

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 28197R8

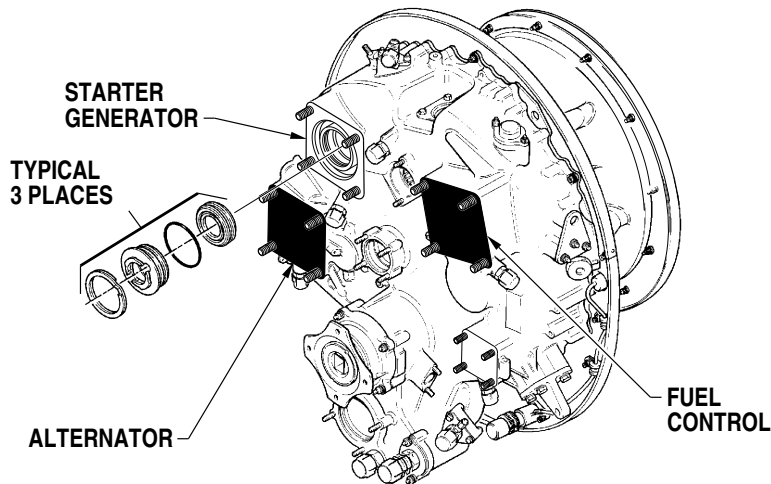
BULLETIN INDEX LOCATOR
72-11-00

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF
MODEL APPLICATION

PW206A, PW206B, PW206B2, PW206C, PW206E, PW207D, PW207E, PW207K

■ Compliance: CATEGORY 7, 8

Summary: Introduce a magnetic face carbon seal at the Starter Generator pad, Fuel Control Unit (FCU) pad, and Accessory pad locations to reduce the possibility of external oil leakage.



May 08/2002
Revision No. 8: Jun 02/2022

PW200-72-28197
Cover Sheet

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02 June 2022

P&WC S.B. No. 28197R8

REVISION TRANSMITTAL SHEET
TURBOSHAFT ENGINE MODEL PW200

SUBJECT: Pratt & Whitney Canada Service Bulletin No. PW200-72-28197, Rev. No. 8, dated Jun 02/2022 (P&WC S.B. No. 28197R8) SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

Replace your existing copy of this service bulletin with the attached revised bulletin. Destroy the superseded copy.

Please retain this Revision Transmittal Sheet with the revised bulletin.

SUMMARY: This service bulletin is revised to:

- add CC (Compliance Category) 8 in Para. 1.E., PLANNING INFORMATION,
- delete Engine Serial Numbers (ESN) in Para 1.A., EFFECTIVITY,
- add Pre-SB28269 applicability to Para. 2.C., MATERIAL NECESSARY FOR EACH ENGINE, STARTER GENERATOR SEAL REPLACEMENT.
- price list updated to current year.

EFFECT OF REVISION ON PRIOR ACCOMPLISHMENT:

None.

NOTE: A black bar in the left margin indicates a change in that line of text or figure.

REVISION HISTORY:

Original Issue: May 08/2002	Revision No. 7: Feb 11/2015
Revision No. 1: Mar 10/2003	Revision No. 8: Jun 02/2022
Revision No. 2: Oct 10/2003	
Revision No. 3: Jan 30/2008	
Revision No. 4: Jul 03/2009	
Revision No. 5: Feb 23/2010	
Revision No. 6: Oct 01/2010	

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

1. Planning Information

A. Effectivity

PW206A Engines.
PW206B Engines (ESN deleted).
PW206B2 Engines (ESN deleted).
PW206C Engines (ESN deleted).
PW206E Engines.
PW207D Engines (ESN deleted).
PW207E Engines (ESN deleted).
PW207K Engines.

NOTE: The above effectivity list does not identify engines that have been converted from one engine model to another via an engine conversion service bulletin. To clarify the effectivity of converted engines, refer to the original engine effectivity above. For the parts embodied during the engine conversion, refer to conversion service bulletin.

B. Concurrent Requirements

None.

C. Reason

(1) Problem

Oil leakage can occur at the Starter Generator seal, FCU seal, and Accessory seal.

(2) Cause

The current seal performance may be adversely affected by shaft speed, vibration, temperature, gearshaft surface finish, and the environment.

(3) Solution

Replace the seal with a magnetic face carbon seal.

D. Description

Part A - In the field:

Rework the surface finish of the gearshaft and replace the seal.

Part B - In the Shop:

Inspect the surface finish of the gearshaft, if necessary rework the surface finish of the gearshaft, reidentify the gearshaft. and replace the seal if not already done.

P&WC No. C8536E, C8536J, C8536R, D4511D , EC-0066328

May 08/2002

Revision No. 8: Jun 02/2022

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PW200-72-28197

Page 1 of 16

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

1. Planning Information (Cont'd)

E. Compliance

For Starter Generator Seal replacement:

CATEGORY 7 - You can do this service bulletin when the supply of superseded parts is fully used.

For FCU Seal and Accessory Seal replacement:

CATEGORY 8 - This service bulletin is optional and can be done at the discretion of the operator.

F. Approval

The technical content of this document is approved under the authority of the Transport Canada Civil Aviation (TCCA) Design Approval Organization No: DAO #93-Q-01.

G. Manpower

No more man-hours are necessary to include this service bulletin at overhaul.

Once you have access to the part, an estimate of 1.0 man-hours is required to include this service bulletin at maintenance.

H. Weight and Balance

For the PW206B and PW206B2:

None.

For PW206A, PW206C, PW206E, PW207D, PW207E, PW207K:

The engine weight will increase by 0.18 pounds (0.08 kgs).

