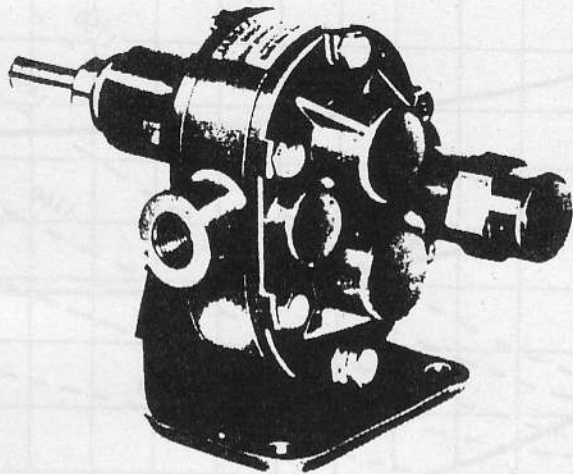


JABSCO® PUMPS GEAR



APPLICATIONS AND OPERATIONS

Jabsco Gear Pumps are ideally suited to handle a wide range of clear and non abrasive fluids with varied viscosity characteristics. Caustics, acids and alkalis are efficiently and economically transferred. Pump construction of Teflon/Glass filled epoxy plastic, 316 stainless steel and carbon, make these pumps durable and highly resistant to chemical attack.

Chemical compounds which may be handled include: Photo chemicals, some plating solutions, lab solutions, liquid fertilizers, insecticides, water based dyes, detergents, adhesives, bleaches, abrasive-free cutting oils, ether compounds, fatty acids, laquers, fossil fuels and oils. For more complete chemical resistance listing, see the Jabsco Chemical Resistance Table or contact the factory for assistance.

INSTALLATION:

Pump may be mounted in any position. The direction of shaft rotation determines the location of the pump's intake and discharge ports. Refer to the dimensional drawing. Note: Models with pressure relief end covers are factory assembled for clockwise rotation when looking at end cover. End cover must be inverted for counterclockwise operation. See Service Instructions. (Pressure relief valve is located on discharge side of pump).

Caution: Install port fittings carefully. Plastic fittings are recommended.

Belt Drive — The Pump's carbon bearings are designed for belt drive installations. However, care should be exercised to prevent overtight belt load. Minimum pulley size should be 4 inch diameter and you should be able to depress belt approximately ¼" at a point half way between two pulleys.

Direct Drive — Clearance should be left between drive shaft and pump shaft when installing flexible coupling. Mount pump to base and align pump and drive shaft carefully before tightening coupling set screw. Shim motor or pump for height alignment if necessary. Alignment of shafts is very important to prevent bearing damage.

MODEL 18000-0000 — 7/8"
MODEL 18250-0000 — 1/2"

EPOXY PLASTIC GEAR PUMPS

DESIGN FEATURES

Body	Teflon/Glass Filled Epoxy Plastic
Gears	Teflon/Glass Filled Epoxy Plastic
Wearplates	316 Stainless Steel
Shafts	316 Stainless Steel
Bearings	Carbon Sleeve
Seal	Carbon/Ceramic Mechanical face type, Buna N "O" Ring & Boot
Ports	Model 18000 Series 3/8" IPT Model 18250 Series 1/2" IPT
Weight	Model 18000 Series 5 lbs (2,3 Kg) Model 18250 Series 5½ lbs (2,5Kg)
Maximum Operating Pressure	100 PSI (7,03 kg/cm ²)

VARIATIONS AVAILABLE

Model 18000-0001	Pressure Relief End Cover
Model 18250-0001	Pressure Relief End Cover

Speeds — To 1750 RPM. For longer pump life, operate at lowest practical speed. Pump speed should be reduced proportionally to any increase in fluid viscosity (see table). Capacity is directly proportional to pump speed.

Self-Priming — At 1750 RPM, suction lift, when dry, is approximately 1½ feet (.5m), and to 4 feet (1.1m) when pump is primed. Foot valve is recommended.

