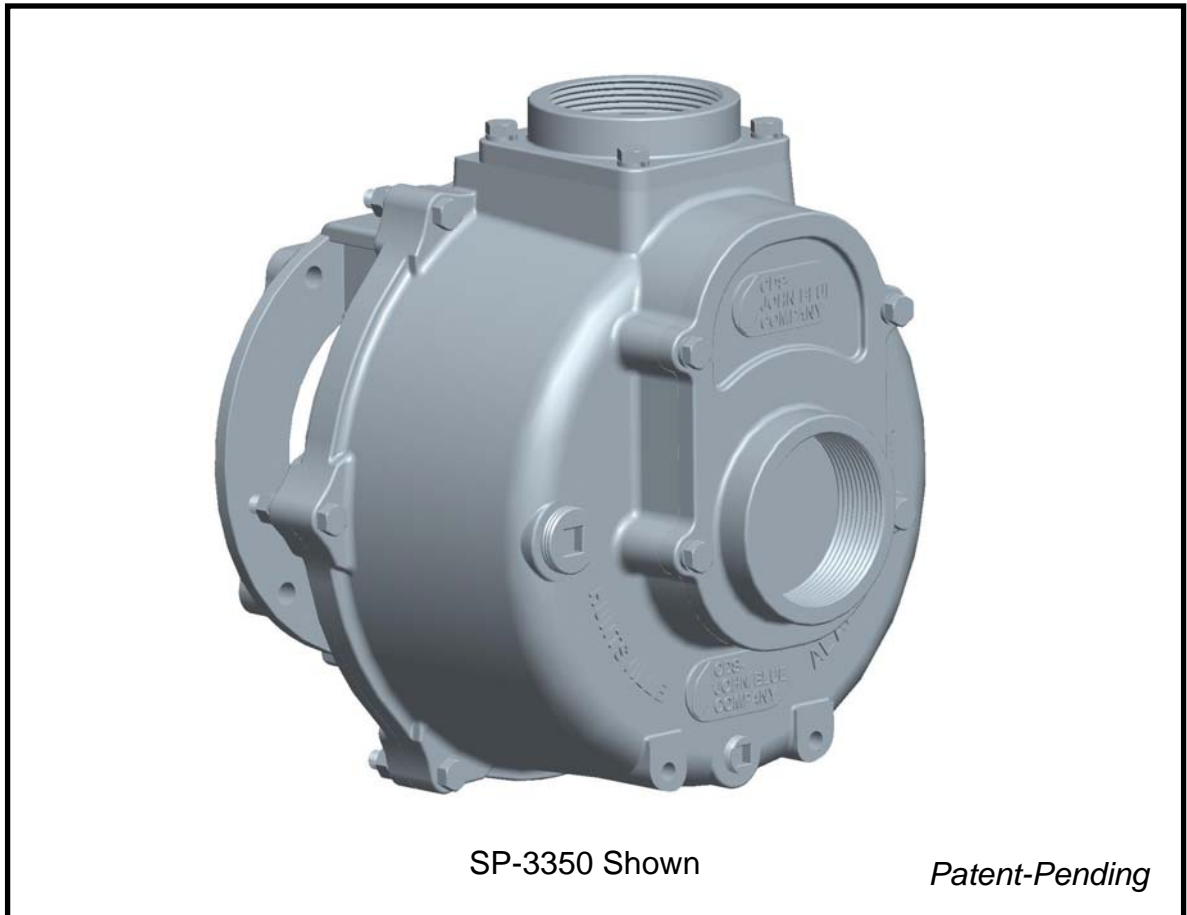




NEXT GENERATION CENTRIFUGAL TRANSFER PUMPS

PARTS AND INSTRUCTION MANUAL



SP-3350 Shown

Patent-Pending

CDS-JOHN BLUE COMPANY

DIVISION OF ADVANCED SYSTEMS TECHNOLOGY, INC.

165 Electronics Blvd, Huntsville, AL 35824

Telephone: (256) 721-9090 - FAX: (256) 721-9091

Toll Free: 1-800-253-2583

TABLE OF CONTENTS

Safety Precautions	2
Note to the Owner	2
Pump Specifications and Flow Curves	3
Pump Model List.....	4
Installation	5
Maintenance	6
Storage	6
Repair	7
Hydraulic System Information	8
Parts Listings	10
Dimensional Information	18
Troubleshooting	19
Warranty	20

SAFETY PRECAUTIONS

- Equipment should be operated only by responsible people.
- A careful operator is the best insurance against an accident.
- Fill system with WATER first and check output.
- Check all valves, fittings, hose clamps, etc. for wear / leaks before admitting process fluid to the system.
- Replace hoses when worn, cracked, or if leaking.

WARNING: USE OF THIS PRODUCT FOR ANY PURPOSES OTHER THAN ITS ORIGINAL INTENT, ABUSE OF THE PRODUCT, AND/OR MODIFICATION TO THE ORIGINAL PRODUCT IS STRICTLY PROHIBITED BY CDS-JOHN BLUE COMPANY. CDS-JOHN BLUE COMPANY RESERVES THE RIGHT TO DENY WARRANTY OR LIABILITY CLAIMS IN ANY/ALL SITUATIONS INVOLVING MISUSE, ABUSE OR MODIFICATION.

THE ORIGINAL INTENT OF THIS PRODUCT DOES NOT INCLUDE USE WHERE THE MAXIMUM ALLOWED SPEED, PRESSURE, OR TEMPERATURE IS EXCEEDED, AND IT DOES NOT INCLUDE APPLICATIONS UTILIZING FLUIDS THAT ARE NOT COMPATIBLE WITH THE PRODUCT'S COMPONENT MATERIALS. DO NOT USE THIS PRODUCT WITH FLAMMABLE OR COMBUSTIBLE FLUIDS SUCH AS GASOLINE, KEROSENE, DIESEL, ETC..., AND DO NOT USE IN EXPLOSIVE ATMOSPHERES. FAILURE TO FOLLOW THIS NOTICE MAY RESULT IN SERIOUS INJURY AND/OR PROPERTY DAMAGE AND WILL VOID THE PRODUCT WARRANTY. IF IN DOUBT ABOUT YOUR APPLICATION, CONTACT YOUR STOCKING DEALER OR THE CDS-JOHN BLUE TECHNICAL STAFF AT 1-800-253-2583.

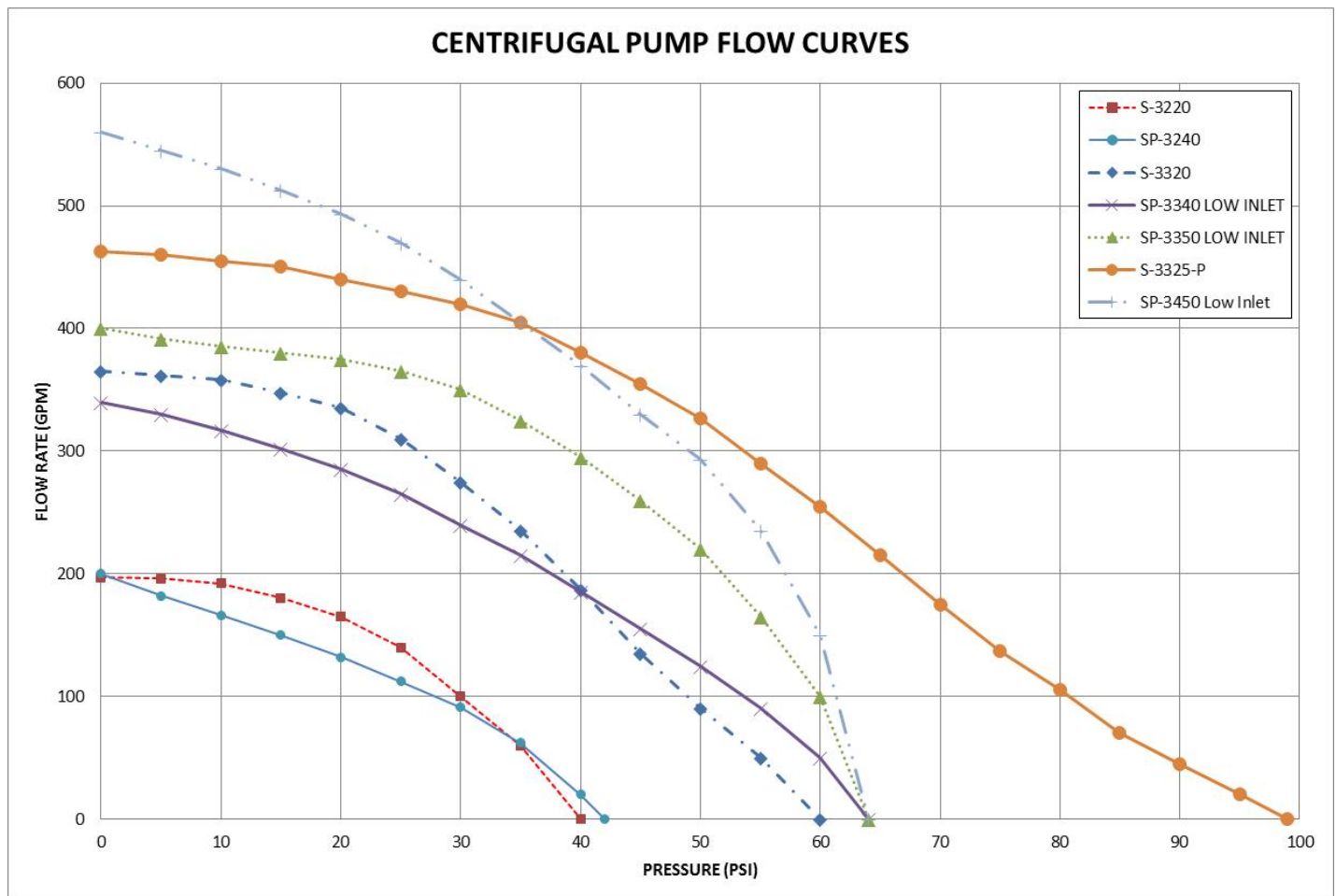
To The Owner

This manual has been prepared and illustrated to assist you in the maintenance of your CDS – JOHN BLUE pump. Enter your serial number and the date of the purchase in the space provided below for future reference in service information or for ordering parts. Because our engineering department is constantly improving products, we reserve the right to make design and specification changes without notice.