The effect of the engine weight change on the center of gravity is negligible

I. Electrical Load Data

Not changed.

J. Software Accomplishment Summary

Not applicable.

K. References

Illustrated Parts Catalog P/N 3038326 (PW206A/206E)

PRATT & WHITNEY CANADA SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

1. Planning Information (Cont'd)

Illustrated Parts Catalog P/N 3049725 (PW207E)
Illustrated Parts Catalog P/N 3039734 (PW206B)
Illustrated Parts Catalog P/N 3054928 (PW206B2)
Illustrated Parts Catalog P/N 3043324 (PW206C)
Illustrated Parts Catalog P/N 3054927 (PW207C)
Illustrated Parts Catalog P/N 3049724 (PW207D)
Illustrated Parts Catalog P/N 3071604 (PW207D1/207D2)
Illustrated Parts Catalog P/N 3053374 (PW207K)
Maintenance Manual P/N 3038324 (PW206A/206E/207E)
Maintenance Manual P/N 3039732 (PW206B/206B2)
Maintenance Manual P/N 3043322 (PW206C/207C)
Maintenance Manual P/N 3043612 (PW207D)
Maintenance Manual P/N 3071602 (PW207D1/207D2)
Maintenance Manual P/N 3053372 (PW207K)
Overhaul Manual P/N 3038325 (PW206A/206E/207E)
Overhaul Manual P/N 3039733 (PW206B/206B2)
Overhaul Manual P/N 3043323 (PW206C/207C)
Overhaul Manual P/N 3043613 (PW207D)
Overhaul Manual P/N 3071603 (PW207D1/207D2)
Overhaul Manual P/N 3053373 (PW207K)

PW200 Cleaning Inspection Repair (CIR) Manual P/N 3040877
PWA Overhaul Standard Practices Manual P/N 585005
P&WC Consumable Materials List P/N 3043340

L. Publications Affected

Illustrated Parts Catalog P/N 3038326 (PW206A/206E)
Illustrated Parts Catalog P/N 3049725 (PW207E)
Illustrated Parts Catalog P/N 3039734 (PW206B)
Illustrated Parts Catalog P/N 3054928 (PW206B2)
Illustrated Parts Catalog P/N 3043324 (PW206C)
Illustrated Parts Catalog P/N 3054927 (PW207C)
Illustrated Parts Catalog P/N 3049724 (PW207D)
Illustrated Parts Catalog P/N 3071604 (PW207D1/207D2)
Illustrated Parts Catalog P/N 3053374 (PW207K)
Maintenance Manual P/N 3038324 (PW206A/206E/207E)
Maintenance Manual P/N 3039732 (PW206B/206B2)
Maintenance Manual P/N 3043322 (PW206C/207C)
Maintenance Manual P/N 3043612 (PW207D)
Maintenance Manual P/N 3071602 (PW207D1/207D2)
Maintenance Manual P/N 3053372 (PW207K)
Overhaul Manual P/N 3038325 (PW206A/206E/207E)
Overhaul Manual P/N 3039733 (PW206B/206B2)

May 08/2002

Revision No. 8: Jun 02/2022

P&WC Proprietary Information. Subject to the restrictions on the back of the locator

PW200-72-28197

Page 3 of 16

PRATT & WHITNEY CANADA SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

1. Planning Information (Cont'd)

Overhaul Manual P/N 3043323 (PW206C/207C)
 Overhaul Manual P/N 3043613 (PW207D)
 Overhaul Manual P/N 3071603 (PW207D1/207D2)
 Overhaul Manual P/N 3053373 (PW207K)
 CIR3040877

M. Interchangeability and Intermixability of Parts

Interchangeability - Refer to Para. 2.C.

Intermixability - Not changed.

2. Material Information

A. Industry Support Information

Not applicable.

B. Material - Cost and Availability

You can get the procurable parts listed in Para. 2.C. from any Pratt & Whitney Canada Parts Distribution Center.

The estimated total cost of new parts needed to replace old parts is \$Quote (US, 2022).

The new parts are available.

C. Material Necessary for Each Engine

The quantity of materials listed in this section is on a per Engine basis.

<u>New P/N</u>	<u>Keyword</u>	<u>Old P/N</u>	<u>Qty</u>	<u>Est. Unit List Price (\$US, 2022)</u>	<u>Instructions Disposition</u>
Starter Generator Seal Replacement (for Pre-SB28269 only):					
3058161-01	Gearshaft Assembly, Spur, Starter Generator Drive	3044091-01	1	13334.00	(A)(C)
3058171-01	. Gearshaft, Spur, Starter Generator Drive, 96 Teeth	3043683-01	1	NP	
	Plain, Seal	3022375	1		(A)(B)
	OR				

May 08/2002

P&WC Proprietary Information. Subject to the restrictions on the back of the locator

PW200-72-28197

Revision No. 8: Jun 02/2022

Page 4 of 16

PRATT & WHITNEY CANADA SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

<u>New P/N</u>	<u>Keyword</u>	<u>Old P/N</u>	<u>Qty</u>	<u>Est. Unit List Price (\$US, 2022)</u>	<u>Instructions Disposition</u>
	Plain, Seal	3118597-01	1		(A)(B)
	Carrier, Oil, Seal	3114414-01	1		(A)(B)
3058291-01	Magnetic, Seal		1	2410.10	(A)
ST3970-01	. Preformed, Packing		1	Quote	(E)
AS3209-029	Preformed, Packing	AS3209-029	1	2.06	(D)
FCU Seal Replacement:					
3070021-01	Gearshaft, Spur, Fuel Control Drive	3113622-01	1	NP	(A)(C)
	Plain, Seal	3022375	1		(A)(B)
	Carrier, Oil, Seal	3114414-01	1		(A)(B)
3058291-01	Magnetic, Seal		1	2410.10	(A)
ST3970-01	. Preformed, Packing		1	Quote	(E)
AS3209-029	Preformed, Packing	AS3209-029	1	2.06	(D)

