

**TEXTRON** Lycoming

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# SERVICE INSTRUCTION

DATE:

June 7, 1989

Service Instruction No. 1444  
Engineering Aspects are  
FAA Approved

*CW*

SUBJECT:

TCM Ignition Systems Service Bulletin No. 630

MODELS AFFECTED:

All Textron Lycoming IO-720 Engines Equipped With S-1200 Series  
Magnetos With Retard Contact Assembly Installed.

TIME OF COMPLIANCE:

As required by subject bulletin.

TCM Ignition Systems Bulletin No. 630 is reprinted herewith in its entirety.

**TELEDYNE CONTINENTAL MOTORS**  
**Aircraft Products**  
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**TCM IGNITION  
 SYSTEMS**  
**SERVICE BULLETIN NO. 630**

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Printed March 1989  
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 Engineering Portions are FAA Approved

**SUBJECT:** Revised timing procedures for eight cylinder S-1200 Series Magnetos with retard contact assembly installed.

**REASON FOR BULLETIN:** To improve timing procedure.

**EQUIPMENT AFFECTED:** Magneto Models: S8LN-1208 and S8LN-1258  
 Magneto Part Numbers: 10-349300-4 and 10-349500-1

**NOTE:** The letter "D" following the part number indicates the magneto was originally supplied with a green distributor block. These magnetos are also affected.

**Maintenance (Spare) Parts Affected:**

None

**Compliance:**

At first magneto maintenance opportunity or earlier at user's discretion.

**General Information:**

Field reports indicate timing of affected magnetos adjusted to current specifications may rapidly degrade in service, leading to hard starting and/or kick back during engine start which could cause damage to the engine or starter and associated components.

**NOTE:**

✓ Prior to compliance with the following detailed instructions, black distributor blocks must be replaced with brown distributor blocks (P/N 10-391588). Green distributor blocks do not need to be replaced. Follow applicable procedures in S-1200 Service Support Manual (Form X42001) for distributor block replacement.

**Detailed Instructions:**

With magneto removed from engine, adjust timing as follows:

1. Main and retard contact timing.

- a. Following instructions specified in DIS-ASSEMBLY of S-1200 Service Support Manual (Form X42001). Disassemble magneto to extent necessary to complete procedures.
- b. Adjust main contact clearance as specified in ASSEMBLY paragraph 9.2.10 step C, except that main contacts must be adjusted to  $0.013 \pm 0.001$  inch point opening on high lobe of cam.

**CAUTION:**

*When timing magneto on bench or when reinstalling magneto on engine, no gear holding timing device should be used as hidden gear tooth damage may result.*

- c. Adjust cam for main contact opening at  $12^\circ \pm 1^\circ$  past neutral in normal direction of rotation (E-Gap) as specified in ASSEMBLY, paragraph 9.2.10, step D. If, after tightening screw, E-Gap is not  $12^\circ \pm 1^\circ$ , loosen screw, pry cam loose and reset E-Gap. Secure cam with new screw.

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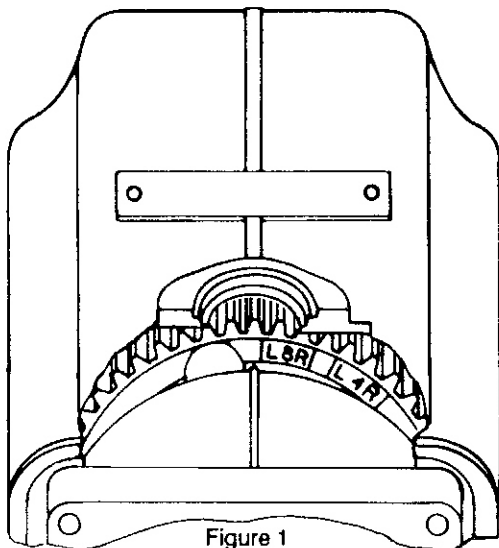


Figure 1  
Alignment of Timing Marks  
and Rib at E-Gap

### NOTE:

Eight cylinder S-1200 series magnetos have a relatively soft "hold point" at rotor neutral position. The true zero degree neutral position necessary for optimum performance is best located by using the 11-8150-1 timing kit. Accurate rotor neutral can be determined without removal of the coil by carefully determining the precise middle point between left and right positions where the rotating magnet breaks free of the magnetic field. The neutral position can also be determined in the conventional fashion with the coil removed from the magneto housing. Do not refer to silkscreen timing marks on rotating magnet for determining rotor neutral position.

