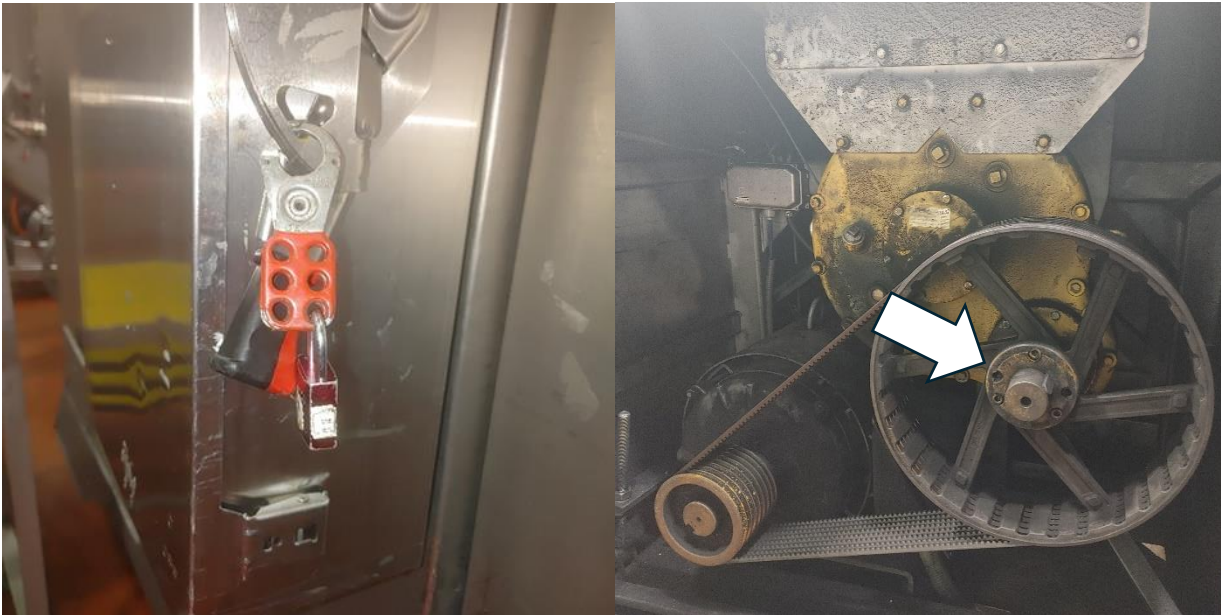


## **Step by Step Instructions to remove the gearbox from the grinder cabinet**

- **Wolfking C400 150 HP Gearbox (OEMPN 302421)**
- **How do I know if I have an 125HP or an 150 HP Gearbox?**
  - **The Input shaft diameter at the Gearbox pulley size is 80mm for an 150 HP Gearbox vrs a 75mm diameter for an 75 HP Gearbox.**

## **Lock out the Machine prior to working on the Grinder !!!!**



## **The following tools and supplies will be needed for this project:**

- Lock out and Lock
- Set of Metric Wrenches and Sockets
- (2) 36 MM Wrenches and (1) 36 MM Socket
- Socket Extension for 36 MM Socket
- Set of Metric Allen Wrenches
- (2) Large Crow Bars
- (2) Heavy Duty Chains
- (2) Chain Binders or (2) Small Chain Hoist
- Racket Strap
- Small, Med and Large Screw Drivers
- Die Grinder
- 4.5" Grinder with Cutting and Sanding Disk
- Lifting Straps
- Small Chisel
- Lifting Eyes (M10) and Shackles
- Emory Cloth
- 24 MM Tap
- Puller Bar with Threaded Rods and Nuts (M16)
- 2" Flap Wheels 60Grit
- Spray Lubricate
- Dead Bow Hammer
- Food Grade Grease
- Tape Measure
- Hydraulic Puller Set 50 Ton min
- Bearing Heater
- Torch Set
- Temperature reader/sensor
- Permatex Gasket Maker
- Forklift
- 50 Ton Press
- Pipe Wrench
- (2) Clamps
- Small Hammer and Small Sledge
- Required Spare Parts and Replacement Parts
  - Repair Kit PN 302421RKIT

**See NPKUSA2 Web site for a list of Spares**

Or Call 614-716-9820 / 614/738-8206 / 614-738-8208

Refer to Gearbox PN 302421 for questions

**Step 1)** Adjust the belt tightening bolt to loosen the belts

**Step 2)** Remove the Gearbox pulley by loosening the Taper Lock. Remove the set screws and place them in the empty threaded holes and tighten the set screws as jack bolts in order to loosen the taper. You may need to use a screw driver as shown to help separate the taper lock from the shaft

**Step 3)** Measure the distance from the end of the shaft to the place where the pulley was located

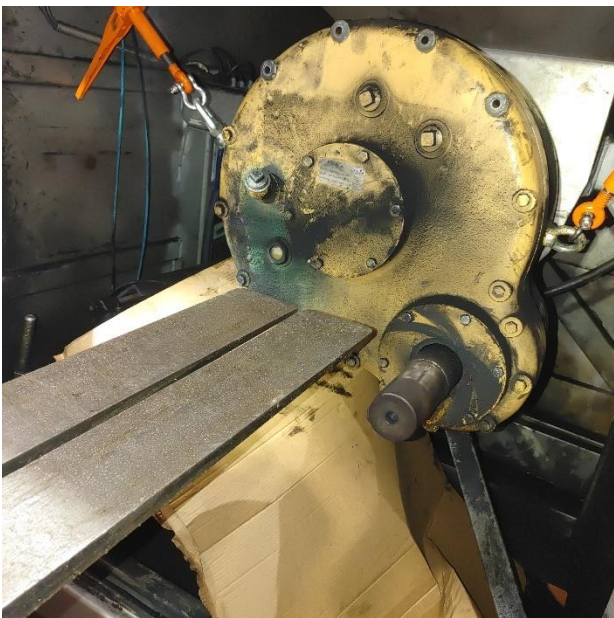


**Step 4)** Remove Gearbox rear mounting plate by removing the (8) M12 bolts.

**Step 5)** The gearbox has lifting eyes on both sides of the gearbox and the cabinet has lifting support plates that can be used to support the gearbox while being removed. A chain hoist can be used instead of a chain binder as shown.



