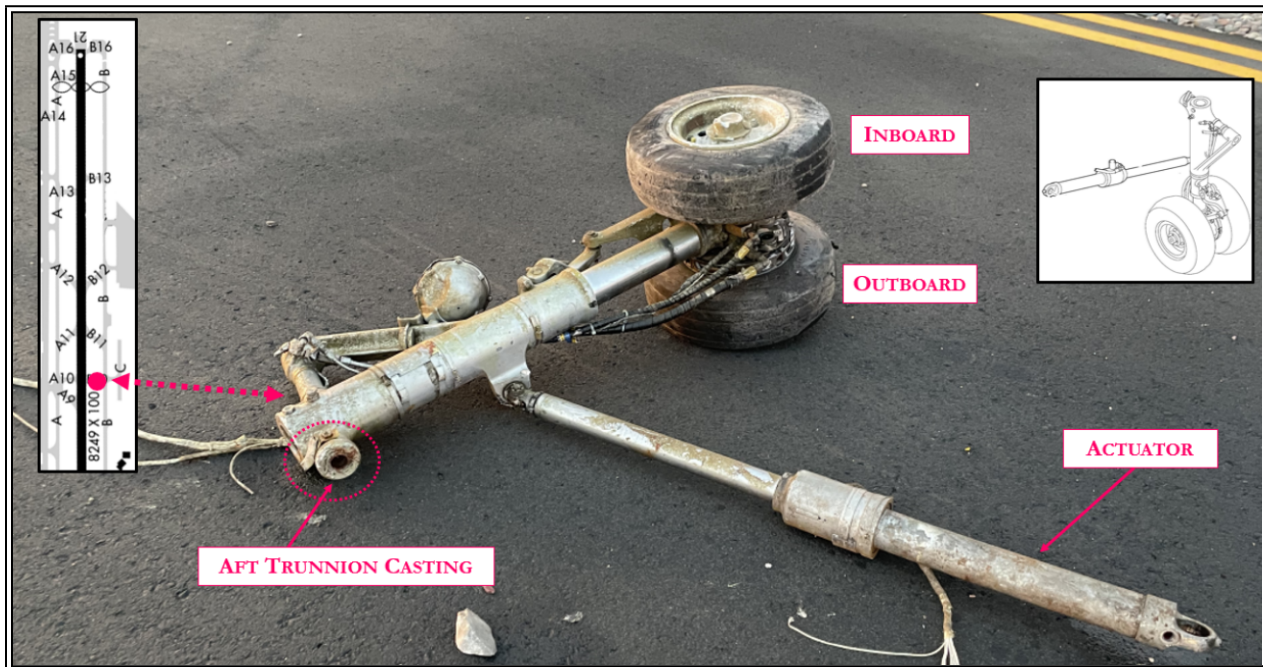


Figure 5: Left main landing gear at the accident site

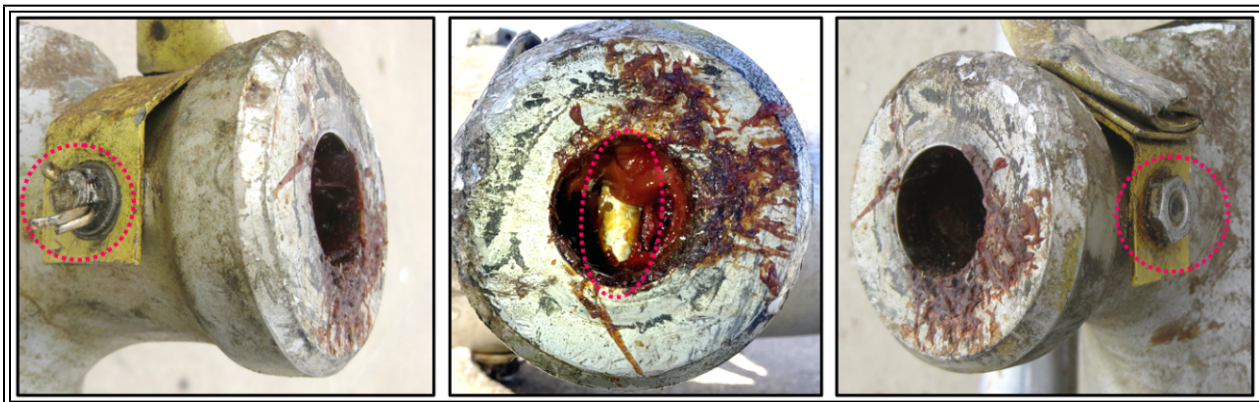


Figure 6: Left main landing gear aft trunnion casting at the accident site

The left outboard gear door was not located. The inboard landing gear door was not in the uplock position. Examination of the left wheel well revealed that the aft trunnion pin was still in the aft trunnion fitting (located on spar #7) with no forward shims located. Removal of the access panel adjacent to the aft trunnion fitting gave investigators visual access to the aft trunnion pin's shoulder and the aft shims. There was an excessive amount of grease piled below the pin (see figure 7).

