

CRITICAL SERVICE BULLETIN

Compliance Necessary To Maintain Safety

CSB 02-2C

**TECHNICAL PORTIONS
FAA APPROVED**

REASON FOR REVISION : Revision issued to increase total time limitation from 250 hour to 500 hours.

SUBJECT: STARTER ADAPTER SHAFT SEAL INSPECTION

PURPOSE: To advise owners, operators and FBO's of mandatory inspection of certain starter adapter part number 642087 and 646757 for indications of oil leakage at shaft oil seal.

COMPLIANCE: Within the next 10 hours of operation for engines and starter adapters with less than 500 hour total time. Additionally, inspect affected engines and starter adapters every 25 hour of operation until accumulation of 500 hour total time.

MODELS

AFFECTED: IO-520-BA, BB, C, CB, M, MB; TSIO-520- B, BB, BE, D, DB, E, EB, J, JB, K, KB, L, LB, UB, VB, WB; IO-550-B, C, E, G, N, R; TSIO-550-A, B, C, E; that utilize starter adapter part numbers 642087A22, A23, A24, A26, A27, A28, A29, A30, A31, A32, A34, A35, A36, A37, A38, A40, A41, A42, A43, A44, A45, A46, A47, A48, A49, A50, A51, A52, A53, A54, A55, A56; and part number 646757A4, A5, A6, A7, A8, A9, A10, A11, A12. Utilizing shaft gear P/N's 640745, 640803, 649882 and 649866.

GENERAL INFORMATION:

Teledyne Continental Motors has verified the breakage of 7 part number 649866 starter adapter shaft gears. The fractures originate in the machined circlip groove forward of the shaft gear oil seal installed in the scavenge pump housing. Analysis of the fracture area indicates initiation resulted from misalignment of the scavenge pump housing to the starter adapter cover.

WARNING: LOSS OF ENGINE LUBRICATION MAY RESULT IN INTERNAL ENGINE DAMAGE AND SUBSEQUENT ENGINE FAILURE.

INSPECTION:

For affected engines and / or starter adapters with 500 hours total time or less; within the next 10 hours of operation after receipt of this Critical Service Bulletin gain access to the engine starter adapter (located on the accessory section of the engine aft of number one cylinder). If the starter adapter does not have a shaft extending past the rear cover of the starter adapter, this Critical

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Service Bulletin does not apply. If the starter adapter installed on your engine does have a shaft extending past the rear cover of the starter adapter (Figure 1), inspect the area around the oil seal ID and the starter adapter shaft OD for the presence of oil that may indicate a shaft issue.

If there is no oil present, reinstall any items removed to gain access to the starter adapter and repeat this inspection every 25 hours until the accumulation of 500 hours total time.

If there is oil present, determine if the starter adapter shaft gear has fractured by attempting to rotate, in a clockwise direction, the shaft gear using the correct size 12 point wrench or socket engaged on the shaft gear nut. Reference Figure 1.

If the shaft gear nut does not readily turn or results in the engine and propeller rotating, the shaft gear is not fractured. Determine the source of the oil and take appropriate correction action.

If the shaft gear turns with a minimal amount of force, the shaft gear is fractured and the starter adapter will require replacement prior to further flight.

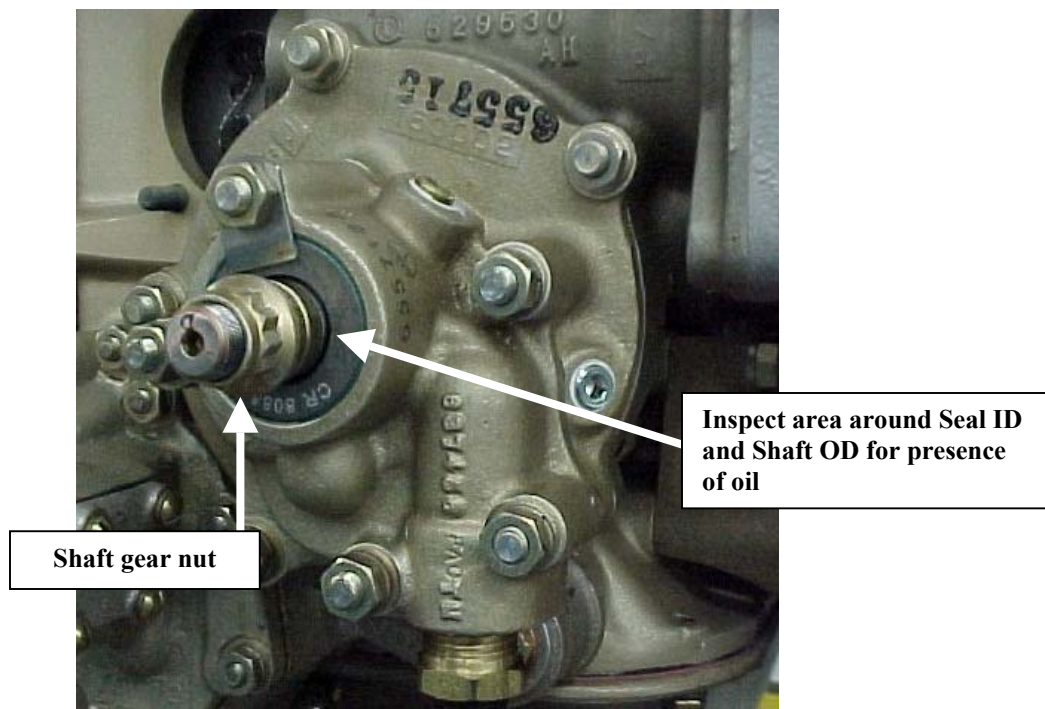



FIGURE 1
P/N 642087A XX Starter Adapter

REPLACEMENT:

Starter adapter replacement to be accomplished in accordance with the applicable engine maintenance or overhaul manual.

