

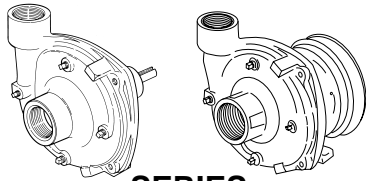


Installation, Operation, Repair and Parts Manual

Description

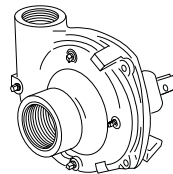
Hypro Centrifugal Pumps handle big, high capacity farm spraying jobs with ease. Use them for spraying liquid fertilizers and other chemicals, including wettable powder slurries for weed control. Make short work of other farm jobs - filling nurse tanks, watering seed beds, and transferring liquids.

Available in a variety of models, including lightweight polypropylene (pump portion only) pumps for resistance to corrosive liquids such as acid based fertilizers.



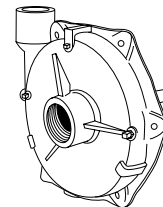
SERIES 9200C & 9200C-C
9200C-R & 9200C-CR
Cast Iron Pedestal-Mount Centrifugal Pump

Max. Flow Rate: 136 gpm
Max. Pressure: 180 psi
Max. Speed: 6000 rpm
Ports: 1-1/2" NPT inlet
 1-1/4" NPT outlet
 or 1-1/4" NPT inlet
 1" NPT outlet



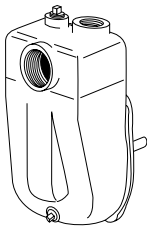
SERIES 9204C
Cast Iron Pedestal-Mount Centrifugal Pump

Max. Flow Rate: 190 gpm
Max. Pressure: 80 psi
Max. Speed: 4200 rpm
Ports: 2" NPT inlet
 1-1/2" NPT outlet



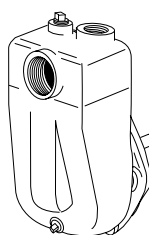
SERIES 9205C
Cast Iron Pedestal-Mount Centrifugal Pump

Max. Flow Rate: 190 gpm
Max. Pressure: 190 psi
Max. Speed: 4200 rpm
Ports: 2" NPT inlet
 1-1/2" NPT outlet



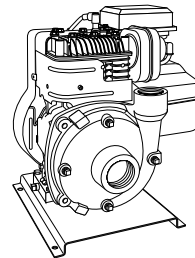
SERIES 9203C-SP

Max. Flow Rate: 122 gpm
Max. Pressure: 150 psi
Max. Speed: 6000 rpm
Ports: 1-1/2" NPT inlet
 1-1/4" NPT outlet



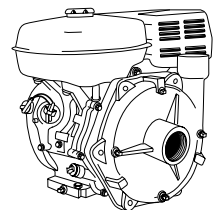
SERIES 9205C-SP
and 9205C-BSP

Max. Flow Rate: 136 gpm
Max. Pressure: 120 psi
Max. Speed: 3600 rpm
Ports: 2" NPT inlet
 2" NPT outlet



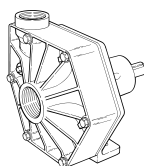
SERIES 1536 or 1537
Close-Coupled, Gas-Engine-Driven Centrifugal Pump

Max. Flow Rate: 104 gpm
Max. Pressure: 70 psi
Ports: 1-1/2" NPT inlet
 1-1/4" NPT outlet



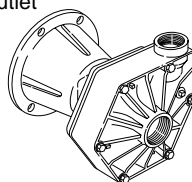
SERIES 1550
Close-Coupled, Gas-Engine-Driven Centrifugal Pump

Max. Flow Rate: 150 gpm
Max. Pressure: 140 psi
Ports: 2" NPT inlet
 1-1/2" NPT outlet



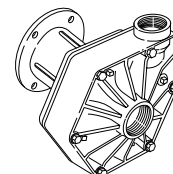
SERIES 9200P-S
Polypropylene Pedestal-Mount Centrifugal Pump

Max. Flow Rate: 92 gpm
Max. Pressure: 80 psi
Max. Speed: 4200 rpm
Ports: 1-1/2" NPT inlet
 1-1/4" NPT outlet



SERIES 9500P
Polypropylene Flange-Mount Centrifugal Pump

Max. Flow Rate: 92 gpm
Max. Pressure: 60 psi
Max. Speed: 3600+ rpm
Ports: 1-1/2" NPT inlet
 1-1/4" NPT outlet



SERIES 9513P
Polypropylene Flange-Mount Centrifugal Pump

Max. Flow Rate: 92 gpm
Max. Pressure: 60 psi
Max. Speed: 3600+ rpm
Ports: 1-1/2" NPT inlet
 1-1/4" NPT outlet



Safety Information

- WARNING: Do Not Pump Flammable or Explosive Fluids Such as Gasoline, Fuel Oil, Kerosene, Etc. Do Not Use in Explosive Atmospheres. The Pump Should be Used Only with Liquids that are Compatible with the Pump Component Materials. Failure to Follow this Warning Can Result in Personal Injury and/or Property Damage and Will Void the Product Warranty.**
 - Be sure all exposed moving parts such as PTO shafts and adapters are properly shielded or guarded and that all coupling devices are securely attached before applying power.
 - Pumps mounted directly on to PTO shaft or other power shaft must be prevented from rotating with the power shaft. Pump must float freely on the power shaft and must not be tied rigidly to equipment on which it is mounted.
 - DO NOT EXCEED** recommended speed, pressure and temperature (140° F) for pump and equipment being used.
 - BEFORE SERVICING**, disconnect all power, make sure all pressure in the system is relieved, drain all liquids from the system and flush. On gas-engine-driven models, remove the spark plug wire from the spark plug before servicing the pump or engine.
 - Secure the discharge lines before starting the pump. An unsecured line may whip, causing personal injury and/or property damage.
 - Check hose for weak or worn condition before each use. Make certain that all connections are tight and secure.
 - Periodically inspect the pump and the system components. Perform routine maintenance as required (see Maintenance section).
 - Protect pump from freezing conditions by draining liquid and pumping rust inhibiting antifreeze solution through the system, coating the pump interior.
 - Do not operate a gasoline engine in an enclosed area. Be sure the area is well ventilated.
- WARNING: Gasoline is a Highly Combustible Fuel. The Improper Use, Handling, or Storage of Gasoline Can be Dangerous. Never Touch or Fill a Hot Engine.**
- Use only pipe, hose and fittings rated for the maximum psi rating of the pump.
 - Do not use these pumps for pumping water or other liquids for human or animal consumption.



Hazardous Substance Alert

- Always drain and flush pump before servicing or disassembling for any reason (see instructions).
- Always drain and flush pumps prior to returning unit for repair.
- Never store pumps containing hazardous chemicals.
- Before returning pump for service/repair, drain out all liquids and flush unit with neutralizing liquid. Then, drain the pump. Attach tag or include written notice certifying that this has been done. Please note that it is illegal to ship or transport any hazardous chemicals without United States Environmental Protection Agency Licensing.

Drive Source Installation

This manual will cover the installation of the basic drive configurations available for Hypro direct-drive centrifugal pumps. Consult the manufacturer of your tractor, motor or

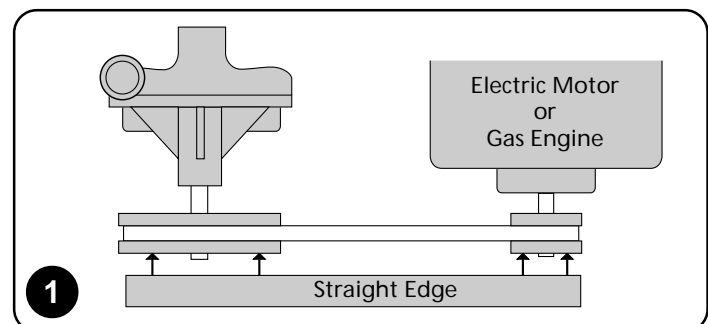
engine for additional information. Read all instructions and general safety information before attempting to install or operate the pump.

Belt/Pulley Drive Installation

Series 9200 Pedestal Mounted Centrifugal Pumps

Mounting Belts and Pulleys

Mount pulleys as close to pump and motor engine shaft bearings as possible. Check alignment with a straight edge as shown in fig. 1. Make sure that belt has proper tension. (Too much tension will cause bearing wear; too little will cause slippage.) See Fig. 2. Check with belt and pulley sources for specific recommendation.



To figure proper diameter of pump pulley, multiply motor/engine rpm by diameter of the motor/engine pulley and divide that figure by desired pump speed.

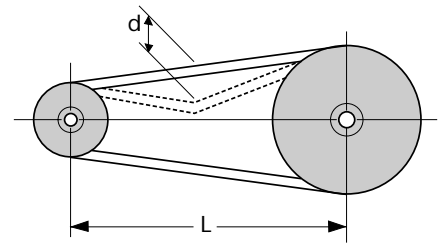
$$\text{Pump Pulley Size} = \frac{\text{Motor RPM} \times \text{Motor Pulley Size}}{\text{Desired Pump Speed}}$$

Refer to pump performance charts to determine desired speed to obtain desired maximum flow.

IMPORTANT: Note that shaft rotation is counterclockwise as viewed from the shaft - opposite from most standard centrifugals. Be sure to drive pump in proper direction.

Push the belt midway between the pulleys, check the deflection (d) and adjust:

$$d = 0.016 \times L$$



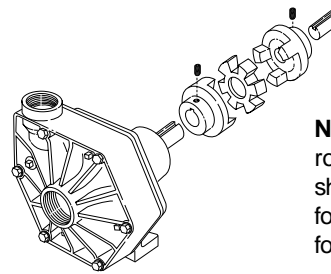
2

Direct Drive - Flexible Coupling Installation

Series 9200 and 9500P Pedestal Mount Pumps

To install couplings, slide coupling ends onto motor or engine and pump shafts as far as possible. Mount engine/motor and pump on base. Shim up pump or power to align shafts. Leave enough room between shaft ends to install center disc. When aligned, slide ends over disc. Select couplings rated twice required horsepower when using motor; three times when using gas engine.

3



NOTE: Direction of shaft rotation, as viewed from the shaft side is counterclockwise for Series 9200 and clockwise for 9500P. 9200P is shown.

Direct Drive Gas Engine Installation for Model 1538

The part numbers in the following instructions refer to the illustration on Page 22.

1. Lubricate the seal cavity in the flange (No. 0703-9200C) with WD-40, LPS or equivalent.

Be extremely careful with the new seal. Take special care not to scratch the lapped sealing faces of the rotary washer and stationary seat.

2. Install the stationary portion of the mechanical seal by pushing it into the 1-1/4" diameter bore of the flange (No. 0703-9200C) with the ceramic side out.

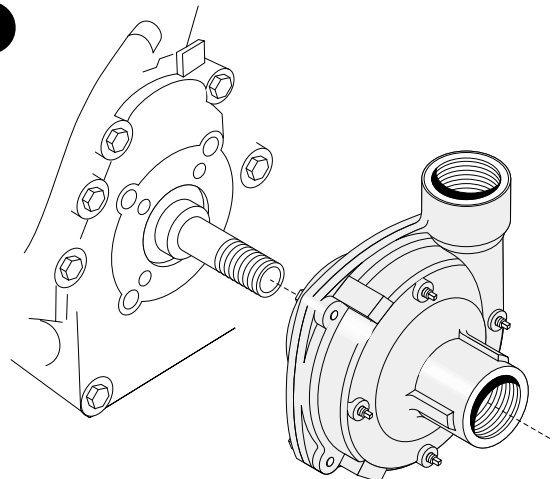
Important: Make sure both the seal cavity and seal are clean and lubricated. Never run the sealing faces dry.

3. To seat the seal in the seal cavity, use a piece of 3/4" PVC pipe 4" to 6" in length. Press it in firmly and squarely. Lubricate the sealing surface on the seal after it is seated.
4. Install four seals (No. 1700-0119) onto four hex bolts (No. 2210-0098).
5. Install flange (No. 0703-9200C) onto the gas engine. Make sure the 1-5/8" diameter pilot fits into the 1-5/8" bore on the engine. See Fig. 4.
6. Insert four bolts (No. 2210-0098) and four seals (No. 1700-0119) through the flange and into the gas engine. Tighten to 80-100 inch pounds of torque.
7. To install the rotary portion of the mechanical seal, place it over the shaft with the carbon side facing in, and press until it bottoms out against the stationary portion.

Important: Use care in installing the seal on the shaft. The seal can be damaged by threads on the shaft.

8. Install the gasket (No. 1700-0100) over the shaft against the rotary portion of the seal.
9. Install the impeller onto the shaft, and hand tighten until it is secure.
10. Install the o-ring (No. 1720-0083) on the mounting flange.
11. Place the pump casing (No. 0152-9000C) on the mounting flange; insert the bolts (No. 2210-0020) and tighten evenly.

4

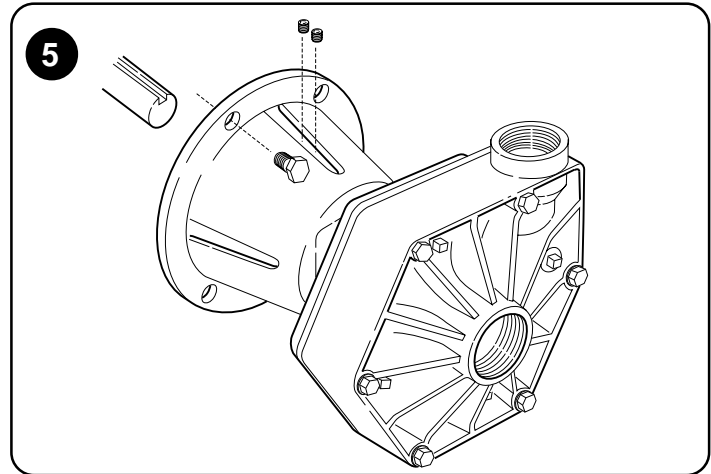


Direct Drive - Flange Mount Installation

GAS ENGINE MOUNT — Models 9510P & 9513P

9510P fits most 8 hp gas engines with flange mount and 1" shafts; 9513P fits most 5 hp gas engines with flange mount and 3/4" shaft.