Model Number: _____ Serial Number: _____ Purchase Date: _____

PUMP SPECIFICATIONS

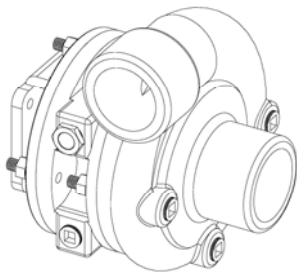
<i>(Values are for water)</i>	<u>S-3220</u>	<u>S-3320</u>	<u>SP-3240</u>	<u>SP-3340</u>	<u>SP-3350</u>	<u>S-3325-P</u>	<u>SP-3450</u>
Max. Attainable Flow:	197 GPM	365 GPM	200 GPM	340 GPM	400 GPM	463 GPM	560 GPM
Max. Attainable Pressure:	40 PSI	60 PSI	42 PSI	64 PSI	64 PSI	99 PSI	64 PSI
Flow @ 25 PSI:	140 GPM	310 GPM	112 GPM	265 GPM	365 GPM	430 GPM	470 GPM
Max. Operating Speed:	3600 RPM	3600 RPM	3600 RPM	3600 RPM	3600 RPM	4500 RPM	3600 RPM
Max. Required Horsepower:	5 Hp	10 Hp	5 Hp	10 Hp	13 Hp	16.5 Hp	19 HP
Rotation (from input side):	CW	CW	CW	CW	CW	CW	CW
Plumbing Size:	2" FNPT	3" FNPT	2" FNPT	3" FNPT	3" FNPT	3" FNPT	4"x3" FNPT
Housing Configuration:	Straight	Straight	Self-Prime	Self-Prime	Self-Prime	Straight	Self-Prime
Offered Electric Motor HP:	5HP	10HP	5HP	10HP	15HP	N/A	20HP
FLA of 1PH Electric Motor:	23.0A @208V	44.0A @208V	23.0A @208V	44.0A @208V	N/A	N/A	N/A
FLA of 3PH Electric Motor:	13.2A @208V	26.0A @208V	13.2A @208V	26.0A @208V	38.3A @208V	N/A	50.8A @208V
	6.1A @460V	11.5A @460V	6.1A @460V	11.5A @460V	17.5A @460V	N/A	23.0A @460V



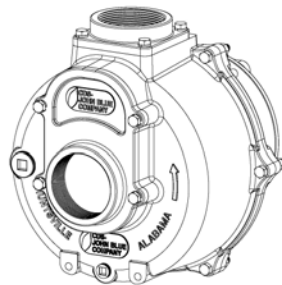
PUMP MODEL LIST

The VAC-U-SEAL line of CDS-John Blue Centrifugal Transfer Pumps is very complete and versatile in that many combinations can be assembled from available components. Due to the complex nature of the system, it is of great importance that you know the exact model of your pump, its size, straight or self priming, and material of construction when obtaining service parts or technical support. The model list and figures below will be helpful in determining the correct nomenclature for your pump.

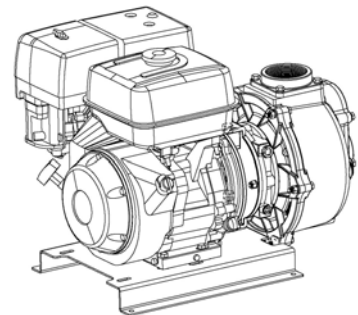
	Pumps with Adapters for Gasoline Engines		Pumps with Adapters for Electric Motors
S-3220	2" NPT Straight Pump	S-3220-E	2" NPT Straight Pump
S-3320	3" NPT Straight Pump	SP-3240-E	2" NPT Self-Priming Pump
S-3320-BS **	3" NPT Straight Pump (BS)	S-3320-E	3" NPT Straight Pump
SP-3240	2" NPT Self-Priming Pump	SP-3340-E	3" NPT Self-Priming Pump
SP-3340	3" NPT Self-Priming Pump	SP-3350-E	3" NPT Self-Priming Pump High Flow Impeller (13hp)
SP-3350	3" NPT Self-Priming Pump, High Flow Impeller (13hp)		
SP-3350-BS **	3" NPT Self-Priming Pump (BS) High Flow Impeller (13hp)		Pumps Coupled to Gasoline Engines
SP-3450-BS **	4"X 3" NPT Self-Priming Pump (BS) (19hp)	S-3220-G5H	2" NPT Straight, 5Hp Honda, w/Base
	** BS pumps accept a 1" diameter engine shaft	SP-3240-G5H	2" NPT Self-Priming, 5Hp Honda, w/Base
	Note: Adding "C" suffix denotes silicon carbide seals	SP-3240-G5LCT	2" NPT Self-Priming, 5Hp LCT, w/Base
	Note: Adding "-FLG" suffix denotes flanged inlet/outlet	S-3320-G13H	3" NPT Straight, 13Hp Honda, Elec. Start, w/Base
		SP-3350-G13H	3" NPT Self-Priming, 13Hp Honda, Elec. Start, w/Base
	Pumps Coupled to Electric Motors	SP-3350-G13LCT	3" NPT Self-Priming, 13Hp LCT, Elec. Start, w/Base
S-3220-E5D1	2" NPT Straight Pump, 5 Hp, 1 Phase		
S-3220-E5D3	2" NPT Straight Pump, 5 Hp, 3 Phase		Pumps with Hydraulic Drive
S-3220-E5T3	2" NPT Straight Pump, 5 Hp, 3 Phase, TEFC	S-3220-PH	2" NPT Straight Pump with Hyd. Drive, w/Base
S-3320-E10T-1	3" NPT Straight Pump, 10 Hp, 1 Phase, TEFC	SP-3240-PH	2" NPT Self-Priming Pump with Hyd. Drive, w/Base
S-3320-E10TB-1	3" NPT Straight Pump, 10 Hp, 1 Phase, TEFC, w/Base	S-3325-PH	3" NPT Straight Pump with Hyd. Drive – 25 GPM
S-3320-E10T	3" NPT Straight Pump, 10 Hp, 3 Phase, TEFC	SP-3345-PH	3" NPT Self-Priming Pump w/Hyd. Drive– 25 GPM
S-3320-E15T	3" NPT Straight Pump, 15 Hp, 3 Phase, TEFC	S-3325-PHL	3" NPT Straight Pump w/LF Hyd. Drive – 14 GPM
		SP-3345-PHL	3" NPT Self-Priming Pump w/LF Hyd. Drive– 14 GPM
SP-3240-E5D1B	2" NPT Self-Priming Pump, 5 Hp, 1 Phase, with Base		
SP-3240-E5T1B	2" NPT Self-Priming Pump, 5 Hp, 1 Phase, with Base, TEFC		Pumps with Pedestals
SP-3240-E5D3B	2" NPT Self-Priming Pump, 5 Hp, 3 Phase, with Base	S-3220-P	2" NPT Straight Pump with Pedestal
SP-3240-E5T3B	2" NPT Self-Priming Pump, 5 Hp, 3 Phase, TEFC, with Base	SP-3240-P	2" NPT Self-Priming Pump with Pedestal
SP-3340-E10TB-1	3" NPT Self-Priming Pump, 10 Hp, 1 Phase, TEFC, with Base	S-3320-P	3" NPT Straight Pump with Pedestal
SP-3340-E10TB	3" NPT Self-Priming Pump, 10 Hp, 3 Phase, TEFC, with Base	S-3325-P	3" NPT Straight Pump for Truck mounting
SP-3350-E15TB	3" NPT Self-Priming Pump, 15 Hp, 3 Phase, TEFC, with Base	SP-3340-P	3" NPT Self-Priming Pump with Pedestal
SP-3450-E20TB	4"x3" NPT Self-Priming Pump, 20hp 3 Phase, TEFC, w/Base	SP-3345-P	3" NPT Self-Priming Pump for Truck mounting



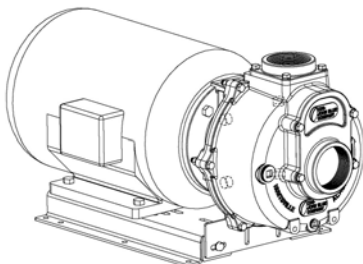
Straight



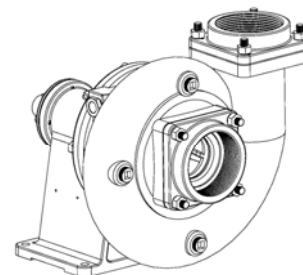
Self-Priming



Close Coupled Gas Engine



Close Coupled Electric Motor

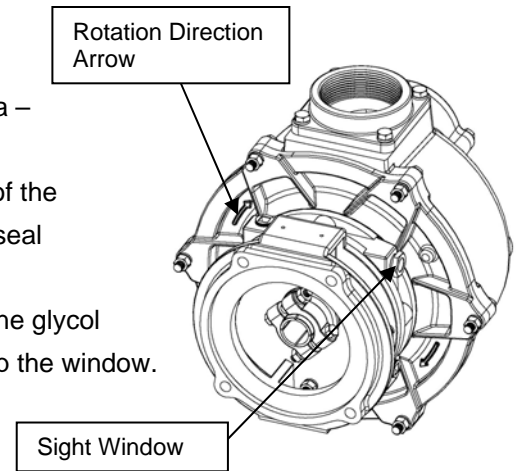


Truck Pump Pedestal – Straight Housing

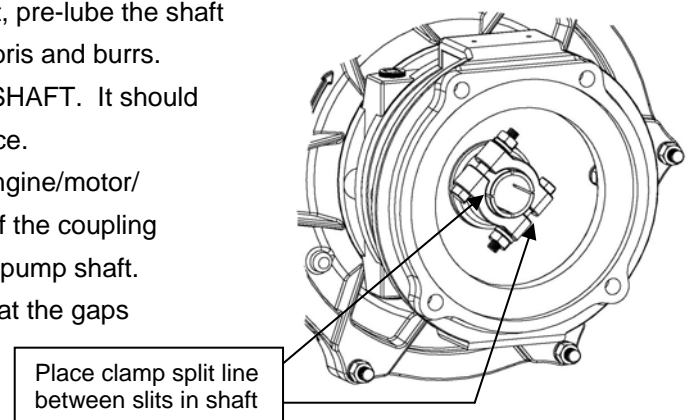
INSTALLATION

MOUNTING

- The pump should be installed in a clean, dry, and well ventilated area – preferably close to the fluid supply tank.
- The pump should be mounted so that the sight window is at the top of the seal reservoir, and it may be moved to one of the other ports on the seal reservoir if necessary.
- If the seal reservoir fluid has been drained, a 50/50 mixture of ethylene glycol antifreeze and water should be used to replace it, filled to half-way up the window.
- Be sure to note the direction arrow cast into the pump body, and double check your power source's rotation direction.

