



OPERATING INSTRUCTIONS & PARTS MANUAL  
**ALUMINUM GEAR PUMPS**  
 P/N 10530-10535, 10597-10611

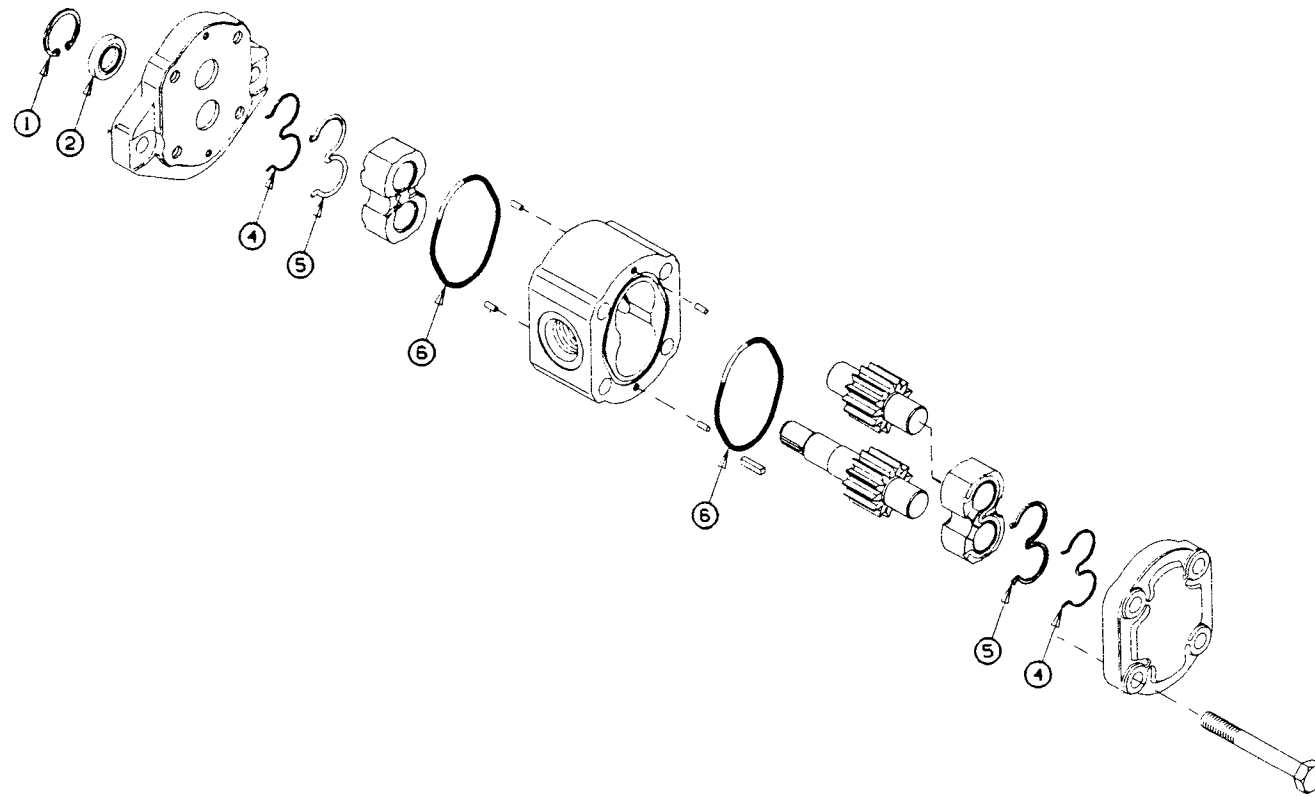


Figure 3 - Replacement Parts Illustration

**Replacement Parts List**

REF. NO.	DESCRIPTION	W600	W900	W1500	QTY.
1	<b>Seal Kit:</b>	5400042	5000100	5200006	1
2	Snap Ring				
4	Backup Ring				
5	E-Seal				
6	O-Ring				

**CONCENTRIC OIPM P/N 2690164**

**READ CAREFULLY BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT DESCRIBED. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE! RETAIN INSTRUCTIONS FOR FUTURE REFERENCE.**

**Description**

Our hydraulic gear pumps are of a positive displacement three-piece modular design. The pumps are constructed with permanent mold grey iron (or aluminum) front and rear covers and an extruded aluminum center section which houses the external spur gear set and the pressure loaded bushing blocks. The hardened and ground one-piece gear and shaft rotate in teflon coated steel backed bronze bushings. The bearings are installed in the precision machined bushing blocks for optimum shaft alignment. High efficiency is obtained with minimum radial tip clearance created by a specialized run-in procedure during product testing.

