652 Oliver Street
Williamsport, PA 17701 U.S.A.
Telephone +1 (877) 839-7878 (U.S. and Canada)
Telephone +1 (570) 327-7222 (International)
Fax +1 (570) 327-7101
Email Technicalsupport@lycoming.com
www.lycoming.com

MANDATORY

SERVICE BULLETIN

DATE: June 11, 2025

Service Bulletin No. 630B
(Supersedes Service Bulletin No. 630A)
Engineering design data in this service document is FAA approved.

SUBJECT: Connecting Rod Bushing Inspection After Cylinder Removal

MODELS AFFECTED: All Lycoming engines – Complete Section 1

All new, rebuilt, overhauled, and repaired engines shipped from Lycoming between January 30, 2009, and September 9, 2021. Any engine that had connecting rod assemblies or connecting rod bushings replaced in the field with connecting rod assemblies or connecting rod bushings shipped from Lycoming between January 30, 2009, and September 9, 2021 – Complete Section 2.

TIME OF COMPLIANCE: At every maintenance event that requires removal of each cylinder.

REASON FOR REVISION: Revised MODELS AFFECTED and TIME OF COMPLIANCE; revised the first paragraph on page 1. Deleted the NOTICE to contact Lycoming for data collection. Revised Figure 6 and added new caption to Figures 7 and 8. Added Section 2 for inspection of engines shipped from Lycoming and engines that had connecting rod assemblies or connecting rod bushings replaced in the field with connecting rod assemblies or connecting rod bushings shipped from Lycoming during the stated date range.

NOTICE: Incomplete review of all the information in this document can cause errors. Read the entire Service Bulletin to make sure you have a complete understanding of the requirements.

Section 1

This Section includes a mandatory inspection of the connecting rod bushing (in the smaller end of the connecting rod as shown in Figure 1) that must be done any time a cylinder is removed from a Lycoming engine.

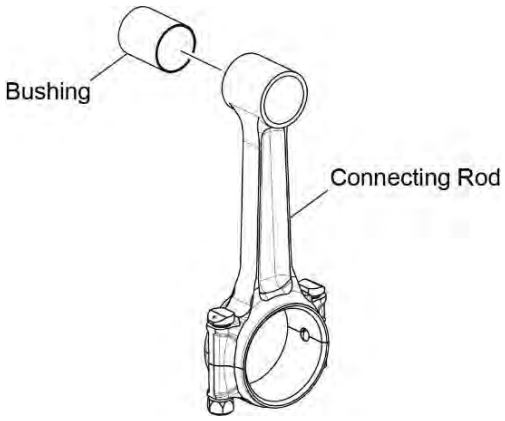

Figure 1
Bushing in Connecting Rod

Connecting Rod Bushing Inspection

After cylinder removal, remove the piston and examine the connecting rod bushing for damage. If damaged, remove, discard and replace the connecting rod bushing.

If the connecting rod bushing is not damaged, continue with this progressive inspection for:

- Proper fit in the connecting rod
- Movement of the bushing
- Wear

If any one of the conditions identified above are found in the inspection herein, remove, discard and replace the connecting rod bushing.

For a bushing to be acceptable, the connecting rod bushing must not be damaged and pass all of the steps in the inspection herein.

NOTICE: Some connecting rod bushings have a straight edge (Figure 2) and others have a chamfered edge (Figure 3) on both sides after the bushing is installed at the factory. Some inspection steps apply specifically to the design application.

1. Examine the Connecting Rod Bushing for Looseness or if it has Moved Out of Place:

A. On *straight-edge, non-chamfered bushings (Figure 2)*:

(1) Either apply a straight edge or run your finger around the perimeter of each side of the connecting rod where the connecting rod bushing is installed.

(2) Visually or by touch determine whether the connecting rod bushing is raised above the surface of the connecting rod perimeter.

(3) If the connecting rod bushing is flush with or below the connecting rod perimeter (Figure 4), go to Step1A (5).

(4) If the edge of the connecting rod bushing is raised above the surface of the connecting rod perimeter (Figure 5), the connecting rod bushing is loose or has moved or is out of place. Remove, discard, and replace the connecting rod bushing.

