

Service Manual



601-021
601-020
601-020E

PRGMAN-16
Revision: A
December 2025

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Tools Required

| Wrenches | |
|---------------------------|--|
| Description: | Used on: |
| 4mm wrench | Oil slinger SHCS |
| 6mm Allen key | Shaft cap SHCS |
| 8mm Allen key | Cover/sideplate SHCS, gear retainer SHCS |
| 17mm Allen key | Cover Plugs |
| 13mm wrench/socket | Bearing retainer bolts |
| 17mm wrench | Breather |
| 34mm/1-3/8" wrench/socket | Melt plug |
| 38mm/1-1/2" wrench/socket | Oil sight glass |

| Special tools | |
|---------------|-----------------------------------|
| Part Number: | Description: |
| 564-022 | Cover oil seal press tool |
| 564-023 | Bearing Press tool (Driven end) |
| 564-024 | Sideplate oil seal press tool |
| 564-025 | Bearing Press tool (Gear end) |
| 564-029 | Rotor Timing Lock |
| 564-049 | Gamma seal press tool |
| 564-053 | Main air seal retainer press tool |

| Standard tools | |
|--------------------------------------|----------------------------------|
| Description: | Used on: |
| Brass Hammer | Gears/Gear retainers, dowel pins |
| Dead blow hammer/soft mallet | Dowel pins, gamma/dust seal |
| Driving Punch | Bearings |
| Loctite 243 | Fasteners |
| Loctite 272 | Covers/Sideplates |
| 12" Feeler Gauge Set | Clearance/Timing Measurements |
| Dial Indicator w/ Magnetic Base | Runout Measurement |
| Torque Wrench (15 lb*ft to 70 lb*ft) | Fasteners |
| Grease/Assembly Lube | Bearings |

| Torque Specs | | |
|--------------|---------------------|---------------------------|
| Part Number: | Torque - lb*ft(N*m) | Used on: |
| 124-036 | 29 (40) | Drive End Cover/sideplate |
| 124-037 | 29 (40) | GE Cover/sideplate |
| 128-008 | 15 (20) | Bearing Retainer |
| 124-029 | 69 (94) | Gear Retainer |

Disassembly Procedure:

1. Drain oil from both covers by removing magnetic drain plugs (24) with a 17mm Allen key. Ensure that used oil is disposed of properly.
2. Recommended: Mark both side plate (4/23) and cover (6/26) orientations to the main body (22).
3. Remove melt plugs (20) and blank plugs (21) using a 34mm wrench. **NOTE: These are LH thread.**
4. Remove key (15) from the driving rotor shaft (14).
5. Remove DE cover bolts (17) with an 8mm Allen key, tap the DE cover (6) with a dead blow hammer to loosen, and remove the cover. Drive dowels (7) through the cover to remove if needed.
6. Remove NDE cover bolts (25) with an 8mm Allen key, tap the NDE cover (26) with a dead blow hammer to loosen, and remove the cover.
7. Remove the oil slinger (38) using a 4mm wrench. Remove the DE bearing retainer bolts (10) using a 13mm wrench or socket. Remove the DE bearing retainer (5).
8. Use 2 M10 bolts and nuts to attach pulling kit 633-003 to the DE side plate (4). Align the center screw with a shaft saver to the center of the rotor shaft (14). Do the same for the other rotor shaft.
9. Screw in pulling kit center screws once attached to the DE side plate (4), screwing evenly on both rotor shafts (14). This will pull the side plate apart from the main body (22).
10. Remove gear retainer bolts (29) using an 8mm hex key. Tap the face of the gears (30) with a brass hammer to loosen the gears from the gear lock (40). Pull the gear (30) straight off of the rotor shaft (14). When the gear (30) is pulled off of the rotor shaft (14), 4 clamps (34) will also come off (**DO NOT LOSE THESE**). Repeat for other gear (30).
11. Remove gear spacers (39) from rotor shafts (14).
12. Repeat steps 8 and 9 on the NDE side plate (23) using M10 bolts and nuts to remove rotors (14). Pull rotors (14) out of the main body (22) one at a time.
13. Remove M10 bolts from NDE side plate (23). Tap the inside of the NDE side plate (23) with a punch to separate the NDE side plate (23) from the main body (22).

Cover Disassembly

1. Use a 6mm hex key to remove shaft end cap fasteners (13). Remove shaft end cap (11).
2. Use a hammer and punch from the inside of the DE cover (6) to remove the 2 shaft seals (12/16).
3. Use 38mm (1-1/2") wrench to remove the sight glass (9).
4. Remove plugs (19) and (24) using a 17mm Allen key.
5. Remove breather (35) using a 17mm wrench.
6. Repeat steps 3-5 for NDE cover (26).

Side Plate Disassembly

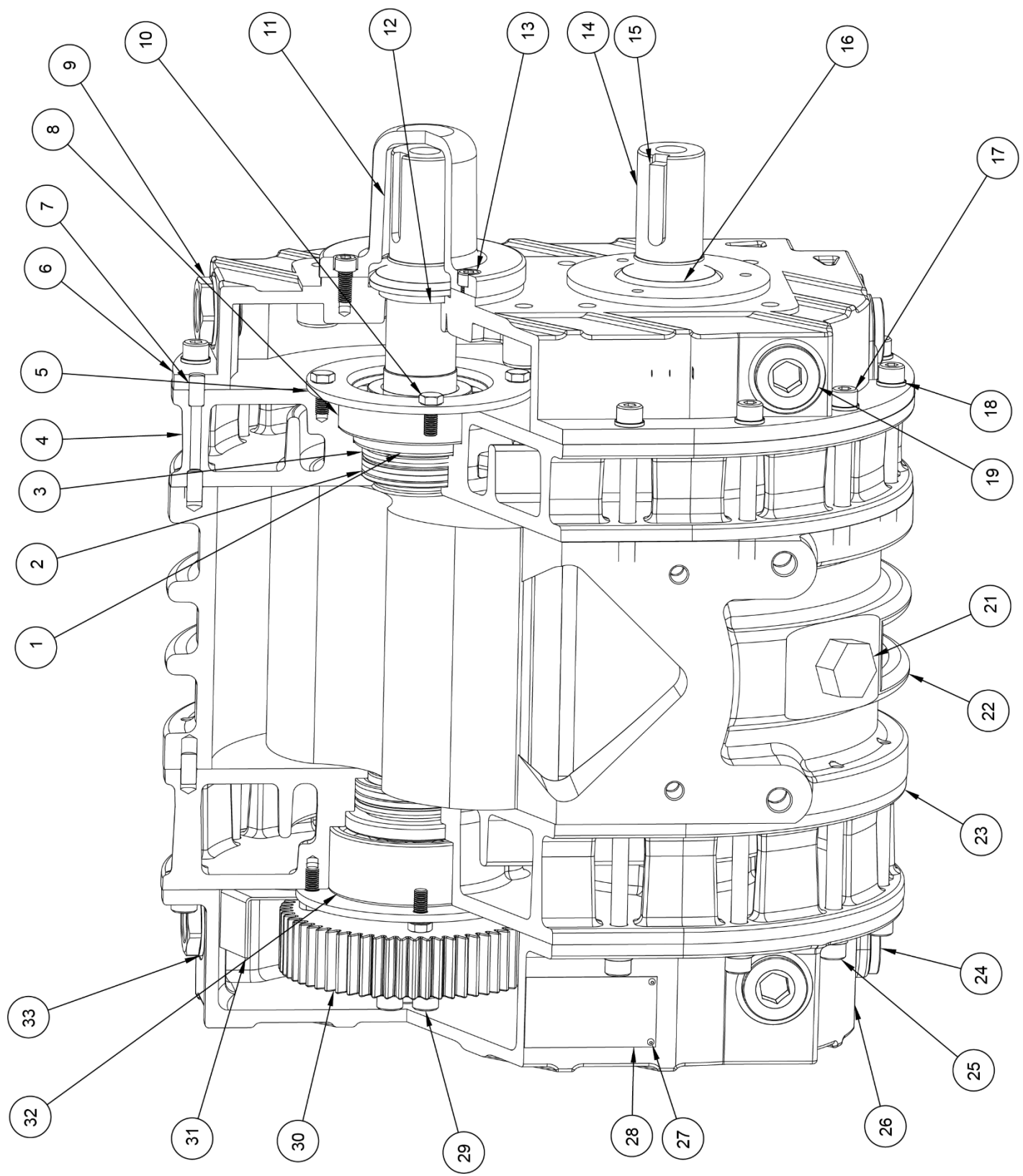
1. Use a round driving punch to drive bearings (32) out of NDE side plate (23).
2. Use a round driving punch to drive oil seals (1) out of NDE side plate (23).
3. Use a round driving punch to drive air seal retainer (3) out of NDE side plate (23).
4. Use a round driving punch to drive labyrinth seals (2) out of NDE side plate (23).
5. Repeat steps 1-4 for DE side plate (4).