TCM has implemented a production change to the starter adapter cover, scavenge pump housing and starter shaft gear. Refer to FIGURES 1, 2 and 3. The starter adapter cover P/N 640747 has been replaced by P/N 655714 cover. The P/N 655714 contains two alignment dowels, one at the 5 o'clock stud and another at the 7 o'clock stud. The scavenge pump housing P/N 652019 has

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been replaced by the P/N 655715A1 housing. The P/N 655715A1 housing has the mating 5 o'clock and 7 o'clock stud holes machined to accommodate the alignment dowels.

The starter adapter shaft gear P/N 655711 replaces shaft gear P/N 649866. The P/N 655711 shaft gear does not have the snap ring groove machined just aft of the first shoulder as noted in Figure 2.

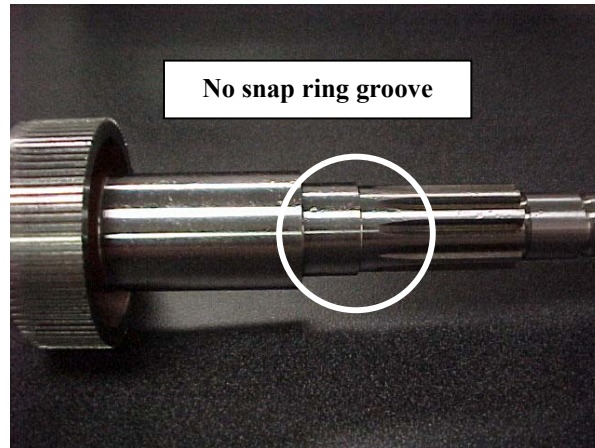


FIGURE 2
655711 Shaft Gear

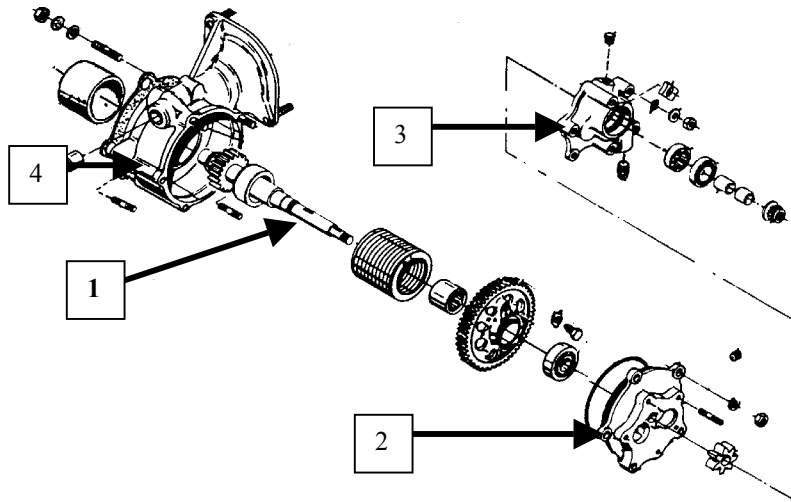



FIGURE 3
P/N 642087A "XX" Starter Adapter

Item Number	Nomenclature	Part Number
1	Shaft Gear	655711①
2	Cover	655714
3	Housing-Scavenger pump	655715
4	Gasket: Adapter to CC	653470

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① Shaft Gear P/N 655711 replaces shaft gears P/N 649866, 649822, 640803, 640745.

WARRANTY:

The actions required to comply with this bulletin are covered by the applicable engine or spare parts warranty policy in effect at the time the engine or service spare part was purchased. Teledyne Continental Motors reserves the right to request copies of invoices and maintenance records to verify warranty applicability.

NOTE: Visit TCMs’ web-site www.tcmlink.com to obtain copies of TCM Warranty Policies.

Visual Inspection Labor Allowance: 1.0 man-hours

Starter Adapter Replacement Labor Allowance:

- 1. Normally Aspirated Engines: 4.0 man-hours
- 2. Turbocharged Engines: 6.0 man-hours

Replacement parts required to comply with this bulletin must be ordered through your Teledyne Continental Motors Distributor. When placing your order be sure to specify that the items are being ordered to comply with this bulletin, specifying bulletin number and revision level. This bulletin is your authorization to perform the required inspection and if necessary replacement of the affect part(s). Teledyne Continental Motors will verify warranty applicability on receipt of the Distributors Warranty Claims form and the returned parts. Do not return any parts to Teledyne Continental Motors with out proper RGA (Return Good Authorization) forms. Parts returned without proper documentation will result in delays in processing your warranty reimbursement.

Teledyne Continental Motors will issue warranty credits for authorized labor allowance and replacement parts to the Distributor submitting the warranty claims. The Distributor will issue credit to the repair agency who performed the inspection and if necessary repair. Questions regarding warranty credits must be directed to your Teledyne Continental Motors Distributor.

ACTION REQUIRED AT STARTER ADAPTER OVERHAUL:

All starter adapters overhauled or repaired in the field must be assembled using the parts noted in Figure 3, or subsequent part numbers. Shaft gear P/N’s 640745, 640803, 649882 and 649866 must be removed from service and replaced with P/N 655711 or subsequent part number shaft gear. P/N 655714 (Cover- item 2 Figure 3) and P/N 655715 (Housing, Scavenge Pump- item 3 Figure3) are manufactured with alignment dowels and must be used together. Do not use either P/N 655714 or P/N 655715 with previous superseded mating parts.

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