

NPK LLC
13390 Morse Rd. SW
New Albany, OH 43054
614-738-8208 or 614-716-9820

Needles Plates Knives

npkllc@aol.com

www.npkusa2.com

75 HP Gearbox Rebuild

Call NPK LLC for assistance, Rebuild Kits and Replacement Parts

For Parts 614-738-8208

For Service/Questions 614-716-9820

Part Number 45087



DisassemblyPage 2

Assembly.....Page 20

Disassembly



- ▣ First step is to remove the key and the bearing cover for the input shaft. Use a 13mm wrench.



- ▣ Next loosen all the bolts that is holding the two cases together. Use a 17mm wrench and a 8mm Allen wrench.



- ▣ Remove the 9 screws holding the seal holder in place. Use a 3mm Allen wrench.

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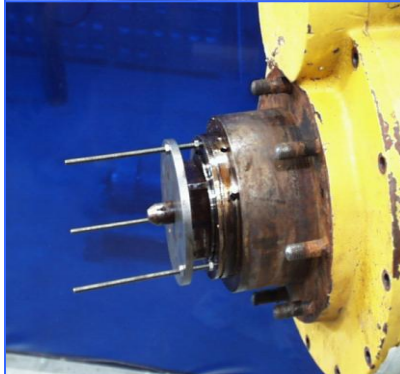
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- ▣ To remove the seal, use the seal removal tool that was supplied with the machine.



- ▣ Mount the tool by means of three pieces of 6mm All-thread, screw the All-thread into the three tapped holes in the seal holder and then tighten up the nuts. Use a 10mm wrench.



- ▣ Continue tightening the nuts until the seal holder comes loose, then remove the whole assembly.



- ▣ Next step is to remove the top case from the bottom case. Use a putty knife to split the cases.

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- ▣ Now the top case can be removed by lifting straight up.



- ▣ The next step will be to install a small gear-puller, for removing the bearing race from the top of the output shaft.



- ▣ Apply heat to the race and it will be easily removed .



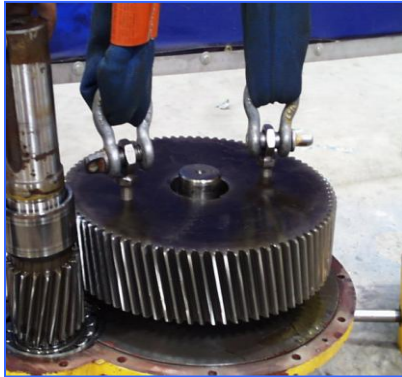
- ▣ When the bearing race is removed a snap ring will be visible on the output shaft, remove the snap ring.

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- ▣ The gear wheel can now be removed by lifting it straight up.



- ▣ Next step is to remove the input shaft from the bottom case, by lifting it straight up.



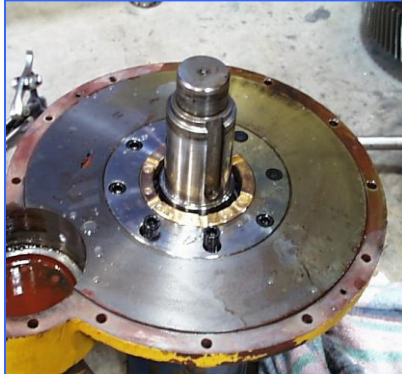
- ▣ Remove the two keys from the output shaft.

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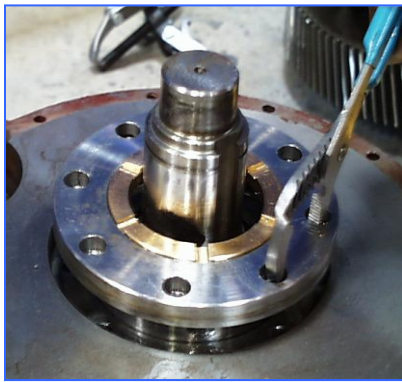
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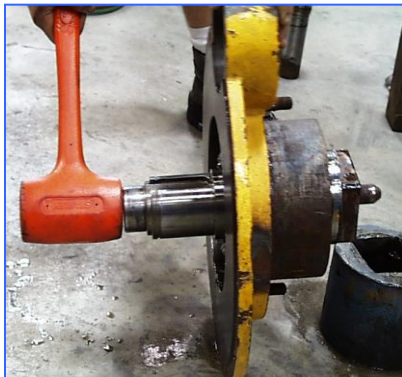
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- ▣ Next remove the bolts for the internal bearing cover.
Use a 10mm Allen wrench.



