

Number: 2010-4602

Date: October 8, 2010

SUBJECT: High Speed Oil Pumps – Upgraded Design Configuration

OVERVIEW

Northern® Pump has upgraded our line of High Speed Gear Pumps. These upgrades have proven to provide superior performance and life cycle for pump owners. This upgrade includes the following changes:

- Change of liner plate material from Cast Iron to Hardened and Ground D2 Tool Steel *See figure 1
- Addition of Viton® O-Rings between all pump plates *See figure 2
- Inclusion of Match Grind Assembly for all models *See figure 3
- Change material for the integral thrust disk in the Rear Seal Adapter Plate
- Change material for the integral thrust disk in the Front Suction & Discharge Seal Adapter Plate

Effective immediately, Northern® High Speed Oil Pumps will only be available in the upgraded configuration. In addition, all factory overhauls will incorporate the listed design changes. See table 1 and 2 for the replacement model number for your current Northern® Pump.

These upgrades do **NOT** effect the overall dimensions of the pump. The upgraded replacement and factory overhauled pumps will provide equal or superior volumetric and mechanical performance.

Maintenance Kits are now available for the field maintenance of these pumps. They include all of the parts required to perform effective maintenance for selected pump components. See **Table 3** for the maintenance kit, match grind assemblies, or individual part numbers for your current Northern® Pump.

APPLICABLE PUMP MODELS

467807A681CW	467807A681CCW	467807A681CW-R
467807A681CCW-R	4678-07-A681	4678-07-A681-R
467807AR681CW	467807AR681CCW	467807AR681CW-R
467807AR681CCW-R	467807D1147CW	4678071147CCW
4678071147CW-R	467807D1147CCWR	4678-07-D1147
4678-07-D1147-R	460005D793CW	460005D793CCW
460005D793CW-R	460005D793CCWR	4600-05-D793
4600-05-D793-R	460005D1148CW	460005D1148CCW
460005D1148CW-R	460005D1148CCWR	4600-05-D1148
4600-05-D1148-R		

To help locate your pump model number follow the link below-

<http://www.northern-pump.com/PDFs/Model%20Number%20Finder.pdf>

TABLE 1

CLOCKWISE

PUMP ROTATION REPLACEMENT MODEL NUMBERS

For *new and replacement pumps*, the following models are replaced with model **467807A681CW**:

467807A681CW	4678-07-A681 (Stamped Clockwise)
467807A681CW-R	4678-07-A681-R (Stamped Clockwise)
467807AR681CW	467807AR681CW-R

To order a *factory overhaul* for any of the following models, use Model **467807A681CW-R**:

467807A681CW	4678-07-A681 (Stamped Clockwise)
467807A681CW-R	4678-07-A681-R (Stamped Clockwise)
467807AR681CW	467807AR681CW-R

For *new and replacement pumps*, the following models are replaced with model **467807D1147CW**:

467807D1147CW	4678-07-D1147 (Stamped Clockwise)
467807D1147CW-R	4678-07-D1147-R (Stamped Clockwise)

To order a *factory overhaul* for any of the following models, use Model **467807D1147CW-R**:

467807D1147CW	4678-07-D1147 (Stamped Clockwise)
467807D1147CW-R	4678-07-D1147-R (Stamped Clockwise)

For *new and replacement pumps*, the following models are replaced with model **460005D793CW**:

460005D793CW	4600-05-D793 (Stamped Clockwise)
460005D793CW-R	4600-05-D793-R (Stamped Clockwise)

To order a *factory overhaul* for any of the following models, use Model **460005D793CW-R**:

460005D793CW	4600-05-D793 (Stamped Clockwise)
460005D793CW-R	4600-05-D793-R (Stamped Clockwise)

For *new and replacement pumps*, the following models are replaced with model **460005D1148CW**:

460005D1148CW	4600-05-D1148 (Stamped Clockwise)
460005D1148CW-R	4600-05-D1148-R (Stamped Clockwise)

To order a *factory overhaul* for any of the following models, use Model **460005D1148CW-R**:

460005D1148CW	4600-05-D1148 (Stamped Clockwise)
460005D1148CW-R	4600-05-D1148-R (Stamped Clockwise)

TABLE 2

COUNTER-CLOCKWISE ROTATION REPLACEMENT MODEL NUMBERS

For *new and replacement pumps*, the following models are replaced with model **467807A681CCW**:

467807A681CCW	4678-07-A681 (Stamped Counter-clockwise)
467807A681CCWR	4678-07-A681-R (Stamped Counter-clockwise)
467807AR681CCWR	467807AR681CCW

To order a *factory overhaul* for any of the following models, use Model **467807A681CCWR**:

467807A681CCW	4678-07-A681 (Stamped Counter-clockwise)
467807A681CCWR	4678-07-A681-R (Stamped Counter-clockwise)
467807AR681CCWR	467807AR681CCW

For *new and replacement pumps*, the following models are replaced with model **467807D1147CCW**:

467807D1147CCW	4678-07-D1147-R (Stamped Counter-Clockwise)
467807D1147CCW	4678-07-D1147 (Stamped Counter- Clockwise)
467807D1147CCWR	467807AR681CCW

To order a *factory overhaul* for any of the following models, use Model **467807D1147CCWR**:

467807D1147CCW	4678-07-D1147-R (Stamped Counter-Clockwise)
467807D1147CCWR	4678-07-D1147 (Stamped Counter- Clockwise)

For *new and replacement pumps*, the following models are replaced with model **460005D793CCW**:

460005D793CCWR	4600-05-D793-R (Stamped Counter-Clockwise)
460005D793CCW	4600-05-D793 (Stamped Counter-Clockwise)

To order a *factory overhaul* for any of the following models, use Model **460005D793CCWR**:

460005D793CCWR	4600-05-D793-R (Stamped Counter-Clockwise)
460005D793CCW	4600-05-D793 (Stamped Counter-Clockwise)

For *new and replacement pumps*, the following models are replaced with model **460005D1148CCW**:

460005D1148CCW	4600-05-D1148 (Stamped Counter-Clockwise)
460005D1148CCWR	4600-05-D1148-R (Stamped Counter-Clockwise)