For Engines PW206A, PW206C, PW206E, PW207D, PW207E, PW207K:

Accessory Seal Replacement:

3070022-01	Gearshaft, Spur, Alternator Drive	3113619-01	1	NP	(A)(C)
	Plain, Seal	3022375	1		(A)(B)
	Carrier, Oil, Seal	3114414-01	1		(A)(B)
3058291-01	Magnetic, Seal		1	2410.10	(A)
ST3970-01	. Preformed, Packing		1	Quote	(E)
AS3209-029	Preformed, Packing	AS3209-029	1	2.06	(D)

(A) RESTRICTED INTERCHANGEABILITY - (ATA 200 Explanation Code 07):
All the old parts must be replaced by all the new parts as an assembly.

(B) Discard. Do not use again in any application.

(C) You can make a modification to the old part: refer to the Accomplishment Instructions.

(D) Standard replacement part.

May 08/2002

Revision No. 8: Jun 02/2022

P&WC Proprietary Information. Subject to the restrictions on the back of the locator

PW200-72-28197

Page 5 of 16

PRATT & WHITNEY CANADA

SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

<u>New P/N</u>	<u>Keyword</u>	<u>Old P/N</u>	<u>Qty</u>	<u>Est. Unit List Price (\$US, 2022)</u>	<u>Instructions Disposition</u>
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(E) Magnetic seal includes packing. The packing has been identified for field replacement only.

D. Reidentified Parts

The following list of parts can be reworked:

<u>OLD P/N</u>	<u>NEW P/N</u>
3044091-01	3058161-01
3113622-01	3070021-01
3113619-01	3070022-01

E. Tooling - Price and Availability

<u>Tool No.</u>	<u>Nomenclature</u>	<u>Est. Price (\$US, 2007)</u>	<u>Delivery</u>
PWC64886	Lapping Tool	Quote	Available
PWC64888-1	Magnetic Seal Removal Tool	Quote	Available

3. Accomplishment Instructions

A. **Part A - In the Field. Proceed as follows:**

(1) Remove the parts listed under Old P/N in Para. 2.C., Material Information, in accordance with the maintenance or overhaul manual instructions as follows:

- Ref. MM 72-11-00 REDUCTION GEARBOX - MAINTENANCE PRACTICES.
- Ref. OHM 72-11-00 REDUCTION GEARBOX - DISASSEMBLY.

(2) Retain the retaining-ring for installation of seal.

(3) Rework the surface-finish of the gearshaft as follows (Ref. Fig. 1):

(a) Install the tool (PWC64886) on the gearshaft seal journal.

NOTE: The nut (Item 1) should be unscrewed.

(b) Push the tool on the gearshaft, turn and push collar (Item 3) to ensure it is engaged, and screw the nut (item 1) until the tool starts turning.

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

3. Accomplishment Instructions (Cont'd)

(c) Turn the handle (Item 2) six revolutions.

NOTE: Keep an axial load on the tool.

CAUTION: A MAGNETIC SEAL HAS AN EXTREMELY FINE SURFACE FINISH. ANY FOREIGN MATERIAL WILL ADVERSELY AFFECT ITS PERFORMANCE.

(d) Remove the tool and clean the gearshaft with a cloth dampened with approved solvent. Air dry completely or blow dry with clean dry shop air (Ref. MM 71-00-00).

NOTE: 1. After five utilizations of the tool, clean the stone.

NOTE: 2. Refer to "Procedure For Use" instruction plate mounted on tool container and tool maintenance log book, located inside tool container, for tool (PWC64886) storage and maintenance procedure.

(4) Install the parts listed under New P/N in Para. 2.C., Material Information, in accordance with the maintenance or overhaul manual instructions as follows(Ref. Fig. 2):

