



INSTALLATION, OPERATION & MAINTENANCE MANUAL

KZN-HYD3(R), HYD4(R), HYD6(R) Pumps

**TOP DISCHARGE
HYDRAULIC PUMP**

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HYDRAULIC FLOWS

Hydraulic circuits must be open center, single direction and have an unrestricted return flow from the hydraulic motor to the oil reservoir.

| Pump Model | Input Flow (GPM) | Max Pressure (PSI) |
|--------------|------------------|--------------------|
| KZN-HYD3 (R) | 10 | 2500 |
| KZN-HYD4(R) | 15 | 2500 |
| KZN-HYD6(R) | 25 | 2500 |

Operating this unit at pressures or flows in excess of those listed above or connecting this unit to a closed center or reversing circuit will cause damage to the unit and will void the warranty!

Please review the enclosed hydraulic schematic(s). If you are not sure if the hydraulic power source being used to drive this pump is properly sized or connected, call BJM Pumps, LLC.

Please read and understand this manual BEFORE you attempt to operate this pump.
*Note: Specifications subject to change without notice.

Note: Generally, hydraulic motors that run with flows and pressures less than 40 gpm and 3000 psi can run without case drain. Larger motors are more subject to the development of internal pressure due to inherent "ability" to allow more bypass pressure and oil across the internal clearances. This combines with the larger exposed surface area of the internal seals in the larger motor to make the risk of seal damage significant enough to require a third line. (KZN-HYD models do not require a third line). If needing more than 150 feet on the hydraulic hose, we suggest the next size up in return hydraulic line to help evacuate the internal motor pressure which is present for a longer period of time due to the extended run of the hose.

PREVENTATIVE MAINTENANCE INSTRUCTIONS

KZN-HYD3(R), KZN-HYD4(R) & KZN-HYD6(R)PUMPS

Always be sure to use only clean filtered hydraulic oil to drive the hydraulic motor. Your hydraulic system should have a filter and it should be rated at 10 micron.

When connecting hydraulic hoses to the pump, be sure to keep hose connections clean.

Use hydraulic oils with anti-wear additives. A ASTM D6158-16 (HM Fluid), ISO46 is recommended.

Note: When using this equipment in environmentally sensitive areas we recommend using a bio-degradable oil.

Check oil level in the seal chamber every 250 hours and when beginning a new job. The level should be at the spill point of the fill plug. Do NOT over-fill!

Change oil in seal chamber every 1000 hours with an ISO 32 NSF approved mineral oil. The chamber should be filled to allow for a 10-15% air volume in the chamber when full.

Slight discoloration of the oil in the seal chamber is normal. This is due to the wearing of the mechanical seals.

Presence of water or emulsified oil in the housing indicates immediate need for seal replacement and inspection of bearings.

KZN-HYD3(R)

DISASSEMBLY:

Remove (3) bolts (#50) holding strainer plate (#49) to strainer base (#48).

Remove (4) bolts (#47) holding strainer base to suction cover (#43).

Slide strainer base off while leaving strainer plate in place.

Secure impeller (#41) from turning by inserting a pry bar or similar tool between impeller vanes and rest bar against boss on suction case.

Use large adjustable wrench to remove Agitator (#52) from shaft (#22).

Remove large lock-washer from shaft.

Remove (4) bolts (#45) holding suction cover (#43) to volute (#32) and remove suction cover.

Inspect wear plate (#44) and replace if worn excessively. The wear plate is secured by (4) nuts w/bolts (#46) to the suction cover.

Remove impeller (#41) and shaft key (#42) from shaft. Inspect impeller and replace if worn excessively.

Remove (6) bolts (#31) holding the outer casing (#14) to the volute and separate.

Remove shaft sleeve (#40) by sliding off of shaft. Inspect and replace if worn excessively.

Remove oil drain plug (#29) and drain oil into drain pan.

Remove (4) bolts (#37) and remove lower seal cover (#38) from seal chamber. Inspect lip seal (#39) and replace if worn.

Very Carefully slide mechanical seals (#33) off of shaft.

Remove (4) bolts (#28) holding bearing support (#25) to casing (#14) and slide shaft and bearing assembly. out of casing.



Remove (3) bolts (#23) holding bearing retainer (#24) to bearing support. Slide shaft and bearing out of bearing support.

Inspect bearings (#21, 26) and replace if loose or worn. Bearings are press fit onto the shaft.

NOTE: When disassembling pump for repair it is recommended that the bearings and mechanical seals are replaced.

Remove pigtail hydraulic hoses (#54, 55) if equipped, and drain remaining oil into drain pan.

Remove (unscrew) oil pipes (#3).

Remove (4) bolts (#9) from top cover (#10) and lift off cover.

Remove (2) bolts (#17) holding hydraulic motor (#16) to motor support plate (#18) and lift motor out of casing.

NOTE: The hydraulic motor is built to exacting tolerances and field repair is not recommended. If repair is required, it should be performed by an authorized repair center or replaced.

ASSEMBLY:

Carefully press bearings (#21, 26) onto shaft (#22).

Carefully install stationary seat section of upper mechanical seal (#33) into recess on bottom of bearing support (#25). SEE Fig. A

NOTE: Lightly lubricate outside surface of rubber cup and carefully slide seat assembly. into place keeping the shiny surface (lapped side) of the seat outward toward the mating face on the rotating unit.

Slide shaft and bearing assembly. into top of bearing support.

Slide bearing retainer (#24) over top of shaft and install onto bearing support with (3) bolts (#23). Evenly tighten bolts. Do Not Over Tighten!

Slide O ring (#27) over bearing support (#25).

Install shaft and bearing support assembly. into bottom of outer casing (#14) and install and tighten (4) bolts (#28) with lock-washers.

Lightly lubricate upper rotating seal unit and carefully slide onto shaft until it contacts the stationary seat, See Fig. A

Lightly lubricate lower rotating seal unit and carefully slide onto shaft until tee rubber bellows contacts the rubber bellows of the upper unit, the silicon carbide face is outward. See Fig. A.

Carefully press lip seal (#39) into recess on bottom of lower seal cover (#38) keeping the lip facing outward. See Fig. A.

Install stationary silicon carbide lower seal seat into top of lower seal cover (#38) and install (4) Phillips head screws (#34) holding retaining plate (#35).

Slide O ring (#36) onto lower seal cover (#38).

Lightly lubricate seal surfaces with a drop of clean oil and slide lower seal cover assembly. onto outer casing (#14). Secure with (4) bolts (#37) with lock-washers

Slide shaft sleeve (#40) over shaft until it slide through lip seal and stops

NOTE: Short side of-sleeve goes through lip seal.

Slide volute (#32), with wear ring (#53) installed, over shaft and onto outer casing, secure with (6) bolts (#31) with lock-washers.



Insert shaft key (#42) into shaft

Slide impeller (#40) onto shaft.

Install wear plate (#44) onto suction cover (#43) with (4) bolts (#46) with nuts and lock-washers.

Install suction cover assembly. onto volute (#32) and secure with (6) bolts (#45).

Place strainer plate (#49) over shaft.

Place lock-washer (#51) over shaft and install (screw on) agitator (#52).

Using pry bar or other suitable tool, secure impeller while tightening agitator with pipe wrench or similar tool.

Install strainer base (#48) with (4) 12mm x 25mm bolts (#47) with lock-washers.

Install (3) 14mm x 30mm bolts (#50) holding strainer plate to strainer base.

Install wave washer (#19) and O ring (#20) into motor support plate (#18) using grease to keep wave washer in place.

Install motor support plate assembly. into outer casing (#14) and over bearing (#18).

Apply grease to splined shaft on hydraulic motor (#16) and install motor into shaft (#22) and onto support plate. Secure motor with (2) bolts (#17) with lock-washers.

Install O rings (#5) onto threaded ends of oil pipes (#3) and install oil pipes into top of hydraulic motor (#16).

Install O rings (#4) into oil pipe grooves.

Slide the spacer ring (#15) into the outer casing (#14).

Install O ring (#11) onto top cover (#10). Lightly lubricate O rings (#4) and slide cover over Oil pipes. Align top cover bolt holes with outer casing threaded bolt holes and install (4) 10mm x 85mm bolts (#9) with lock-washers.

Install discharge adapter (#12) with (4) 10mm x 30mm bolts (#13).

Install lifting bracket (1) with (2) bolts (#2).

