Aviation Investigation Final Report

Location:	Selma, Alabama	**Accident Number:**	ERA23LA232
Date & Time:	May 11, 2023, 19:15 Local	**Registration:**	N1347T
Aircraft:	Piper PA28	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he performed a preflight inspection and observed 48 gallons of fuel in the fuel tanks before departing on the cross-country flight using fuel from the right wing fuel tank. About 30 minutes into the flight, he switched to the left wing fuel tank, and about 25 minutes later, the airplane engine lost power. He attempted to restore engine power; however, he did not move the fuel selector back to the right wing fuel tank and the engine did not regain power. The pilot attempted a forced landing to a field; however, the airplane impacted an area of pine trees before the field, resulting in substantial damage to the wings, fuselage, and empennage.

Postaccident examination revealed that the fuel selector was positioned to the left tank, and the left wing fuel sump drain was in the open and locked position. The left wing fuel tank was mostly intact and void of fuel. Review of a photo of the airplane taken several minutes after the accident revealed fuel staining on the left flap aft of the fuel drain, consistent with fuel leakage during the flight.

It is likely that when sampling the fuel from the left wing before the flight, the pilot inadvertently twisted the sump drain into the up and locked open position, allowing fuel to drain during the entire flight, resulting in fuel starvation. Had the pilot followed the emergency checklist procedures and switched to the right wing fuel tank he would have likely been able to restore power to the engine.

Probable Cause and Findings

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

The pilot’s improper preflight inspection, during which the left wing fuel sump drain was moved to and left in the open and locked position, allowing for fuel to drain during the flight and resulting in a total loss of engine power due to fuel starvation. Contributing to the accident was the pilot’s failure to follow the emergency checklist by not switching fuel tanks following the loss of engine power.

Findings

Personnel issues	Preflight inspection - Pilot
Personnel issues	Incorrect action performance - Pilot
Personnel issues	Use of checklist - Pilot
Aircraft	Fuel - Fluid management

Factual Information

History of Flight

Prior to flight	Aircraft inspection event
Enroute	Fuel starvation (Defining event)
Enroute-cruise	Off-field or emergency landing

On May 11, 2023, about 1915 central daylight time, a Piper PA-28-180, N1347T, was substantially damaged when it was involved in an accident near Selma, Alabama. 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 performed a preflight inspection and observed 48 gallons of fuel in the fuel tanks before departing St. Clair County Airport (PLR), Pell City, Alabama. He departed PLR using the right wing fuel tank and about 30 minutes into the flight to Monroeville, Alabama, he switched to the left wing fuel tank. About 25 minutes later, the airplane engine "slow(ed) to what appeared to be an idle power setting." He turned the fuel pump on, increased mixture to full rich, and turned on the carburetor heat; however, the engine did not regain power. The airplane continued to descend and the pilot attempted a forced landing to a field; however, the airplane impacted an area of pine trees before the field. The pilot stated that the engine may have "quit" at some point before the impact and he had not attempted to switch fuel tanks when attempting to restore engine power.

Examination of the wreckage revealed that the main wreckage came to rest on its left side, resting on the outboard portion of the left wing, which had fractured at the wing root. The right wing was fractured at the wing root and resting on top of the left wing. The fuselage, empennage, and wings sustained substantial damage.

A postaccident examination of the engine did not reveal evidence of any mechanical failures or malfunctions that would have precluded normal operation. Compression and suction were achieved on all cylinders. The throttle and mixture cables remained attached at the carburetor and moved in conjunction with movement of the controls in the cockpit. Borescope examination of the cylinders revealed no anomalies other than oil in the Nos. 2 and 4 cylinders. The spark plugs were visually examined and appeared normal. Both magnetos were tested and produced spark at all towers. A small amount of fuel was present in the carburetor float bowl.

Examination of the airframe revealed that the fuel selector was positioned to the left tank. The left wing fuel sump drain was in the open and locked position and the left wing fuel tank was mostly intact and void of fuel. The right wing fuel tank, with its fuel sump drain in the closed

position, was breached and void of fuel. Review of a fuel receipt revealed that 20.26 gallons of fuel were purchased on May 9, 2023, at PLR.

Review of a photo provided by the owner of the airplane that was taken “minutes after” the accident revealed fuel staining on the left flap aft of the fuel drain.

The first items in the emergency checklist for Engine Power Loss In-Flight in the manufacturer’s Owner’s Handbook are:

1. Fuel Selector – switch to another tank containing fuel
2. Electric Fuel Pump- ON
3. Mixture – Rich
4. Carburetor Heat – On

Pilot Information

Certificate:	Private	**Age:**	66,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	June 17, 2021
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 3, 2022
Flight Time:	390 hours (Total, all aircraft), 360 hours (Total, this make and model), 170 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N1347T
Model/Series:	PA28 180	**Aircraft Category:**	Airplane
Year of Manufacture:	1972	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	28-7205285
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 14, 2022 Annual	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:	200 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3000 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	C91 installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-360-A4A
Registered Owner:	On file	**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:	SEM,167 ft msl	**Distance from Accident Site:**	4 Nautical Miles
Observation Time:	19:15 Local	**Direction from Accident Site:**	231°
Lowest Cloud Condition:	Scattered / 7500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	Unknown / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	Unknown / N/A
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	27°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Pell City, AL (PLR)	**Type of Flight Plan Filed:**	None
Destination:	Monroeville, AL (MVC)	**Type of Clearance:**	VFR flight following
Departure Time:	06:26 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	32.3945,-86.9169

Administrative Information

Investigator In Charge (IIC):	Spencer, Lynn
Additional Participating Persons:	Daniel Carter; FAA/FSDO; Birmingham, AL Jon Hirsch; Piper Aircraft; Vero Beach, FL J. Mike Childers; Lycoming Engines ; Williamsport, PA
Original Publish Date:	June 20, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=174541