

**SERVICE BULLETIN**

**SB643C**

Compliance Will Enhance Safety

Supersedes SB643B  
TECHNICAL PORTIONS  
FAA APPROVED

- SUBJECT:** Maintenance intervals for Continental Motors (formerly TCM/Bendix) S-20, S-200, and S-1200 series Magnetos and Related Equipment
- PURPOSE:** Required inspection and maintenance intervals for CMI (formerly TCM/Bendix) Magnetos and Related Equipment.
- COMPLIANCE:** During the next inspection stage as specified in Section II within this Service Document, whichever occurs first
- MODELS**
- AFFECTED:** All aviation gasoline engines using Continental Motors, Inc. (CMI) (formerly TCM/Bendix) S-20, S-200, and S-1200 series magnetos, ignition harnesses, and CMI ignition switches and starting vibrators (where installed)

**I. GENERAL INFORMATION**

The following information constitutes a portion of the manufacturer's Instructions for Continued Airworthiness and outlines required maintenance, inspection, cleaning and overhaul intervals for CMI (formerly TCM/Bendix) magnetos and related equipment for CMI engines listed under "Models Affected" (above). Reference X42003, "D-2000/D-3000 Series Magneto Service Support Manual" for information on these systems.

NOTE: This Service Document supersedes the recommended periodic magneto **intervals** and does not replace the recommended periodic maintenance procedures as outlined in the published CMI Magneto Service Support Manuals for S-20, S-200, and S-1200 series magnetos, ignition harnesses, ignition switches and starting vibrators.

**II. MAINTENANCE INTERVAL INSTRUCTIONS**

**A. 100 Hour / Annual Inspection or Progressive Maintenance Interval**

1. Magneto-to-engine timing checks must be conducted at the shortest of these intervals. Should the magneto-to-engine timing require adjustment due to exceeding the limits specified by the engine manufacturer, a visual inspection of the magneto contact assemblies must be performed. Follow procedures in the PERIODIC MAINTENANCE section of the latest revision of the applicable Service Support Manual, included in publication X42001, "S-1200 Series Magneto Service Support Manual" and X42002, "S-20/200 Series Magneto Service Support Manual." If internal magneto components require replacement or adjustment, the magneto must be removed from the engine.
2. Ignition Switches must also be functionally tested at the shortest of these intervals. This inspection may be accomplished by performing a "Preflight Magneto RPM Drop" test in accordance with the Aircraft Manufacturer's Pilot's Operating Handbook. Switch action must

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be smooth and free from sticking. For key type Switches, keys must be removable only in the **OFF** position and the switch must function in accordance with the requirements of the latest revision of Service Documents No. 636, "Bendix/TCM Ignition Switch Inspection" and 653, "Hot Magneto Test."

3. Also at the shortest of these intervals, all ignition harness spark plug terminals must be removed from spark plugs, cleaned and inspected. Clean harness spark plug terminals following procedures in CLEANING section of publication X43001, "High Tension Ignition Harness Service Support Manual." Replace all parts found to be broken, brittle, cracked or burned, then lubricate and reinstall ignition harness following procedures in ASSEMBLY section of X43001, "High Tension Ignition Harness Service Support Manual".
4. Spark plug condition has a major effect on the continued airworthiness of the engine and its ignition system. Therefore, the importance of proper spark plug maintenance cannot be overemphasized. At the shortest of these intervals, all spark plugs must be inspected and maintained in accordance with the spark plug manufacturer's instructions.
5. Starting vibrator functionality must be validated and condition assessed. Functional testing may be conducted with the vibrator installed. Visually inspect the starting vibrator to ensure;
  - a. freedom from damage or threat of damage due to factors including but not limited to weathering, corrosion, and abrasion.
  - b. adequate provision for ventilation and drainage.
  - c. mounting is secure, and electric connections are secure, clean, and undamaged.

**B. Impulse Coupling Inspection Interval**

1. Magnetos equipped with snap-ring impulse couplings must be inspected for wear at 500-hour intervals as specified in the latest revision of the applicable Service Support Manual, PERIODIC MAINTENANCE section, paragraph 6.2.2.
2. Magnetos with riveted impulse couplings must be inspected for wear at 100-hour intervals as specified in the latest revision of Mandatory Service Bulletin, MSB645, "Inspection of Riveted Impulse Couplings and Stop Pins".

**C. 500-Hour Inspection Interval**

1. Magnetos must be inspected every 500 hours as specified in the latest revision of the applicable Service Support Manual, PERIODIC MAINTENANCE section, paragraph 6.2.3.
2. At the same time, clean and inspect all ignition harness outlet plates, covers or cap assemblies.
3. Clean grommets following procedures in the CLEANING section specified in the latest revision of the applicable Service Support Manual.
4. Replace all parts found to be broken, brittle, cracked or burned.
5. Lubricate and reinstall harnesses according to procedures in the ASSEMBLY section specified in the latest revision of the applicable Service Support Manual.

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## D. Engine Overhaul Interval

1. Magnetos are electro-mechanical devices using rotating parts are subject to the same service treatment, environmental conditions, and wear as the engine. Therefore, when the engine is overhauled;
  - a. magnetos must be overhauled,
  - b. ignition harnesses must be replaced, and
  - c. ignition switches and starting vibrators must be inspected and tested for airworthiness.
2. The magneto is an integral part of the engine and undergoes the same deterioration as the engine. Severe environmental conditions, engine over-speeds, sudden stoppage, immersion and other unusual circumstances may require complete or partial engine overhaul **prior** to the overhaul time recommended by the engine manufacturer. Under these circumstances, the magneto (regardless of “In Service” time) must be overhauled with particular attention focused on all rotating parts, bearings, and electrical components.
3. Magnetos with serial number older than D15FA000(R)<sup>1</sup>, E15FA000(R)<sup>1</sup>, or F15FA000(R)<sup>1</sup> (June 1, 2015) must be overhauled or replaced at the expiration of five years since the date of original manufacture or last overhaul, or four years since the magneto was placed in service, whichever occurs first, without regard to operating hours. Also at this interval, CMI (formerly Bendix/TCM) high tension ignition harnesses with serial numbers K15E or older must be discarded and replaced.
4. In addition to the requirements listed above (Section D., steps 1. and 2.) S-20, S-200 and S-1200 series magnetos with a serial number newer than D15FA000(R)<sup>1</sup>, E15FA000(R)<sup>1</sup>, or F15FA000(R)<sup>1</sup> (June 1, 2015) must be overhauled or replaced at the expiration of thirteen years since the date of original manufacture or last overhaul, or twelve years since the magneto was placed in service, whichever occurs first, without regard to operating hours. Also at this interval, CMI high tension ignition harnesses with serial numbers K15F or newer must be discarded and replaced.

1. See latest revision of SIL642, “Manufacturing Number (Serial Number) Interpretation” for information regarding CMI serial numbers

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