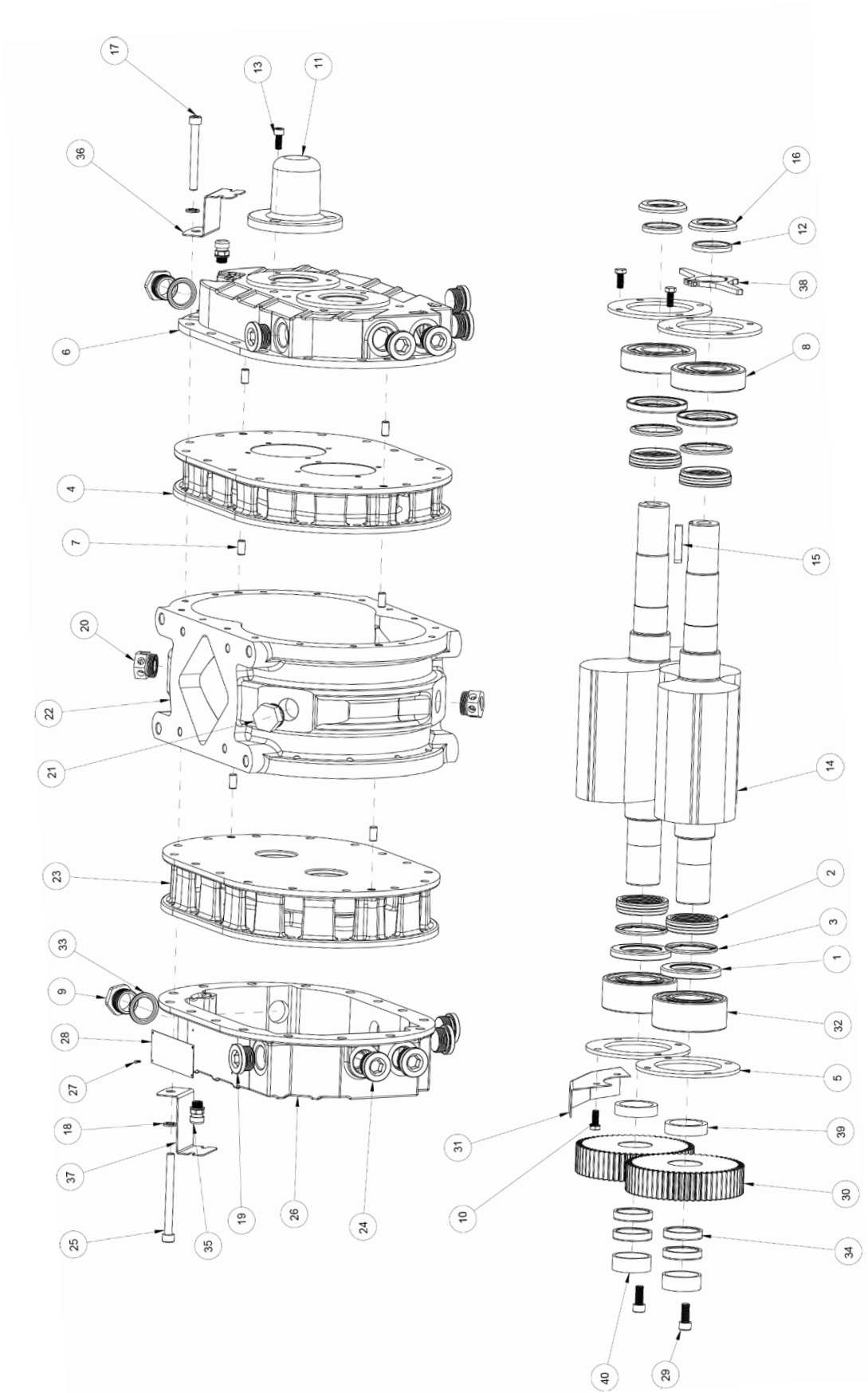
Cleaning and Inspection:

1. Clean all machined parts with a cleaning solvent. Remove all sealant residues. Remove any rust.
2. Support rotors (14) on V-blocks at bearing journals. Verify runout has a maximum of 0.002".
3. Verify that there is no gouging or pitting on the rotor (14) lobe surface, main body (22) bore surface, or side plate (4/23) surfaces.
4. Verify that there are no cracks visible on both side plates (4/23).
5. Inspect timing gears (30) for wear and pitting.

Note: We strongly encourage scrap recycling of damaged and replaced parts.

Component Breakdown:





