



Service Instruction

FAA-PMA Replacement Parts

Title: **AEL14995 Pushrod Shroud Retainer Spring**

SI No.: **12-1**

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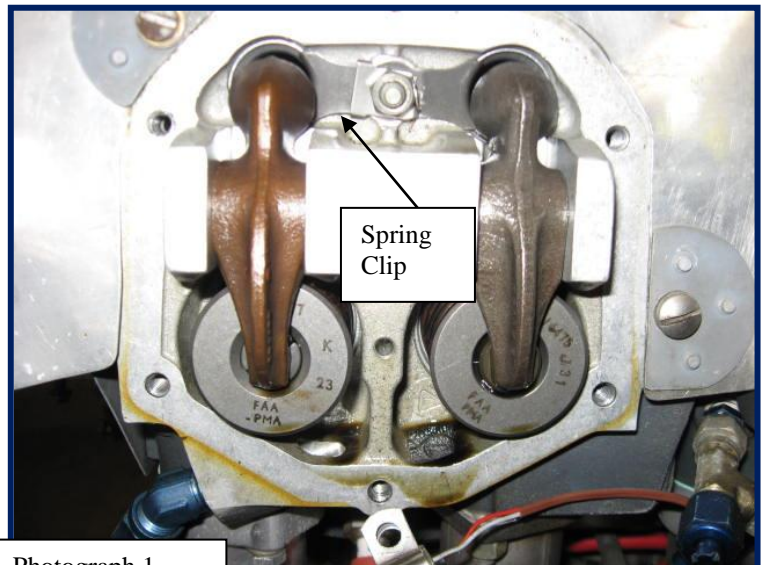
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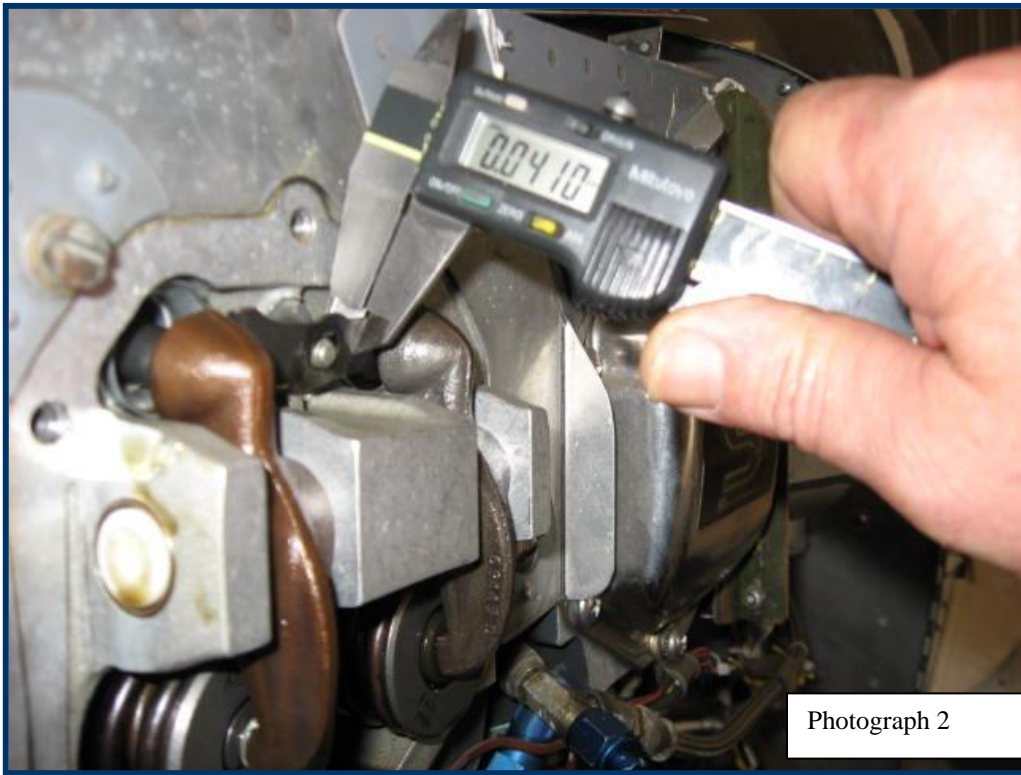
Technical portions are approved by Airmotive Engineering Corp.



- 1.0 **PURPOSE:** The purpose of this Service Instruction is to inform operators about a service related issue found with AEL14995 Pushrod Shroud Retainer Spring (hold down clips).
- 2.0 **BACKGROUND:** The earlier configuration of TITAN® pushrod retainer springs (clips) for the Lycoming parallel valve cylinders (O/IO-320, O/IO-360 and O/IO-540 parallel valve engines) were made from cadmium plated heat treated carbon steel, and some have failed due to hydrogen embrittlement during the plating process. Broken retainer springs could eventually result in oil leaks where the shroud tubes intersect the crankcase at the valve lifter bosses. New style retainer springs are made from thicker stainless steel that is not susceptible to hydrogen embrittlement. This service instruction provides information on how to inspect for the earlier style retainer springs.
- 3.0 **APPLICABILITY:** If the cylinders are AEL65102 assemblies, then this Service Instruction applies. This Service Instruction could also apply if AEL14995 retainer springs were installed on Lycoming cylinder assemblies. The older style retainer springs were also sold in AEL32360 overhaul gasket sets and AEL12032-SC single cylinder gasket sets. These parts were sold from January of 2004 to July of 2010.
- 4.0 **INSPECTION:** Airmotive Engineering Corporation (AEC) recommends that this inspection be accomplished at the next periodic or annual inspection or if there is evidence of oil leaking from the pushrod tubes. AEC recommends that the inspection be accomplished to first determine if the old style retainer springs are installed, and if so, replacement with new style retainer springs. The new stainless steel retainer spring is magnetic, so it cannot be identified by using a magnet. The inspection should be accomplished as follows:
 - 4.1 The first requirement is to gain access to the top of the engine by removing the top cowling and then to remove the rocker box covers. The push rod retainer spring can be viewed at the top of the rocker box between the push rod housings as shown in photograph 1.
 - 4.2 The nut holding the retainer spring is secured with a locktab which must be bent to clear the nut for removal.
 - 4.3 Remove the nut holding the retainer spring and move the locktab out sufficiently to measure the thickness with a caliper as shown in photograph 2.
 - 4.3.1 If the retainer spring measures .032 inches thick, then these are old style retainer springs and should be replaced with new style retainer springs.
 - 4.3.2 If the retainer spring measures .040 inches thick, then they are the new style retainer springs and do not require replacement.



Photograph 1



Photograph 2

5.0 REPLACEMENT: If a pushrod shroud retainer spring is found to be the old style, or found to be cracked or broken, contact ECi Customer Service at 800-324-2359 or 210-820-8101.