To install pump onto gas engine, first apply anti-seize compound to gas engine shaft and to inside of pump hollow shaft. Insert key into engine shaft. Next slide pump onto engine shaft and secure with four hex head bolts. **NOTE:** Do not force pump onto shaft. Tighten setscrews on pump shaft through slots in flange. Check to make sure pump rotates freely by slowly turning over the gas engine.



Plumbing Installation

Preliminary to Mounting

Before mounting the pump, check to see that it can be turned by hand (turn shaft counterclockwise). If it cannot be turned, open casing to check for obstructions lodged in pump.

Priming the Pump

IMPORTANT: PUMP MUST NOT BE RUN DRY.

Before starting the pump, the suction line and pump must be filled with liquid. The pump must not be run unless it is completely filled with liquid, as there is danger of damaging the mechanical seal, which depends upon the liquid for its lubrication.

These centrifugal pumps are not self-priming. If a pump cannot be mounted below the level of liquid, mount the pump as near to the liquid source as practical so that a short pipe or hose may be used. The suction line should slope down to the pump. If not, install a foot valve in the suction line at the liquid source and prime by filling the pump full before starting. Also, add a vent line that extends from top plug in the pump casing up into the tank. Use Hypro Vent Line Kit 3430-0456. This line (1/4" vinyl tubing) prevents air lock, and allows the pump to prime itself by bleeding off trapped air. The small stream of liquid that returns to the tank during operation is negligible. The discharge from this line should be to the tank above the high liquid level.

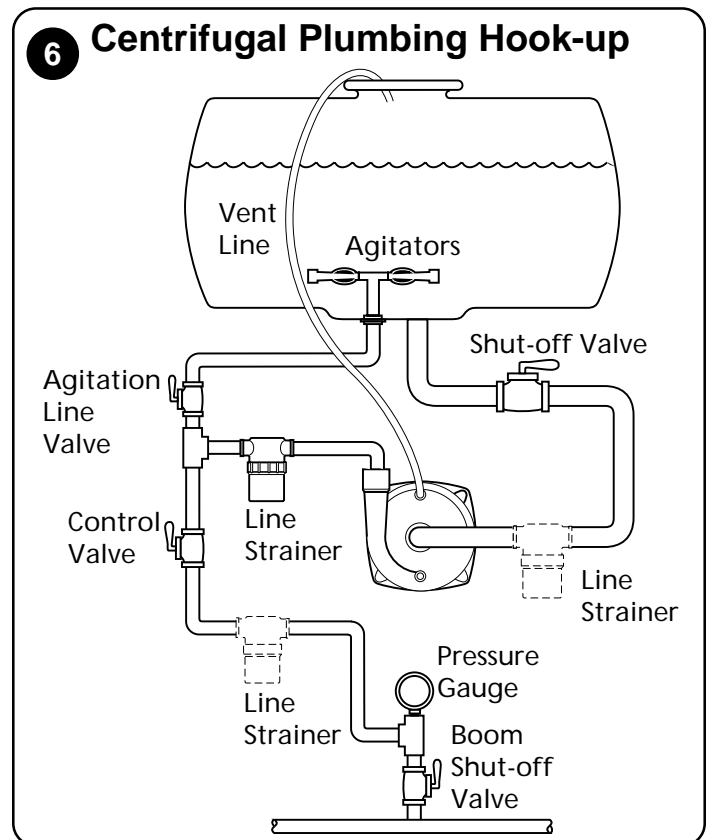
It is recommended that the discharge port be mounted vertically at the top of the pump. This is to eliminate air pockets and to aid priming action.

Selecting the Suction Line

To get full capacity of the pump, the suction line should be the same size as the pump suction port. A smaller size can be used for lower pump output, but a suction line must be one size larger than the discharge line (for example, if 3/4" discharge line, use 1" suction line). The suction line must be free of air leaks. Use a good grade of suction hose that will not collapse. A relief valve or bypass line is not necessary, and is **NOT RECOMMENDED** with these pumps.

Strainer Selection

While strainers are installed on the suction side for roller pumps, piston pumps and similar types, they can also be installed on the discharge side of centrifugals. (**NOTE:** They often are, to avoid suction side restrictions.) Since its primary purpose is to prevent clogging of the spray nozzles, the line strainer is installed in the line to the boom or spray gun (see Fig. 6). A smaller strainer is adequate in this position as much of the pump output is recirculated. Alternate locations are in the suction line, if its capacity is adequate for the pump and will not restrict the flow into the pump; or at the pump outlet, if it is also sturdy enough to withstand full pump pressure.



Operation and Maintenance

IMPORTANT: ENGAGE PTO CLUTCH SLOWLY AND SMOOTHLY. AVOID SUDDEN STARTS AND FAST CLUTCHING THAT CAN DAMAGE THE DRIVE SECTION OF THE PUMPS.

Controlling the Flow

Two flow control valves are used - one in the agitation line and one in the line leading to the boom or spray gun. This permits controlling agitation flow independently of nozzle flow.

To Adjust For Spraying

To adjust sprayer (regardless of power source - PTO, belt or pulley) follow these steps:

1. Prime pump with all valves open.
2. Close control valve and agitation line valve; open boom shut-off valve.
3. With pump running, open the control valve until pressure gauge indicates desired spraying pressure.
4. Open the agitation line valve until sufficient agitation is observed. Then, if spraying pressure drops, readjust the control valve to restore desired pressure.
5. Make sure flow is uniform from all nozzles.

After spraying adjustments are made, it is only necessary to close boom shut-off valve to discontinue spraying.

On belt drive models, check belt tension daily or before each use.

Flush Pump After Use

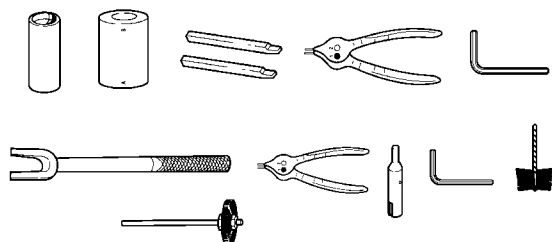
One of the most common causes for faulty pump performance is "gumming" or corrosion inside the pump. Flush the pump and entire system with a solution that will chemically neutralize the liquid pumped. Mix according to manufacturer's directions. This will dissolve most residue remaining in the pump, leaving the inside of the pump clean for the next use.

To Prevent Corrosion

After cleaning the pump as directed above, flush it with a permanent type automobile antifreeze (Prestone, Zerex, etc.) containing a rust inhibitor. Use a 50% solution - that is, half antifreeze and half water, or fill pump with FLUID FILM and then drain it. A protective coating of FLUID FILM will remain on the inner pump surfaces. Save the excess FLUID FILM for the next application. Plug the ports to keep out air during storage. For short periods of idleness, non-corrosive liquids may be left in the pump, BUT AIR MUST BE KEPT OUT. Plug ports or seal port connections.

Repair Instructions

Recommended repair tools for use with these instructions.



Always flush pump with water, or neutralizing agent before servicing.

Pump Housing Disassembly (All Models)

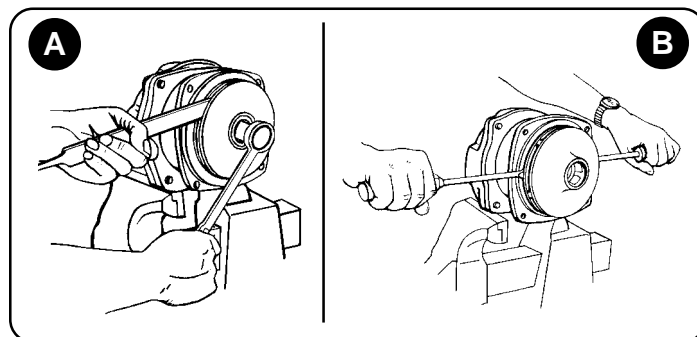
In most cases, seal replacement requires disassembly of only the pump half of the unit.

NOTE: Instructions following in italics describe procedures for the polypropylene centrifugal pumps, when different than the cast iron pumps.

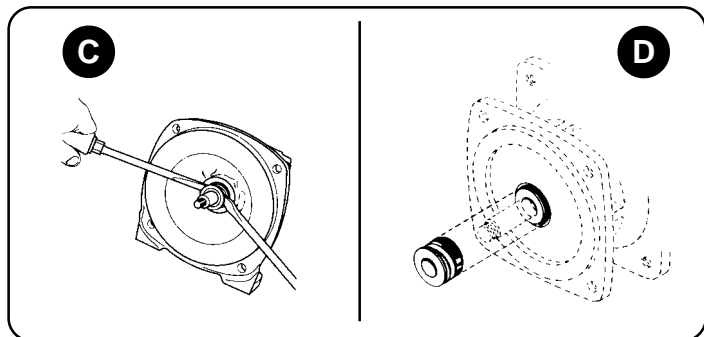
1. Remove the four casing cap screws with 9/16" box end wrench. Tap pump casing on discharge port with rubber hammer, if necessary, to break loose from mounting flange. Check inside of pump casing including suction port.

If badly eroded [or damaged], pump casing should be replaced. Remove O-ring and discard. O-ring should always be replaced. *[Using a 1/2" wrench, remove the six bolts from the front. Also remove the 5/16" screw from the rear near the outlet port.]*

2. To remove the impeller nut, clamp the flange in a vise and insert a large screwdriver or file (at least 10" long) into impeller vanes to prevent impeller from turning when loosening nut. Use a socket wrench (3/4" for Series 9000C or 5/8" for Series 9200C and 9400C) to remove the impeller nut by turning it counter-clockwise. (fig A) *[Use 7/8" deep socket wrench to remove plastic seal nut, then 9/16" deep socket to remove metal jam nut, rubber gasket and washer.]*



- Once the nut [and washer] is removed, place a screwdriver on each side (fig B) behind the impeller and pry away from the mounting flange. Remove woodruff key from the shaft For Series 9000 only). Remove O-ring from the mounting flange. **NOTE:** (Fig. B) shows 9000C gear flange; the same general procedure applies for the other pumps.



Pump Seal Removal

- Lightly lubricate shaft for easier removal of seal. Using two screwdrivers positioned opposite each other, pry the rotary portion of the seal from the shaft (Fig. C).
- [Remove plastic back cover flange. Knock seal out from back with a hammer and screwdriver.]
- Remove stationary seat and boot by prying out with two small screwdrivers in manner similar to impeller removal. (Caution: The seal will be damaged by removal in this manner. A new seal and rubber gasket **MUST** be used when pump is reassembled.)

Clean-Up Of Pump Housing

- Using the circular bottle-type wire brush with air or hand drill, clean the discharge port, suction port and the sealing areas of the O-ring on the pump casing and mounting flange. [The last step should not be performed on the polypropylene models.]
- After wire brush cleaning, it is recommended that the pump casing and mounting flange be further cleaned in a solvent tank to remove rust and corrosion particles.

Pump Shaft and Bearing Assembly Removal and Replacement

- While the pump is disassembled (see the Pump Housing Disassembly section), the driven pulley on the pump shaft must be removed. Remove the large retainer ring in pump bearing bore on the pulley side of housing. Press out the shaft and bearing assembly from the pump side using an arbor press.
- Bearings must be pressed off each end of shaft and replaced in the same manner. **NOTE:** Shaft diameter between bearings is larger.
- For reassembly, reverse the order of instructions.

Seal Replacement/Pump Housing Reassembly

NOTE: Reassemble if drive end is not to be repaired.

Be extremely careful with the new seal. Take special care not to scratch the lapped sealing faces of the rotary washer and stationary seat.

- Lubricate seal cavity in mounting flange with WD-40, LPS or equivalent.
- Install the stationary portion of the mechanical seal by sliding over the shaft with the ceramic side out.

IMPORTANT: Make sure both seal cavity and seal are clean and lubricated. Never run the sealing faces dry.

- To seat the seal in the seal cavity, use a piece of 3/4" PVC pipe 4" to 6" in length. Press it in firmly and squarely. Lubricate sealing surface on seal after it is seated.
- To install the rotary portion of the mechanical seal, place it over the shaft with the carbon side facing in, and press until it bottoms out against the stationary portion (Fig. D).
- Insert key into shaft key slot. Place impeller on shaft. Put [washer, jam nut and gasket] impeller nut on shaft end and using a large screwdriver or file in the impeller vanes for support, tighten impeller nut securely.
- Install O-ring on mounting flange. Replace O-ring if worn or damaged.
- Place pump casing on mounting flange, insert and tighten bolts evenly.

Troubleshooting

Symptom	Probable Cause(s)	Corrective Action(s)
Low Discharge	Pump not primed Air leaks in suction line Blocked or clogged line strainer Impeller plugged Undersize suction line or collapsed hose Eye of impeller rubbing on volute	→ Remove topmost vent plug from face of pump and run pump to expel trapped air (See Installation Instructions). → Check and reseal inlet fittings. → Inspect strainer and clear any debris from screen. → Inspect and clear obstruction. → Suction line should be the same diameter as inlet port of pump or larger. → Remove volute (front cover) and inspect the impeller. If wear detected, sand the impeller eye O.D. with emery cloth.

