Aviation Investigation Final Report

Location:	Eagle, Colorado	**Accident Number:**	CEN13LA362
Date & Time:	June 28, 2013, 14:55 Local	**Registration:**	N856CC
Aircraft:	Piper PA-24-260	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	2 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the flight, the airplane's engine experienced a loss of power, and the copilot took control of the airplane from the pilot, who had been flying, and directed the pilot to attempt to restart the engine. The airplane descended and impacted terrain short of the runway. The fuel tank selector was found in the left main tank position, but no visible fuel was found in the left main tank. After battery power was applied to the airplane, the engine data monitoring system indicated that the left main tank had 11 gallons of fuel and the right main tank had 8 gallons of fuel. After the fuel floats were moved, the monitoring system indicated that the left main tank had 2 gallons of fuel and that the right main tank had 9.5 gallons of fuel. Regardless of the fuel quantity indications, the pilots should have known how much fuel was in each tank and, based on fuel calculations, known when each tank was going to become empty. Further, the pilot should have switched fuel tanks as part of the engine restart procedures; however, he did not report doing so. Each of the four fuel tank senders were examined and wear and corrosion were found on all of them. When tested with a voltmeter, none of the fuel floats provided consistent electrical signals, which would alter the amount of fuel indicated on the engine monitoring system. Because the selector was positioned to the left main tank, the engine lost power due to fuel starvation.

Probable Cause and Findings

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

The pilots' improper fuel management, which resulted in the loss of engine power due to fuel starvation. Contributing to the accident was worn and corroded fuel senders, which transmitted inaccurate fuel readings to the fuel monitoring system.

Findings

Aircraft	Fuel - Fluid management
Aircraft	Fuel quantity sensor - Fatigue/wear/corrosion
Personnel issues	Forgotten action/omission - Pilot

Factual Information

History of Flight

Approach	Fuel starvation (Defining event)
Landing	Loss of engine power (total)

On June 28, 2013, about 1455 mountain daylight time, a Piper PA-24-260 airplane, N856CC, impacted terrain near the Eagle County Regional Airport (KEGE), Eagle, Colorado. The pilots were both seriously injured. The airplane was substantially damaged. The airplane was registered to and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight which operated on a visual flight rules flight plan. The flight originated from McClellan-Palomar Airport (KCRQ), Carlsbad, California, about 0915 pacific daylight time and was destined for KEGE.

The responding Federal Aviation Administration inspector conducted an on-scene examination of the airplane. The fuel selector was found by first responders in the left main position. Battery power was applied to the airplane and the engine data monitoring (EDM) unit displayed.

Left Auxiliary Tank: 0 gallons
Left Main Tank: 11 gallons
Right Main Tank: 8 gallons
Right Auxiliary Tank: 3 gallons

Each tank contained a float that was moved and allowed to settle. The EDM displayed lower quantities. During recovery, the tanks were drained. The left auxiliary tank was empty and the left main tank contained 2 gallons. The right main tank contained 9.5 gallons and the right auxiliary tank contained 2.5 gallons.

The pilot reported that the co-pilot had borrowed the airplane in order to make the trip. The pilot flew the airplane while the co-pilot monitored their fuel status. While approaching runway 25 at EGE, the engine stopped producing power. The co-pilot took control of the airplane and directed the pilot to attempt a restart of the engine. The airplane descended and impacted terrain.

The airplane was moved to a salvage facility and the airplane's fuel tank senders were examined. All four senders displayed signs of age, wear, and corrosion. When tested with a voltmeter, none of the floats registered a consistent electrical signal when actuated through its range of motion.

Pilot Information

Certificate:	Private	**Age:**	54
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	May 14, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 14, 2013
Flight Time:	220.6 hours (Total, all aircraft), 2.2 hours (Last 90 days, all aircraft), 2.2 hours (Last 30 days, all aircraft)		

Co-pilot Information

Certificate:	Airline transport; Commercial; Flight engineer; Private	**Age:**	70
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	June 5, 2012
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N856CC
Model/Series:	PA-24-260	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-4020
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	C91A installed, activated, did not aid in locating accident	**Engine Model/Series:**	TIO-540 SER
Registered Owner:	On file	**Rated Power:**	310 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:	KEGE,6547 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	14:50 Local	**Direction from Accident Site:**	70°
Lowest Cloud Condition:	Clear / 12000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.28 inches Hg	**Temperature/Dew Point:**	32°C / 1°C
Precipitation and Obscuration:	In the vicinity - Showers - Rain		
Departure Point:	CARLSBAD, CA (CRQ)	**Type of Flight Plan Filed:**	VFR
Destination:	Eagle, CO (EGE)	**Type of Clearance:**	VFR
Departure Time:	09:15 Local	**Type of Airspace:**	

Airport Information

Airport:	EAGLE COUNTY RGNL EGE	**Runway Surface Type:**	Asphalt
Airport Elevation:	6547 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	25	**IFR Approach:**	Visual
Runway Length/Width:	9000 ft / 150 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	2 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Serious	**Latitude, Longitude:**	39.641109,-106.935554(est)

Administrative Information

Investigator In Charge (IIC):	Aguilera, Jason
Additional Participating Persons:	Richard F Hosker; FAA; Denver, CO
Original Publish Date:	March 24, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=87251