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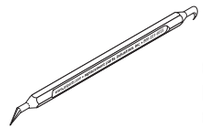
RPI PART #CMK287
COMPRESSOR TIP SEAL KIT
APOLLO/MIDMARK MODELS: AOCOS52 & A0COS52D AND MIDMARK MODEL: S52
INSTALLATION INSTRUCTIONS

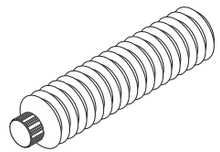
IMPORTANT NOTE

The photos/illustrations used in this installation instruction are not intended to be a direct representation of the scroll head you are working on. The OEM produced multiple versions for this scroll head. The replacement of the tip seals and dust seal instructions are the same.

COMPRESSOR TIP SEAL KIT (RPI PART #CMK287)

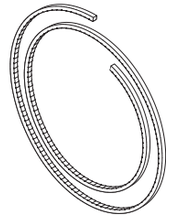


O-Ring Removal Tool
RPI Part #RXT002
Qty: 1

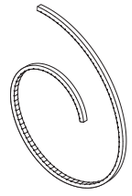


Grease
RPI Part #RXG070
Qty: 1

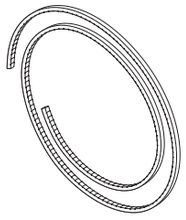
High Pressure (HP) Tip Seal for FS
Qty: 1 (Color: Black)



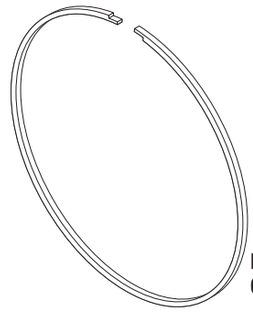
Low Pressure (LP) Tip Seal for FS
Qty: 1 (Color: Beige)



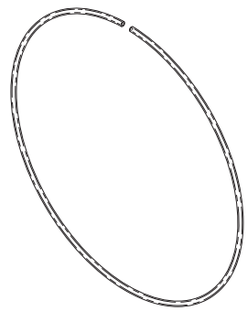
High Pressure (HP) Tip Seal for OS
Qty: 1 (Color: Black)



Low Pressure (LP) Tip Seal for OS
Qty: 1 (Color: Beige)



Dust Seal
Qty: 1 (Color: Tan)



Back-up Tube
Qty: 1 (Color: Clear)

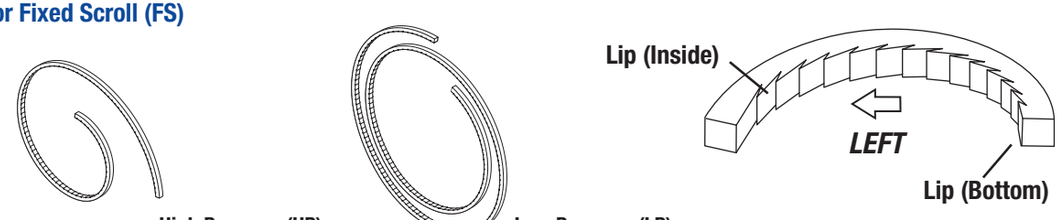
I. PREPARATIONS

CHECK LIST & SERVICE TIP

The parts shown below are included in this Kit. Be sure to read the **SERVICE TIP** below to help easily identify which seals fit the Fixed Scroll (FS) and Orbital Scroll (OS) cast casements.

SERVICE TIP: To identify the Tip Seals for the Fixed Scroll (FS) and Orbital Scroll (OS), place the seals with the raised ridges on a flat surface, then verify the direction of the lips.

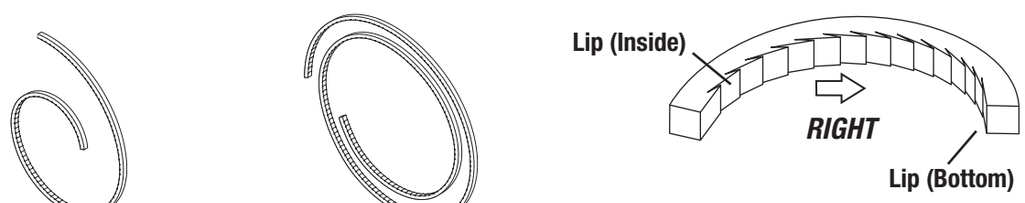
For Fixed Scroll (FS)



High Pressure (HP) Tip Seal for FS
Qty: 1 (Color: Black)

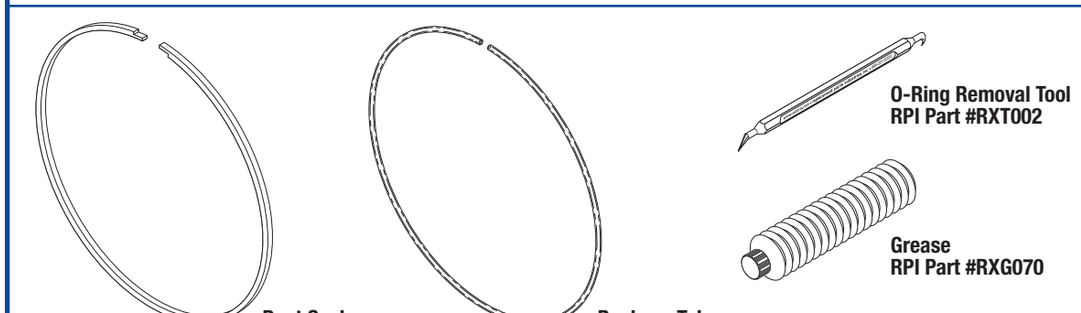
Low Pressure (LP) Tip Seal for FS
Qty: 1 (Color: Beige)

For Orbital Scroll (OS)



High Pressure (HP) Tip Seal for OS
Qty: 1 (Color: Black)

Low Pressure (LP) Tip Seal for OS
Qty: 1 (Color: Beige)



Dust Seal
Qty: 1 (Color: Tan)

Back-up Tube
Qty: 1 (Color: Clear)

O-Ring Removal Tool
RPI Part #RXT002

Grease
RPI Part #RXG070

II. TOOLS & SUPPLIES NEEDED

Listed below are the tools and supplies needed in order to perform the maintenance using the Compressor Tip Seal Kit **(RPI Part #CMK287)**. Having these tools readily available will help to ensure an easy installation.