Performance Data for Cast Iron Models

English Standard Chart

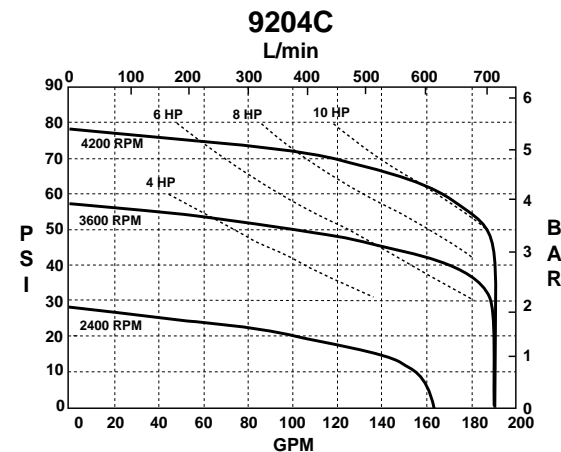
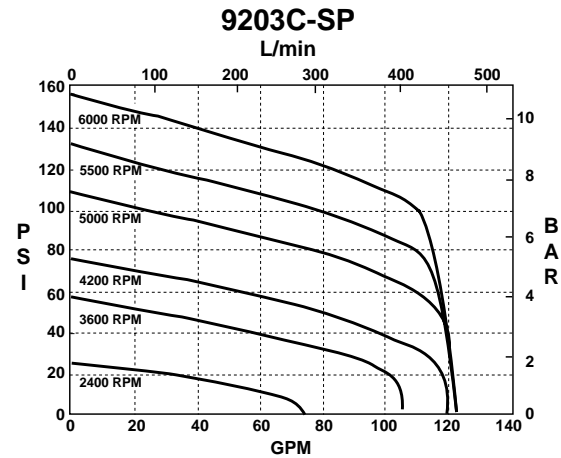
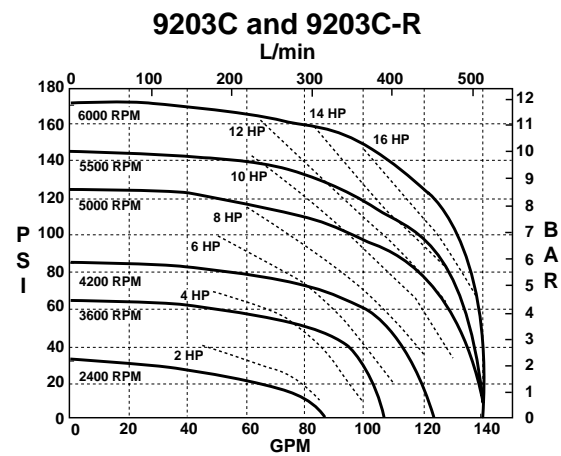
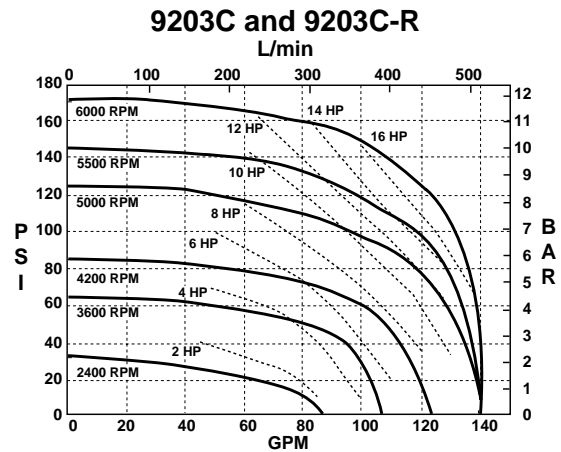
Model 9202C	10 PSI		20 PSI		40 PSI		60 PSI		80 PSI		100 PSI		120 PSI		140 PSI		160 PSI		
	RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP
	2400	50	1.3	46	1.2														
3600	67	3.7	66	3.7	62	3.5	34	2.6											
4200	75	5.7	75	5.7	75	5.7	66	5.3	44	4.2									
5000	88	9.3	88	9.3	88	9.3	88	9.3	77	8.6	60	7.5							
6000			103	15.6	103	15.6	103	15.6	103	15.6	100	15.5	91	14.8	77	13.4	56	11.4	

Model 9203C	10 PSI		20 PSI		40 PSI		60 PSI		80 PSI		100 PSI		120 PSI		140 PSI		160 PSI		
	RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP
	2400	80	1.9	65	1.8	26	1.3												
3600	105	5.3	105	5.3	92	5	50	3.7											
4200			120	7.9	115	7.7	98	7.1	56	5.3									
5000			140	12.6	138	12.6	130	12.2	118	11.6	88	9.9	45	7.2					
5500			140	14.9	138	14.9	135	15.2	130	15.2	118	14.4	90	12.5	60	9.8			
6000			140	17.1	140	17.5	140	18	135	18.2	130	18.8	125	18.2	100	16.3	80	13.5	

Model 9203C-SP	RPM	GPM at 10 PSI		GPM at 20 PSI		GPM at 30 PSI		GPM at 40 PSI		GPM at 50 PSI		GPM at 60 PSI		GPM at 70 PSI		GPM at 80 PSI		GPM at 90 PSI		GPM at 100 PSI		GPM at 110 PSI		GPM at 120 PSI		GPM at 130 PSI		GPM at 140 PSI		GPM at 150 PSI	
	2400	64	29																												
	3600	103	101	84	60	25																									
4200	119	118	112	97	79	54	23																								
5000	122	121	120	119	117	110	96	78	52	25																					
5500	122	121	120	119	118	116	115	110	96	79	53	29																			
6000	122	121	120	119	118	116	115	114	113	110	99	82	62	40	16																

Model 9204C	10 PSI		20 PSI		30 PSI		40 PSI		50 PSI		60 PSI		70 PSI		
	RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP
	2400	155	2.5	100	2.2										
3600	190	6.3	190	6.9	188	7.1	170	6.9	100	5.6					
4200			190	9.2	190	10	190	10.4	187	10.5	165	10	115	8.3	

Performance Graph

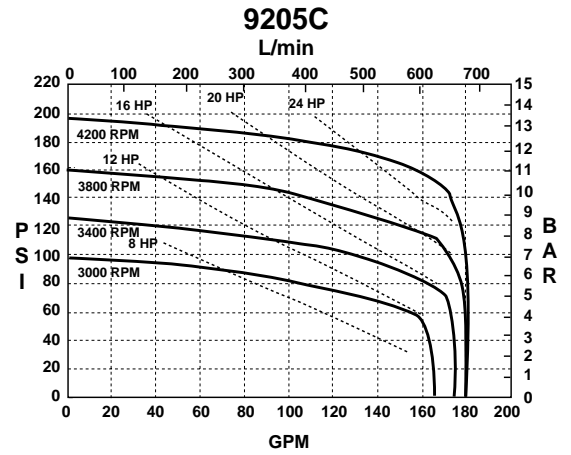


Performance Data for Cast Iron Models

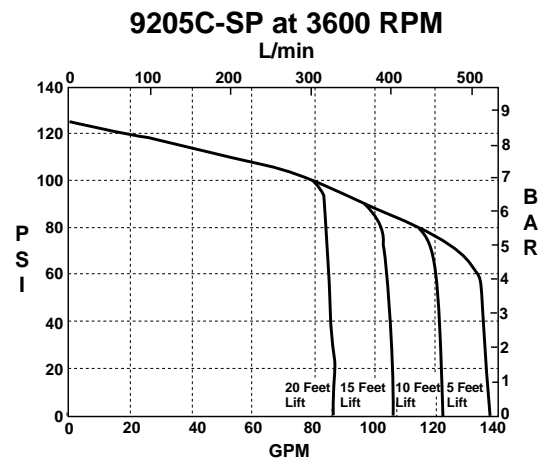
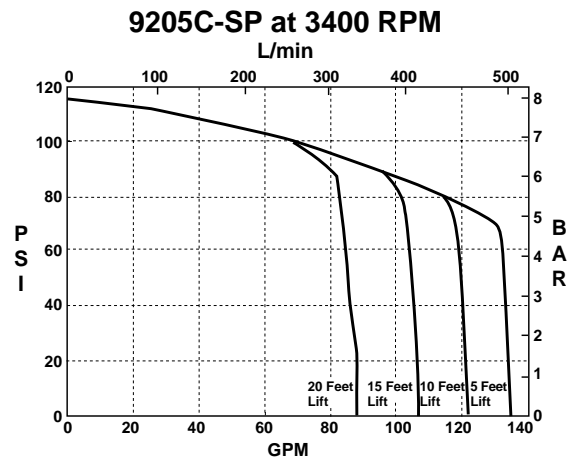
English Standard Chart

Model 9205C	10 PSI		20 PSI		40 PSI		60 PSI		80 PSI		100 PSI		120 PSI		140 PSI		160 PSI		180 PSI		
	RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP
3000	166	11.4	165	11.4	164	11.7	154	11.6	104	9.5											
3400	175	14.8	175	14.8	175	15.5	173	16.3	168	16.3	127	14.2	43	8.7							
3800	180	18.1	180	18.2	180	18.8	180	19.8	178	21.1	173	21.8	156	20.7	112	17.5					
4200	180	21.9	180	21.9	180	22	180	24	180	25.3	180	26.9	177	27.9	173	28.1	157	26.4	111	22.2	

Performance Graph



Model 9205C-SP	Feet of Lift	20 PSI	30 PSI	40 PSI	50 PSI	60 PSI	70 PSI	80 PSI	90 PSI	100 PSI	110 PSI	120 PSI
		GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM
9205C-SP at 3600 RPM	20	87	86	86	85	85	84	84	83	80	54	20
	15	106	105	105	104	104	103	102	97	80	54	20
	10	122	121	121	120	120	119	114	97	80	54	20
	5	136	136	135	134	133	127	114	97	80	54	20
9205C-SP at 3400 RPM	20	88	87	86	85	85	84	83	80	68	35	
	15	107	106	105	105	104	103	102	94	68	35	
	10	121	120	120	119	119	118	115	94	68	35	
	5	134	134	133	132	132	130	115	94	68	35	

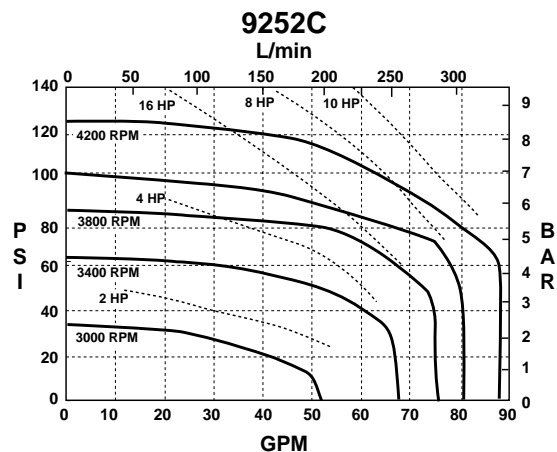


Performance Data for Cast Iron Models

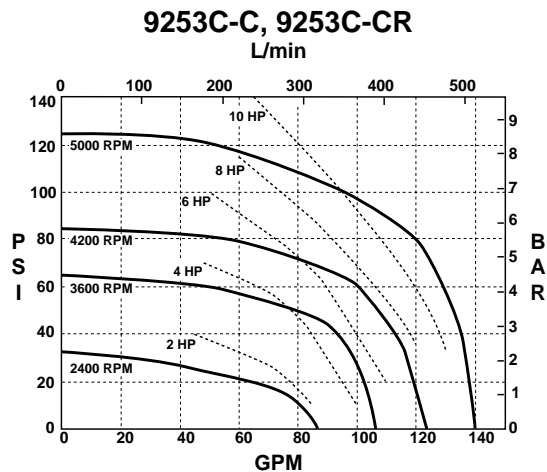
English Standard Chart

Model 9252C		10 PSI		20 PSI		40 PSI		60 PSI		80 PSI		100 PSI	
	RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP
	2400	50	1.3	46	1.2								
3600	67	3.7	66	3.7	62	3.5	34	2.6					
4200	75	5.7	75	5.7	75	5.7	66	5.3	44	4.2			
5000	88	9.3	88	9.3	88	9.3	88	9.3	77	8.6	60	7.5	

Performance Graph



Model 9253C		10 PSI		20 PSI		40 PSI		60 PSI		80 PSI		100 PSI		120 PSI	
	RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP
	2400	80	1.9	65	1.8	26	1.3								
3600	105	5.3	105	5.3	92	5	50	3.7							
4200			120	7.9	115	7.7	98	7.1	56	5.3					
5000			140	12.6	138	12.6	130	12.2	118	11.6	88	9.9	45	7.2	



Performance Charts for Polypropylene Models

English Standard Chart

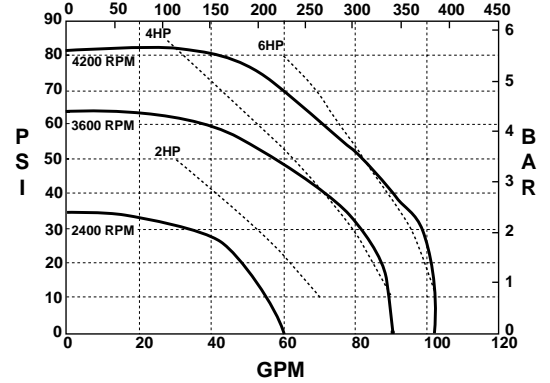
500P-S 9203P-S	10 PSI		20 PSI		30 PSI		40 PSI		50 PSI		60 PSI		70 PSI		80 PSI	
	RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	
	2400	63	1.5	49	1.4	29	1.1									
3600	91	4.4	87	4.3	81	4.1	70	3.9	58	3.6	39	3.1				
4200	103	6.7	101	6.6	98	6.5	90	6.3	82	6	71	5.7	60	5.2	42	4.5