**Step 6)** Remove the (8) M24 nuts on the back side of the gearbox. A 36mm wrench is required. The nut located on the upper right corner is very difficult to reach. You will most likely need to cut off a 36 mm wrench to a length of 6". The front section of the gearbox fits tightly inside of the cabinet. Therefore, the gearbox will typically not move even after all of the nuts are removed. If you have an experienced forklift operator you can bump the gearbox as shown to get the gearbox to break loose from the mounting flange. Care must be taken to not damage the gearbox case.



**Step 6)** You may need to use the forklift to dislodge the gearbox from the mounting flange. Below is an example of a possible option. Open the forks up to the same width of the gearbox and slide the forks under the two lifting eyes. Using a heavy-duty strap, wrap the strap around the forks as shown, and tighten the strap securely around the forks. This step is critical! The strap prevents the forks from separating. Fasten a chain to the lifting eyes and secure it to the forklift. Now lift the forks until the gearbox begins to lift. Do not over lift the gearbox and cause the studs of the gearbox to jam against the hole of the mounting flange. Slowly pull back on the gearbox, if the gearbox doesn't move then use a crow bar to wiggle the gearbox back and forth. Once the gearbox is loose and secured to the forklift, remove the chain binder supports.



**Step 7)** After removing the gearbox, inspect the flange and entire inside of cabinet. Check closely for cracks. If any cracks are found anywhere, they must be repaired prior to re-installing the gearbox. It is strongly recommended that only a fully qualified welder is used to make the repairs. You can also contact NPKLLC at 614-716-9820 or 614-738-8206.

**Step 8)** Check the rigging and take the gearbox to the maintenance area.

**Step 9)** Options at this point

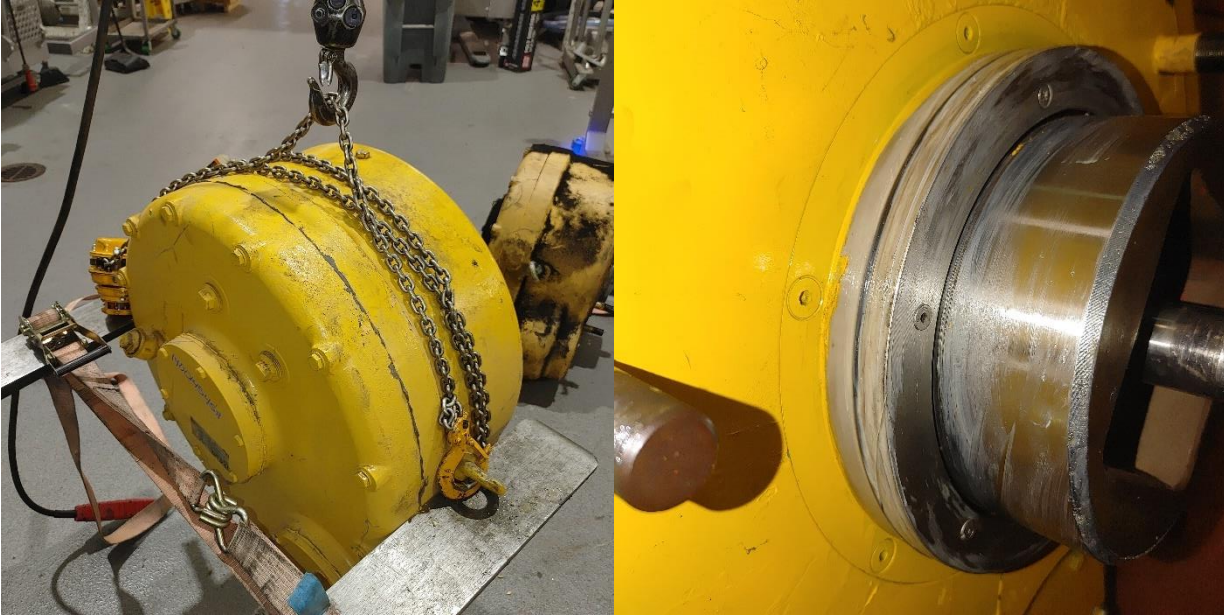
- Rebuild the gearbox internally or ship the gearbox to NPK to rebuild the gearbox for you. If you decide to rebuild the gearbox internally then proper planning is required.
  - Order a complete Rebuild Kit from NPKLLC. The kit contains all the required bearings, seals and mounting hardware.
  - Check the condition of the square drive output shaft. Order a replacement if needed.
  - Make sure you have the required tools to rebuild the gearbox. The hardware is all metric so metric wrenches will be required.

Refer to the Rebuild instructions to determine the required tools needed.



## **Step by Step Instructions to install the gearbox into the grinder cabinet**

- Rig up the Gearbox as shown in the photo below. Make sure the end of the forks do not exceed the mounting flange face.
- Apply Food Grade Grease to the OD of the Output Shaft



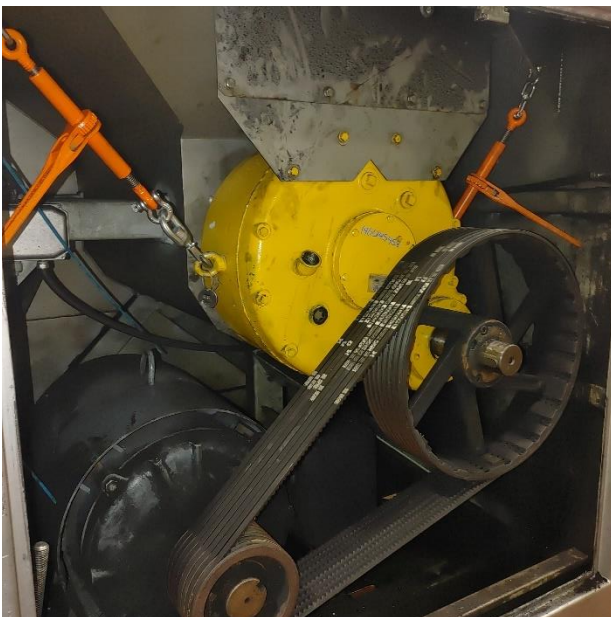
- Level the forks and confirm the mounting flange is straight up and down.
- Look thru the cabinet hopper and slowly raise the gearbox until the output shaft is aligned with the hole in the cabinet.



- Stop once the alignment is correct.
- Push the gearbox into the opening. You may need to wiggle the gearbox until the studs engage into the mounting flange. Using the nuts try to start as many of the nuts as possible. Make sure you get at least a couple threads engaged.
- You can now remove the rigging on the gearbox from the forklift. Move the forks together and **carefully** use the forklift to fully engage the gearbox.