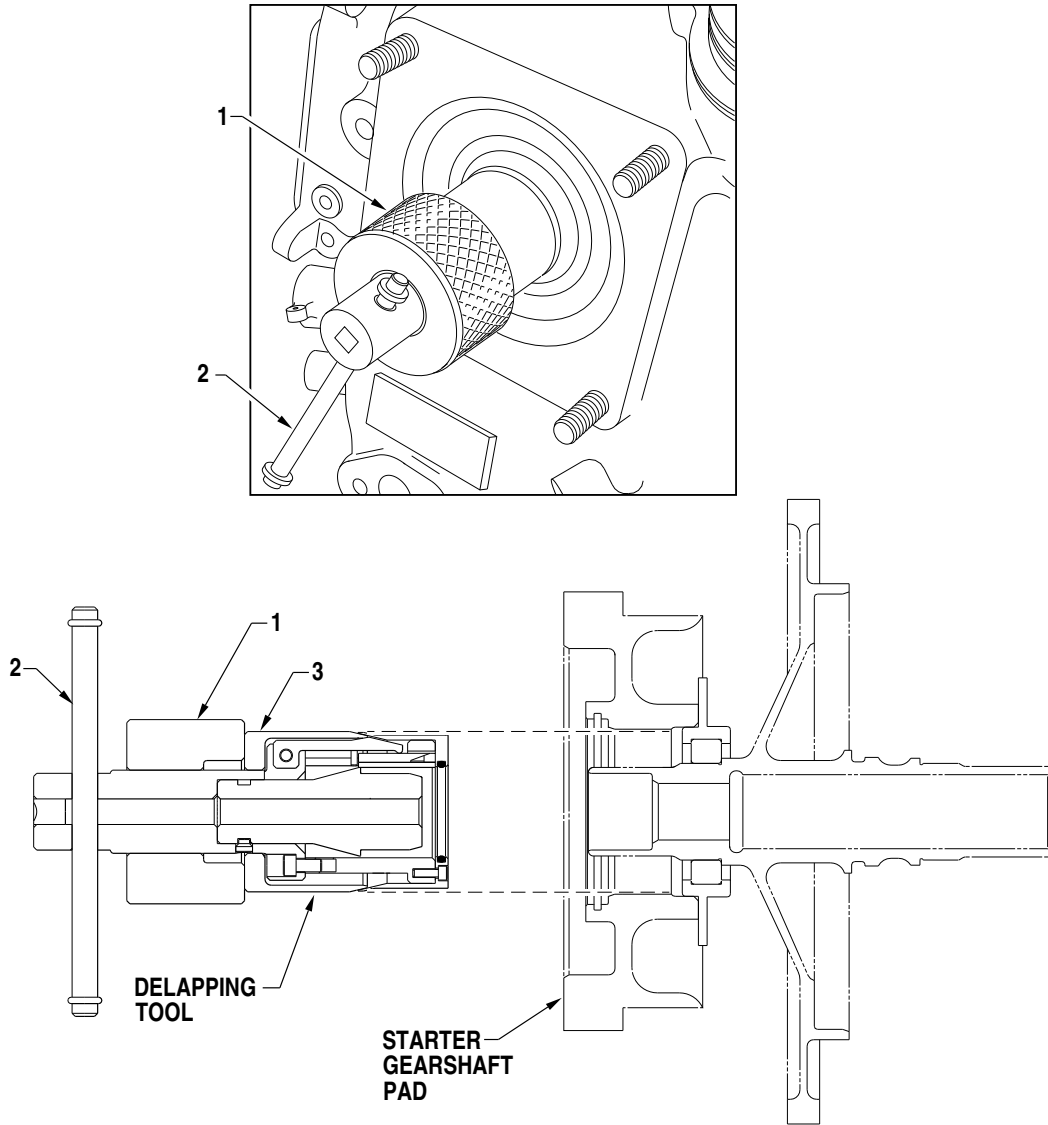
- Ref. MM 72-11-00 REDUCTION GEARBOX - MAINTENANCE PRACTICES.
- Ref. OHM 72-11-00 REDUCTION GEARBOX - ASSEMBLY.

NOTE: The gearshaft is re-installed with old part number as re-identification of the part is performed in Part B.

PRATT & WHITNEY CANADA SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF



INSTALLATION TYPICAL FOR OTHER GEARSHAFT LOCATIONS

C84068A

Tool PWC64886 - Installation of
Figure 1

May 08/2002
Revision No. 8: Jun 02/2022

P&WC Proprietary Information. Subject to the restrictions on the back of the locator

PW200-72-28197
Page 8 of 16

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

3. Accomplishment Instructions (Cont'd)

CAUTION: KEEP MAGNETIC SEALS IN PACKAGING UNTIL READY FOR INSTALLATION

CAUTION: SEALS ARE ASSEMBLED AS A SET. DO NOT SEPARATE THE SEAL ASSEMBLY

CAUTION: SHOULD SEAL FACES BECOME SEPARATED THE MATING FACES MUST BE CLEANED PRIOR TO MATING

CAUTION: IF SEALS MUST BE SEPARATED FOR INSPECTION OR CLEANING, SEPARATE BY GRIPPING OUTSIDE DIAMETERS OF SEAL PULLING FACES AXIALLY AWAY FROM EACH OTHER

CAUTION: DO NOT SLIDE SEAL FACES ACROSS EACH OTHER AS THIS WILL DAMAGE THE SEAL

CAUTION: WHEN MATING SEALS CARE MUST BE TAKEN THAT SEAL FACES DO NOT MATE ABRUPTLY AND CHIP THE CARBON SEAL RING

CAUTION: NO CONTAMINATION OR ASSEMBLY FLUID PERMITTED ON SEALS FACES AS IT WILL CAUSE SEAL FAILURE

CAUTION: CLEAN SEAL FACES ONLY WITH ISOPROPYL ALCOHOL OR CLEAN ENGINE OIL AND WIPE DRY WITH CLEAN LINT FREE CLOTH PRIOR TO MATING FACES

(a) Apply a small amount of assembly fluid on shaft outside diameter and on AGB Housing bore where shown.

(b) Install magnetic seal on shaft and ensure part is seated by hand.

NOTE: If required, removal of magnetic seal can be done using tool (PWC64888-1) (Ref. MM 72-11-00).

(c) Install retained retaining-ring.

(5) Write accomplishment of P&WC S.B. No. 28197 Part "A" in the applicable engine module log book.

B. Part B - In the Shop. Proceed as follows:

(1) Remove the parts listed under Old P/N in Para. 2.C., Material Information, in accordance with the maintenance or overhaul manual instructions as follows:

- Ref. MM 72-11-00 REDUCTION GEARBOX - MAINTENANCE PRACTICES.
- Ref. OHM 72-11-00 REDUCTION GEARBOX - DISASSEMBLY.