To order a *factory overhaul* for any of the following models, use Model **460005D1148CCWR**:

460005D1148CCW	4600-05-D1148 (Stamped Counter-Clockwise)
460005D1148CCWR	4600-05-D1148-R (Stamped Counter-Clockwise)

TABLE 3

Clockwise Rotation	Maintenance Kit, High Pressure Seals	Maintenance Kit, Pump Drive and Driven Shafts	Maintenance Kit, Gear and Cylinder Assembly	Maintenance Kit, Hardware	Maintenance Kit, Pump Mounting	Maintenance Kit, Roller Bearing
460005D1148CW	95000-4600	95008-4600	A1188-4600-05	95002-4600	95006-4600	95003-4600
460005D793CW	95000-4600	95008-4600	A1188-4600-05	95002-4600	95004-4600	95003-4600
467807A681CW	95000-4600	95001-4600	A1179-4600-07	95002-4600	95007-4600	95003-4600
467807D1147CW	95000-4600	95001-4600	A1179-4600-07	95002-4600	95005-4600	95003-4600

Counter-Clockwise Rotation

460005D1148CCW	95000-4600	95008-4600	A1188-4600-05	95002-4600	95006-4600	95003-4600
460005D793CCW	95000-4600	95008-4600	A1188-4600-05	95002-4600	95004-4600	95003-4600
467807A681CCW	95000-4600	95001-4600	A1179-4600-07	95002-4600	95007-4600	95003-4600
467807D1147CCW	95000-4600	95001-4600	A1179-4600-07	95002-4600	95005-4600	95003-4600

Clockwise Rotation	Front Liner Plate	Rear Liner Plate	Front Suction & Discharge Seal Adapter Plate	Rear Seal Adapter Plate	Front / Rear Bearing Plate	Front & Rear Seal Housing
460005D1148CW	81388-4600-05	81389-4600-05	12690-4600	3611-4600	91345-4600	2617-4600
460005D793CW	81388-4600-05	81389-4600-05	12690-4600	3611-4600	91345-4600	2617-4600
467807A681CW	81388-4600-07	81389-4600-07	12692-4600	3611-4600	91345-4600	2617-4600
467807D1147CW	81388-4600-07	81389-4600-07	12692-4600	3611-4600	91345-4600	2617-4600

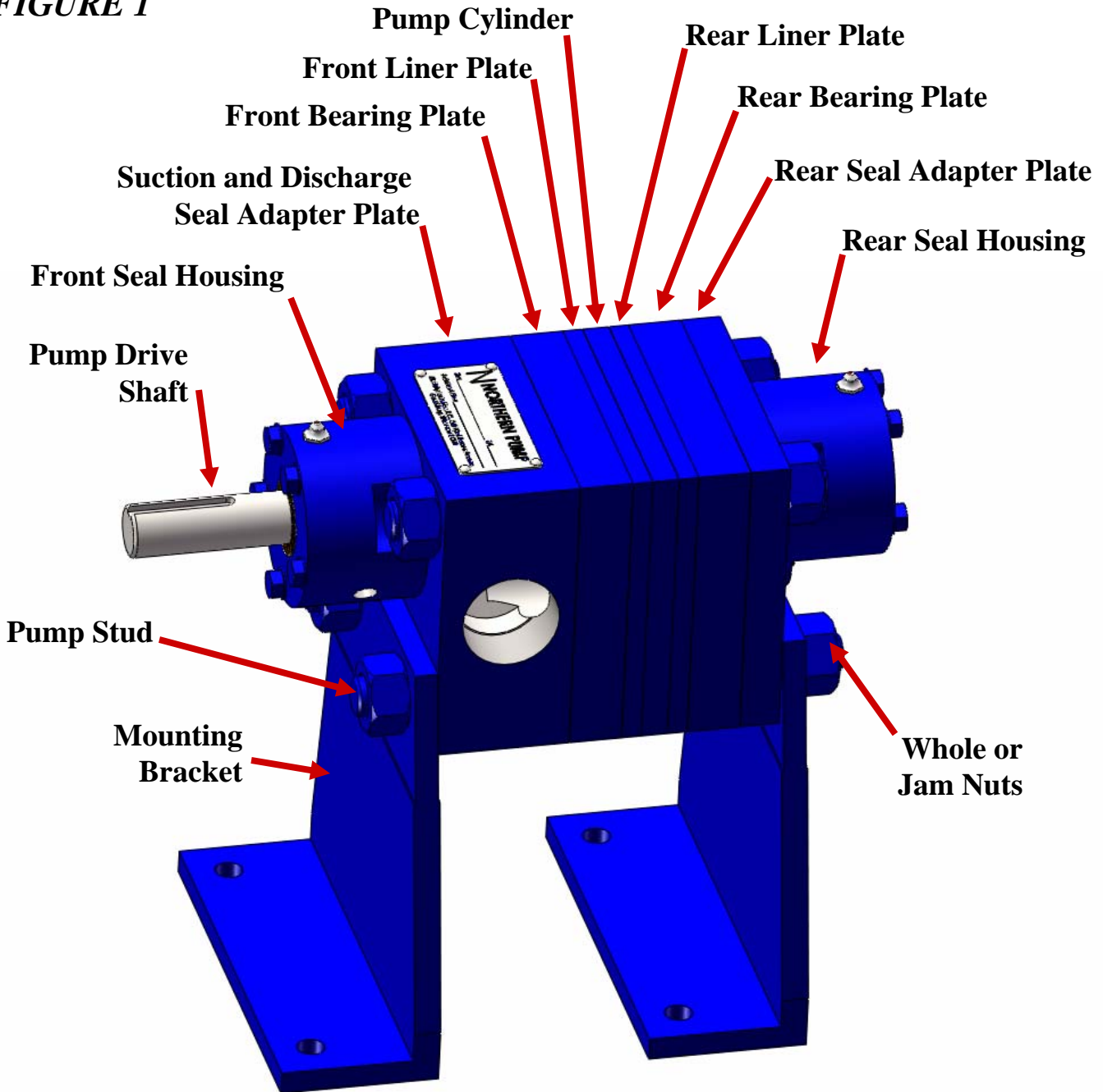
Counter-Clockwise Rotation

460005D1148CCW	81388-4600-05	81389-4600-05	12691-4600	3612-4600	91345-4600	2617-4600
460005D793CCW	81388-4600-05	81389-4600-05	12691-4600	3612-4600	91345-4600	2617-4600
467807A681CCW	81388-4600-07	81389-4600-07	12693-4600	3612-4600	91345-4600	2617-4600
467807D1147CCW	81388-4600-07	81389-4600-07	12693-4600	3612-4600	91345-4600	2617-4600

DESCRIPTION AND LOCATION OF PUMP PLATES

Figure 1 shows the location of the pump plates. The Liner Plates are either a front or rear plate, and are **NOT** interchangeable. The rotation of the pump determines the part number and is **NOT** interchangeable with the opposite rotation. See figure 4 to determine pump rotation.

