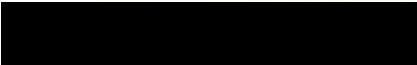




Continental Motors

ENGINE FIELD INSPECTION REPORT

ENGINE MODEL	O470R (25A)
ENGINE SERIAL NUMBER	451850
AIRCRAFT MAKE & MODEL	Cessna 182P
AIRCRAFT SERIAL NUMBER	18262571
AIRCRAFT REGISTRATION	N52388
FILE NUMBER	16-333

NAME	SIGNATURE	DATE
Mike Council		2-6-2017

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GENERAL INFORMATION

EXAMINATION		ACCIDENT DATA	
DATE	1-3-2017	NTSB ACCIDENT #	WPR17FA044
FACILITY	AvTech Services, Auburn, WA	NTSB INVESTIGATOR	Andrew Swick, NTSB IIC - Jack Vanover, NTSB AS20 Kate Benhoff, NTSB AS20
ADDRESS	Auburn Municipal Airport (S50), Auburn, WA.	FAA INVESTIGATOR	Bruce A. Kitelinger, Seattle FSDO Inspector
		ACCIDENT DATE	12-29-2016
		ACCIDENT LOCATION	Dabob, WA

ENGINE INFORMATION

ENGINE POSITION	Single
TOTAL TIME	2555.2 at last 100-hour inspection dated 8-11-2016
TIME SOH	517.2 at last 100-hour inspection. Field Overhauled 6-1-2008 at 2038.0 TT
TYPE & TIME SLI	147.3 since last annual inspection -100 hour inspection 8-11-2016
BUILD DATE	10-3-1973
IN SERVICE DATE	12-18-1973

Significant logbook information: Final Engine Logbook documentation of annual inspection

YEAR:	RECORDING TACH TIME	TODAY'S FLIGHT	TOTAL TIME IN SERVICE	Description of Inspections, Tests, Repairs and Alterations
DATE				Entries must be endorsed with Name, Rating and Certificate Number of Technician or Repair Facility. (See back pages for other specific entries.)
08/11/2016	1601.3 TACH	517.2 SMOH		RUN-UP, DRAINED OIL, CHANGED FILTER, CUT OPEN OLD FILTER, NOTHING FOUND. REPLACED OIL USING 10 QTS PHILLIPS XC20W-50. COMPRESSIONS CHECKED: #1 76/80, #2 72/70, #3 78/80, #4 76/80, #5 78/80, #6 76/80. CHECKED MAG TIMING. CHECKED ALL EXHAUST AND INTAKES. CHECKED ENGINE MOUNTS. CLEAN,GAP,OPS CHECK AND ROTATE PLUGS. CHECKED FUEL SCREEN, NOTHING FOUND. WIPED DOWN ENGINE AND FIREWALL. A.D'S SEARCHED THRU REV 2016-14 DATED 07/11/2016. RUN-UP AND LEAK CHECKED, NONE NOTED. MAG AND IGNITION SWITCH CHECKS GOOD. This Engine serviced and Inspected in accordance with an annual inspection. Ok for return to service Scott Erickson [REDACTED] [REDACTED]

01.01.2017 14:40

Report Summary:

Search Code(s):

Examination of the engine was performed by the CMI Investigator under supervision of the NTSB Investigator. The inspection of this engine did not reveal any pre-impact anomalies that would have prevented Its ability to produce rated horsepower.

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Disposition of engine following exam: The engine will be in storage at AvTech Services until released to the insurance company by the NTSB IIC.

INSPECTION WITNESSES

NAME	Mike Council	NAME	Peter Basile
ADDRESS	[REDACTED] [REDACTED]	ADDRESS	[REDACTED] [REDACTED] [REDACTED]
ORGANIZATION	Continental Motors	ORGANIZATION	Textron Aviation
PHONE	[REDACTED]	PHONE	[REDACTED]
NAME	Andrew Swick, IIC	NAME	Jackie Vanover
ADDRESS	Western Pacific Region	ADDRESS	Western Pacific Region
ORGANIZATION	NTSB	ORGANIZATION	NTSB, AS20
PHONE	[REDACTED]	PHONE	[REDACTED]
NAME	Kate Benhoff	NAME	Bruce Kitelinger
ADDRESS	Western Pacific Region	ADDRESS	Seattle, WA FSDO
ORGANIZATION	NTSB, AS20	ORGANIZATION	FAA
PHONE	[REDACTED]	PHONE	[REDACTED]

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PAGE 4 of 19**EXTERNAL INSPECTION OF ENGINE**

The propeller separated from the engine crankshaft flange. A portion of the crankshaft flange separated and all six propeller mounting bolts sheared. The damaged propeller spinner backing plate remained attached.