- Complete the installation by reversing the removal steps. Make sure the washers are installed on all the nuts. Tighten all (8) nuts and then re-tighten each one again.
- Confirm the nuts are still tight the following day and again each day afterwards for the next 5 days.
- Make sure the gearbox is filled with Gear oil prior to running the machine. Fill up gearbox to the center of the sight glass. Do not over fill.

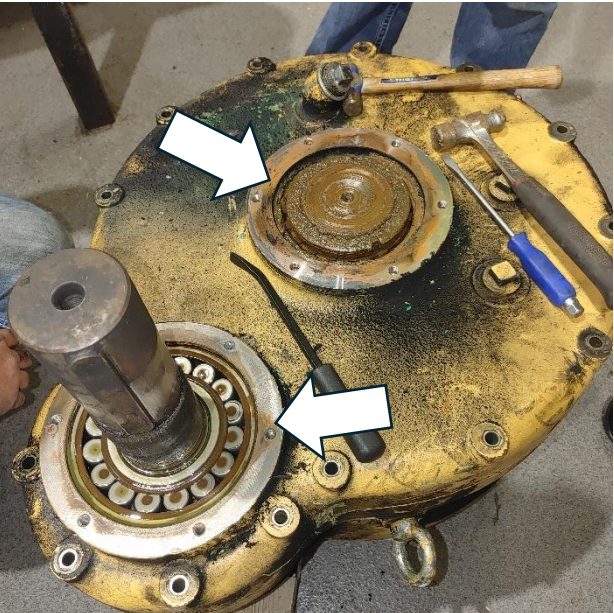
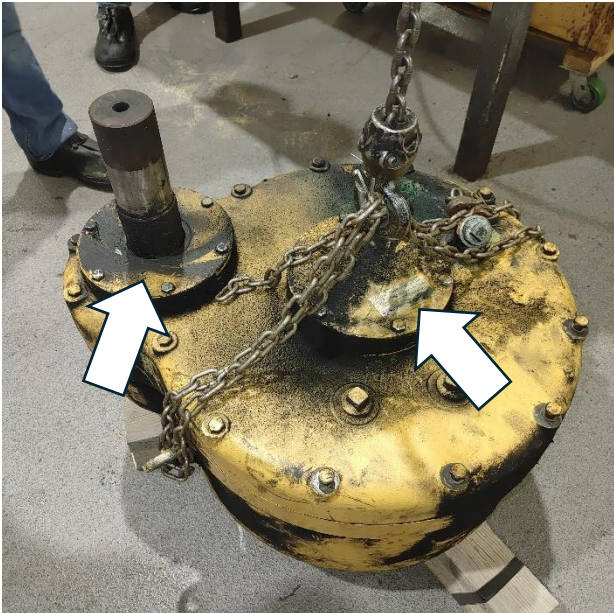




**Step by Step Instructions to rebuild the gearbox**

**Step 1) Drain the oil**

**Step 2) Remove the (2) bearing covers**



**Step 3)** Remove the lock nut and lock washer. (The locking tab will need to be bent back out of the slot in the lock nut first)

**Step 4)** Locate the crack between the two gear box cases, then using a thin chisel split the gear case. You will hear the change in sound once it splits



**Step 5)** Lift off the upper half of the gear case and set it off to the side



**Step 6)** Remove the Locking Ring PN 37648 off of the big Bull Gear PN 37647.

The locking ring comes in to styles. One is a one piece style and has no bolts and the other style is made of two pieces and bolts together. The photo below shows the one piece style. In order to remove the one piece style it requires a hydraulic puller and a torch to heat the locking ring. Apply full pressure with the hydraulic puller and then start heating up the locking ring. It typically requires the ring to be heated up to at least 475/500 deg F. Keep pressure on the ring as you heat the ring. Once the ring reaches close to 500 deg F, take a small sledge hammer and tap the top of the ring. The vibration typically causes the ring to dis-lodge from the gear. Be aware that once the ring releases the pressure will cause the puller to jump. Always take all the nessary preccations required while doing this operation and only qualified maintenance personel should perform this operation. If the locking ring is a bolted type then the removal process only requires you to remove the bolts.



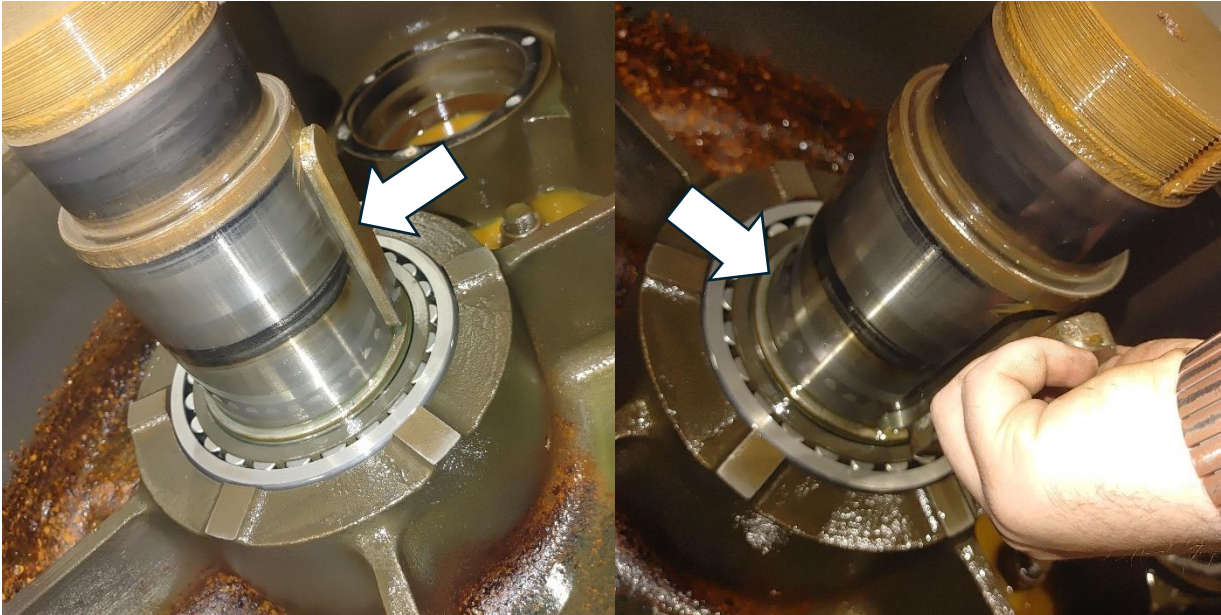
**Step 7)** Using the same hydraulic puller, remove the Bull Gear PN 37647.