Dry Running — Pump bearings and seal depend on liquid being pumped to provide lubrication to dissipate heat due to friction. DO NOT RUN DRY.

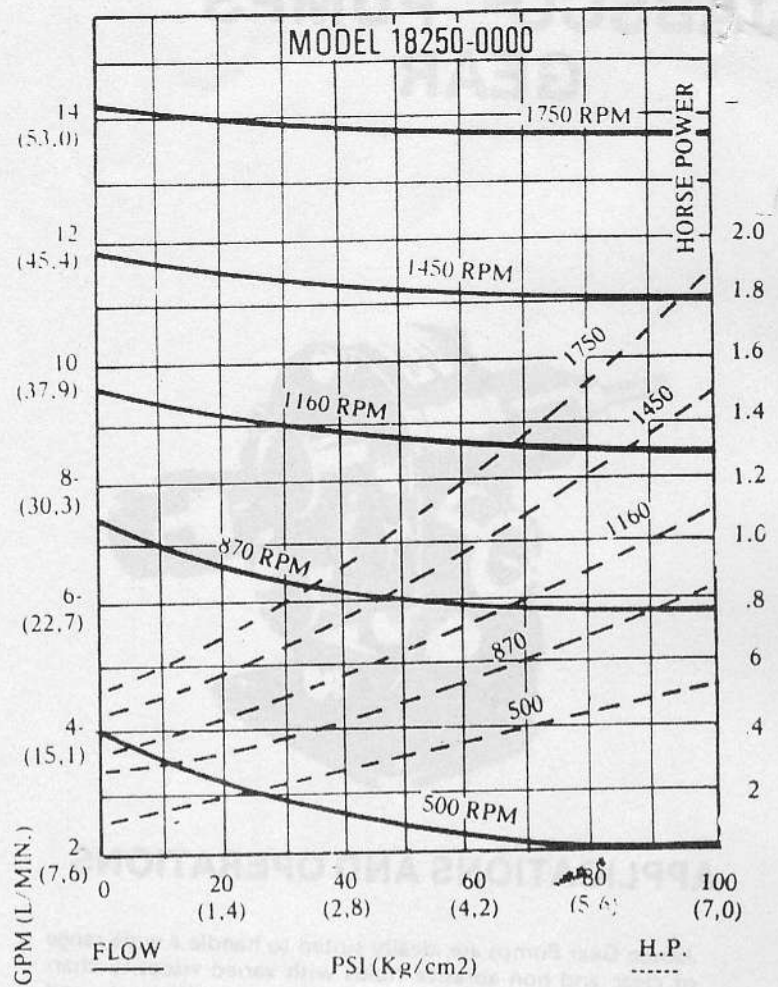
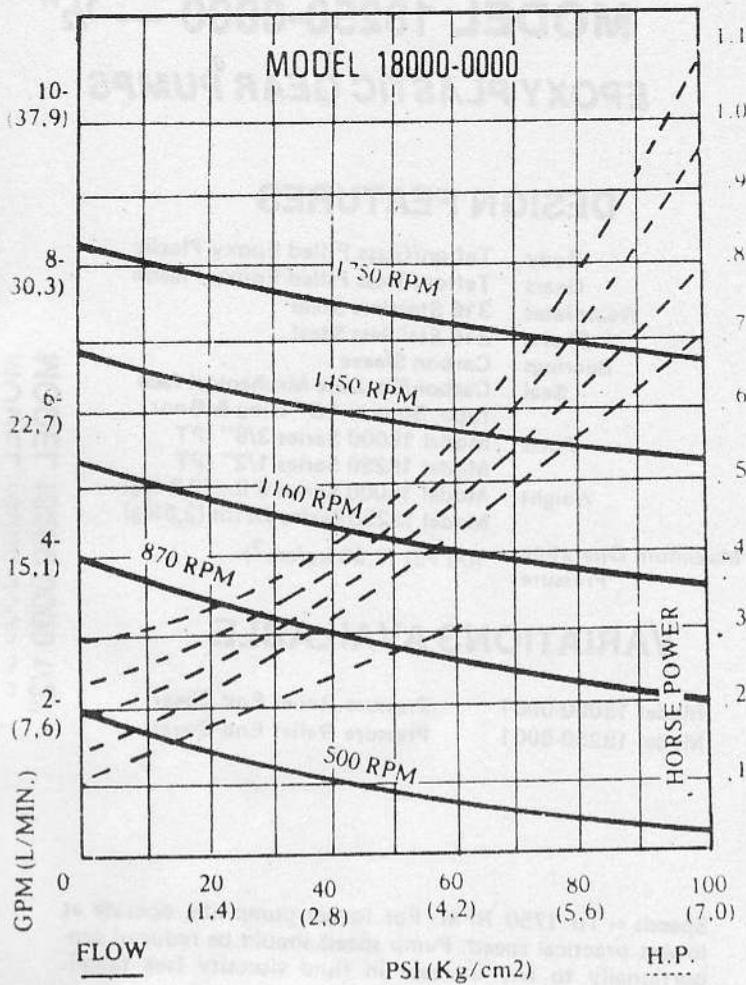
Pressures — System pressure should not exceed 100 PSI (7,0 Kg/Cm²). Gear Pumps will produce sufficient pressure to burst plumbing or pump parts if not relieved. Pumps not equipped with an internal bypass (Pressure Relief End Cover) must have a pressure bypass valve plumbed into the discharge line. Pumps with pressure relief end covers (Internal bypass) are not recommended for prolonged operation with a closed discharge. Total bypass of fluid being pumped will cause excessive heat build up and may result in cracked pump components. USE PRESSURE RELIEF END COVER BYPASS AS A SAFETY VALVE ONLY. Pressure relief valve setting should be at least 10 PSI (0,7 kg/cm²) above max desired operating pressure. To adjust pressure limit, remove valve cap. Use Allen wrench to rotate adjustment plug, counterclockwise to lower pressure, clockwise to raise pressure.

