

WPR23LA149

MAINTENANCE RECORDS AND REPORTS

Conditional inspection
Date: 01/15/23
Owner: Kelly Cyrus Stevens
A/C type: RV-7
Serial No: 73089
N-number: N17NK
Tach time
Hobbs time

PROP GROUP

- ✓ 1) Remove spinner, inspect bulkheads for the facts, cracks, loose/smoking rivets.
- ✓ 2) Inspect blades for security, next, cracks, or other damage.
- ✓ 3) Inspect pop hub for evidence of damage, cracks, or corrosion.
- ✓ 4) Check all mountain hardware for defects and security
- ✓ 5) Check blades for tightness in hub.
- ✓ 6) Remove pop, remove sludge.
- ✓ 7) Reinstall spinner.
- ✓ 8) Check attach bolts for torque/safety wire.

Notes: MINOR amount of Sludge - Used new prop O-Ring

Figure 1 - Condition inspection propeller group checklist.

OIL FILTER ANALYSIS

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SAMPLE INFORMATION:

Lab Number: Q69552 Date Tested: 02/01/2023

Customer: KELLY STEVENS / 194122

Unit ID: N17NK / Continental IOX-370

Material Tested: Section of 60 pleats

FINDINGS:

Ferrous Metal (Iron/Steel) – Identified by reaction to a magnet

- Quantity: 3 mg Normal
- Largest Piece(s): 2.55 mm Sliver (Pic 9) Mild
- Typical Piece: 1.20 mm Sliver Mild

Aluminum – Identified by reaction to hydrochloric acid

- Quantity: Avg 10 pcs per pleat Mild
- Largest Piece(s): 4.11 mm sliver (Pic 10) Moderate
- 3.75 mm Flake (Pic 11)..... Moderate
- 2.07 mm Flake (Pic 12)..... Mild
- Typical Piece: 0.80 mm Sliver, flake Moderate

Brass/Bronze – Identified by reaction to nitric acid

- | | |
|--|----------|
| - Quantity: Avg 20 pcs per pleat | Moderate |
| - Largest Piece(s): 14.04 mm flake (Pic 6) | Severe |
| 9.33 mm Sliver (Pic 2) | Severe |
| 2.67 mm Sliver (Pic 3) | Mild |
| - Typical Piece: 4.50 mm Flake, sliver | Severe |

Carbon – Identified by texture and malleability

- None Found N/A

Other Material – See pictures and descriptions for information

- None Found N/A

OVERALL CONDITION Severe

Normal: Very fine particles or low quantities, not a concern

Mild: Visible particles or slightly higher quantities than normal, but unlikely to be a problem

Moderate: Size or quantity of particles indicates potential problem developing

Severe: Size or quantity of particles is cautionary, check engine carefully

Picture 1:



An overview showing a representative sample of filter pleats.

CONCLUSION:

The filter contained a significant amount of brass/bronze. While it's common to find visible metal in the oil filter of a young engine (due to break-in), the size and amount of the brass/bronze particles here can potentially show a problem.

Wrist-pin and rocker-arm bushing are two potential sources of the brass/bronze. The brass/bronze and aluminum could show wear at piston pin plug and bushing. Aluminum can also come from the pistons themselves. The ferrous metal (3 mg) removed from the pleats isn't cautionary, but it could be related to the other metals.

Close inspection of this engine to look for problems is advised. If no problems are noted, use short intervals and recheck the oil filter to look for improvement.

Figure 2 - Oil filter analysis.

3.0 PERFORMANCE DATA

For the general performance data refer to the applicable propeller TCDS.

For operation refer to your Propeller-Logbook.

Type of Flanges:

A = Rotax / TAE / Limbach / Sauer:	bolt dia. 80 mm, bolts 7/16" - 20 UNF
Spline Shaft Insert SAE 20	Spline Shaft
B = SAE No. 2 mod.	bolts 1/2" - 20UNF
C = SAE No. 2 mod.	bolts 7/16" - 20 UNF
D = ARP 502	bolts 1/2" - 20 UNF
E = ARP 880	bolts 9/16" - 18 UNF
F = SAE No. 1	bolts 3/8" - 24 UNF
K = M 14 P/PF	bolts 9/16" - 18 UNF
N = PT6A-67A	bolts 9/16" - 18 UNF
P = Rotax 912/14	bolts 1/2" - 20 UNF
R = Austroengine	bolts 1/2" - 20 UNF

Attention:

Never pull a propeller onto the engine flange by the bolts, only install by hand.