Figure 2
Straight Edge Connecting Rod Bushing

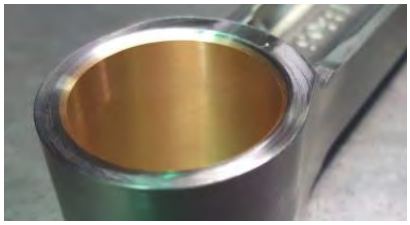

Figure 3
Chamfered Connecting Rod Bushing

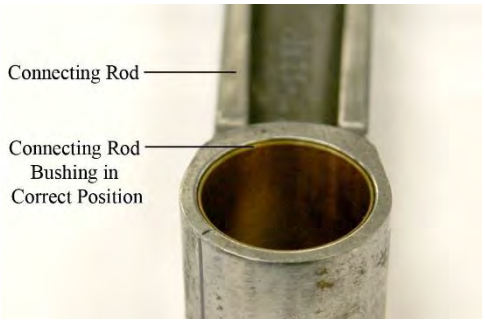

Figure 4
Example of Connecting Rod Bushing in Correct Position

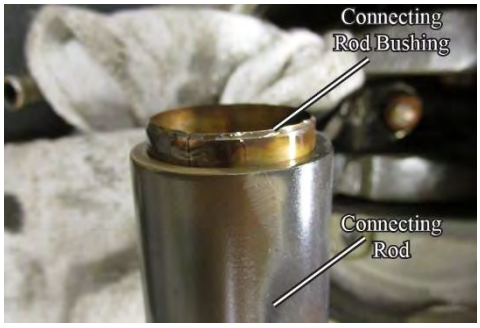

Figure 5
Example of Connecting Rod Bushing Raised Above the Connecting Rod

(5) Measure the distance from the surface of the connecting rod to the edge of the connecting rod bushing installed in the connecting rod (Figure 6) on both sides of the connecting rod.

(a) If the sum total of the measurements from both sides of the connecting rod is 0.038 in. (0.965 mm) or less, this feature is acceptable. Go to Step 2.

(b) If the sum total of the measurements from both sides of the connecting rod is greater than 0.038 in. (0.965 mm) (it is an indication the connecting rod bushing is loose or has moved or is out of place) (Figure 5). Remove, discard, and replace the connecting rod bushing.

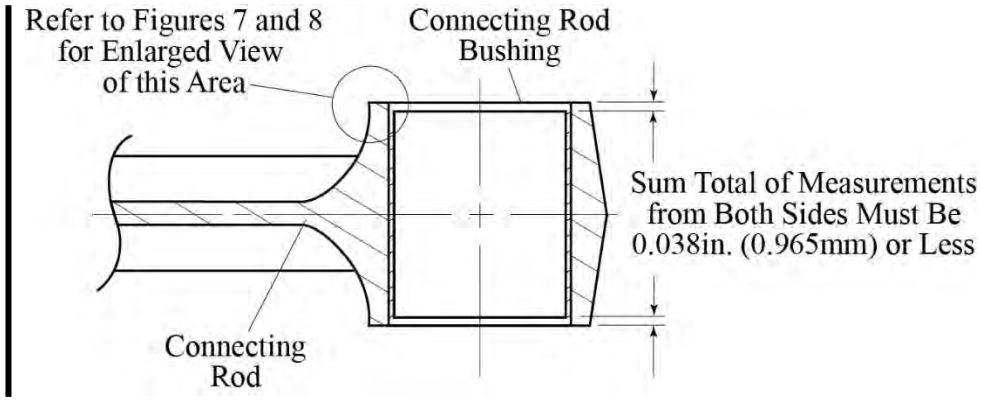

Figure 6
Correct Placement of Connecting Rod Bushing

B. On *chamfered connecting rod bushings (Figure 3),* look at the perimeter edge of the applicable connecting rod bushing within the connecting rod.

(1) If the chamfer of the connecting rod and the chamfer of the connecting rod bushing align (Figure 7), this feature is acceptable. Go to Step 2 on the next page.

(2) If the chamfer of the connecting rod and the chamfer of the connecting rod bushing do not align (Figure 8), the connecting rod bushing has moved within the connecting rod. Remove, discard, and replace the connecting rod bushing. Contact Lycoming Engines' Product Support at +1 (877) 839-7878 (Toll Free) or +1 (570) 327-7222 or email Technicalsupport@lycoming.com.

NOTICE: As the connecting rod bushing moves further out of place, the piston at the piston pin hole could show wear. If the connecting rod bushing is out of position, examine the piston for wear.