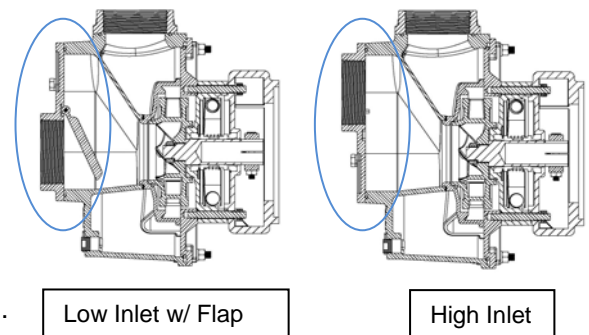


- For close-coupling to a motor, engine, or pedestal, the following must be observed:
 - Vac-U-Seal pumps must NEVER be used on engines or motors with plain bearings – ONLY use engines or motors equipped with ball bearings. Plain bearings allow the shaft to float or slide axially. The engine/motor/pedestal shaft is what supports the impeller in the housing, and it must be rigidly supported and constrained.
 - When sliding the shaft in to the pump shaft, pre-lube the shaft with a light oil and clean the shaft of all debris and burrs. NEVER FORCE THE PUMP ONTO THE SHAFT. It should slide on easily – investigate any interference.
 - When clamping the pump shaft onto the engine/motor/ Pedestal shaft, ensure that the split lines of the coupling are spaced evenly between the slits in the pump shaft.
 - Tighten the bolts of the clamp evenly so that the gaps on each side are equal.



SELF-PRIMING INLET CONFIGURATION

- The self-priming pumps have the option of a low or high inlet port configuration. This change affects the free-flow performance of the pump (see page 3 flow chart) and also the drain-back capability of the input and outlet lines.
- To change from the as-delivered low inlet to a high inlet configuration, remove the four bolts and inlet adapter, remove the flap, and reinstall the inlet in the other orientation.



PIPING

- Vac-U-Seal pumps are not designed to support piping. If piping is used, it should be supported independently of the pump and connected to the pump with flexible members such as hose.
- It is recommended that new clean pipe be used at installation, and be of the same size as the pump ports. For long distances, the pipe size may need to be increased.
- The suction pipe should always be sloped upward to avoid creating air pockets in the line.

ELECTRICAL

- For electric motors, a licensed electrician must be used to wire the pump/motor assembly. The wire and fuses should be sized by the licensed electrician based on the motor tag data and the length of wire run.
- Do not use the pump/motor assembly in explosive atmospheres – ensure adequate ventilation.

GAS ENGINES

- For gas engines with electric start, use 6 ga cable to connect both the positive terminal of the battery to the stud on the starter solenoid, and the negative terminal of the battery to an engine mounting bolt or a good grounding point on the frame. The length of cable should be kept to a minimum, preferably 3ft or less.
- The battery used should be 12v – 18Ah or larger, and it must be securely mounted to the frame.
- Coat terminals and cable ends with grease.
- Do not use the pump/engine assembly in explosive atmospheres – ensure adequate ventilation.

MAINTENANCE

- Inspect the seal reservoir fluid level using the sight window – it should be above the middle of the window.
- If dirty, replace the fluid by draining and replacing with a 50/50 mixture of ethylene glycol antifreeze and water. The recommended service interval for this fluid is 100 hours.
- If the fluid in the seal reservoir becomes cloudy or loses fluid after use, the impeller side seal is leaking and should be replaced.
- Inspect the pump frequently for any leaks from the housing gaskets or shaft seal.

STORAGE

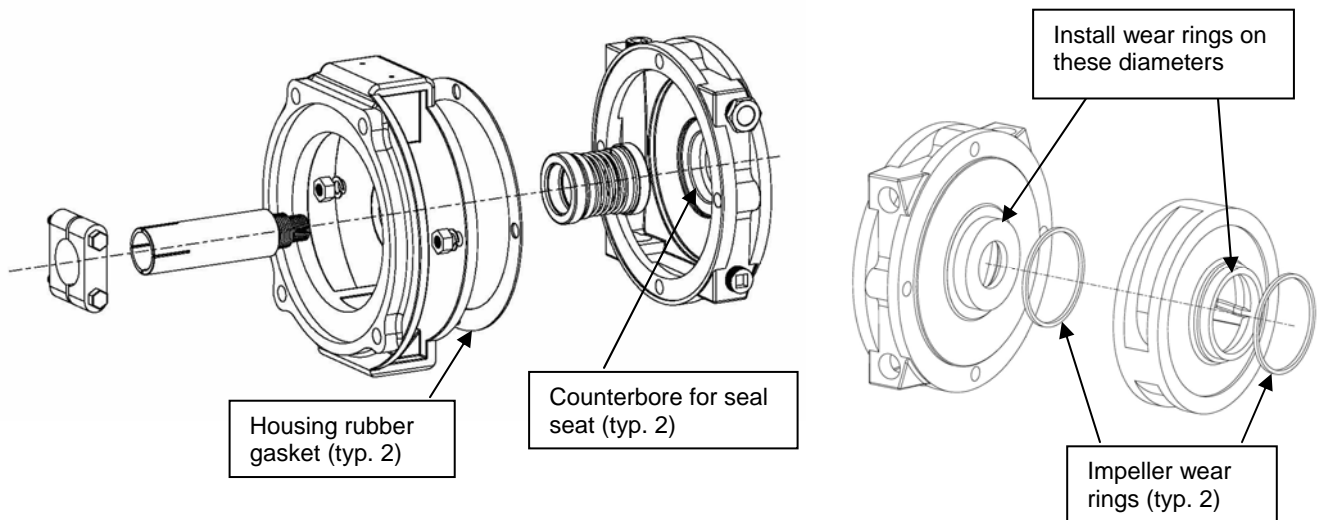
**** IMPORTANT – KEEP AIR OUT OF THE PUMP AND KEEP IT FROM FREEZING****

- Keep air out of the pump! This is the only way to prevent corrosion. Even for short periods of storage, the entrance of air into the pump causes RAPID and SEVERE CORROSION. Freezing temperatures can cause the fluid or water to freeze internally to the pump, which can cause severe damage to castings.
- **To prevent excessive corrosion of the pump's cast iron components:**
 - Flush pump thoroughly with 5 to 10 gallons of a solution that will neutralize the liquid last pumped (refer to that manufacturer's instructions). Fill with clean water and DO NOT DRAIN. Keep pump sealed to exclude air by placing plugs in the suction and discharge lines to keep pump full. For long-term storage (more than 2 weeks), use straight RV-antifreeze (which has a corrosion inhibitor) to fill the pump after flushing.
- **To protect pump from freezing:**
 - Flush pump per instructions above and IMMEDIATELY fill pump with straight RV-antifreeze. Place plugs in the suction and discharge lines to keep pump full and exclude air.

REPAIR

SEAL REPLACEMENT

- * Be sure to order the correct seal for your pump: **Ceramic** (white seat sealing surfaces) or **Carbide** (gray)
 - * Gasket and seal kits may also be purchased to rebuild pump – see Parts Listing section
- 1.) Loosen the shaft clamp, and unbolt the pump adapter from the engine/motor/pedestal. Penetrating oil should be allowed to soak between pump shaft and the driving shaft if it is stuck.
 - 2.) Carefully remove the pump from the engine/motor/pedestal by pulling it straight off of the shaft. Do not pry the pump back and forth, as it may bend the tabs of the pump shaft.
 - 3.) Disassemble the pump by draining the seal reservoir fluid, and then removing the motor/engine adapter and the reservoir housing.
 - 4.) Remove the seal seats from the pump castings, and carefully clean the counterbores where they fit.
 - 5.) When re-installing new seal seats, coat the rubber o.d. with a quality pipe compound like Rector Seal, and press the seal seat fully into the casting counterbores. The compound will lubricate the seat for installation and prevent corrosion under the seal.
 - 6.) Using a small hammer and a plastic tube or block on the seal seat, you may lightly tap the seats into the counterbores to make sure they are bottomed out fully.
 - 7.) Before re-assembly, make sure the ceramic faces (where the rotary seal will touch) are clean.
 - 8.) Thoroughly clean the shaft and lightly lubricate it with oil or grease before installing the shaft seals and spring onto the shaft.
 - 9.) Assemble the pump using new rubber gaskets between the casting components and replace impeller wear rings as necessary. Note: Wear rings fit very tightly and must be stretched by hand before being rolled onto the parts.
 - 10.) Re-install the anti-freeze/water mixture as described in the Maintenance section.



IMPELLER REPLACEMENT (refer to the appropriate parts listing for your model):

- 2" pumps and 3" SP pump: Remove plumbing from the pump, and then the (4) fasteners holding the pump housing to the seal reservoir on a straight pump, or (6) fasteners holding the housing to the housing back cover on the self-priming. Remove housing. Hold the pump shaft stationary, and first unscrew the impeller locknut (which has LEFT-HAND threads on 3" pumps) with an impact wrench, then the impeller itself (which has right-hand threads) using a large screwdriver inserted in the vanes.

- 3" straight pumps (including the S-3325-P Truck Pump): Because the studs attaching the pump housing extend through the seal reservoir, the reservoir must be drained before the (4) fasteners are removed and the pump pulled apart. Replace all rubber gaskets when re-assembling. Fill the reservoir per the instructions given in the Maintenance section.
 - Be sure to use new rubber gaskets when re-assembling the pump.
 - It is also recommended to replace the two Teflon wear rings on the impeller

PEDESTAL BEARING/SHAFT REPLACEMENT (refer to the appropriate parts listing for your model):

- 2" pumps: The shaft and bearings of the 2" pedestal must be replaced as an assembly, and it must be pressed out through the pump side of the pedestal.
- 3" pumps: The shaft or bearings may be replaced independently of each other. The bearing cap must be removed after removing the (3) fasteners retaining it. The shaft and bearings may now be pressed out through the pump side of the housing.
- S/SP-3325-P Truck Pumps: The pump must be disassembled (see impeller removal instructions above) prior to replacing the bearings and/or shaft.

HYDRAULIC CIRCUIT INFORMATION

INSTALLATION INFORMATION

- Hydraulically driven pumps require a pedestal assembly to accept the motor adapter. If you are converting an existing pump without a pedestal, one will have to be obtained.
- The hydraulic motor is attached to the pedestal using a motor adapter and a flexible coupling.
- The hydraulic motor high pressure inlet port is marked "IN", "P", or "PR" (pressure), and the outlet or return is usually marked "OUT" or "TK" (tank).
- The hydraulic motor requirements for driving 2" pumps are: 6 GPM min, 1000 psi min, CCW Rot.
 - Hydraulic drive kit: 110345 (contains 110346-01 motor, S-3601 adapter, and hardware)
 - Kit installs on the S-3342 2" pump pedestal
- The hydraulic motor requirements for driving 3" pumps depend on which motor is selected:
 - Hydraulic drive kit: **115910-91** (contains 107030-**02** motor, 107016-02 adapter, and hardware)
 - 25 GPM min, 1500 psi min, CCW Rot.
 - Hydraulic drive kit: **115910-91L** (contains 107030-**03** motor, 107016-02 adapter, and hardware)
 - 14 GPM min, 1500 psi min, CCW Rot.
 - Both kits install onto the S/SP-3325-P 3" truck pump pedestal

CHECK VALVE

- The hydraulic motor must be equipped with an in-line check valve at its outlet to protect the motor seals in the event the return hose is pressurized. It is recommended that a low pressure oil return is used.