| Item | Part# | Description | P858 | P858e | P1057 |
|------|------------|--------------------------------|------|-------|-------|
| 1 | 555-009 | TANK/S'PLATE OIL SEAL | 4 | 4 | 4 |
| 2 | 556-040 | LABYRINTH SEAL | 4 | 4 | 4 |
| 3 | 582-067 | RETAINER SEAL | 4 | 4 | 4 |
| 4 | 501-016 | DE BLOWER ENDPLATE | 1 | 1 | 1 |
| 5 | 582-025 | RETAINER BEARING | 4 | 4 | 4 |
| 6 | 523-043 | DE BLOWER COVER | 1 | 1 | 1 |
| 7 | 274-002 | DOWEL PIN 3/8X3/4 BRGHT FIN ST | 6 | 6 | 6 |
| 8 | 512-007 | ROLLER BEARING | 2 | 2 | 2 |
| 9 | 355-008 | HYD SIGHT GLASS | 2 | 2 | 2 |
| 10 | 128-008 | HHCS ISO 8.8 M8X20MM ZP | 16 | 16 | 16 |
| 11 | 522-010 | DRIVE SHAFT CAP | 1 | 1 | 1 |
| 12 | 555-010 | SHAFT OIL SEAL | 2 | 2 | 2 |
| 13 | 124-003 | SHCS M8 X 20 8.8 | 3 | 3 | 3 |
| 14 | 502-012 | ROTOR, BLOWER P858 | 2 | - | - |
| 14 | 502-012E | ROTOR, DRIVE P858E | - | 2 | - |
| 14 | 502-013 | ROTOR, BLOWER P1057 | - | - | 2 |
| 15 | 8500109 | KEY-SQUARE 3/8 X 2 ROE | 1 | 1 | 1 |
| 16 | 558-003 | DRIVE SHAFT SEAL | 2 | 2 | 2 |
| 17 | 124-036 | SHCS M10-1.5 X 90 8.8 ZP | 16 | 16 | 16 |
| 18 | 194-011 | SPLIT LOCK WASHER M10 ZP | 28 | 28 | 28 |
| 19 | 323-005-GD | HYD PLUG G1 SOCKET HEAD | 8 | 8 | 8 |
| 20 | 543-003 | MELT PLUG 'D' STYLE | 2 | 2 | 2 |
| 21 | 241-001 | PLUG BLANK MELT PLUG | 1 | 1 | 1 |
| 22 | 500-040 | BODY P858 | 1 | 1 | - |
| 22 | 500-039 | BODY P1057 | - | - | 1 |
| 23 | 501-015 | NDE BLOWER ENDPLATE | 1 | 1 | 1 |
| 24 | 141-001 | MAGNETIC PLUG | 2 | 2 | 2 |
| 25 | 124-037 | SHCS M10-1.5 X 110 8.8 ZP | 16 | 16 | 16 |
| 26 | 523-044 | NDE BLOWER COVER | 1 | 1 | 1 |
| 27 | 192-000 | RIVET 2 X 1/4 U DRIVE SS | 4 | 4 | 4 |
| 28 | 537-053 | LABEL DATA TAG | 1 | 1 | 1 |
| 29 | 124-040 | CAPSCREW SKT HD M10-1.25 X 30M | 6 | 6 | 6 |
| 30 | 529-005 | GEAR, TIMING GEAR SET | 2 | 2 | 2 |
| 31 | 527-032 | OIL DEFLECTOR | 1 | 1 | 1 |
| 32 | 510-008 | DBL ROW BEARING | 2 | 2 | 2 |
| 33 | 526-037 | GASKET 1 BSPP FITTING SEAL | 2 | 2 | 2 |
| 34 | 582-027 | RETAINER GEAR LCK ELE | 4 | 4 | 4 |
| 35 | 359-016 | HYD BRTHR-1/4 NPT-NO FILTER | 2 | 2 | 2 |
| 36 | 523-045 | DE BREATHER COVER | 1 | 1 | 1 |
| 37 | 523-046 | NDE BREATHER COVER | 1 | 1 | 1 |
| 38 | 527-038 | OIL SLINGER | 1 | 1 | 1 |
| 39 | 571-026 | BEARING SPACER | 2 | 2 | 2 |
| 40 | 582-026 | CLAMP BUSHING RETAINER | 2 | 2 | 2 |
| 41 | 128-047 | HHCS ISO 8.8 M4-0.7 X 25 ZP | 1 | 1 | 1 |

P858, P858e, P1057 Blower Maintenance Kits

| Item | Part# | Description | QTY |
|----------|-----------------|---|----------|
| 1 | 620-016 | Service Kit, Shaft Seals | 1 |
| | Kit components: | | |
| | 526-002 | Flange Gasket | 2 |
| | 555-010 | Shaft Oil Seal | 2 |
| | 558-003 | Shaft Dust Seal | 2 |
| 2 | 620-015 | Service Kit, All Seals | 1 |
| | Kit components: | | |
| | 274-002 | Dowel Pin 3/8" X 3/4" | 6 |
| | 359-016 | Breather Plug 1/4" NPT - No Size Filter | 2 |
| | 526-002 | Flange Gasket | 2 |
| | 555-009 | Main Oil Seal | 4 |
| | 555-010 | Shaft Oil Seal | 2 |
| | 556-040 | Labyrinth Seal | 4 |
| | 558-003 | Shaft Dust Seal | 2 |
| | 582-067 | Seal Retainer | 4 |
| | 8500109 | Shaft Key - Square 3/8" X 2" | 1 |
| 3 | 621-068 | Service Kit, Bearings | 1 |
| | Kit components: | | |
| | 510-008 | Double Row Ball Bearing | 2 |
| | 512-007 | Roller Bearing | 2 |
| | 526-002 | Flange Gasket | 2 |
| 4 | 621-066 | Service Kit - Complete | 1 |
| | Kit components: | | |
| | 274-002 | Dowel Pin 3/8" X 3/4" | 6 |
| | 359-016 | Breather Plug 1/4" NPT - NO Size Filter | 2 |
| | 510-008 | Double Row Ball Bearing | 2 |
| | 512-007 | Roller Bearing | 2 |
| | 526-002 | Flange Gasket | 2 |
| | 555-009 | Main Oil Seal | 4 |
| | 555-010 | Shaft Oil Seal | 2 |
| | 556-040 | Labyrinth Seal | 4 |
| | 558-003 | Shaft Dust Seal | 2 |
| | 582-067 | Seal Retainer | 4 |
| | 8500109 | Shaft Key - Square 3/8" X 2" | 1 |

Note: Does not include oil. Sealant sold separately.

For 601-017 and 601-016 version blowers, refer to 601-017/601-016 service manual.

Assembly Procedure

General instructions: Apply light coating of assembly grease to the outside all pressed parts and O-ring housing parts prior to installation.

Note: P858e Rebuilds: If rotors are not being replaced, standard P858 maximum clearances may be used.

1. Clean all machined surfaces with a cleaning solvent. Make sure all parts are free of any nicks and burrs possibly caused by disassembly.
2. Verify correct orientation of the NDE side plate (23) using markings made during disassembly.
3. Install main air seals (2) with the step facing the outside of the NDE side plate (23). Press the main air seal retainers (3) with the cup-side down into the NDE side plate (23) using press tool 564-053. Press until the retainer (3) is firmly seated on top of the main air seal (2). See figure 1 for correct orientations for the seal and seal retainer.
4. Press the oil seals (1) into the NDE side plate (23) with the lip facing upwards using press tool 564-024 until seated. See figure 1 for the correct oil seal orientation.

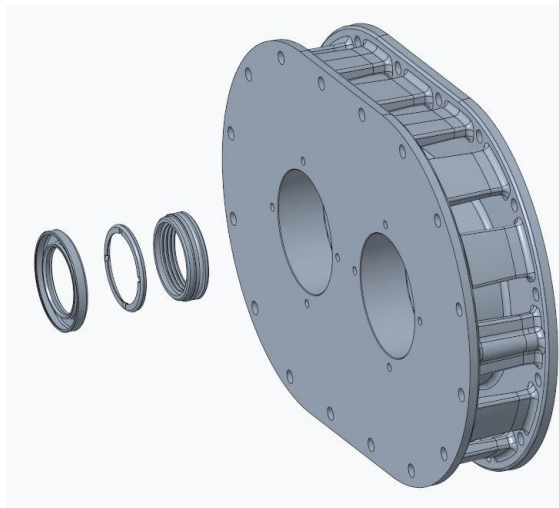


Fig. 1

5. Use a brass hammer to install dowel pins (7) into the NDE side plate (23).
6. Repeat steps 2-5 for the DE side plate (4).
7. Install 4 M10X1.5X90mm bolts through the NDE side plate (23) to the main body (22) to hold the position.
8. Attach an M14X2 eye bolt to the DE of the rotor shaft (14). Use a lifting device to place the rotors into the main body (22) until the edge of the rotor is in contact with the NDE side plate (23).
9. Carefully place the DE side plate (4) onto the main body (22) without damaging the seals mounted in the DE side plate (4). Install 4 M10X1.5X80mm bolts through the DE side plate (4) to the main body (22) to hold the position.