- ▣ The cover can now be lifted up by the means of a pair of channel lock pliers.



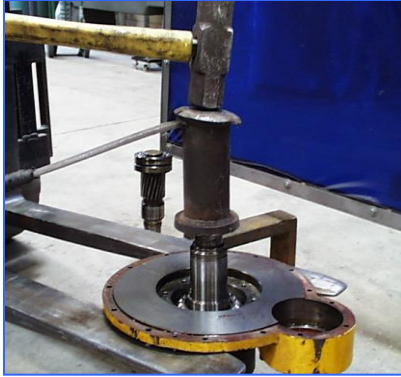
- ▣ Next step is to remove the output shaft from the bottom case, it can be done by hitting the end of the shaft with a dead blow hammer or using a press.

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- By using a sledge hammer, if using a sledge make sure that it's not used directly on the shaft as it will damage the end.



- Next the bearing races on the output shaft can be removed, turn the shaft upside down and then heat the races until they will drop off.



- Repeat the procedure with the input shaft.



- Next the snap ring on the bottom of the input shaft can be removed.

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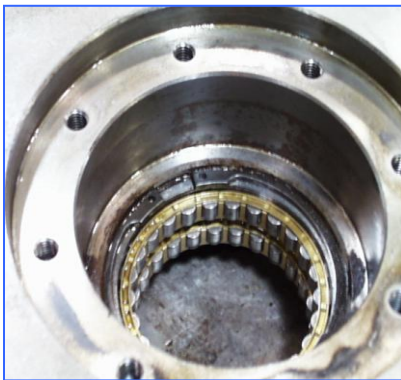
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- ▣ After the snap ring has been removed the input shaft can be placed in a press. Rest the shaft on the bearing and press off the shaft.



- ▣ Now remove the snap ring for the bearings in the bottom case.



- ▣ After the snap ring has been removed, turn the casing over and tap out the bearings by the means of punch and a hammer.

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- ▣ The top case also has a snap ring that needs to be removed first in order to remove the bearing.



- ▣ The bearing can be removed by the means of a small pry bar or an internal bearing puller.



- ▣ The second bearing for the top casing can be removed by the means of a punch and a hammer.



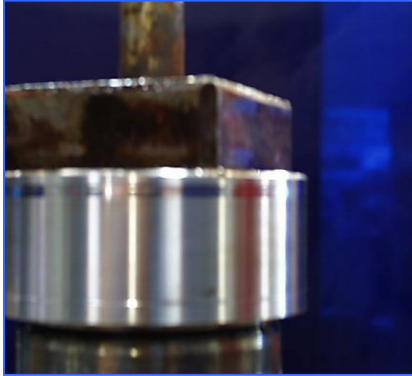
- ▣ The input shaft should be inspected for wear in the hard chrome area where the seal from the bearing cover is riding. If a deep groove is present, the shaft will have to be replaced or re-chromed.

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▣ The hard chrome on the output shaft should also be checked for deep grooves or for pitting. Also the square needs to be checked for wear if more than 1.5-2mm the shaft has to be replaced or the square has to be rebuilt.



▣ The teeth on the input shaft and on the gear wheel should be checked for damage, if any of the teeth are damaged the parts will have to be replaced.

