

»» Service Letter

EXPERIMENTAL

Number: L08-01 B

SUPERCEDES L08-01 A

Date: 5/10/13

Subject: Continued Airworthiness, Overhaul, and Maintenance Data for Superior Original Style Non-Removable Roller Lifters

Engine Application: XP-320 and XP-360 Engines Using Superior Original Style Non-Removable Roller Lifters

Time of Compliance: At time of overhaul, prop strike, or whenever engines using Superior Original Style Non-Removable roller lifters are serviced.

NOTE: *Superior's removable style roller lifters are not necessarily subject to mandatory replacement at prop strike. See Service Letter L11-01*

Compliance:

1.0 GENERAL:

In July of 2004, Superior Air Parts, Inc. introduced roller lifter technology to its XP series of engines. Today, due to their excellent service history, roller lifters are now standard on all XP series engines. Roller lifter technology was designed to reduce the likelihood of camshaft and lifter spalling. To date, this system has shown to be very effective in meeting this goal and will continue to be incorporated into new Superior engines as they are developed.

2.0 ILLUSTRATED PARTS LIST:

Roller lifters and their associated parts are not interchangeable with existing tappet lifters and are not FAA-approved, at this time.

Table 1 below provides a list of parts that are used in Superior XP engines utilizing the Superior roller lifter design. Figure 1 below is an exploded view of the general assembly of these parts.

Table 1: Parts for Superior Engines Utilizing Roller Lifters and Standard Crankcase

Item	Part No.	Description	QTY per Engine
1	SL36800-R11 SL36800-R12 SL36800-R13 SL36800-R21 SL36800-R23 SL36800-R31 SL36800-R33	Crankcase Assy ¹	1
2	SV18800	Camshaft Assy	1
3	SV72800	Lifter Assy, Roller	8
4	SV912	Screw, Lifter Securing	8
5	SV72800-2	Washer, Lifter Screw	8
6	SL18661	Seal, Pushrod Shroud	8
7	SL11485	Shroud, Pushrod	8
8	SL15F19957-51 SL15F19957-52 SL15F19957-53 SL15F19957-54	Pushrod ²	8

Table 2: Parts for Superior Engines Utilizing Roller Lifters and Front Prop Governor Crankcase

Item	Part No.	Description	QTY per Engine
1	SL36850-R11 SL36850-R13 SL36850-R21 SL36850-R23 SL36850-R31 SL36850-R33	Crankcase Assy ³	1
2	SV18805	Camshaft Assy	1
3	SV72800	Lifter Assy, Roller	8
4	SV912	Screw, Lifter Securing	8
5	SV72800-2	Washer, Lifter Screw	8
6	SL18661	Seal, Pushrod Shroud	8
7	SL11485	Shroud, Pushrod	8
8	SL15F19957-51 SL15F19957-52 SL15F19957-53 SL15F19957-54	Pushrod ⁴	8

¹ Crankcase assembly configurations shown identify the type of engine mount (Dynafoal 1, Dynafoal 2, or Conical) and special configurations for solid crankshaft and bearings.

² Select pushrod to obtain correct dry tappet clearance.

³ Crankcase assembly configurations shown identify the type of engine mount (Dynafoal 1, Dynafoal 2, or Conical) and special configurations for solid crankshaft.

⁴ Select pushrod to obtain correct dry tappet clearance.