10. Verify that the writing side of double row ball bearing (32) is facing outward from the NDE side plate (23). Press double row ball bearing (32) into NDE side plate (23) using press tools 564-023, 564-024, and 564-025 as shown in figure 2.

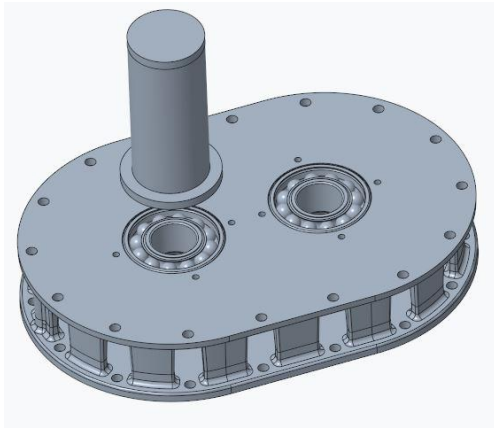


Fig. 2

11. Place bearing retainers (5) onto NDE side plate (23). Place oil deflector (31) over the two bearing retainer holes in the direction closest to where the breather (35) will be located as shown in figure 3. Apply Loctite 243 to 8 bolts (10) and tighten into NDE side plate to 15 lb-ft (20 N-m) using a 13mm wrench or socket.

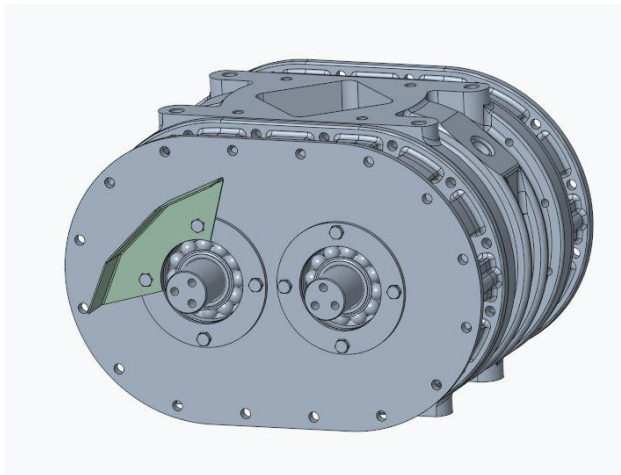


Fig. 3

12. Press/drive rotors (14) towards the NDE until seated against the double row ball bearing (32). Measure the clearance between the rotors (14) and the NDE side plate (23).

Note: For P858e rebuilds, the coating on the NDE side of the rotor (14) may compress to be able to seat against the NDE bearing (32)

13. Press roller bearings (8) into the DE side plate (4) using tools 564-023, 564-024, and 564-025 as shown in figure 4. Measure DE clearances and radial clearances.

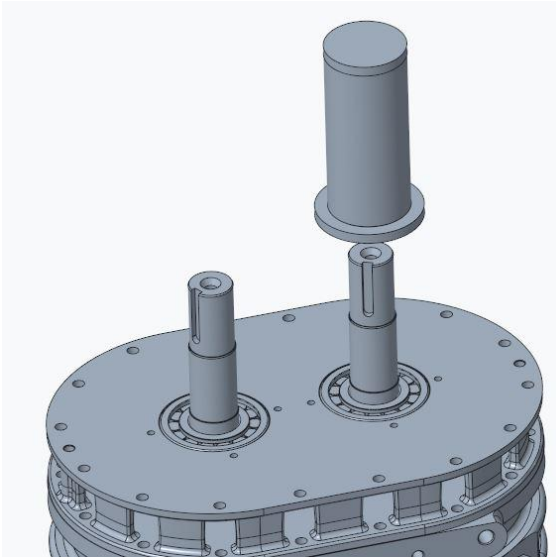


Fig. 4

14. Place bearing retainers (5) onto DE side plate (4). Apply Loctite 243 to 8 bolts (10) and tighten into NDE side plate to 15 lb-ft (20 N-m) using a 13mm wrench or socket.
15. Place gear spacers (39) on both rotor shafts (14) on the NDE. Slide gears (30) onto rotor shafts with the hollow side facing outwards until they are in full contact with the spacers. Verify that both gears spin freely on the rotor shafts.

16. Place 2 gear locking element sets (34) between each gear and rotor shaft, with the outer piece in each locking element set placed closer to the NDE side plate (23) as shown in figure 5. Push the gear lock clamps (40) over the locking elements. Apply a small amount of Loctite 243 on 3 retaining bolts (29) and tighten evenly to 69 lb-ft using an 8mm hex key. Do **NOT** apply too much Loctite, as any extra Loctite will seep into the space between the gears and the retainers.

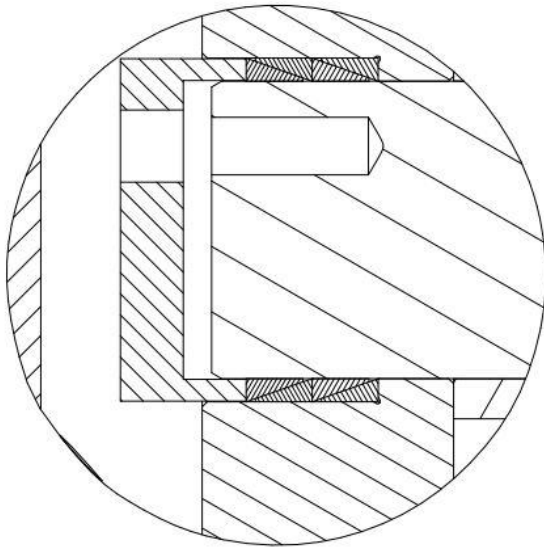


Fig. 5

17. Hand-tighten the other 3 retaining bolts (29) into the other gear clamp. Place a piece of wood, nylon, or plastic between the rotors (14) to hold them in place and measure the gear backlash. Remove the wedge by holding the rotors.
18. Line up one rotor (14) so that it is in line with a melt plug hole. Attach timing lock 564-029 to the DE of the rotor shafts. Place a .014" feeler gauge between the rotor lobes and turn one rotor until both rotors are contacting the gauge. Tighten one of the gear clamp retaining bolts (29) using a, 8mm hex key.

Note: For P858e rebuilds, start with a .006" feeler gauge

19. Measure the inter-lobe timing in the four locations identified in the clearance sheet. Use 2 feeler gauges that add up to the correct thickness when measuring inter-lobe clearances. If the inter-lobe clearance is outside of the required specification, loosen the gear clamp retaining bolt (29) using an 8mm hex key and repeat step 17 using a different sized feeler gauge. Change feeler gauge size by 0.001" for each iteration. Record the final inter-lobe clearance measurements.
20. Remove the 3 remaining gear clamp bolts (29) with an 8mm hex key one at a time, add Loctite 243, and reinstall. Once all gear clamp retaining bolts have been tightened, torque the bolts down to 30 lb-ft, then torque the bolts down to 69 lb-ft. Re-torque each bolt after the initial tightening to 69 lb-ft to verify that the bolts are torqued evenly. Do **NOT** apply too much Loctite, as any extra Loctite will seep into the space between the gears (30) and the retainers (34). Remove the timing lock tool.

