Single Engine

Service Bulletin

April 5, 1999

TITLE

ENGINE PISTON PIN PLUG WEAR INSPECTION

EFFECTIVITY

<table>
<thead>
<tr>
<th>Models</th>
<th>Serial Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>172R</td>
<td>17280001 and On</td>
</tr>
<tr>
<td>172S</td>
<td>172S8001 and On</td>
</tr>
<tr>
<td>182S</td>
<td>18280001 and On</td>
</tr>
<tr>
<td>206H</td>
<td>20608001 and On</td>
</tr>
<tr>
<td>T206H</td>
<td>T20608001 and On</td>
</tr>
</tbody>
</table>

REASON

To transmit Textron Lycoming Service Instruction No. 1492B; Piston Pin Plug Wear Inspection, Textron Lycoming Mandatory Service Bulletin No. 480C; Oil Filter Change And Screen Cleaning and Textron Lycoming Service Instruction No. 1267C; Piston Pin Plug Usage. According to Lycoming, "Field reports indicate an increase in incidents of abnormally worn piston pin plugs in some units shipped after January 1, 1994. Evidence of such wear can be detected by use of an oil filter content inspection or spectrographic oil analysis."

DESCRIPTION

An inspection for piston pin plug wear is required as specified in Textron Lycoming Service Instruction No. 1492B (or latest revision). The inspection should be done during oil and filter change and screen cleaning required by Textron Lycoming Mandatory Service Bulletin No. 480C (or latest revision). It is also necessary to ensure correct piston pin plug usage as specified in Textron Lycoming Service Instruction No. 1267C (or latest revision).

Non-compliance with these inspections and procedures may allow undetected premature deterioration of the piston pin plugs which could result in partial and/or complete loss of engine power.

COMPLIANCE

Recommended; should be accomplished at next oil change/oil filter replacement, not to exceed 50 hours of engine operation (within the first 10 hours and next 25 hours for new, remanufactured, or newly overhauled engines) and at each 50 hours of operation thereafter as specified in Textron Lycoming Service information No. 1492B (or latest revision).

NOTE: Compliance with this revision is required if in compliance with the original issue of this service bulletin.

Original Issue: January 18, 1999
APPROVAL

Refer to Textron Lycoming Service information No. 1492B (or latest revision).

MANPOWER

Not determined

REFERENCES

Textron Lycoming Service Instruction No. 1492B (or latest revision)
Textron Lycoming Mandatory Service Bulletin No. 480C (or latest revision)
Textron Lycoming Service Instruction No. 1267C (or latest revision)
Textron Lycoming Service Letter No. L171 (or latest revision)
Model 172R SKYHAWK Illustrated Parts Catalog
Model 182S SKYLANE Illustrated Parts Catalog
Model 206H/T206H Illustrated Parts Catalog

NOTE: Ensure all publications used are complete and current.

MATERIAL PRICE AND AVAILABILITY

Not applicable

CREDIT INFORMATION

Not applicable

ACCOMPLISHMENT INSTRUCTIONS

Refer to the attached Textron Lycoming Service Instruction No. 1492B (or latest revision), Textron Lycoming Mandatory Service Bulletin No. 480C (or latest revision) and Textron Lycoming Service Instruction No. 1267C (or latest revision).
OWNER NOTIFICATION

A. On January 18, 1999 the following Owner Advisory message was sent to applicable owners of record in SB99-71-01A.

Dear Cessna Owner:

This message is to provide notification that your airplane engine is affected by Textron Lycoming Service Instruction No. 1492A (or latest revision) Piston Pin Plug Wear Inspection.

According to Lycoming, "Field reports indicate an increase in incidents of abnormally worn piston pin plugs in some units shipped after January 1, 1994. Evidence of such wear can be detected by use of an oil filter content inspection or spectrographic oil analysis."

Inspect for piston pin plug wear as specified in Textron Lycoming Service Instruction No. 1492A (or latest revision). Non-compliance with this inspection may allow undetected premature deterioration of the piston pin plugs which could result in partial and/or complete loss of engine power.