Model 9510P	0 PSI		10 PSI		20 PSI		30 PSI		40 PSI		50 PSI	
	RPM	GPM	HP	GPM	HP	GPM	HP	GPM	HP	GPM	HP	
	2400	55.0	1.2	46.9	1.1	27.1	.8					
3000			68.6	2.3	58.3	2.1	42.5	1.8				
3450					74.1	3.3	64.7	3.2	48.1	2.8		
3600					83.3	4.5	73.3	4.2	61.5	3.9	43.9	3.3

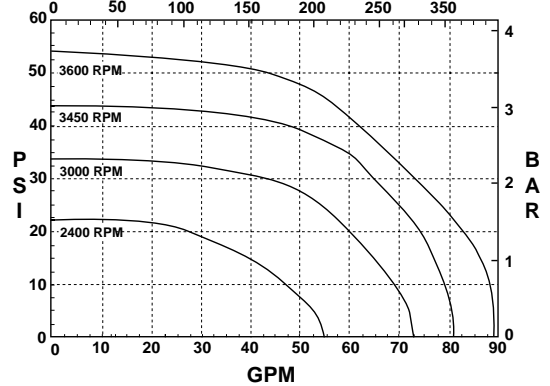
Model 9513P	Based on Honda 5.5 hp engine	0 PSI	10 PSI	20 PSI	30 PSI	40 PSI	50 PSI	60 PSI
		GPM	GPM	GPM	GPM	GPM	GPM	GPM
		92	91	88	81	70	58	42

Performance Graph

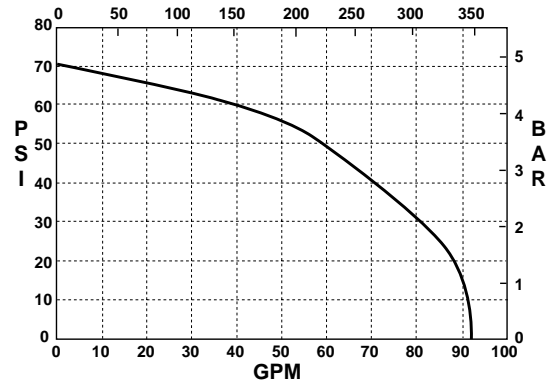
9203P-S and 9500P-S
L/min



9510P
L/min



9513P Performance
(Using Honda 5.5 HP Engine)
L/min

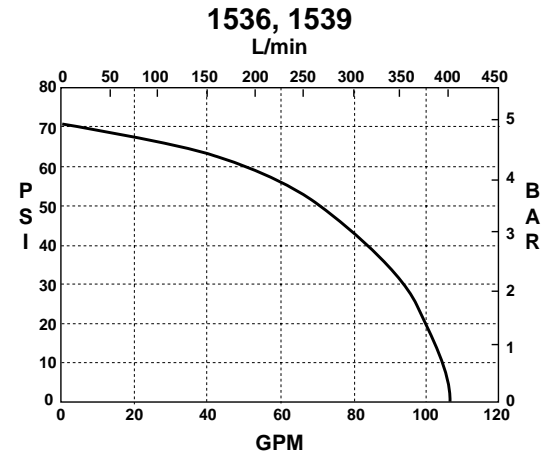


Performance Data for Cast Iron Gas-Engine-Driven Models

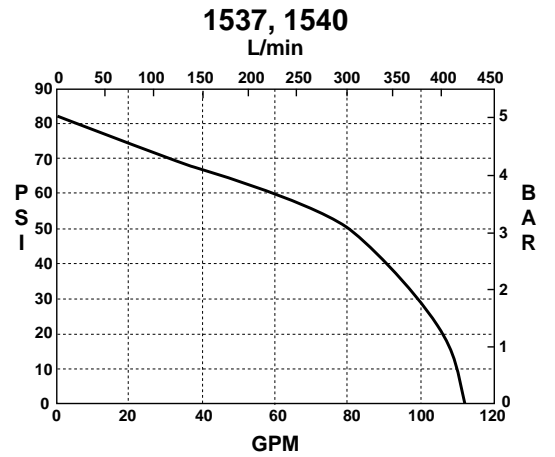
English Standard Chart

1536 1539	10 PSI	20 PSI	30 PSI	40 PSI	50 PSI	60 PSI
	GPM	GPM	GPM	GPM	GPM	GPM
	104	100	94	82	70	50

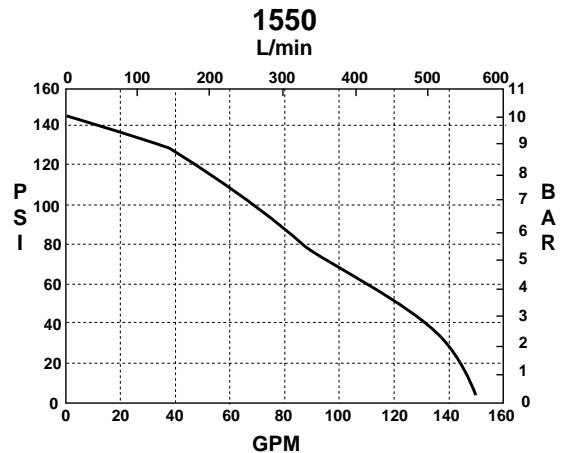
Performance Graph

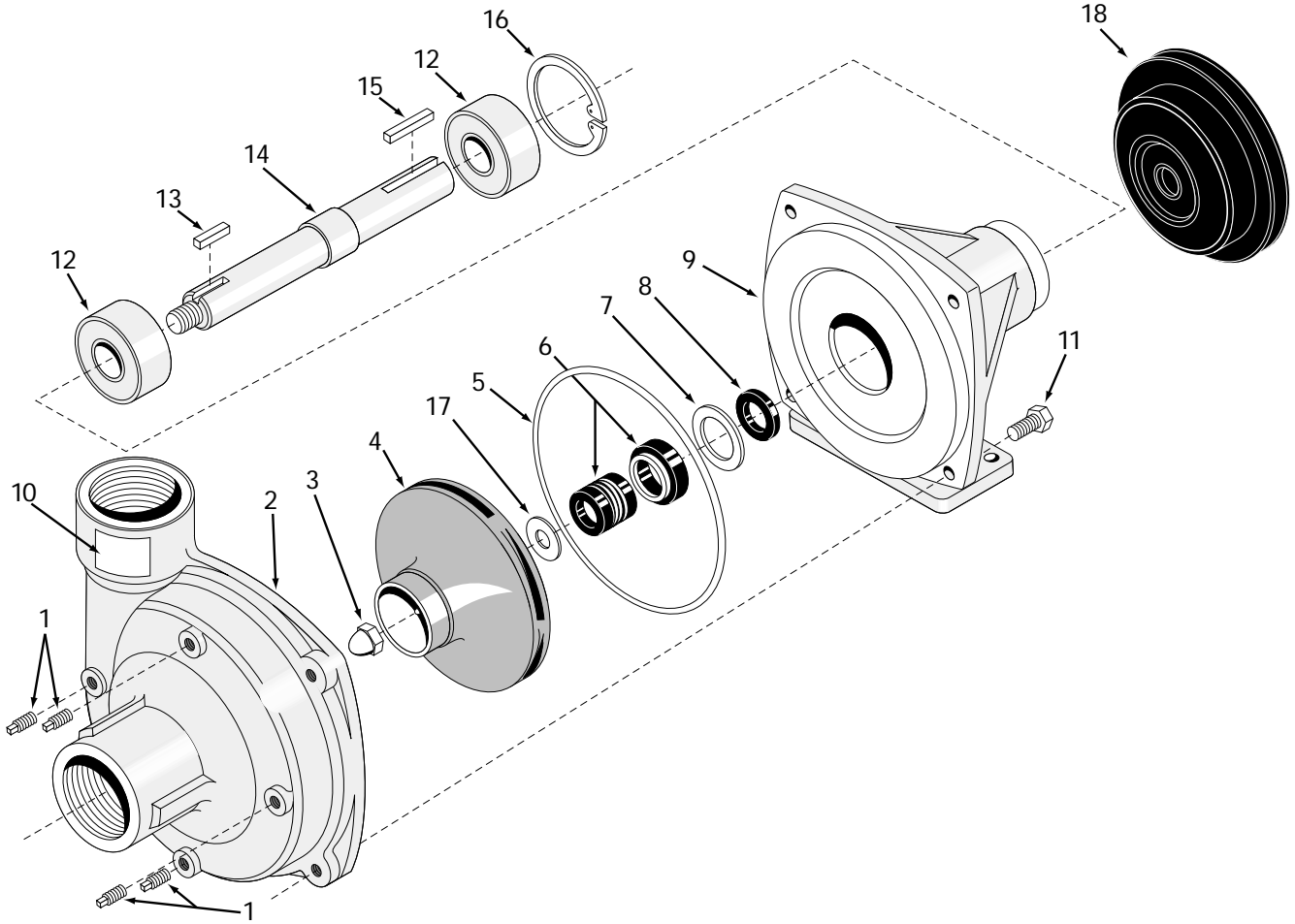


1537 1540	10 PSI	20 PSI	30 PSI	40 PSI	50 PSI	60 PSI	70 PSI
	GPM	GPM	GPM	GPM	GPM	GPM	GPM
	110	106	96	88	80	60	30



Model 1550	0 PSI	10 PSI	20 PSI	30 PSI	40 PSI	50 PSI	60 PSI	70 PSI	80 PSI	90 PSI	100 PSI	110 PSI	120 PSI	130 PSI	140 PSI
	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM
	150	147	145	140	130	120	107	97	87	80	69	57	45	36	16



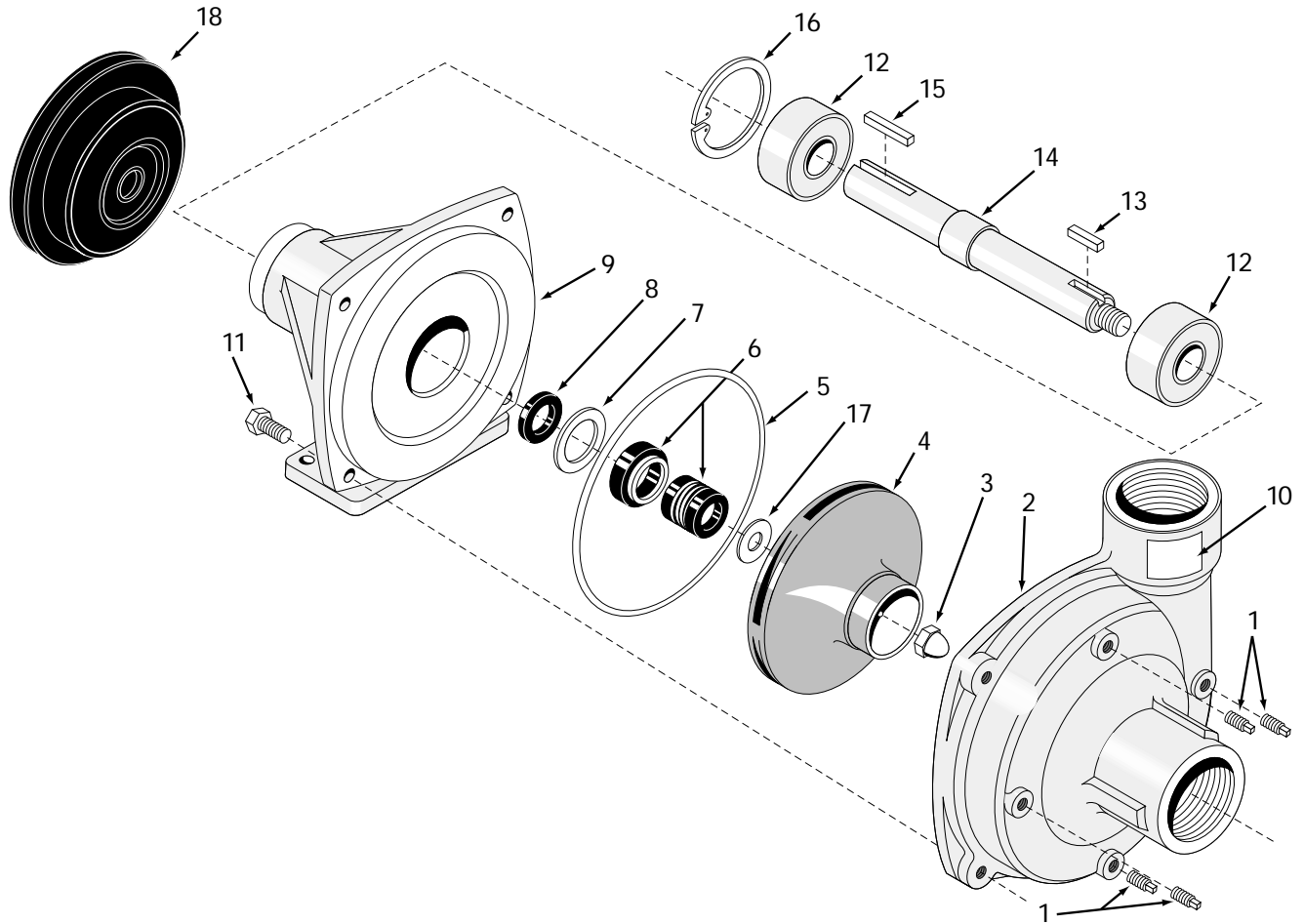


**Seal, O-ring Repair Kit
No. 3430-0332**
consists of (1) Ref. 5 O-ring, (1)
Ref. 6 Mechanical Seal (Viton)
and (1) Ref. 17 Gasket.