21. Slide the oil slinger (38) onto the bottom side DE rotor shaft. Slide the oil slinger until it is against the first shaft edge outside of the bearing (8) as shown in figure 6. Apply Loctite 243 and tighten the oil slinger retaining bolt with a 7mm wrench.

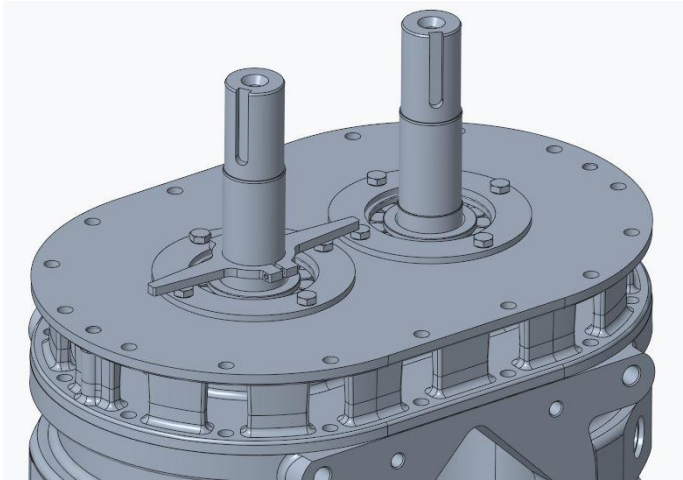


Fig. 6

22. Use a brass hammer to install 2 dowel pins (7) into the DE side plate (4). Press the oil seals (12) into the outside of the DE cover (6) using press tool 564-022, with the rounded side of the seal facing outwards as shown in figure 7.

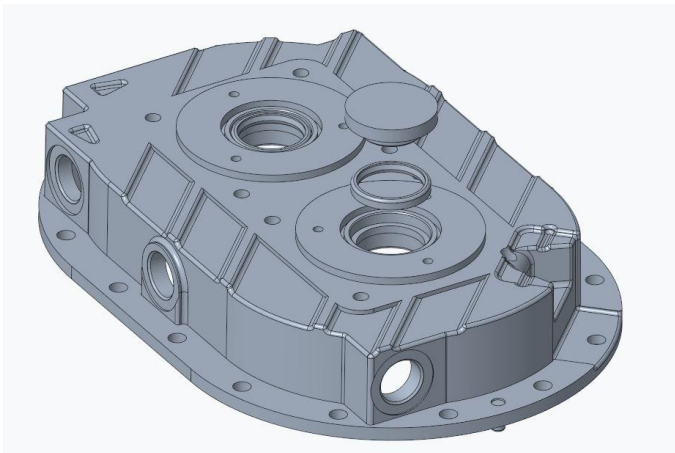


Fig. 7

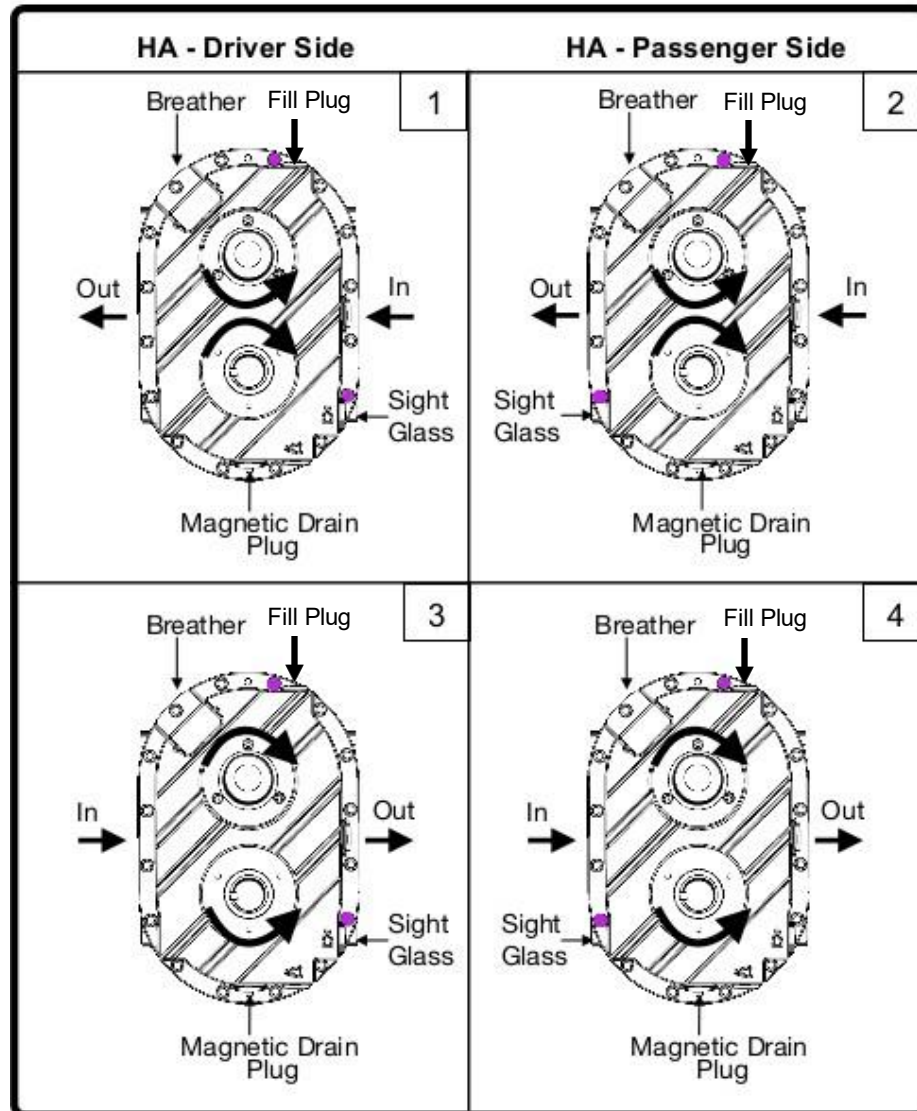
23. Apply a high temperature anaerobic sealant around the flat face of the cover (where the cover mounts to the side plate). Remove the bolts holding the DE side plate (4) to the main body (22). Slide the cover over the rotor shafts (14) until the cover (6) is flush with the side plate (4). Use care to avoid damaging the cover oil seals (12). Use a soft mallet to drive the dowel pins (7) at each end of the cover (6) into the DE sideplate (4).
24. Install breather into the outside of the cover (35) with a 17mm wrench. Place breather cover (36) in position before installing end cover bolts (17/25).
25. Install 16 M10X1.5X90mm DE cover bolts (17) and split lock washers (18) using Loctite 243 and torque to 30 lb-ft using an 8mm hex key. Install the gamma seals (16) carefully onto the outside of the cover using tool 564-049 and a soft mallet. Ensure that the tool flushes with the cover face once the seal is fully installed and verify that the seal does not have any distortion.