TOOLS NEEDED

- Torque Wrench (ft/lbs) [min range: 5-23 ft/lbs]
- Belt Tensioner (RPI Part #RPT954)
- O-Ring Removal Tool (RPI Part #RXT002)*
- L-Hex Wrench Set (Metric) (RPI Part #RPT539)
- Philips Screwdriver
- Adjustable Wrench or Equivalent
- Grease Gun Kit (RPI Part #RXK069)
  - Grease Cartridge (RPI Part #RXG070)*
  - Grease Gun Nozzle (RPI Part #RXN072)
  - Grease Gun (RPI Part #RXG071)

* *Both the O-Ring Removal Tool and Grease Cartridge are included in this Kit.*

SUPPLIES NEEDED

- Extended length cotton swab
- Lint free cloth
- Canned air
- Flashlight
- Teflon tape (RPI Part #RPT580) or Pipe Sealant (RPI Part #RPA459)

III. REMOVAL OF THE SCROLL HEAD

WARNING! *Disconnect compressor from power source and purge air from the holding tank before servicing. Follow all local, NEC and OSHA safety guidelines.*

NOTE! *It is recommended that the scroll head be removed from the compressor and maintenance be performed on a work bench*

1. Remove the inlet air filter assembly (save all parts removed for re-install at a later step).

2. Remove the belt guard by removing the two (2) mounting bolts **(see Figure A)**. Save all hardware removed for reinstall at a later step.

3. Remove the belt by loosening the set screw in the center of the pulley on the scroll compressor head. Loosen the drive motor mounting nuts to relieve belt tension if necessary **(see Figure A)**.

4. Remove output air line **(see Figure B)**.

5. Remove the four (4) nuts and washers holding the scroll head to the compressor tank and then remove the scroll head.

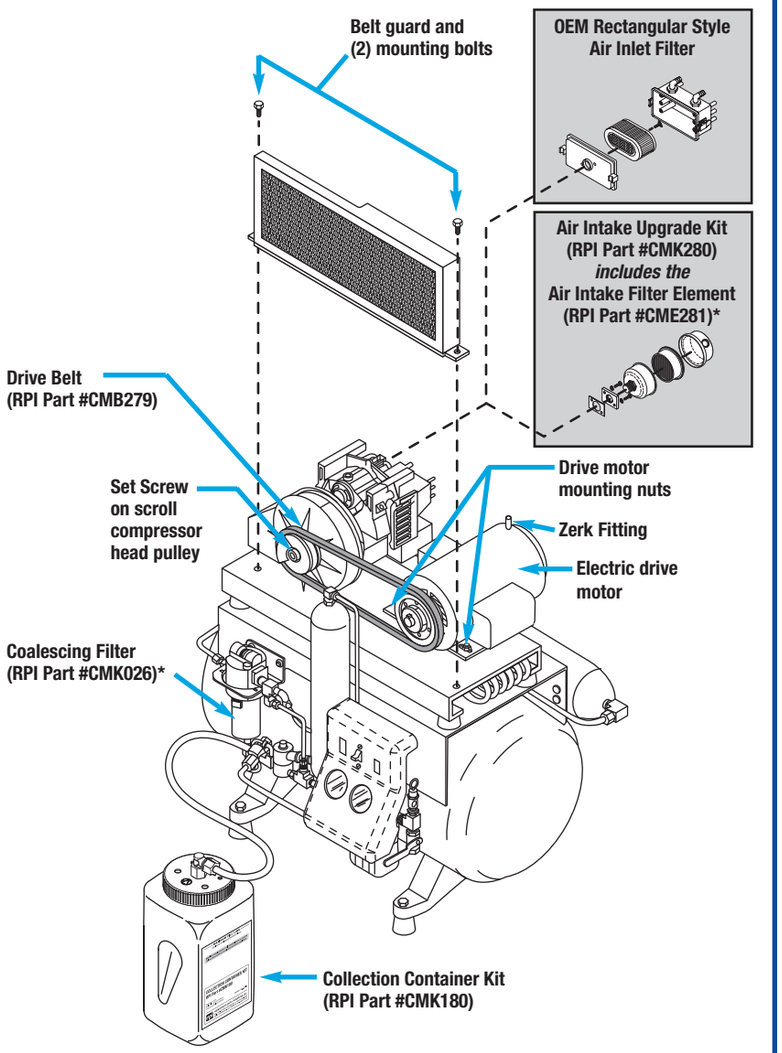
IV. CLEANING

1. Remove the fan cover, and the side fan duct **(see Figure C)**.

2. Blow dust off the inside of the side fan duct and fan cover with compressed air or wipe down with a damp lint free cloth. Inspect the foam duct packings and replace if necessary.

3. Blow dust off the outside of the centrifugal fan (sirocco) blades and fan duct with compressed air **(see Figure C)**.

