



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Key West, Florida	Accident Number:	ERA19LA073
Date & Time:	December 15, 2018, 09:33 Local	Registration:	N55FN
Aircraft:	Learjet 35	Aircraft Damage:	Substantial
Defining Event:	Windshear or thunderstorm	Injuries:	4 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The flight crew conducted an instrument approach to their destination airport that terminated in a missed approach. Air traffic control provided radar vectors for a second approach, and during that time, the wind shifted due to the passage of a cold front and favored the opposite direction runway. The subsequent approach was uneventful; however, during the landing flare, the airplane touched down hard and was substantially damaged. Review of a weather sounding taken shortly before the accident revealed the potential for low-level windshear activity between the surface and 1,000 feet. Given this information, it is most likely that the flight crew encountered windshear during the landing flare, which resulted in a hard landing.

Probable Cause and Findings

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

The flight crew's encounter with windshear during the landing flare, which resulted in a hard landing.

Findings

Environmental issues	Windshear - Contributed to outcome
Aircraft	Landing flare - Not attained/maintained

Factual Information

History of Flight

Landing	Windshear or thunderstorm (Defining event)
Landing-flare/touchdown	Hard landing

On December 15, 2018, about 0933 eastern standard time, a Learjet 35A, N55FN, was substantially damaged when it was involved in an accident during landing at Key West International Airport (EYW), Key West, Florida. The flight was operated by Medway Air Ambulance as a Title 14 *Code of Federal Regulations* Part 91 positioning flight.

According to the operator, the first officer flew the initial approach to runway 9 at EYW. The crew visually acquired the runway but were not in a position to land the airplane and performed a missed approach. During the missed approach, they encountered turbulence, and the captain took the flight controls. While being radar-vectorred for the second approach, air traffic control advised the crew that the wind had shifted and was favoring runway 27. The subsequent approach to runway 27 was uneventful. During the landing flare, the crew were unable to arrest the airplane's descent, and the airplane landed hard. After taxiing to the ramp, they realized that the airplane was damaged during the landing.

According to pictures provided by a Federal Aviation Administration (FAA) inspector, the airplane sustained substantial damage to the left engine pylon, left wing, and main landing gear.

According to available weather information, a cold front moved across EYW around the time of the accident, followed by a second cold front that was approaching the area. The EYW upper air sounding, launched at 0700, indicated a surface wind from 220° at 6 knots with little directional variation with height and with wind speed increasing with height. At 1,000 ft a low-level wind maximum was identified from 210° at 18 knots, which resulted in a slight risk or "light" low-level wind shear condition below this level and potential surface wind gusts.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	Age:	24, 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 single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	February 20, 2018
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 21, 2018
Flight Time:	1950 hours (Total, all aircraft), 1150 hours (Total, this make and model), 997 hours (Pilot In Command, all aircraft), 145 hours (Last 90 days, all aircraft), 35 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Commercial; Flight instructor	Age:	41, 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:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	September 9, 2018
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 11, 2018
Flight Time:	1634 hours (Total, all aircraft), 320 hours (Total, this make and model), 1255 hours (Pilot In Command, all aircraft), 129 hours (Last 90 days, all aircraft), 38 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Learjet	Registration:	N55FN
Model/Series:	35 A	Aircraft Category:	Airplane
Year of Manufacture:	1978	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	202
Landing Gear Type:	Retractable - Tricycle	Seats:	8
Date/Type of Last Inspection:	July 12, 2018 Continuous airworthiness	Certified Max Gross Wt.:	18001 lbs
Time Since Last Inspection:		Engines:	2 Turbo fan
Airframe Total Time:	22533 Hrs at time of accident	Engine Manufacturer:	Honeywell
ELT:	C126 installed, not activated	Engine Model/Series:	TFE731-2-2B
Registered Owner:		Rated Power:	3500 Lbs thrust
Operator:		Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:		Operator Designator Code:	Y6WA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	Condition of Light:	Day
Observation Facility, Elevation:	EYW, 21 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	09:25 Local	Direction from Accident Site:	63°
Lowest Cloud Condition:		Visibility	
Lowest Ceiling:	Broken / 600 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	13 knots / 19 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	330°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.09 inches Hg	Temperature/Dew Point:	23°C / 22°C
Precipitation and Obscuration:	Moderate - None - Rain		
Departure Point:	Lawrenceville, GA (LZU)	Type of Flight Plan Filed:	IFR
Destination:	Key West, FL (EYW)	Type of Clearance:	IFR
Departure Time:	07:30 Local	Type of Airspace:	Class D

Airport Information

Airport:	KEY WEST INTL EYW	Runway Surface Type:	Asphalt
Airport Elevation:	2 ft msl	Runway Surface Condition:	Wet
Runway Used:	27	IFR Approach:	RNAV
Runway Length/Width:	4801 ft / 100 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	4 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	4 None	Latitude, Longitude:	24.55611,-81.753608(est)

Administrative Information

Investigator In Charge (IIC):	Hill, Millicent		
Additional Participating Persons:	Juan Garcia; FAA/FSDO; Miramar, FL		
Original Publish Date:	March 4, 2022	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98796		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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](#).