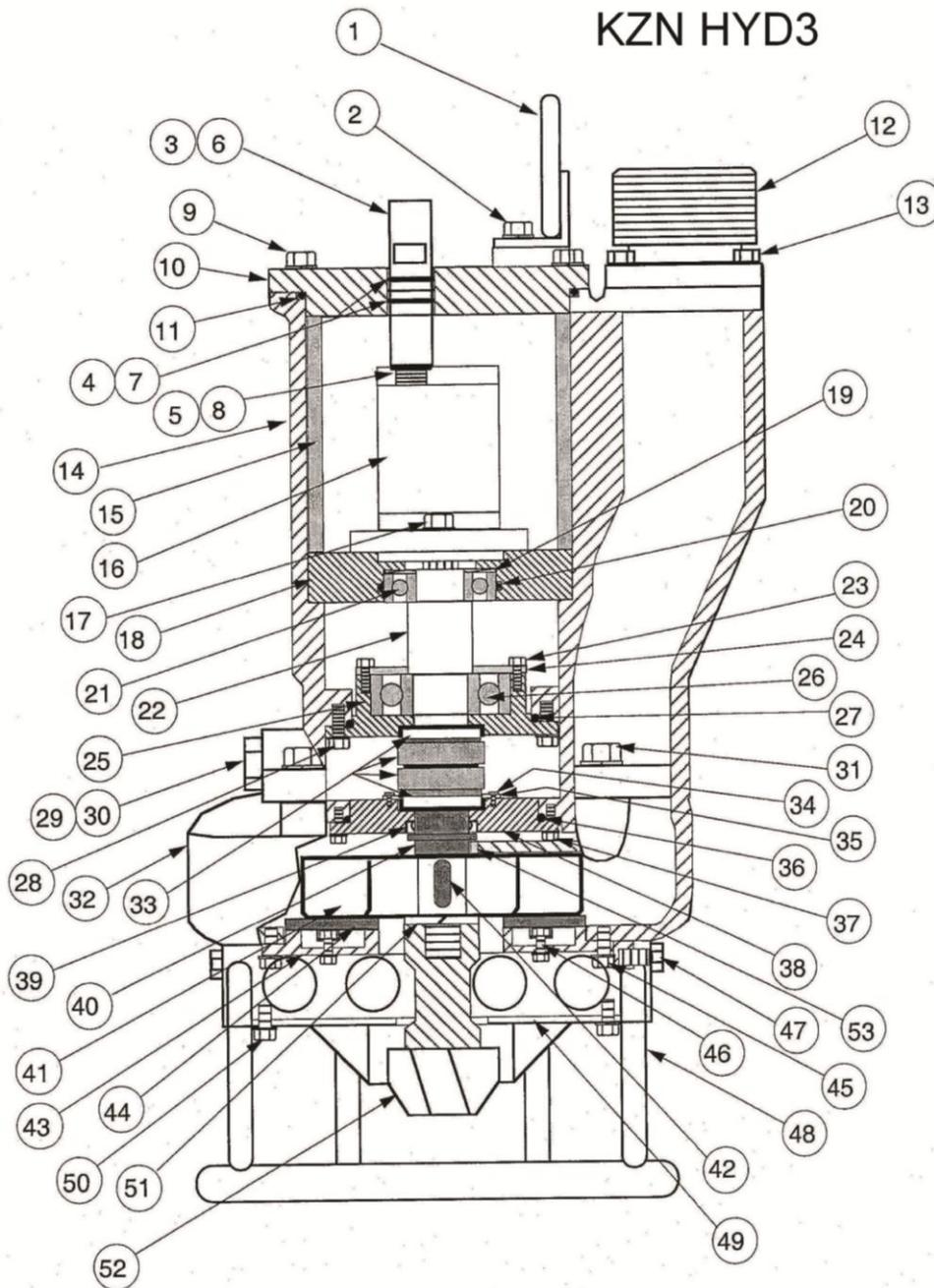
Pour 32 ounces of clean 10w or 20w non-detergent oil (hydraulic oil) into seal chamber and install oil plug (#29) with O ring (#30).



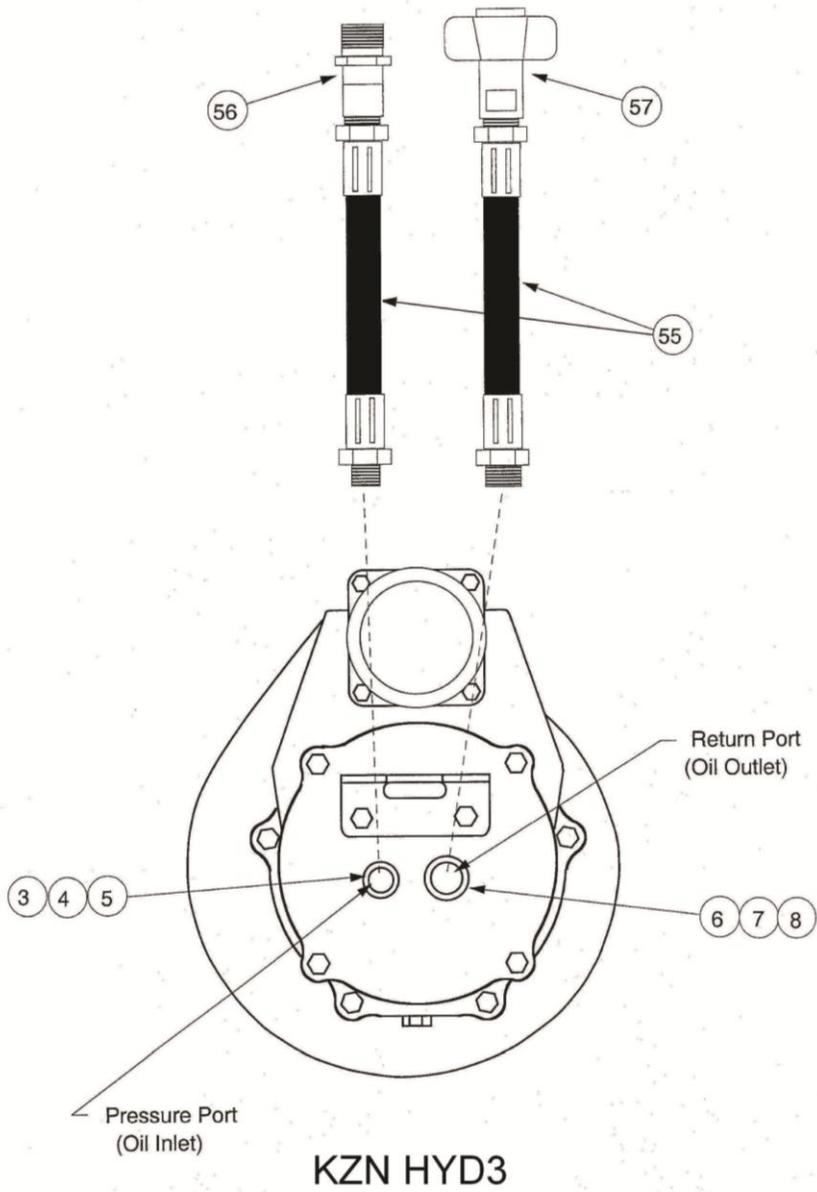
If equipped, install inlet and outlet pigtail hoses (#54, 55) and quick disconnect hose couplings (#56, 57). Use a liquid or paste hydraulic sealant on pipe threads (NOT TEFLON TAPE) and be sure pressure and return connections are installed correctly. SEE PARTS ILLUSTRATION.

Connect hydraulic hoses from the pump to a properly sized hydraulic power unit and test run. The pump should spin smoothly. Check to be sure there are no oil leaks and check for proper rotation. Impeller spins clockwise when viewed from top (discharge end) of pump.

EXPLODED VIEW OF KZN-HYD3(R)