Viscosity — When pumping fluids whose viscosity is greater than water, particular attention must be paid to speed, horsepower requirements and line size to and from pump. The higher the viscosity the lower the speed, the higher the H.P. requirement and the larger the line size, to and from the pump. Attention to these factors will prevent cavitation and assure satisfactory pump performance.

JABSCO PRODUCTS **ITT**

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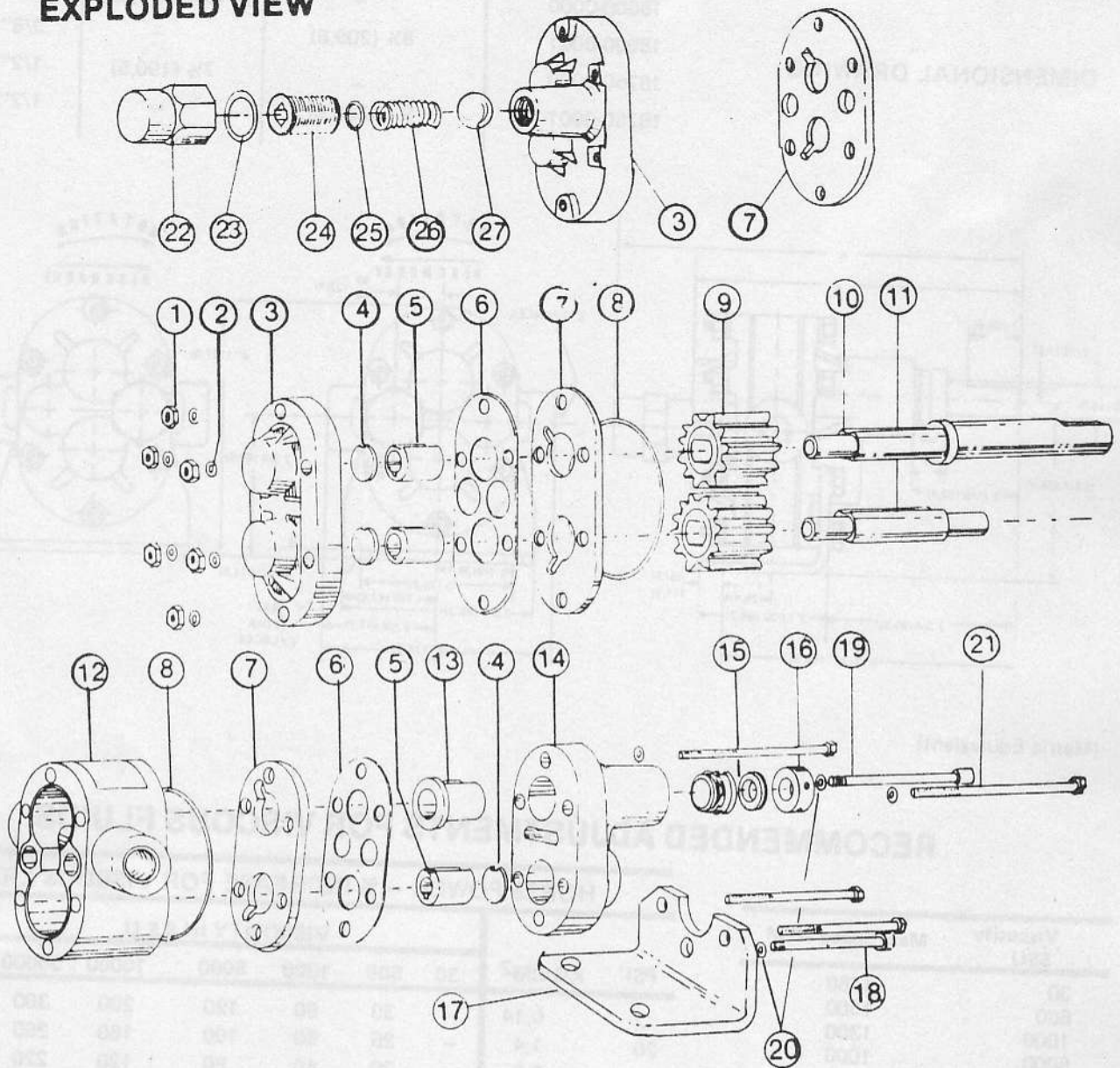
MODEL 18000-0000 3/8"
MODEL 18250-0000 1/2"



PARTS LIST

KEY NO.	DESCRIPTION	QTY.	MODEL 18000-0000	MODEL 18000-0001	MODEL 18250-0000	MODEL 18250-0001
1	Hex Nut	6	91085-0050	91085-0050	91085-0050	91085-0050
2	Washer	8	91603-0090	91603-0090	91603-0090	91603-0090
3	End Cover	1	18017-0000	18009-0000	18017-0000	18009-0000
4	Thrust Plate	3	12845-0000	12845-0000	12845-0000	12845-0000
5	Sleeve Bearing	3	18011-0000	18011-0000	18011-0000	18011-0000
6	Gasket	2	18308-0000	18308-0000	18308-0000	18308-0000
7	Wearplate	1	18010-0000	18010-0001	18010-0000	18010-0001
	Endcover	1	18010-0000	18010-0000	18010-0000	18010-0000