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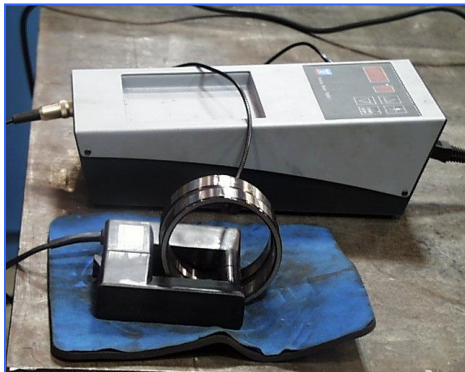
Assembly



- ▶ The first step for the assembly of the gearbox is to place the output shaft vertical, Wolfking part number 30944.



- ▶ To mount the bearings use either a bearing heater or a torch and heat the bearings to 230°F.



- ▶ First heat the races for the two single row roller bearings, Wolfking part number 25133.



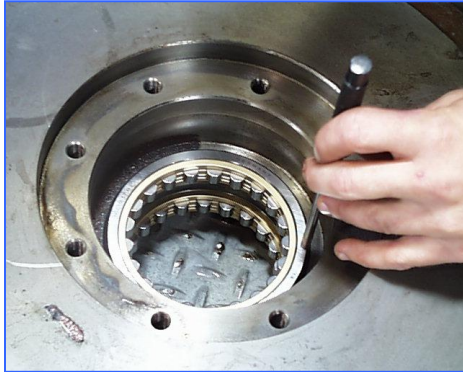
- ▶ Slide the races onto the output shaft.

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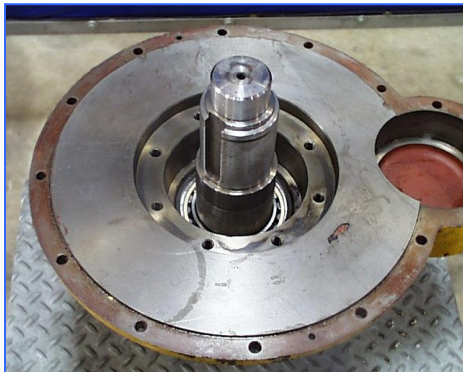
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- ▶ Make sure that the bottom case, Wolfking part number 35677 is clean and then install the bearings in the case.



- ▶ Then install the snap ring to hold the bearings in place, Wolfking part number 24858.



- ▶ Next place the bottom case onto the output shaft.



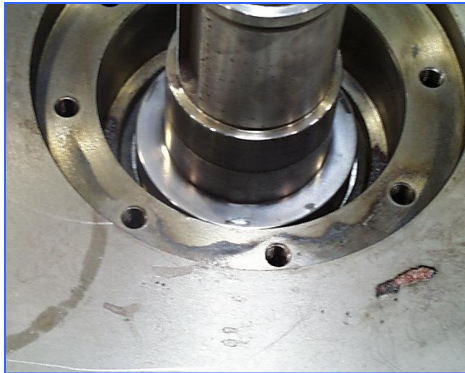
- ▶ A spacer, Wolfking part number 30951 has to be installed between the single row roller bearings and the axial bearing.

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- ▶ When installing the spacer make sure that the lip is facing down.



- ▶ Next heat the axial roller bearing, Wolfking part number 25201.



- ▶ Install the bearing onto the output shaft.



- ▶ Install the top race of the axial bearing.

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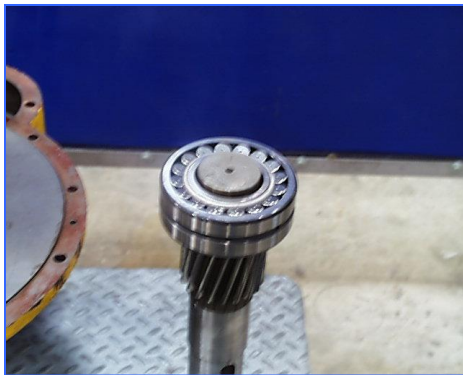
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- ▶ Next install the internal bearing cover, Wolfking part number 30948. Tighten the bolts, Wolfking part number 22474. When the bolts are tight, check with a straight edge that the shoulder on the output shaft is at or above the Brass shoulder bearing, Wolfking part number 30949.



- ▶ Now heat the spherical roller bearing, Wolfking part number 25160 for the input shaft.



- ▶ Slide the bearing onto the input shaft, Wolfking part number 30943.