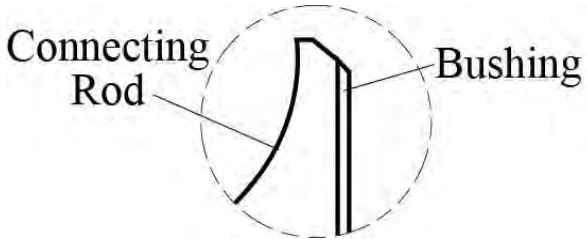

Figure 7
Connecting Rod Bushing in Correct Position

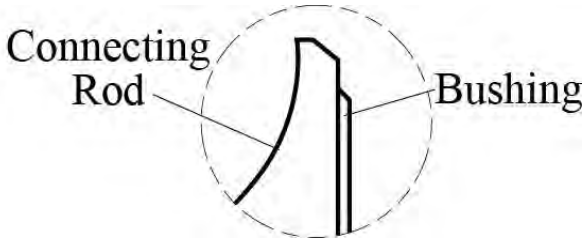

Figure 8
Connecting Rod Bushing Out of Place

Enlarged View of Circled Area Indicated in Figure 6

2. Examine the Location of the Connecting Rod Bushing Split Line

NOTICE: Connecting rod bushings are manufactured with a split line in the bushing. When installed, the split line of the bushing is positioned approximately at a 45° angle from the center line of the connecting rod as shown in Figure 9.

Some connecting rod bushings have a notch or notches in the edge of the bushing (Figure 10). Do not confuse the notch or notches with the split line in the bushing.

Look for the split line on the inside diameter of the connecting rod bushing.

If the split line is visible at any other location other than approximately at a 45° angle from the center line of the connecting rod, the connecting rod bushing has moved and must be removed, discarded, and replaced.

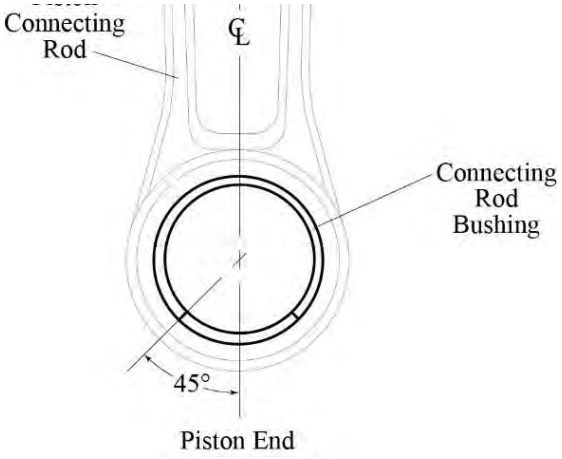

Figure 9
Connecting Rod Bushing Split Line Position

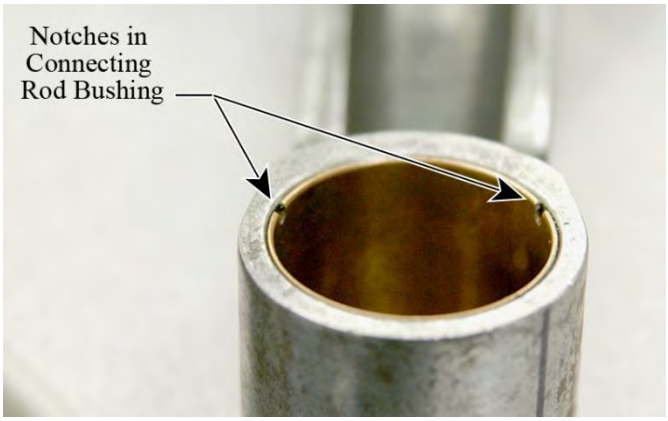

Figure 10
Notches in the Connecting Rod Bushing

3. Examine the Connecting Rod Bushing for Wear:

A. Measure and record the Inside Diameter (ID) of the connecting rod bushing.

B. Measure and record the Outside Diameter (OD) of the piston pin.

C. Calculate and record the clearance by subtracting the OD of the piston pin from the ID of the connecting rod bushing.

- If the clearance is less than or equal to the "Service Max." clearance in the latest revision of the ***Service Table of Limits - SSP-1776***, the connecting rod bushing and piston pin are acceptable with regards to connecting rod bushing wear.
- If the clearance is greater than the "Service Max." clearance in the latest revision of the ***Service Table of Limits - SSP-1776***, remove, discard and replace the component(s) that exceed(s) the manufacturing dimensions according to the latest revision of the ***Service Table of Limits - SSP-1776***.

Section 2

This Section contains required action to inspect connecting rod bushings and replace unacceptable connecting rod bushings. Acceptable connecting rod bushings, P/N 01K28983, installed or shipped as spares after September 9, 2021, can be identified by a single notch (Figure 11).

