Aviation Investigation Final Report

Location:	Loda, Illinois	**Accident Number:**	GAA16CA277
Date & Time:	June 3, 2016, 20:00 Local	**Registration:**	N5376P
Aircraft:	Piper PA 24	**Aircraft Damage:**	Substantial
Defining Event:	Fuel exhaustion	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that while at cruise on a cross country flight the engine experienced a total loss of power and he switched fuel tanks. The airplane restarted, and then a total loss of power occurred again. The pilot was forced to land the airplane on a private grass airstrip. During the landing roll the left main landing gear impacted a low spot in the ground, veered off the runway to the left and impacted a fence with the left wing.

The airplane sustained substantial damage to the left wing.

A postaccident examination revealed that the right and left fuel tanks were empty, and no fuel leaks could be identified.

Fuel Management

The Aircraft Owners and Pilots Association Air Safety Foundation has published Safety Advisor SA16-01/05 Fuel Awareness (2005). This document discusses recommendations regarding fuel management for pilots and states in part:

1. Know How Much Fuel You Have - The first step in knowing how much fuel you have is to think of fuel not in gallons or pounds but hours and minutes. The Air Safety Foundation recommends that pilots of unfamiliar airplanes add one or two gallons per hour to their computed fuel consumption until they see how much that airplane actually burns.

2. Know Your Airplane's Fuel System - Pilots must also be familiar with and proficient in operating the fuel system on their airplanes.

3. Know What's in Your Fuel Tanks - Pilots must ensure their airplane contains the proper grade of uncontaminated fuel.

4. Update Your Fuel Status Regularly During Flight - It's good to do thorough preflight planning but, once in the air, things can change. Winds are rarely exactly as forecast and weather deviations add miles and minutes to your trip. The Air Safety Foundation recommends that pilots evaluate their fuel status each hour.

5. Always Land with Adequate Reserve Fuel - Aviation regulations require different fuel reserves for different operations. The Air Safety Foundation recommends that pilots never land with less than one hour of fuel in the tanks. That way all the regulatory reserve requirements are met and exceeded by at least 15 minutes.

Probable Cause and Findings

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

The pilot's failure to properly calculate the fuel consumption rate and to properly monitor the fuel status in flight, which resulted in a total loss of engine power due to fuel exhaustion and a subsequent forced landing, runway excursion, and impact with a fence.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Fuel planning - Pilot
Personnel issues	Monitoring equip/instruments - Pilot
Environmental issues	Fence/fence post - Contributed to outcome

Factual Information

History of Flight

Prior to flight	Preflight or dispatch event
Enroute-cruise	Fuel exhaustion (Defining event)
Landing-landing roll	Runway excursion
Landing-landing roll	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer	**Age:**	77,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	October 23, 2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 30, 2014
Flight Time:	(Estimated) 17168 hours (Total, all aircraft), 216 hours (Total, this make and model), 6542 hours (Pilot In Command, all aircraft), 13 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N5376P
Model/Series:	PA 24 250	**Aircraft Category:**	Airplane
Year of Manufacture:	1958	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-426
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	October 5, 2015 Annual	**Certified Max Gross Wt.:**	2800 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1312.3 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	C91A installed, not activated	**Engine Model/Series:**	O-540-A1A
Registered Owner:	On file	**Rated Power:**	250 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	KTIP,737 ft msl	**Distance from Accident Site:**	16 Nautical Miles
Observation Time:	12:55 Local	**Direction from Accident Site:**	192°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	22°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	NEWTON, KS (EWK)	**Type of Flight Plan Filed:**	None
Destination:	KENTLAND, IN (50I)	**Type of Clearance:**	None
Departure Time:	16:41 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	40.558334,-88.067222(est)

Administrative Information

Investigator In Charge (IIC):	Vanover, Jackie
Additional Participating Persons:	Stanley E Swank II; FAA; Springfield, IL
Original Publish Date:	August 31, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=93309