NOTE: When ordering parts, give
quantity, part number, description,
and complete model number.
Referencenumbersareused**ONLY**
to identify parts in the drawing and
are **NOT** to be used as order
numbers.

Ref. No.	Qty. Req'd.	Part No.	Description
1	4	2406-0007	Drain Plug
2	1	0150-9000C	Pump Casing (Models 9203C) (Ports: 1-1/2" x 1-1/4")
2	1	0150-9200C	Pump Casing (Models 9202C) (Ports: 1-1/4" x 1") (ALL of the above casings include a stainless steel wear ring.)
3	1	2253-0002	Impeller Nut
4	1	0401-9100P	Impeller (Nylon) (std.)
4	1	0402-9100P	Impeller (Poly)
5	1	1720-0083	O-Ring
6	1	2120-0008	Mechanical Seal (Optional Buna-N)
6	1	2120-0009	Mechanical Seal (Standard Viton)
6	1	2120-0032	Mechanical Seal (Optional Silicon Carbide)

Ref. No.	Qty. Req'd.	Part No.	Description
7	1	1830-0040	Seal Retainer
8	1	1410-0056	Slinger Ring
9	1	0750-9200C	Mounting Flange
10	1	6031-0325	Nameplate (Specify Model Number)
11	4	2210-0020	Bolt
12	2	2000-0010	Ball Bearing
13	1	1610-0015	Key
14	1	0501-9200	Pump Shaft
15	1	1610-0004	Key
16	1	1820-0013	Bearing Retainer
17	1	1700-0100	Gasket
18	1	2526-0003	Clutch (Models 9252C-C, 9253C-C)
	1	2270-0041	Nameplate Washer (not shown)
	1	2270-0076	Tag (not shown)

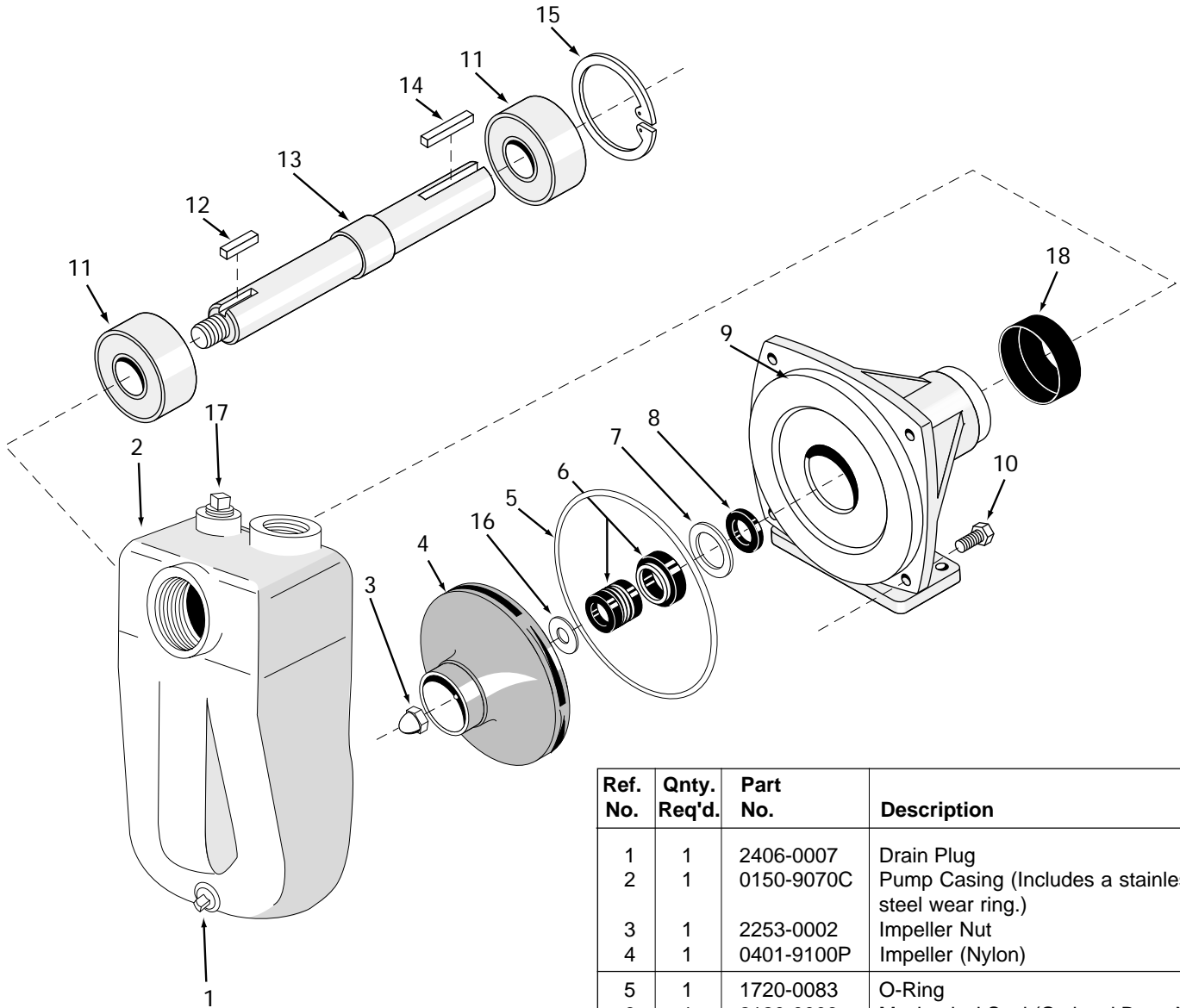


Seal, O-ring Repair Kit No. 3430-0332
 consists of (1) Ref. 5 O-ring,
 (1) Ref. 6 Mechanical Seal
 (Viton) and Ref. #17 Gasket.

NOTE: When ordering parts, give quantity, part number, description, and complete model number. Reference numbers are used **ONLY** to identify parts in the drawing and are **NOT** to be used as order numbers.

Ref. No.	Qty. Req'd.	Part No.	Description
1	4	2406-0007	Drain Plug
2	1	0152-9000C	Pump Casing (Ports: 1-1/2" X 1-1/4") (Includes a stainlesssteel wear ring.)
3	1	2253-0002	Impeller Nut
4	1	0403-9100P	Impeller (Polypropylene)
4	1	0404-9100P	Impeller (Nylon)
5	1	1720-0083	O-Ring
6	1	2120-0008	Mechanical Seal (Optional Buna-N)
6	1	2120-0009	Mechanical Seal (Standard Viton)
6	1	2120-0032	Mechanical Seal (Optional Silicon Carbide)
7	1	1830-0040	Seal Retainer
8	1	1410-0056	Slinger Ring

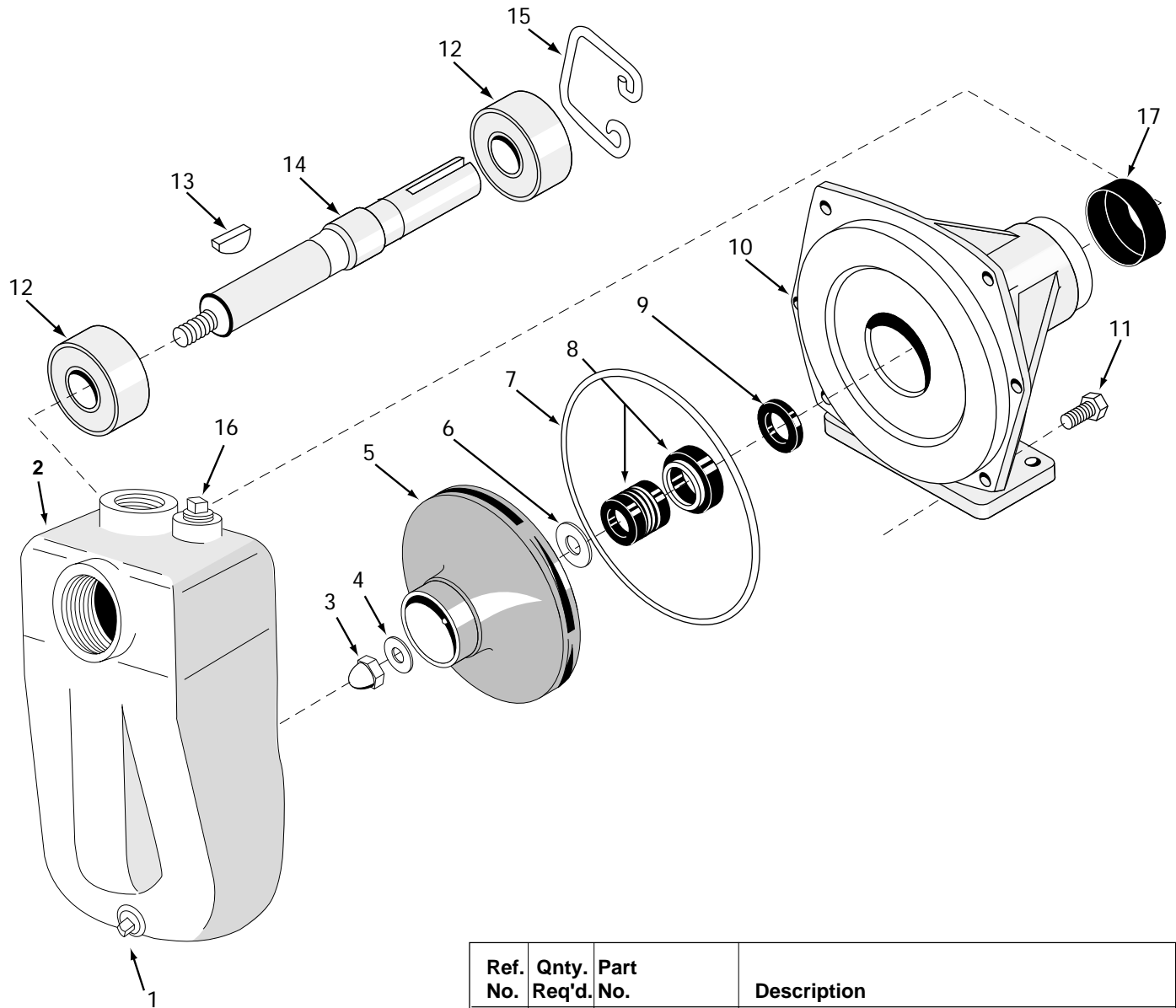
Ref. No.	Qty. Req'd.	Part No.	Description
9	1	0750-9200C3	Mounting Flange
10	1	6031-0252	Nameplate (Specify Model Number)
11	4	2210-0020	Bolt
12	2	2000-0010	Ball Bearing
13	1	1610-0015	Key
14	1	0501-9200	Pump Shaft
15	1	1610-0004	Key
16	1	1820-0013	Bearing Retainer
17	1	1700-0100	Gasket
18	1	2526-0003	Clutch
	1	2270-0041	Namplate Washer (not shown)
	1	2270-0076	Tag (not shown)



**Seal, O-ring Repair Kit
No. 3430-0332**
consists of (1) Ref. 5 O-ring,
(1) Ref. 6 Mechanical Seal
(Viton) and Ref. #17 Gasket.

NOTE: When ordering parts, give
quantity, part number, description,
and complete model number.
Reference numbers are used **ONLY**
to identify parts in the drawing and
are **NOT** to be used as order numbers.

