



# Service Instruction

ENGINE COMPONENTS, INC.

S.I. No.: **06-6**

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**Title: PLASMA-FACED TOP COMPRESSION RINGS**

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Revision: **0**

*Technical Portions are FAA DER Approved.*

**1.0 Subject:**

Inspection and maintenance of Engine Components, Inc. (ECi®) Plasma-Faced Top Compression Rings related to field reports of inadequate break-in due to delamination of the Plasma fill from the cast iron ring.

**2.0 Models Affected:**

Lycoming and TCM Models listed below:

**3.0 Installation Eligibility:**

<u>Manufacture</u>	<u>Engine Type</u>	<u>Ring Part #</u>	<u>Ring Set #</u>
Lycoming	320/360/540 5 1/8" bore	AEL74241PL	ST203 & CN203
TCM	470	AEC648009PL	ST106 & CN106 ST108 & CN108
	520/550	AEC648005PL	ST110 & CN110

**Note: The Plasma faced top compression ring is NOT used in chrome plated barrels.**

**4.0 Background:**

ECi introduced the Plasma-Faced Top Compression Rings in the late 1990's. These rings are made from cast iron and have a groove on the outside periphery that is filled with a thermal-sprayed molybdenum material. The sprayed material forms a porous matrix that holds oil and has self-lubricating qualities to minimize barrel wear.

ECi has received field service reports of oil turning very black and an increase of oil loss out of the crankcase breather. These symptoms usually develop within the first 100 hours after installation of new rings. Investigation of these symptoms shows that delamination of the plasma-fill coating from the top compression ring may have occurred. The cause of the delamination has been determined to be a combination of poor adhesion of the plasma-fill coating along with high heat at the top compression ring face. This problem has been corrected by an improvement to the manufacturing process.

The small pieces of plasma coating that delaminate from the ring do not cause any damage to the cylinder bore, piston or other engine components, although there will be a slight increase in crankcase pressure from combustion gas blow-by.



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**5.0 Required Action:**

Operators that experience an increase of oil out of the crankcase breather in conjunction with the oil turning to a very dark black color should check to determine if they have ECi Plasma-Faced Top Compression Rings. Operators with cylinders that are found to have delamination of the Plasma-Faced Top Compression Rings should have the rings replaced at their next scheduled maintenance event.

Remove the affected cylinder, rejuvenate the cylinder bore, install the piston with new rings, and reinstall the cylinder on the engine. Follow the ECi Break-In Instructions Manual (#M101) and ECi Service Instruction SI 88-7-1 for proper cylinder break-in.

**Note: Rejuvenation of nickel plated barrels should be done using the ECi Nickel+Bore Rejuvenation Kit™ (AETKIT01). See ECi Service Instruction SI 92-9-6 for proper cylinder barrel honing information or contact ECi at 800-ECi-2Fly (210-820-8101) for more information.**

**6.0 Warranty:**

Warranty consideration will be given in accordance with ECi's standard published warranty.