

TELEDYNE CONTINENTAL[®] AIRCRAFT ENGINE SERVICE INFORMATION LETTER

Contains Useful Information Pertaining to Your Aircraft Engine's
Operational Maintenance

CATEGORY 5

SIL97-12

FAA APPROVED
Supersedes M91-11

SUBJECT: INSTALLATION OF STARTER ADAPTER SHAFT SEAL AND ASSOCIATED PARTS.

PURPOSE: ANNOUNCES NEW STARTER ADAPTER SHAFT SEAL SLEEVE P/N 654229 AND PROVIDES INSTRUCTIONS FOR REMOVAL AND INSTALLATION OF THE STARTER ADAPTER SHAFT SEAL AND SLEEVE.

COMPLIANCE: AT STARTER ADAPTER OVERHAUL OR ANYTIME THE STARTER ADAPTER SHAFT SEAL REQUIRES REPLACEMENT.

MODELS

AFFECTED: IO-520-BA, BB. TSIO-520-BE, L, LB, UB and WB. IO-550-B. TSIO-550-A,B,C and E.

REMOVAL INSTRUCTIONS

Caution: Stand clear of the propeller at all times.

1. Disconnect the battery in accordance with the aircraft manufacturers instructions.
2. Remove the engine cowling in accordance with the aircraft manufacturers instructions, to gain access to the starter and starter adapter.
3. Disconnect the electrical lead to the engine starter motor in accordance with the aircraft manufacturers instructions.
4. Remove any accessories, lines, hoses and wire bundles that restrict access to the starter motor and starter adapter in accordance with the instructions provided in the appropriate engine overhaul manual and the aircraft manufacturers maintenance manual.
5. Remove the starter motor in accordance with the instructions provided in the applicable engine overhaul manual or aircraft maintenance manual.
6. Reference Figure 1. Using a 12 point deep socket loosen and remove nut (4) and spacer (5) or air-conditioning compressor drive sheeve and shims and sleeve (6). Do not misplace or discard shims as they will need to be reinstalled to assure correct alignment of the air-conditioning compressor drive sheeve, idle sheeve and compressor sheeve.
7. Following the instructions provided in the applicable engine overhaul manual, remove the starter adapter from the engine.
8. Position the starter adapter to allow access to body (7).
9. Remove five sets of hardware (1 & 3) and seal retaining clip (2).
10. Remove body (7) from the starter adapter.

Note: On turbocharged engines scavenge pump idler gear (not shown in Figure 1)

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- will need to be removed from the body (7).
11. Remove oil seal (8) from body (7).
 12. Remove bearing (9) and spacer (10) from body (7). Do not discard these items, they will be reinstalled.
 13. Clean all parts as required in accordance with the instructions provided in the applicable engine overhaul manual.
 14. Dimensionally inspect sleeve (6).
 - A. Sleeve P/N 654229 has an outside diameter of .812 inches to .814 inches. The outside diameter is unplated.
 - B. Earlier sleeve P/N 640733 has an outside diameter of .808 inches to .810 inches. The outside diameter is cadmium plated.
 15. Replace sleeve P/N 640733, regardless of condition, with sleeve P/N 654229.
 16. Replace any worn or damaged sleeve with new P/N 654229.
 17. Inspect bearing (9) and spacer (10) for wear and damage. Replace if wear or damage is indicated.

INSTALLATION AND ASSEMBLY

1. Using clean engine oil, lubricate sleeve (6).
2. Using clean engine oil, lubricate the inside diameter of seal P/N 653171.
3. Carefully install sleeve P/N 654229 into seal P/N 653171. Insure that the seal garter spring has not been dislodged from the seal lip recess.
4. Using Aviation Permatex, P/N646942, lightly coat the parting surface of body (7). Allow the Permatex to set for a few minutes until slightly tacky. See figure 2.
5. Using Grade 3 Silk Thread, P/N 641543, apply a single line of thread over the Permatex surface of body (7). See Figure 2.
6. Insure that gear (12) is correctly positioned.
7. Carefully install body (7) onto starter adapter.
8. Install five sets of hardware (3) and (1). Do not install any hardware on the stud adjacent to the oil seal bore. This hardware and seal retainer (2) will be installed after seal (8) and sleeve (6) are installed. Torque nuts (1) to 180 - 220 inch pounds.
9. Install spacer (10) into body (7).
10. Install bearing (9) into body (7).