- ▶ Install the snap ring to hold the bearing in place, Wolfking part number 24887.

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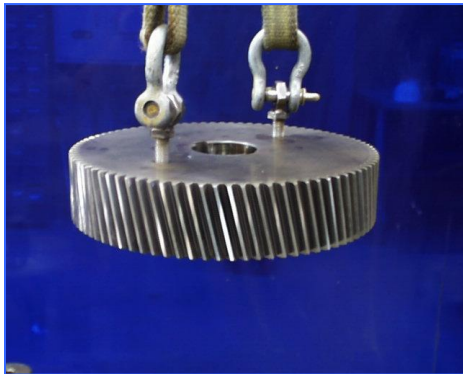
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- ▶ Next install the input shaft into the bottom case, if necessary use a dead blow hammer and hit on the bearing race.



- ▶ Install the two keys, Wolfking part number 24804 onto the output shaft and apply Antisieze to the keys and the shaft.



- ▶ Next step is to install the gearwheel, Wolfking part number 30945. Make sure that the gearwheel is clean and that there is no damage to the teeth.



- ▶ Slide the gearwheel onto the output shaft.

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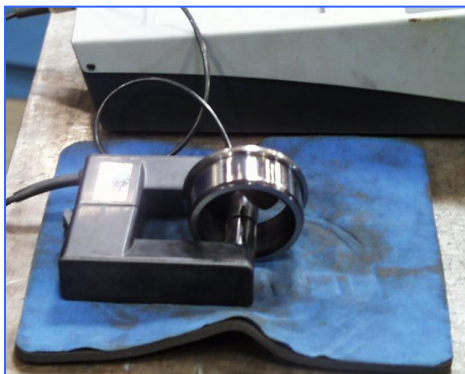
- ▶ Install the snap ring, Wolfking part number 24885 onto the output shaft, make sure that the snap ring's opening is offset from the key-way .



- ▶ Heat the race for the single row roller bearing, Wolfking part number 25227.



- ▶ Slide the race onto the input shaft.



- ▶ Next heat the race for the single row roller, Wolfking part number 25132.

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- ▶ Slide the race onto the output shaft.



- ▶ Next take the top case, Wolfking part number 30947 make sure that the case is clean, then install the roller bearing.



- ▶ Next install the snap ring, Wolfking part number 24865 to hold the bearing in place.



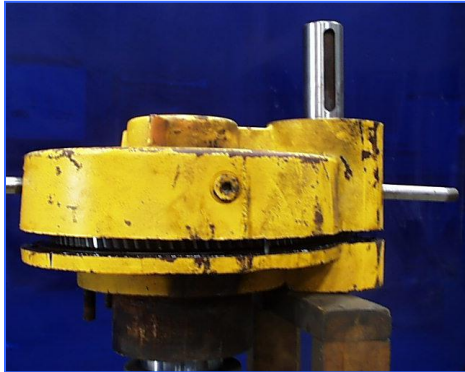
- ▶ Apply a thin layer of Permatex on the bottom case, make sure to apply it behind the bolt holes to prevent leaking from here.

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- ▶ Install the top case onto the bottom case, if case does not drop in place gently tap with a dead blow hammer on the top case to get it to drop.



- ▶ Next install the last part of the bearing for the input shaft, use a dead blow hammer for the installation.



- ▶ Apply a thin layer of Permatex to the top case, make sure to apply it behind the bolt holes to prevent leaking from here.



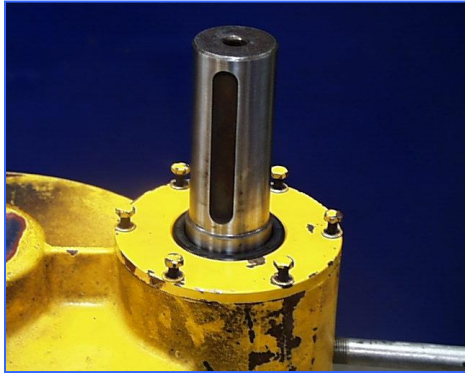
- ▶ Install the oil seal, Wolfking part number 23143 into the bearing cover, Wolfking part number 30950.