Mounting bolts or stop nuts with washers should be tightened crosswise with equal force. Safety wire flange bolts in pairs with .032" stainless steel wire.

Torque:

3/8"	24 UNF bolts	25 - 27 ftlb
7/16"	20 UNF bolts	41 - 44 ftlb
7/16"	20 UNF stopnuts	33 - 35 ftlb
7/16"	20 UNF stopnuts:	
	A-flange on Centurion 2.0 mit 155 HP	40 - 42 ftlb
1/2"	20 UNF bolts (≤ 300 HP)	63 - 66 ftlb
1/2"	20 UNF bolts (> 300 HP)	90 - 100 ftlb
	and SMA SR 305-230	
1/2"	20 UNF stopnuts (≤ 300 HP)	63 - 66 ftlb
1/2"	20 UNF stopnuts (> 300 HP)	81 - 85 ftlb
9/16"	18 UNF stopnuts ungreased	100 - 110 ftlb
9/16"	18 UNF stopnuts greased	68 - 72 ftlb
	Shaft Nut, SAE No.20 Spline	449 - 502 ftlb
+ 1/2"	20 UNF stopnuts	81 - 85 ftlb

Note: Torque values are valid for dry, free-moving threads only if not stated otherwise.

Carefully check the torque to avoid overtorque of the bolts!

Figure 3- Excerpt from MT Propellers Installation Manual E-124 showing torque listed for the 1/2" bolts installed on the MT-12-B propeller.

	X-340 SERIES	X-370 SERIES
AIRFRAME:	Experimental	Experimental
MAXIMUM CONTINUOUS HP:	174/180 HP	185/195 HP
MAXIMUM RPM @ FULL POWER:	2700	2700
RECOMMENDED TBO:	2000/2400 hrs (ASTM)	2000 hrs
NUMBER OF CYLINDERS:	4	4
BORE:	5.125 in	5.125 in
STROKE:	4.125	4.5 in
DISPLACEMENT:	340 in ³	371 in ³
COMPRESSION RATIO:	8.0:1/9.0:1	8.3:1/9.6:1
CHT – MAXIMUM:	500°F	500°F
CHT AT MAXIMUM CRUISE (RECOMMENDED):	425°F	425°F
SPARK PLUG BOSS**:	18mm	18mm
FUEL DELIVERY:	Carb/Injection	Carb/Injection
AVIATION GRADE, OCTANE (RECOMMENDED):	100/100LL	100/100LL
HEIGHT:	20.36 to 23 in	20.36 to 24.8 in
WIDTH:	32.27 in	33.41 in
LENGTH:	29.07 in	29.07 in
ESTIMATED DRY WEIGHT***:	259 to 296 lbs	277 to 296 lbs
NORMAL OPERATING OIL TEMP:	180°F to 245°F	180°F to 245°F
NORMAL OPERATING OIL PRESSURE, PSI (MAXIMUM/MINIMUM/IDLING):	90/60/25	90/60/25
ENGINE MOUNT:	Dynafoal Type 1 or Conical	Dynafoal Type 1 or Conical
PROPELLER:	Constant Speed or Fixed	Constant Speed or Fixed
PROP GOVERNOR LOCATION:	Right Rear/Front LH	Right Rear/Front LH
CRANKSHAFT FLANGE:	0.38 in thick	0.44 in thick
CRANKSHAFT BUSHINGS (PROP BOLT SIZE):	$\frac{3}{8}$ to $\frac{1}{2}$ UNF	$\frac{1}{2}$ - 20 UNF
OIL CAPACITY:	8 quarts	8 quarts
INDUCTION PLENUM:	Warm Vertical-Magnesium / Cold-Horizontal	Warm Vertical-Magnesium / Cold-Horizontal

Figure 4- Excerpt of performance data for Continental "Titan" X-370 engine series.