**Step 8)** Remove the bolts M10x30 Grd 8 of the input shaft and lift out the Input Shaft PN 46635 as shown.

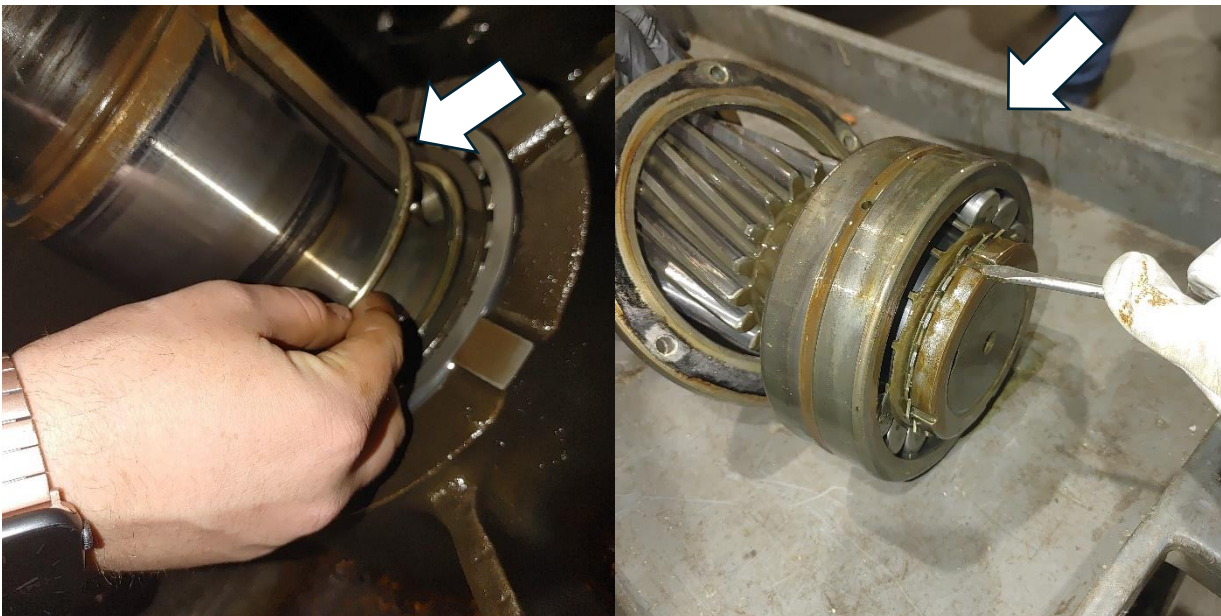


**Step 9)** Remove the key PN 27374

**Step 10)** Remove the thin Spacer Ring PN 30603 (2.8 thick) off of the Output Shaft PN 46119



**Step 11)** Remove the Lock nut and lock washer from the bottom of the input shaft.



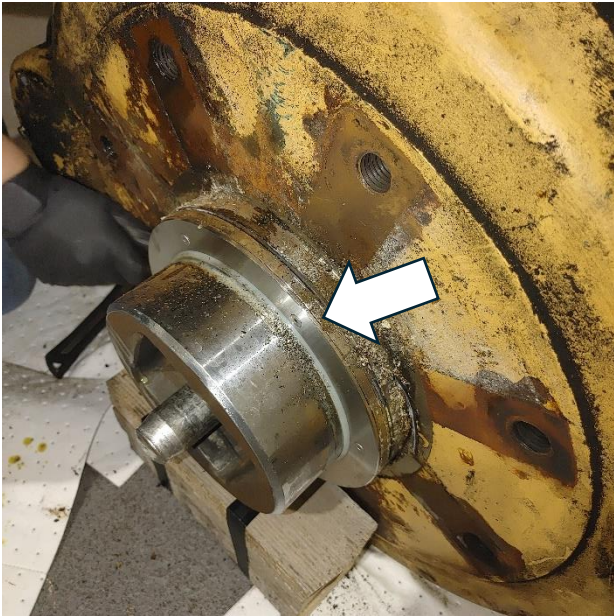
**Step 12)** Remove the (8) Lock Nuts PN 22294 from the inside of the case.

**Step 13)** Remove the (8) Studs PN 46640S

**Step 14)** Press off both bearings off of the Input Shaft



**Step 15)** Remove the Seal Assembly PN 308559 from the Output Shaft area of the gearbox





**Step 16)** After removing the mounting hardware pry out the rest of the seal assembly

**Step 17)** Remove the Output Shaft by lifting it out of the gearbox case



**Step 18)** Inspect all parts for damage, clean up the inside of the two cases and the input shaft surface

**Step 19)** Inspect the Output Shaft square drive. If the square is worn badly it should be replaced. Also check the chrome seal area for grooves that are caused by the seals. If the grooves are too deep you may need to replace the Output Shaft or have it repaired. If the Output Shaft is acceptable, cut off or press off the old bearings from the Output Shaft. You will find a spacer between the (2) bearings. Do not cut the spacer while removing the bearings. Save it because you will need it when you re-assemble the gearbox.

**Step 20)** Inspect the bull gear for damage



## Begin the Re-Assembly Process

**Step 21)** Install the bearing on to the threaded end of the Input Shaft PN 46653. Install the Lock Washer and Lock Nut. Bend locking tab in to the slot of the Lock Nut once tight.

**Step 22)** Install the Flange PN 30489 next, then install the next Bearing PN 25161 and PN 25229 to the Input Shaft. The flange must be installed between the (2) bearings prior to installing the last bearing.