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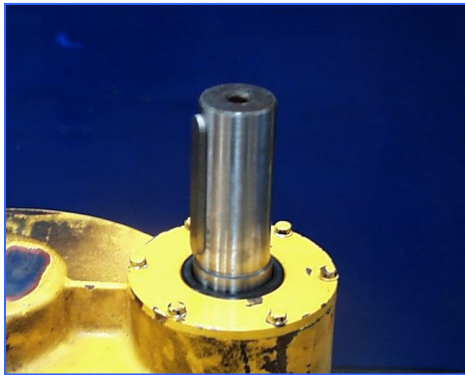
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- ▶ Slide the bearing cover over the input shaft and install the bolts and washers, Wolfking part number 22004 and 22705.



- ▶ Tighten the bolts and install the key for the input shaft, Wolfking part number 24766.



- ▶ Next install the bolts and washers for bolting the two cases together, Wolfking part number 21886, 22706 and 22457. Tighten all bolts and lift the gearbox so that the output shaft is horizontal.



- ▶ The studs, Wolfking part number 30042 can now be installed (if needed). For a Wolfking grinder all studs are needed, for a Wolfking mixer/grinder two holes are left empty.

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- ▶ Next the wiper ring, Wolfking part number 23430 needs to be installed into the seal holder, Wolfking part number 31107. Make sure the lip is facing down.



- ▶ To prevent the wiper ring from falling out, install the Seeger spring ring, Wolfking part number 28353.



- ▶ Now install the oil seal, Wolfking part number 23079. Make sure the lips are facing up.



- ▶ Next install the o-rings, Wolfking part number 23234 on the outside of the seal holder and also fill the seal holder with a food grade grease.

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- ▶ Next slide the seal holder over the output shaft, make sure that the weep holes are in the right positions. For a grinder the holes should be straight down and for a mixer/grinder the holes should be at 3 o'clock. Install the screw for the seal and tighten them, Wolfking part number 22566.



- ▶ Now the gearbox is ready for installation. Install with use of nuts and washers, Wolfking part number 22276 and 28296.