KZN-HYD3(R) OIL INLET/OUTLET



KZN-HYD3(R) SEAL ARRANGEMENT

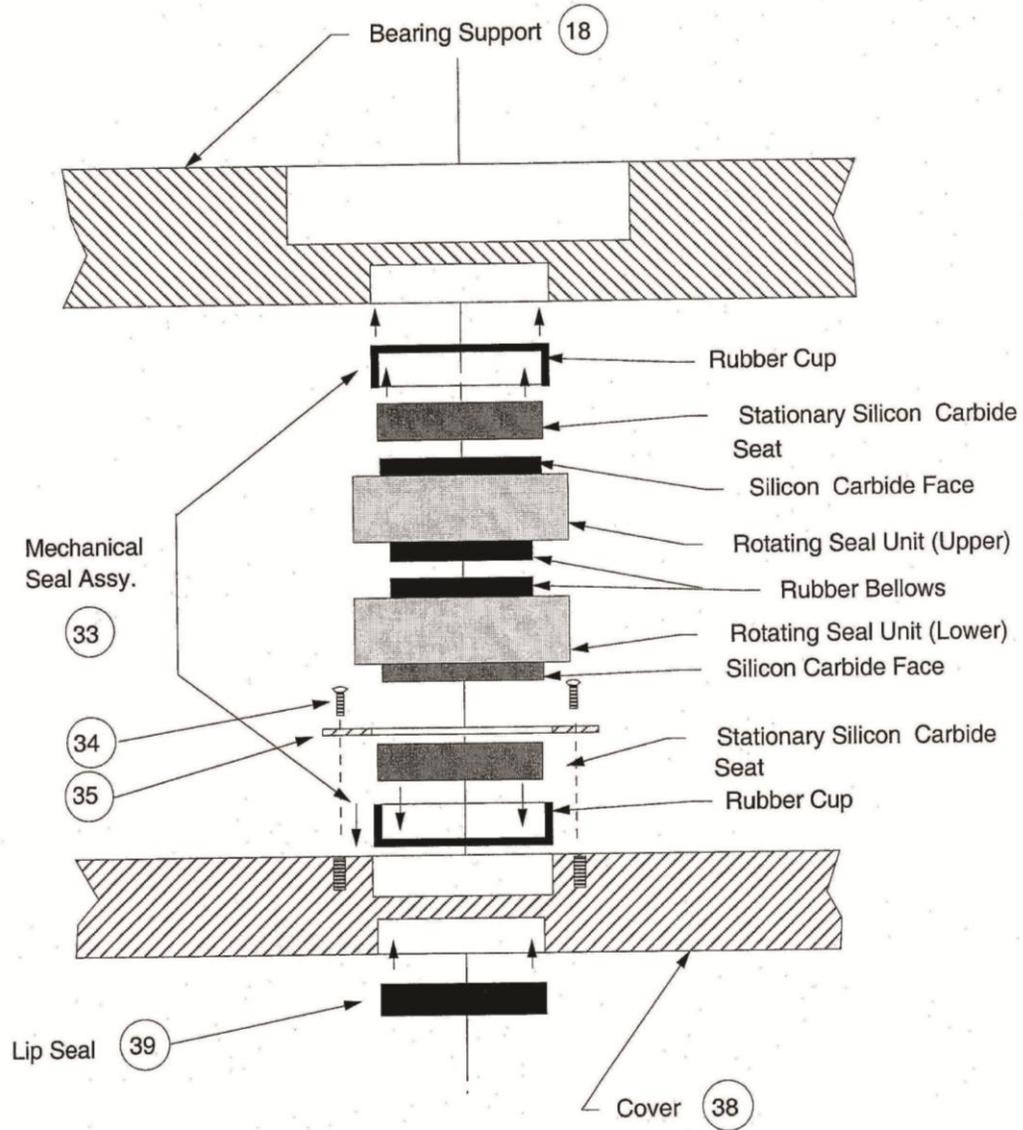


Fig. A

Seal Arrangement KZN HYD3 Pump

KZN-HYD3(R) PARTS LIST

| Pump Model KZN-HYD3 | | | |
|---------------------|----------------------------------|--------|-----|
| Pos. No. | Part Description | Item # | QTY |
| 09 | Bolt-Top Cover | 203243 | 4 |
| 12 | 3" NPT Male Coupling Flange | 202583 | 1 |
| 13 | Bolt-Discharge Flange | 203262 | 4 |
| 14 | Motor Housing | 202295 | 1 |
| 19 | Spring Washer | 202361 | 1 |
| 21 | Upper Ball Bearing | 200968 | 1 |
| 22 | Shaft | 200469 | 1 |
| 23 | Bolt-Bearing Retainer | 203220 | 3 |
| 24 | Lower Bearing Retainer | 202276 | 1 |
| 25 | Lower Bearing Housing | 202377 | 1 |
| 26 | Lower Ball Bearing | 200963 | 1 |
| 28 | Bolt-Bearing Housing | 203229 | 4 |
| 29 | Bolt-Oil Inspection | 203261 | 1 |
| 31 | Bolt -Pump Housing | 203271 | 6 |
| 32 | Pump Housing | 202191 | 1 |
| 32 | Pump Housing Hardened (optional) | 202193 | 1 |
| 33 | Mech. Seals-set | 200419 | 1 |
| 34 | Screw-Seal Retainer | 203214 | 4 |
| 35 | Mech. Seal Retainer | 202271 | 1 |
| 37 | Bolt-Oil Chamber Cover | 203229 | 4 |
| 38 | Oil Chamber Cover | 202225 | 1 |
| 39 | Lip Seal | 202248 | 1 |
| 40 | Shaft Sleeve | 203071 | 1 |
| 41 | Impeller | 202976 | 1 |
| 42 | Impeller Key | 202146 | 1 |
| 43 | Suction Cover | 202869 | 1 |
| 44 | Wear Plate | 202018 | 1 |
| 45 | Bolt-Suction Cover | 203236 | 4 |
| 46 | Bolt-Wear Plate | 203253 | 4 |
| 47 | Bolt-Strainer/Stand | 203258 | 4 |
| 48 | Strainer Stand | 201982 | 1 |
| 51 | Lock Washer | 202917 | 1 |
| 52 | Agitator | 202983 | 1 |
| 53 | Pump Housing Sleeve | 202182 | 1 |
| | O-Ring Kit-Buna N | 202653 | 1 |
| | | | |
| | | | |
| | HYDRA-TECH PARTS | | |
| 01 | Bolt - Suction Cover | 7100 | 1 |
| 02 | Hex Bolt SS 1/2" x 1 1/4" | 155 | 2 |
| 03 | Oil pipe inlet | 9954A | 1 |
| 04 | O-ring 213 | 9955 | 2 |
| 05 | O-ring 910 | 9956 | 1 |
| 06 | Oil pipe return | 9957A | 1 |
| 07 | O-ring 217 | 9958 | 2 |
| 08 | O-ring 912 | 9959 | 1 |
| 10 | Top Cover HYD3 | 9950 | 1 |
| 11 | O-ring top cover | 9961 | 1 |
| 15 | Spacer Ring HYD3 | 9965 | 1 |
| 16 | Hydraulic Motor | 9945 | 1 |
| 17 | Hex Bolt 3/8" x 1 1/4" | 9353 | 2 |
| 18 | Motor Support Plate HYD3 | 9966 | 1 |
| 55 | Pig Tail Hose Assy. | 2276 | 2 |
| 56 | QD Coupler - MALE, 3/4" | 2175 | 1 |
| 57 | QD Coupler - F, 3/4" wing nut | 2174 | 1 |

KZN-HYD4(R)

DISASSEMBLY:

Remove (3) bolts (#50) holding strainer plate (#49) to strainer base (#48)

Remove (4) bolts (#47) holding strainer base to suction cover (#43).

Slide strainer base off while leaving strainer plate in place.

Secure impeller (#41) from turning by inserting a pry bar or similar tool between impeller vanes and rest bar against boss on suction case.

Use large adjustable wrench to remove Agitator (#52) from shaft (#22).

Remove large lock-washer from shaft.

Remove (4) bolts (#45) holding suction cover (#43) to volute (#32) and remove suction cover.

Inspect wear slate (#44) and replace if worn excessively. The wear plate is secured by (4) nuts w/bolts (#46) to the suction cover.

Remove impeller (#41) and shaft key (#42) from shaft. Inspect impeller and replace if worn excessively.

Remove (6) bolts (#31) holding the outer casing (#14) to the volute and separate.

Remove shaft sleeve (#40) by sliding off of shaft. Inspect and replace if worn excessively.

Remove oil drain plug (#29) and drain oil into drain pan.

Remove (4) bolts (#37) anti remove lower seal cover (#38) from seal chamber.

Inspect lip seal (#39) and replace if worn.

Very Carefully slide mechanical seals (#33) off of shaft.

Remove (4) bolts (#28) holding bearing support (#25) to casing (#14) and slide shaft and bearing assembly. out of casing.

Remove (3) bolts (#23) holding bearing retainer (#24) to bearing support. Slide shaft and bearing out of bearing support.



Inspect bearings (#21, 26) and replace if loose or worn. Bearings are press fit onto the shaft.

NOTE: When disassembling pump for repair it is recommended that the bearings and mechanical seals are be replaced.

Remove pigtail hydraulic hoses (#54, 55) if equipped, and drain remaining oil into drain pan.

Remove (unscrew) oil pipes (#3, 6).

Remove (4) bolts (#9) from top cover (#10) and lift off cover.

Remove (2) bolts (#17) holding hydraulic motor (#16) to motor support plate (#18) and lift motor out of casing.

NOTE: The hydraulic motor is built to exacting tolerances and field repair is not recommended. If repair is required, it should be performed by an authorized repair center or replaced.

ASSEMBLY:

Carefully press bearings (#21, 26) onto shaft (#22).

Carefully install stationary seat section of upper mechanical seal (#33) into recess on bottom of bearing support (#25). See Fig. A.

NOTE: Lightly lubricate outside surface of rubber cup and carefully slide seat assembly. into place keeping the shiny surface (lapped side) of the seat outward toward the mating face on the rotating unit.

Slide shaft and bearing assembly. into top of bearing support.

Slide bearing retainer (#24) over top of shaft and install onto bearing support with (3) bolts (#23). Evenly tighten bolts. Do Not Over Tighten!

Slide O ring (#27) over bearing support (#25).

Install shaft and bearing support assembly. into bottom of outer casing (#14) and install and tighten (4) bolts (#28) with lock-washers.

Lightly lubricate upper rotating seal unit and carefully slide onto shaft until it contacts the stationary seat. See Fig. A.

Lightly lubricate lower rotating seal unit and carefully slide onto shaft until the rubber bellows contacts the rubber bellows of the upper unit. The silicon carbide face is outward. See Fig. A

Carefully press lip seal (#39) into recess on bottom of lower seal cover (#38) keeping the lip facing outward. See Fig. A.

Install stationary silicon carbide lower seal seat into top of lower seal cover (#38) and install (4) Phillips head screws (#34) holding retaining plate (#35).

Slide O ring (#36) onto lower seal cover (#38).

Lightly lubricate seal surfaces with a drop of clean oil and slide lower seal cover assembly. onto outer casing (#14). Secure with (4) bolts (#37) with lock-washers.

Slide shaft sleeve (#40) over shaft until it slide through lip seal and stops.

NOTE: Short side of sleeve goes through lip seal.

Slide volute (#32), with wear ring (#53) installed, over shaft and onto outer casing, secure with (6) bolts (#31) with lock-washers.



Insert shaft key (#42) into shaft.

Slide impeller (#40) onto shaft.

Install wear plate (#44) onto suction cover (#43) with (4) bolts (#46) with nuts and lock-washers.

Install suction cover assembly. onto volute (#32) and secure with (6) bolts (#45).

Place strainer plate (#49) over shaft.

Place lock-washer (#51) over shaft and install (screw on) agitator (#52).

Using pry bar or other suitable tool, secure impeller while tightening agitator with pipe wrench or similar tool.

Install strainer base (#48) with (4) 12mm x 25mm bolts (#47) with lock-washers.

Install (3) 14mm x 30mm bolts (#50) holding strainer plate to strainer base.

Install wave washer (#19) and O ring (#20) into motor support plate (#18) using grease to keep wave washer in place.

Install motor support plate assembly. into outer casing (#14) and over bearing (#18).