	Bearing Housing	1	18010-0000	18010-0000	18010-0000	18010-0000
8	"O" Ring	2	92000-1200	92000-1200	92000-1200	92000-1200
9	Gear	2	18005-0000	18005-0000	18005-0010	18005-0010
10	Drive Shaft	1	18006-0000	18006-0000	18006-0010	18006-0010
11	Idler Shaft	1	18012-0000	18012-0000	18012-0010	18012-0010
12	Body	1	18007-0000	18007-0000	18248-0000	18248-0000
13	Flange Bushing	1	17999-0000	17999-0000	17999-0000	17999-0000
14	Bearing Housing	1	18008-0000	18008-0000	18008-0000	18008-0000
15	Seal Assembly	1	12865-0000	12865-0000	12865-0000	12865-0000
16	Seal Collar	1	12938-0000	12938-0000	12938-0000	12938-0000
17	Mounting Bracket	1	18020-0000	18020-0000	18020-0000	18020-0000
18	Shoulder Bolt (Short)	1	93005-0143	93005-0143	93005-0145	93005-0145
19	Shoulder Bolt (Long)	1	93005-0144	93005-0144	93005-0146	93005-0146
20	Washer	2	91601-0090	91601-0090	91601-0090	91601-0090
21	Bolt	4	91095-0270	91095-0270	91095-1212	91095-1212
22	Cap Nut	1	-	18015-0000	-	18015-0000
23	Cap Washer	1	-	18016-0000	-	18016-0000
24	Plug	1	-	18014-0000	-	18014-0000
25	Spring Seat	1	-	97050-0092	-	97050-0092
26	Spring	1	-	98036-0303	-	98036-0303
27	Roll	1	-	98022-2126	-	98022-2126