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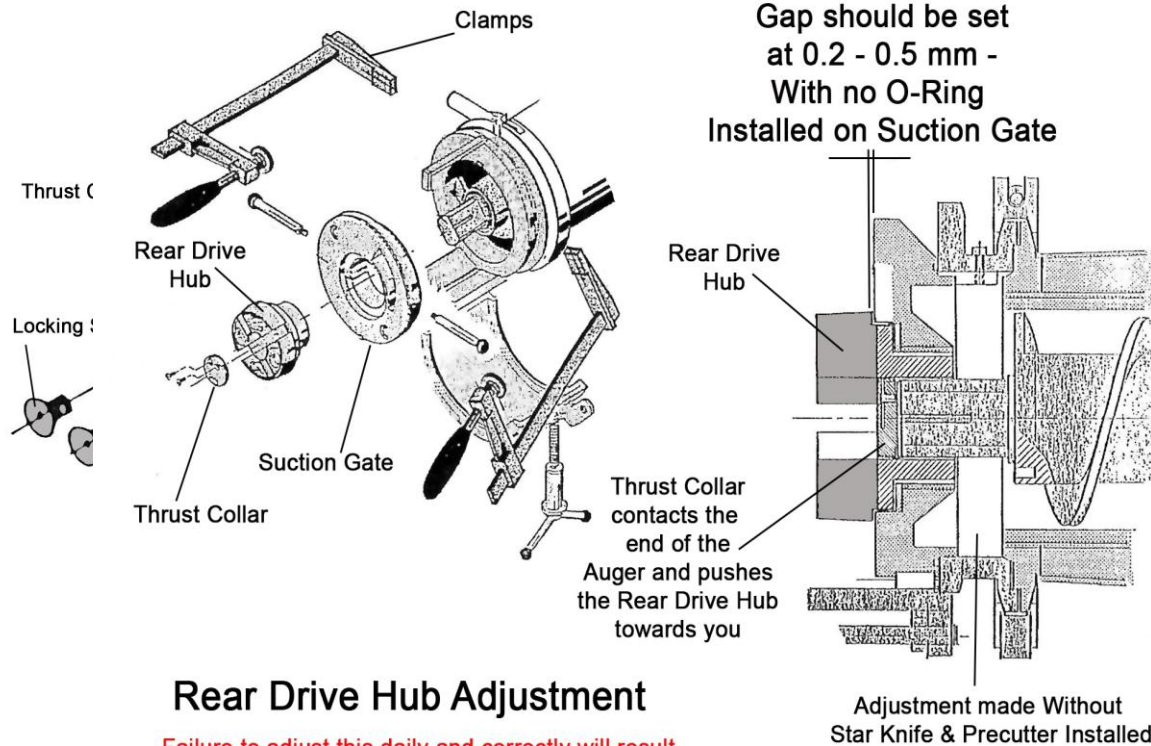
Position	Description	OEM#	Qty
1	Complete Mounting Knife Housing (30442) with Clamping Device (30966)	37247	1
1	Mounting Knife Housing	30442	1
1	Clamping Device	30966	1
2	Pump housing size 16 tn3	32850	1
3	Side gate/suction gate	30355	1
4	Side gate/pressure gate	30354	1
5	Driving hub	30569	1
6	Thrust collar	30622	1
7	Allen M8x12	22342	2
8	Set of pallets	38548	1
9	Part of driving hub	30568	1
10	Worm pin for driving hub	30227	1
11	Tightening screw for CFD worm pin	31890	1
12	Thrust ring	37677	1
13	O-Ring	37678	1
14	Precutter, knife 4-bl.	30168	1
15	Precutter 10-hole	30143	1
16	Mounting tools	30768	2
17	O-ring 249.3 x 5.7	23348	2
18	O-ring 304.0 x 3.0	40211	2
19	Spacer ring ø105/ø91x1 mm	31661	1
20	Spacer ring ø105/ø91x2 mm	31662	1
21	Spacer ring ø105/ø91x4 mm	31663	1
	Nut for pilot bearing	30005	1
	Screw cap	30897	1
	Precutter - Pressure Symetric	30142	1
	Accessory trolley	33532	1
	BEKA tool box	25661	1
	Nylon hammer	25664	1
	Screw driver	25667	1
	Awl	25695	1
	Crow bar	25697	1
	Allen T-Key	26723	1

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Tools and items required to adjust the Rear Drive Hub

- Two Clamps
- Set of Handles for gate
- Allen Wrench for Locking Screws
- Food Grade Grease
- 8" Crescent Wrench or other tool that will fit into the opening of the Thrust Collar

Steps to follow:

- Loosen the Locking Screws
- Make sure the Thrust Collar is loose and can freely rotate in and out of the threads of the Rear Drive Hub.
- Remove the Thrust Collar and grease the threads with Food Grade Grease

The Rear Drive adjustment is extremely important to ensure the Pallets are not rubbing against the face of either the Suction or Pressure Gate. If the Pallets are rubbing on the surface of the gates it will result in damage to the Pallets and either the Suction or Pressure Gate. This damage will result in possible metal contamination of the product and will reduce the life of the parts.

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Inspect the Gates and Drive Hubs for burrs, remove burrs if any are found.

This Rear Drive Hub adjustment must be performed daily. The following factors is why this adjustment will vary daily.