FIGURE 1

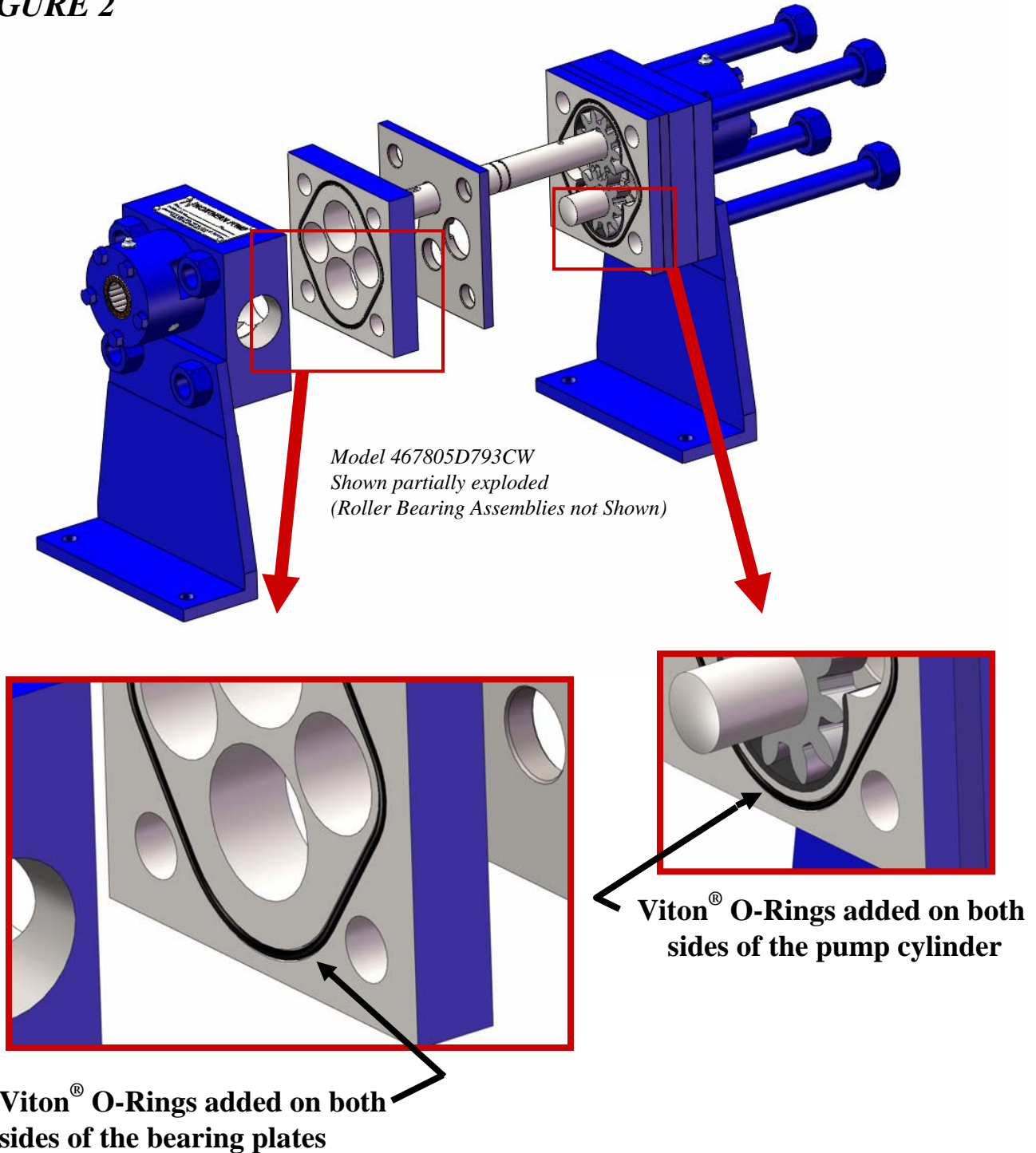


Model 467805D793CW Shown

DESCRIPTION OF O-RINGS BETWEEN PLATES

Figure 2 shows how the O-Rings are configured on Northern[®] High Speed Oil Pumps. Previous design incorporated shellac between the plates to seal for both the suction and discharge pressure. The overall life cycle for the pump assembly is dramatically improved with the O-Rings incorporated into the design.