EXPLODED VIEW



SERVICE INSTRUCTIONS

MODELS WITH PRESSURE RELIEF END COVER

The pressure relief mechanism is (and must be) located on the discharge side of the pump cover. At the factory, the pump is assembled with the pressure relief on the right (looking at the end cover) for clockwise rotation (viewing end cover). If counter clockwise rotation is desired, the cover and wear plate must be rotated 180° so the pressure relief mechanism is on the left and the diagonal lubrication slots in the wear plate are at the right. The chamfered holes in the wear plate should face away from the pump body. The chamfered hole opposite the diagonal lube slots is the seat for the pressure relief ball.

1. Loosen and remove nuts securing end cover to pump.
2. Remove end cover, gasket and wearplate.
3. Rotate end cover 180° and replace wearplate, gasket and end cover. Make sure "O" ring gasket is properly positioned in body groove.

4. Secure end cover to pump with six nuts. End cover nuts should be torqued to 45 inch pounds.

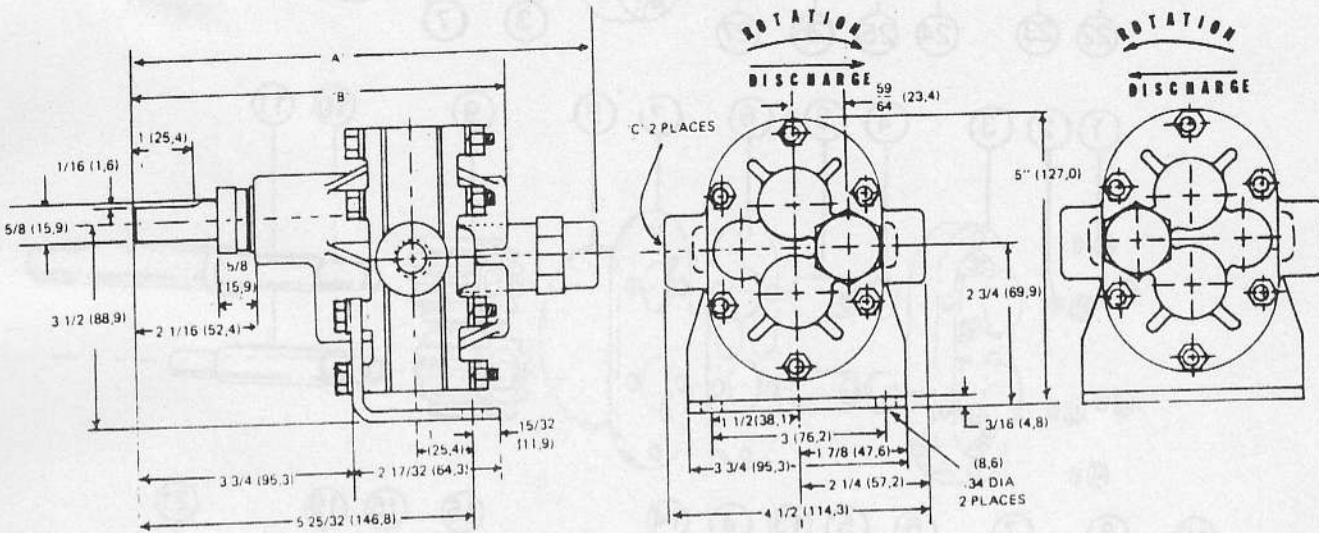
BENCH TEST AND CHECK OF RELIEF VALVE OPERATION

Read and understand all instructions and caution notes before beginning bench test!