Prior to introduction of the connecting rod bushing P/N 01K28983, the LW-13923 bushing was in use. Between January 30, 2009, and September 9, 2021, LW-13923 bushings were installed in new, rebuilt, overhauled, and repaired engines shipped from Lycoming. LW-13923 bushings were also available to the field as replacement parts and in replacement connecting rod assemblies during the same time. Engines that were field overhauled or repaired during this time could have received these bushings or replacement connecting rod assemblies containing these bushings. Section 2 applies only to engines that contain Lycoming LW-13923 connecting rod bushings. LW-13923 bushings do not have an identifying notch. Engine maintenance records should be reviewed for parts installed at time of last field overhaul or repair.

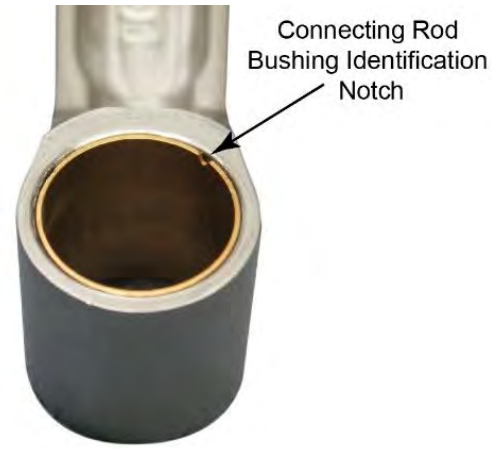

Figure 11
Single Identifying Notch in The Connecting Rod Bushing

⚠ **WARNING** YOU MUST COMPLETE THE "REQUIRED ACTION" IN THIS SERVICE BULLETIN TO ENSURE THAT YOUR CONNECTING ROD BUSHINGS ARE PROPERLY SEATED. IF A CONNECTING ROD BUSHING BECOMES UNSEATED, THE CONNECTING ROD CAN FAIL, CAUSING AN UNCOMMANDED AND COMPLETE LOSS OF POWER WHICH COULD LEAD TO DEATH OR SERIOUS INJURY.

Required Action

1. If the maintenance requires connecting rod removal and the connecting rod bushing does not have the identifying single notch (Figure 11), refer to the latest revision of Service Bulletin No. 240 for additional instructions.
2. If the maintenance does not require connecting rod removal, complete the "Connecting Rod Inspection" in this Service Bulletin.
3. If more than one cylinder must be removed, complete this inspection on each cylinder, one at a time. After completing the Connecting Rod Inspection in this service bulletin and any other required maintenance, reinstall the cylinder and torque the cylinder base fasteners to the proper torque before moving on to the next cylinder.

NOTICE: If the purchase/shipping date of connecting rod assemblies or connecting rod bushings in your spares inventory cannot be verified, those parts should be considered to be within the affected date range.

4. Remove all connecting rod assemblies with a connecting rod bushing that does not have the identifying single notch (Figure 11) and all connecting rod bushings that do not have the identifying single notch (Figure 11) from your spares inventory.
    - Spare Bushings that do not have the identifying single notch (Figure 11) should be considered unusable and discarded.
    - Spare Connecting Rod Assemblies that do not have a bushing with the identifying single notch (Figure 11) should be considered unusable and discarded or have the bushing replaced with a notched bushing.

Connecting Rod Inspection

Inspect the connecting rod bushing for the identifying single notch (Figure 11).

- If the connecting rod bushing does not have the identifying single notch (Figure 11) complete the Connecting Rod Bushing Press-Out Verification Procedure in this Service Bulletin.
- If the connecting rod bushing has the identifying single notch (Figure 11) the bushing is acceptable and provided the bushing is not damaged and meets specifications in accordance with the latest revision of the ***Service Table of Limits – SSP-1776***, replacement is not necessary.

Connecting Rod Bushing Press-Out Verification Procedure

NOTICE: A crescent wrench, 1/4-inch Allen socket, 1/4-inch or 3/8-inch ratchet, and extensions as necessary are required to complete this procedure.

ST-531 Tools already in the field may be used for this Service Bulletin provided the tool has been stored and protected from damage and corrosion, as other engine service tools require. Complete a visual inspection for damage or corrosion before using. Replace any ST-531 Tool that is damaged, corroded, or has been used for any purpose other than inspecting connecting rod assemblies before using to comply with this Service Bulletin. Replacement ST-531 Tools can be purchased or rented by contacting any Authorized Lycoming Distributor.