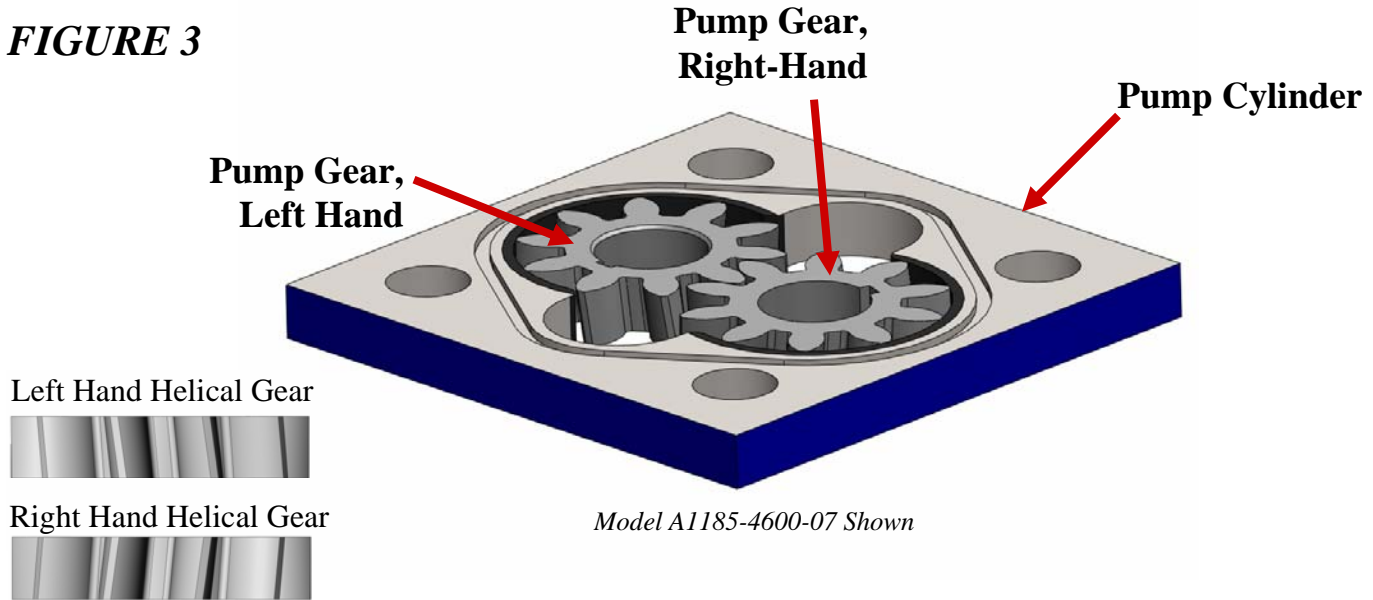
FIGURE 2



MATCH GRINDING OF GEARS AND PUMP CYLINDER

Figure 3 shows the configuration of the Match Grind Assembly. During Manufacturing, the gear width and cylinder width are ground to facilitate a specific side clearance. The side clearance is the dimensional difference between the overall height of the pump gears and the pump cylinder. They are specific to each pump serial number, and are extremely important to the effective operation of the pump assembly. Pump Cylinders and Pump Gears for high speed oil pumps will only be sold as a Maintenance Kit, Gear and Cylinder Assembly.

FIGURE 3



DETERMINING THE DIRECTION OF ROTATION

Pump rotation is determined by standing over the motor, and looking at the front of the pump. It is described as Clockwise, or Counter Clockwise. Pump models are available as either Clockwise (CW) OR Counter-Clockwise (CCW) and are **NOT** interchangeable.

FOR CLOCKWISE PUMPS, THE LEFT HAND GEAR IS ON THE DRIVE SHAFT.

FOR COUNTER-CLOCKWISE PUMPS, THE RIGHT HAND GEAR IS ON THE DRIVE SHAFT.