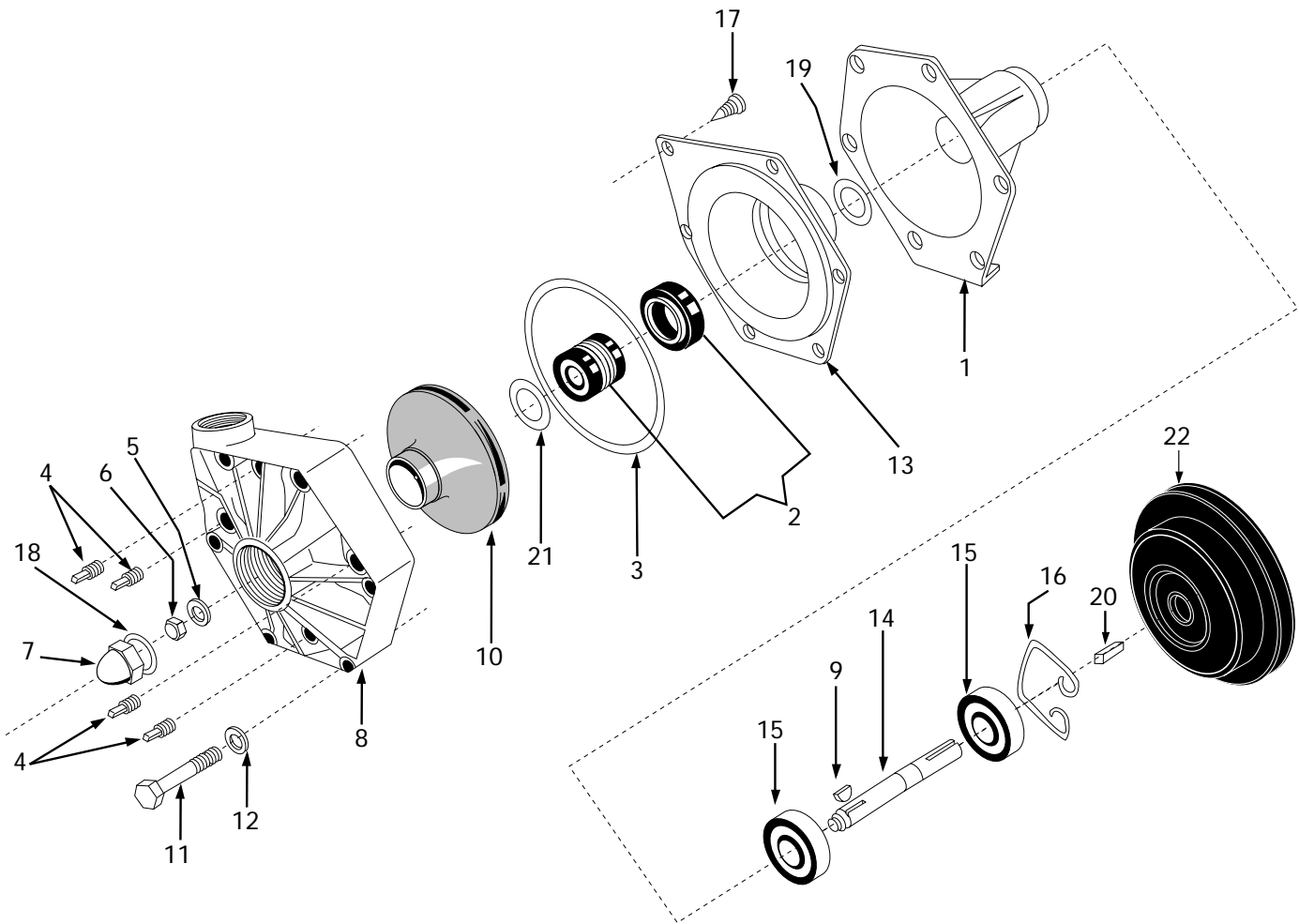
Ref. No.	Qty. Req'd.	Part No.	Description
1	1	2406-0007	Drain Plug
2	1	0150-9070C	Pump Casing (Includes a stainless steel wear ring.)
3	1	2253-0002	Impeller Nut
4	1	0401-9100P	Impeller (Nylon)
5	1	1720-0083	O-Ring
6	1	2120-0008	Mechanical Seal (Optional Buna-N)
6	1	2120-0009	Mechanical Seal (Standard Viton)
6	1	2120-0032	Mechanical Seal (Optional Silicon Carbide)
7	1	1830-0040	Seal Retainer
8	1	1410-0056	Slinger Ring
9	1	0750-9200C3	Mounting Flange
10	4	2210-0020	Bolt
11	2	2000-0010	Ball Bearing
12	1	1610-0053	Key
13	1	0501-9200	Pump Shaft
14	1	1610-0004	Key
15	1	1820-0013	Bearing Retainer
16	1	1700-0100	Gasket
17	1	2406-0001	Priming Port Plug
18	1	2300-0025	Protective Cover
	1	2270-0041	Namplate Washer (not shown)
	1	2270-0076	Tag (not shown)



**Seal, O-ring Repair Kit
No. 3430-0480** consists of
(1) Ref.6 Gasket,
(1) Ref. 7 O-ring and
(1) Ref. 8 Mechanical Seal.

Ref. No.	Qty. Req'd.	Part No.	Description
1	1	2406-0002	Drain Plug
2	1	0150-9075C	Pump Casing (standard)
2	1	0150-9075C1	Pump Casing (BSP)
3	1	2253-0002	Impeller Nut
4	1	2270-0071	Washer
5	1	0403-9200P	Impeller (nylon)
6	1	1700-0101	Gasket
7	1	1720-0180	O-Ring
8	1	2120-0011	Mechanical Seal (Standard Viton)
9	1	1410-0083	Slinger Ring
10	1	0751-9200C	Mounting Flange
11	6	2210-0086	Bolt
12	2	2008-0001	Ball Bearing
13	1	1610-0012	Key
14	1	0507-9200	Pump Shaft
15	1	1820-0025	Bearing Retainer
16	1	2406-0034	Priming Port Plug (SP)
16	1	2406-0036	Priming Port Plug (BSP)
17	1	2300-0035	Protective Cover

(CCW Rotation When Viewed From Shaft End)



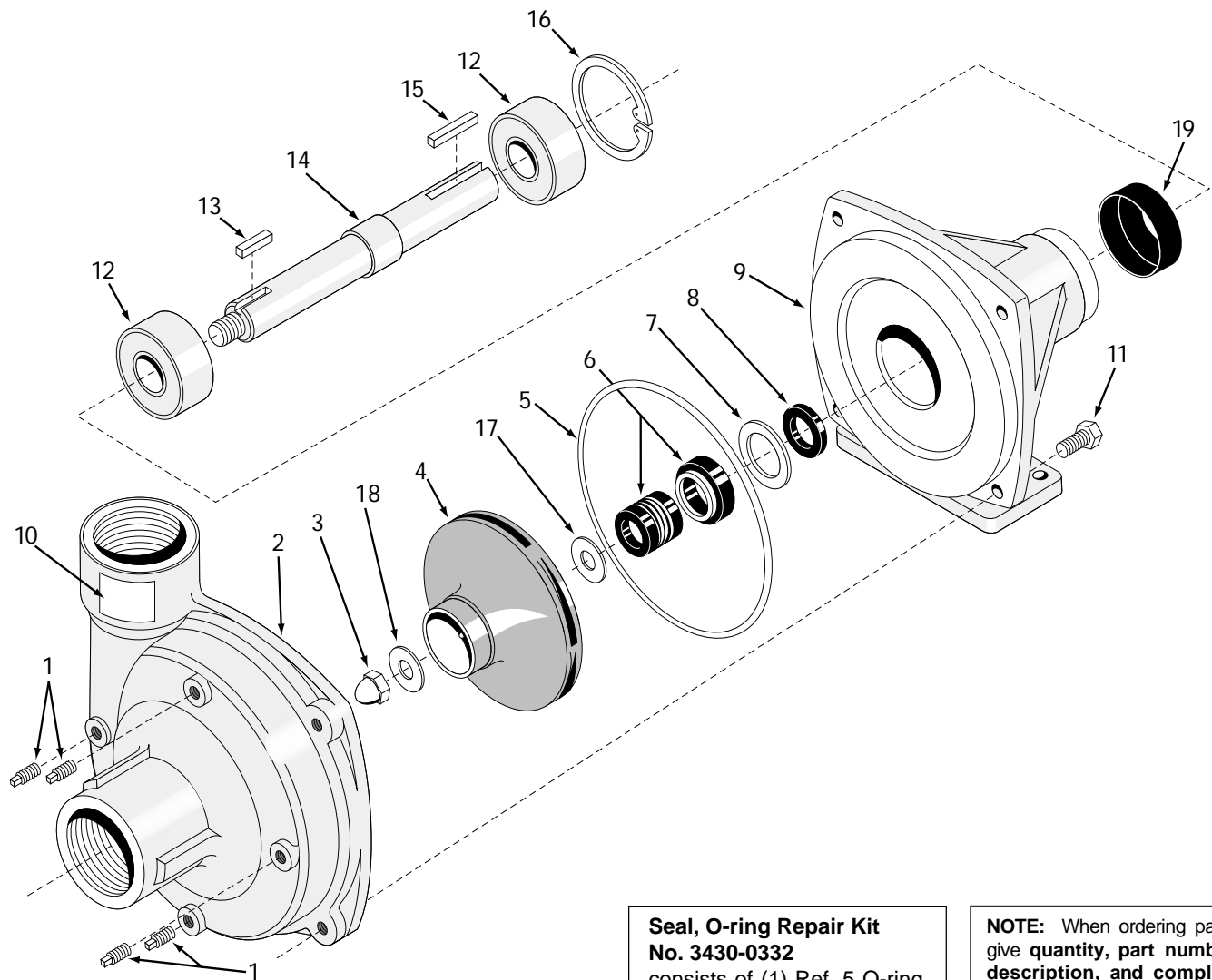
**Seal, O-ring Repair Kit
No. 3430-0333**

consists of (1) Ref. 2
Mechanical Seal, (1) Ref. 3
O-ring (1) Ref. 18 Gasket,
(1) Ref. 5 Washer and (1)
Ref. 21 Gasket.

NOTE: When ordering parts,
give **quantity, part number,
description, and complete
model number.** Reference
numbers are used **ONLY**
to identify parts in the drawing and
are **NOT** to be used as order
numbers.

Ref. No.	Qty. Req'd.	Part No.	Description
1	1	0702-9200C	Flange
2	1	2120-0011	Mechanical Seal
3	1	1721-0083	O-Ring
4	4	2406-0020	Plug
5	1	2270-0057	Washer
6	1	2250-0051	Jam Nut
7	1	2250-0052	Impeller Nut
8	1	0700-9000P	Pump Casing
9	1	1610-0042	Woodruff Key (ss)
10	1	0403-9000P	Impeller (Polypropylene)
11	6	2210-0087	Screw
12	6	2270-0041	Washer

Ref. No.	Qty. Req'd.	Part No.	Description
13	1	0750-9000P	Back Cover
14	1	0506-9200	Shaft
14	1	0507-9200	Optional Stainless Steel Shaft (316 ss)
15	2	2008-0001	Bearing
16	1	1820-0025	Retaining Ring
17	1	2210-0088	Screw
18	1	1700-0097	Gasket
19	1	1410-0083	Slinger Ring
20	1	1610-0004	Key
21	1	1700-0101	Gasket
22	1	2526-0008	Clutch (Model 9253P-C only)
	1	6031-0325	Nameplate (not shown)
	1	2270-0041	Nameplate Washer (not shown)
	1	2270-0076	Tag (not shown)

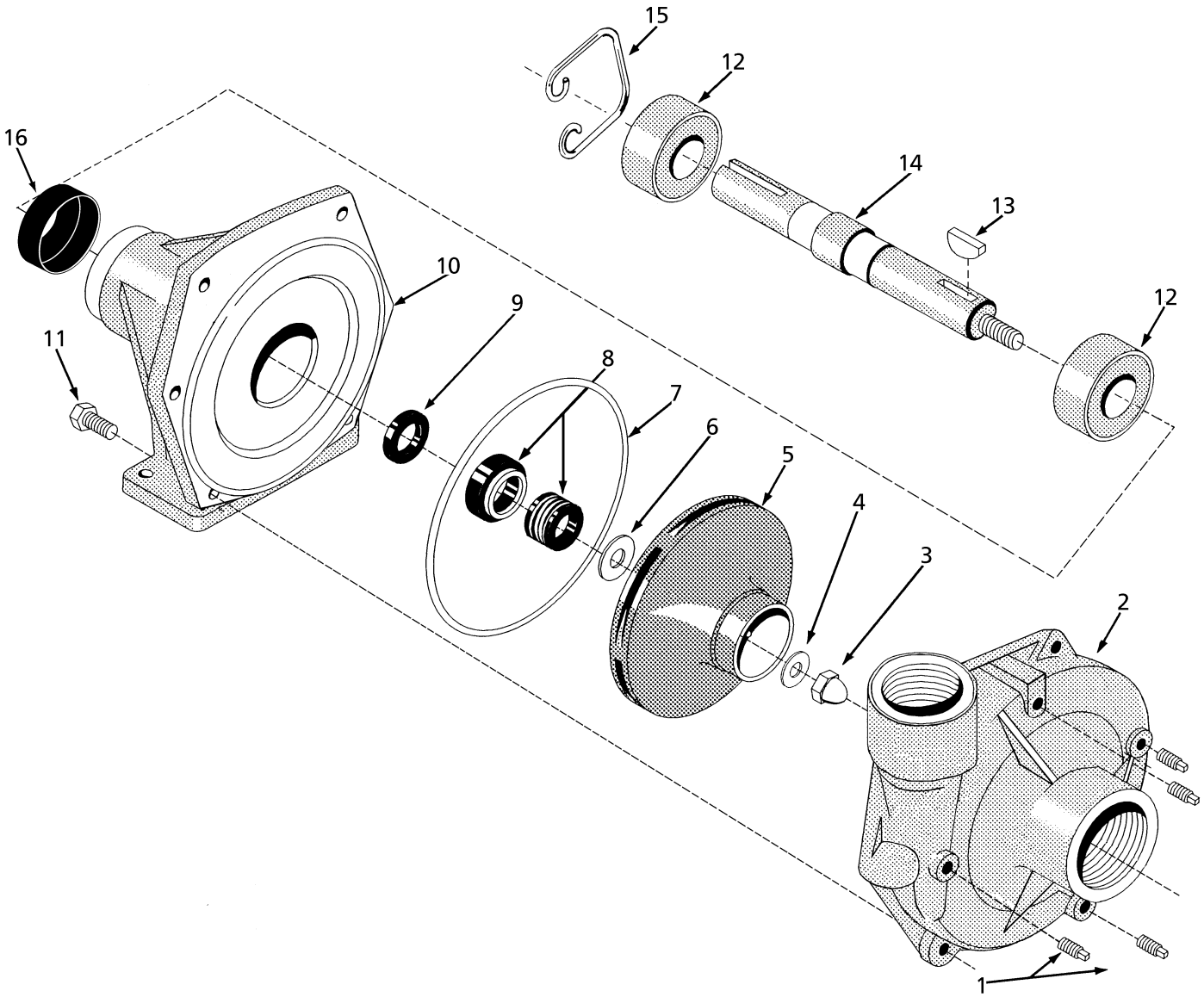


Seal, O-ring Repair Kit No. 3430-0332 consists of (1) Ref. 5 O-ring, (1) Ref. 6 Mechanical Seal (Viton) and (1) Ref. 17 Gasket.

NOTE: When ordering parts, give **quantity, part number, description, and complete model number.** Reference numbers are used **ONLY** to identify parts in the drawing and are **NOT** to be used as order numbers.