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

3. Accomplishment Instructions (Cont'd)

- (2) Retain the retaining-ring for installation of seal.
- (3) Do an inspection of the gearshaft surface finish in area shown and make sure it is 32 μ in. (0.8 μ m) to 63 μ in. (1.6 μ m) (Ref. Fig. 3, 4, 5).
- (4) If the gearshaft surface finish is not within tolerance, rework the surface finish as follows (Ref. Fig. 1):

- (a) Install the tool (PWC64886) on the gearshaft seal journal.

NOTE: The nut (Item 1) should be unscrewed.

- (b) Push the tool on the gearshaft, turn and push collar Item 3 to ensure it is engaged, and screw the nut (item 1) until the tool starts turning.
- (c) Push and turn the handle (Item 2) six revolutions.

CAUTION: A MAGNETIC SEAL HAS AN EXTREMELY FINE SURFACE FINISH. ANY FOREIGN MATERIAL WILL ADVERSELY AFFECT IT'S PERFORMANCE.

- (d) Remove the tool and clean the starter gearshaft with a cloth dampened with approved solvent. Air dry completely or blow dry with clean dry shop air (Ref. MM 71-00-00).

NOTE: 1. After five utilizations of the tool, clean the stone.

NOTE: 2. Refer to "Procedure For Use" instruction plate mounted on tool container and tool maintenance log book, located inside tool container, for tool (PWC64886) storage and maintenance procedure.

- (5) Re-identify gearshaft as follows:
 - (a) Put a line across the old part number.

CAUTION: MAKE SURE THAT THE REMAINING ELECTROLYTE (ETCH SOLUTION) IS FULLY NEUTRAL AFTER YOU WRITE ON THE PART. ELECTROLYTE CAN CAUSE CORROSION OF THE PART.

- (b) Use the electrolyte etch procedure, 0.002 in. (0.05 mm) deep maximum, and write the new part number in the same area.

- (6) Install the parts listed under New P/N in Para. 2.C., Material Information, in accordance with the maintenance or overhaul manual instructions as follows:

- Ref. MM 72-11-00 REDUCTION GEARBOX - MAINTENANCE PRACTICES.

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF

3. Accomplishment Instructions (Cont'd)

- Ref. OHM 72-11-00 REDUCTION GEARBOX - ASSEMBLY.

CAUTION: KEEP MAGNETIC SEALS IN PACKAGING UNTIL READY FOR INSTALLATION

CAUTION: SEALS ARE ASSEMBLED AS A SET. DO NOT SEPARATE THE SEAL ASSEMBLY

CAUTION: SHOULD SEAL FACES BECOME SEPARATED THE MATING FACES MUST BE CLEANED PRIOR TO MATING

CAUTION: IF SEALS MUST BE SEPARATED FOR INSPECTION OR CLEANING, SEPARATE BY GRIPPING OUTSIDE DIAMETERS OF SEAL PULLING FACES AXIALLY AWAY FROM EACH OTHER

CAUTION: DO NOT SLIDE SEAL FACES ACROSS EACH OTHER AS THIS WILL DAMAGE THE SEAL

CAUTION: WHEN MATING SEALS CARE MUST BE TAKEN THAT SEAL FACES DO NOT MATE ABRUPTLY AND CHIP THE CARBON SEAL RING

CAUTION: NO CONTAMINATION OR ASSEMBLY FLUID PERMITTED ON SEALS FACES AS IT WILL CAUSE SEAL FAILURE

CAUTION: CLEAN SEAL FACES ONLY WITH ISOPROPYL ALCOHOL OR CLEAN ENGINE OIL AND WIPE DRY WITH CLEAN LINT FREE CLOTH PRIOR TO MATING FACES

(a) Apply a small amount of assembly fluid on shaft outside diameter and on AGB Housing bore where shown (Ref. Fig. 2).

(b) Install the magnetic seal on gearshaft and ensure part is seated by hand.

NOTE: If required, removal of magnetic seal can be done using tool (PWC64888-1) (Ref. OHM 72-11-00).

(c) Install retained retaining-ring.