FIGURE 4

Suction-CW Rotation
Discharge-CCW Rotation

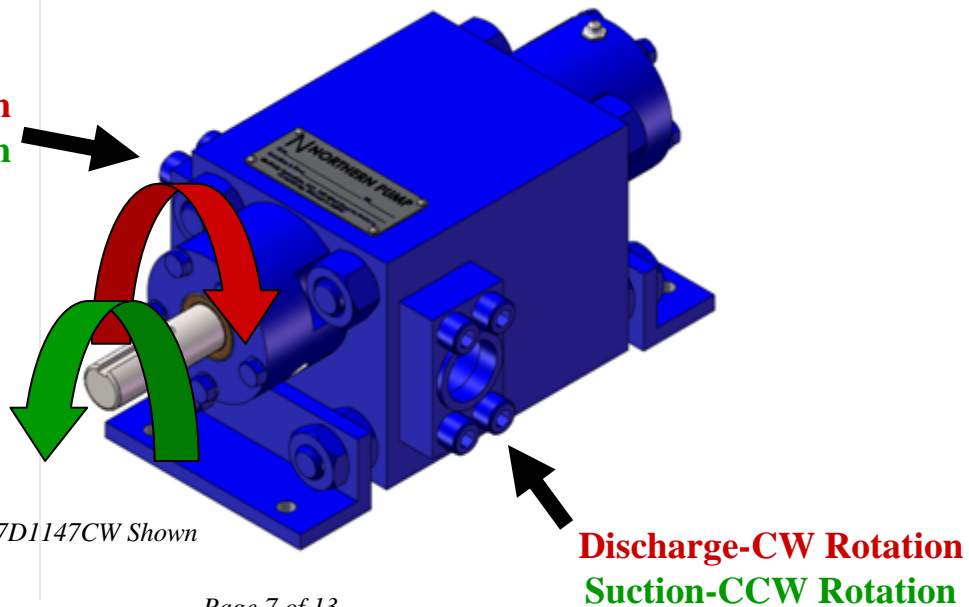
Left Hand Helical Gear



Right Hand Helical Gear

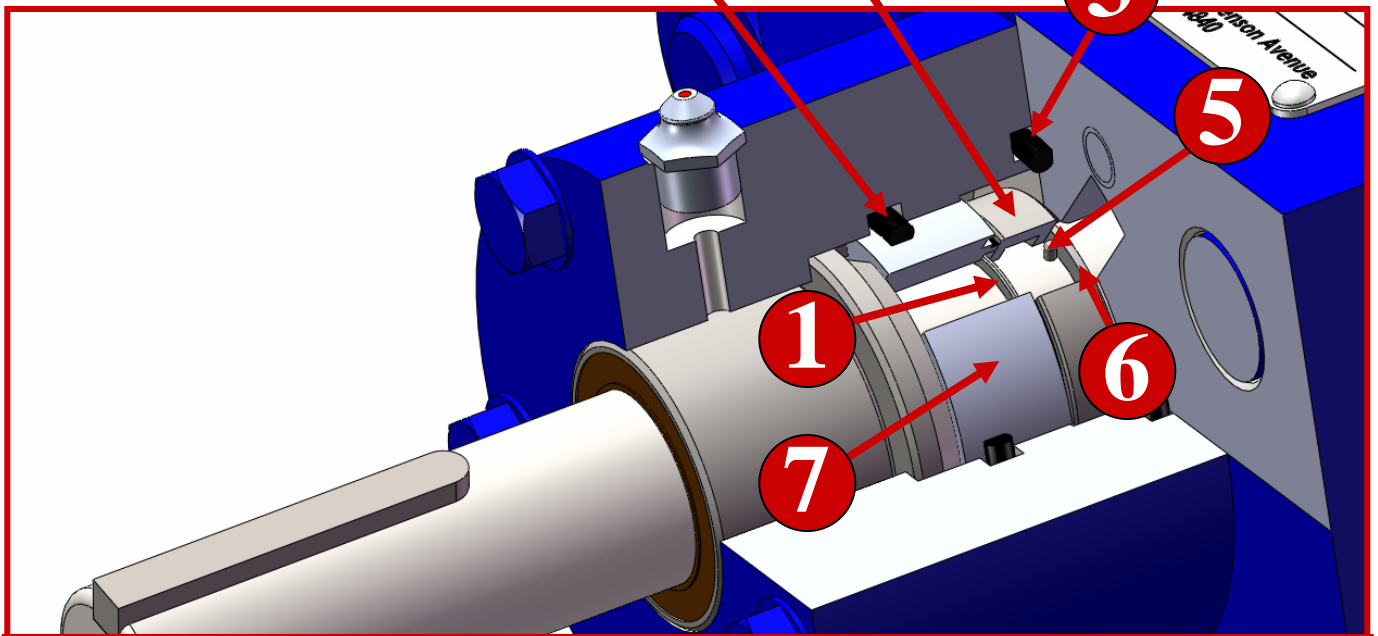
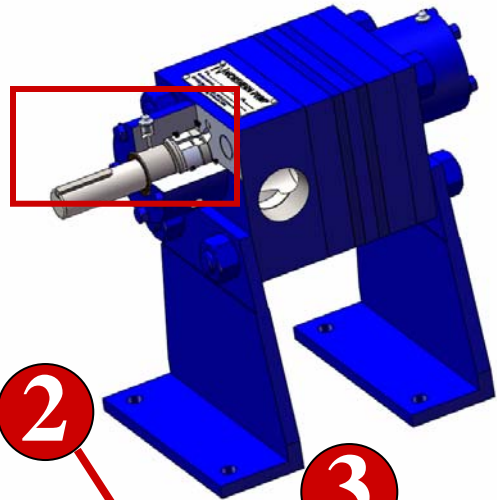


Model 467807D1147CW Shown



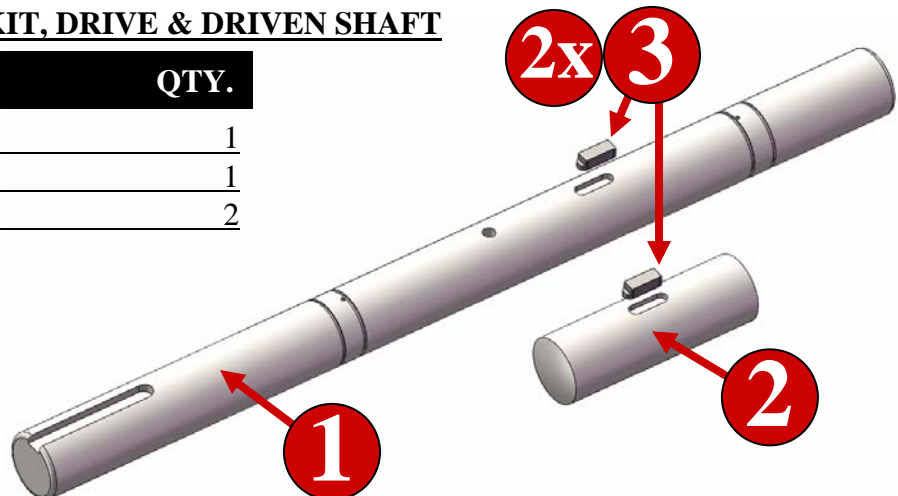
95000-4600 - MAINTENANCE. KIT, HIGH PRESSURE SEAL (Typical for Front & Rear)

#	ITEM DESCRIPTION	QTY.
1	SPIROLOX RET. RING	2
2	MATING RING	2
3	O'RING, ROUND SECTIONAL	2
4	O'RING, ROUND SECTIONAL	2
5	PIN, DRIVE (MATING RING)	2
6	RETAINING RING	2
7	MECHANICAL SEAL, HIGH PRESS.	2