Ref. No.	Qty. Req'd.	Part No.	Description
1	4	2406-0007	Drain Plug
2	1	0151-9200C	Pump Casing (Includes a stainless steel wear ring.)
3	1	2253-0002	Impeller Nut
4	1	0401-9200C	Impeller (Cast Iron)
5	1	1720-0083	O-Ring
6	1	2120-0008	Mechanical Seal (Optional Buna-N)
6	1	2120-0009	Mechanical Seal (Standard Viton)
6	1	2120-0032	Mechanical Seal (Optional Silicon Carbide)
7	1	1830-0040	Seal Retainer
8	1	1410-0056	Slinger Ring
9	1	0750-9200C	Mounting Flange

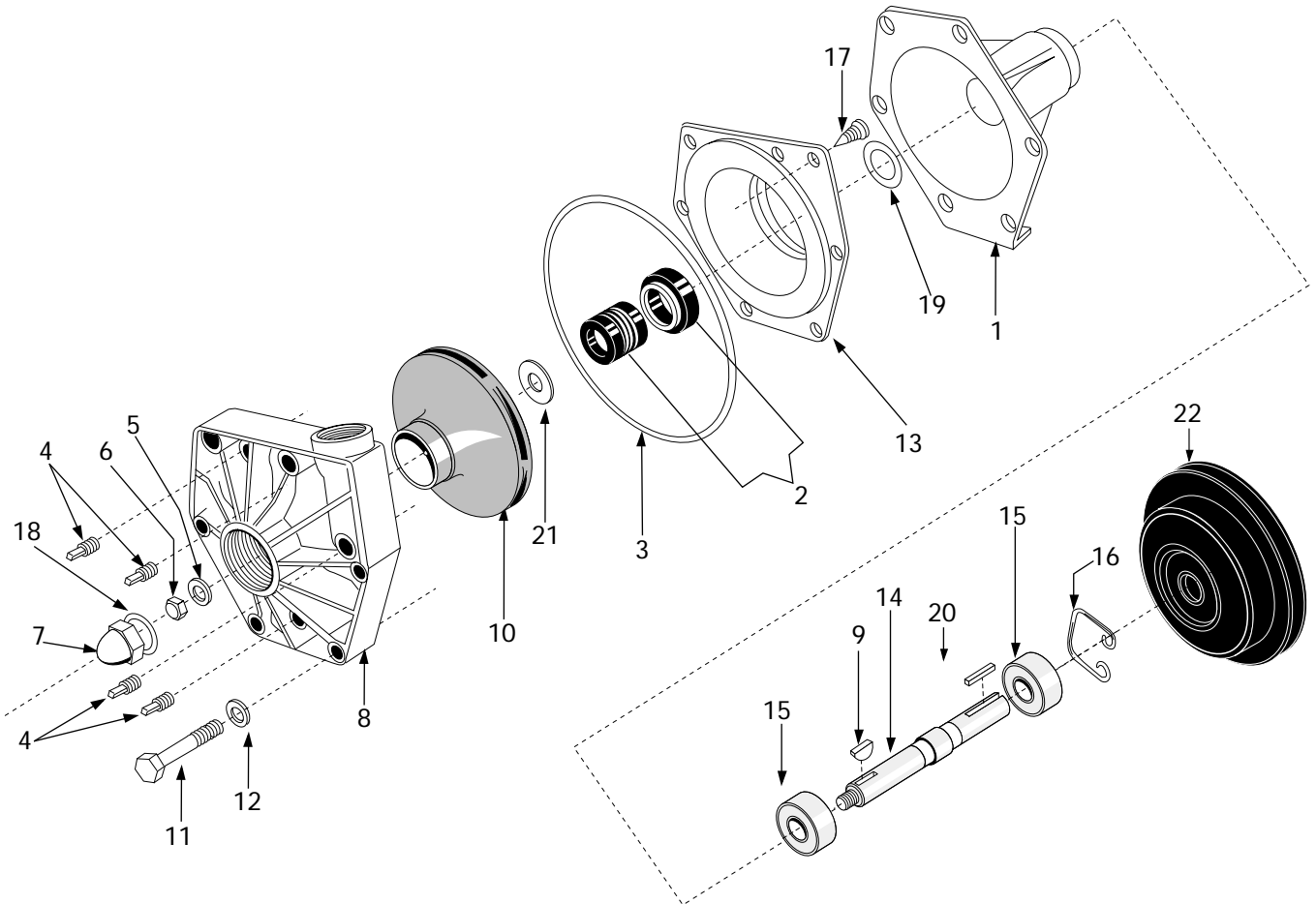
Ref. No.	Qty. Req'd.	Part No.	Description
10	1	6031-0252	Nameplate (Specify Model Number)
11	4	2210-0020	Bolt
12	2	2000-0010	Ball Bearing
13	1	1610-0053	Key
14	1	0501-9200	Pump Shaft
15	1	1610-0004	Key
16	1	1820-0013	Bearing Retainer
17	1	1700-0100	Gasket
18	1	2270-0071	Washer
19	1	2300-0025	Protective Cover
	1	2270-0041	Nameplate Washer (not shown)
	1	2270-0076	Tag (not shown)



Ref. No.	Qty. Req'd.	Part No.	Description
1	4	2406-0007	Drain Plug
2	1	0152-9200C	Pump Casing (Includes a stainless steel wear ring.)
3	1	2253-0002	Impeller Nut
4	1	2270-0071	Washer
5	1	0403-9200P	Impeller (nylon)
6	1	1700-0101	Gasket
7	1	1720-0180	O-Ring
8	1	2120-0011	Mechanical Seal (Standard Viton)
9	1	1410-0083	Slinger Ring
10	1	0751-9200C	Mounting Flange
11	6	2210-0086	Bolt
12	2	2008-0001	Ball Bearing
13	1	1610-0012	Key
14	1	0507-9200	Pump Shaft
15	1	1820-0025	Bearing Retainer
16	1	2300-0035	Protective Cover

**Seal, O-ring Repair Kit
No. 3430-0480**
consists of (1) Ref.6 Gasket,
(1) Ref. 7 O-ring and (1) Ref. 8
Mechanical Seal.

(CW Rotation When Viewed From Shaft End)



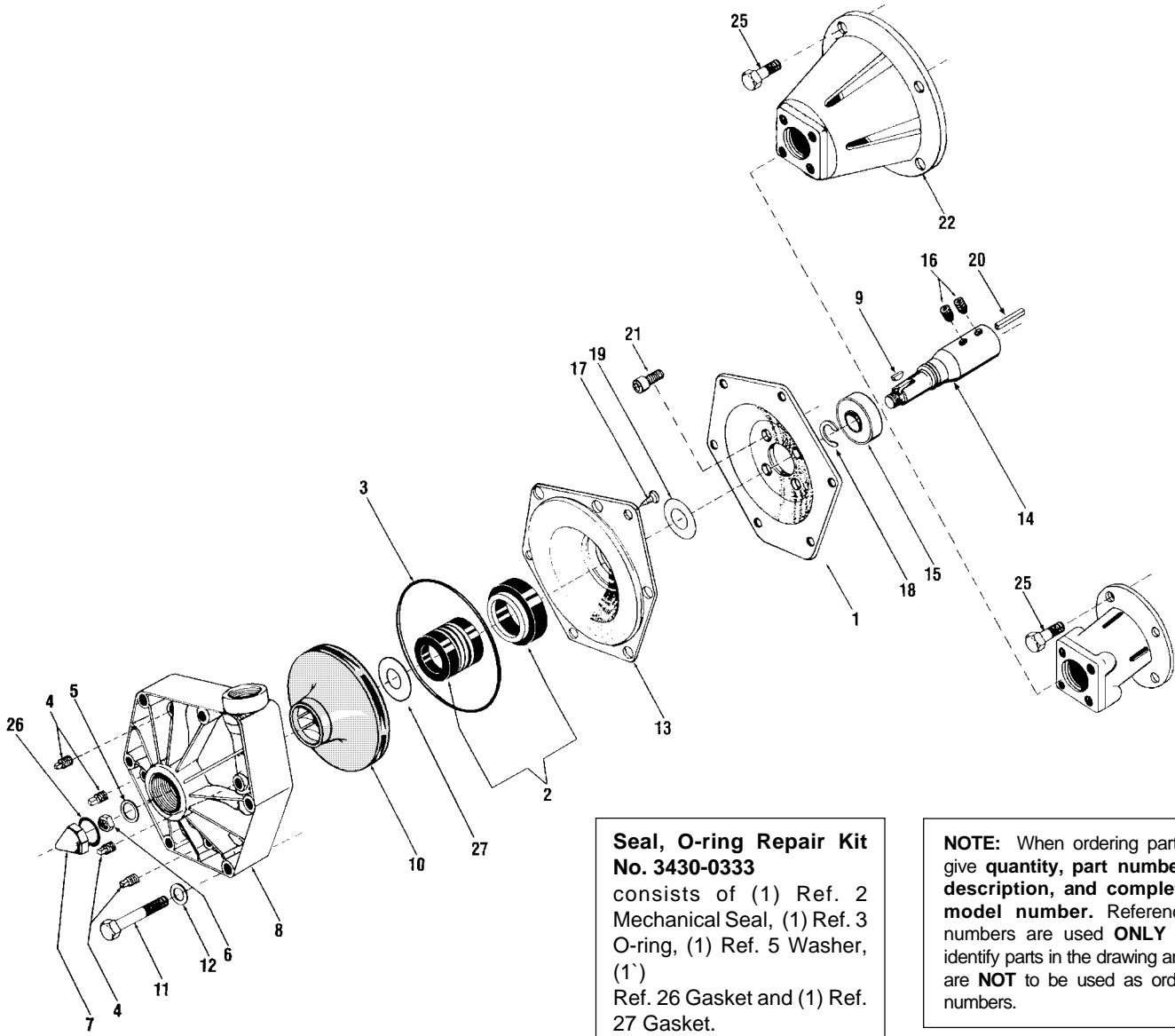
Seal, O-ring Repair Kit No. 3430-0333 consists of
 (1) Ref. 2 Mechanical Seal,
 (1) Ref. 3 O-ring,
 (1) Ref. 18 Gasket
 (1) Ref. 21 Gasket and
 (1) Ref. 5 Washer.

NOTE: When ordering parts, give **quantity, part number, description, and complete model number**. Reference numbers are used **ONLY** to identify parts in the drawing and are **NOT** to be used as order numbers.

Ref. No.	Qty. Req'd.	Part No.	Description
1	1	0702-9200C	Flange Mounting
2	1	2120-0011	Mechanical Seal
3	1	1721-0083	O-Ring
4	4	2406-0020	Plug
5	1	2270-0057	Washer
6	1	2250-0051	Jam Nut
7	1	2250-0052	Impeller Nut
8	1	0701-9500P	Pump Casing
9	1	1610-0042	Woodruff Key (ss)
10	1	0402-9000P	Impeller (Polypropylene)
11	6	2210-0087	Hex Head Capscrew
12	6	2270-0041	Washer

Ref. No.	Qty. Req'd.	Part No.	Description
13	1	0700-9500P	Back Cover
14	1	0507-9200	Shaft
15	2	2008-0001	Ball Bearing
16	1	1820-0025	Retainer Ring
17	1	2210-0088	Hex Head Screw
18	1	1700-0097	Gasket
19	1	1410-0083	Slinger Ring
20	1	1610-0004	Key
21	1	1700-0101	Gasket
22	1	2526-0008	Clutch
		6031-0325	Nameplate (not shown)
		2270-0041	Washer (not shown)
		2270-0076	Tag (not shown)

(CW Rotation When Viewed From Shaft End)