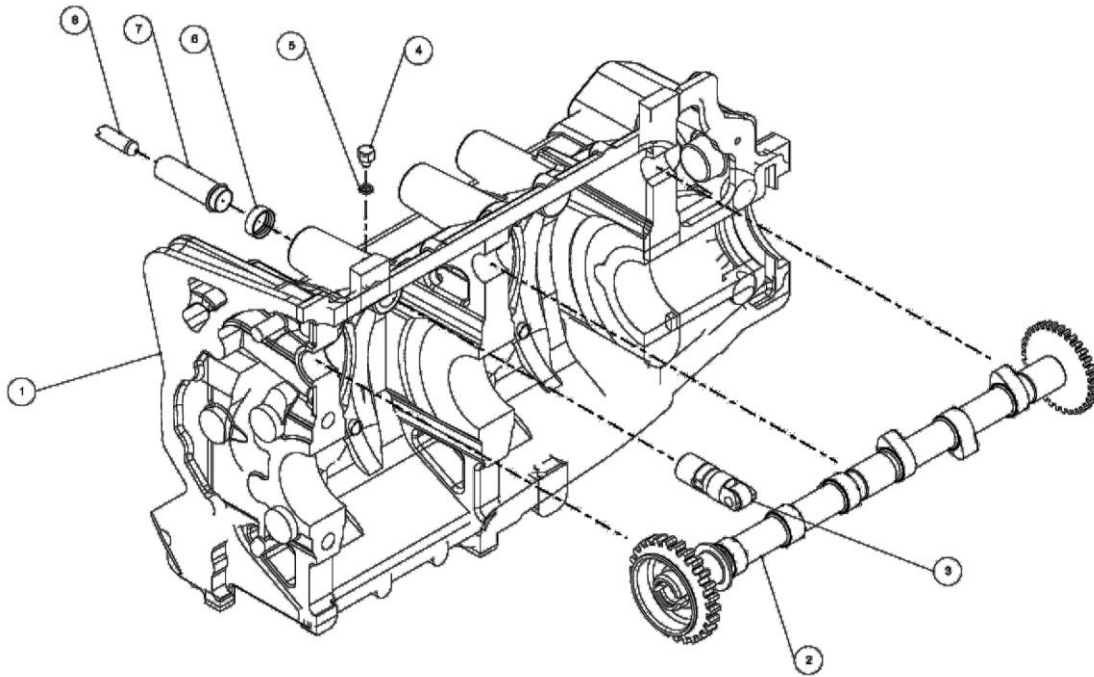


Figure 1: Engine Assembly Using Roller Lifters

3.0 OVERHAUL:

Superior roller lifters must be replaced at overhaul. Roller lifters are not field repairable, and no disassembly is allowed. Typical overhaul procedures, such as magnetic particle inspection (MPI) or dye penetrant inspection (fluorescent or visual), are not allowed. Reassemble engine in accordance with the following instructions.

3.1 Pre-assembly Inspection:

3.1.1 Roller Lifter Assembly: Inspect all roller lifter assemblies to the following criteria:

3.1.1.1 *Free Rotation:* The roller on roller lifter assembly must be free to move and must not have any internal binding, rubbing, or interference.

3.1.1.2 *Contamination or Corrosion:* The lifter assembly must be free of any contamination or corrosion.

3.1.1.3 *Snap Ring:* The snap ring should be seated and fully engaged.

3.1.1.4 *Spring Compression:* Compress the cylinder, and ensure a continuous and consistent compressive force.

3.1.1.5 *Dry Assembly:* Ensure that there is no leaking of fluid from the roller lifter.

3.1.2 Crankcase: Inspect the crankcase in the following areas specific to the roller lifter assembly.

- 3.1.2.1 Ensure that there is no contamination within all lifter bores in the crankcase assembly.
- 3.1.2.2 The threads in the crankcase where screws are installed shall be clean and free from any debris or contamination. If present, remove any debris or contamination, and clean threads with a quick drying solvent prior to bolt installation.
- 3.2 Assembly Instructions:
- 3.2.1 Insert the roller lifter into the lifter bore and ensure a continuous and unobstructed travel throughout the length of the bore. If an interference or obstruction due to a burr is present, remove with fine grit sandpaper, scotchbrite®, or sharp deburring tool. Ensure minimal material removal. See Figure 2 below.
- 3.2.2 Apply a thin film of pre-lube oil to the roller and body of the roller lifter assemblies. Additionally, apply a thin film to the lifter bores in the crankcase.
- NOTE:** While applying pre lube to the area, pay close attention to avoid contaminating threads within which the cylindrical bolts will be installed.
- 3.2.3 Prior to assembly of the roller lifter and cylindrical bolts, ensure that the channel and threaded hole line up as shown in Figure 3.
- 3.2.4 Assemble the securing screws and washers as shown in Figure 4 below.

