

# **D-2000/D-3000 Series High Tension Magneto**

**CONTINENTAL IGNITION SYSTEMS**

# **SERVICE SUPPORT MANUAL**



**Technical Portions Approved by the FAA**

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**Supersedure Notice**

This manual is a revision of the service instructions contained in X42003-2, published in July 2010. Upon FAA approval and release of this document, all previous versions of X42003 are superseded and should not be used for Continental Motors D-2000/D-3000 magneto service, maintenance or overhaul.

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## Section 3. Testing & Troubleshooting

### 3-1. General

NOTE: Index numbers in parentheses refer to the exploded views of the magneto in Figure 1 or the harness in Figure 2 and the “Illustrated Parts List” in Section 11 unless otherwise specified.

1. If engine malfunctions develop which appear to be caused by the ignition system, check the spark plugs and wiring first before working on the magnetos.

#### WARNING

**Turn the Ignition Switch OFF, disconnect engine electrical power and confirm continuity between the magneto capacitor and aircraft ground before commencing maintenance or inspections to avoid uncommanded engine starts during maintenance. Do not stand or place equipment within the arc of the propeller.**

2. Perform a Magneto RPM drop-off test according to the instructions in the applicable Airplane Flight Manual (AFM)/Pilot's Operating Handbook (POH) to assess the ignition system operation. A drop in RPM is expected when one magneto in a redundant ignition system is shut off. Absence of an RPM drop may indicate:
  - The magneto timing has been advanced beyond setting specified, or
  - A Magneto primary lead is open (Hot Magneto), or
  - The ignition switch is inoperative, or
  - The grounding circuit of the feed-through capacitor is open, or a combination of these factors.
3. An engine which does not exhibit a normal drop-off in RPM when the Magneto is checked must be shut down and the cause for the problem corrected before further flight. The normal engine drop-off is specified in the appropriate AFM/POH and the Engine Maintenance and/or Overhaul Manual.
4. As a precautionary measure, test the Magneto grounding circuit prior to shutting down the engine using the following procedure:
  - a. With the engine at normal idle, rotate the switch key or lever momentarily to the off position, one magneto is still functioning.
  - b. If the grounding circuit is working as prescribed, the engine should quit.
  - c. If the magneto did not ground out, determine and correct the cause prior to continued operation of the engine and before the next flight.
  - d. Return the switch key or lever to the “BOTH” position and shut down the engine using normal procedures.
5. If problems persist, replace the magneto with a known serviceable unit and send the suspect unit to the overhaul shop for test and repair.



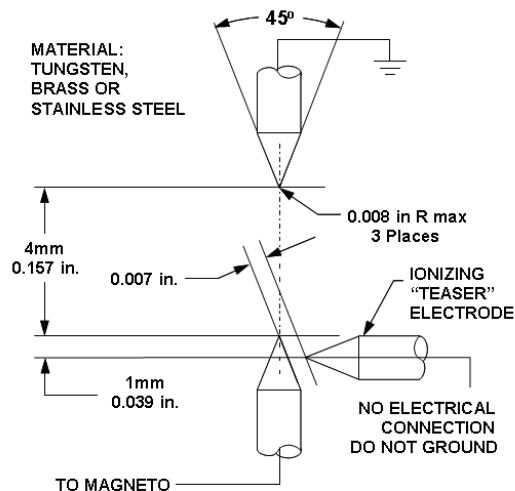
6. If a replacement unit is not readily available, inspect the following to isolate the cause of the malfunction:
  - a. Remove harness securing screws and separate the cover from the magneto. Inspect for presence of moisture and foreign matter on rubber grommets and high tension outlet side of the distributor block. Check for broken or burned outlet towers. If either is present, remove magneto and replace as necessary.
  - b. Check block tower springs for proper height. End of spring shall not be more than 0.422 inch from top of tower. Replace burned or otherwise short springs according to the instructions in Section 9-2.4. Check for broken leads or damaged lead insulation. If either is present, replace magneto.
  - c. Inspect contact assemblies according to the "Contact Assembly Inspection" in Section 6-2.1.

### 3-2. Post Overhaul Testing

1. Mount the magneto on a 11-10500 test stand. Connect the high voltage outlet to spark gaps on test stand using a standard harness assembly. Set spark gaps at 0.157 in. (4 mm) as shown in Figure 3-1.

*CAUTION: Do not operate the magneto on a test stand unless all high voltage leads are connected to spark gaps; an open high voltage circuit would subject magneto parts to damage.*

*Do not operate magneto on test stand with oil seal installed for longer than five minutes as hidden damage may result.*



**Figure 3-1. Spark Gap Setting**

2. Install magneto grounding leads, fabricated using 10-382698 ground terminal lead kits, to capacitors. When applicable, install a retard lead (made with 10-157208 kit) and/or tachometer lead (made with 10-157209 kit).
3. Determine lowest speed at which rotating magnet can be turned and still spark all gaps without missing (coming-in speed). Magnetos must spark consistently at 150