26. Install all sight glasses (9) and drain plugs (19/24) onto the DE cover with a 38mm wrench and a 17mm hex key, respectively.
27. Repeat steps 23-26 as applicable for the NDE cover (26) using 16 M10X1.5X110mm NDE cover bolts (25) and lock washers (18), applying Loctite 243, and torquing NDE cover bolts (25) to 30 lb-ft with an 8mm hex key.
28. Install shaft cover (11) over the rotor shaft (14) that will not be in use. Tighten 3 end cap bolts (13) into the DE cover (6) with a 6mm hex key.
29. Install melt plugs (20) and blank plugs (21) using a 1-3/8" wrench or socket. **NOTE: These are LH thread.** Place key (15) into driving rotor shaft keyway.

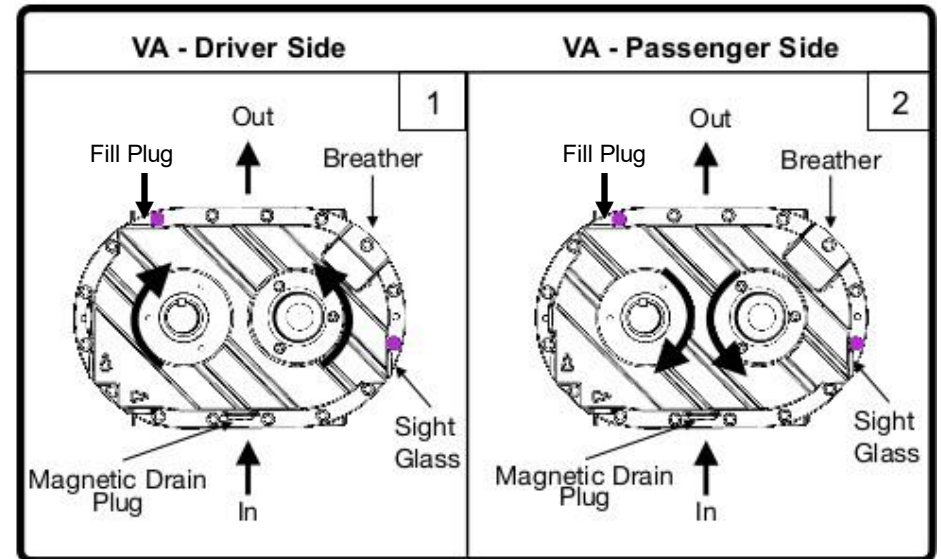
P858e rebuilds: If rotors have been replaced, run blower at 12 psi (and 1600 RPM, if possible) for 5 minutes on initial operation to wear in the rotor coating. Do not exceed 15 psi during the initial run-in to avoid over-compressing the coating. Verify that no bare metal is exposed on the rotor profile surfaces because of the initial wear-in. Some wear and compression of the coating is expected and acceptable.


Fig 16

Horizontal Airflow - HA



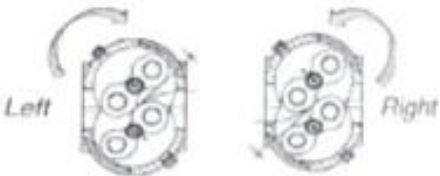


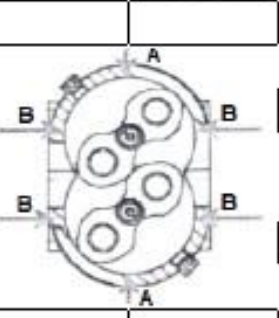


Vertical Airflow - VA





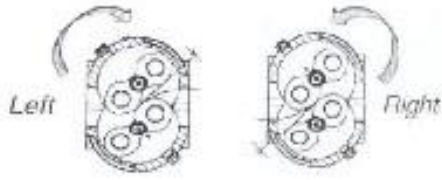


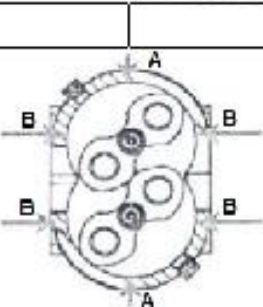
 - Shows installation location of 124-030

P1057 Machine Clearances

| P1057 | | Assembly Clearance Record | |
|------------------|--|---|--|
| Date: | |  | |
| | | | |
| Serial Number: | | | |
| Builder: | | | |
| Step | Specification | | |
| 1. Gear Backlash | 0.0015" - 0.0030" | <div>Measured</div> <div></div> |  |
| 2. Interlobe | 0.013" - 0.018" | <div>Left Right</div> <div></div> <div></div> |  |
| 3. Gear End | 0.004" - 0.008" | <div></div> <div></div> |  |
| 4. Drive End | 0.017" - 0.023" | <div></div> <div></div> |  |
| 5. Radial | A: 0.005" - 0.008" B: 0.010" - 0.014" | <div>Measure both sides of rotor in 3 locations</div> <div></div> <div></div> <div></div> |  |



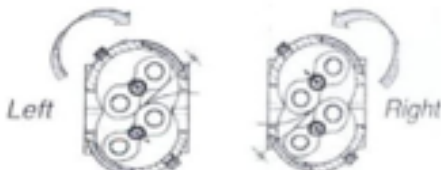
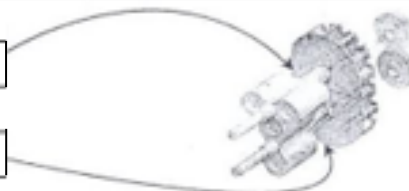

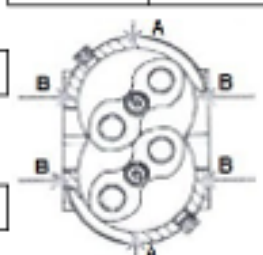
Rev. B 7-21-2020

P858 Machine Clearances



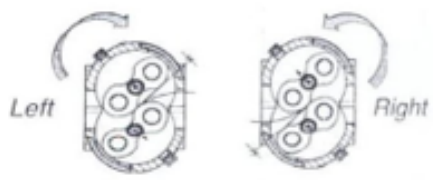
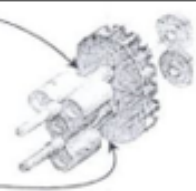

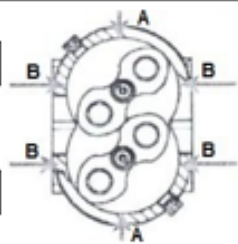
| P858 | | Assembly Clearance Record | |
|------------------|--|--|---|
| Date: | |  | |
| Work Order: | | | |
| Serial Number: | | | |
| Builder: | | | |
| Step | Specification | | |
| 1. Gear Backlash | 0.0015" - 0.0030" | <div>Measured</div> <div></div> |  |
| 2. Interlobe | 0.013" - 0.018" (results must be within 0.001" of each other) | <div>Left</div> <div></div> <div>Right</div> <div></div> |  |
| 3. Gear End | 0.004" - 0.008" | <div></div> <div></div> |  |
| 4. Drive End | 0.015" - 0.021" (results must be within 0.002" of each other) | <div></div> <div></div> |  |
| 5. Radial | A: 0.005" - 0.008" B: 0.010" - 0.014" | <div>Measure top and bottom</div> <div></div> <div></div> <div></div> |  |