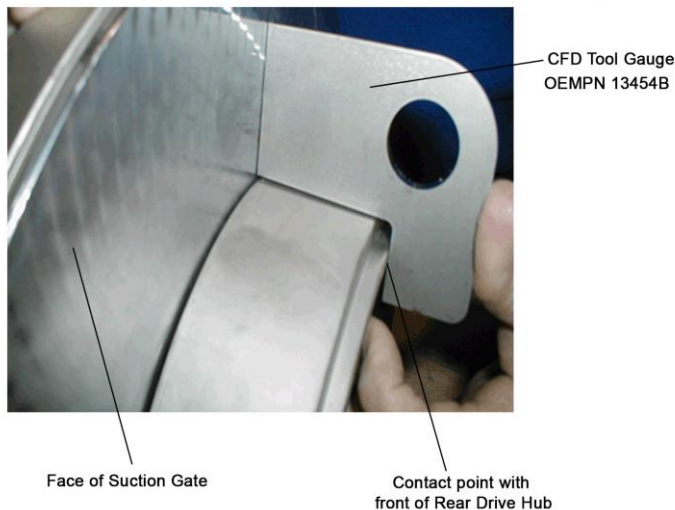
- The Thrust Collar was removed or Rear Drive Hub replaced
- The Suction Gate was replaced
- The Clamp Housing replaced
- The Auger reworked or replaced
- The gearbox replaced

Adjustment Procedure

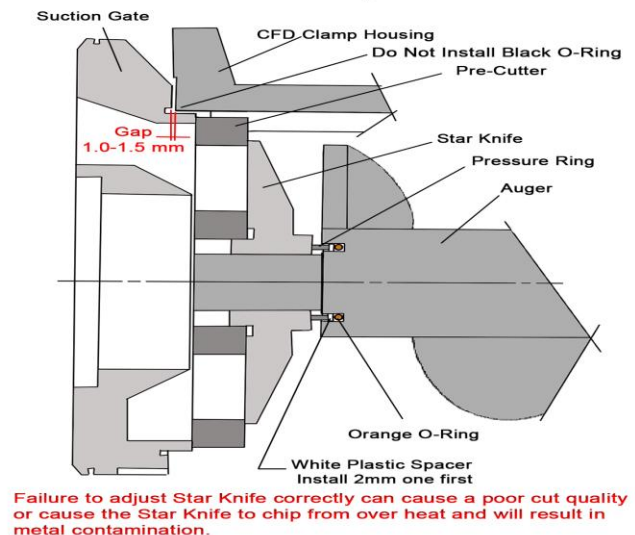
- Install the Auger
- Install the Suction Gate (Make sure the black o-ring has been removed)
- Clamp the gate securely to the face of the CFD Clamp Housing
- Adjust the Thrust Collar in until it makes contact with the end of the Auger
- Continue to rotate the Thrust Collar inward until the Rear Drive Hub begins to separate from the face of the Suction Gate
- Once the gap is between 0.2 and 0.5mm stop. You can also use the CFD Tool shown below to help set the gap as well.
- Hold the position of the Thrust Collar and securely tighten up the two Locking Screws
- Insert the Rear Pallet and confirm the Pallet is not touching the face of the Suction Gate. If it is then repeat the steps above until the correct adjustment is obtained.

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Rear Drive Hub Adjustment using the CFD Tool Gauge



CFD Star Knife Adjustment



The Star Knife adjustment is very important to ensure the knife is running tight against the Pre-Cutter. However if it's too tight against the Pre-Cutter it will cause damage to the edges of the knife. This will result in metal contamination of the product.

This Star Knife adjustment must be performed daily. The following factors is why this adjustment is required daily.

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- Star Blade Sharpening
- Pre-Cutter Sharpening
- Replacement of the Star Knife or Pre-Cutter with a new one
- The Auger reworked or replaced
- The gearbox replaced
- The White Plastic Spacers lost or installed differently

Adjustment Procedure

- Install the Auger
- Install the Orange O-Ring
- Install the 2mm White Plastic Spacer
- Install the Pressure Ring
- Install the Star Blade
- Install the 10 Hole Pre-Cutter
- Install the Suction Gate (The black o-ring must be left off)
- Squeeze the Suction Gate by hand against the face of the CFD Clamp Housing
- Check the gap (See the detail above) The gap should be between 1 and 1.5 mm
- If the gap is below 1mm the knife will not cut correctly
- If the gap is greater than 1.5mm the knife will be too tight, the knife will heat up and cause the edges to chip off. This will result in metal contamination of the product
- Make the adjustment by removing or adding additional White Plastic Spacers. Spacers are available in 1, 2 and 3mm



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