C. Write accomplishment of P&WC S.B. No. 28197 Part "B" in the applicable engine module log book.

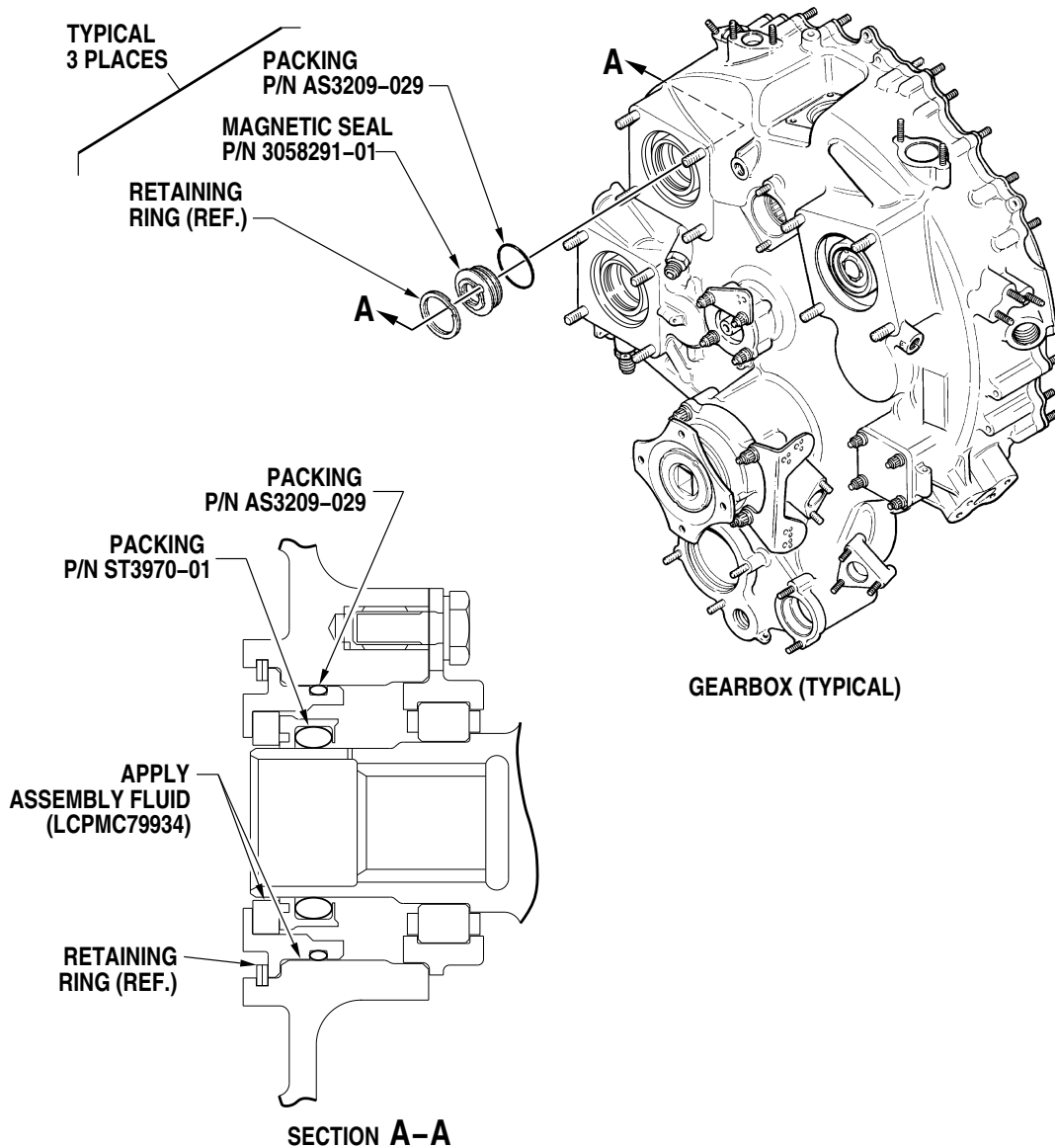
4. Appendix

A. Refer to Figure 6 for part progression.

PRATT & WHITNEY CANADA SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF



C84232B

Magnetic Seal - Installation of
Figure 2

May 08/2002
Revision No. 8: Jun 02/2022

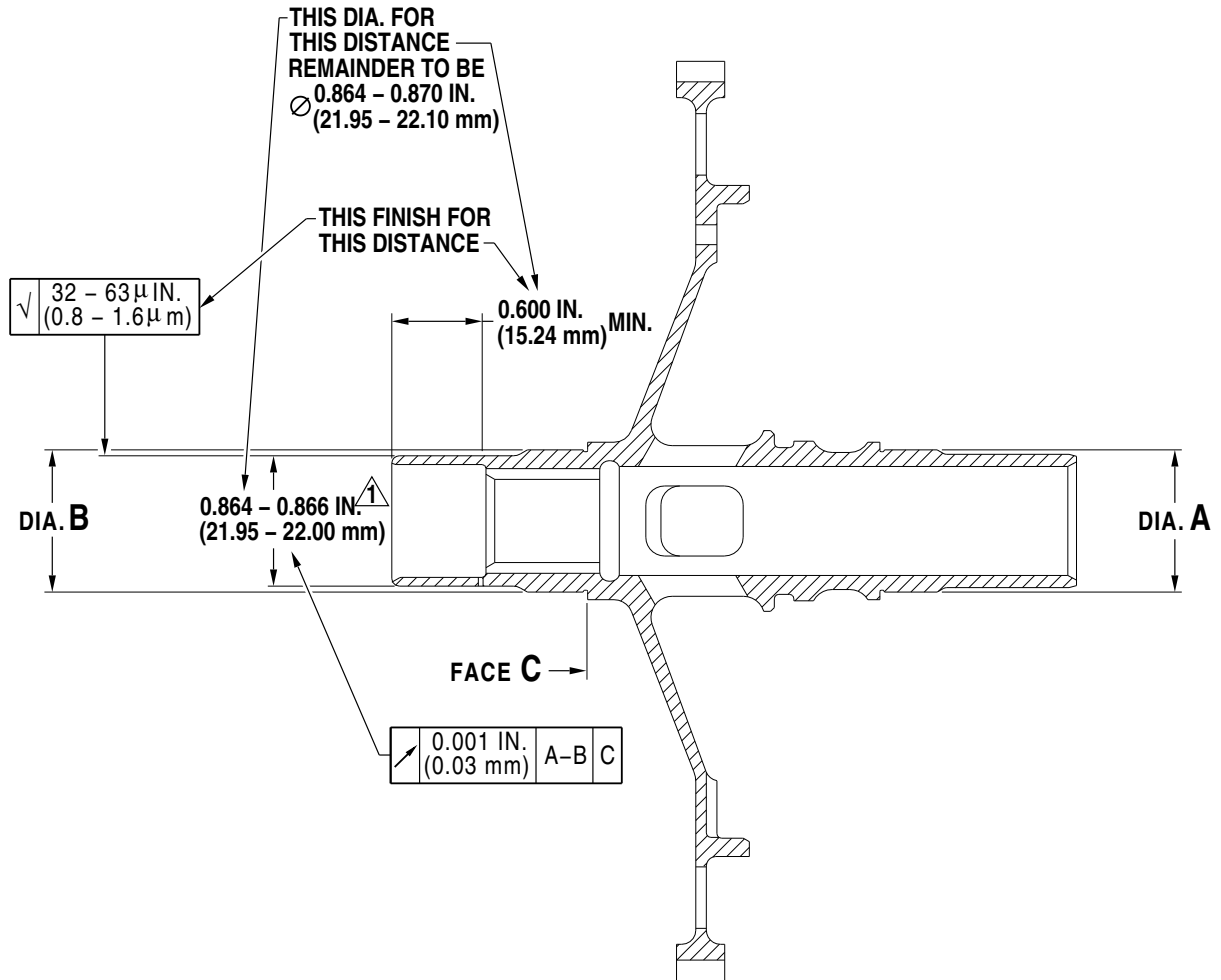
P&WC Proprietary Information. Subject to the restrictions on the back of the locator

