



Aviation Investigation Final Report

Location:	Livingston, Montana	Accident Number:	WPR24LA071
Date & Time:	January 11, 2024, 08:37 Local	Registration:	N558RA
Aircraft:	LEARJET INC 55	Aircraft Damage:	Substantial
Defining Event:	Runway excursion	Injuries:	2 Minor
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The pilot in command of the airplane reported that, while on an instrument GPS approach, they listened to the automated surface observing system several times and determined that they would be landing with a “light quartering tailwind” on an upsloping runway. Once clear of clouds and with the runway in sight, the pilot canceled the instrument flight rules clearance, announced their position over the airport’s common traffic advisory frequency and received a reply with a report of 1/4 inch of dry snow covering the runway, unplowed. During the landing roll, they applied brakes, extended spoilers, and thrust reversers. Initially the airplane slowed; however, about halfway down the runway, the airplane’s antiskid system was functioning continuously, and the airplane’s rate of deceleration decreased. The pilot was unsure if the thrust reversers deployed, and he cycled the thrust reversers and did not feel any effects. The pilot stated that, in his experience, the airplane’s thrust reversers do not feel very effective. The pilot considered aborting the landing, started to clean up the airplane but thought it was too late. The airplane overran the departure end of the runway, onto a grass covered area and into a deep ravine, resulting in substantial damage to the fuselage and both wings.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

The automated weather observation station located on the airport reported that, about 44 minutes before the accident, the wind was from 090° at 12 knots. The same automated station reported that, about 16 minutes after the accident, the wind was from 090° at 12 knots. The airplane landed on runway 22.

The fixed based operator owner reported that, on the day of the accident, his review of the runway conditions at the airport appeared to be around an inch of snow on the runway surface.

Additionally, plowing at the airport so far this year had been “abysmal.” Big windrows and ice chunks have been left; taxiway corners had been built up to the point there could be an occurrence should an airplane be taxiing by. Earlier this year, several departures were delayed due to the runway not being plowed.

According to the chairman of the airport board, there is no formal process to conduct runway assessments. However, an airport board member lives in the area and routinely visits the airport to conduct runway assessments. The runway assessments and frequency of the observations are not documented but are conveyed verbally to the airport board via cell phone. To the best of his knowledge, there is no formal snow or ice removal plan. When the runway is required to be cleared, a board member will use county provided equipment to clear the runway. The frequency of the snow removal is not documented. The airport snow removal equipment is limited to clear substance to ½ inch of the runway surface. On the day of the accident, he was not aware of a Notice to Air Mission (NOTAM) issued for the conditions of the runway environment.

According to the airplane manufacturer, the estimated landing distance on a dry runway was about 3,350 ft, with loose snow and no tailwind the estimated landing distance was about 6,700 ft, and on loose snow with tailwind, the estimated landing distance was 7,531 ft.

According to the Federal Aviation Administration, the airport is not required to have a snow and ice control plan. However, the airport was provided federal funds (grant) to purchase/acquire a snowplow to maintain the airport surfaces during inclement weather conditions. There may be times where issues arise, and action is delayed. In that case it is expected that a NOTAM be issued as outlined in the grant agreement.

Probable Cause and Findings

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

The flight crew’s decision to land on a snow-covered runway with a tailwind, resulting in a runway excursion and subsequent impact with terrain. Contributing to the accident, was the failure of the airport authority to plow the runway.

Findings

Personnel issues	Identification/recognition - Pilot
Personnel issues	Identification/recognition - Copilot
Aircraft	Surface speed/braking - Attain/maintain not possible
Environmental issues	Snow/slush/ice covered surface - Effect on equipment
Environmental issues	Snow removal service/equipment - Response/compensation

Factual Information

History of Flight

Landing-landing roll	Runway excursion (Defining event)
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Pilot Information

Certificate:	Airline transport; Flight instructor	Age:	66,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; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	November 13, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	August 30, 2023
Flight Time:	(Estimated) 31800 hours (Total, all aircraft), 800 hours (Total, this make and model), 29800 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Commercial; Flight instructor	Age:	29,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	April 14, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	December 12, 2023
Flight Time:	(Estimated) 1726 hours (Total, all aircraft), 9 hours (Total, this make and model), 1432 hours (Pilot In Command, all aircraft), 53 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	LEARJET INC	Registration:	N558RA
Model/Series:	55	Aircraft Category:	Airplane
Year of Manufacture:	1983	Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	086
Landing Gear Type:	Retractable - Tricycle	Seats:	9
Date/Type of Last Inspection:	May 25, 2023 Continuous airworthiness	Certified Max Gross Wt.:	21500 lbs
Time Since Last Inspection:		Engines:	2 Turbo fan
Airframe Total Time:	14135 Hrs at time of accident	Engine Manufacturer:	HONEYWELL
ELT:	C126 installed, activated, did not aid in locating accident	Engine Model/Series:	TFE731-3AR-2B
Registered Owner:	ROYAL AIR FREIGHT INC	Rated Power:	3700 Lbs thrust
Operator:	ROYAL AIR FREIGHT INC	Operating Certificate(s) Held:	On-demand air taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KLVM, 4618 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	08:53 Local	Direction from Accident Site:	109°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Overcast / 1900 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	12 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	90°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.68 inches Hg	Temperature/Dew Point:	-17°C / -19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Waterford, MI (PTK)	Type of Flight Plan Filed:	IFR
Destination:	Livingston, MT	Type of Clearance:	IFR
Departure Time:	07:26 Local	Type of Airspace:	Class E

Airport Information

Airport:	MISSION FLD LVM	Runway Surface Type:	Asphalt;Snow;Unknown
Airport Elevation:	4659 ft msl	Runway Surface Condition:	Snow;Unknown
Runway Used:	22	IFR Approach:	RNAV;Visual
Runway Length/Width:	5701 ft / 75 ft	VFR Approach/Landing:	Full stop;Straight-in

Wreckage and Impact Information

Crew Injuries:	2 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	2 Minor	Latitude, Longitude:	45.699417,-110.44802(est)

Administrative Information

Investigator In Charge (IIC):	Gutierrez, Eric
Additional Participating Persons:	Jeffery Simmons ; Federal Aviation Administration ; Helena, MT
Original Publish Date:	August 1, 2024
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=193641

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).