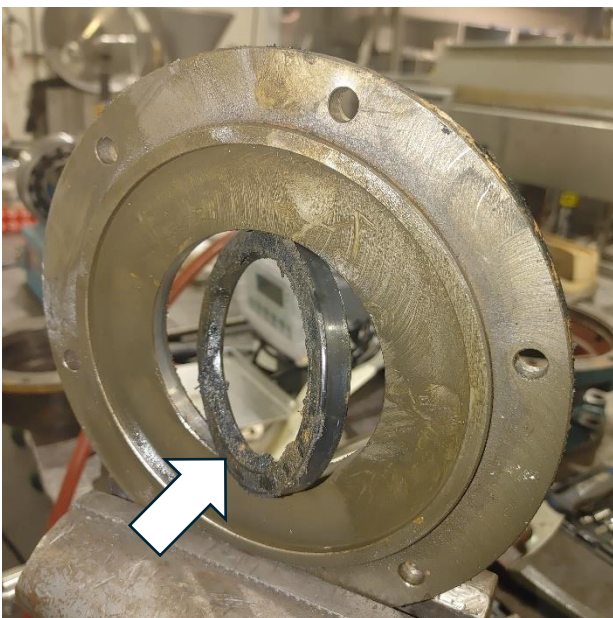


**Step 23)** Un-Assemble the Seal Assembly PN 308559 and clean up the entire assembly. Re-Assemble the the Seal Assembly PN 302421 with new seals. Use Repair Kit PN 302421SEALKIT Refer to the NPK web site if you need help on how to assemble the the Seal Assembly. The Seal Kit is PN [www.npkusa2.com](http://www.npkusa2.com)

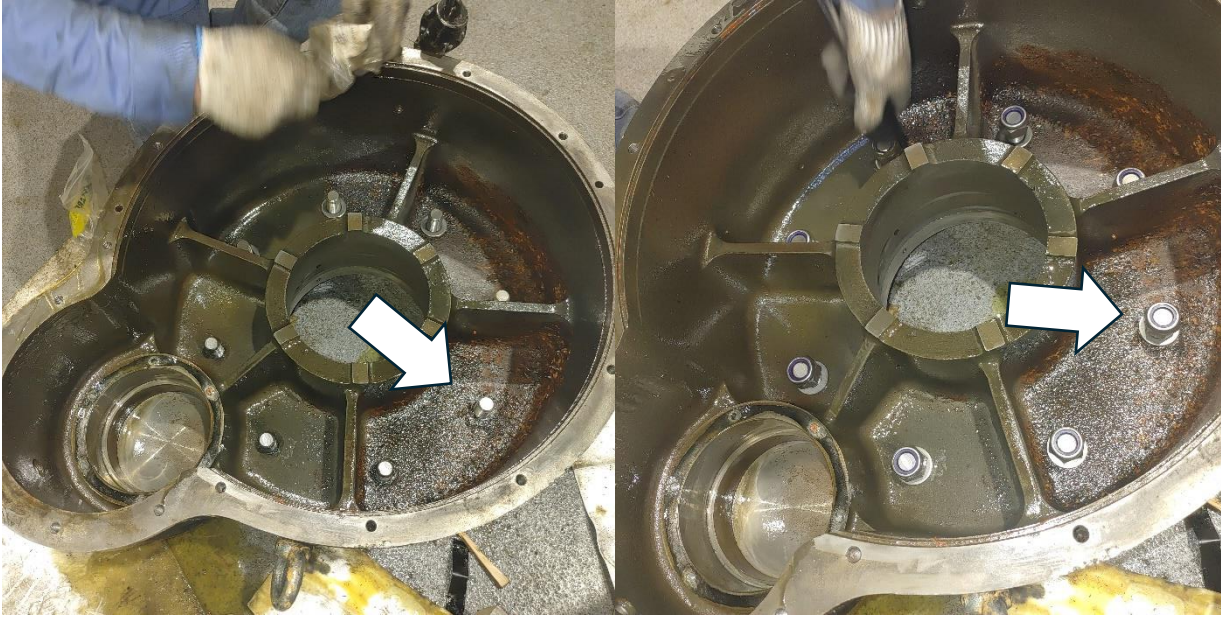
**Step 24)** Fill the Seal Assembly with a Food Grade Lubricate.



**Step 25)** Install the new seal PN 23176 in the input seal flange.

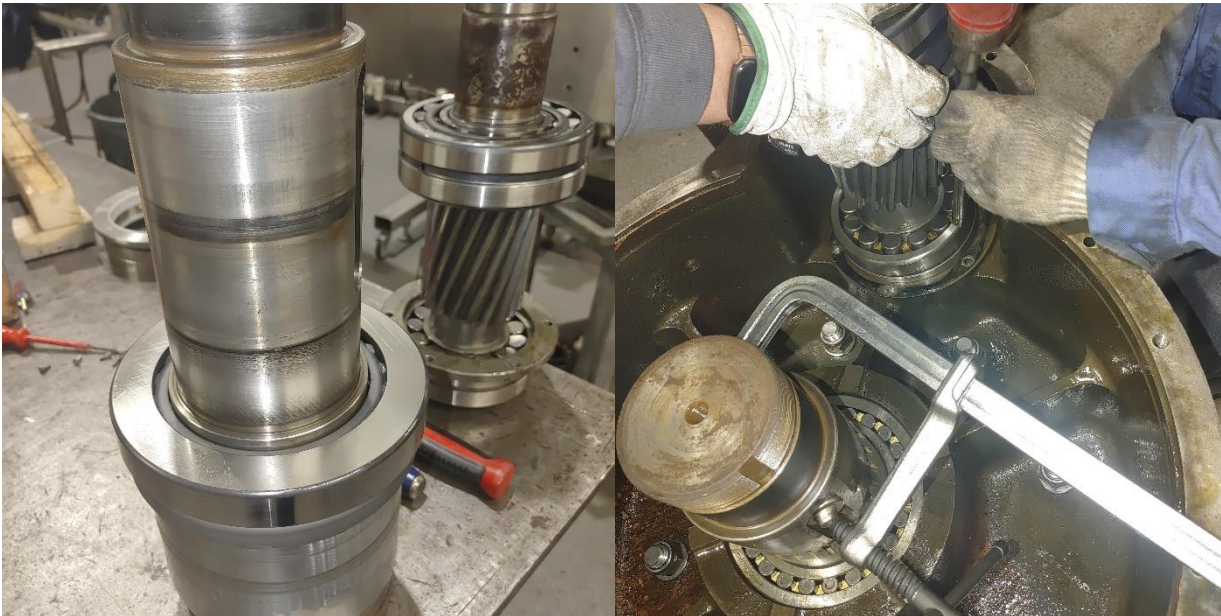


**Step 26)** Install the new mounting studs. Add the flat washers and locking nuts to the inside of the case. Loctite can be used if desired.