Compliance is recommended, should be accomplished at next oil change/oil filter replacement, not to exceed 50 hours of engine operation (25 hours for new, remanufactured, or newly overhauled engines) and at each 50 hours of operation thereafter as specified in Textron Lycoming Service Information No. 1492A (or latest revision).

Please contact a Cessna Single Engine Service Station for detailed information and make arrangements to have Cessna Service Bulletin SB99-71-01/Textron Lycoming Service Instruction No. 1492A (or latest revision) accomplished on your airplane.
B. On April 5, 1999 the following Owner Advisory message will be sent to applicable owners of record in SB99-71-01AR1.

Dear Cessna Owner:

This message is to provide notification that your airplane engine is affected by Textron Lycoming Service Instruction No. 1492B; Piston Pin Plug Wear Inspection, Textron Lycoming Mandatory Service Bulletin No. 480C; Oil Filter Change And Screen Cleaning and Textron Lycoming Service Instruction No. 1267C; Piston Pin Plug Usage.

According to Lycoming, "Field reports indicate an increase in incidents of abnormally worn piston pin plugs in some units shipped after January 1, 1994. Evidence of such wear can be detected by use of an oil filter content inspection or spectrographic oil analysis."

An inspection for piston pin plug wear is required as specified in Textron Lycoming Service Instruction No. 1492B (or latest revision). The inspection should be done during oil and filter change and screen cleaning required by Textron Lycoming Mandatory Service Bulletin No. 480C (or latest revision). It is also necessary to ensure correct piston pin plug usage as specified in Textron Lycoming Service Instruction No. 1267C (or latest revision).

Non-compliance with these inspections and procedures may allow undetected premature deterioration of the piston pin plugs which could result in partial and/or complete loss of engine power.

Compliance is recommended, should be accomplished at next oil change/oil filter replacement, not to exceed 50 hours of engine operation (within the first 10 hours and next 25 hours for new, remanufactured, or newly overhauled engines) and at each 50 hours of operation thereafter as specified in Textron Lycoming Service information No. 1492B (or latest revision).

NOTE: Compliance with SB99-71-01 Revision 1 is required if in compliance with the original issue of SB99-71-01.

Please contact a Cessna Single Engine Service Station for detailed information and make arrangements to have Cessna Service Bulletin SB99-71-01 Revision 1/Textron Lycoming Service Instruction No. 1492B (or latest revision), Textron Lycoming Mandatory Service Bulletin No. 480C (or latest revision) and Textron Lycoming Service Instruction No. 1267C (or latest revision) accomplished on your airplane.

* * * * * * * * *
Revision Transmittal
April 5, 1999

TO: Cessna Distributors and Single Engine Service Stations.


REASON FOR REVISION
To transmit Textron Lycoming Service Instruction No. 1492B; Piston Pin Plug Wear Inspection
- and -
Textron Lycoming Mandatory Service Bulletin No. 480C; Oil Filter Change And Screen Cleaning
- and -
Textron Lycoming Service Instruction No. 1267C; Piston Pin Plug Usage.
Miscellaneous changes as required.

REQUIRED ACTION
Please replace your copy of SB99-71-01 with the attached copy of SB99-71-01 Revision 1 which is printed in its entirety.

NOTE: Compliance with this revision is required if in compliance with the original issue of this service bulletin.

LOG OF EFFECTIVE PAGES

<table>
<thead>
<tr>
<th>Page No.</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>April 5, 1999</td>
</tr>
<tr>
<td>2</td>
<td>April 5, 1999</td>
</tr>
<tr>
<td>3</td>
<td>April 5, 1999</td>
</tr>
<tr>
<td>4</td>
<td>April 5, 1999</td>
</tr>
</tbody>
</table>

* * * * * * * *
DATE: February 26, 1999

Service Bulletin No. 480C
(Supersedes Service Bulletin No. 480B)
Engineering Aspects are
FAA Approved

SUBJECT: I. Oil and Filter Change and Screen Cleaning
II. Oil Filter/Screen Content Inspection

MODELS AFFECTED: All Textron Lycoming direct drive and TIGO-541 piston engines.