TRACTOR CONTROL VALVE

- The tractor valve lever for any of the types of tractor hydraulic systems (listed below) must be locked in the open position for operation of the pump.
- If the tractor control valve is used to start and stop the pump on a closed-center hydraulic system, it is possible to create damaging pressure spikes because the valve can block the return port while the motor is running (creating a pressure spike in that line from the motor/pump momentum). Alternatives to prevent pressures spikes are adding an in-line start-stop valve, or setting the tractor system to “float” when turning off the flow to the motor.

TRACTOR HYDRAULIC SYSTEM TYPES

- There are three types of tractor hydraulic systems available today:

OPEN CENTER SYSTEM

- Open center systems utilize a constant flow pump. This requires the use of an in-line **by-pass valve** to control the speed of the hydraulic motor. (Note: The 2” pump motor (110346-01) has a built-in bypass valve, and it is adjusted using the slotted shaft and locknut on the side of the motor.)
- If a large amount of oil is bypassed when running the pump motor, a significant amount of heat can be generated in the oil, which could damage the tractor’s hydraulic system.
- Auxiliary cooling or reducing the engine speed may be necessary to avoid damage.

CLOSED CENTER PRESSURE COMPENSATED SYSTEM

- Closed center pressure compensated systems utilize a variable stroke pump that increases the flow rate until a certain pressure is reached, at which point the flow rate remains constant.
- In order to operate the pump hydraulic motor at the proper speed, pressure must be built-up against the pump to restrict its rate of flow, so a restriction must be added before the motor inlet.
- This may be accomplished in two ways: with a **needle valve** in-line before the motor inlet port, or with an **in-line orifice** before the motor inlet port. It is important to install the orifice before the inlet port only, because damage to the motor may result if it is installed in the outlet.
- The speed of the pump may then be adjusted with the tractor’s flow control valve.
- Do not use a by-pass valve with a pressure compensated closed center system.
- When turning off flow to the motor using the tractor control valve, the controls must be set to the float position to prevent pressure spikes.

CLOSED CENTER LOAD SENSING SYSTEM

- Closed center load sensing systems are similar to the pressure compensated systems, except that they have flow compensation too, which results in less heat generation and higher efficiency.
- The speed of the pump will be adjusted with the tractor’s flow control valve.
- Do not use a by-pass valve or an orifice with a load sensing closed center system.
- When turning off flow to the motor using the tractor control valve, the controls must be set to the float position to prevent pressure spikes.

PARTS LISTING: S-3220 (2" STRAIGHT)

APPLY THIN FILM OF GREASE TO RUBBER PORTION OF SEAL BEFORE ASSEMBLY TO SHAFT

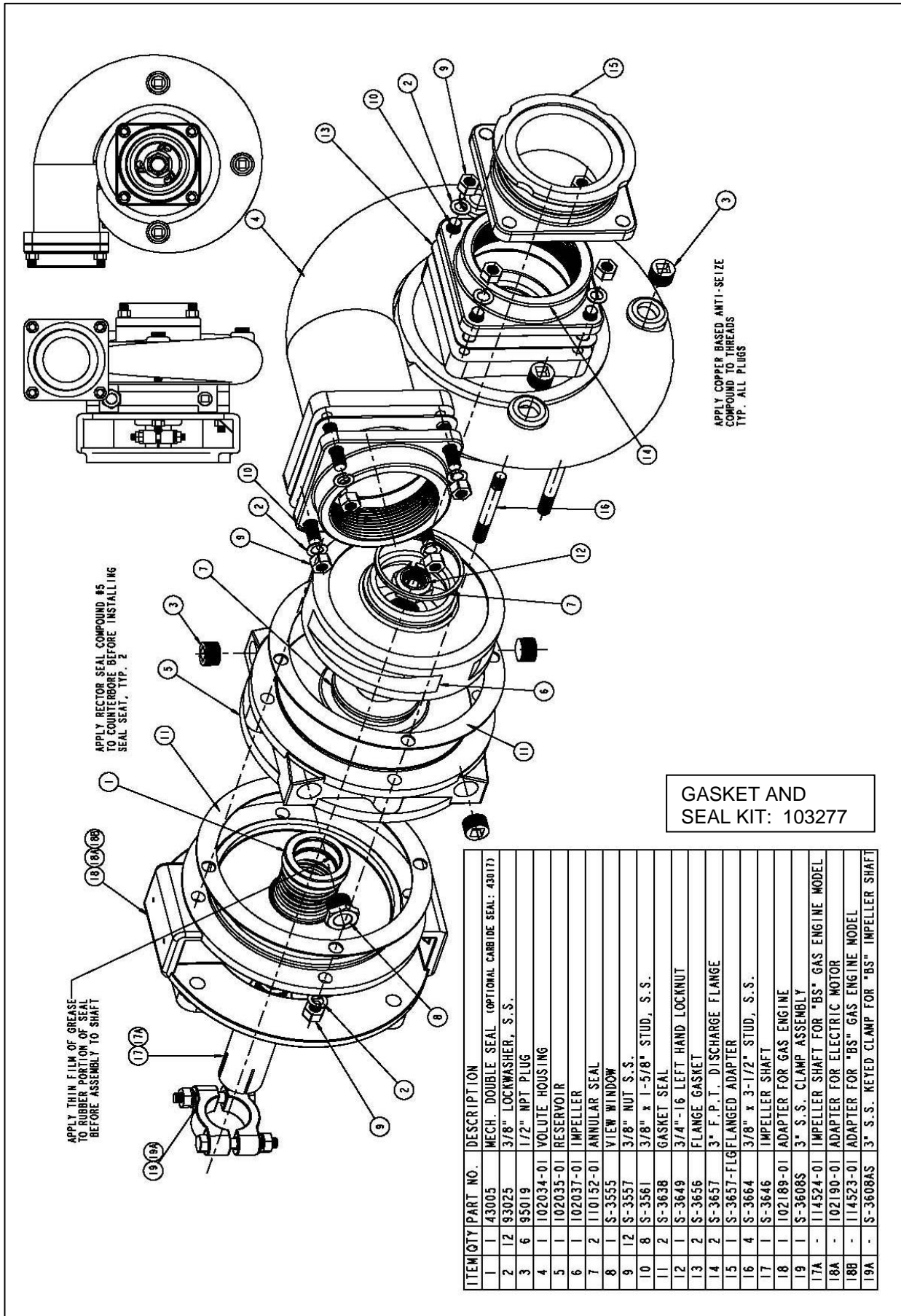
APPLY RECTOR SEAL COMPOUND #5 TO COUNTERBORE BEFORE INSTALLING SEAL SEAT, TYP. 2

APPLY COPPER BASED ANTI-SEIZE COMPOUND TO THREADS TYP. ALL PLUGS

GASKET AND SEAL KIT: 103274

ITEM QTY	PART NO.	DESCRIPTION
1	8	93025 3/8" LOCKWASHER, STAINLESS
2	6	95019 1/2" NPT PLUG
3	1	102038-01 VOLUTE MACH. - 2" CENTRIF.
4	1	102040-01 RESERVOIR
5	1	102041-01 IMPELLER
6	2	106460-01 WEAR RING - TEFLON
7	2	116001-01 2" NPT TO FLANGE ADAPTER (OPTIONAL)
8	1	S-3555 VIEW WINDOW
9	8	S-3557 3/8"-24NF HEX NUT STAINLESS
10	2	S-3558 FLANGE ADAPTER GASKET
11	8	S-3561 3/8" x 1"-5/8" STUD, S.S.
12	1	S-3565-V 1" MECH. DOUBLE SEAL (OPTIONAL CARBIDE SEAL: S-3565-VC)
13	1	S-3568 IMPELLER SHAFT
14	1	S-3572 IMPELLER NUT
15	1	S-3556 ADAPTER - GAS ENGINE & PEDESTAL
16	1	S-3607S 2" S.S. CLAMP ASSEMBLY
15A	-	S-3609 ADAPTER FOR ELECTRIC MOTOR

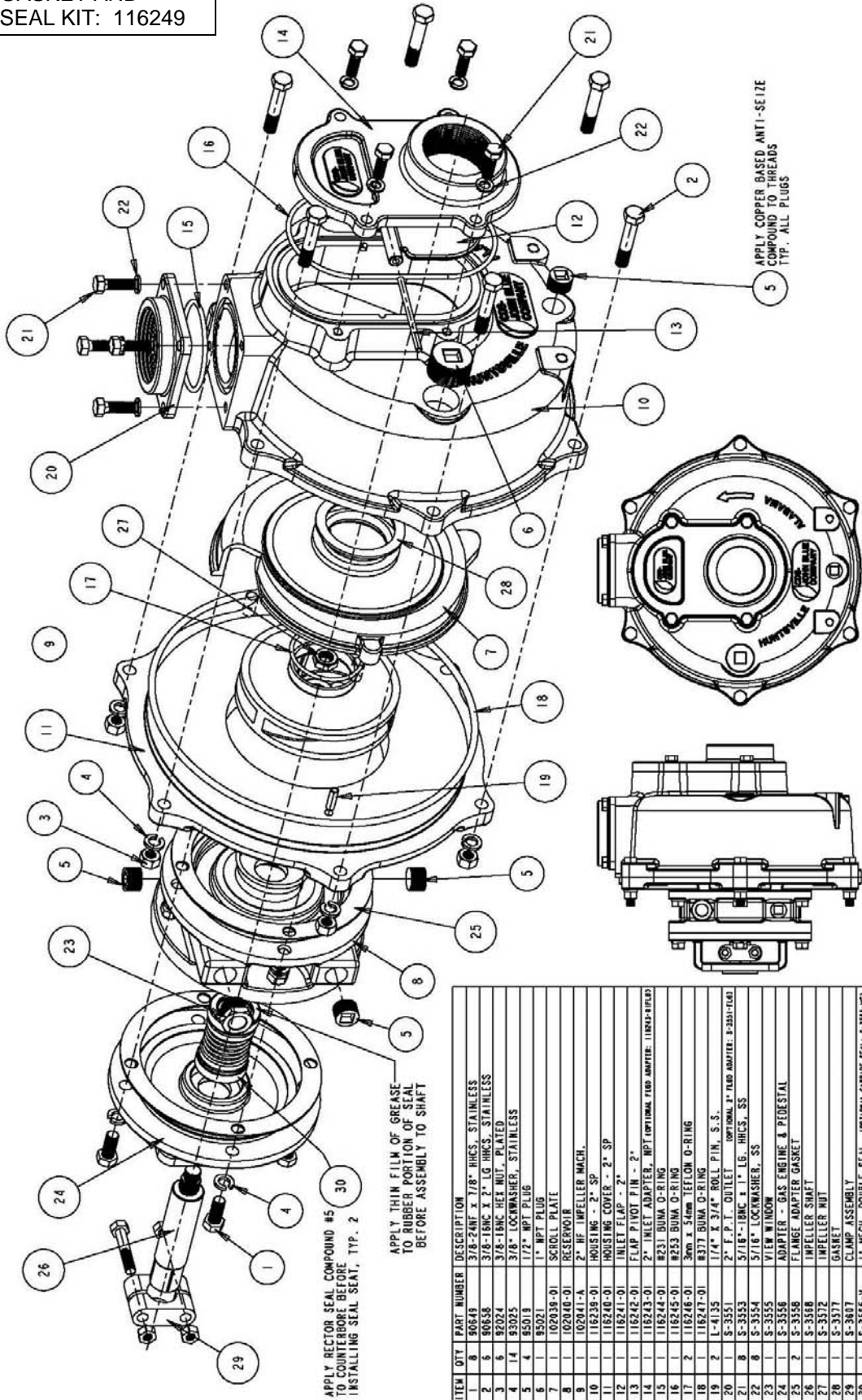
PARTS LISTING: S-3320 (3" STRAIGHT)