1. Remove cap nut from relief valve.
2. Using 3/8" Allen wrench turn adjustment plug counterclockwise to expose 5/8" of adjustment plug.
3. Mount pump and connect it to a drive of the desired speed.
4. Connect the discharge port to a high pressure line with a gauge (0-150 PSI) located inline ahead of a throttling valve.

DIMENSIONAL DRAWING

MODEL	DIM A	DIM B	DIM C
18000-0000	—	6¾ (171,5)	3/8" IPT
18000-0001	8¾ (209,6)	—	3/8" IPT
18250-0000	—	7½ (190,5)	1/2" IPT
18250-0001	9 (228,6)	—	1/2" IPT



(Metric Equivalent)

RECOMMENDED ADJUSTMENTS FOR VISCOUS FLUIDS

HORSE POWER — % INCREASE FOR VISCOUS LIQUIDS

Viscosity SSU	Max. Speed RPM
30	1750
500	1500
1000	1300
5000	1000
10000	600
50000	400
100000	200

PSI	KG/CM ²	VISCOSITY IN S.S.U.						
		30	500	1000	5000	10000	50000	100000
2	0,14	—	30	60	120	200	300	400
20	1,4	—	25	50	100	160	260	350
40	2,8	—	20	40	80	120	220	300
60	4,2	—	15	30	60	105	180	250
80	5,6	—	13	25	50	90	150	200
100	7,0	—	10	20	40	80	120	150

PIPE SIZE FOR VISCOUS FLUIDS

GPM	L/MIN	S.S.U.					
		500	1000	5000	10000	50000	100000
1	3,8	½	½	¾	1	1½	2
2	7,6	½	¾	1	1¼	2	2
3	11,4	½	¾	1¼	1¼	2	2½
4	15,1	¾	¾	1¼	1½	2½	2½
5	18,9	¾	¾	1¼	1½	2½	3
6	22,7	¾	1	1¼	1½	2½	3
7	26,5	¾	1	1½	1½	2½	3
8	30,3	¾	1	1½	1½	2½	3
9	34,1	¾	1	1½	2	3	4
10	37,9	1	1¼	1½	2	3	4
11	41,6	1	1¼	2	2	3	4
12	45,4	1	1¼	2	2	3	4

5. Start the pump while observing the gauge. Pressure indications should be low (0-20psi).
6. Slowly close the throttling valve while observing gauge. Pressure increase should be minimal.
CAUTION: Marked increases in pressure indicates the adjusting plug has not been screwed out or the valve is malfunctioning. Do not proceed with test until cause is determined.
7. Use an Allen wrench to turn adjustment plug clockwise until desired pressure is reached. **DO NOT EXCEED 110 PSI.**

DISASSEMBLY

1. Loosen and remove end cover nuts and washers.
2. Remove gasket and wearplate.
3. Examine end cover bearings for wear. If slight oval shape is detected, replace bearings. Sleeve bearings are slip fit in end cover. A 3/8" pipe tap may be helpful to remove bearings for replacement. End cover thrust plates may be removed by rapping end cover face sharply against a flat surface. Replace only if badly worn.
4. Remove body from front bearing housing. Remove "O" rings from grooves in ends of body.
5. Remove gears from shafts. Examine gears and replace if worn.
6. Examine bearing surfaces and drive flats of idler shaft. Replace if worn.
7. Remove inner wearplate and gasket.
8. Remove 6 bolts and mounting bracket.
9. Loosen set screws and remove seal collar.
10. Dress shaft to remove burrs kicked up by set screws.
11. Remove ceramic seal seat and seat gasket.
12. Remove shaft from bearing housing by pushing on motor drive end of shaft.
13. Remove seal assembly from bearing housing.
14. Remove top flange bearing and bottom sleeve bearing from bearing housing.
15. Remove thrust plate from lower bearing cavity. Examine bearings for wear. Replace if worn.