TIME OF COMPLIANCE: As required by subject bulletin.

Textron Lycoming recommends the following:

I. Oil and Filter Change and Screen Cleaning.

A. Within 10 hours of operation – filter replacement or pressure screen cleaning for new, remanufactured, or newly overhauled engines and for engines with any newly installed cylinders.

B. At 25 hours after the first filter replacement/screen cleaning – oil change, filter replacement or pressure screen cleaning for new, remanufactured or newly overhauled engines and for engines with any newly installed cylinders.

C. 50-Hour interval – oil change and filter replacement for all engines using full-flow filtration system (except for engine models TIO-540-AF1A and -AF1B, which require 25 hour interval changes).

D. 25-Hour interval – oil change and screen cleaning for all engines employing a pressure screen system.

E. A total of four (4) months maximum between changes for systems listed under “A”, “B” and “C”.

F. All turbocharged engines must be broken-in and operated with ashless dispersant oil. (Refer to latest edition of Service Instruction No. 1014.)

II. Oil Filter/Screen Content Inspection.

A. Using the following methods, check for premature or excessive engine component wear, indicated by the presence of metal particles, shavings, or flakes in the oil filter element or screens.

1. Oil Filter.

   a. Using approved method (eg., for full flow, spin-on filters, use Champion Tool CT-475 or Airwolf Cutter AFC-470), open the filter.

   b. Check condition of the oil from the filter for signs of metal contamination.

   c. Remove the paper element from the filter.

   d. Carefully unfold the paper element and examine the material trapped in the filter.

2. Pressure Screen.

   If engine employs a pressure screen system, check the screen for metal particles.
3. Oil Sump Suction Screen.

After draining oil, remove the suction screen from the oil sump and check for metal particles.

B. If examination of the used oil filter or pressure screen and the oil sump suction screen indicates abnormal metal content, additional service may be required to determine the source and possible need for corrective maintenance.

NOTE

Textron Lycoming encourages the use of spectrograph oil analysis to monitor engine component wear rates. Refer to the latest edition of Service Letter No. L171.
Piston Pin Plug Usage

All Textron Lycoming engines with 5-1/8 inch cylinder bore: O-320; IO-320; O-340, O, IO, HO, LO, LIO, AIO, HIO, TIO, VO and IVO-360; GO, VO and TVO-435; GO, GSO, IGSO-480; O, IO, VO, TIO, TVO, TIVO and IGSO-540; TIO and TIGO-541; IO-720.

Any time piston pin plugs are replaced.

There are three different piston pin plugs currently used in the above mentioned models of Textron Lycoming aircraft engines. The various plugs fit interchangeably; however, both plugs in a cylinder must be of the same part number. To preclude the possibility of mixing two different plugs in a cylinder and to simplify plug replacement, at the next piston pin plug replacement, plug P/N LW-11775 should be replaced with P/N 72198. In a complete engine piston pin plug replacement, all plugs should be replaced with P/N 72198. See the illustrations for allowable replacements.

NOTE

Although piston pin P/N LW-14077* was designed to accommodate the P/N LW-11775 plug, P/N 60828 and P/N 72198 plugs may be used with P/N LW-14077 pins. Follow the replacement applications listed below.

Piston pin plug replacement is mandatory during engine overhaul and care should be exercised to be sure the clearance between the plug and piston is not excessive; normal fit is .0002L/.0015L, service maximum .0025L.

CAUTION

Both pin plugs in a cylinder must be of the same part numbers and must be replaced in accordance with the illustrated applications. Coat thrust face of plugs with Texaco Tuban 140 or other pre-lubricant before assembly. See latest edition of Service Instruction No. 1059 for approved lubricants.

Chart Showing Section Thru Piston Pin Plugs
NOTE

For O-320-E2A, when piston pin P/N LW-14077 is installed, a logbook entry is required.

* – Piston pins P/N’s 69650, LW-12383, LW-13444 and LW-13446 are all superseded by piston pins P/N LW-14077 and LW-14078; see latest edition of Service Instruction No. 1340 for parts information.