ITEM QTY	PART NO.	DESCRIPTION
1	43005	MECH. DOUBLE SEAL (OPTIONAL CARBIDE SEAL: 43017)
2	93025	3/8" LOCKWASHER, S.S.
3	95019	1/2" NPT PLUG
4	102034-01	VOLUTE HOUSING
5	102035-01	RESERVOIR
6	102037-01	IMPELLER
7	110152-01	ANNULAR SEAL
8	S-3555	VIEW WINDOW
9	S-3557	3/8" NUT S.S.
10	S-3561	3/8" x 1-5/8" STUD, S.S.
11	S-3638	GASKET SEAL
12	S-3649	3/4"-16 LEFT HAND LOCKNUT
13	S-3656	FLANGE GASKET
14	S-3657	3" F.P.T. DISCHARGE FLANGE
15	S-3657-FL	FLANGED ADAPTER
16	S-3664	3/8" x 3-1/2" STUD, S.S.
17	S-3646	IMPELLER SHAFT
18	102189-01	ADAPTER FOR GAS ENGINE
19	S-3608S	3" S.S. CLAMP ASSEMBLY
17A	-	IMPELLER SHAFT FOR "BS" GAS ENGINE MODEL
18A	-	ADAPTER FOR ELECTRIC MOTOR
18B	-	ADAPTER FOR "BS" GAS ENGINE MODEL
19A	-	S.S. KEYS CLAMP FOR "BS" IMPELLER SHAFT

PARTS LISTING: SP-3240 (2" SELF-PRIMING)

GASKET AND SEAL KIT: 116249



APPLY COPPER BASED ANTI-SEIZE COMPOUND TO THREADS TYP. ALL PLUGS

APPLY THIN FILM OF GREASE TO RUBBER PORTION OF SEAL BEFORE ASSEMBLY TO SHAFT

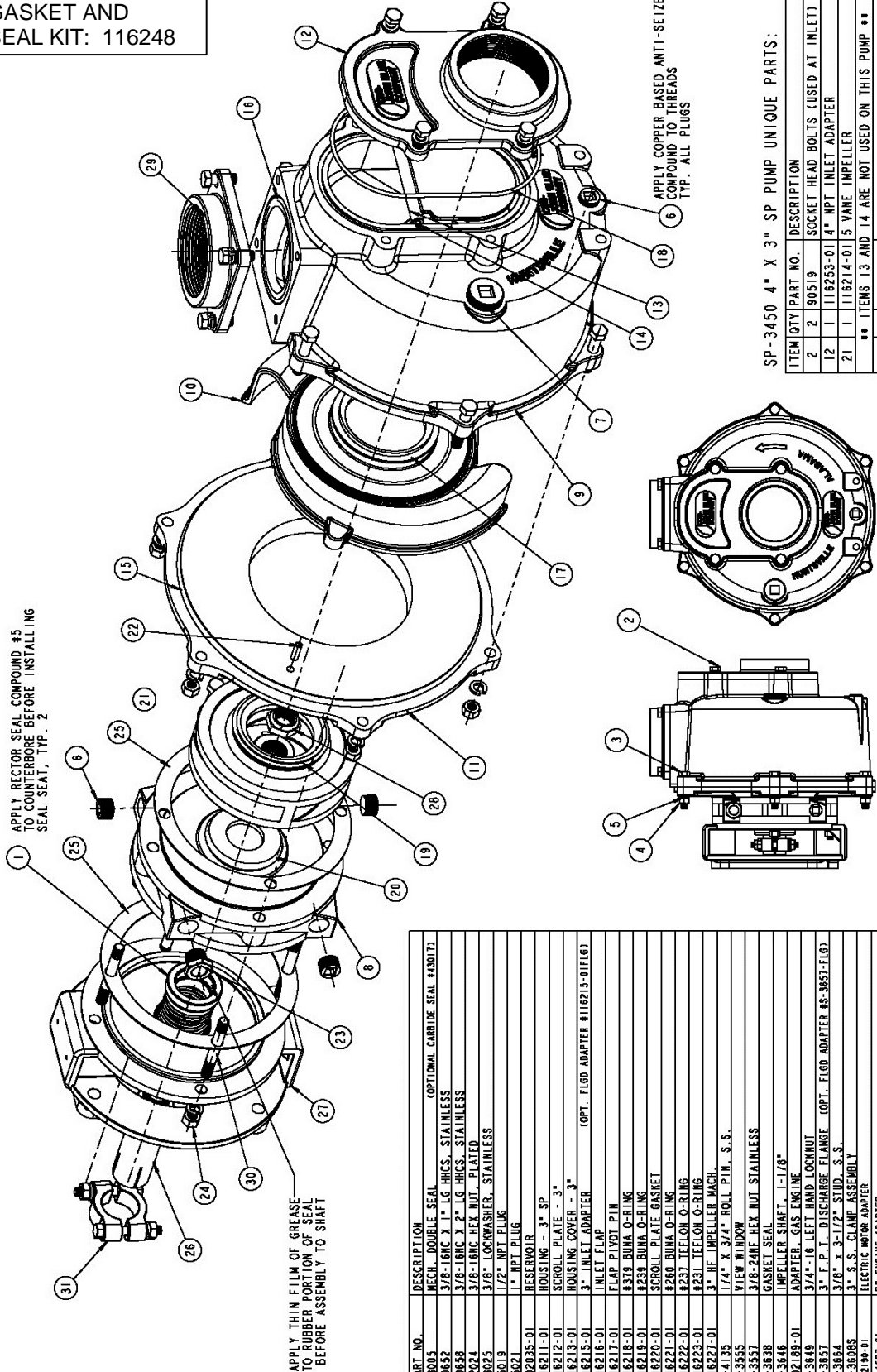
APPLY RECTOR SEAL COMPOUND #5 TO COUNTERBORE BEFORE INSTALLING SEAL SEAT, TYP. 2

ITEM	QTY	PART NUMBER	DESCRIPTION
1	8	90649	3/8"-24NF X 7/8" RHCS, STAINLESS
2	6	90658	3/8"-16NC X 2" LG RHCS, STAINLESS
3	6	92024	3/8"-16NC HEX NUT, PLATED
4	14	93025	3/8" LOCKWASHER, STAINLESS
5	4	95018	1/2" NPT PLUG
6	1	95021	1" NPT PLUG
7	1	102038-01	SCROLL PLATE
8	1	102040-01	SCREWDRIVER
9	1	102041-A	2" HE IMPPELLER MACH.
10	1	16238-01	HOUSING - 2" SP
11	1	16240-01	HOUSING COVER - 2" SP
12	1	16241-01	INLET FLAP - 2"
13	1	16242-01	FLAP PIVOT PIN - 2"
14	1	16243-01	2" INLET ADAPTER, IPT (OPTIONAL TUB ADAPTER: 116249-01) (IPT)
15	1	16244-01	R231 BUNA O-RING
16	1	16245-01	R253 BUNA O-RING
17	2	16246-01	3mm X 54mm TETLON O-RING
18	1	16247-01	R377 BUNA O-RING
19	2	L-4135	1/4" X 3/4" ROLL PIN, S.S.
20	1	S-3551	2" F.P.T. OUTLET (OPTIONAL 2" FLD ADAPTER: S-3551-T04)
21	8	S-3553	5/16"-16NC # 1" LG. RHCS, SS
22	6	S-3554	5/16" LOCKWASHER, SS
23	1	S-3555	VIEW WINDOW
24	1	S-3556	ADAPTER - GAS ENGINE & PEDESTAL
25	2	S-3558	FLANGE ADAPTER GASKET
26	1	S-3568	IMPELLER SHAFT
27	1	S-3572	IMPELLER NUT
28	1	S-3577	GASKET
29	1	S-3807	CLAMP ASSEMBLY
30	1	S-3565-V	1" MECH. DOUBLE SEAL (OPTIONAL CARBIDE SEAL: S-3565-VC)
24-E	-	S-3609	ADAPTER - ELECTRIC MOTOR

ITEM 429 - OPTIONAL 1-1/2" NPT OUTLET: S-3808

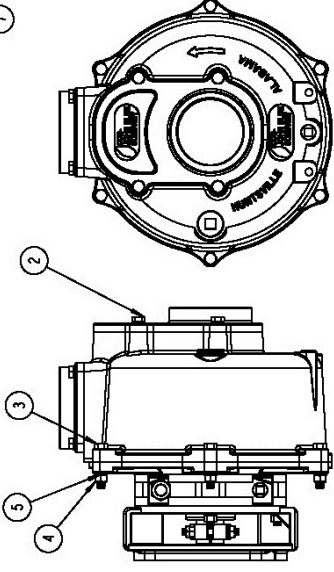
PARTS LISTING: SP-3340/SP-3350/SP-3450 (3" & 4")

GASKET AND SEAL KIT: 116248



SP-3450 4" X 3" SP PUMP UNIQUE PARTS:

ITEM	QTY	PART NO.	DESCRIPTION
2	2	90519	SOCKET HEAD BOLTS (USED AT INLET)
12	1	116253-01	4" NPT INLET ADAPTER
21	1	116214-01	5 VANE IMPELLER
** ITEMS 13 AND 14 ARE NOT USED ON THIS PUMP **			