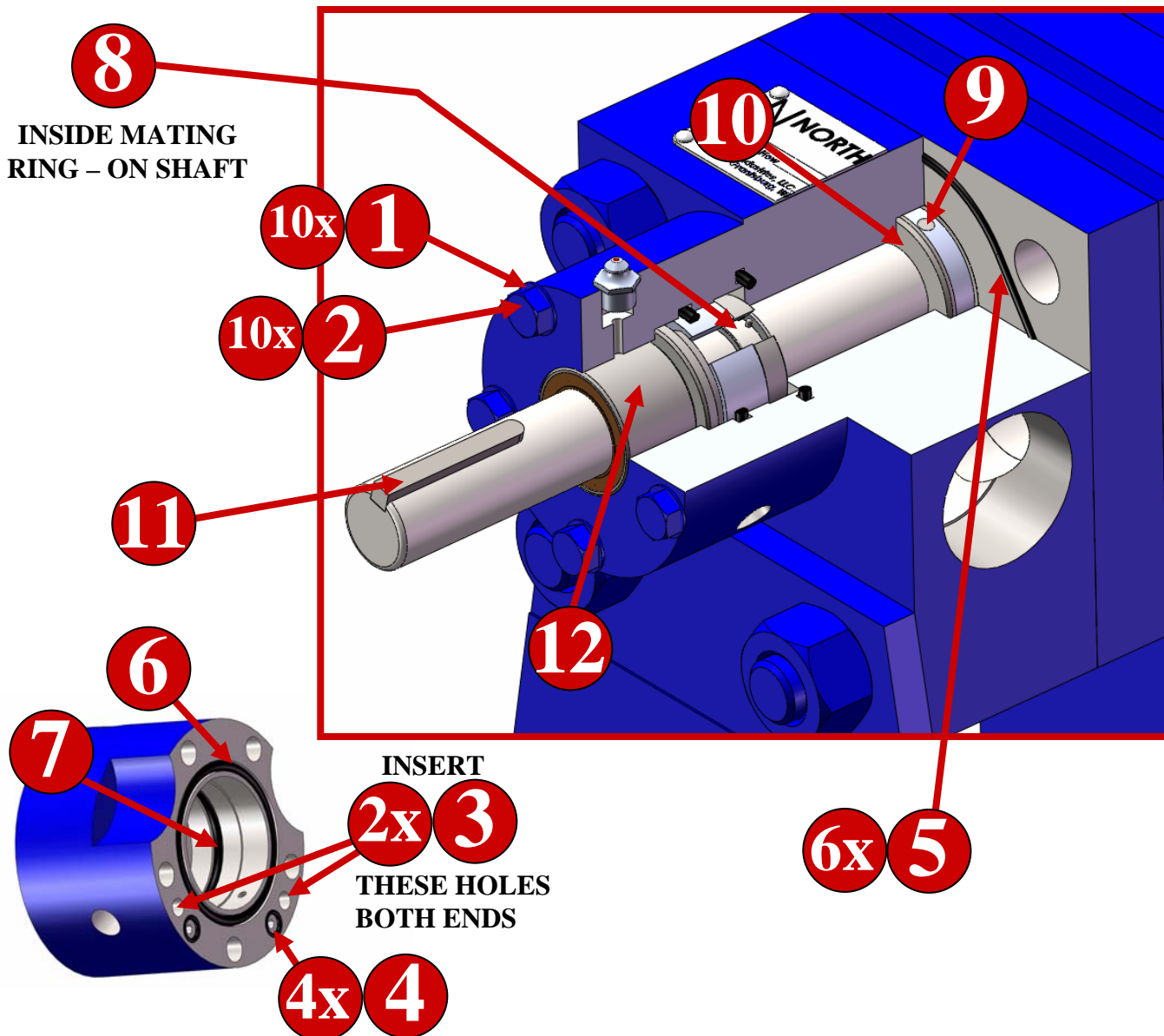
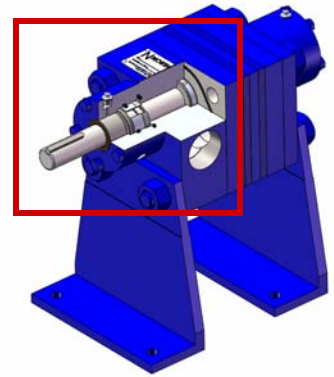
95001-4600 - MAINTENANCE. KIT, DRIVE & DRIVEN SHAFT

#	ITEM DESCRIPTION	QTY.
1	SHAFT, DRIVE	1
2	SHAFT, DRIVEN	1
3	KEY, GEAR	2



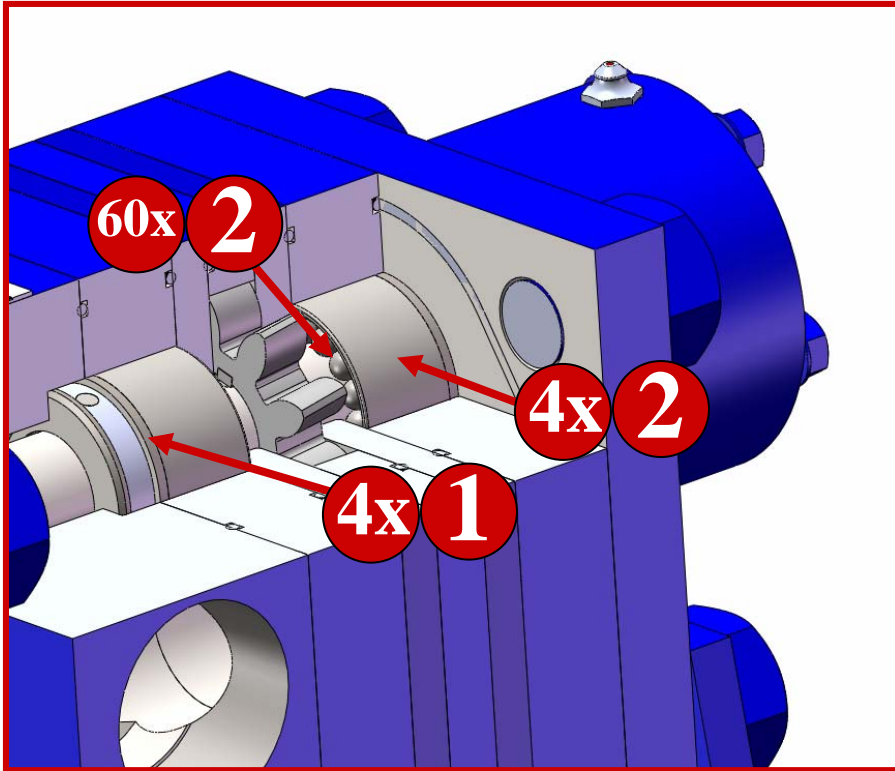
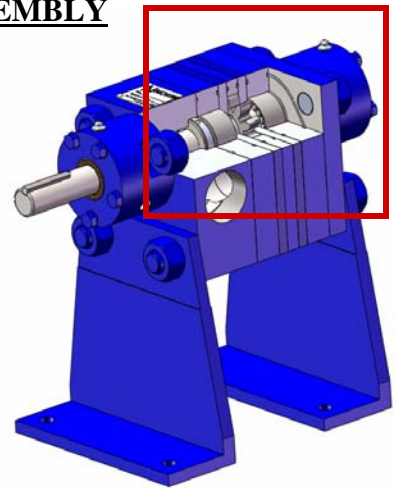
95002-4600 - MAINTENANCE. KIT, HIGH PRESSURE SEAL (Typical for Front & Rear)