Figure A



** Items included in PM Kit (RPI Part #CMK286)*

Figure B

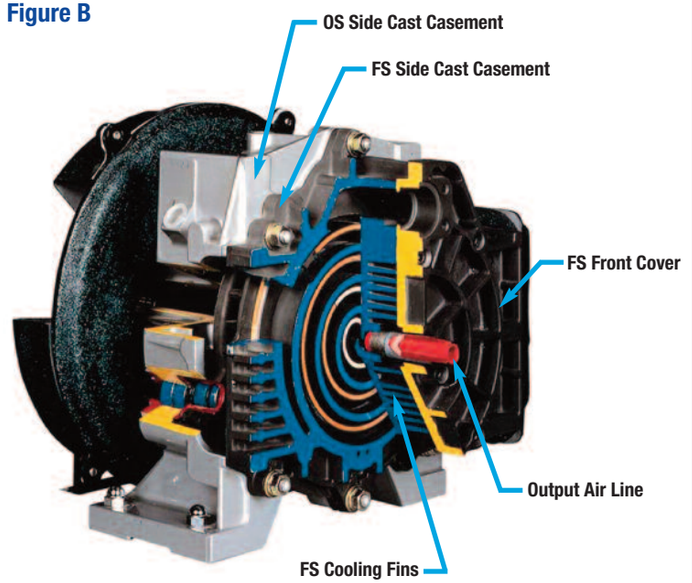
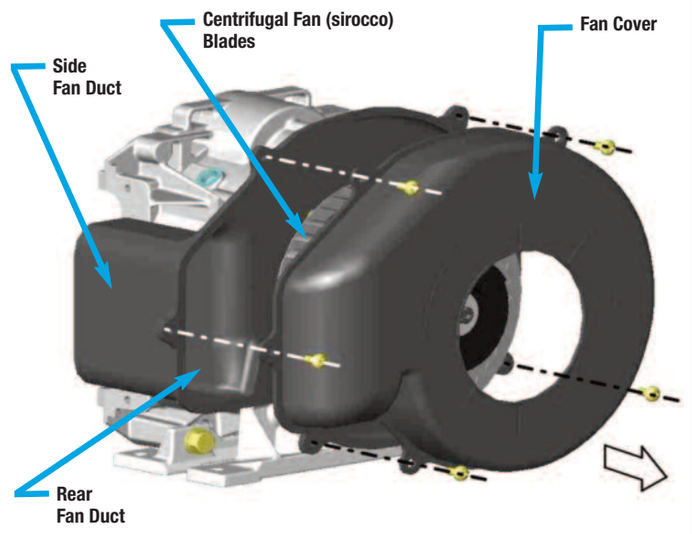


Figure C



V. DISASSEMBLY

WARNING! *Do not loosen any screws with paint on them, they are factory set.*

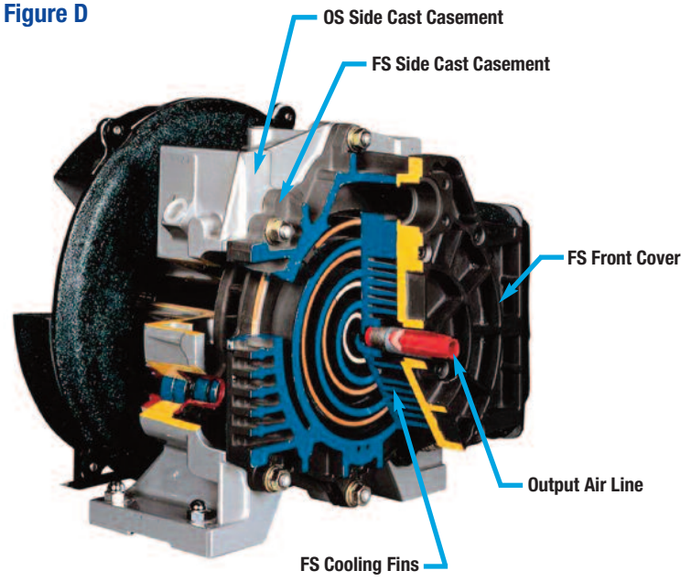
CAUTION! *The aluminum FS and OS cast casements have a special coating which can be easily damaged. Do not use any solvents or cleaning products (such as Windex®, or Formula 409®, etc.) on any of these surfaces. Use only a damp lint free cloth and/or compressed air to clean and remove dust.*

1. Clean the FS cooling fins. Remove the FS front cover if necessary. Clean and remove dust using only a damp lint free cloth and/or compressed air. **(See Figure D.)**

2. Separate the FS casement from the OS casement using an adjustable wrench or equivalent), remove the six (6) M10 lock nuts **(see Figure D)**.

3. Separate the FS casement from the OS casement to expose both the FS and OS tip seals and dust seal.

Figure D



VI. GREASE PREPARATION

1. Unscrew grease gun cartridge cover.

2. Remove the cap and install grease cartridge.

3. Reinstall grease gun cartridge cover.

4. Attach Grease Gun Nozzle.

5. Operate the lever [Fully open] ⇔ [Fully close] several times with full strokes and make sure the grease flushes out from the tip of the nozzle properly **(see Figure E)**.

VII. GREASE THE OS SIDE MATCHED ANGULAR BALL BEARINGS (EVERY 5,000 HOURS)

NOTE! *Grease the bearings before installing new tip seals.*

CAUTION! *Excessive grease filling may cause high temperatures on the bearings, or grease leakage from the internal seals. Be sure to apply the proper amount of grease.*

SERVICE TIP! *If grease is more than a year old and is still in the nozzle, purge the old grease completely (until new grease flows from the tip of the nozzle)* ***(see Figure E)***.