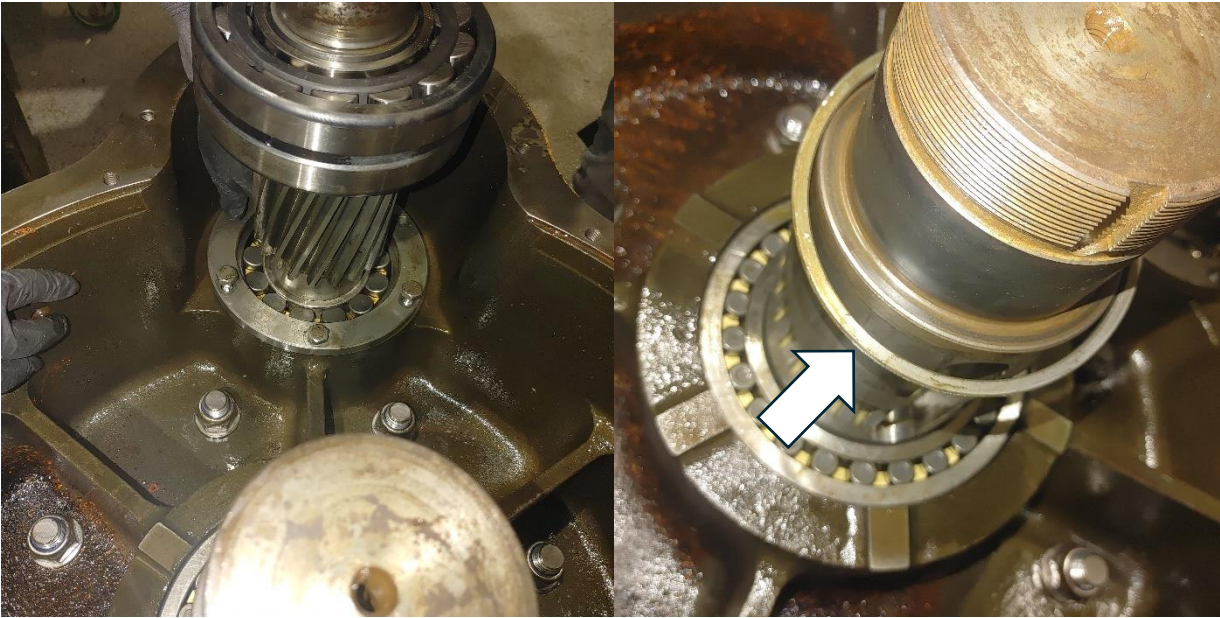


**Step 27)** Install the (2) bearings on to the Output Shaft. Make sure you install the Spacer PN 30602 (22mm long) that was removed in Step 19 between the (2) bearings PN 25204 and 25171.

**Step 28)** Install the Input and Output Shaft into the lower gearbox case as shown. Take care with the Input Shaft not to allow it to tip to one side. If it tips to one side it will be difficult to get it to straighten back up. If this does happen, try spinning the shaft while trying to straighten it up. If this does not work you may need to remove it in order to re-align the bearings.