Note: Bearing (9) has a closed cage on one side and an open cage on the other. The bearing must be installed with the closed or "Thrust" side toward the front of the engine. The word "Thrust" is stamped on the cage.
11. Position the assembled oil seal (8) and sleeve (6) over the starter adapter shaft and into the seal bore in body (7). Lightly tap or press the seal and sleeve (8 and 6) as an assembly into its recess in body (7). The seal must be positioned flush with or within .030 inches below the surface of its recess. See Figure 3.
12. Install washer (3), seal retaining clip (2) and nut (1) on stud adjacent to oil seal (8). Torque nut to 180 - 220 inch pounds.
13. Lubricate starter adapter shaft gear with clean engine oil. Using a new gasket and following the instructions provided in the applicable engine overhaul manual reinstall the starter adapter. Torque attaching hardware as specified in the applicable engine overhaul manual.
14. Reinstall spacer (5) or air-conditioning drive sheeve and shims onto starter adapter shaft.
15. Lubricate shaft threads with clean engine oil and install 12 point nut (4). Torque nut to 450-500 inch pounds.

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16. If the optional freon compressor drive sheeve is installed it will be necessary to insure correct sheeve alignment. Refer to the applicable engine overhaul manual for this information.
17. Following the instructions provided in the applicable engine overhaul manual and aircraft manufacturers maintenance manual reinstall any accessories, lines, hoses and wire bundles removed to gain access to the starter adapter.
18. Following the instruction provided in the applicable engine overhaul manual, reinstall the starter motor.
19. Following the instructions provided in the aircraft manufacturers maintenance manual, connect the electrical lead to the starter motor.
20. Following the instructions provided in the aircraft manufacturers maintenance manual, re-install the engine cowling.
21. Following the instructions provided in the aircraft manufacturers maintenance manual, re-connect the aircraft battery.
22. Perform an engine ground run up in accordance with the instructions provided in the aircraft manufacturer's maintenance manual, aircraft flight manual/pilots operating handbook. Operate the engine for five minutes at 900 to 1100 R.P.M. to cool the engine, then perform a normal shut down in accordance with the Aircraft Flight Manual.
23. After completing the engine ground run up, remove the engine cowling in accordance with the aircraft manufacturers maintenance manual.
24. Visually inspect the starter motor and starter adapter area for leaks and loose or missing hardware. Correct any discrepancies noted.
25. Following the instructions provided in the aircraft manufacturers maintenance manual, re-install the engine cowling.
26. Complete all log book and maintenance record entries prior to returning the engine and aircraft to service. Note compliance with this service bulletin in the appropriate section of the engine logbook.

WARRANTY: The actions required by this bulletin are covered by TCM's Gold Medallion Warranty, subject to its terms and conditions.

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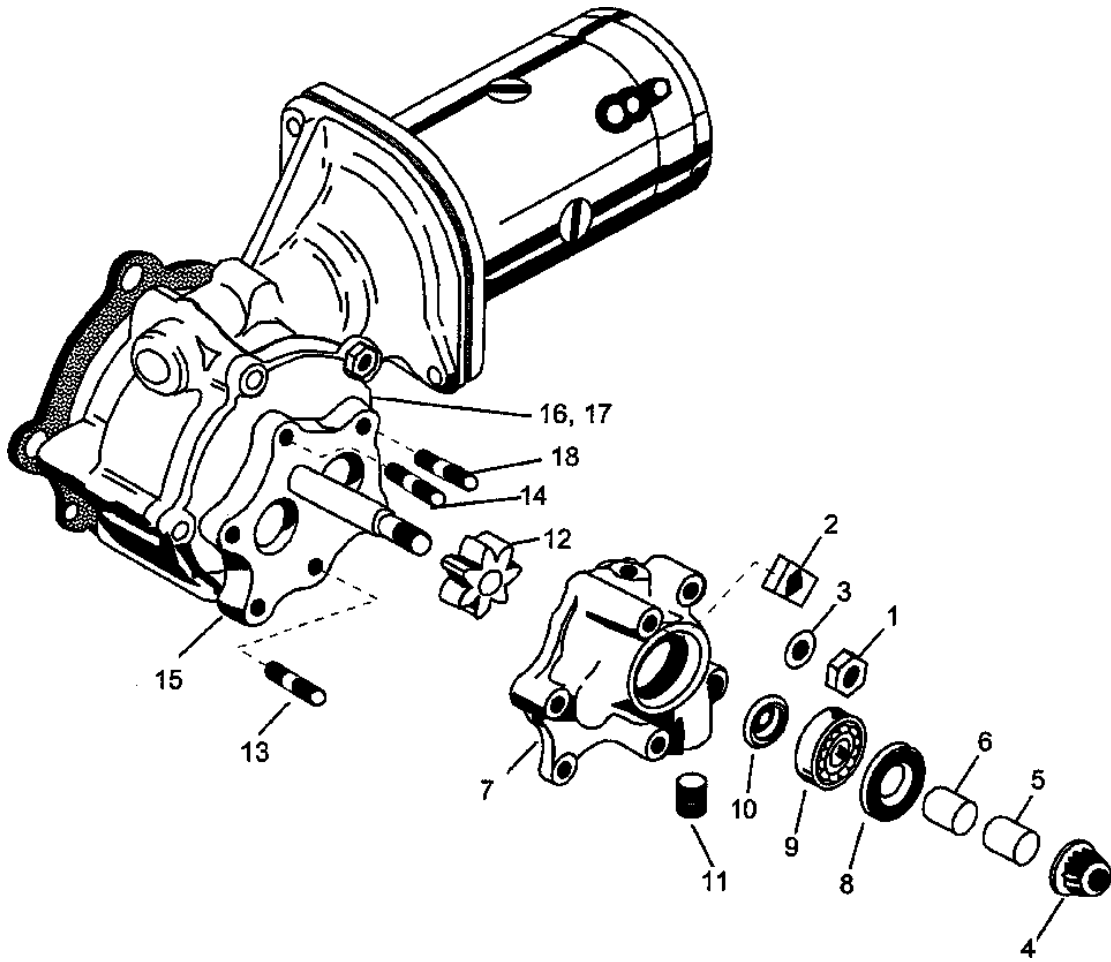