Apply grease to splined shaft on hydraulic motor (#16) and install motor into shaft (#22) and onto support plate. Secure motor with (2) bolts (#17) with lock-washers.

Install O rings (#5, 8) onto threaded ends of oil pipes (#3, 6) and install oil pipes into top of hydraulic motor (#16).

Install (2) O rings (#4) and (2) O rings (#7) into oil pipe grooves.

Slide the spacer ring (#15) into the outer casing (#14).

Install O ring (#11) onto top cover (#10). Lightly lubricate O rings and slide cover over oil pipes. Align top cover bolt holes with outer casing threaded bolt holes and install (4) 10mm x 35mm bolts (#9) with lock-washers.

Install discharge adapter (#12) with (4) 10mm x 30mm bolts (#13).

Install lifting bracket (1) with (2) bolts (#2).

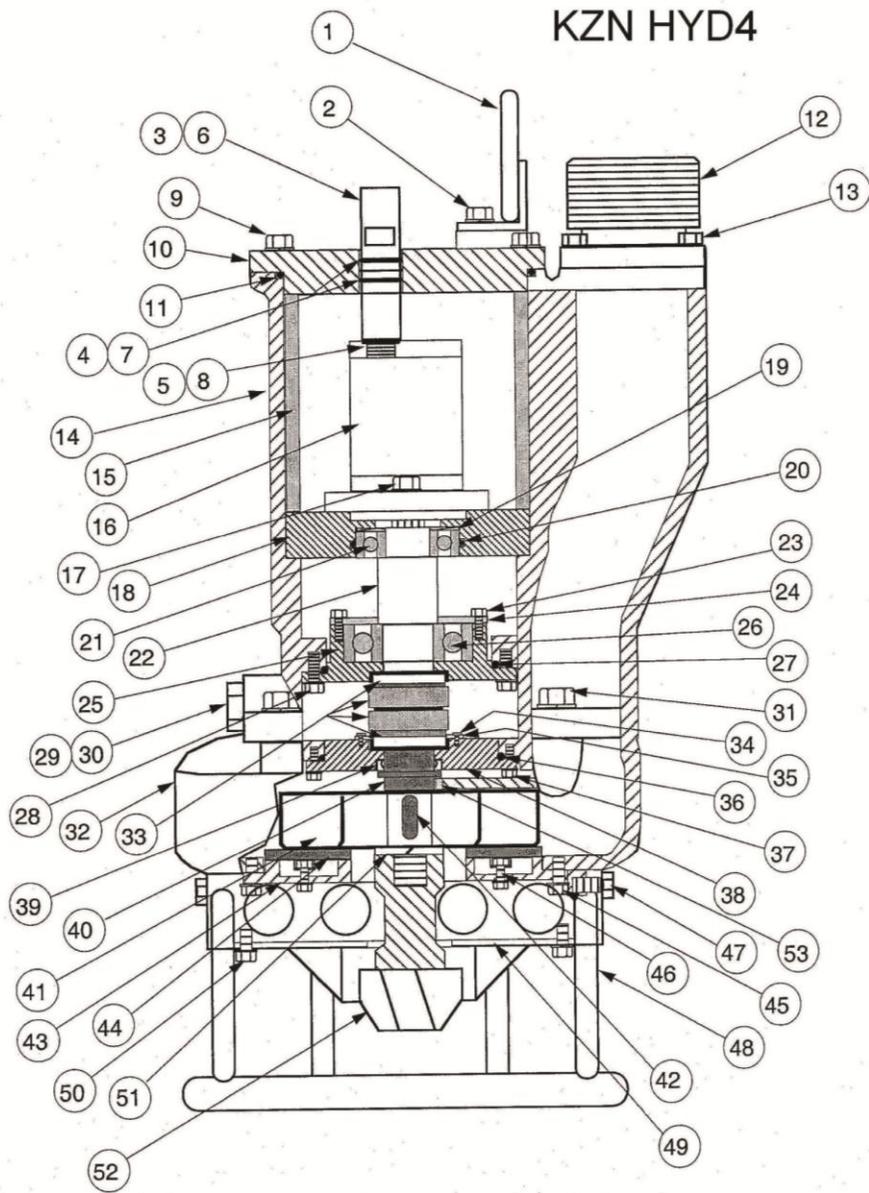
Pour 32 ounces of clean 10w or 20w non-detergent oil (hydraulic oil) into sea chamber and install oil plug (#29) with O ring (#30).



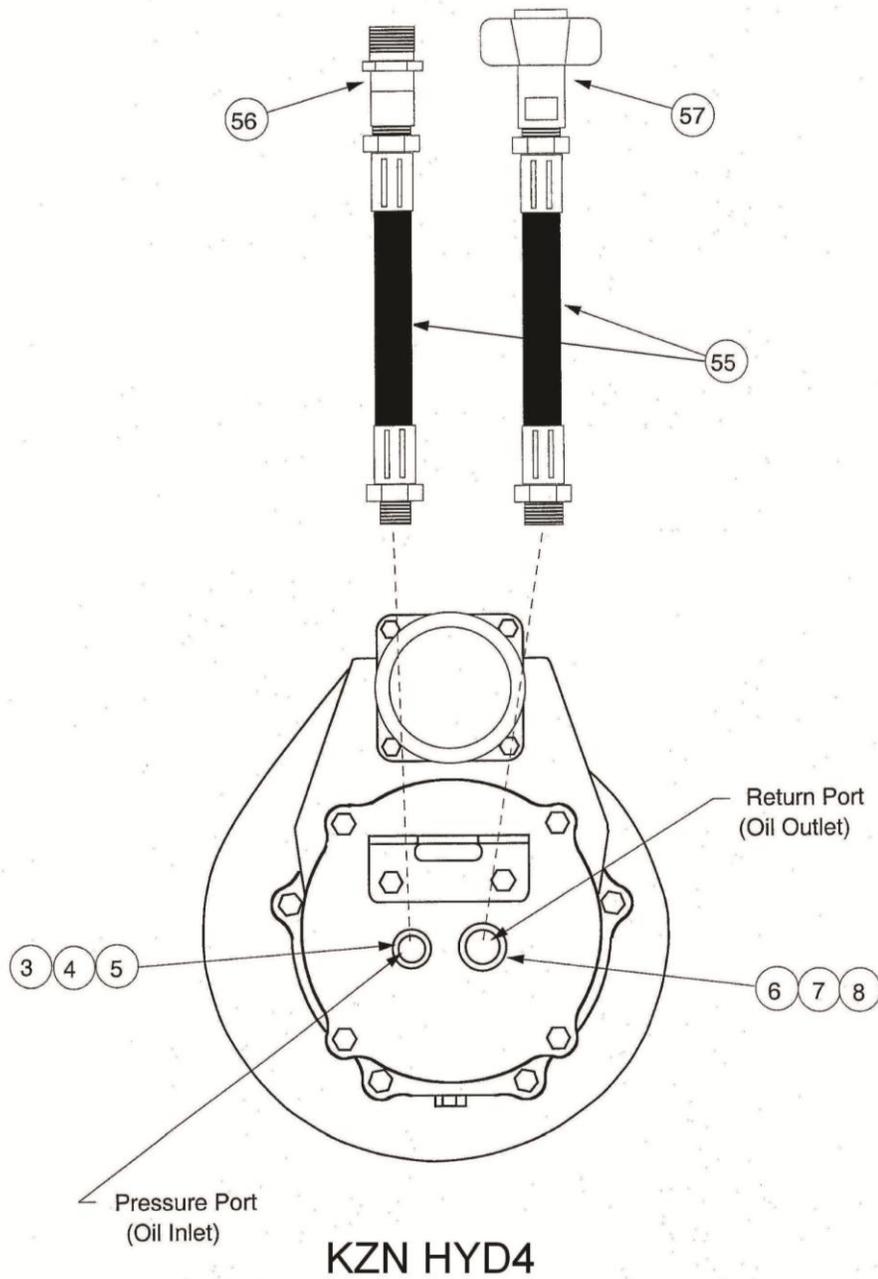
If equipped, install inlet and outlet pigtail hoses (#54, 55) and quick disconnect nose couplings (#56, 57). Use a liquid or paste hydraulic sealant on pipe threads (NOT TEFLON TAPE) and be sure pressure and return connections are installed correctly. SEE PARTS ILLUSTRATION

Connect hydraulic hoses from the pump to a properly sized hydraulic power unit and test run. The pump should spin smoothly. Check to be sure there are no oil leaks and check for proper rotation. Impeller spins clockwise when viewed from top (discharge end) of pump.

