



# Aviation Investigation Final Report

<b>Location:</b>	Salt Lake City, Utah	<b>Accident Number:</b>	ANC18LA049
<b>Date &amp; Time:</b>	June 26, 2018, 08:50 Local	<b>Registration:</b>	N57
<b>Aircraft:</b>	LEARJET INC 60	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fire/smoke (non-impact)	<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 135: Air taxi & commuter - Non-scheduled		

## Analysis

The pilots reported that, while taxiing to the runway for departure, the nose wheel steering seemed unusually sensitive and the airplane pulled slightly to the right. As they neared the runway threshold, they smelled what they thought to be overheated brakes. The crew confirmed the position of the parking brake handle, which had not been fully stowed, and once the handle was completely stowed (parking brake OFF position), the airplane moved more freely. The crew then cancelled their takeoff clearance and taxied the airplane to the runup area to allow the brakes to cool. Shortly thereafter, the control tower notified the flight crew that the airplane was on fire.

Examination of the airplane revealed substantial damage to the underside of the fuselage and right wing due to fire that originated at the right main landing gear. A detailed examination of the airplane's brake system revealed no preaccident mechanical failures or malfunctions that would have precluded normal operation. A review of the cockpit voice recorder information confirmed that the crew did not completely release the parking brake before taxi.

## Probable Cause and Findings

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

The flight crew's failure to fully disengage the parking brake before taxi, which resulted in a brake fire.

## Findings

<b>Personnel issues</b>	Use of equip/system - Pilot
<b>Personnel issues</b>	Use of equip/system - Copilot
<b>Aircraft</b>	Brake - Incorrect use/operation

## Factual Information

### History of Flight

#### Taxi-to runway

Fire/smoke (non-impact) (Defining event)

On June 26, 2018, about 0850 mountain daylight time (MDT), a Bombardier Learjet 60 airplane, N57Z, sustained substantial damage when it was involved in an accident at Salt Lake City International Airport (KSLC), Salt Lake City, Utah. The two pilots and one technician were uninjured. The airplane was operated as a Title 14 Code of Federal Regulations Part 135 flight.

The mission-specific modified airplane was registered to and operated by the Federal Aviation Administration (FAA) and was used to perform flight inspections of the National Airspace navigational systems. The captain was the pilot flying at the time of the accident.

According to the flight crew, while taxiing to the runway for departure, the nose wheel steering seemed unusually sensitive and the airplane pulled slightly to the right. As they neared the runway threshold, they smelled what they thought was overheated brakes. The crew confirmed the position of the parking brake handle and the airplane moved more freely. The crew then cancelled their takeoff clearance and taxied the airplane to the runup area to allow the brakes to cool. Shortly thereafter, the control tower notified the crew that the airplane was on fire. The crew secured and then evacuated the airplane.

The cockpit voice recorder (CVR) recorded the captain's and first officer's comments and revealed that, as the airplane taxied, both pilots felt that the airplane's movement was jerky and they could hear a squealing noise that was not audible on the CVR. The captain indicated that the airplane wanted to pull to the right and that it seemed like more power was required to taxi. The first officer indicated that it felt like the captain was "riding" the brakes. Shortly thereafter, the captain realized the parking brake was not completely released.

Examination of the airplane by an FAA inspector revealed that the right tire and landing gear were fire-damaged, and that the underside of the fuselage and right wing was substantially damaged due to the fire. A detailed examination of the airplane's brake system revealed no pre-accident mechanical failures or malfunctions that would have precluded normal operation.

The parking brake handle was located on the pedestal below the thrust levers and labeled PARKING BRAKE. The parking brake was operated by depressing and holding the toe brakes and pulling the parking brake handle to set the brakes. The parking brake was released by returning the handle to the off, or in, position. Whenever the parking brake handle was not fully in, the PARK BRAKE light would illuminate.

A review of the Lear 60 Single Card Checklist, Revision 1, dated June 4, 2017, revealed that the Before Taxi, Taxi and Before Takeoff, Quick Turnaround, and Taxi checklists did not contain a line item for the release of the parking brake.

## Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	60,Male
<b>Airplane Rating(s):</b>	Single-engine sea; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Airship	<b>Restraint Used:</b>	5-point
<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 With waivers/limitations	<b>Last FAA Medical Exam:</b>	March 6, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	April 9, 2018
<b>Flight Time:</b>	7824 hours (Total, all aircraft), 2524 hours (Total, this make and model), 6210 hours (Pilot In Command, all aircraft), 117 hours (Last 90 days, all aircraft), 34 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

## Co-pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	57,Male
<b>Airplane Rating(s):</b>	Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	5-point
<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 With waivers/limitations	<b>Last FAA Medical Exam:</b>	January 11, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	March 16, 2018
<b>Flight Time:</b>	8199 hours (Total, all aircraft), 1990 hours (Total, this make and model), 4208 hours (Pilot In Command, all aircraft), 134 hours (Last 90 days, all aircraft), 37 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	LEARJET INC	<b>Registration:</b>	N57
<b>Model/Series:</b>	60 NO SERIES	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1994	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	039
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>		<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Turbo fan
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	P&W CANADA
<b>ELT:</b>		<b>Engine Model/Series:</b>	PW305A
<b>Registered Owner:</b>		<b>Rated Power:</b>	0 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KSLC	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	15:54 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Few / 11000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	7 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	290°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.04 inches Hg	<b>Temperature/Dew Point:</b>	30°C / 3°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Salt Lake City, UT (SLC )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Idaho Falls, ID	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	08:30 Local	<b>Type of Airspace:</b>	Class B

## Airport Information

<b>Airport:</b>	SALT LAKE CITY INTL SLC	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	4227 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	3 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	40.788333,-111.977777(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Banning, David		
<b>Additional Participating Persons:</b>	David Gerlach; Federal Aviation Administration William Wiles; Bombardier; Wichita, KS		
<b>Original Publish Date:</b>	May 25, 2021	<b>Investigation Class:</b>	3
<b>Note:</b>	The NTSB did not travel to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=97627">https://data.nts.gov/Docket?ProjectID=97627</a>		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).