



# Service Instruction

ENGINE COMPONENTS, INC.

S.I. No.: **02-8**

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**Title: O-200 VALVE TRAIN UPGRADE**

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*Technical Portions are FAA DER Approved.*

- 1.0 PURPOSE:** Continued airworthiness instructions and installation eligibility of new Engine Components, Inc. (ECi®) valve train components for TCM C/200/300 series engines using ECi Cylinders (P/N AEC65314).
- 2.0 MODELS AFFECTED:** ECi Cylinders (P/N AEC65314) installed on Teledyne Continental C, 200, and 300 Series Engines listed below.
- 3.0 ENGINE APPLICABILITY:**

PART NO.	DESCRIPTION	INSTALLATION ELIGIBILITY
AEC531629	Rotocoil Assembly	C-75-8, 8F, 8FH, 8FHJ, 8FJ, 8J, 12, 12B, 12BF, 12BFH, 12F, 12FH, 12FHJ, 15, 15F, 15J, FJ, J, 12J;
AEC531609	Spring, Valve, Outer	C-85-8, 8F, 8FHJ, 8FJ, 8J, 12, 12F, 12FH, 12FHJ, 12FJ, 12J, 14F, 15, 15F;
AEC531610	Spring, Valve Intermediate	C-90-8F, 8FJ, 12F, 12FH, 12FJ, 12FP, 14F, 14FH, 14FJ, 16F;
AEC531611	Spring, Valve, Inner	C-115-1, 2; C-125-1, 2;
AEC21154	Shaft, Rocker	C-145-2, 2H, 2HP; O-200-A, B, C;
AEL11665	Thrust Button	O-300-A, B, C, D, E; GO-300-A, B, C, D, E, F

**4.0 ELIGIBILITY:**

- 4.1 Parts may be grouped into the following configurations. Configurations not listed herein are strictly prohibited.
- 4.1.1 Rotocoil Group: Rotocoil (AEC531629) and springs (AEC531609, AEC531610, & AEC531611) must be used together. There are no approved alternates to these parts.
- 4.1.2 Rocker Shaft: Rocker Shaft (AEC21154) may be used with any approved cylinder and/or rocker arm.
- 4.2 Any combination of the four approved configurations are approved. For example, the Rotocoil Group may be used with the Rocker Shaft, Exhaust Valve and Guide, or neither or both.

**5.0 FEATURES:**

- 5.1 The AEC531629 Rotocoil is a scaled version of the AEC652112 Rotocoil, which is used on TCM 470, 520, and 550 Series Engines.
- 5.2 The valve springs AEC531609, AEC531610, and AEC531611 are designed to function with the AEC531629 Rotocoil. The rotocoil is not approved for use with any other valve springs.

The installation of rotocoils is made to provide a slight positive valve rotation and inhibit the formation of carbon and lead salts in the valve guide. This rotation also inhibits premature valve and guide wear. Engine testing accomplished at ECi has shown that cylinders with rotocoils experience much lower valve and guide wear, especially when using 100LL fuel.



**6.0 REPAIR/OVERHAUL:**

6.1 Valve springs may be reused at overhaul if they meet the following load criteria.

PART NUMBER	LENGTH (INCH)	LOAD (LBS)
AEC531609	1.30	33 – 37
	0.91	58 – 63
AEC531610	1.27	25 – 28
	0.88	38 – 44
AEC531611	1.20	10 – 13
	0.82	27 – 30

6.2 ECi recommends returning the rotocoils to ECi for evaluation and test at overhaul. One tendency for rotocoils is for the coil spring inside to wear a flat spot, which stops providing positive rotation. ECi has a test bench that can validate the operation of the rotocoil without disassembly.

**7.0 EXHAUST VALVE AND VALVE GUIDE INTERCHANGEABILITY:**

7.1 Old style cylinders (Class 61.0) were fitted with aluminum-bronze exhaust guides P/N AEC24047 and plain-steel stem exhaust valves P/N AEC646612.

7.2 New style cylinders (Class 61.1) are now fitted with high-chrome, Ni-resist exhaust valve guides P/N AEC655526HC and chrome-flashed stem exhaust valves P/N AEC655971.

7.3 Exhaust valves **MUST** be used with the correct exhaust guides to ensure proper compatibility a shown below:

Cylinder Class	Exhaust Guide		Used with Exhaust Valve
	Part Number	Material	
61.0	AEC24047	Aluminum-bronze	AEC646612 (plain stem)
61.1	AEC655526HC	Ni-resist	AEC655971 (chrome-flashed stem)