Rev: 04 JH 3/29/2022

P858e Machine Clearances

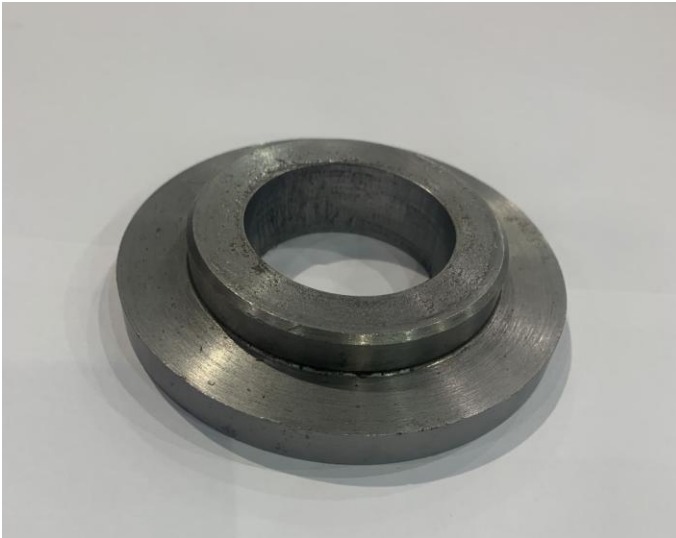
| P858e (Existing Rotors) | | Assembly Clearance Record | |
|-------------------------|--|--|--|
| Date: | |  | |
| Work Order: | | | |
| Serial Number: | | | |
| Builder: | | | |
| Step | Specification | | |
| 1. Gear Backlash | 0.0015" - 0.0030" | <div>Measured</div> <div></div> |  |
| 2. Interlobe | 0.004" - 0.018" (results must be within 0.001" of each other) | <div>Left Right</div> <div></div> <div></div> |  |
| 3. Gear End | 0" - 0.008" | <div></div> <div></div> |  |
| 4. Drive End | 0.005" - 0.021" (results must be within 0.002" of each other) | <div></div> <div></div> |  |
| 5. Radial | A: 0" - 0.008" B: 0.0055" - 0.014" | <div>Measure top and bottom</div> <div></div> <div></div> |  <div></div> <div></div> |

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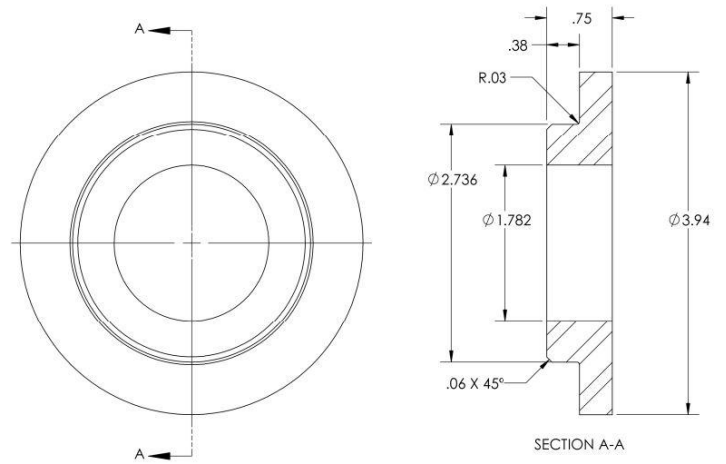
| P858e (New Rotors) | | Assembly Clearance Record | |
|--------------------|--|--|---|
| Date: | |  | |
| Work Order: | | | |
| Serial Number: | | | |
| Builder: | | | |
| Step | Specification | | |
| 1. Gear Backlash | 0.0015" - 0.0030" | <div>Measured</div> <div></div> |  |
| 2. Interlobe | 0.004" - 0.014" (results must be within 0.001" of each other) | <div>Left Right</div> <div></div> <div></div> |  |
| 3. Gear End | 0" - 0.006" | <div></div> <div></div> |  |
| 4. Drive End | 0.005" - 0.017" (results must be within 0.002" of each other) | <div></div> <div></div> |  |
| 5. Radial | A: 0" - 0.006" B: 0.0055" - 0.012" | <div>Measure top and bottom</div> <div></div> <div></div> <div></div> |  |

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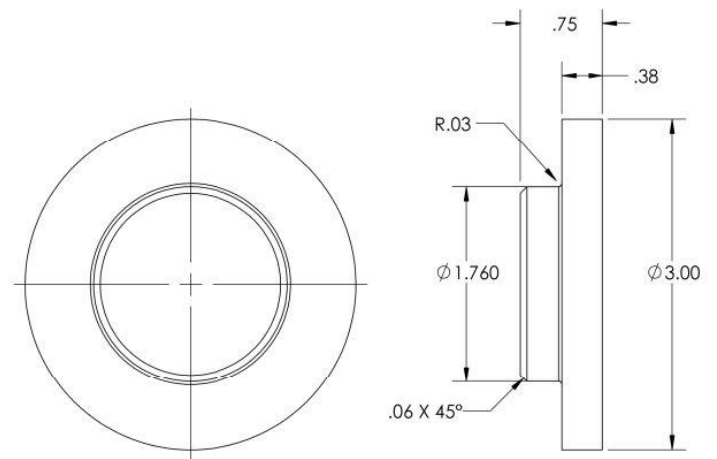
Appendix



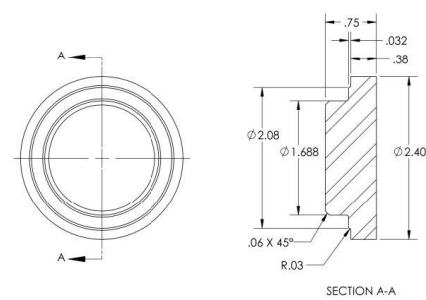
564-023 Bearing Press tool (Driven end)—P1057

