



**Title: CONTINUED AIRWORTHINESS FOR CONNECTING ROD ASSEMBLIES**

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*Technical Portions are FAA DER Approved.*

**1.0 PURPOSE:**

Explain the configuration in which ECi Connecting Rod Assemblies are sold and establish continued airworthiness criteria for these assemblies

**2.0 MODELS AFFECTED:** Any engine using AEL11750 Connecting Rods

**3.0 DISCUSSION:**

Traditionally, ECi has sold connecting rods in the unassembled state as a unit consisting of a rod and a cap. These two separate units of the same part are identified by number markings such that they should be assembled in only one way (see Figure 1 below). However, a mechanic unfamiliar with this may assemble the rod and cap rotated 180°, which may or may not yield a circular big end bore.

Because of this potential problem, ECi began selling connecting rods in the assembled state in April 2004. This assembly includes the rod and cap assembled with connecting rod bolts and nuts torqued to required values. This method serves two purposes. First, the mechanic understands precisely how the rod and cap must be reassembled onto the crankshaft. Second, it allows the mechanic to inspect the diameter of the big end bore without having to assemble the rod and cap. All ECi connecting rods are now sold in this configuration.

**4.0 CONFIGURATION DETAILS:** Currently, ECi sells connecting rod AEL11750 as defined below.

4.1 AEL11750-S: Connecting Rod Assembly for 360/540 Series Engines consists of the following.

| Part Number | Description          | QTY |
|-------------|----------------------|-----|
| AEL11750    | Connecting Rod & Cap | 1   |
| AEL75061    | Bolt, Connecting Rod | 2   |
| AEL12186    | Nut, Connecting Rod  | 2   |

**5.0 PREASSEMBLY INSPECTIONS:**

- 5.1 ECi connecting rod assemblies meet new manufacturing requirements as established by Lycoming publication SSP-1776, the Table of Limits.
- 5.2 AEL11750 connecting rod assemblies shall be diameter 2.2870–2.2875 as measured within ±30° of the axis of the rod (i.e. 90° to the split line of the rod).
- 5.3 If for any reason, the rod is disassembled prior to performing this measurement, the rod should be reassembled using a mandrel (Lycoming part ST-236 or equivalent). This mandrel helps to center the rod and cap such that misalignment is reduced at the split line.
- 5.4 An alternative to using a mandrel is to assemble the rod with connecting rod bearings, which will also act as a centering fixture and prevent misalignment of the rod and cap. This technique should be accomplished in accordance with Lycoming overhaul manual 60294-7, paragraph 7-67.



5.5 Failure to assemble the rod on a mandrel or with bearings could result in excessive misalignment at the split line and obtaining incorrect measurements. The torquing procedure identified in 6.0 should be used to reassemble the rod around the mandrel.

#### 6.0 TORQUING PROCEDURE AND VALUES:

- 6.1 Clean and lubricate (with engine oil) rod ID, rod bearings, rod bolt holes, and the threads and faces of the connecting rod bolts and nuts.
- 6.2 Assemble connecting rods with bearings and bolts to the crankshaft. Install nuts until hand tight.
- 6.3 Torque each nut to 300 in-lbs.
- 6.4 Torque again to 480 in-lbs.<sup>1</sup>

#### 7.0 TORQUE WRENCH SOCKET RELIEF PRECAUTIONS:

- 7.1 ECi early production connecting rods were not machined with sufficient wrench relief for some sockets. Accordingly, the only way for these sockets to fully engage the nut flats was to grind the exterior. Because of this limited space, jamming of the socket against the recess could affect torque readings. ECi recommends that operators experiencing any difficulty in properly tightening the connecting rod nuts return the connecting rods to ECi for corrective action.

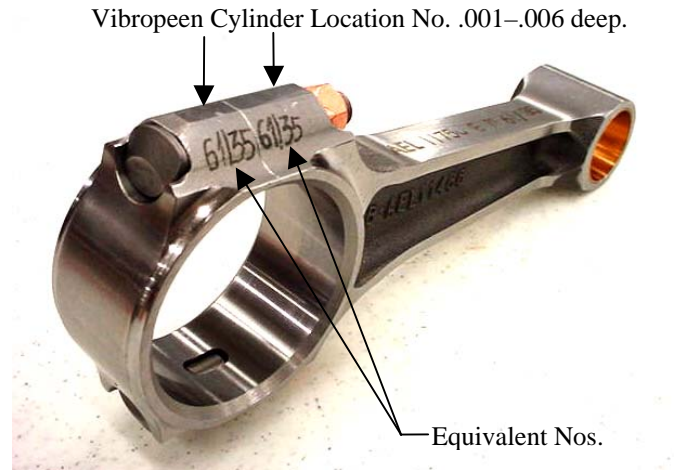


Figure 1: The number markings on one side identify the orientation of the rod and cap at assembly.

<sup>1</sup> Note that stretch bolts (AEL75060) are also eligible for this application. When installed in AEL11750 connecting rods, AEL75060 bolts should also be torqued to 480 in-lbs. Consult Lycoming Service Instructions 1059, 1106, and 1450 for more information. ECi only supplies AEL75061 in AEL11750-S.