1. Remove the bottom section from the ST-531, Connecting Rod Bushing Press-Out Verification Tool (Figure 12) (available from Lycoming Engines).

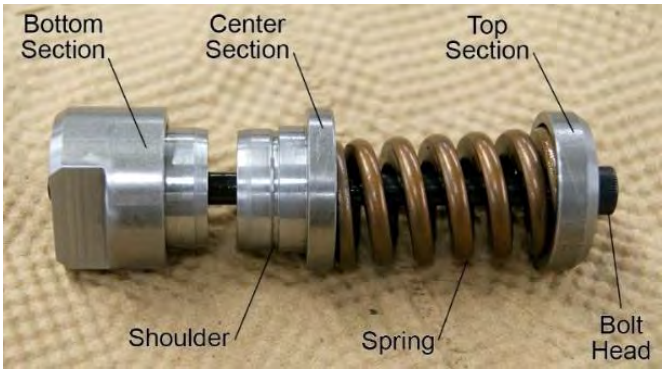

Figure 12
ST-531, Connecting Rod Bushing Press-Out Verification Tool

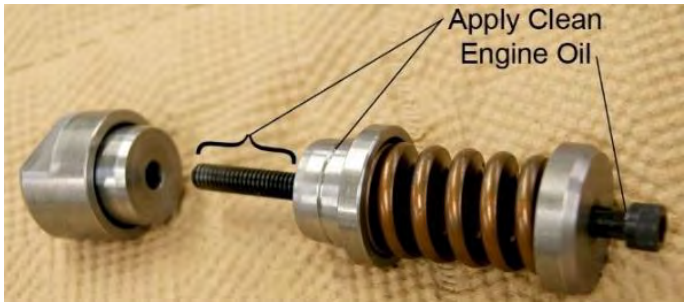

Figure 13
ST-531 Lubrication Points

2. Apply a coating of clean engine oil to the threads of the bolt, the shoulder on the center section, and under the head of the bolt of the ST-531 (Figure 13).
3. Install the tool in the piston end of the connecting rod (Figure 14) and reinstall the bottom section.

4. Hold the bottom section of the ST-531 and turn the bolt head until finger-tight (Figure 15).

Figure 14
ST-531 Installed in the Connecting Rod

Figure 15
Turn the Bolt Head of the ST-531

5. Make sure:
   - The bottom section of the tool is in contact with the connecting rod
   - The shoulder of the center section of the tool is in contact with the connecting rod bushing
   - The head of the bolt is in contact with the top section of the tool
   - The spring is seated correctly in the tool as shown in Figure 16. Figure 17 shows **incorrect** seating of the spring.

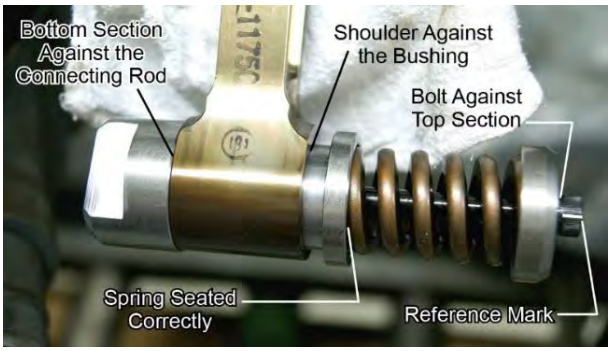

Figure 16
ST-531 Correctly Installed in the Connecting Rod

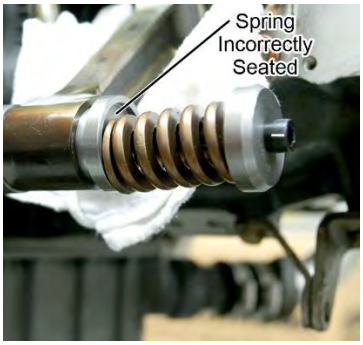

Figure 17
Spring Incorrectly Seated in the Tool

6. Use a marker to make a reference mark on the bolt head (Figure 16) to ensure an accurate count of the required number of turns during the procedure.
7. Measure the distance from the collar on the center section of the ST-531 to the edge of the connecting rod (Figure 18).