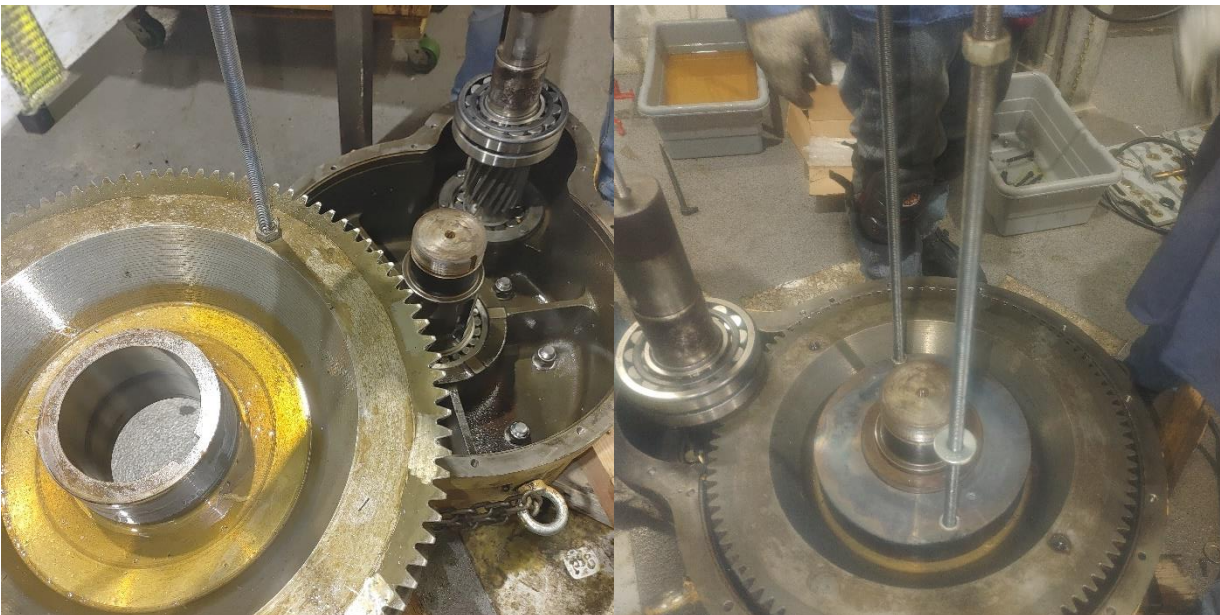


Step 28) Install the thin Spacer PN 30603on to the Output Shaft PN 46635

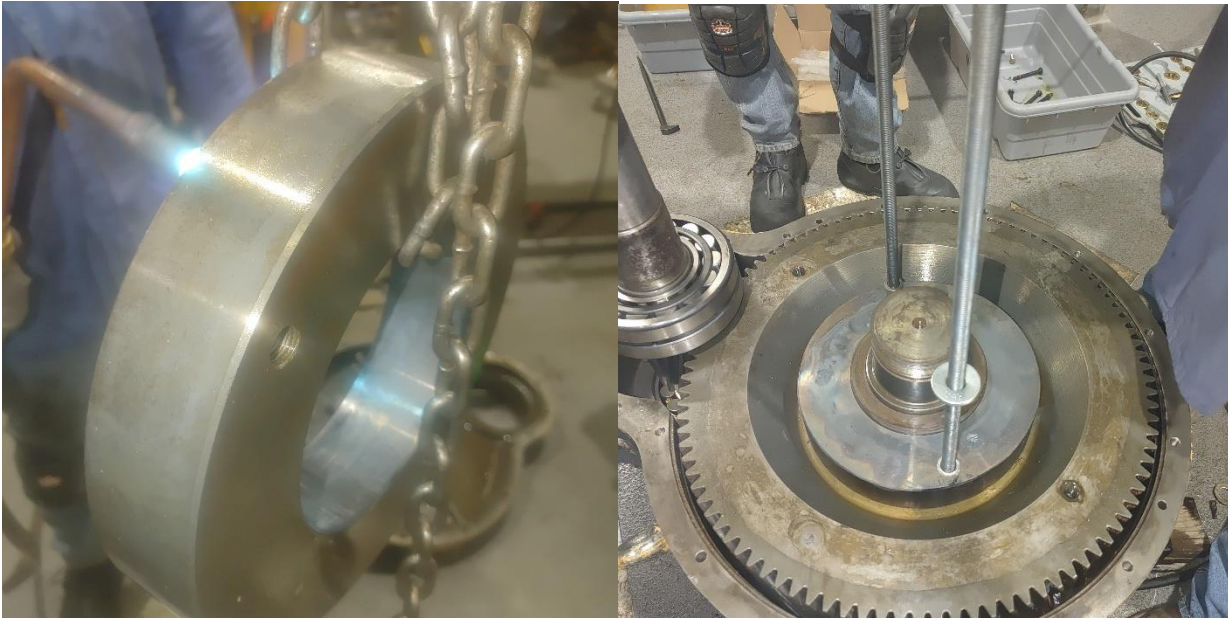


**Step 29)** Install the key on to the Output Shaft. Use a little grease to the key to hold it into the key groove.

**Step 30)** Install the Bull Gear. The Bull Gear should slide over the shaft with out using any force. If it does not slide on, check to make sure the key is aligned with the keyway. You may need to wiggle the Bull Gear to make sure it is not slightly tilted to one side.

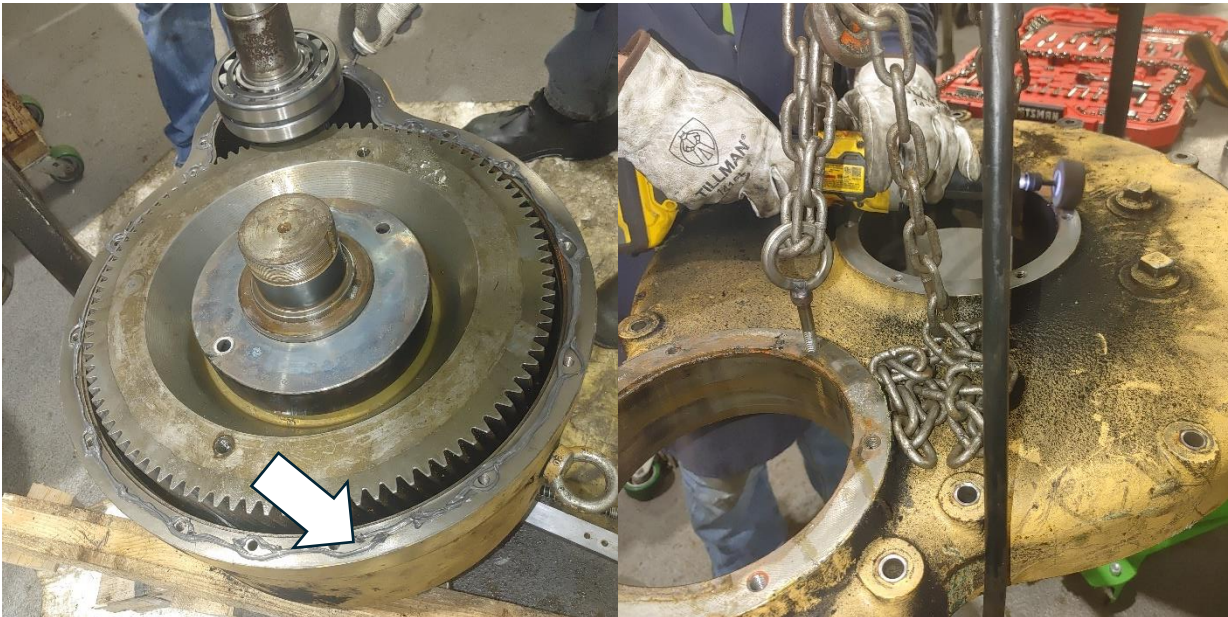


**Step 31)** Install the Locking Ring. The locking ring must be heated up to deg F before being installed. If you have the bolted style locking ring. Install the locking ring and tighten the bolts starting at 12 o'clock then go to 1 o'clock, 2 o'clock and so on. Do not jump back and forth.



**Step 32)** Apply gasket sealant to the flange of the lower gear case. Make sure the surface area is clean prior to applying the sealant.

**Step 33)** Install the upper half of the gear box case.

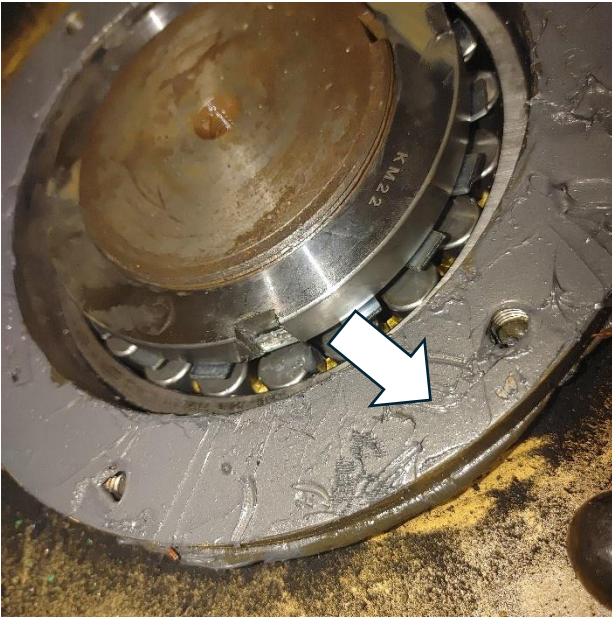


**Step 34)** Install the Output Shaft bearing by using a dead blow hammer. Next install the Lock Washer and Lock Nut.





**Step 35)** Apply gasket sealant to the flange. Make sure the surface area is clean prior to applying the sealant.



**Step 36)** Install the Input Shast flange and complete the Assembly. If any bolts are damaged make sure you only use a Grd 8 bolt or higher. Do not use SS hardware.

**Step 37)** Flip over the gearbox and instll the Seal Assembly. Tale care not to damage the seals while installing the Seal Assembly. You can add a light coat of grease to the shaft to help with the assembly.



Feel free to contact NPK at 614-716-9820 or 614-738-8206 for questions or assistance. We can also rebuild the gearbox for you in our shop or we can assist with the rebuild on site.