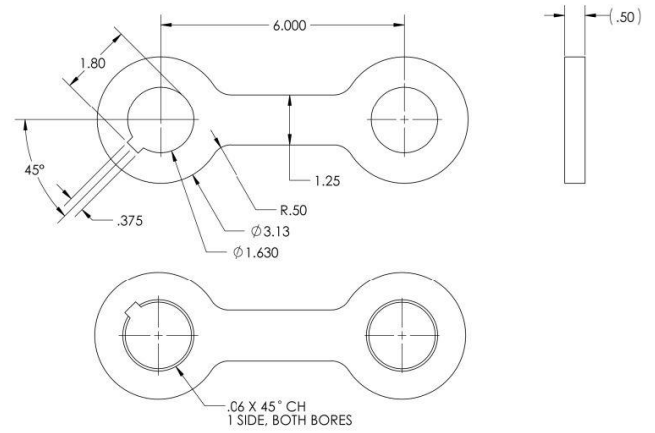


564-025 Bearing Press tool (Gear end)—P1057

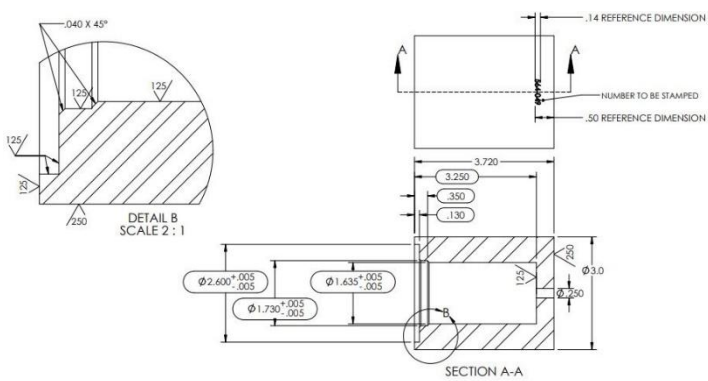


564-022 Tool—Cover oil seal press tool—P1057

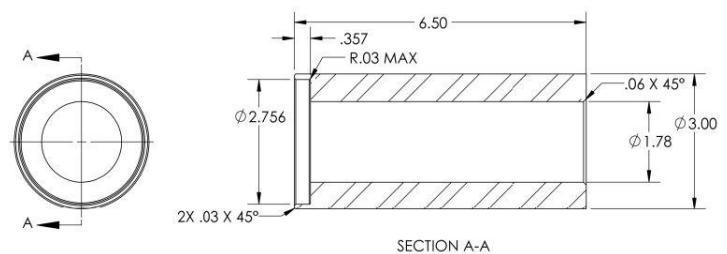




564-029 Rotor Timing Lock—P1057



564-049 Gamma seal press tool—P1057



564-024 Sideplate oil seal press tool—P1057



Troubleshooting

| Problem | Possible Cause | Recommended Solution |
|--|---|---|
| Knocking | Blower out of time | Re-time rotors |
| | Debris inside blower | Clear debris from blower |
| | Excess pressure | Reduce operating pressure, check relief valve |
| | Worn gears | Replace gears, verify oil levels/change oil |
| High discharge temperature, melt plugs going off | Blower speed too low | Increase blower speed |
| | Clogged/dirty air filter | Clean/replace filter |
| | Clogged silencer | Unclog silencer |
| | Excess pressure | Reduce operating pressure, check relief valve |
| | High internal clearances | Measure & correct clearances, replace rotors if necessary |
| | Internal contact | Measure clearances, re-time rotors or replace parts contacting as necessary |
| High oil/cover temperature | Incorrect oil level | Refill oil |
| | Dirty/incorrect oil | Change oil |
| | loose oil slinger (high DE oil temp) | Remove DE cover, tighten oil slinger retaining bolt |
| | Outer shaft seal installed incorrectly (high DE oil temp) | Replace/re-install shaft seal, verify cover oil seal is not damaged |
| | Connecting shaft out of balance | Identify damaged location, repair/replace as necessary |
| Whistling/Whining | Leaking inlet/discharge port gasket | Replace gasket |
| | Damaged air seal | Replace air seal |
| | Low gear end oil | Refill/change oil |
| Oil leak | Damaged cover plug/plug seal | Replace plug/plug seal |
| | Damaged sight glass/sight glass seal | Replace sight glass/sight glass seal |
| | Damaged breather | Replace breather |
| | Connecting shaft out of balance (DE cover seal oil leak) | Identify damaged location, repair/replace as necessary |
| | Overfilled oil (leaking through breather vent) | Change oil/lower oil level |
| | Incorrect blower speed (leaking through breather vent) | Reduce blower speed |

Warranty Statement

PGWAR-1-100

Date Issued: 05/01/2025

GENERAL PROVISIONS AND LIMITATIONS

Paragon Tank Truck Equipment LLC (the "Company") warrants to each original retail purchaser ("Purchaser") of its products from the Company or its authorized distributor that such products are, at the time of delivery to the Purchaser, made with good material and workmanship. No warranty is made with respect to:

1. Any product which has been repaired or altered in such a way, in the Company's judgment, to affect the product adversely.
2. Any product which has, in the Company's judgment, been subject to negligence, accident, improper storage, or improper installation or application.
3. Any product which has not been operated or maintained in accordance with the recommendations of the Company.
4. Components or accessories manufactured, warranted, and serviced by others.
5. Any reconditioned or prior owned product.

Claims for items described in (4) above should be submitted directly to the manufacturer.

WARRANTY PERIOD

The Company's obligation under this warranty is limited to repairing or, at its option, replacing, during normal business hours at an authorized service facility of the Company, any part which in its judgment proved not to be as warranted within the applicable Warranty Period as follows.

| Product Type | Warranty Duration |
|----------------|---|
| New | 18 months from date of shipment, or 12 months after initial startup date, whichever occurs first. |
| Remanufactured | 12 months from date of shipment, or 12 months after initial startup date, whichever occurs first. |
| Repair | 12 months from date of shipment, or remaining warranty period, whichever is greater. |

All products furnished by seller but manufactured by others bear only that manufacturer's standard warranty. Replacement parts not specifically called out in the above table are warranted for 90 days from shipment. Any disassembly or partial disassembly of any of the package components, or failure to return these "unopened" per Company instructions, will be cause for denial of warranty.

The Company reserves the right to withdraw the Warranty where evidence indicates application outside the stated performance area, or where there is evidence of abuse.

LABOR TRANSPORTATION AND INSPECTION

The Company will provide labor, by Company representative or authorized service personnel, for repair or replacement of any product or part thereof which in the Company's judgment is proved not to be as warranted. Labor should be limited to the amount specified in the Company's labor rate schedule and would exclude labor for the removal and reinstallation of the Paragon product from the customer's equipment.

Labor costs more than the Company rate schedules caused by, but not limited to, location or inaccessibility of equipment, or labor provided by unauthorized service personnel is not provided by this warranty.

All costs of transportation of product, labor or parts claimed not to be as warranted and, of repaired or replacement parts to or from such service facilities shall be borne by the Purchaser. The Company may require the return of any part claimed not to be as warranted to one of its facilities as designated by the Company, transportation prepaid by Purchaser, to establish a claim under this warranty.

If a warrantable complaint occurs within 90 days of shipment:

1. Freight will be reimbursed for both the replacement item and the returned suspect part (if Requested by Paragon). This allowance will cover only transportation via Paragon selected most economical method within the continental United States, Canada and Mexico. Premium transportation and/or handling charges will not be covered or pro-rated.
2. Concerning distributors in Canada & Mexico, reimbursement for duty and brokerage fees at actual cost that cannot be recovered from Customs Officials, but not to exceed 20% of the distributor net price, will be allowed for warrantable complaints within 90 days.
3. Copies of related invoices must be provided with the submission of the claim to be considered.

Replacement materials provided under the terms of the warranty are warranted for the remainder of the Warranty Period of the product upon which installed to the same extent as if such parts were original components.

DISCLAIMER

THE FOREGOING WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY AGREED THAT, EXCEPT AS TO TITLE, THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY.

THE REMEDY PROVIDED UNDER THIS WARRANTY SHALL BE THE SOLE, EXCLUSIVE AND ONLY REMEDY AVAILABLE TO THE PURCHASER AND IN NO CASE SHALL THE COMPANY BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES. UNDER NO CIRCUMSTANCES SHALL THE COMPANY BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOSSES OR DELAYS HOWSOEVER CAUSED.

No statement, representation, agreement, or understanding, oral or written, made by any agent, distributor, representative, or employee of the Company which is not contained in this Warranty will be binding upon the Company unless made in writing and executed by an officer of the Company.

This warranty shall not be effective as to any claim which is not presented within 30 days after the date upon which the product is claimed not to have been as warranted. Any action for breach of this warranty must commence within one year after the date upon which the cause of the action occurred.

Any adjustment made pursuant to this warranty shall not be construed as an admission by the Company that any product was not as warren

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Paragon Tank Truck Equipment

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