EXPLODED VIEW OF KZN-HYD4(R)



KZN-HYD4(R) OIL INLET/OUTLET



KZN-HYD4(R) SEAL ARRANGEMENT

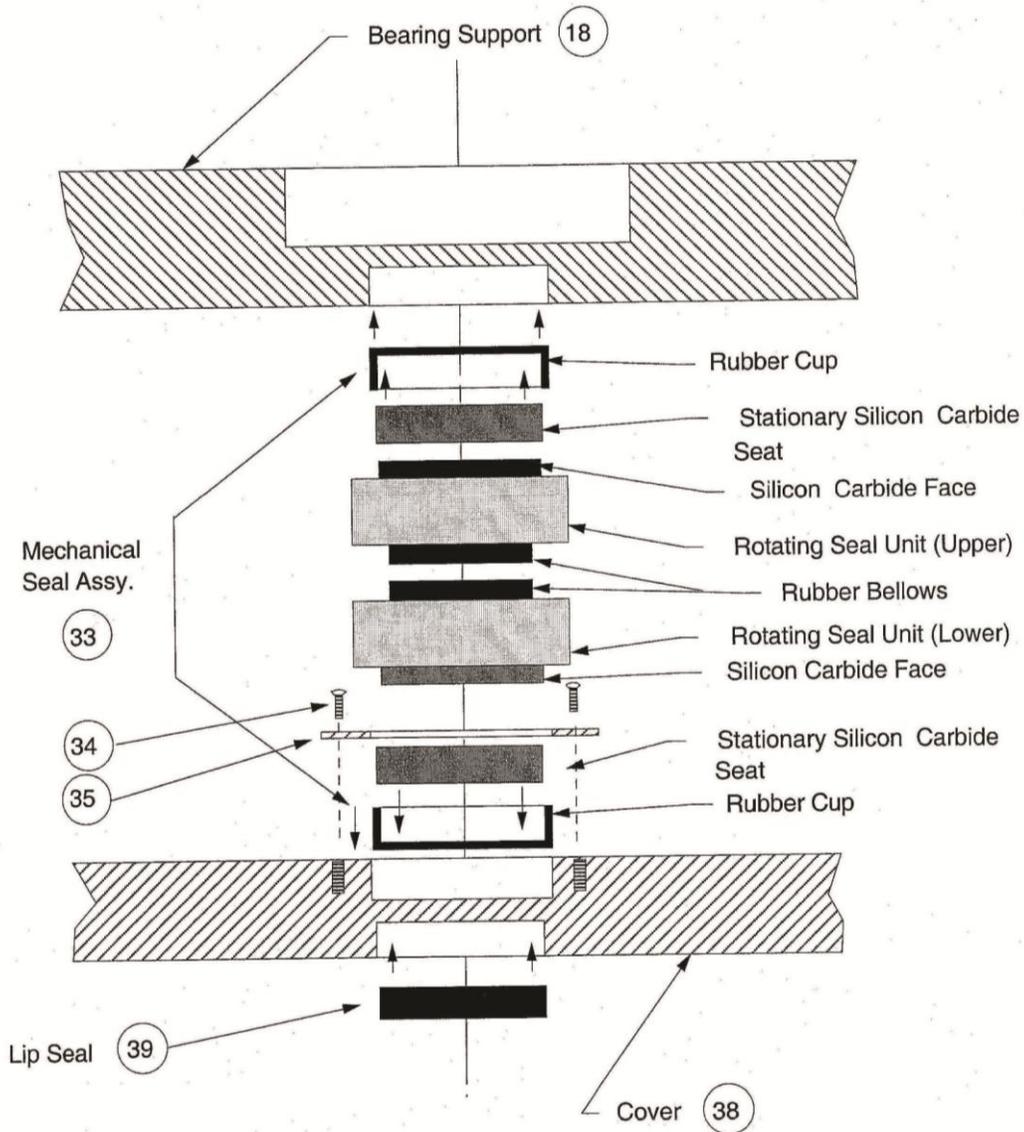


Fig. A

Seal Arrangement KZN HYD4 Pump



KZN-HYD4(R) PARTS LIST

| Pos. No. | Part Description | Pump Model | KZN-HYD4 |
|----------|----------------------------------|------------|----------|
| | | Item # | QTY |
| 09 | Bolt-Top Cover | 203243 | 4 |
| 12 | 4" NPT Male Coupling Flange | 202585 | 1 |
| 13 | Bolt-Discharge Flange | 203262 | 4 |
| 14 | Motor Housing | 202295 | 1 |
| 19 | Spring Washer | 202361 | 1 |
| 21 | Upper Ball Bearing | 200968 | 1 |
| 22 | Shaft | 200469 | 1 |
| 23 | Bolt-Bearing Retainer | 203220 | 3 |
| 24 | Lower Bearing Retainer | 202276 | 1 |
| 25 | Lower Bearing Housing | 202377 | 1 |
| 26 | Lower Ball Bearing | 200963 | 1 |
| 28 | Bolt-Bearing Housing | 203229 | 4 |
| 29 | Bolt-Oil Inspection | 203261 | 1 |
| 31 | Bolt -Pump Housing | 203271 | 6 |
| 32 | Pump Housing | 202191 | 1 |
| 32 | Pump Housing Hardened (optional) | 202193 | 1 |
| 33 | Mech. Seals-set | 200419 | 1 |
| 34 | Screw-Seal Retainer | 203214 | 4 |
| 35 | Mech. Seal Retainer | 202271 | 1 |
| 37 | Bolt-Oil Chamber Cover | 203229 | 4 |
| 38 | Oil Chamber Cover | 202225 | 1 |
| 39 | Lip Seal | 202248 | 1 |
| 40 | Shaft Sleeve | 203071 | 1 |
| 41 | Impeller | 202980 | 1 |
| 42 | Impeller Key | 202146 | 1 |
| 43 | Suction Cover | 202873 | 1 |
| 44 | Wear Plate | 202018 | 1 |
| 45 | Bolt-Suction Cover | 203236 | 4 |
| 46 | Bolt-Wear Plate | 203253 | 4 |
| 47 | Bolt-Strainer/Stand | 203258 | 4 |
| 48 | Strainer Stand | 201982 | 1 |
| 51 | Lock Washer | 202917 | 1 |
| 52 | Agitator | 202983 | 1 |
| 53 | Pump Housing Sleeve | 202182 | 1 |
| | O-Ring Kit-Buna N | 202654 | 1 |
| | | | |
| | HYDRA-TECH PARTS | | |
| 01 | Bolt - Suction Cover | 7100 | 1 |
| 02 | Hex Bolt SS 1/2" x 1-1/4" | 155 | 2 |
| 03 | Oil pipe inlet | 9954A | 1 |
| 04 | O-ring 213 | 9955 | 2 |
| 05 | O-ring 910 | 9956 | 1 |
| 06 | Oil pipe return | 9957A | 1 |
| 07 | O-ring 217 | 9958 | 2 |
| 08 | O-ring 912 | 9959 | 1 |
| 10 | Top Cover HYD4 | 9950 | 1 |
| 11 | O-ring top cover | 9961 | 1 |
| 15 | Spacer Ring HYD4 | 9965 | 1 |
| 16 | Hydraulic Motor | 9951 | 1 |
| 17 | Hex Bolt 3/8" x 1-1/4" | 9353 | 2 |
| 18 | Motor Support Plate HYD4 | 9966 | 1 |
| 55 | Pig Tail Hose Assy. | 2276 | 2 |
| 56 | QD Coupler - MALE, 3/4" | 2175 | 1 |
| 57 | QD Coupler - F, 3/4" wing nut | 2174 | 1 |

KZN-HYD6(R)

DISASSEMBLY:

Remove (4) bolts (#47) holding strainer base to suction cover (#43) and remove strainer base.

Secure impeller (#41) from turning by inserting a pry bar or similar tool between impeller vanes and rest on against boss on suction case.

Use large adjustable wrench to remove Agitator (#52) from the shaft (#22).

Remove large lock-washer from shaft.

Remove (4) bolts (#45) holding suction cover (#43) to volute (#32) and remove suction cover.

Inspect wear plate (#44) and replace if worn excessively. The wear plate is secured by (4) nuts w/bolts (#46) to the suction cover.

Remove impeller (#41) and shaft key (#42) from shaft. Inspect impeller and replace if worn excessively.

Remove (8) bolts (#31) holding the bearing support (#25) to the volute and separate.

Remove shaft sleeve (#40) by sliding off of shaft. Inspect sleeve and lip seal (#39) and replace if worn excessively.

Remove oil drain plug (#29) and drain oil into drain can.

Remove (4) bolts (#37) and remove lower seal cover (#38) from seal chamber. Inspect lip seal (#39) and replace if worn.

Very Carefully slide mechanical seals (#33) off of shaft.

Remove (8) bolts (#28) holding bearing support (#25) to casing (#14) and slide shaft and bearing assembly out of casing.

Remove (3) bolts (#23) holding bearing retainer (#24) to bearing support. Slide shaft and bearing out of bearing support.

Inspect bearings (#21, 26) and lip seal (#27) and replace if loose or worn. Bearings are press fit onto the shaft.



NOTE: When disassembling pump for repair it is recommended that the bearings and mechanical seals are replaced.

Remove pigtail hydraulic hoses (#54) if equipped and drain remaining oil into drain pan.

Remove (unscrew) oil pipes (#3).

Remove (6) bolts (#9) from top cover (#10) and lift off cover.

Slide the spacer ring (#15) out of casing.

Lift hydraulic motor (#16) and motor support plate (#18) out of casing.

Remove (4) bolts (#17) and separate the hydraulic motor from the motor support plate.

NOTE: The hydraulic motor is built to exacting tolerances and field repair is not recommended. If repair is required it should be performed by an authorized repair center or replaced.

Inspect wave washer (#19) and O ring (#20) and replace if worn.

ASSEMBLY:

Carefully press bearings (#21, 26) onto shaft (#22).

Install lip seal (#27) if necessary, into bearing support.

Carefully install stationary, seat section of upper mechanical seal (#33) into recess on bottom of bearing support (#25). See Fig. A.

NOTE: Lightly lubricate outside surface of rubber cup and carefully slide seat assembly. into place keeping the shiny surface (lapped side) of the seat outward toward the mating face on the rotating unit.

Slide shaft and bearing assembly. into top of bearing support.

Slide bearing retainer (#24) over top of shaft and install onto bearing support with (3) bolts (#23). Evenly tighten bolts. Do Not Over Tighten!