- d. Adjust retard contact to open  $15^{\circ} + 2^{\circ} - 0^{\circ}$  after main contact opening. Follow procedure in ASSEMBLY, paragraph 9.2.10, step E, except that maximum retard contact clearance shall be  $0.015 \pm 0.005$  inch.

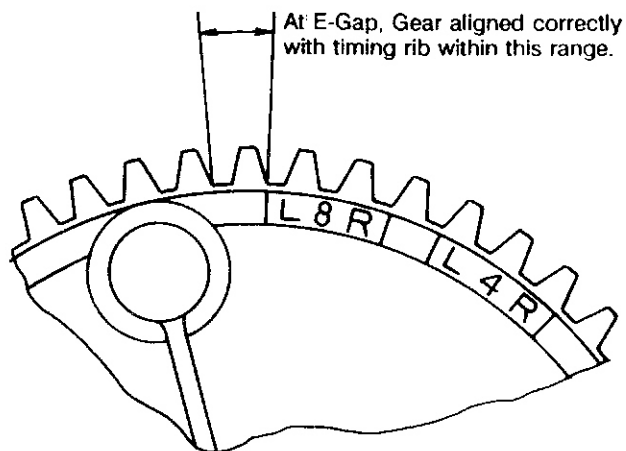


Figure 2  
Permissible Range of Timing Alignment  
at E-Gap

### 2. Distributor Gear Timing

- a. With distributor block and distributor gear disassembled from magneto, set rotating magnet in E-Gap position as described in ASSEMBLY, paragraph 9.2.14, step A.
- b. Ensure L mark adjacent to numeral 8 on gear is painted with red dykem.
- c. With distributor gear assembled to distributor block, turn gear until rib on block lines up with peak of tooth which falls immediately to the left of painted mark.
- d. Holding the distributor gear and block aligned as described above, assemble the block and gear into the housing, meshing distributor and drive gears together. See Figure 1. Rib alignment with tooth peak shown in Figure 2 is preferable, however, rib alignment with valley is permissible.

### NOTE:

Proper alignment of the pinion gear with the rotating magnet keyway is important for ease and accuracy of distributor gear timing. Refer to ASSEMBLY, paragraph 9.2.2 for description of correct pinion gear alignment.

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- e. Continue assembly of block to housing as described in ASSEMBLY, paragraph 9.2.14, steps E and F.
- f. Re-assemble remainder of magneto in accordance with S-1200 Service Support Manual Form X42001.
- g. Install magneto on engine in accordance with engine manufacturer's instructions. Apply 20 lb-in to harness securing nuts.

#### Parts Required:

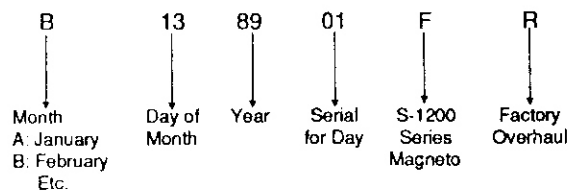
None

#### Special Tools Required:

Refer to S-1200 Service Support Manual Form X42001, included in TCM Ignition Systems Master Service Manual, Form X40000.

#### Warranty Consideration:

All affected magnetos built by TCM in Atlanta, GA prior to Serial Number B138901F will be covered by the standard TCM Ignition Systems Warranty Policy. 1.5 hours labor for timing adjustments will be allowed for eligible units. Manufacturing codes may be read as follows:



#### Weight Change:

None