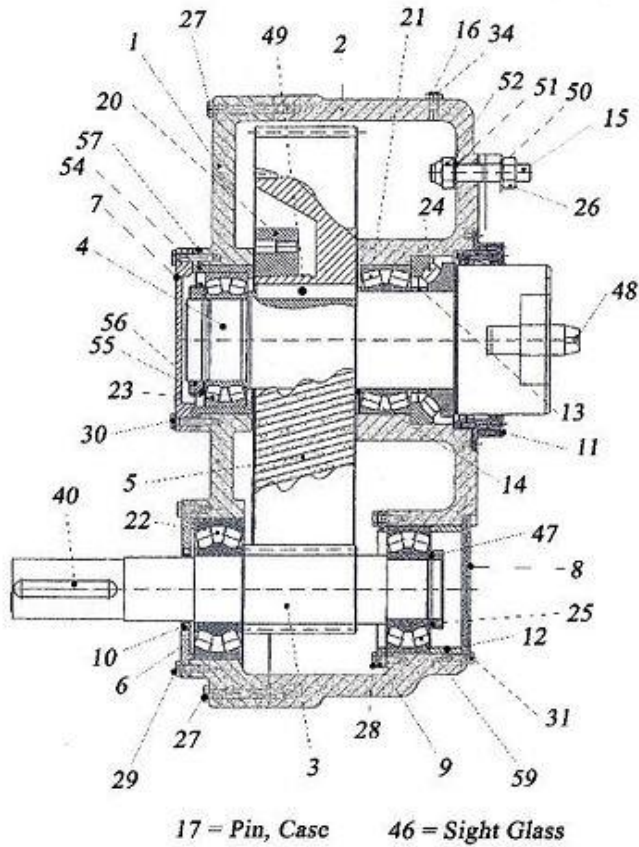
**For additional information check out our Web Site at [www.npkusa2.com](http://www.npkusa2.com)**

# Wolfking C400

## 150 HP Gearbox (302421)

### Repair Kit OEMPN302421RKIT

### Seal Kit (Only) OEMPN302421SEALKIT



150 HP Gearbox and Replacement Parts (302421)

Diagram #	OEM Number	Description	Qty
	OEMPN302421R	Gearbox Rebuilt	
1	OEMPN46115	Gearcase	1
2	OEMPN302422	Gearcase	1
3	OEMPN46635	Input Shaft 75mm	1
4	OEMPN46119	Output Shaft	1
5	OEMPN37647	Gear	1
6	OEMPN46637	Cover	1
7	OEMPN46636	Cover	1
8	OEMPN30488	Cover	1
9	OEMPN30489	Cover	1
10	OEMPN23176	O-ring	1
11	OEMPN308559	Seal Assembly	1
12	OEMPN30601	Ring	1
13	OEMPN30602	Ring	1

<b>Diagram #</b>	<b>OEM Number</b>	<b>Description</b>	<b>Qty</b>
14	OEMPN30603	Ring	1
15	OEMPN46640	Stud	8
16	OEMPN30810	Vent	1
17	OEMPN30803	Pin	2
18	OEMPN302430	Lock Ring	1
19	OEMPN22333	Bolt	6
20	OEMPN37648	Split Bushing	6
21	OEMPN25171	Bearing	1
22	OEMPN25229	Bearing	2
23	OEMPN25162	Bearing	1
24	OEMPN25204	Bearing	1
25	OEMPN25264	Nut	1
26	OEMPN26309	Nut	8
26A	OEMPN28298	Washer	8
27	OEMPN21923	Bolt	12
28	OEMPN22019	Bolt	6
29	OEMPN22016	Bolt	6
30	OEMPN22023	Bolt	6
31	OEMPN22003	Bolt	5
34	OEMPN22551	Bolt	2
40	OEMPN27376	Key	3
41	OEMPN24356	Plug	3
42	OEMPN24354	Plug	1
43	OEMPN25436	Elbow	1
45	OEMPN23219	Eye Bolt	2
46	OEMPN25500	Site Glass, oil level	1
47	OEMPN25282	Washer	1
48	OEMPN22579	Allen Bolt M8x20	1
49	OEMPN27374	Key	1
50	OEMPN28298	Washer	16
51	OEMPN22710	Washer	1
52	OEMPN22294	Nut,lock	1
54	OEMPN46663	Adapter,bearing	1
55	OEMPN27597	Washer,lock	1
56	OEMPN27593	Nut,lock	1
57	OEMPN46668	Ring	1
59	OEMPN25161	Bearing	1

# Wolfking C400

## Gearbox Output Seal Assembly (308559)

### OEMPN308559

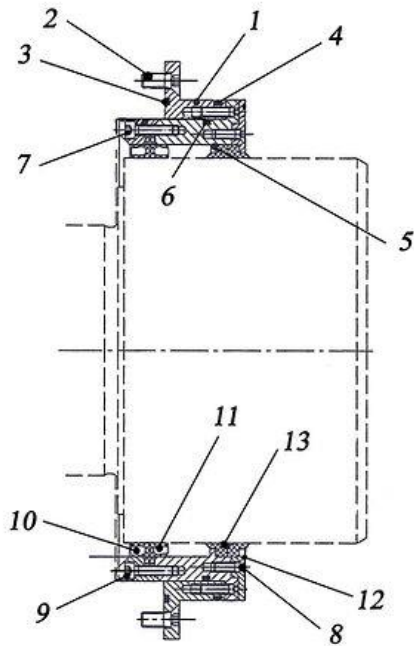


Diagram #	OEM Number	Description	Qty
1	OEMPN302789	Ring	1
2	OEMPN22579	Screw	1
3	OEMPN23239	O-Ring	1
4	OEMPN23239	O-Ring	1
5	OEMPN310310	Seal	1
6	OEMPN23240	O-Ring	1
7	OEMPN46118	Housing	1
8	OEMPN22565	Screw	1
9	OEMPN3317	Screw	1
10	OEMPN26289	Seal	1
11	OEMPN26298	Seal	1
12	OEMPN310311	Ring	1
13	OEMPN26299	Seal	1

Information provided by NPKLLC. Only trained qualified technicians should perform a major rebuild. The information is provided as a reference guide only and may vary from gearbox to gearbox. Consult your OEM Operations Manual to confirm the information has not changed. If you need support please feel free to call us at 614-716-9820 or 614-738-8206. For parts call 614-738-8208.