



Aviation Investigation Final Report

Location:	Wrangell, Alaska	Accident Number:	ANC18LA069
Date & Time:	September 3, 2018, 13:53 Local	Registration:	N3957X
Aircraft:	Piper PA32	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that, while in level cruise flight, the engine rpm began to increase. Shortly after reducing the manifold pressure in an effort to correct for the high RPM, he noticed the engine oil pressure drop with oil visible on the airplane's windscreen, followed by a total loss of engine power. He performed an emergency landing near the high tide line in an area of seagrass. During the emergency landing the airplane sustained substantial damage to the fuselage and left wing.

Examination of the engine revealed a large fracture hole at the Nos. 4- and 5-cylinder pads. The Nos. 4 and 5 connecting rods were fragmented, and pieces of the connecting rods and a large amount of metal debris was located within the engine. A large amount of metal contamination was present in the oil suction screen. The Nos. 4 and 5 connecting rods and rod bearing journals exhibited extensive mechanical damage and signatures consistent with exposure to extreme high heat.

The damage to the internal engine components, the large amount of metal contamination in the oil screen, and the significant metal debris inside the engine were all consistent with a catastrophic engine failure due to a lack of lubrication. The source of the interruption of oil circulation to the engine could not be determined after engine disassembly.

Probable Cause and Findings

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

The total loss of engine power due to oil starvation after an interruption of oil circulation for reasons that could not be determined based on the available evidence.

Findings

Aircraft	Recip eng oil sys - Failure
----------	-----------------------------

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (total) (Defining event)
----------------	---

On September 3, 2018, about 1353 Alaska daylight time, a Piper PA-32 airplane, N3957X, sustained substantial damage when it was involved in an accident near Wrangell, Alaska. The private pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, while in level cruise flight, the engine rpm increased from a cruise power setting of 2,300 to 3,100, and he reduced the manifold pressure to correct for the high rpm. Shortly thereafter, he noticed the engine oil pressure drop and oil visible on the airplane’s windscreen, followed by a total loss of engine power. He performed an emergency landing near the high tide line in an area of seagrass. During the emergency landing, the airplane sustained substantial damage to the fuselage and left wing.

The airplane was equipped with a Lycoming IO-540-K1G5 engine. Examination of the engine revealed a large fracture hole near the Nos. 4- and 5-cylinder pads. The Nos. 4 and 5 connecting rods were fragmented, and pieces of the connecting rods and a large amount of metal debris were located within the engine and oil suction screen. The Nos. 4 and 5 connecting rods and rod bearing journals exhibited extensive mechanical damage and signatures consistent with extreme high heat.

The engine oil pump was intact with no evidence of thermal damage. The engine case halves displayed mechanical damage with multiple protrusions from the inside out. When the oil sump was removed, damaged connecting rod ends and a large amount of metal debris were discovered.

The pilot reported that the oil filter element had not been cut and examined at the last oil change, contrary to Lycoming Mandatory Service Bulletin No. 480F.

Pilot Information

Certificate:	Private	Age:	55,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:	No
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	July 20, 2017
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	1692 hours (Total, all aircraft), 488 hours (Total, this make and model), 1650 hours (Pilot In Command, all aircraft), 34 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N3957X
Model/Series:	PA32 300	Aircraft Category:	Airplane
Year of Manufacture:	1975	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	32-7640003
Landing Gear Type:	Tricycle	Seats:	
Date/Type of Last Inspection:	June 12, 2018 Annual	Certified Max Gross Wt.:	3400 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	8228.6 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	TI0-540-K1G5
Registered Owner:		Rated Power:	300 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:	PAWG	Distance from Accident Site:	
Observation Time:	21:56 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 4000 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.26 inches Hg	Temperature/Dew Point:	16°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ketchikan, AK	Type of Flight Plan Filed:	VFR
Destination:	Juneau, AK	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	55.968887,-132.423049(est)

Administrative Information

Investigator In Charge (IIC):	Banning, David		
Additional Participating Persons:			
Original Publish Date:	September 16, 2021	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98252		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).