Lightly lubricate upper rotating seal unit and VERY CAREFULLY slide onto shaft until it contacts the stationary seat. See Fig. A.

Lightly lubricate lower rotating seal unit and VERY CAREFULLY slide onto shaft until the rubber bellows contacts the rubber bellows of the upper unit. The silicon carbide face is outward. See Fig. A.

Carefully press lip seal (#39) into recess on bottom of lower seal cover (#38) keeping the lip facing outward See Fig. A.

Install stationary silicon carbide lower seal seat into top of lower seal cover (#38) and install (4) Phillips head screws (#34) holding retaining plate (#35).

Slide O ring (#36) onto lower seal cover (#38).

Lightly lubricate seal surfaces with a drop of clean oil and slide lower seal cover assembly. onto outer casing (#14). Secure with (4) bolts (#37) with lock-washers.

Slide shaft sleeve (#40) over shaft until it slides through the lip seal and stops.

NOTE: Short side of sleeve goes through lip seal.

Install shaft and bearing support assembly, onto volute (#32) with wear ring (#53) installed, and install and tighten (8) bolts (#31) with lock-washers.

Insert shaft key (#42) into shaft.



Slide impeller t#40t onto snarl.

Install wear plate (#44) onto suction cover (#43) with (4) bolts (#46) with nuts and lock-washers.

Install suction cover assembly. onto volute (#32) and secure with (4) bolts (#45).

Place lock-washer (#51) over shaft and install (screw on) agitator (#52).

Using pry bar or other suitable tool, secure impeller while tightening agitator with pipe wrench or similar tool.

Install strainer base (#48) with (4) 12mm x 25mm bolts (#47) with lock-washers.

Install O ring (# 49) onto bearing support assembly.

Install outer casing (#14) onto bearing support and install and tighten (8) bolts (#28) with lock-washers.

Install hydraulic motor (#16) onto motor support plate (#18) and fasten with (4) bolts (#17) with lock-washers.

Install wave washer (#19) and O ring (#20) into motor support plate (#18) using grease to keep wave washer in place.

Apply grease to splined shaft on hydraulic motor (#16) and carefully install motor and support plate assembly. into top of outer casing (#14) and over bearing (#21).

Install O rings (#5) onto threaded ends of oil pipes (#3) and install oil pipes into top of hydraulic motor (#16).

Install O rings (#4) into oil pipe grooves.

Slide the spacer ring (#15) into the outer casing (#14).

Install O ring (#11) onto top cover (#10) lightly lubricate O rings (#5) and slide cover over oil pipes. Align top cover bolt-holes with outer casing threaded bolt-holes and install (6) 10mm x 35mm bolts (#9) with lock-washers.

Install discharge adapter (#12) with (4) 12mm x 35mm bolts (#13).

Install lifting bracket (1) with (2) bolts (#2).

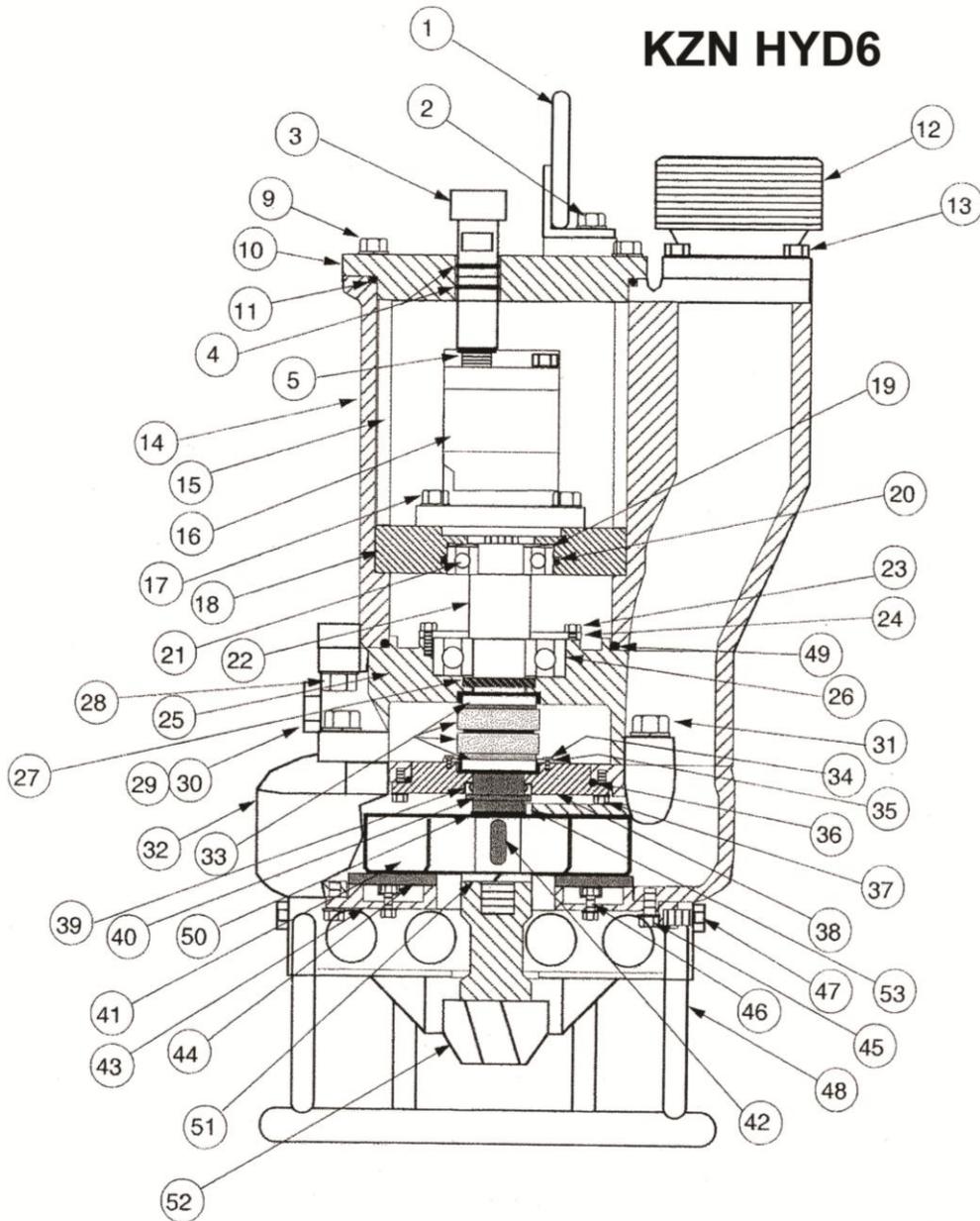
Pour 100 ounces of clean 10w or 20w non-detergent oil (hydraulic oil) into seal chamber and install oil plug (#29) with O ring (#30).



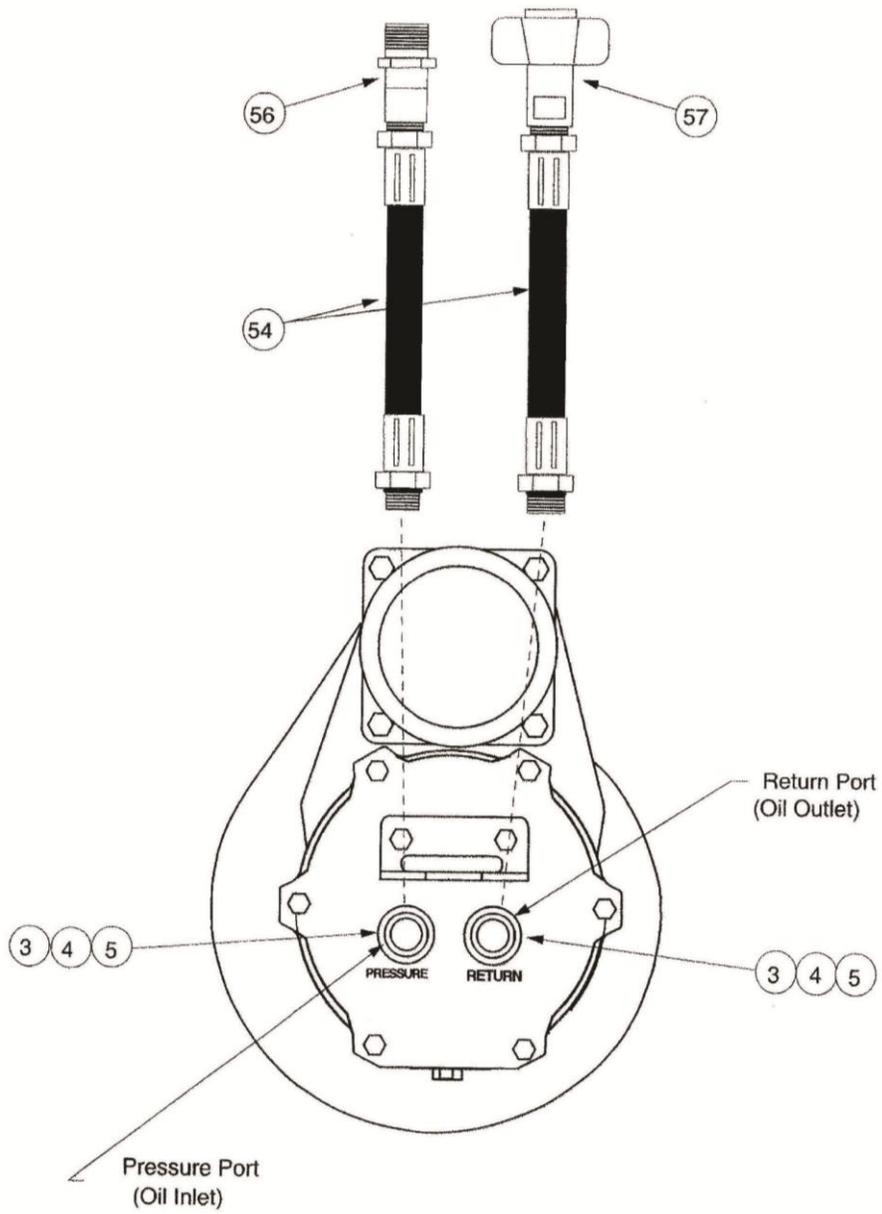
If equipped, install inlet and outlet pigtail hoses (#54) and quick disconnect hose couplings (#56, 57). Use a liquid or paste hydraulic sealant on pipe threads (NOT TEFLON TAPE) and be sure pressure and return connections are installed correctly. SEE PARTS ILLUSTRATION.