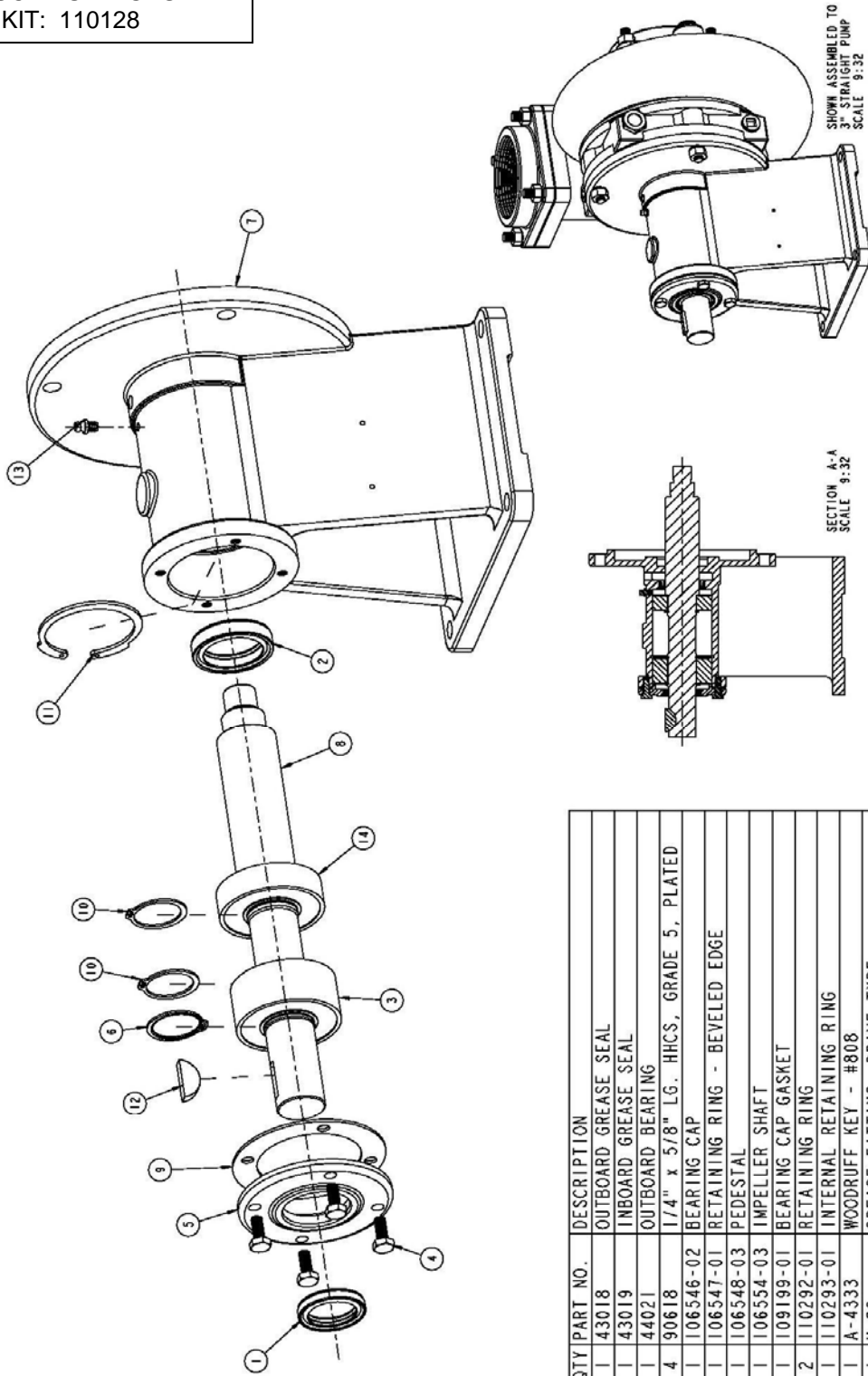


SCALE 3:16

ITEM	QTY	PART NO.	DESCRIPTION
1	1	43005	MECH. DOUBLE SEAL (OPTIONAL CARBIDE SEAL #48017)
2	8	90682	3/8-16NC X 1 LG. HCS. STAINLESS
3	8	90686	3/8-16NC X 2 LG. HCS. STAINLESS
4	6	92024	3/8-16NC HEX. NUT. PLATED
5	18	93025	3/8" LOCKWASHER, STAINLESS
6	4	95019	1/2" NPT PLUG
7	1	95021	1" NPT PLUG
8	1	102035-01	RESERVOIR
9	1	116211-01	HOUSING - 3" SP
10	1	116212-01	SCROLL PLATE - 3"
11	1	116213-01	HOUSING COVER - 3"
12	1	116215-01	3" INLET ADAPTER (OPT. FLGD ADAPTER #116215-01FLG)
13	1	116216-01	INLET FLAP
14	1	116217-01	FLAP PIVOT PIN
15	1	116218-01	#318 BUNA O-RING
16	1	116219-01	#238 BUNA O-RING
17	1	116220-01	SCROLL PLATE GASKET
18	1	116221-01	#260 BUNA O-RING
19	1	116222-01	#233 TEFLON O-RING
20	1	116223-01	#231 TEFLON O-RING
21	1	116227-01	3" HF. IMPELLER MACH.
22	2	1-4135	1/4" X 3/4" BOLL. PIN., S.S.
23	1	S-3555	VIEW WINDOW
24	4	S-3557	3/8-24NF HEX NUT STAINLESS
25	2	S-3638	GASKET SEAL
26	1	S-3646	IMPELLER SHAFT, 1-1/8"
27	1	102188-01	ADAPTER, GAS ENGINE
28	1	S-3649	3/4" - 16 LEFT HAND LOCKNUT
29	1	S-3657	3" F.P.T. DISCHARGE FLANGE (OPT. FLGD ADAPTER #S-3657-FLG)
30	4	S-3664	3/8" X 3-1/2" STUD, S.S.
31	1	S-3608S	3" S.S. CLAMP ASSEMBLY
27-E	-	102190-01	ELECTRIC MOTOR ADAPTER
26-B5	-	114523-01	B5 ENGINE ADAPTER
26-B5	-	114524-01	B5 ENGINE SHAFT (1")
31-B5	-	S-3608AS	B5 ENGINE KEYS CLAMP

PARTS LISTING: S-3325-P TRUCK PUMP PEDESTAL (USED WITH 3" STRAIGHT OR SELF-PRIMING PUMPS)

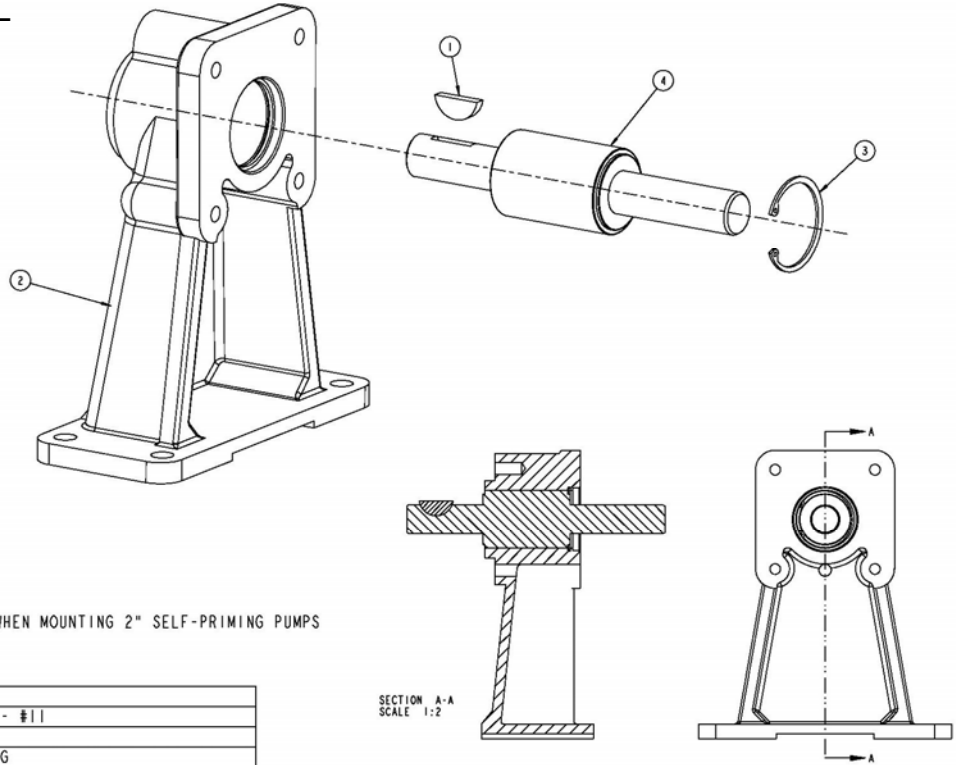
S-3325 TRUCK PUMP GASKET
AND SEAL KIT: 110128



ITEM QTY	PART NO.	DESCRIPTION
1	43018	OUTBOARD GREASE SEAL
2	43019	INBOARD GREASE SEAL
3	44021	OUTBOARD BEARING
4	90618	1/4" x 5/8" LG. HHCS, GRADE 5, PLATED
5	106546-02	BEARING CAP
6	106547-01	RETAINING RING - BEVELED EDGE
7	106548-03	PEDESTAL
8	106554-03	IMPELLER SHAFT
9	109199-01	BEARING CAP GASKET
10	110292-01	RETAINING RING
11	110293-01	INTERNAL RETAINING RING
12	A-4333	WOODRUFF KEY - #808
13	H-28	GREASE FITTING, DRIVE TYPE
14	S-3634	INBOARD BEARING

PARTS LISTING: CLOSE-COUPLED PEDESTALS

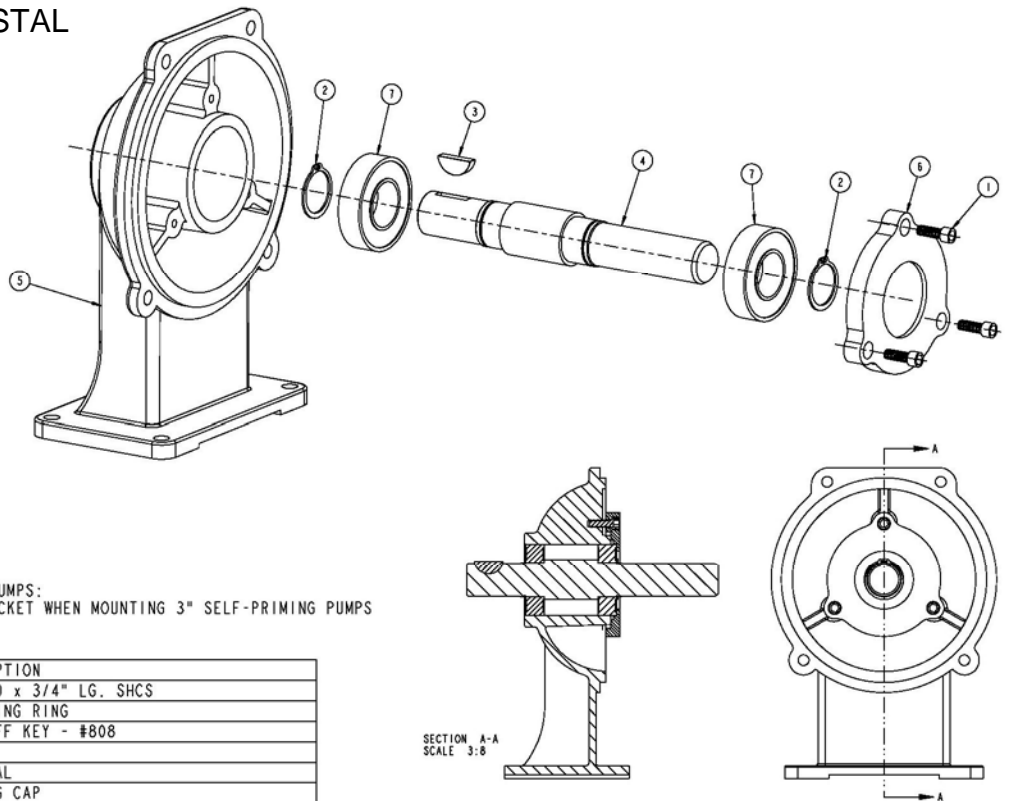
2" PUMP PEDESTAL S-3342



NOTE FOR SELF-PRIMING PUMPS:
USE S-3573 ANGLE BRACKET WHEN MOUNTING 2" SELF-PRIMING PUMPS

ITEM	QTY	PART NO.	DESCRIPTION
1	1	S-3583	WOODRUFF KEY - #11
2	1	S-3584	PEDESTAL
3	1	S-3585	RETAINING RING
4	1	S-3586	BEARING AND SHAFT ASSEMBLY