#	ITEM DESCRIPTION	QTY.
1	WASHER, LOCK, INTERNAL TOOTH	10
2	CAP SCREW, HEX HEAD	10
3	DOWEL PIN	4
4	O'RING, ROUND SECTIONAL	4
5	O'RING, ROUND SECTIONAL	6
6	O'RING, ROUND SECTIONAL	2
7	O'RING, ROUND SECTIONAL	2
8	O'RING, ROUND SECTIONAL	2
9	PIN, THRUST WASHER	1
10	WASHER, BEARING, INNER	1
11	KEY, END	1
12	BEARING, ROLLER	2



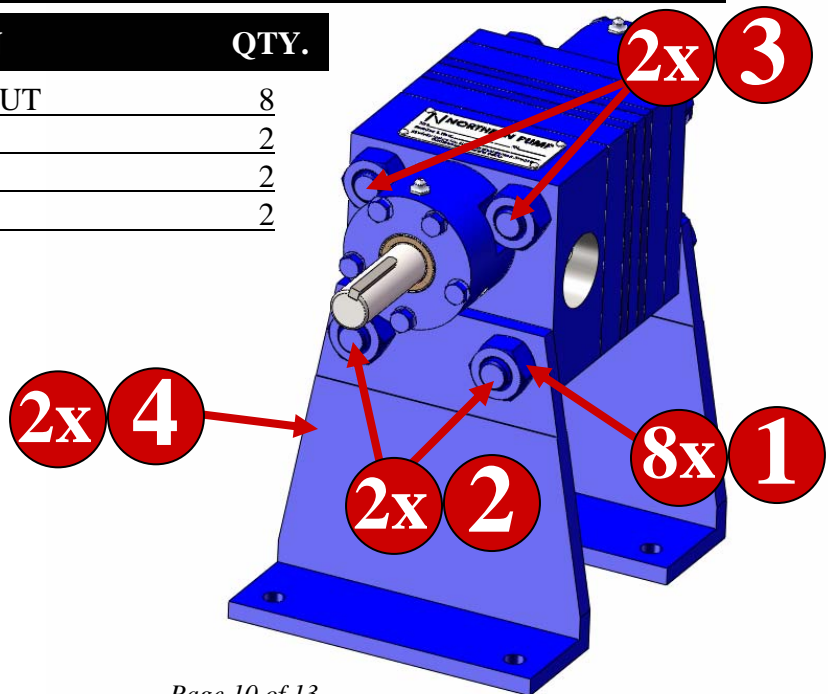
95003-4600 - MAINTENANCE. KIT, ROLLER BEARING ASSEMBLY

#	ITEM DESCRIPTION	QTY.
1	WASHER, BEARING, OUTER	4
2	ROLLER, BEARING	60
3	SLEEVE, BEARING	4



95004-4600 - MAINTENANCE. KIT, PUMP MOUNTING 460005D793CW & CCW

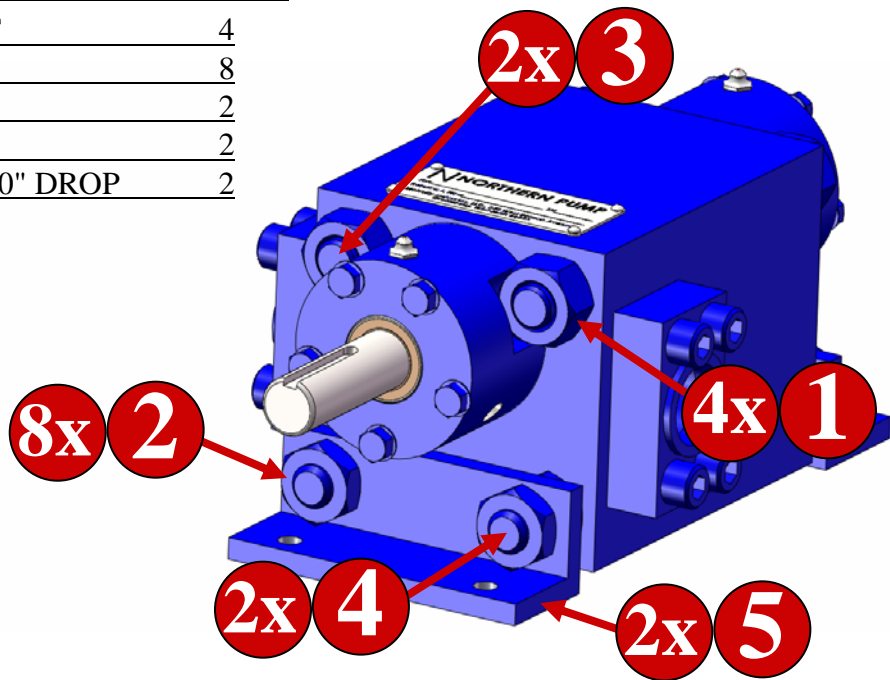
#	ITEM DESCRIPTION	QTY.
1	HEAVY HEX WHOLE NUT	8
2	STUD, PUMP	2
3	STUD, PUMP	2
4	BRACKET, MOUNTING	2



95005-4600 - MAINTENANCE. KIT, PUMP MOUNTING 467807D1147CW & CCW

#	ITEM DESCRIPTION	QTY.
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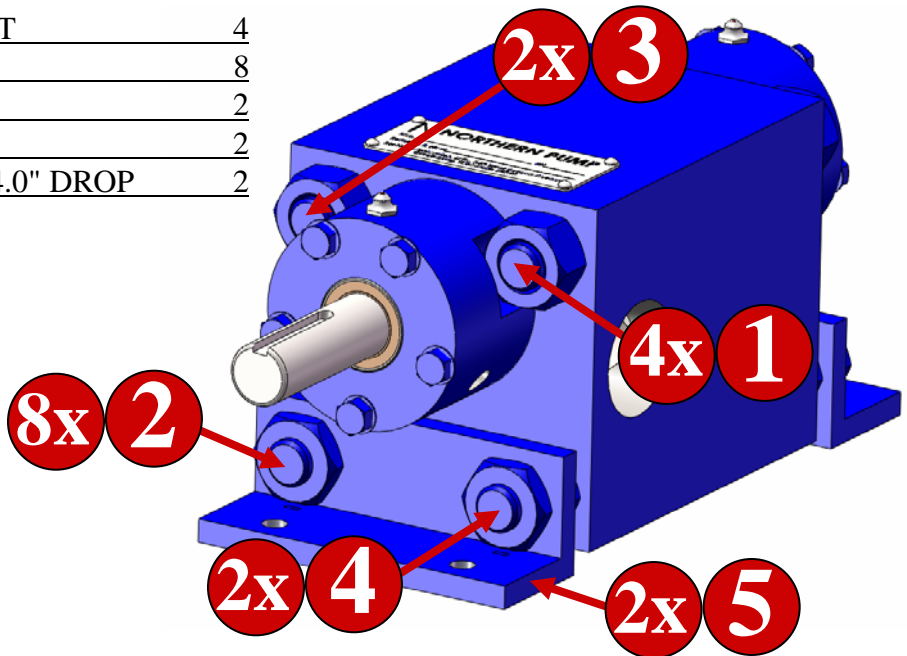
1.	HEAVY HEX WHOLE NUT	4
2.	HEAVY HEX JAM NUT	8
3.	STUD, PUMP	2
4.	STUD, PUMP	2
5.	BRACKET, MOUNTING, 4.0" DROP	2