Connect hydraulic hoses from the pump to a properly sized hydraulic power unit and test run. The pump should spin smoothly. Check to be sure there are no oil leaks and check for proper rotation. Impeller spins clockwise when viewed from top (discharge end) of pump.

EXPLODED VIEW OF KZN-HYD6(R)



KZN-HYD6(R) OIL INLET/OUTLET



KZN HYD6

KZN-HYD6(R) SEAL ARRANGEMENT

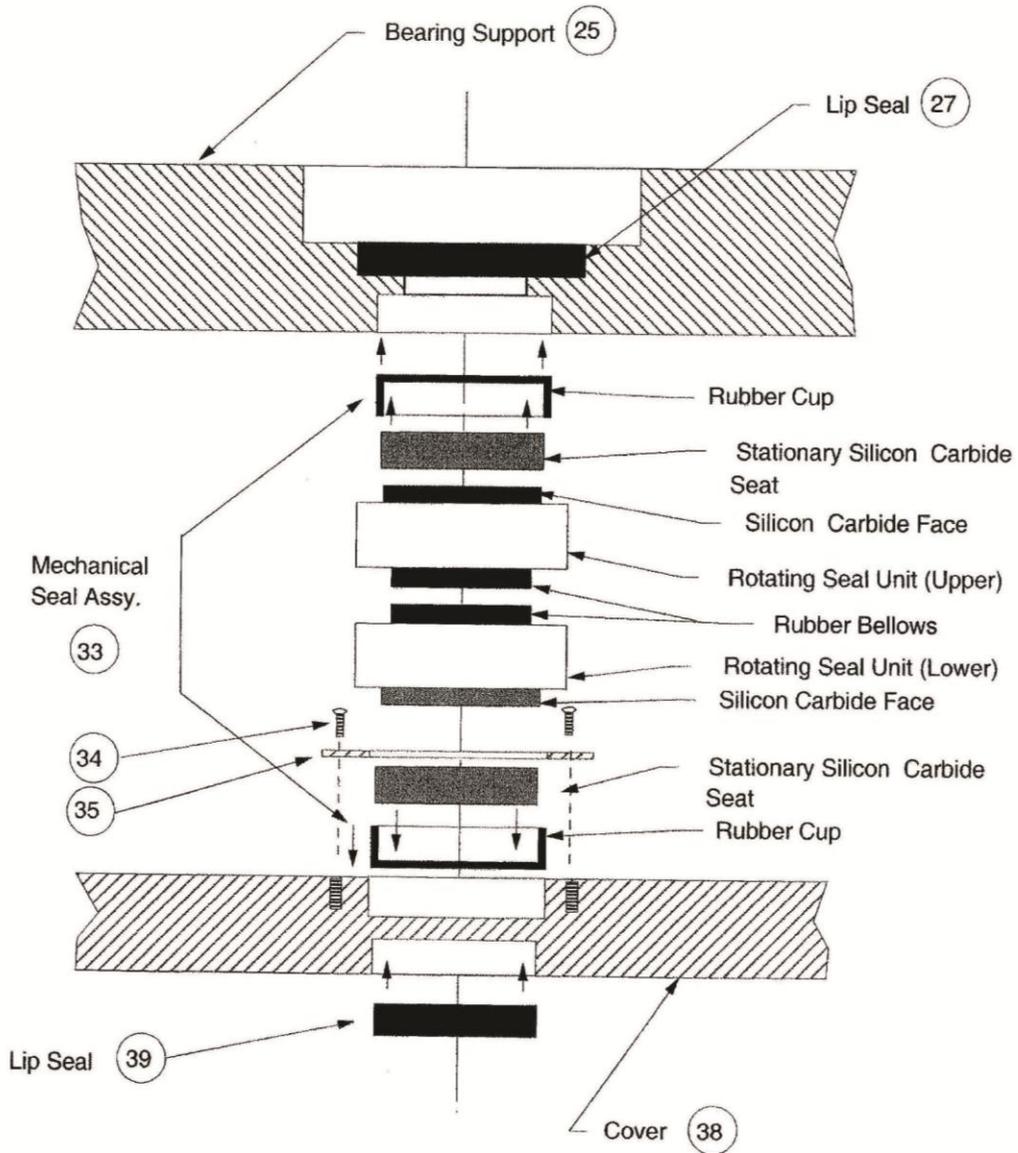


Fig. A

Seal Arrangement KZN HYD6 Pump

KZN-HYD6(R) PARTS LIST

| | | Pump Model | KZN-HYD6 | |
|----------|----------------------------------|------------|----------|--|
| Pos. No. | Part Description | Item # | QTY | |
| 09 | Bolt-Top Cover | 203243 | 6 | |
| 12 | 6" NPT Male Coupling Flange | 202587 | 1 | |
| 13 | Bolt-Discharge Flange | 203260 | 4 | |
| 14 | Motor Housing | 203082 | 1 | |
| 19 | Spring Washer | 202362 | 1 | |
| 21 | Upper Ball Bearing | 200968 | 1 | |
| 22 | Shaft | 200470 | 1 | |
| 23 | Bolt-Bearing Retainer | 203220 | 4 | |
| 24 | Lower Bearing Retainer | 202277 | 1 | |
| 25 | Oil Chamber | 202371 | 1 | |
| 26 | Lower Ball Bearing | 200964 | 1 | |
| 27 | Upper Lip Seal | 202252 | 1 | |
| 28 | Bolt-Oil Housing | 203260 | 8 | |
| 29 | Bolt-Oil Inspection | 203261 | 1 | |
| 31 | Bolt -Pump Housing | 203260 | 8 | |
| 32 | Pump Housing | 202203 | 1 | |
| 32 | Pump Housing Hardened (optional) | 202204 | 1 | |
| 33 | Mech. Seals-set | 200433 | 1 | |
| 34 | Screw-Seal Retainer | 203214 | 4 | |
| 35 | Mech. Seal Retainer | 202272 | 1 | |
| 37 | Bolt-Oil Chamber Cover | 203229 | 4 | |
| 38 | Oil Chamber Cover | 202227 | 1 | |
| 39 | Lip Seal | 202251 | 1 | |
| 40 | Shaft Sleeve | 203072 | 1 | |
| 41 | Impeller | 202972 | 1 | |
| 42 | Impeller Key | 202147 | 1 | |
| 43 | Suction Cover | 202874 | 1 | |
| 44 | Wear Plate | 202029 | 1 | |
| 45 | Bolt-Suction Cover | 203236 | 4 | |
| 46 | Bolt-Wear Plate | 203253 | 4 | |
| 47 | Bolt-Strainer/Stand | 203258 | 4 | |
| 48 | Strainer Stand | 201981 | 1 | |
| 50-16 | Bolt-Stator Locking | 203260 | 1 | |
| 51 | Lock Washer | 202918 | 1 | |
| 52 | Agitator | 202984 | 1 | |
| 53 | Pump Housing Sleeve | 202183 | 1 | |
| | O-Ring Kit-Buna N | 202656 | 1 | |
| | Bolt - Suction Cover | | | |
| | HYDRA-TECH PARTS | | | |
| 01 | Lifting Bracket | 7100 | 1 | |
| 02 | Hex Bolt SS 1/2" x 1-1/4" | 155 | 2 | |
| 03 | Oil Pipe w/ SAE O ring port | 9936A | 2 | |
| 04 | O-ring 219 | 8641 | 4 | |
| 05 | O-ring 916 | 8642 | 2 | |
| 10 | Top Cover HYD6 | 9930 | 1 | |
| 11 | O-ring top cover | 8643 | 1 | |
| 15 | Spacer Ring Blank HYD6 | 8646 | 1 | |
| 16 | Hydraulic Motor | 252 | 1 | |
| 17 | Hex Bolt SS 1/2" x 1-1/4" | 155 | 4 | |
| 18 | Motor Support Plate HYD6 | 8647 | 1 | |
| 54 | Pig Tail Hose Assy (HP) | 146 | 2 | |
| 56 | 1" QD Coupler MALE | 182 | 1 | |
| 57 | 1" QD Coupler - F wing nut | 184 | 1 | |