The crankcase remained intact but a crack was visible in the forward right crankcase half beginning at cylinder # 5 mounting base (stud number 4) continuing upward to the top parting line.

The fuel priming system was impact damaged but remained attached to each cylinder head. The primer leads were damaged and the primer manifold remained partially attached.

All induction system components separated with the exception of the number 4-cylinder induction elbow which remained attached. The damaged carburetor was recovered and examined.

The right side (cylinders 1, 3, and 5) exhaust components separated. Left side (cylinders 2, 4, and 6) exhaust collector and risers were impact damaged but remained attached.

The right and left magnetos separated. One magneto was recovered which was nearly intact but with impact damage to the case. This magneto could not be rotated due to mechanical damage to the case. The impulse coupler remained attached but could not release since the magneto could not be rotated manually. Parts of another heavily damaged magneto was recovered. Only the impulse coupler, shaft, gear and a portion of the magneto mount remained.

The ignition harness was heavily damaged. Only cut and pinched leads remained attached. A portion of the left ignition harness attach plate remained with the damaged harness leads.

The crankcase filler neck, breather tube and oil rod separated. The oil rod was recovered and inspected. The engine oil sump remained attached but was heavily impact damaged. The oil sump drain plug remained attached with security wire in place. The spin-on type oil filter remained attached to the oil filter adapter. Security wire for the oil filter and oil filter adapter remained attached. The oil filter exhibited crushing damage.

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ENGINE AND COMPONENT EXAMINATION

EXHAUST SYSTEM

Condition: The right side (cylinders 1, 3, and 5) exhaust components separated. Left side (cylinders 2, 4, and 6) exhaust collector and risers were impact damaged but remained attached.



INDUCTION SYSTEM

Condition: All induction system components separated with the exception of the number 4-cylinder induction elbow which remained attached.



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IGNITION SYSTEM

MAGNETO A

Manufacturer: Teledyne

P/N: 10-349350?5

S/N: F03IA??7R

Condition:

The magneto separated from the engine and the case was impact damaged. The impulse coupler was contaminated with dirt and could not be rotated manually.



MAGNETO B

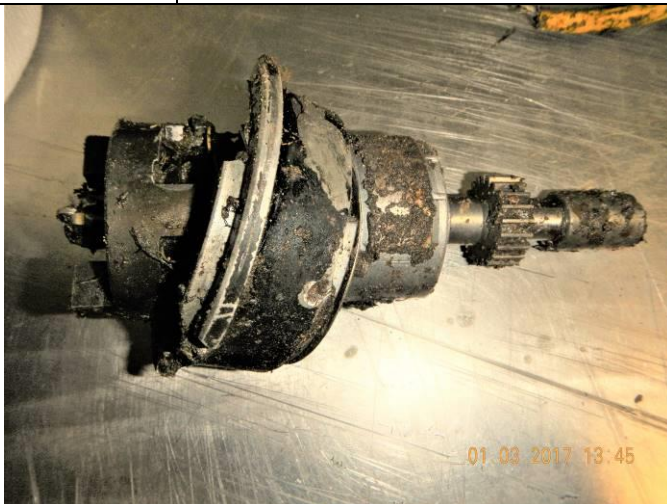
Manufacturer: Undetermined

P/N: Undetermined

S/N: Undetermined

Condition:

Only a portion of this magneto was recovered.



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IGNITION HARNESS

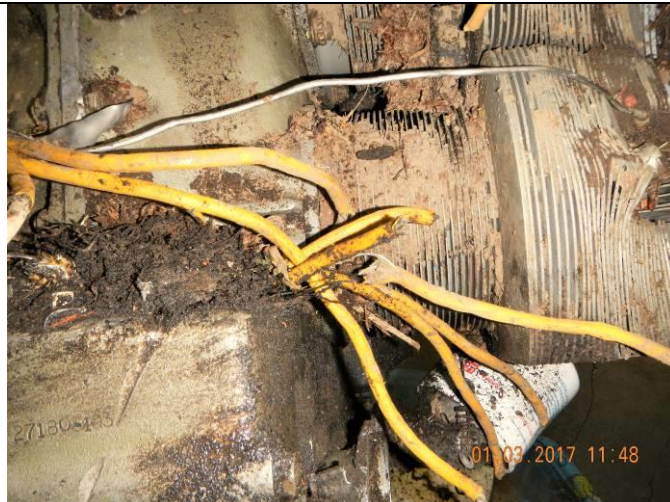
Manufacturer: Undetermined

P/N: Undetermined

S/N: Undetermined

Condition:

The ignition harness was cut and pinched during the impact sequence.



