Aviation Investigation Final Report

Location:	Lebanon, Ohio	**Accident Number:**	CEN21LA034
Date & Time:	October 28, 2020, 11:40 Local	**Registration:**	N3537C
Aircraft:	Cessna 182	**Aircraft Damage:**	Substantial
Defining Event:	Aircraft maintenance event	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot and passenger were on a cross-country flight after maintenance personnel installed new avionics in the airplane. While at cruise altitude, the engine began to knock and vibrate and subsequently the engine lost all power. The pilot was unable to maintain altitude or reach an airport and landed the airplane in a field. The airplane overran the field and impacted trees; the wings and fuselage sustained substantial damage.

The wreckage was examined, and a plastic cap was found installed on the engine crankcase breather port; the engine crankcase seal was found dislodged. Oil was found on the underside of the engine compartment and cowling. The blocked breather port likely allowed excessive pressure to build up inside the engine and resulted in the dislodged crankcase seal and a loss of oil.

The investigation determined the mechanic who installed the avionics on the airplane also performed maintenance on the engine, which was outside of the repair station's operations specifications. The mechanic did not have technical data for the work performed on the engine, did not document the work performed, and did not remove the plastic cap from the crankcase breather port following the installation of avionics.

The accident is consistent with a total loss of engine power due to oil starvation as a result of improper maintenance.

Probable Cause and Findings

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

Improper maintenance that resulted in a blocked crankcase breather port and a subsequent total loss of engine power.

Findings

Personnel issues	Replacement - Maintenance personnel
Aircraft	Eng oil dist (airframe furn) - Incorrect service/maintenance
Aircraft	Recip eng oil sys - Incorrect service/maintenance
Aircraft	(general) - Failure
Aircraft	Altitude - Attain/maintain not possible

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (total)
Prior to flight	Aircraft maintenance event (Defining event)

On October 28, 2020, about 1140 eastern daylight time, a Cessna 182T airplane, N3537C, was substantially damaged when it was involved in an accident near Lebanon, Ohio. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot stated that he and the passenger were on a cross-country flight from Clermont County Airport (I69), Ohio, to Warren County Airport (I68), Ohio, after maintenance was performed to install new avionics the day before. While level at 3,000 ft mean sea level (MSL), in instrument meteorological conditions, the oil pressure dropped to zero. The engine initially ran smooth after the drop in oil pressure, but then it began to knock and vibrate. The pilot declared an emergency with air traffic control, proceeded direct to I68, but was unable to maintain altitude. The airplane descended below the clouds about 600 ft above the ground and the engine lost all power. Unable to make the runway, the pilot landed in a harvested corn field. The pilot could not stop the airplane before it hit trees at the end of the field; the airplane's wings and fuselage sustained substantial damage.

The engine was examined, and a brightly colored plastic cap was found installed on the crankcase breather port, which completely blocked the port. The engine crankcase seal on the front of the engine was found dislodged and oil was found on the underside of engine compartment and cowling. The purpose of the crankcase breather port is to vent engine pressure. The crankcase seal provides the next location for pressure to vent if the breather port becomes blocked.

The Federal Aviation Administration visited the repair station that installed the avionics on the airplane. They determined that the mechanic also performed maintenance on the engine which was outside of the repair station's operations specifications. The mechanic did not have the technical data for the work performed. Further, the mechanic did not document the maintenance that he performed in the engine maintenance logbook. Maintenance records documented the installation of a Garmin avionics suite at the repair station. The last entry in the engine maintenance logbook was an oil change dated September 23, 2020.

Pilot Information

Certificate:	Airline transport	**Age:**	66,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	February 6, 2020
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	December 20, 2018
Flight Time:	5014 hours (Total, all aircraft), 688 hours (Total, this make and model), 5004 hours (Pilot In Command, all aircraft), 72 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N3537C
Model/Series:	182 T	**Aircraft Category:**	Airplane
Year of Manufacture:	2001	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	18280966
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 3, 2020 100 hour	**Certified Max Gross Wt.:**	3100 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	5114 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO540-AB1A5
Registered Owner:	Flying Neutrons LLC	**Rated Power:**	230 Horsepower
Operator:	Flying Neutrons LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	I68	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	11:55 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	600 ft AGL	**Visibility**	5 miles
Lowest Ceiling:	Overcast / 700 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None /
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.12 inches Hg	**Temperature/Dew Point:**	15.6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Batavia, OH (I69)	**Type of Flight Plan Filed:**	IFR
Destination:	Lebanon, OH	**Type of Clearance:**	IFR
Departure Time:	11:21 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Warren County Airport I68	**Runway Surface Type:**	
Airport Elevation:	898 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	RNAV
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	39.431359,-84.256329(est)

Administrative Information

Investigator In Charge (IIC):	Baker, Daniel
Additional Participating Persons:	Larry Ward; FAA; Cincinnati, OH Timothy Pence; FAA; Cincinnati, OH
Original Publish Date:	July 7, 2022
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=102207