PW200-72-28197
Page 12 of 16

PRATT & WHITNEY CANADA SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF



NOTE:

⚠ DIAMETER MAY BE 0.001 IN. (0.025mm) UNDER MINIMUM AFTER REWORK.

C83822A

Starter Generator Drive Gearshaft - Rework of
Figure 3

May 08/2002
Revision No. 8: Jun 02/2022

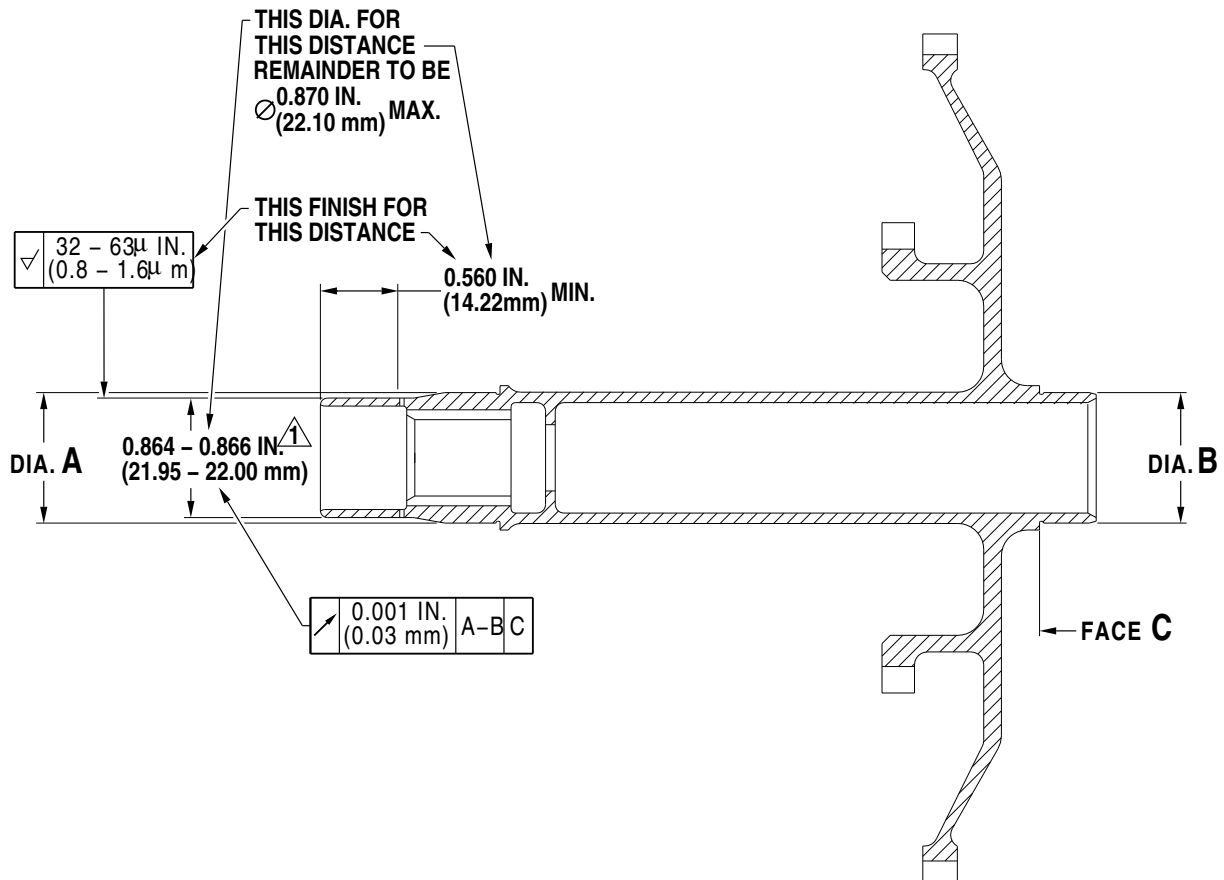
P&WC Proprietary Information. Subject to the restrictions on the back of the locator

PW200-72-28197
Page 13 of 16

PRATT & WHITNEY CANADA SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF



NOTE:

DIAMETER MAY BE 0.001 IN. (0.025mm) UNDER MINIMUM AFTER REWORK.