1. Clean the grease nipples (zerk fittings) with a lint free cloth.

2. Open Passage for the Grease by pressing the spring loaded ball in the tip of the grease nipples (zerk fittings) a couple of times to open the passage for the grease using the RXT002 tool included **(see Figure F)**.

3. Hold the nozzle square to the grease nipple (zerk fittings) press hard and using full strokes operate the grease gun lever 6 times. Repeat for all three angular ball bearings **(see Figure G)**.

Figure E

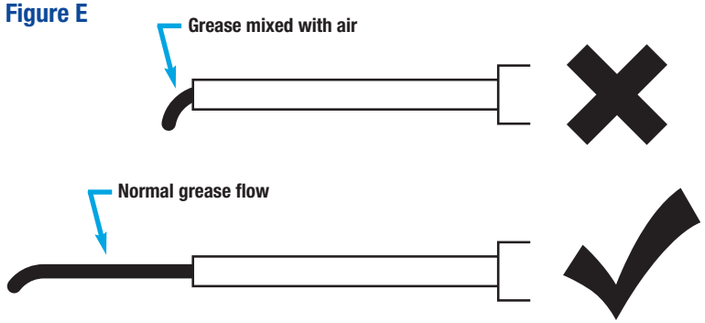


Figure F

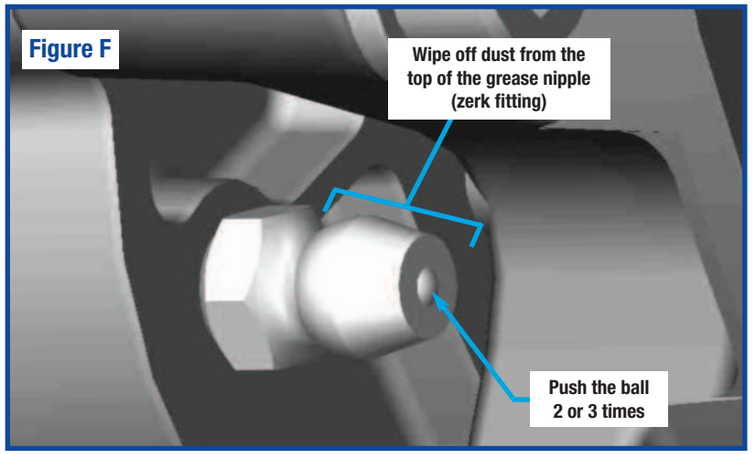
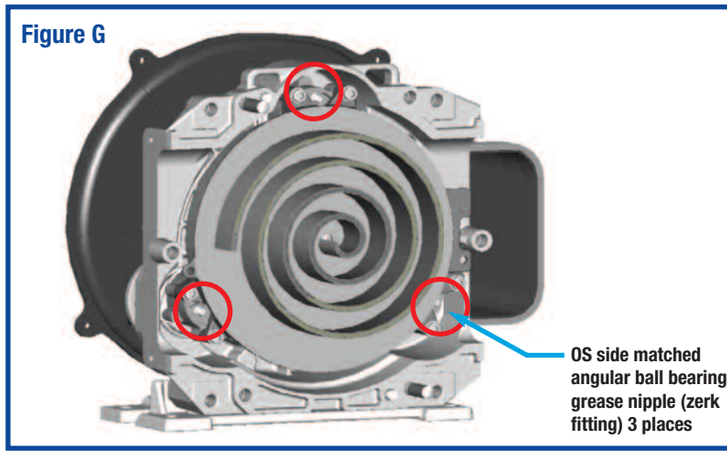


Figure G



VIII. GREASE THE INTERNAL CRANKSHAFT ROLLER BEARING (EVERY 5,000 HOURS)

NOTE! *When you detach the nozzle from the fitting, a small amount of grease may bleed back from the fitting. This is normal. Clean excess grease if present.*

1. Remove the dust-proof cap covering the sight hole on the upper right part of the housing **(see Figure H)**.

2. Using a flashlight, look through the sight hole and rotate the crankshaft (belt pulley) until the grease nipple (zerk fitting) is in position (visible) **(see Figure H)**.

3. If needed, clean the grease nipple (zerk fitting) using an extended length cotton tipped swab.

4. Open Passage for the Grease by pressing the spring loaded ball in the tip of the grease nipples (zerk fittings) a couple of times to open the passage for the grease **(see Figure I)**.

5. Insert the grease gun nozzle into the housing through the sight hole and press the tip of the nozzle onto the grease nipple (zerk fitting) **(see Figure H)**.

6. Slightly turn the crankshaft (belt pulley) left and right by hand, and check that the nozzle is securely fitted to the grease nipple (zerk fittings).

   CAUTION! *If grease leaks around the nozzle it is not properly seated onto the grease nipple (zerk fitting), push harder and try again.*

7. Pump the grease gun lever [Fully open] ⇔ [Fully close] 6 times.

8. Clean excess grease if present and reattach the dust-proof cap to the housing.

9. Grease the electric drive motor bearing grease nipple (zerk fitting) (every 5,000 hours) at this time or upon remounting of the scroll head **(see Figure J)**.