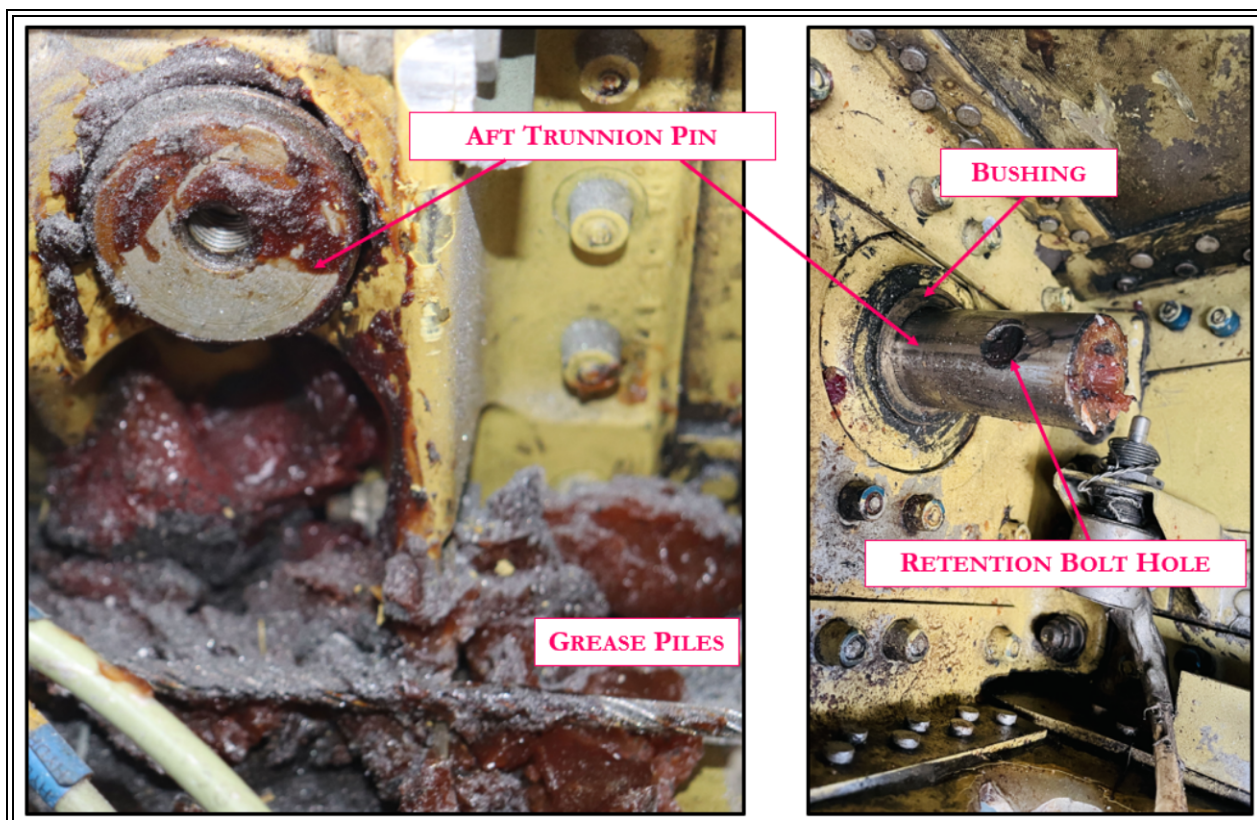


Figure 7: Left main landing gear aft trunnion pin

The same flight crew for the accident flight had a landing mishap on June 20, 2024 in McAlester, Oklahoma. A video of the event revealed that the airplane landed hard just short of the runway surface and bounced several times. As a result of the hard landing, both left main landing gear tires burst. The pilot hired a mechanic, who had worked on the airplane when it was owned by the previous owner, to perform a hard landing inspection on the airplane. During an interview with the mechanic, he stated that after obtaining a flight permit and repositioning the airplane to his facility, he removed both main landing gear to facilitate the pertinent eddy-current inspections that were required. He stated he followed the maintenance manual for all of the work he performed.

The Learjet manual specifies that installation of the main gear strut begins by securing the forward trunnion pin. The mechanic then should raise the shock strut so that the forward trunnion pin engages in the forward bearing. Thereafter, the mechanic should align the trunnion with the aft trunnion fitting. The same number of shims as previously removed should be placed onto the aft trunnion pin before inserting it from the aft side of spar 7 and then into the trunnion casing, ensuring all shims remain undamaged. A temporary bolt is installed on the shoulder area of the aft trunnion pin to check tolerances, after which the bolt is removed to insert the striker bracket. Finally, the mechanic secures the retaining bolt (with attached Zerk fitting) through the aft trunnion pin and trunnion casing with a nut and cotter pin on the other side. The mechanic then must check the tolerance between the aft trunnion casing and aft trunnion fitting. Thereafter, grease is added through the Zerk fitting to migrate through the pin and grease the bushing through the grease hole (see figure 8).

Investigators took measurements of the aft trunnion pin shoulder protrusion off the aft trunnion fitting if it was not engaged fully forward into the trunnion casing. If the bolt is secured before engaging the

pin in the trunnion casing then the grease hole could be aft of the bushing allowing grease to escape outside the pin, into the wing bay behind spar #7. With the adjacent access panel removed, using a mirror, the pin can visibly be seen not making contact with the aft trunnion fitting when it is not fully pushed into the trunnion casing. The NTSB is aware of at least three other prior events where a Learjet landing gear had disconnected from the airframe because the retaining bolt was not engaged through the aft trunnion pin.

