



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Raleigh/Durham, North Carolina	Accident Number:	ERA23LA118
Date & Time:	January 23, 2023, 18:44 Local	Registration:	N747PK
Aircraft:	Piper PA28	Aircraft Damage:	Substantial
Defining Event:	Fire/smoke (non-impact)	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot and his passenger prepared for a night flight in the flying club's airplane to maintain the pilot's currency. He tried to start the engine three times, priming the engine a total of 11 times, and "pumping" the throttle during one attempt, but it did not start. Concerned that he may have flooded the engine, he waited 5 minutes before attempting another start with full throttle and mixture at idle/cutoff. After this attempt, the passenger noted smoke and he realized that the engine was on fire. He told his passenger to egress and attempted to extinguish the fire with the onboard fire extinguisher; however, the fire substantially damaged the airplane's the fuselage, engine mounts, and firewall. The pilot reported no mechanical malfunctions or failures with the airplane that would have precluded normal operation. The Pilot's Operating Handbook for the airplane suggested priming 1 to 3 times before engine start.

Probable Cause and Findings

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

The pilot's flooding the engine with fuel during a cold engine start, which resulted in an engine fire.

Findings

Personnel issues	Decision making/judgment - Pilot
Aircraft	(general) - Incorrect use/operation

Factual Information

History of Flight

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

Certificate:	Private	Age:	48, Male
Airplane Rating(s):	Single-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:	
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	October 29, 2021
Occupational Pilot:	No	Last Flight Review or Equivalent:	April 26, 2022
Flight Time:	224 hours (Total, all aircraft), 48 hours (Total, this make and model), 159 hours (Pilot In Command, all aircraft), 11 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N747PK
Model/Series:	PA28 180	Aircraft Category:	Airplane
Year of Manufacture:	1968	Amateur Built:	
Airworthiness Certificate:	Normal; Utility	Serial Number:	28-4647
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	September 27, 2022 Annual	Certified Max Gross Wt.:	2400 lbs
Time Since Last Inspection:	71.5 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	6174.8 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	C126 installed, activated, did not aid in locating accident	Engine Model/Series:	O-360-A4A
Registered Owner:	RALEIGH FLYING CLUB LLC	Rated Power:	180 Horsepower
Operator:	RALEIGH FLYING CLUB LLC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Dusk
Observation Facility, Elevation:	RDU,395 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	18:51 Local	Direction from Accident Site:	17°
Lowest Cloud Condition:	Few / 6000 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	Unknown / Unknown
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.12 inches Hg	Temperature/Dew Point:	7°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Raleigh/Durham, NC	Type of Flight Plan Filed:	None
Destination:	Oxford, NC (HNZ)	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class C

Airport Information

Airport:	RALEIGH-DURHAM INTL RDU	Runway Surface Type:	
Airport Elevation:	435 ft msl	Runway Surface Condition:	Dry
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	35.877639,-78.787472(est)

Administrative Information

Investigator In Charge (IIC): Spencer, Lynn

Additional Participating Persons: Lynda Falcon; FAA/FSDO; Greensboro, NC

Original Publish Date: June 15, 2023

Last Revision Date:

Investigation Class: [Class 4](#)

Note: The NTSB did not travel to the scene of this accident.

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=106640>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).