Figure H

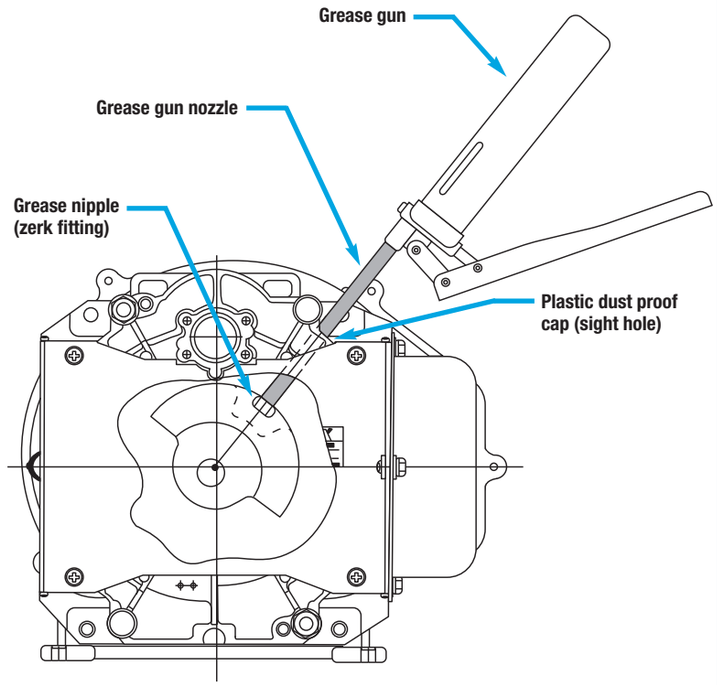


Figure I

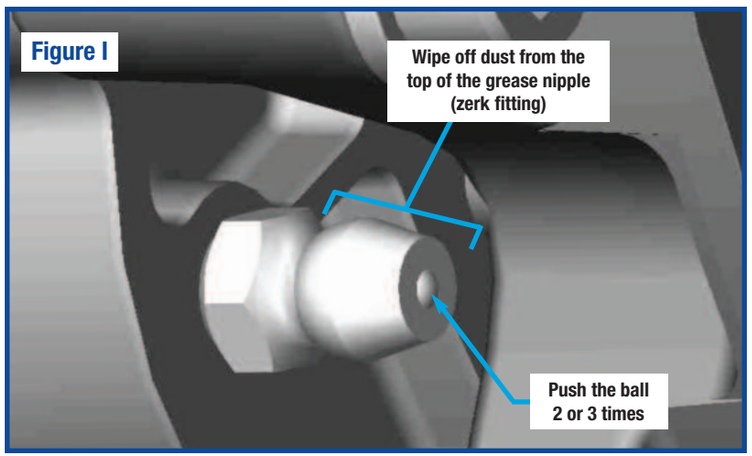
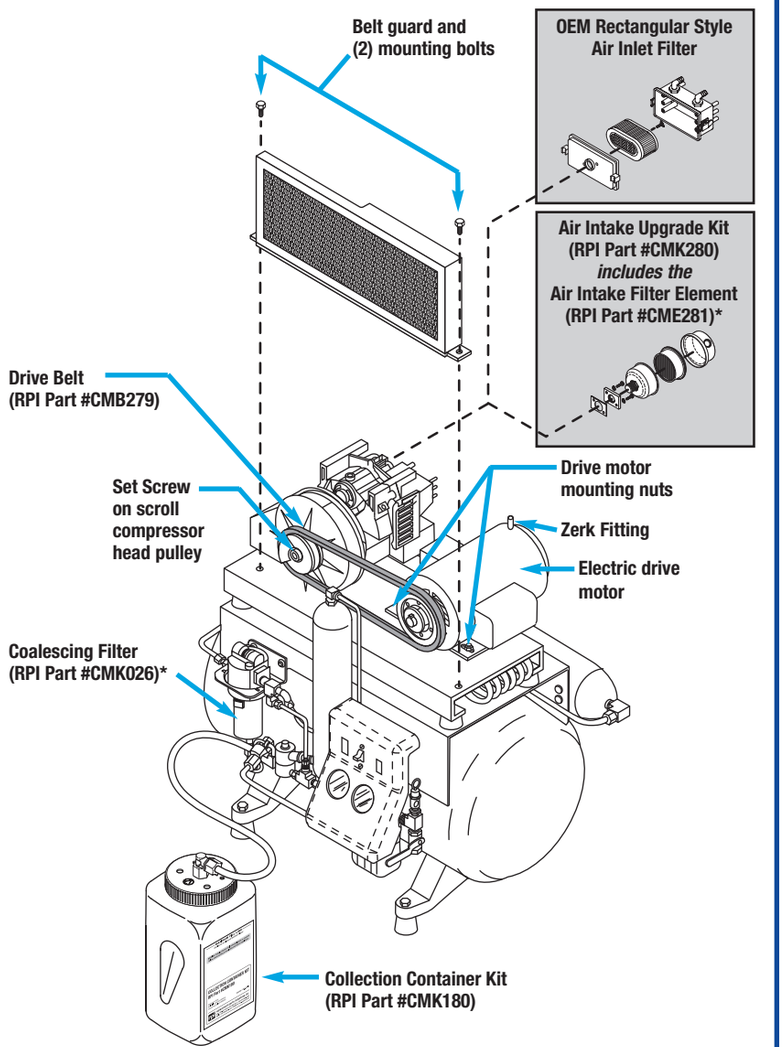