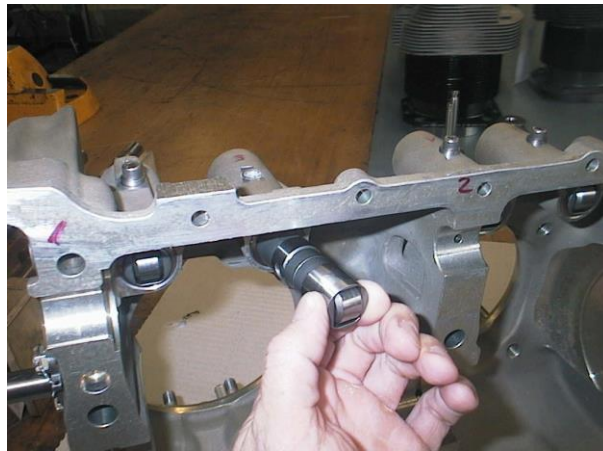


Figure 2: Installation of the Lifter Assembly into the Crankcase

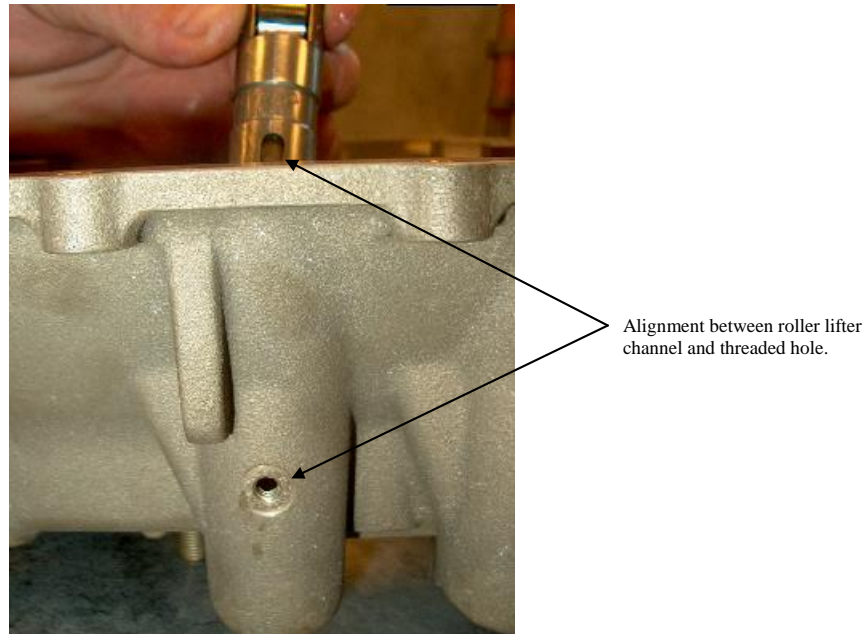


Figure 3: Alignment Between Lifter and Securing Screw Hole

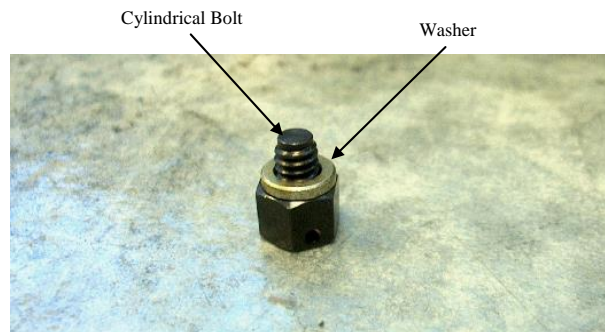


Figure 4: Securing Screw and Washer

- 3.2.5 Apply Loctite® 271 to the threads ensuring that the fluid enters threads but not into the lifter bore.

CAUTION: When using Loctite® 271 only apply a thin film to approximately 3 threads. If any drops collect on the thread or if Loctite® fluid escapes from the threaded connection, this is an indication that it has been used too generously. If this happens, the lifters must be removed from the crankcase, cleaned of excess Loctite®, and assembly will have to begin again.

- 3.2.6 Insert securing screw and washer assemblies into the crankcase one at a time and tighten to 50 inch pounds torque.

3.3 Post Assembly Inspection and Safety Wiring:

- 3.3.1 Move the roller lifters throughout their travel to ensure that there is no binding, rubbing, or obstructions.
 - 3.3.2 Any rotational movement by the roller lifters is not acceptable.
 - 3.3.3 Place camshaft and rotate it to ensure that there is no contact between the roller lifters and camshaft lobes.
 - 3.3.4 Safety wire cylindrical bolts in pairs as shown in Figure 5.
- 3.4 Continue to assemble the engine in accordance with standard overhaul and assembly data. Dry valve lash (dry tappet clearance) for roller lifters is .028-.210.

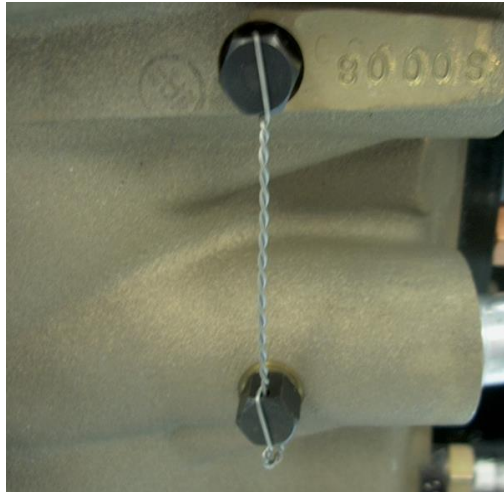


Figure 5: Typical Safety Wire Configuration for Roller Lifter Securing Screws

4.0 UNSCHEDULED MAINTENANCE

4.1 Prop Strike:

Superior roller lifter assemblies SV72800 must be replaced in the event of a prop strike. The crankcase and camshaft must be inspected for damage in accordance with industry practice. All other parts may be reused. Reassembly must be accomplished in accordance with the overhaul instructions provided in 3.0 above.

4.2 Other:

If it is necessary to remove lifter assemblies prior to overhaul, each roller lifter must be reinstalled in the same position in the crankcase. Superior roller lifters are secured from rotation using a screw (see section 2.0 above). Visually inspect roller lifters for integrity and free rotation of the roller prior to reassembly. Reassembly must be accomplished in accordance with the overhaul instructions provided in 3.0 above.