Revision Transmittal

December 10, 2010

TO: Cessna Distributors, Single Engine and Multi-engine Service Stations, and affected Owners of Record

SUBJECT: Service Newsletter SNL10-11 Revision 1: Teledyne Continental Motors Inspection of Ignition Harness Attachment Plate

REASON FOR REVISION

To revise the Owner Notification section to send an Owner Advisory to Owners of Record rather than to send a copy of this Service Newsletter to owners of record.

Miscellaneous changes as required.

REQUIRED ACTION

Please replace any copy of SNL10-11 with the attached copy of SNL10-11 Revision 1 which is printed in its entirety.

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Service Newsletter

December 10, 2010

TITLE

TELEDYNE CONTINENTAL MOTORS INSPECTION OF IGNITION HARNESS ATTACHMENT PLATE

TO

Cessna Distributors, Single Engine and Multi-engine Service Stations, and affected Owners of Record

MODELS AFFECTED

The following airplanes equipped with an S-20 or S-200 series magneto as identified in Teledyne Continental Motors (TCM) Ignition System Critical Service Bulletin CSB668 (or latest revision):

• The following Corvalis model series equipped with Bendix S-20 or S-200 series magnetos:
  300 (LC40-550FG), 350 (LC42-550FG), and 400 (LC41-550FG) airplanes.

• All prefix and suffix variants of the following Single Engine model series equipped with Bendix S-20 or S-200 series magnetos:
  120, 140, 150, 170, 172 thru 172H, 175, 180, 182, 185, 188, 205, 206, 207, and 210 airplanes.

  **NOTE:** Models 172I thru 172S, 172RG, F172L thru F172P, T182, R182, TR182, FR182, 182S, 182T, and T182T and Models 206H and T206H are not equipped with a Bendix S-20 or S-200 series magneto and so are not affected by this Service Newsletter.

• All prefix and suffix variants of the following Multi-engine model series equipped with Bendix S-20 or S-200 series magnetos:
  T303, 310, 320, 335, 336, 337, 340, 401, 402, and 414 airplanes.

DISCUSSION

The purpose of this Service Newsletter is to transmit Teledyne Continental Motors Ignition System Critical Service Bulletin CSB668, Inspection of Ignition Harness Attachment Plate.

TCM Critical Service Bulletin CSB668 requires an inspection of the magneto harness attachment plate. If there are cracks, the ignition harness attachment plate or the complete ignition harness must be replaced before further engine operation.

TCM reports that they have been notified of cracks in a few ignition harness attachment plates at the ignition harness plate attachment to the distributor housing on S-20 and S-200 series TCM magnetos.
OWNER NOTIFICATION

A. On November 8, 2010 a copy of this Service Newsletter was to be sent to the applicable airplane owners of record.

B. On December 10, 2010 the Owner Advisory that follows will be sent to applicable owners of record in SNL10-11A:

Service Newsletter SNL10-11 Revision 1 has been issued to transmit Teledyne Continental Motors Ignition System Critical Service Bulletin CSB668, Inspection of Ignition Harness Attachment Plate.

TCM Critical Service Bulletin CSB668 requires an inspection of the magneto harness attachment plate. If there are cracks, the ignition harness attachment plate or the complete ignition harness must be replaced before further engine operation.

TCM reports that they have been notified of cracks in a few ignition harness attachment plates at the ignition harness plate attachment to the distributor housing on S-20 and S-200 series TCM magnetos.

It is recommended that affected Cessna airplane owners contact a Cessna Authorized Service Facility for detail information.

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CRITICAL SERVICE BULLETIN

Compliance Necessary To Maintain Safety

SUBJECT: Inspection of Ignition Harness attachment plate

PURPOSE: To confirm correct installation of ignition harness to magneto housing attachment

COMPLIANCE: Within the next 50 hours, no later than the next scheduled maintenance event

MODELS AFFECTED: S-20 and S-200 series TCM magnetos

General

Teledyne Continental Motors has been notified of cracks in a few ignition harness attachment plates. The plates have cracked at the ignition harness plate attachment to the distributor housing on S-20 and S-200 series TCM magnetos. This cracking is caused by the application of incorrect torque in attachment of the ignition harness plate to the magneto rear housing during assembly. Cracking may also be caused by the use of ignition harnesses utilizing thinner harness attachment plates. These harnesses are manufactured and distributed under PMA approval without TCM knowledge or approval.

Background

TCM S-20, S-200 Magneto & Harness service manuals have specified 25 – 35 inch pounds torque for the TCM ignition harness attachment plate screws since 1989. These TCM assembly instructions did not recognize any other manufacturers’ products that may be made available through FAA PMA approvals. Cracking of TCM ignition harness attachment plates has not been reported during the time that this torque specification was utilized. (See Figure 2)

Slick/Unison (now Champion) Harness service manual has specified 30 – 35 inch pounds torque for these screws since November 1987. There have been reports of these ignition harness attachment plates cracking at their specified torque. The Slick/Unison ignition harness attachment plates tested in conjunction with this service document were found to be constructed of thinner material. (See Figure 1)

Inspection

At the next scheduled 100 hour inspection the magneto harness attachment plate must be inspected for cracks appearing at the four (4) corner attachment points. Any harness attachment plate found to be cracked must be replaced prior to further operation of the engine. The replacement of cracked ignition harness attachment plates may be accomplished by replacement of the complete ignition harness involved or replacement of the ignition harness attachment plate. See the ignition harness manufacturers’ instructions for the ignition harness installed in your ignition system prior to any repairs to the ignition harness.

Installation
TCM/Bendix ignition harness attachment plate has used an as-cast spherical radius pilot (ball) since 1947. All magneto distributor housings use a machined conical chamfer (cone seat) since 1947. Radio seal & mechanical contact magneto to ignition harness attachment plate is formed at ball to cone seat.

The edges of the ignition harness attachment plate are not required to mount tight (flush with) to the magneto distributor housing: Tests of sample conforming parts show complete ball-cone seat contact made at 12 in-lbs. Additional torque application did not improve contact on any of the brands tested. (See Figure 3)

Since 1979 12-15 inch pounds torque is recommended for assembly by TCM/ Bendix engineering installation drawings. TCM has used 12 -15 inch pounds torque to assemble TCM ignition harness attachment plates to TCM S-20 & S-200 Series Magnetos since 2004.

For all ignition harness plate installations on TCM S-20 and S-200 magnetos; the harness plate attachment screws are to be torqued to 12-15 inch pounds. Use criss-cross tightening procedure when installing ignition harness attachment plates. Start at the upper left to the lower right to the lower left and finally the upper right attachment screw should be tightened. Use a currently calibrated inch pound torque wrench.

Figure 1

Slick/Unison/Champion ignition harness attachment plate has a circular boss at each corner and a thinner section between the mount holes & spherical pilot (ball). Consult appropriate parts listing for correct installation hardware.
Figure 2 indicates a Slick/Unison/Champion ignition harness attachment plate correctly installed and torqued. Note that the ignition harness attachment plate is not flush with the magneto housing even though it is correctly torqued and seated.
Figure 3

TCM ignition harness attachment plate shown, is correctly seated in the magneto housing and torqued to the correct value although not flush.

TCM’s ignition harness attachment plate has a thick rib angling from mounting hole radially inward to the body of the ignition harness attachment plate. Consult appropriate parts listing for correct installation hardware.