*See following page for parts order instructions



Parts Order Instructions

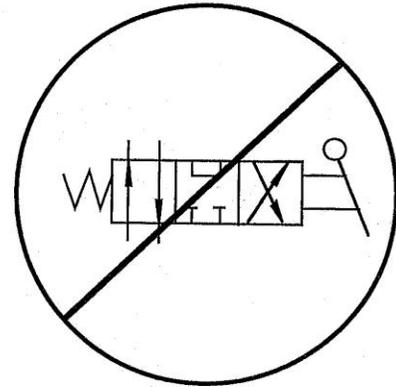
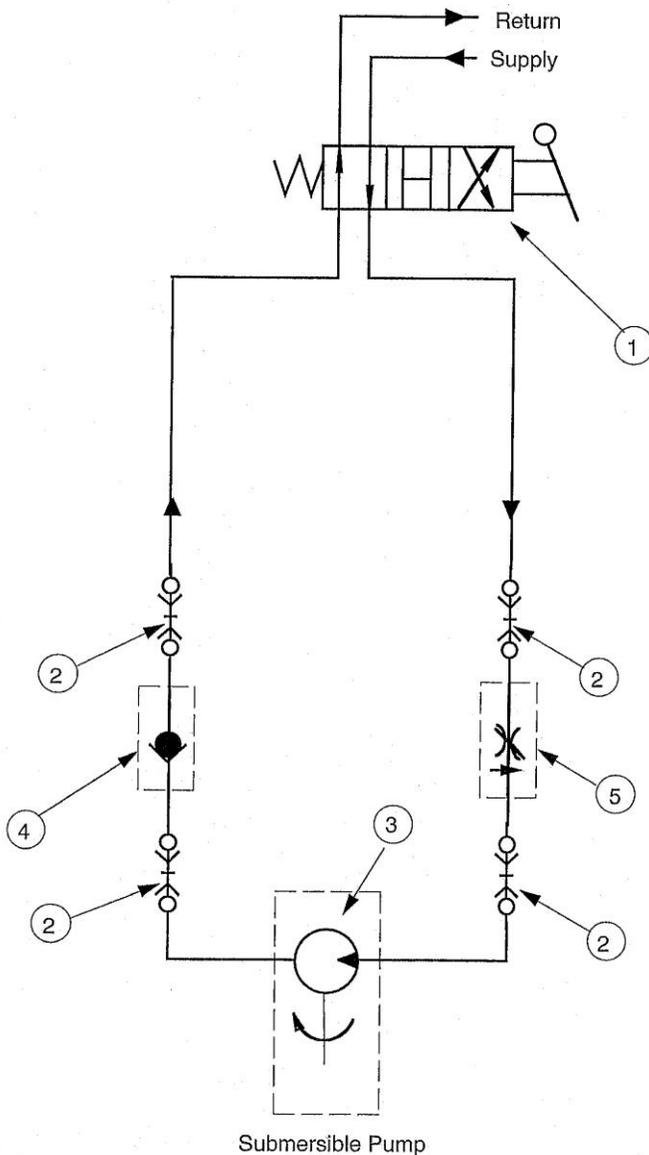
The hydraulic power packs are manufactured by HYDRA-TECH Pumps.

For power pack parts, please contact:

HYDRA-TECH Pumps
167 Stock Street
Nesquehoning, PA. 18240
Phone: 570-645-3779
Fax: 570-645-4061
Email: htpump@hydra-tech.com

For all other parts, contact Industrial Flow Solutions Operating, LLC or your nearest BJM Pumps® distributor.

TYPICAL HYDRAULIC SCHEMATIC FOR CUSTOMER SUPPLIED HYDRAULIC POWER SOURCE

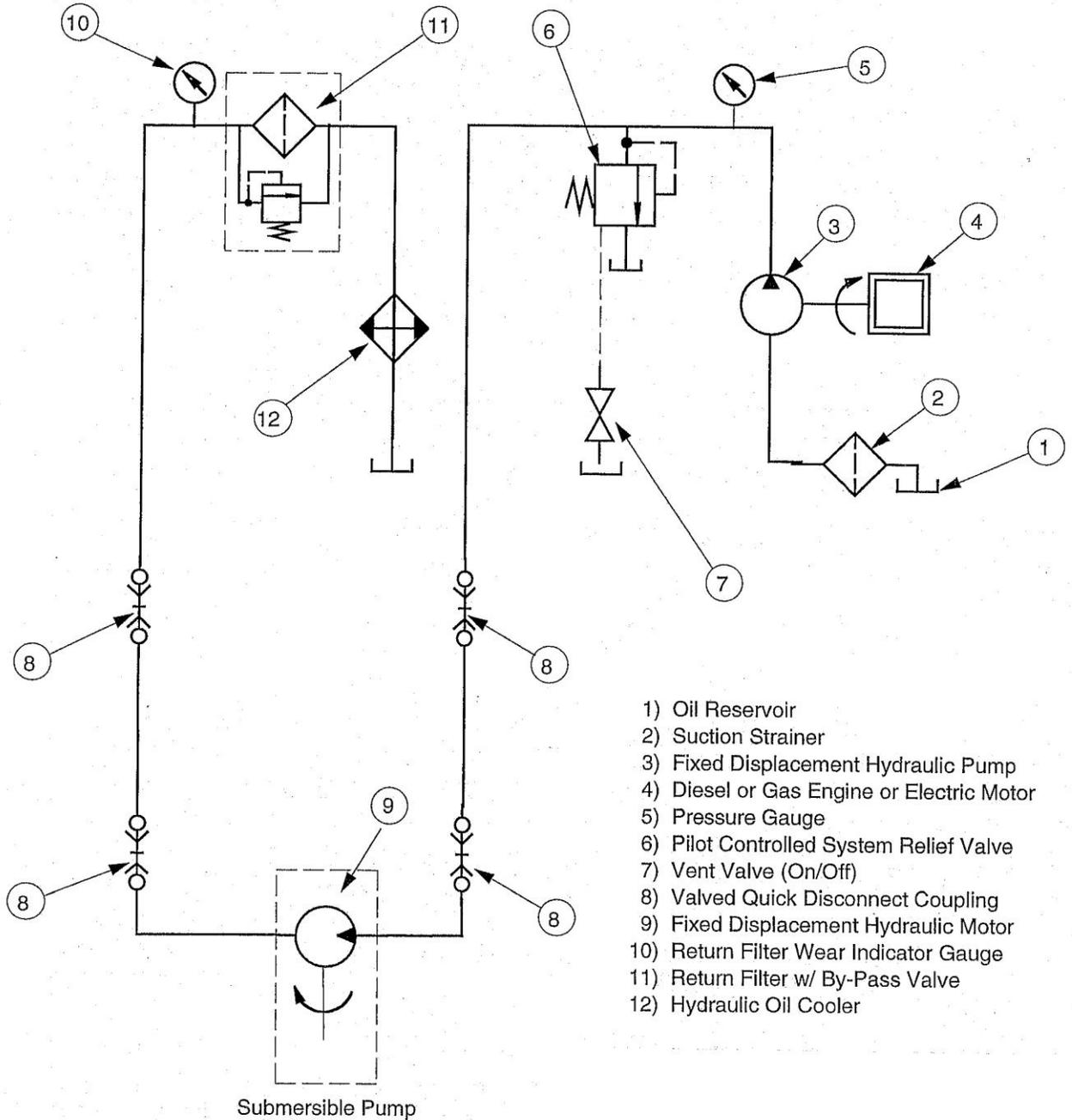


Do Not use Closed Center Valves!

Return flow from the hydraulic motor must be allowed to return to the oil reservoir to enable the pump impeller to gradually slow to a stop. Blocking this flow will cause damage to the hydraulic motor and pump seal!!

- 1) 4 Way Open Center Directional Valve
(Must be operated in forward direction only or use check valve (4) to prevent reversing)
- 2) Valved Quick Disconnect Coupling
- 3) Hydraulic Motor Driving Submersible Pump
- 4) Check Valve (Recommended)
- 5) Flow Control (Recommended if Hydraulic Flow is Greater than Flow Required By Sub. Pump)

TYPICAL HYDRAULIC SCHEMATIC FOR HYDRAULIC SUBMERSIBLE PUMPS



- 1) Oil Reservoir
- 2) Suction Strainer
- 3) Fixed Displacement Hydraulic Pump
- 4) Diesel or Gas Engine or Electric Motor
- 5) Pressure Gauge
- 6) Pilot Controlled System Relief Valve
- 7) Vent Valve (On/Off)
- 8) Valved Quick Disconnect Coupling
- 9) Fixed Displacement Hydraulic Motor
- 10) Return Filter Wear Indicator Gauge
- 11) Return Filter w/ By-Pass Valve
- 12) Hydraulic Oil Cooler



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Unless otherwise expressly authorized in writing, specifying a longer or shorter period, BJM Pumps, LLC warrants for a period of eighteen (18) months from the date of shipment from the Point of Shipment, or one (1) year from the date of installation, whichever occurs first, that all products or parts thereof furnished by BJM Pumps, LLC under the brand name BJM Pumps, hereinafter referred to as the "Product" are free from defects in materials and workmanship and conform to the applicable specification.

BJM Pumps, LLC's liability for any breach of this warranty shall be limited solely to replacement or repair, at the sole option of BJM Pumps, LLC, of any part or parts of the Product found to be defective during the warranty period, provided the Product is properly installed and is being used as originally intended. Any breach of this warranty must be reported to BJM Pumps, LLC or BJM Pumps, LLC's authorized service representative within the aforementioned warranty period, and defective Product or parts thereof must be shipped to BJM Pumps, LLC or BJM Pumps, LLC's authorized representative, transportation charges prepaid. Any cost associated with removal or installation of a defective Product or part is excluded.

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In any case of products not manufactured and sold under the BJM Pumps, LLC brand name, there is no warranty from BJM Pumps, LLC; however BJM Pumps, LLC will extend any warranty received from BJM Pumps, LLC's supplier of such products.

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