



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Watkins, Colorado	Accident Number:	CEN19LA048
Date & Time:	December 25, 2018, 09:48 Local	Registration:	N711KJ
Aircraft:	Vans RV 6	Aircraft Damage:	Destroyed
Defining Event:	Fire/smoke (non-impact)	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he'd been conducting touch-and-go landings in the traffic pattern. During initial climb for the second touch-and-go landing and once the airplane reached between about 200 and 300 ft above ground level, he smelled an unusual odor and noticed flames coming from the floor forward of his rudder pedals. The pilot added that he "immediately rejected the takeoff" and declared an emergency. He then landed the airplane on the departure runway, exited the runway onto a taxiway, and then stopped the airplane. The pilot subsequently turned off the fuel valve, shut down the engine by pulling the mixture to full lean, turned off the fuel valve and electrical power switches, and then exited the airplane. A postcrash fire ensued, which consumed the airplane.

The pilot stated that he had installed all new fuel lines about 1 month or 1.5 flight hours before the accident flight. Postaccident engine examination revealed that all four fuel lines exhibited thermal damage and soot on their exteriors, consistent with exposure to fire. An end of one of the fuel lines had soot deposits in the first three threads of the line's attachment fitting. If the fuel line had been secured at the time of the fire, no soot deposits would have been inside the threaded fitting. Therefore, it is likely that the fuel line loosened during flight due to the pilot's failure to apply adequate torque to the line during installation, which allowed fuel to enter the hot engine compartment and led to an in-flight fire that consumed the airplane.

Probable Cause and Findings

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

The pilot's failure to apply adequate torque to a fuel line during recent maintenance, which allowed the line to loosen in flight and fuel to enter the hot engine compartment and resulted in an in-flight fire that consumed the airplane.

Findings

Personnel issues	Installation - Pilot
Aircraft	Fuel distribution - Incorrect service/maintenance

Factual Information

History of Flight

Landing	Fire/smoke (non-impact) (Defining event)
Prior to flight	Aircraft maintenance event
Takeoff	Part(s) separation from AC
Emergency descent	Fire/smoke (non-impact)

On December 25, 2018, about 0948 mountain standard time, an experimental amateur-built RV-6 airplane, N711JK, was destroyed when it was involved in an accident near Watkins, Colorado. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that he purchased the airplane about 2 months before the accident. He had an airframe and powerplant mechanic conduct a prepurchase inspection who advised the pilot that the fuel and oil lines needed to be replaced. The pilot, who also held an airframe and powerplant license, replaced all the fuel lines about 1 month before the accident. Subsequently, he flew the airplane about 1.5 hours before the accident flight.

The pilot reported that he departed from Front Range Airport (FTG) Watkins, Colorado (the airport has since been renamed to Colorado Air and Space Port Airport [CFO]), about 0920 heading east. He was planning to fly approximately 8 to 10 miles east to check the navigation system indications on the runway 26 instrument landing system approach and to conduct touch-and-go landings in the traffic pattern. During initial climb for the second touch-and-go landing and once the airplane reached between about 200 and 300 ft above ground level near mid-field, the pilot smelled an unusual odor. He looked inside the cockpit and saw flames coming from the floor forward of his rudder pedals. He added that he “immediately rejected the takeoff” and transmitted a “Mayday message stating the airplane was on fire.” He conducted a normal three-point landing on the departure runway, exited the runway onto an adjoining taxiway, and then stopped the airplane. The pilot turned off the fuel valve, shut down the engine with the mixture control, turned off all the electrical switches, and then exited the airplane. A postcrash fire ensued, which consumed the airplane.

Postaccident engine examination revealed that all four fuel lines exhibited thermal damage and soot on their exteriors, consistent with exposure to fire. An end of one of the fuel lines contained soot deposits in the first three threads of the line’s attachment fitting.

Pilot Information

Certificate:	Airline transport; Flight engineer; Flight instructor	Age:	75,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Glider	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane single-engine; Glider	Toxicology Performed:	
Medical Certification:	BasicMed	Last FAA Medical Exam:	May 7, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	October 18, 2018
Flight Time:	3304 hours (Total, all aircraft), 23 hours (Total, this make and model), 2857 hours (Pilot In Command, all aircraft), 23 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Vans	Registration:	N711KJ
Model/Series:	RV 6 Undesignat	Aircraft Category:	Airplane
Year of Manufacture:	1993	Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	21159
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	December 8, 2018 Condition	Certified Max Gross Wt.:	1800 lbs
Time Since Last Inspection:	1.4 Hrs	Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Performance Aero Engines
ELT:	Not installed	Engine Model/Series:	O-320-EXP
Registered Owner:		Rated Power:	180 Horsepower
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:	KFTG, 5515 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	09:52 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Broken / 11000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	180°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.01 inches Hg	Temperature/Dew Point:	2°C / -6°C
Precipitation and Obscuration:			
Departure Point:	Watkins, CO	Type of Flight Plan Filed:	None
Destination:	Watkins, CO	Type of Clearance:	VFR
Departure Time:		Type of Airspace:	Class D

Airport Information

Airport:	COLORADO AIR AND SPACE PORT CFO	Runway Surface Type:	Asphalt
Airport Elevation:	5515 ft msl	Runway Surface Condition:	Dry
Runway Used:	26	IFR Approach:	None
Runway Length/Width:	8000 ft / 99 ft	VFR Approach/Landing:	Touch and go; Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	Both in-flight and on-ground
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	39.784194, -104.53763(est)

Administrative Information

Investigator In Charge (IIC):	Liedler, Courtney		
Additional Participating Persons:	Phil Potter; Federal Aviation Administration; Denver, CO		
Original Publish Date:	July 15, 2021	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98801		

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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](#).