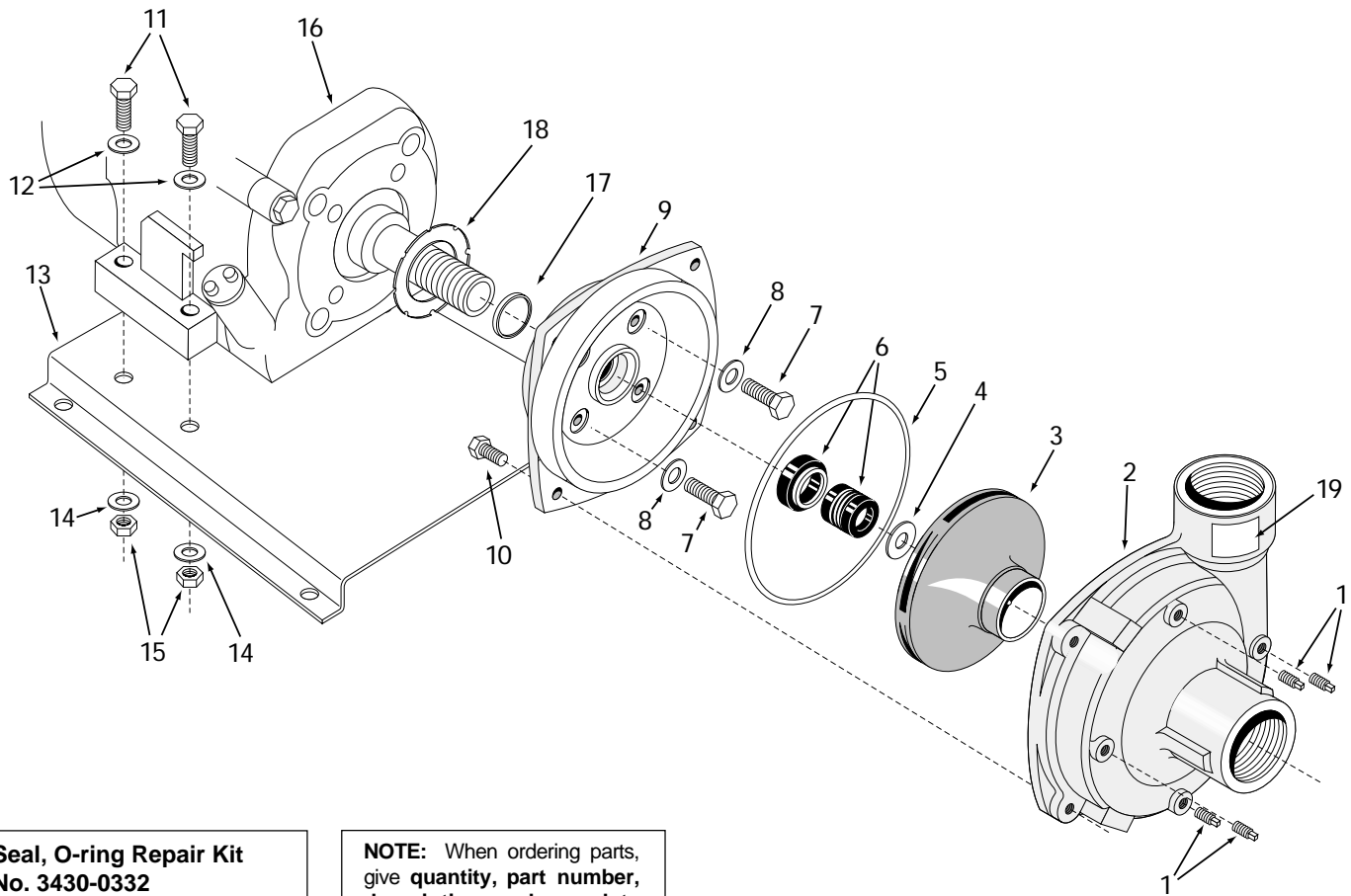


Seal, O-ring Repair Kit No. 3430-0333 consists of (1) Ref. 2 Mechanical Seal, (1) Ref. 3 O-ring, (1) Ref. 5 Washer, (1) Ref. 26 Gasket and (1) Ref. 27 Gasket.

NOTE: When ordering parts, give **quantity, part number, description, and complete model number**. Reference numbers are used **ONLY** to identify parts in the drawing and are **NOT** to be used as order numbers.

Ref. No.	Qty. Req'd.	Part No.	Description
1	1	0702-9500C	Intermediate Flange
2	1	2120-0011	Mechanical Seal
2	1	2120-0033	Mechanical Seal (silicone carbide) Optional
3	1	1721-0083	O-Ring
4	4	2406-0020	Plug
5	1	2270-0057	Washer
6	1	2250-0051	Jam Nut
7	1	2250-0052	Impeller Nut
8	1	0701-9500P	Pump Casing
9	1	1610-0042	Woodruff Key (ss)
10	1	0402-9000P	Impeller (Polypropylene)
11	6	2210-0087	Hex Head Capscrew
12	6	2270-0041	Washer
13	1	0700-9500P	Back Cover
14	1	0505-9500	Shaft (Model 9510P)

Ref. No.	Qty. Req'd.	Part No.	Description
14	1	0508-9500	416 Stainless Shaft (Model 9513P)
15	2	2008-0001	Bearing
16	2	2230-0017	Set Screw
17	1	2210-0088	Screw
18	1	1810-0013	Retainer Ring
19	1	1410-0082	Spacer
20	1	1610-0005	Key (9510P)
20	1	1610-0004	Key (9513P)
21	4	2220-0055	Socket Head Capscrew
22	1	0703-9500C	Flange (Model 9510P)
22	1	0705-9500C	Flange (Model 9513P)
25	4	2210-0026	Hex Screw
26	1	1700-0097	Gasket
27	1	1700-0101	Gasket
	1	6031-0325	Nameplate/Washer (not shown)
	1	2270-0076	Tag (not shown)



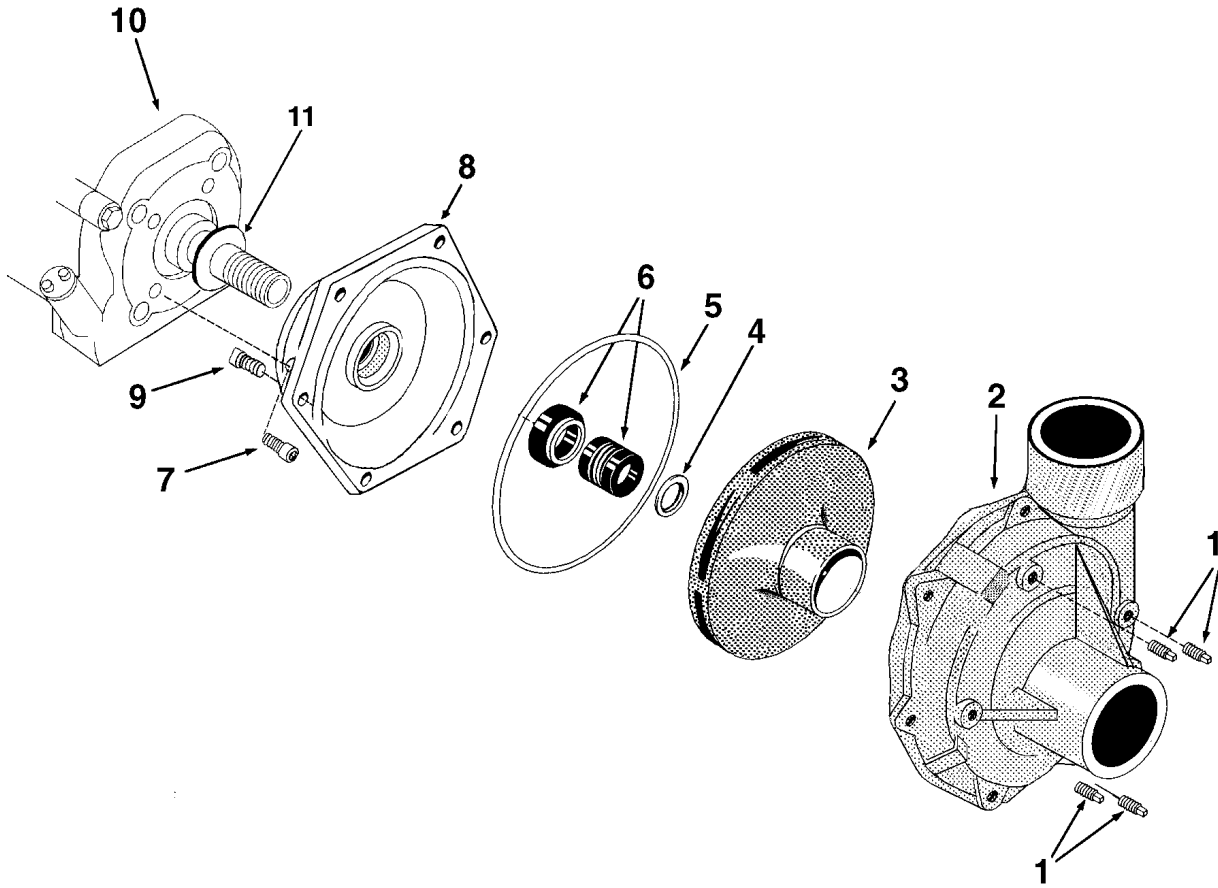
Seal, O-ring Repair Kit No. 3430-0332 consists of (1) Ref. 5 O-ring, (1) Ref. 6 Mechanical Seal (Viton) and (1) Ref. 4 Gasket.

NOTE: When ordering parts, give **quantity, part number, description, and complete model number.** Reference numbers are used **ONLY** to identify parts in the drawing and are **NOT** to be used as order numbers.

Ref. No.	Qty. Req'd.	Part No.	Description
1	4	2406-0007	Drain Plug
2	1	0152-9000C	Pump Casing (Includes a stainless steel wear ring.)
3	1	0402-9200P	Impeller (Nylon)
4	1	1700-0100	Gasket
5	1	1720-0083	O-ring
6	1	2120-0009	Mechanical Seal-Viton
7	4	2210-0098	Bolt
8	4	1700-0119	Seal
9	1	0703-9200C	Flange
10	4	2210-0020	Bolt

Ref. No.	Qty. Req'd.	Part No.	Description
11	4	2210-0021	Bolt
12	4	2270-0040	Washer
13	1	1510-0083	Mounting Plate
14	4	2260-0002	Lock Washer
15	4	2250-0003	Nut
16	1	2541-0033 (135232-0035-01)*	Briggs & Stratton Engine (Models 1536 and 1539)
16	1	2541-0034 (GX160K1 TYPE-TX2)*	Honda Engine (Model 1537)
16	1	2541-0035 (GX160KIT1C3)	Honda Engine (Model 1540)
17	1	1410-0087	Spacer
18	1	1410-0088	Bearing Shield
19	1	6031-0252	Nameplate (not shown)

*Contact the engine manufacturer for this product number.



Ref. No.	Qty. Req'd.	Part No.	Description
1	4	2406-0007	Drain Plug
2	1	0153-9200C	Pump Casing (Includes a stainless steel wear ring.)
3	1	0404-9200P	Impeller (Nylon)
4	1	1700-0121	Gasket
5	1	1720-0180	O-ring
6	1	2120-0034	Mechanical Seal-Viton
7	4	2210-0098	Bolt
8	1	0707-9200C	Flange
9	6	2210-0086	Bolt
10	1	2541-0037 (GX-270PA)*	Honda Engine (Model 1550)
11	1	1410-0091	Slinger Ring

**Seal, O-ring Repair Kit
No. 3430-0464**

consists of (1) Ref. 5 O-ring, (1) Ref. 6 Mechanical Seal (Viton) and (1) Ref. 4 Gasket.

NOTE: When ordering parts, give **quantity, part number, description, and complete model number.** Reference numbers are used **ONLY** to identify parts in the drawing and are **NOT** to be used as order numbers.

*Contact the engine manufacturer for this product number.

Limited Warranty on Hypro Pumps and Other Hypro Products

Hypro Corporation (“Hypro”) warrants to the original purchaser of its products (the “Purchaser”) that such products will be free from defects in material and workmanship under normal use for the period of one (1) year for all products except: oil crankcase plunger pumps will be free from defects in material and workmanship under normal use for the period of five (5) years, and accessories will be free from defects in material and workmanship under normal use for the period of ninety (90) days. In addition, Hypro warrants to the purchaser all forged brass pump manifolds will be free from defects in material and workmanship under normal use and from damage resulting from environmental conditions for the life of the pump.

“Normal use” does not include use in excess of recommended maximum speeds, pressures, vacuums and temperatures, or use requiring handling of fluids not compatible with component materials, as noted in Hypro product catalogs, technical literature, and instructions. This warranty does not cover freight damage, freezing damage, normal wear and tear, or damage caused by misapplication, fault, negligence, alterations, or repair that affects the performance or reliability of the product.

This warranty is exclusive. Hypro makes no other warranty, express or implied, including but not limited to any warranty of merchantability or fitness for a particular purpose.

Hypro's obligation under this warranty is, at Hypro's option, to either repair or replace the product upon return of the entire product to the Hypro factory in accordance with the return procedures set forth below. **This is the exclusive remedy for any breach of warranty.**

In no event shall Hypro be liable for any incidental or consequential damages of any kind, whether for breach of any warranty, for negligence, on the basis of strict liability, or otherwise.

Return Procedures

All pumps or products must be flushed of any chemical (ref. OSHA Section 0910.1200 (d)(e)(f)(g)(h) and hazardous chemicals must be labeled before being shipped* to Hypro for service or warranty consideration. Hypro reserves the right to request a Material Safety Data sheet from the Purchaser for any pump or product Hypro deems necessary. Hypro reserves the right to “disposition as scrap” pumps or products returned which contain unknown substances, or to charge for any and all costs incurred for chemical testing and proper disposal of components containing unknown substances. Hypro requests this in order to protect the environment and personnel from the hazards of handling unknown substances.

For technical or application assistance, call the **Hypro Technical/Application number: 1-800-445-8360. To obtain service or warranty assistance, call the Hypro Service and Warranty number: 1-800-468-3428; or call the Hypro Service and Warranty FAX: (651)766-6618.**

Be prepared to give Hypro full details of the problem, including the following information:

1. Model number and the date and from whom you purchased your pump.
2. A brief description of the pump problem, including the following:

- Liquid pumped. State the pH and any non-soluble materials, and give the generic or trade name.
- Temperature of the liquid and ambient environment.
- Suction lift or vacuum (measured at the pump).
- Discharge pressure.
- Size, type, and mesh of the suction strainer.
- Drive type (gas engine/electric motor; direct/belt drive; tractor PTO) and rpm of pump.
- Viscosity (of oil, or other than water weight liquid).
- Elevation from the pump to the discharge point.
- Size and material of suction and discharge line.
- Type of spray gun, orifice size, unloader/relief valve.

Hypro may request additional information, and may require a sketch to illustrate the problem. Contact the factory to receive a return material authorization before sending the product. All pumps returned for warranty work should be sent shipping charges prepaid to:

HYPRO CORPORATION
Attention: Service Department
375 Fifth Avenue NW
New Brighton, Minnesota 55112-3288

*Carriers, including U.S.P.S., airlines, UPS, ground freight, etc., require specific identification of any hazardous materials being shipped. Failure to do so may result in a substantial fine and/or prison term. Check with your shipping company for specific instructions

Note: This warranty does not apply to Hypro Pump Kit Model 1538. This is because the user could incorrectly assemble the parts and cause the pump to work improperly.