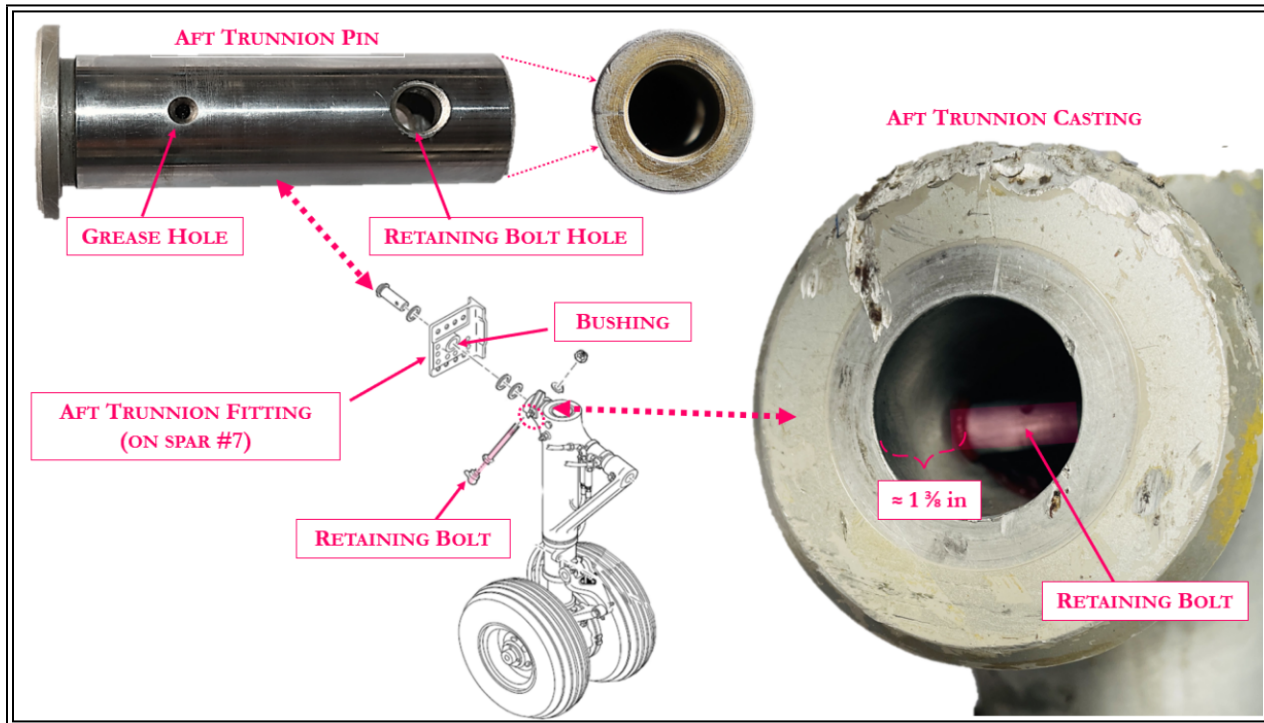


Figure 8: Left main landing gear aft trunnion pin showing bolt installed.

The airplane flight time and cycles between the maintenance conducted following the June 2024 incident, and the accident flight are unknown. A mechanic who performed the landing gear servicing in December 2024 stated that nothing appeared unusual but remarked that the left landing gear took an excessive amount of grease.

The flight crew did not make any radio calls indicating they were aware that the landing gear may not be operating correctly. The landing gear control panel is located on the right side of the center instrument panel. It features three red UNSAFE lights, three green LOCKED DOWN lights, and the landing gear selector switch. A down-and-locked switch on each actuator housing illuminates the corresponding green LOCKED DOWN light when the gear is fully deployed. If the actuator is not locked, the light remains off. Each main gear's red UNSAFE light is triggered by a microswitch on the inboard gear door; the light shows when the door is open and turns off when the door closes.

Aircraft and Owner/Operator Information

Aircraft Make:	GATES LEARJET CORP.	Registration:	N81VN
Model/Series:	35A	Aircraft Category:	Airplane
Amateur Built:			
Operator:	CHROMED IN HOLLYWOOD INC	Operating Certificate(s) Held:	None
Operator Designator Code:			

Meteorological Information and Flight Plan

Conditions at Accident Site:	VMC	Condition of Light:	Day
Observation Facility, Elevation:	KSDL, 1431 ft msl	Observation Time:	12:53 Local
Distance from Accident Site:	1 Nautical Miles	Temperature/Dew Point:	22°C / -1°C
Lowest Cloud Condition:	Clear	Wind Speed/Gusts, Direction:	3 knots / None, 320°
Lowest Ceiling:	None	Visibility:	10 miles
Altimeter Setting:	29.97 inches Hg	Type of Flight Plan Filed:	IFR
Departure Point:	Austin, TX (AUS)	Destination:	Scottsdale, AZ

Wreckage and Impact Information

Crew Injuries:	1 Fatal, 1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious, 1 Minor	Aircraft Fire:	None
Ground Injuries:	1 Serious	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 3 Serious, 1 Minor	Latitude, Longitude:	33.622478,-111.90907

Administrative Information

Investigator In Charge (IIC):	Keliher, Zoe
Additional Participating Persons:	Chris Kennedy; FAA; Scottsdale, AZ Andrew Field; Bombardier; Montreal Camp Morton; Honeywell; Phoenix, AZ
Investigation Class:	Class 3
Note:	