Figure J



**** Items included in PM Kit (RPI Part #CMK286)***

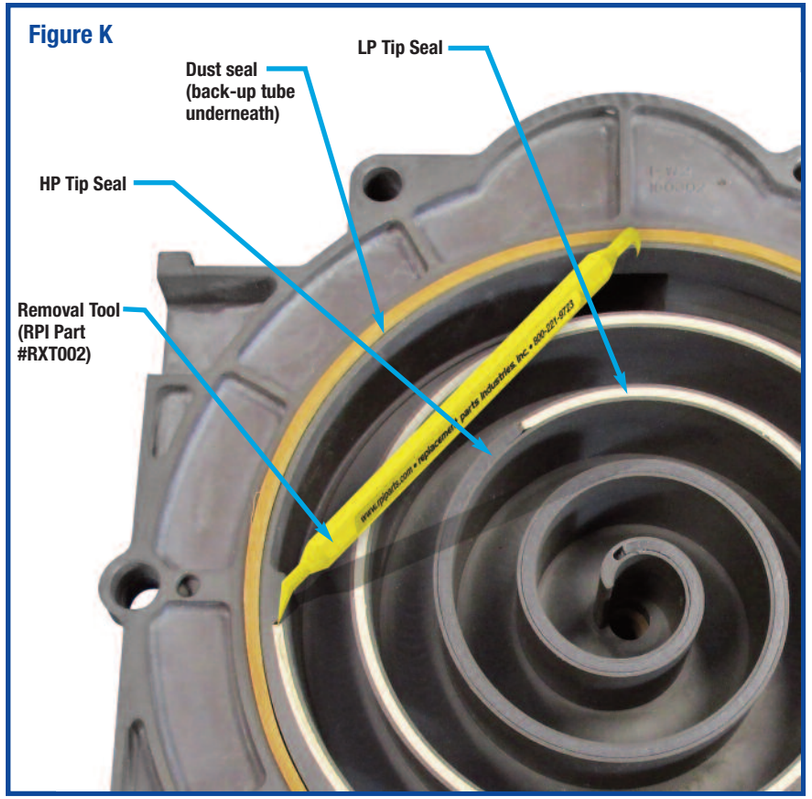
IX. PREPARATION BEFORE REPLACING THE FS TIP SEALS

CAUTION! *The aluminum FS and OS cast casements have a special coating which can be easily damaged. Do not use any solvents or cleaning products (such as Windex®, or Formula 409®, etc.) on any of these surfaces. Use only a damp lint free cloth and/or compressed air to clean and remove dust.*

1. Refer back to Page 1 regarding the tip seals, and be sure to take note of right and left lips (FS vs OS). Separate the High Pressure seals from the Low Pressure seals before beginning the next steps.

2. Using the enclosed Removal Tool **(RPI Part #RXT002)** remove the HP tip seals, LP tip seals, dust seal and back-up tube from the OS and FS sides as shown **(see Figure K)**. Clean all grooves with compressed air and/or a damp lint free cloth.

Figure K



X. REPLACE THE FS TIP SEALS

CAUTION! *Insert the tip seals so that the raised ridges of the tip seals are on the bottom of the spiral groove and the inner side of the spiral groove. If the lips are inserted in the wrong direction, the performance of the unit will be impaired.*

1. Insert the new HP tip seal (black) starting from the HP/LP stepped groove, **(see Figure L)**, by pressing the HP tip seal tightly against the recessed edge of the HP/LP stepped groove and working towards the center of the spiral groove (a small gap is acceptable) **(see Figure M)**.

2. Start with the edge of the LP tip seal in tight contact with the edge of the HP tip seal that you just installed (at the HP/LP stepped groove). Working outward, press the LP tip seal into the spiral groove until it has passed the LP tip seal retaining notches **(see Figure L)**. Pull the LP tip seal back out of groove to ensure the two notches made an indentation in the seal **(see Figure N)**. Clean the groove and tip seal areas around the notch indentations of any debris left behind. Continue installing the LP tip seal to the end of the spiral groove.

   NOTE! *If the LP tip seal is a bit longer than the groove, trim the seal to fit. A small gap is acceptable **(see Figure M)**.*