SPARK PLUGS

Manufacturer: Tempest

P/N: URHM40E

Condition:

Top sparkplugs from cylinders one, two, three and four were impact damaged. Top sparkplug three separated and only the threaded shell remained. Top sparkplug four was impact damaged with the upper body bent and the internal insulator broken. All top sparkplugs except # three appeared to be normal in wear and coloration.



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FUEL SYSTEM

CARBURETOR

Manufacturer: Marvel
Schebler

P/N: Undetermined

S/N: Undetermined

Condition:

The attachment flange and a section of the upper carburetor housing including the valve, linkage and accelerator pump was missing. The inlet line separated from the carburetor. The inlet screen was removed and was free of debris.



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LUBRICATION SYSTEM

OIL SUMP

Condition:

The oil sump received impact damage. The drain plugs remained in place with safety wire secured.



OIL FILTER

Manufacturer: Tempest

P/N: AA48110-2

Condition:

The oil filter received impact damage. A note on the oil filter outer case indicated that the oil filter was installed 8/2/2016 at tach time 1601.3 hours. The filter was opened and inspected. No metal contamination was noted.



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OIL COOLER

Manufacturer: Undetermined

P/N: Undetermined

S/N: Undetermined

Condition:

The oil cooler separated and was impact damaged.



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CYLINDERS

Condition:

All six cylinders exhibited impact damage to cooling fins. Rocker box covers on all six cylinders were impact damaged allowing dirt and vegetative contamination. The push rod and push rod housing for cylinder # 2 (intake valve) had separated due to impact forces



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ACCESSORIES

STARTER

Manufacturer: Prestolite

P/N: MCL 6501

S/N: F000459

Condition:

The starter separated but was recovered. The starter was intact and the drive could be rotated manually.



STARTER ADAPTER

P/N: Undetermined

Condition:

The starter adapter and PTO were impact damaged. The accessory pulley was broken and the starter mount was damaged.



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ALT/GEN #1

Manufacturer: Plane Power

P/N: Undetermined

S/N: Undetermined

Condition:

The alternator was partially separated due to an impact damaged mount. The alternator was contaminated with dirt and vegetative debris. The red arrow points to the alternator.



VACUUM PUMP

Manufacturer: Airborne

P/N: 216CW

S/N: 52693

Condition:

The vacuum pump remained intact with evidence of impact damage to the outer case. The pump drive rotated freely by hand. The pump was disassembled and inspected. The rotor and vanes were intact. The plastic shear drive was intact.



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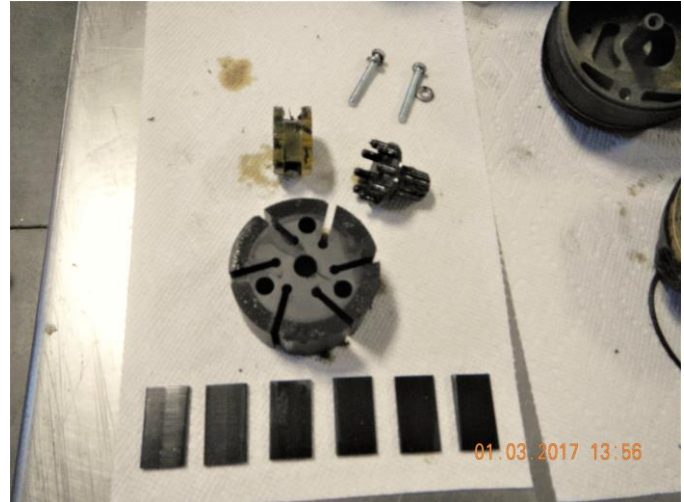
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PROPELLER

PROPELLER GOVERNOR	Manufacturer: McCauley	M/N: 2C290D3K/T?9	S/N: 784457
Condition:			



PROPELLER	Manufacturer: McCauley	P/N: 2A34C203	S/N: 737723
Blade 1 S/N:	K27151P		
Blade 2 S/N:	K27170P		
Condition:	The propeller hub separated from the crankshaft propeller flange and was impact damaged. The hub was broken into several pieces and the propeller blades separated at the shank. A tree was severed by the propeller and a section was collected by the recovery crew and presented at the recovery examination.		

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