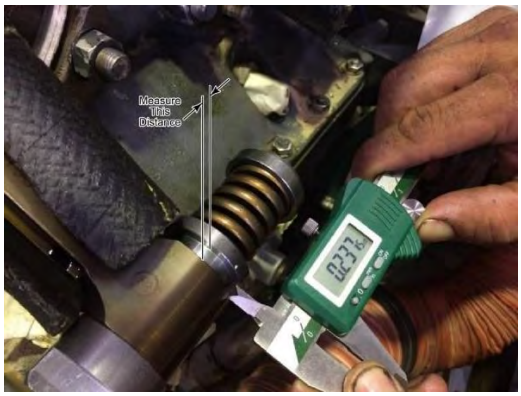

Figure 18
Measure this Distance with the Bolt Finger-Tight

8. Use a wrench to hold the bottom section of ST-531 and turn the bolt with the ratchet and 1/4-inch Allen socket clockwise six full turns (Figure 19). **Do not exceed 6 turns.**

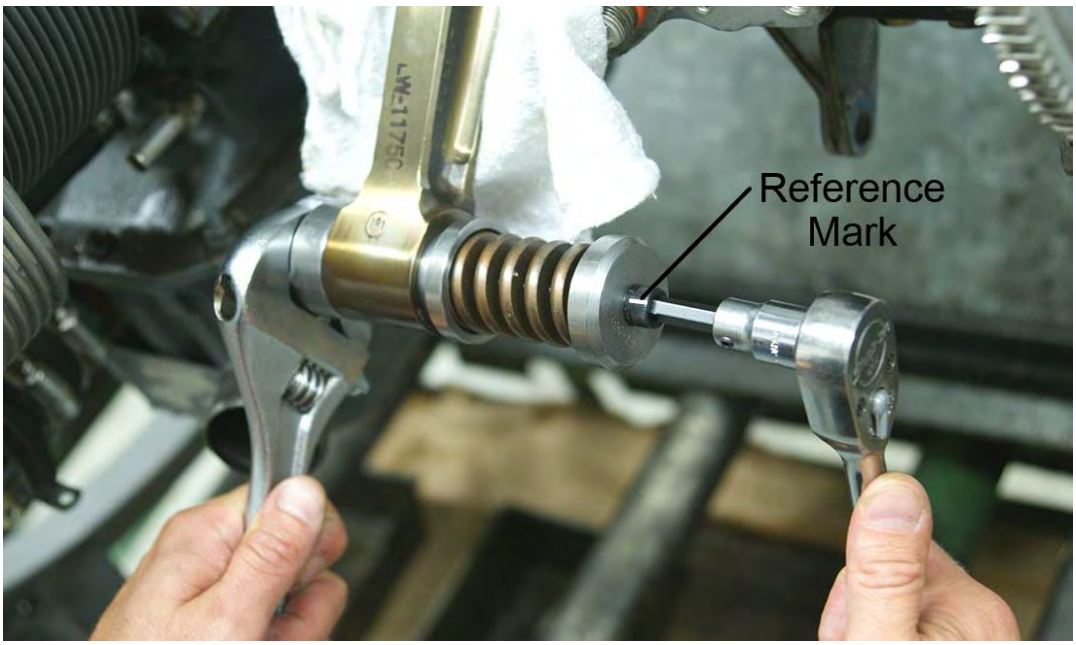

Figure 19
Turn the Bolt 6 Turns

9. Re-measure the distance from the collar on the center section of the ST-531 to the edge of the connecting rod (Figure 18).
10. If the collar to connecting rod measurement has changed after turning the bolt six full turns, the connecting rod bushing has moved.
11. Turn the bolt counterclockwise until the bottom section can be removed from the ST-531 and the tool can be removed from the connecting rod.
    A. If the connecting rod bushing has moved:
        (1) Order new parts as necessary.
        (2) Remove the connecting rod, if not already removed, and continue in accordance with the latest revision of Service Bulletin No. 240.
        (3) Reinstall the connecting rod and continue with the maintenance procedures that facilitated cylinder removal.
    B. If the connecting rod bushing has not moved:
        (1) Bushing replacement is not necessary, provided the bushing is not damaged and meets specifications in accordance with the latest revision of the ***Service Table of Limits – SSP-1776***.
        (2) Continue with the maintenance procedures that facilitated cylinder removal.
12. Record compliance with this Service Bulletin and results of the Connecting Rod Bushing Press-Out Verification Procedure in the engine maintenance records
13. Complete an engine run-up and leak check.
14. Correct any leaks before returning the engine to service.

Terminating Action

Once all connecting rod assemblies in the engine have been verified to contain acceptable connecting rod bushings with the identifying single notch (Figure 11), the repetitive inspection procedure in Section 2 of this service bulletin is no longer necessary. Refer to the latest revision of Service Instruction No. 1575 for instruction to install connecting rod bushing P/N 01K28983.