3. Repeat these steps for the OS side

Figure L

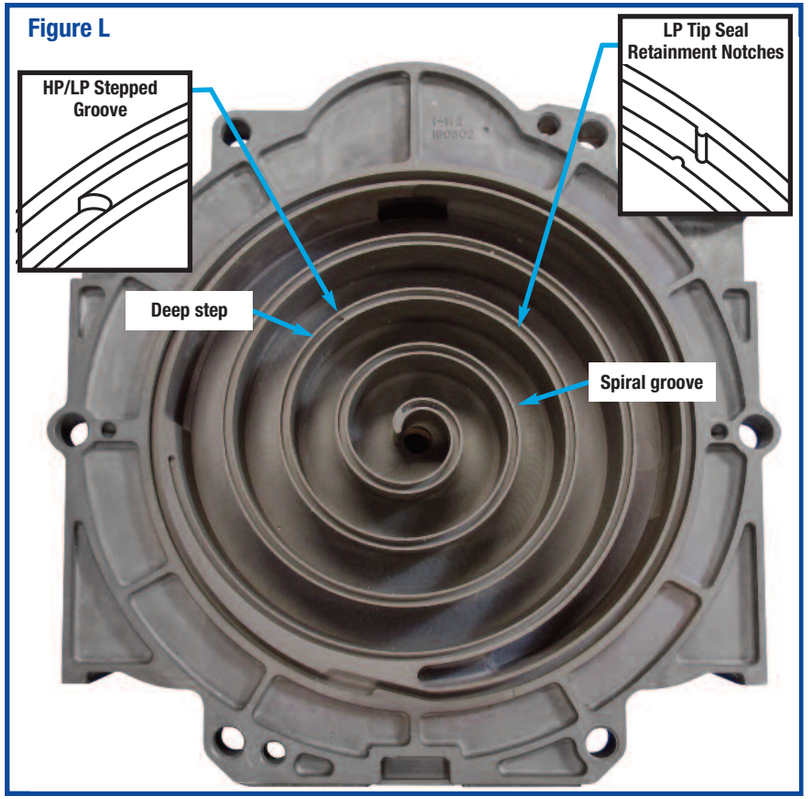


Figure M

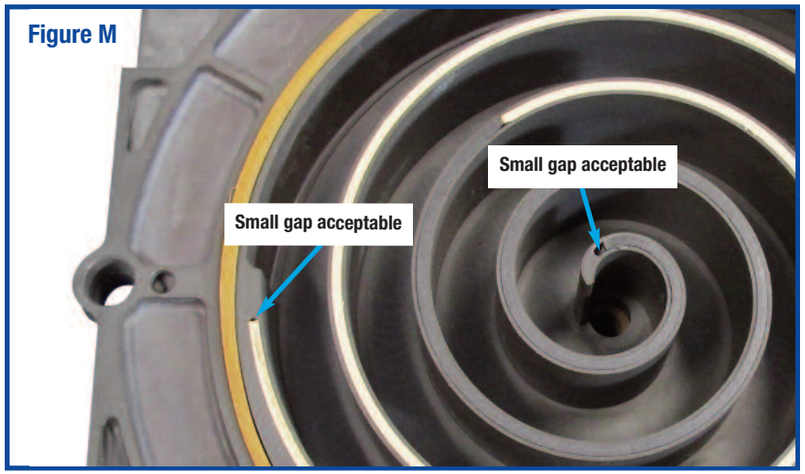
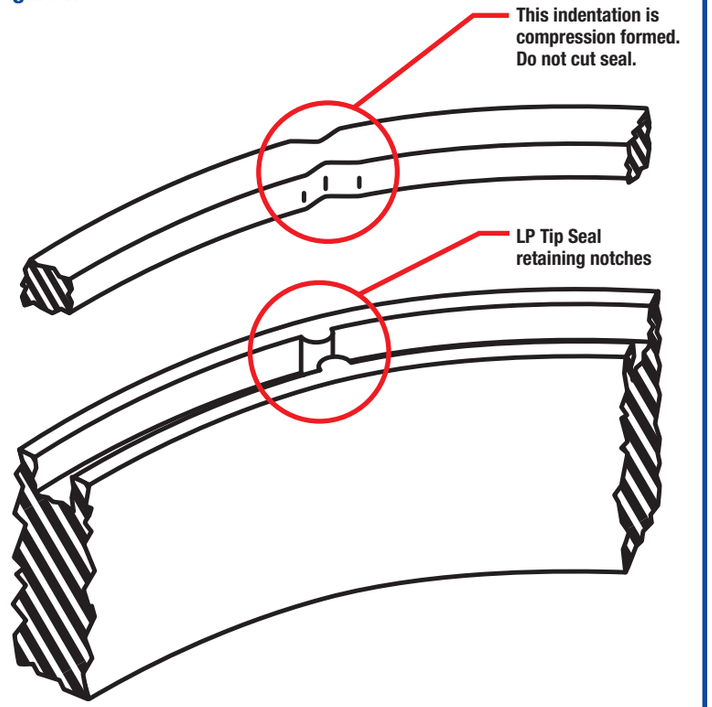


Figure N



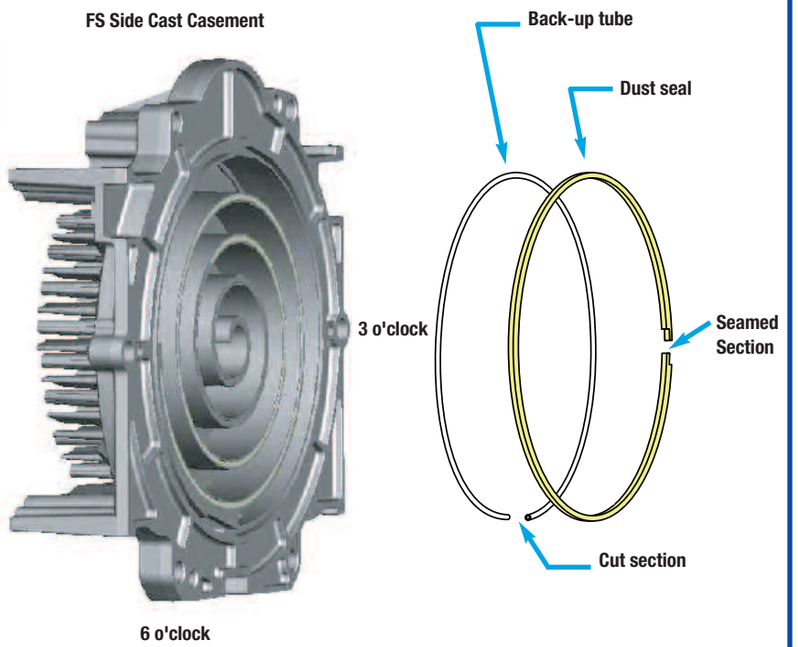
XI. REPLACE THE BACK-UP TUBE AND DUST SEAL

1. Insert the new back-up tube (clear) with the cut seam in the 6 o'clock position **(see Figure O)**.

2. Install the new dust seal (tan) on top of the back-up tube. Align the seamed section of the dust seal in the 3 o'clock position **(see Figure O)**.

   NOTE! *There is no orientation (top or bottom side) to the dust seal upon installation.*

Figure O



XII. CASEMENT REASSEMBLY

1. Align the position of the FS side with the OS side alignment pins and close the set **(see Figure P)**.

   IMPORTANT! *Reassemble so that the dust seal and the tip seals do not fall out when closing the casements.*

2. First install the nuts and washers by hand. Turn the pulley and check that the pump turns smoothly.

   IMPORTANT! *If turning is difficult, the dust seal may have fallen out of the groove and be pinched between casements. Remove the FS casement and be sure the installation is correct.*

   NOTE! *To prevent distortion, tighten the nuts in the order shown **(see Figure P)**.*

3. Now tighten the M10 lock nuts using a torque wrench to 22.5 ft/lbs.

4. Reassemble the FS front cover if previously removed (from Page 3, step 1) (tighten screws to 5.0 ft/lbs) **(see Figure Q)**.