NOTE: Revision “C” removes P/N LW-11775 piston pin plug from service.

Page 2 of 2
Piston Pin Plug Wear Inspection

All Textron Lycoming new or factory remanufactured or factory overhauled engines shipped from Textron Lycoming after January 1, 1994, and all engines which have had a Textron Lycoming Cylinder Kit installed after January 1, 1994.

At next oil change/oil filter replacement, not to exceed 50 hours of engine operation (first 10 hours and next 25 hours for new, remanufactured, or newly overhauled engines) and at each 50 hours of operation thereafter.

Field reports indicate an increase in incidents of abnormally worn piston pin plugs in some units shipped after January 1, 1994. Evidence of such wear can be detected by use of an oil filter content inspection or spectrographic oil analysis.

Refer to the latest edition of Textron Lycoming Service Bulletin No. 480 for oil and filter change intervals and procedures.

I. Oil Filter/Screen Content Inspection:

1. For engines employing a pressure screen system, remove the screen and check for metal particles.

2. Using approved method (e.g., for full flow, spin-on filters, use Champion Tool CT-470 or Airwolf Cutter AFC-470) open the filter.

3. Check the condition of the oil from the filter. Inspect for a high concentration of aluminum in the oil, indicated by a shining, metallic residue.

4. After draining oil, remove the suction screen from the oil sump and check for metal particles.

5. Remove the paper element from the filter.

6. Carefully unfold the paper element and examine the material trapped in the filter.

7. When performing the regular filter/screen inspection, check for premature or excessive wear of piston pin plugs, indicated by the presence of metal particles, shavings, or flakes.

NOTE

In new or newly overhauled engines some small particles of metallic shavings might be found, but these are generally of no consequence and should not be confused with particles produced by impacting, abrasion or pressure.

8. Evidence of metal contamination found in the filter element or screen requires further examination to determine the cause. Below is a list of recommended actions based on the appearance and approximate quantity of particles.
a. 5 or fewer small (1/16 inch diameter or less) pieces of metal – place aircraft back in service and check oil filter or screen at next scheduled oil change/oil filter replacement.

b. 10 to 20 small (1/16 inch diameter or less) pieces of shiny flake–like, nonmagnetic, or 10 or fewer short hair–like pieces of magnetic material – place engine back in service and again check oil filter or screen in 25 hours.

c. 20 to 40 small pieces as in step b. – place the aircraft back in service and check oil filter or screen at the next 10 hours.

d. As in step b., but larger amount, such as 45–60 small pieces – change filter or clean screen, drain oil, and refill. Run engine on ground for 20–30 minutes. Inspect filter/screen. If clean, fly aircraft for 1 to 2 hours and again inspect filter/screen. If clean, inspect filter/screen after 10 hours of flight time.

NOTE

In items e. through j., below, the engine should be removed from service until the source of the metal is determined and corrective maintenance has been accomplished.

e. Pieces of metal ranging in size of broken lead pencil point or greater. Remove suction (sump) screen to check for pieces of metal that may have fallen into the sump. In any event, ground aircraft and conduct investigation. A mixture of magnetic and nonmagnetic material in this case often times means valve or ring and piston failure. Removing bottom spark plugs usually reveals the offending cylinder.

f. Nonmagnetic plating averaging approximately 1/16 inch in diameter; may have copperish tint. Quantity found – 1/4 teaspoonful or more; ground aircraft and investigate.

g. Same as in step b. but may be slightly larger in size and minus copperish tint. On direct drive engines, propeller action may be impaired. Ground aircraft and investigate.

h. Nonmagnetic metal brass or copperish colored. Resembles coarse sand in consistency. Quantity of 1/4 teaspoonful or more – ground aircraft and investigate.

i. Anytime metal is found in the amount of 1/2 teaspoonful or more, it is justification for engine removal.

j. If any single or several pieces of magnetic or nonmagnetic metal larger than previously mentioned are found, ground aircraft.