C133740

Fuel Control Drive Gearshaft - Rework of
Figure 4

May 08/2002
Revision No. 8: Jun 02/2022

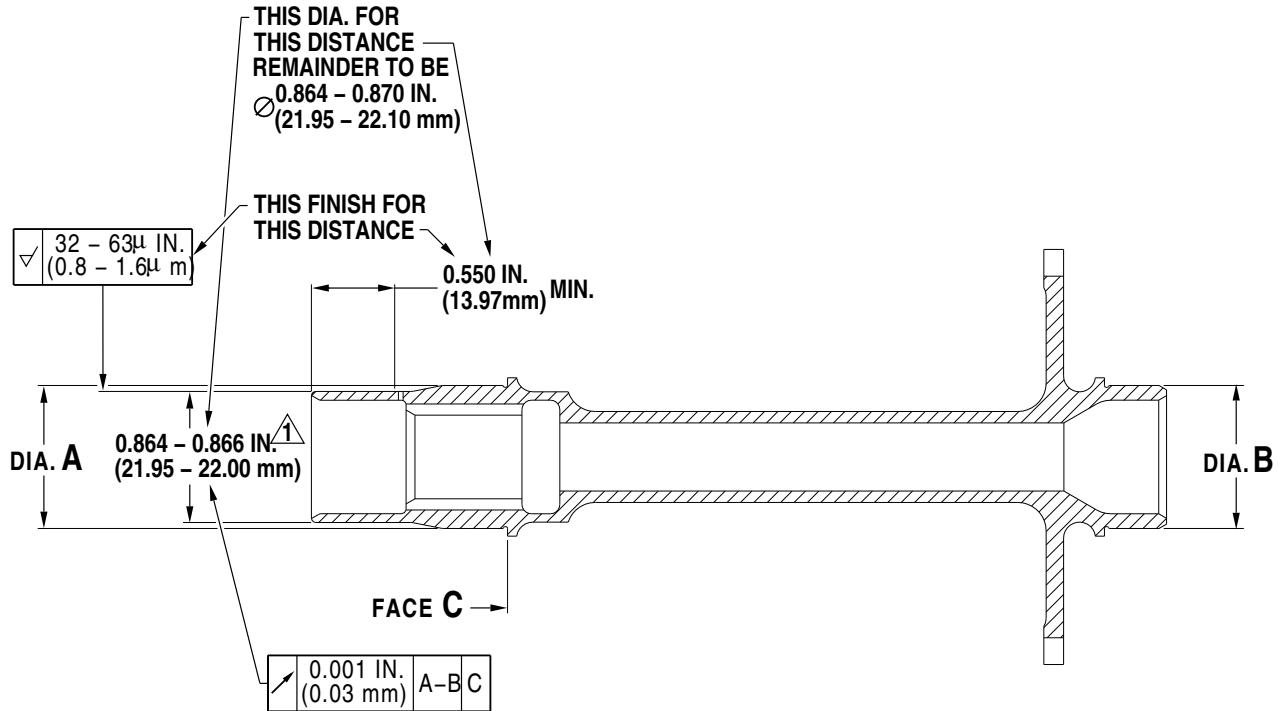
P&WC Proprietary Information. Subject to the restrictions on the back of the locator

PW200-72-28197
Page 14 of 16

PRATT & WHITNEY CANADA SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF



NOTE:

¹ DIAMETER MAY BE 0.001 IN. (0.025mm) UNDER MINIMUM AFTER REWORK.

C133741

Alternator Drive Gearshaft - Rework of
Figure 5

May 08/2002
Revision No. 8: Jun 02/2022

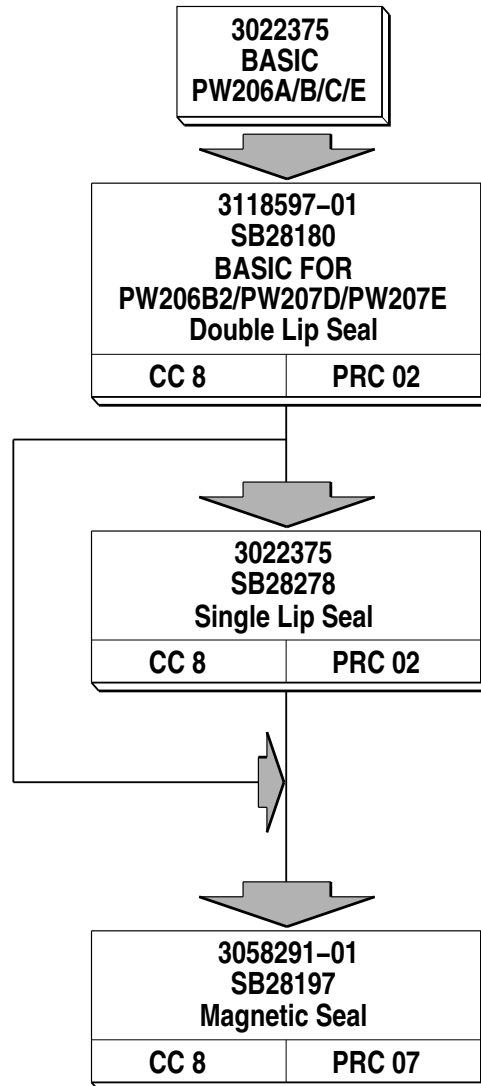
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PW200-72-28197
Page 15 of 16

PRATT & WHITNEY CANADA
SERVICE BULLETIN

P&WC S.B. No. 28197R8

TURBOSHAFT ENGINE
SEAL, STARTER GENERATOR PAD/FCU PAD/ACCESSORY PAD - REPLACEMENT OF



C107684

Seal - Part Progression
Figure 6

May 08/2002
Revision No. 8: Jun 02/2022

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PW200-72-28197
Page 16 of 16