5. Reinstall the fan cover and the side fan duct **(see Figure R)**.

   IMPORTANT! *Tightening the screws too much will cause damage to the threads of the rear fan duct. Screws will strip out.*

6. Reinstall scroll compressor head onto the compressor.

7. Reinstall the old OEM rectangular style inlet air filter assembly or replace it with a new Air Intake Upgrade Kit **(RPI Part #CMK280)**, if not already present.

Figure P

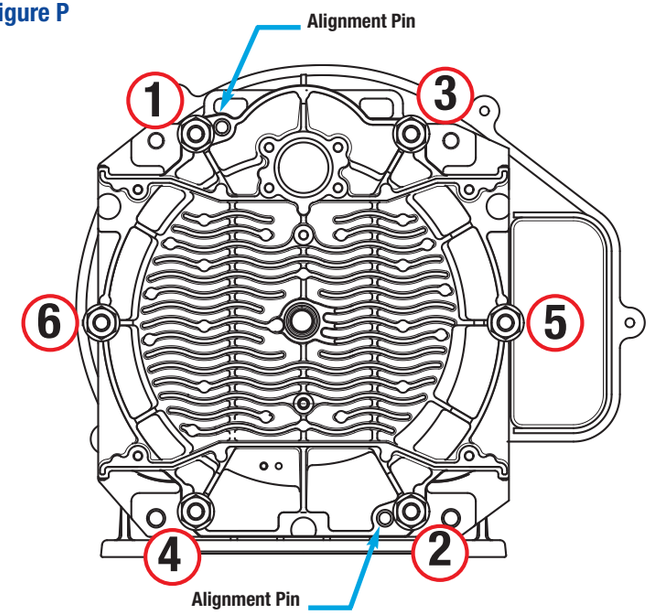


Figure Q

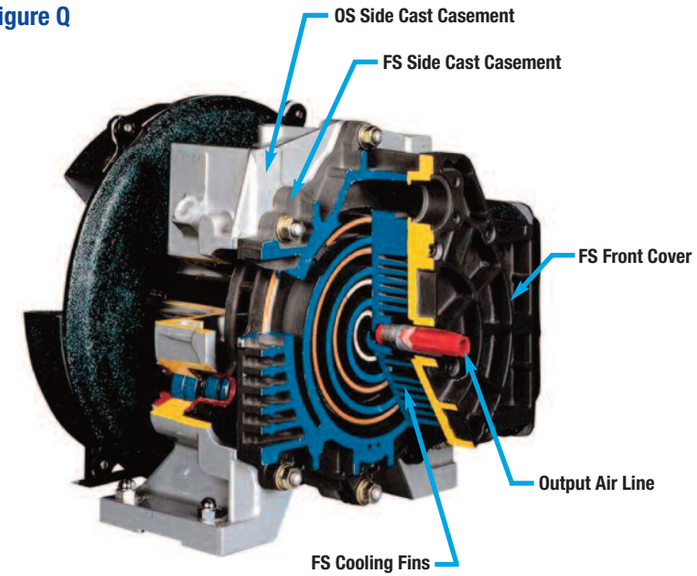
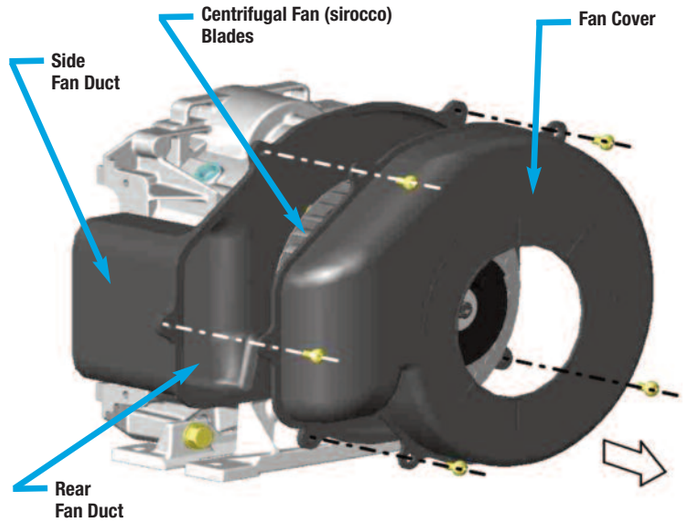


Figure R



XIII. REINSTALL BELT & SET BELT TENSION

1. Reinstall the pulley and the belt (If the belt is worn, chipped or has small tears, replace it now). Set the belt tension **(see Figure S)**.

2. Reinstall belt guard.

3. Reinstall the output air line.

XIV. FINAL CHECKS

1. Restore power and check operation of the compressor, listening for any loud squeaks or labored running noises.

2. Watch and listen as the compressor pumps the holding tank back up to capacity (~100 PSI), checking for any air leaks. Make sure the pressure switch turns the compressor off at ~100 PSI.

3. Bleed off the air and make sure the compressor turns back on at ~80 PSI and off again at ~100 PSI. Run several cycles to confirm the compressor is functioning properly.

4. Write the RPI Tip Seal Kit number and date on the PM Sticker included in this kit and place in an easily visible location on the scroll head.

Figure S