3" PUMP PEDESTAL S-3334

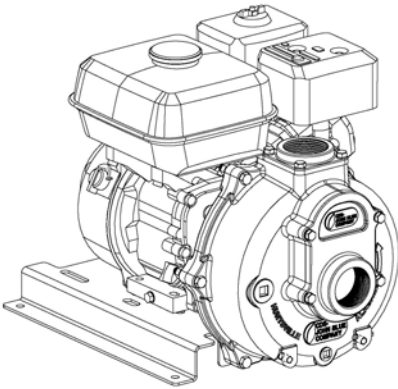


NOTE FOR SELF-PRIMING PUMPS:
USE S-3667 ANGLE BRACKET WHEN MOUNTING 3" SELF-PRIMING PUMPS

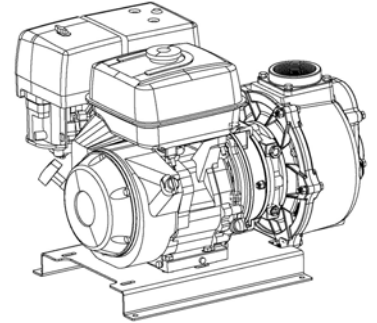
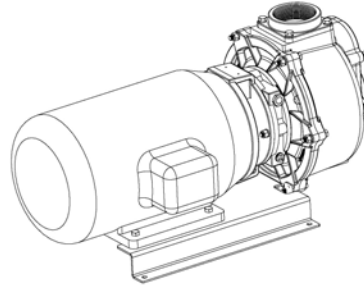
ITEM	QTY	PART NO.	DESCRIPTION
1	3	90514	1/4"-20 x 3/4" LG. SHCS
2	2	110292-01	RETAINING RING
3	1	A-4333	WOODRUFF KEY - #808
4	1	S-3630	SHAFT
5	1	S-3632	PEDESTAL
6	1	S-3633	BEARING CAP
7	2	S-3634	INBOARD BEARING

PARTS LISTING: ELECTRIC MOTOR & GAS ENGINE MODELS

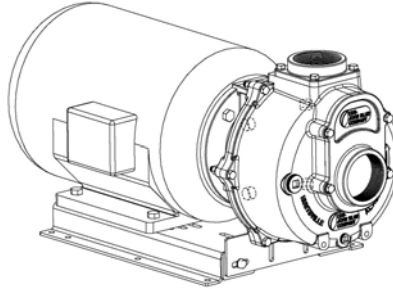
(A) 2" PUMP W/GAS OR ELEC.



(B) 3" PUMP W/10HP ELEC OR 13HP GAS



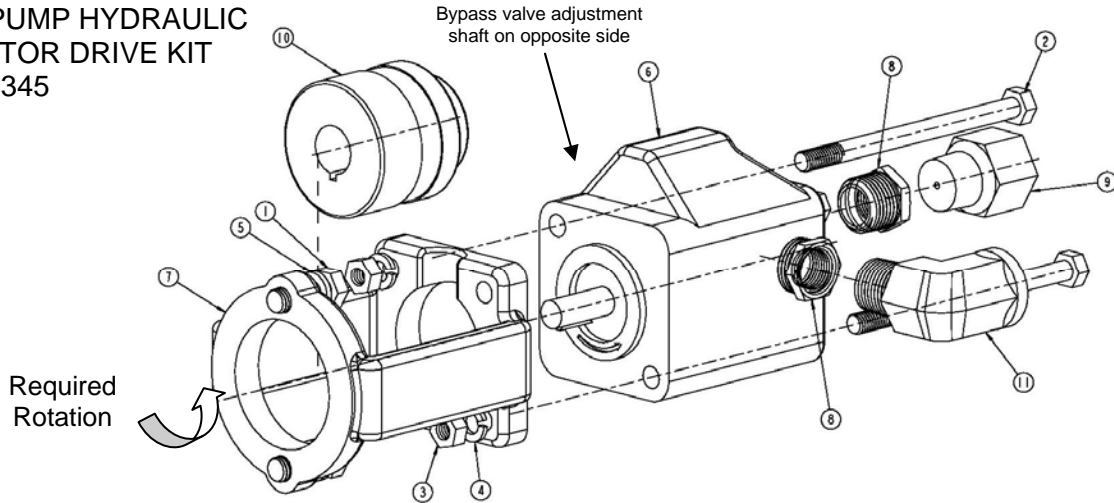
(C) 3" PUMP W/15HP ELEC. OR 4"x3" PUMP W/20HP ELEC.



MODEL	PART #	DESCRIPTION
A	116250-91	BASE KIT - 2" PUMP FOR ELEC. MOTOR OR GAS ENGINE (INCLUDES BASE AND HARDWARE)
	116251-01	BASE FORMING - 2" PUMP W/ELEC. MOTOR OR GAS ENGINE
	C-5962 / C-5960	5HP ELECTRIC MOTOR, DRIP-PROOF (3PH / 1PH)
	C-5963 / C-5961	5HP ELECTRIC MOTOR, TEFC (3PH / 1PH)
	113798-01	5.5 HP HONDA GAS ENGINE, ROPE START
B	116229-91	BASE KIT - 3" PUMP FOR 10 HP ELECTRIC MOTOR OR GAS ENGINE (INCLUDES BASE & HARDWARE)
	116228-01	BASE FORMING - 3" PUMP W/10 HP ELEC. MOTOR OR GAS ENGINE
	C-517 / 115277-01	10HP ELECTRIC MOTOR, TEFC (3PH / 1PH)
	115457-01	13HP HONDA GAS ENGINE, ELEC & ROPE START, 3A ALT.
	116272-01	13HP HONDA GAS ENGINE, ROPE START
	116265-01	14HP KOHLER GAS ENGINE, ELEC & ROPE START, 3A ALT.
	116273-01	14HP KOHLER GAS ENGINE, ROPE START
C	116279-91	BASE KIT - 3" AND 4"x3" PUMPS FOR 15 & 20 HP ELECTRIC MOTORS (INCLUDES BASE & HARDWARE)
	116269-01	BASE FORMING - 3" PUMP W/15HP ELEC. MOTOR
	108128	15HP ELECTRIC MOTOR, TEFC, 3PH (use with 3" pumps)
	116268-01	20HP ELECTRIC MOTOR, TEFC, 3PH (use with 4"x 3" pumps)

PARTS LISTING: HYDRAULIC MOTOR DRIVE KITS

2" PUMP HYDRAULIC MOTOR DRIVE KIT 110345

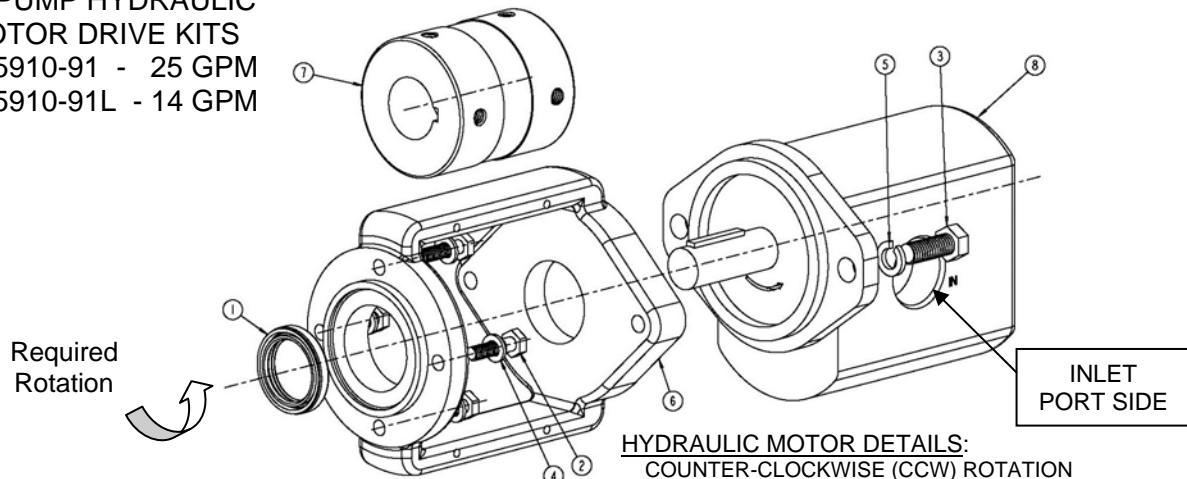


ITEM	QTY	PART NO.	DESCRIPTION
1	2	90651	3/8"-16NC X 1" LG. HEX HEAD BOLT
2	2	90959	5/16"-18NC X 4-1/2" LG. HEX HEAD BOLT
3	2	92020	3/8"-16NC HEX NUT
4	2	93023	5/16" SPLIT LW, PLTD.
5	2	93024	3/8" SPLIT LW, PLTD.
6	1	110346-01	2" PUMP HYDRAULIC MOTOR
7	1	S-3601	HYD. MOTOR ADAPTER
8	2	S-3682	REDUCING CONNECTOR, 1/2 X 3/8 NPT
9	1	S-3684	ORIFICE FITTING, 3/32"
10	1	S-3686	SHAFT COUPLING, 7/16" X 3/4"
11	1	S-8411	1/2" STEEL ELBOW

HYDRAULIC MOTOR DETAILS:

COUNTER-CLOCKWISE (CCW) ROTATION
 4-BOLT 4F17 FLANGE
 3400 RPM MAX 1000 PSI MAX CONT.
 0.00149 GAL/REV
 3/8" NPT INLET AND OUTLET PORTS
 7/16" DIAMETER x 1.13" LONG SHAFT
 APPROX. 5 GPM REQUIRED AT 3400 RPM

