



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Savannah, Georgia	<b>Accident Number:</b>	GAA19CA176
<b>Date &amp; Time:</b>	March 20, 2019, 15:00 Local	<b>Registration:</b>	N2667Q
<b>Aircraft:</b>	Piper PA28	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fire/smoke (non-impact)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot reported that, during the landing roll, wind pushed the airplane to the right and that he overcompensated with left rudder. The airplane veered left, abruptly rotated about 180°, and then stopped on the runway at a taxiway intersection.

The tower controller asked the pilot if he could restart the engine or if he needed a tow. The pilot attempted to restart the engine four to five times. While attempting a "hot start," he saw black smoke coming from the lower left engine cowl. He leaned forward and saw flames in the same location. The pilot searched for a fire extinguisher to no avail. He egressed the airplane without further incident.

The pilot added that, during the multiple restarts, he engaged the starter for 5 to 8 seconds and estimated that the time between attempts was about 5 seconds. He attempted a hot start for the first couple of attempts. After he observed the engine fire, he attempted a flooded start.

The airplane sustained substantial damage to the fuselage.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

The director of maintenance reported that the fire extinguisher was located in the seat pocket behind the copilot's seat.

The airport's automated weather observation station reported that, about 7 minutes before the accident, the wind was from 360° at 10 knots, gusting to 17 knots. The pilot landed the airplane on runway 10.

The Pilot's Operating Handbook, Section 3.7, "Engine Fire During Start," stated the following:

*Engine fires during start are usually the result of overpriming.*

Section 4.13, "Starting Engine," stated the following:

*Starter manufacturers recommend that cranking periods be limited to thirty seconds with a two minute rest between cranking periods. Longer cranking periods will shorten the life of the starter.*

## Probable Cause and Findings

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

The pilot's failure to conduct the engine starting procedures in accordance with the Pilot's Operating Handbook, which resulted in an engine fire.

### Findings

Personnel issues	Use of policy/procedure - Pilot
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## Factual Information

### History of Flight

<b>Standing-engine(s) start-up</b>	Fire/smoke (non-impact) (Defining event)
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### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	59, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	October 2, 2018
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	March 20, 2019
<b>Flight Time:</b>	(Estimated) 81 hours (Total, all aircraft), 81 hours (Total, this make and model), 15 hours (Pilot In Command, all aircraft), 35 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N2667Q
<b>Model/Series:</b>	PA28 140	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1977	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	28-7725203
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	February 8, 2019 100 hour	<b>Certified Max Gross Wt.:</b>	2150 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	4867.8 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-320-E3D
<b>Registered Owner:</b>		<b>Rated Power:</b>	160 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	18:53 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Scattered / 4800 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots / 17 knots	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	360°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.1 inches Hg	<b>Temperature/Dew Point:</b>	19°C / 6°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Summerville, SC (DYB )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Savannah, GA (SAV )	<b>Type of Clearance:</b>	VFR;VFR flight following
<b>Departure Time:</b>	14:00 Local	<b>Type of Airspace:</b>	Class C

## Airport Information

<b>Airport:</b>	SAVANNAH/HILTON HEAD INTL SAV	<b>Runway Surface Type:</b>	Concrete
<b>Airport Elevation:</b>	50 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	10	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	9351 ft / 150 ft	<b>VFR Approach/Landing:</b>	Full stop;Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	32.128334,-81.198333(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Benhoff, Kathryn
<b>Additional Participating Persons:</b>	Shane Olsen; FAA; Atlanta, GA
<b>Original Publish Date:</b>	November 6, 2019
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=99165">https://data.nts.gov/Docket?ProjectID=99165</a>

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