FIGURE 1.

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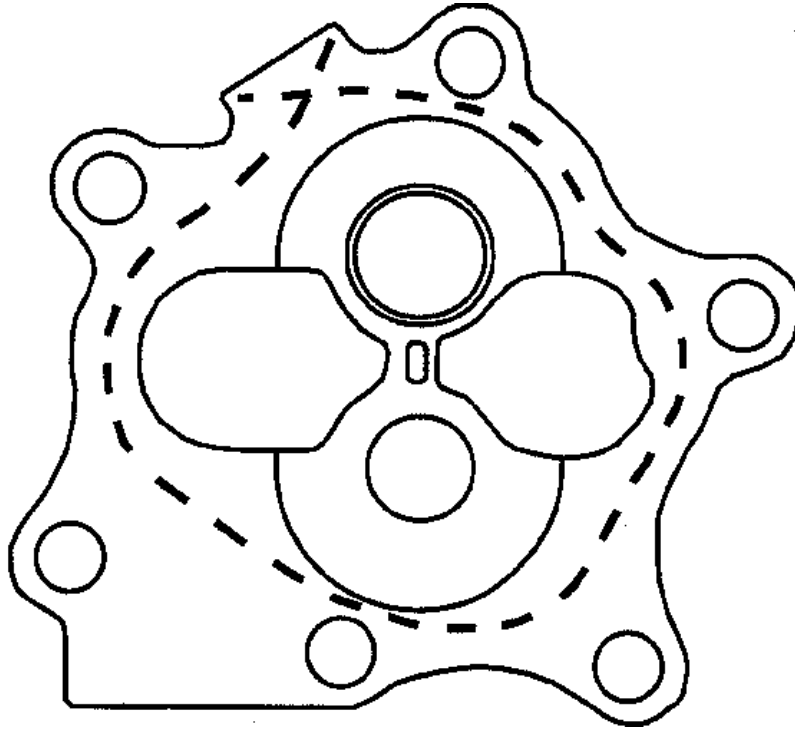


FIGURE 2.

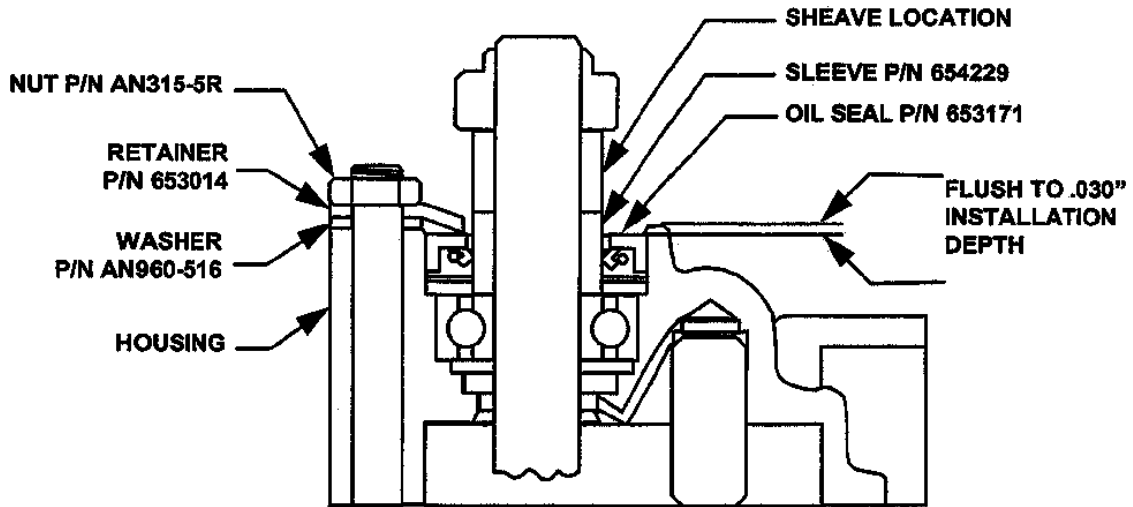


FIGURE 3.

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