3" PUMP HYDRAULIC MOTOR DRIVE KITS 115910-91 - 25 GPM 115910-91L - 14 GPM



MOTOR SEAL KIT: 116208-01

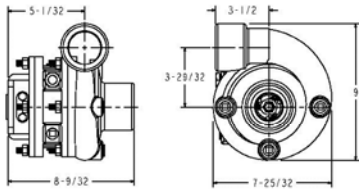
ITEM	QTY	PART NO.	DESCRIPTION
1	1	43018	OUTBOARD GREASE SEAL
2	4	90620	1/4"-20NC x 1" LG. HHCS, PLATED
3	2	90860	3/8"-16NC X 1" LG HHCS, PLATED
4	4	93005	1/4" SPLIT LOCKWASHER, PLATED
5	2	93024	3/8" SPLIT LW, PLTD.
6	1	107016-02	MOTOR ADAPTER
7	1	S-3673	SHAFT COUPLING, 1-1/8" X 3/4"
8	1	107030-02	STD. 3" PUMP HYDRAULIC MOTOR - .0074 GAL/REV
		107030-03	OPTIONAL LOW FLOW MOTOR - 0.0038 GAL/REV

HYDRAULIC MOTOR DETAILS:

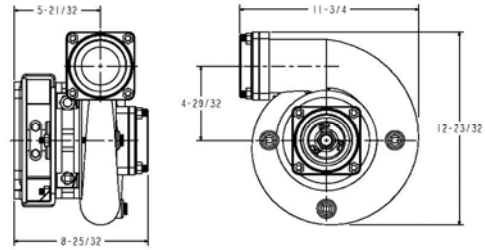
COUNTER-CLOCKWISE (CCW) ROTATION
 SAE "A" 2-BOLT FLANGE
 3600 RPM MAX
 3/4" DIAMETER x 2.0" LONG SHAFT
 107030-02 STD. MOTOR: 0.0074 GAL/REV
 #16 O-RING INLET PORT - #12 O-RING OUTLET PORT
 2300 PSI MAX CONTINUOUS
 (APPROX. 27 GPM REQUIRED AT 3400 RPM)
 107030-03 LOWER FLOW MOTOR: 0.0038 GAL/REV
 #12 O-RING INLET PORT - #10 O-RING OUTLET PORT
 3500 PSI MAX CONTINUOUS
 (APPROX. 14 GPM REQUIRED AT 3600 RPM)

DIMENSIONAL INFORMATION

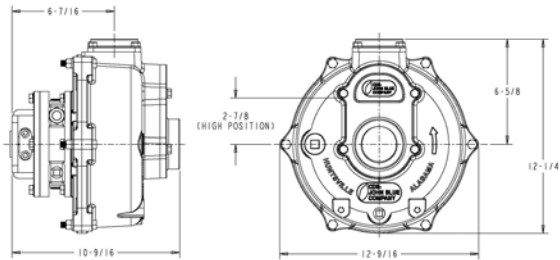
S-3220 (2" NPT PORTS)



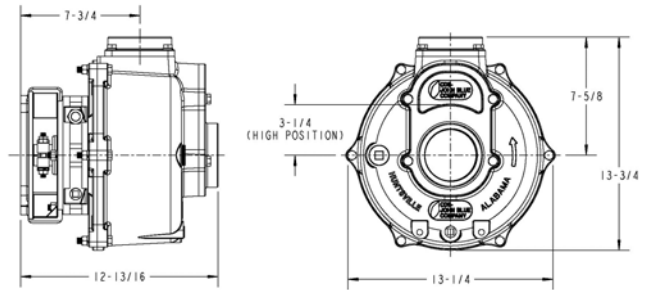
S-3320 (3" NPT PORTS)



SP-3240 (2" NPT PORTS)

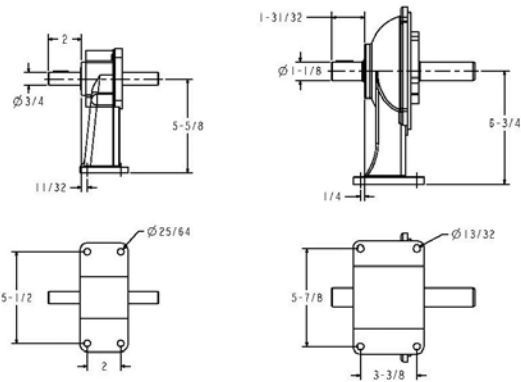


SP-3350 (3" NPT PORTS)

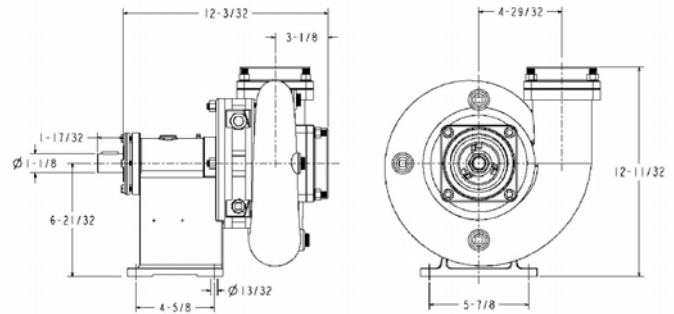


2" PEDESTAL

3" PEDESTAL



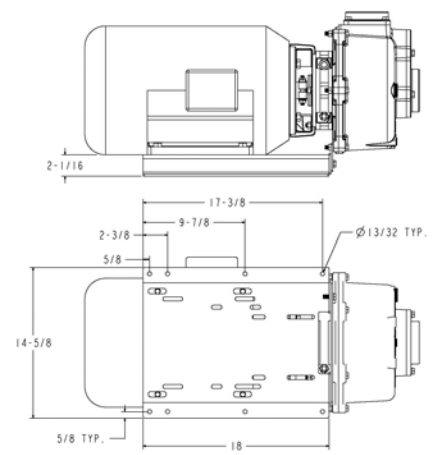
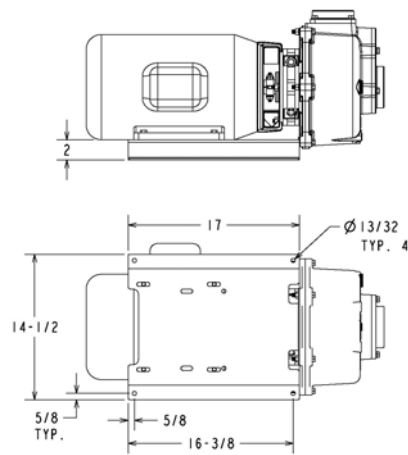
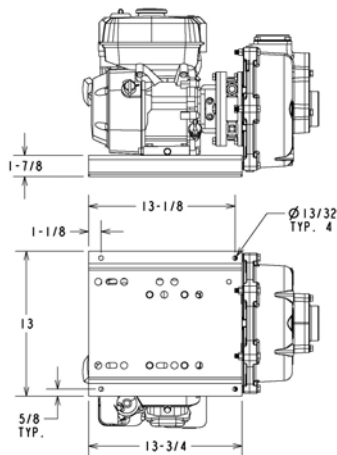
S-3325-P (3" NPT PORTS)



2" PUMP BASE DETAIL

10HP 3" PUMP BASE DETAIL

15HP 3" PUMP BASE DETAIL



TROUBLE SHOOTING

ISSUE	PROBABLE CAUSE
Pump makes rattling noise while running	Cavitation or pump starvation (suction lift is too high or the inlet line is too restrictive)
Reduced pump output or pressure	Clogged impeller or inlet piping (including strainer)
	Leaks in suction line or at inlet gasket
	Collapsed suction line
	Trapped air in sections of suction line
	Suction lift is too great
	Discharge lift is too great
	Worn or damaged parts (impeller or casing)
Pump fails to prime or slow prime	Leaks in suction line or at inlet gasket
	Suction lift is too great
	Collapsed suction line
	Not enough water in casing to prime pump (self-priming)
Seal reservoir fluid changes level	Leak at the input shaft seal if level is low
	Leak at the impeller side seal if level is high
Pump makes screeching or metal on metal noises	Improper installation on motor, engine, or pedestal shaft The shaft (and impeller) have been forced into the pump and against the volute

LIMITED WARRANTY

THIS WARRANTY IS IN LIEU OF ALL OTHER WRITTEN OR EXPRESS WARRANTIES AND REPRESENTATIONS. ANY IMPLIED WARRANTIES INCLUDING MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO THIS WRITTEN WARRANTY. CDS-JOHN BLUE COMPANY SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES.

Use of this product for any purpose other than its original intent, abuse of the product, and/or any modification to the original product is strictly prohibited by the manufacturer, CDS-John Blue Company. Any modification to the product should be approved by CDS-John Blue Company prior to use. CDS-John Blue Company will deny Warranty claims and liability in any situation involving misuse, abuse or modification.

Each new machine or component manufactured by CDS-John Blue Company through original buyer is warranted by CDS-John Blue Company to buyer and to any party or parties to whom buyer may resell, lease or lend the equipment to be free from defects in material and workmanship under normal use and service. This obligation of CDS-John Blue Company under this warranty is limited to the repair or replacement of defective parts or correction of improper workmanship of any parts of such equipment which shall within two years from the date of CDS-John Blue's original delivery thereof, be returned to CDS-John Blue's factory, transportation charges prepaid and which CDS-John Blue Company shall determine to its satisfaction upon examination thereof to have been thus defective. When it is impractical to return the defective parts of such equipment to CDS-John Blue's factory, then CDS-John Blue shall have no liability for the labor cost involved in repairing or replacing any such parts and shall be liable solely for supplying the material necessary to replace or repair the defective parts, provided that prior thereto CDS-John Blue Company shall have determined to its satisfaction that any such parts are thus defective.

This warranty shall not apply to any equipment which shall have been repaired or altered outside CDS-John Blue's factory in any way so as to affect its durability, nor which has been subjected to misuse, abuse, negligence or accident, or operated in any manner other than in accordance with operating instructions provided by CDS-John Blue Company. This warranty does not extend to repairs made necessary by the use of inferior or unsuitable parts or accessories, or parts or accessories not recommended by CDS-John Blue Company.

CDS-John Blue Company makes no warranties in respect to parts, accessories or components not manufactured by CDS-John Blue Company, same ordinarily being warranted separately by their respective manufacturers.

DIVISION OF ADVANCED SYSTEMS TECHNOLOGIES

HUNTSVILLE, AL

(256) 721-9090



CDS-John Blue Company

Division of Advanced Systems Technology

165 Electronics Blvd, Huntsville, AL 35824

Telephone: (256) 721-9090 - Fax (256)-721-9091 - Toll Free 1-800-253-2583

www.cds-johnblue.com

YOUR LOCAL DEALER