ASSEMBLY

1. Install flanged bearing in drive shaft bearing bore of bearing housing. Insert lightly lubricated drive shaft through bearing so pulley drive flat is exposed in seal area.
2. Lubricate seal wave spring with silicone grease, and install spring over grooved boss of carbon seal. Dip seal 'O' ring in water and install in groove of carbon seal.
3. Slide carbon seal assembly over shaft and into seal bore of bearing housing, 'O' ring first. Align slots in outer edge of carbon with lugs in bearing housing seal cavity.
4. Dip seal seat and seat gasket assembly in water and slide seat assembly over shaft with polished ceramic face towards carbon.
5. Slide seal collar over shaft against ceramic seal seat. Hold shaft shoulder firmly against flanged bearing while pushing on seal collar to compress seal assembly to 1/2 its working length. Secure seal collar to shaft by tightening set screws. With collar secured you should be able to move shaft towards body about .040 inch. (1.02 mm)
6. Install thrust plate and sleeve bearing into lower bearing cavity of bearing housing.
7. Install idler shaft in lower sleeve bearing.

8. Place 'O' rings into grooves on body.
9. Care should be taken to assure 'O' rings are properly seated. 'O' rings can be lightly greased to hold them in place during assembly.
9. Install mounting bracket and longer of two shoulder bolts in lower center hole of bearing housing. Install shorter of two shoulder bolts into top center hole of bearing housing. One washer under head of each bolt.
10. Install gasket into face of bearing housing.
11. Install wearplate onto gasket on face of bearing housing with diagonal lubrication slots on the left (suction side). This wearplate does not have the two chamfered bypass holes.
12. Install body over top and bottom shoulder bolts.
13. Align and install gears onto shafts to seat firmly against wearplate.
14. Install wearplate onto body face with diagonal lubrication slots to the left for clockwise rotation (when looking at end cover) to right for counter clockwise rotation. If pump has pressure relief end cover, make sure chamfered bypass holes are facing out away from the pump body. Wearplate for pumps without pressure relief valve will not have bypass holes.
15. Install gasket against wearplate.
16. Install thrust plates and sleeve bearings into bearing cavities of end cover.
17. Install end cover over top and bottom shoulder bolts. For pumps with pressure relief end cover, pressure relief mechanism should be on right for clockwise rotation (when looking at end cover) and on left for counter clockwise rotation.
18. Install 4 long bolts from bearing housing end to end cover and secure with washers and nuts. Torque nuts to 45 inch pounds. Use alternate/opposite sequence for tightening the bolts. Washers not required under head of two long bolts securing base to bearing housing.

REPLACING PRESSURE RELIEF MECHANISM COMPONENTS

1. Loosen and remove end cover nuts and washer. Remove end cover gasket and wearplate.
2. Examine chamfer bypass hole in wearplate to make sure it has a smooth unmarred surface against which the ball seats.
3. Remove cap nut.
4. Use 3/8" Allen wrench to remove adjustment plug (turn counterclockwise to remove). Withdraw spring and ball. Check ball for pits or surface irregularities.
5. Install wearplate with chamfer bypass holes facing out towards end cover.
6. Install gasket.
7. Install end cover with pressure relief boss on right for clockwise rotation and on left for counter clockwise rotation (when looking at end cover).
8. Install ball into cavity of pressure relief boss. Install spring on top of ball.
9. Thread adjustment plug into pressure relief boss, using 3/8" Allen wrench, leaving approximately 5/8" of plug exposed. This is the low pressure bypass setting. Pressure relief valve can be adjusted to 110 psi bypass by turning adjustment plug clockwise. Do not exceed 110 psi pressure relief.
10. When properly adjusted, screw cap nut onto adjustment plug and tighten to lock adjustment plug in place.

JABSCO PRODUCTS 

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