95006-4600 - MAINTENANCE. KIT, PUMP MOUNTING 467805D1148CW & CCW

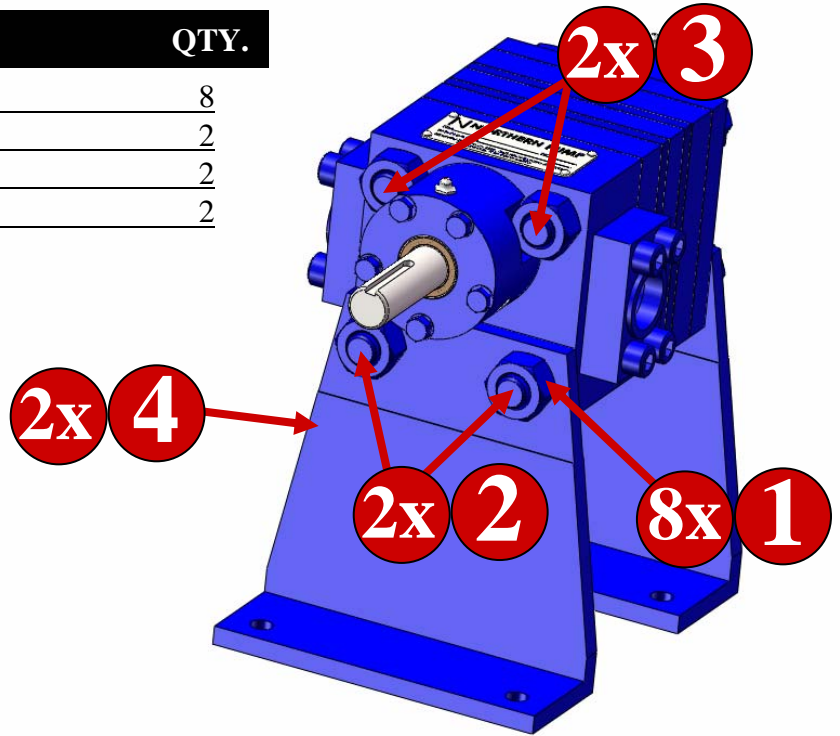
#	ITEM DESCRIPTION	QTY.
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1.	HEAVY HEX WHOLE NUT	4
2.	HEAVY HEX JAM NUT	8
3.	STUD, PUMP	2
4.	STUD, PUMP	2
5.	BRACKET, MOUNTING, 4.0" DROP	2



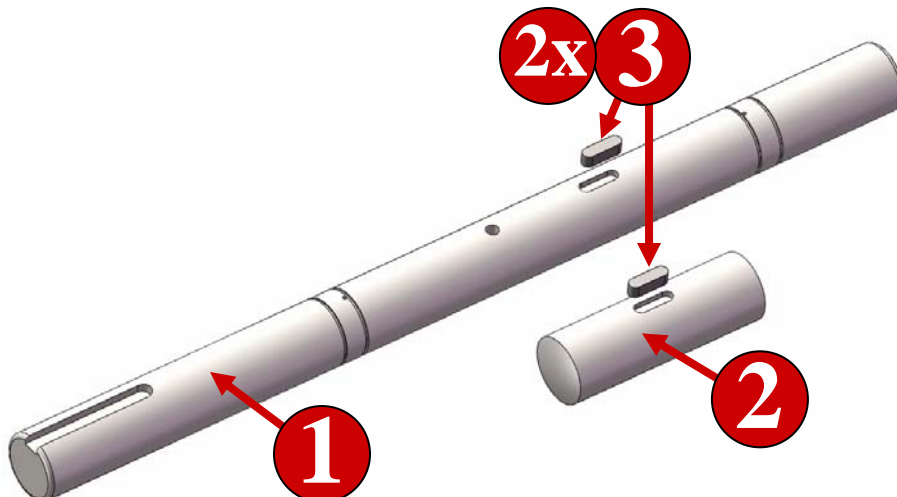
95004-4600 - MAINTENANCE. KIT, PUMP MOUNTING 460005D793CW & CCW

#	ITEM DESCRIPTION	QTY.
1	HEAVY HEX WHOLE NUT	8
2	STUD, PUMP	2
3	STUD, PUMP	2
4	BRACKET, MOUNTING	2



95008-4600 - MAINTENANCE. KIT, DRIVE & DRIVEN SHAFT

#	ITEM DESCRIPTION	QTY.
1	SHAFT, DRIVE	1
2	SHAFT, DRIVEN	1
3	KEY, GEAR	2



NORTHERN PUMP CONTACT INFORMATION

Please contact the Northern Pump Office with any questions relating to this service bulletin.

To order replacement parts call our office or visit the following page:

<http://www.northern-pump.com/parts.htm>

To schedule a factory overhaul call our office or visit the following page:

http://www.northern-pump.com/pump_maintenance.htm

To order a replacement pump call our office or visit the following page:

http://www.northern-pump.com/replacement_pump_quote.htm

Northern[®] Pump

Division of McNally Industries LLC

340 W. Benson Rd.

Grantsburg, WI 54837

(800) 366-1410

(715) 463-5177 Fax

www.northern-pump.com