NOTE

If the origin of the metal contamination cannot be determined, a call may be made to the Textron Lycoming Product Support Department. A good description of the metal may result in placing its origin. When phoning Textron Lycoming or when returning metal removed from engines, supply the complete engine model designation, serial number, history of engine, oil temperatures, oil pressures, and any unusual behavior of the engine on the ground or during flight. Do not ship material to Textron Lycoming without first calling the Product Support Department.

9. If examination of the oil filter or screen, per the above, indicates abnormal aluminum or iron content contact a technical representative of Textron Lycoming Product Support Department at (570) 323–6181.

NOTE

Warranty for the metal analysis is available only if the engine from which the sample is taken is a new, remanufactured, or overhauled engine from the Textron Lycoming factory.

II. Spectrographic Oil Analysis:

NOTE

Spectrographic oil analysis does not replace recommended maintenance practices such as oil filter and screen content inspection, cylinder differential pressure compression checks, and boroscopic examination, however, Textron Lycoming does encourage the use of spectrographic oil analysis at every oil change as method of monitoring engine component wear rate. Refer to the latest edition of Textron Lycoming Service Letter No. L171.
1. In accordance with the latest edition of Textron Lycoming Service Letter No. L171, collect an oil sample and submit it for analysis by a qualified facility.

NOTE

Typically, the first oil analysis of a new, remanufactured, or newly overhauled engine will indicate higher concentrations of metal. After an initial break-in period, metal content should decrease rapidly to a level that remains essentially constant.

2. If an oil analysis report indicates elevated levels of aluminum (above 30 parts per million for non-turbocharged engines; above 40 parts per million for turbocharged engines) or iron (above 60 parts per million for non-turbocharged engines; above 80 parts per million for turbocharged engines), contact a technical representative at the Textron Lycoming Factory Product Support Department.

3. If in a continuing program of oil analysis, results show a trend toward an increase in aluminum or iron content, inspect contents of the filter and screen in accordance with the procedures in Part I, Oil Filter/Suction Screen Inspection, above.

WARRANTY EXTENSION.

Please refer to the attached Warranty Extension regarding piston pin plug wear.
WARRANTY EXTENSION
FOR
PISTON PIN PLUG WEAR

The engine warranty period with respect to Textron Lycoming piston pin plug wear is being extended to a full three years from the in service date or to TBO, whichever occurs first. This warranty extension will cover any engine damage caused by excessive wear of Textron Lycoming piston pin plugs installed in Textron Lycoming cylinders. This extension is valid for all new, remanufactured, and overhaul engines, for cylinder kits, and for piston pin plug spare parts shipped from Textron Lycoming on or after January 1, 1996. Piston pin plug wear or engine damage caused by rust or corrosion, improper operation, or improper maintenance is excluded from this warranty extension. Proof of purchase of Textron Lycoming cylinder kits and/or piston pin plugs must be submitted with warranty applications.

Textron Lycoming continues to stress the importance of good maintenance, including mandatory oil filter element checks and recommended oil analysis trending. These checks are intended to identify any excessive wear before it causes damage to the engine. Recently issued Service Instruction No. 1492A puts special emphasis on the importance of these good maintenance procedures.

This is an extension to the warranty period of your existing Textron Lycoming Warranty Policy. All other procedures, obligations, and limitations remain in effect as stated in the original warranty.

LIMITATION OF LIABILITY

IN NO EVENT, WHETHER AS A RESULT OF A BREACH OF WARRANTY, CONTRACT OR ALLEGED NEGLIGENCE, SHALL TEXTRON LYCOMING BE LIABLE FOR SPECIAL OR CONSEQUENTIAL OR ANY OTHER DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS OR REVENUES, LOSS OF USE OF THE ENGINE OR COST OF A REPLACEMENT.

No agreement varying this warranty or Textron Lycoming’s obligations under it will be binding upon Textron Lycoming unless in writing signed by a duly authorized representative of Textron Lycoming.

Effective February 1, 1999

Textron Lycoming
Williamsport, Pennsylvania

Textron Lycoming reserves the right to revise or terminate the terms of this Extension without prior notice.