**CAUTION**

**These pumps are built both clockwise and counterclockwise rotation only, as viewed from the shaft end. The drive motor or engine must turn in the opposite rotation as viewed from the motor or engine end.**

**Unpacking**

Due to the heavy duty aluminum construction, very little, if any, damage can occur during transit. Do not remove the plastic port protectors until you are ready to connect hoses and fittings. This procedure will keep dirt or foreign material from entering the pump.

**Specifications**

The mounting of our hydraulic gear pumps conforms to the SAE two-bolt specification. The shaft also conforms to SAE shaft specifications. See Specifications sheet for further details.

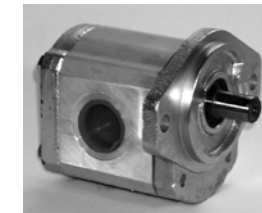
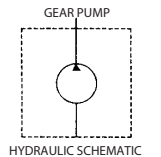
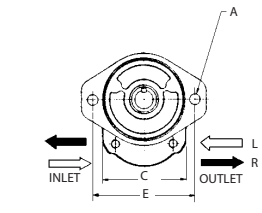
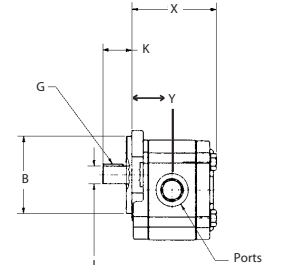


Figure 1



Series	Dimensions			
	A	B	C	K
W600	.410	2.528	2.690	
W900	.433	3.250	3.437	
W1500	.557	4.000	4.343	
Series	E	G	J	L
W600	3.252	.125	.500	1.500
W900	4.189	.187	.750	1.250
W1500	5.748	.250	.875	1.619

**SPECIFICATIONS AND ORDERING DATA**

W600																	
Shaft Ext. .5" X 1.5"	Dim X	Dim Y	2-Bolt SAE Mounting Flange	Rotation	Disp. CC	Disp. CIR	Inlet Port	Outlet Port	Nominal GPM @ 1200 RPM	GPM @ 1800 RPM & 1000 PSI	GPM @ 3600 RPM & 1000 PSI	Max. Cont. Rated Pressure PSI	Min. Rated RPM	Max. Rated RPM	Model Number	Northern Number	Wt.
Keyed	3.22	1.69	AA	R	3	0.18	7/8-14	3/4-16	1.0	1.3	2.7	4000	700	4000	1850206	10531	5.30
Keyed	3.22	1.69	AA	L	3	0.18	7/8-14	3/4-16	1.0	1.3	2.7	4000	700	4000	1850207	10530	5.30
Keyed	3.25	1.75	AA	R	4	0.24	7/8-14	3/4-16	1.3	1.8	3.6	4000	700	4000	1850204	10533	5.45
Keyed	3.25	1.75	AA	L	4	0.24	7/8-14	3/4-16	1.3	1.8	3.6	4000	700	4000	1850205	10532	5.45
Keyed	3.36	1.86	AA	R	5	0.30	7/8-14	3/4-16	1.6	2.2	4.5	4000	700	4000	1850202	10535	5.60
Keyed	3.36	1.86	AA	L	5	0.30	7/8-14	3/4-16	1.6	2.2	4.5	4000	700	4000	1850203	10534	5.60
W900																	
Shaft Ext. .75" X 1.25"	Dim X	Dim Y	2-Bolt SAE Mounting Flange	Rotation	Disp. CC	Disp. CIR	Inlet Port	Outlet Port	Nominal GPM @ 1200 RPM	GPM @ 1800 RPM & 1000 PSI	GPM @ 3600 RPM & 1000 PSI	Max. Cont. Rated Pressure PSI	Min. Rated RPM	Max. Rated RPM	Model Number	Northern Number	Wt.
Keyed	3.85	1.85	A	R	10	0.610	1 1/16-12	7/8-14	3.2	4.75	9.5	4000	500	3600	1801521	10597	8.4
Keyed	3.85	1.85	A	L	10	0.610	1 1/16-12	7/8-14	3.2	4.75	9.5	4000	500	3600	1801520	10598	8.4
Keyed	4.20	2.02	A	R	16	0.98	1 1/16-12	7/8-14	5.1	7.1	14.3	4000	500	3000	1801519	10599	9.0
Keyed	4.20	2.02	A	L	16	0.98	1 1/16-12	7/8-14	5.1	7.1	14.3	4000	500	3000	1801518	10600	9.0
Keyed	4.38	2.114	A	R	19	1.16	1 5/16-12	1 1/16-12	6.0	8.5	17.0	4000	500	3000	1801522	10601	9.2
Keyed	4.38	2.114	A	L	19	1.16	1 5/16-12	1 1/16-12	6.0	8.5	17.0	4000	500	3000	1801517	10603	9.2
W1500																	
Shaft Ext. .7/8" X 1 5/8"	Dim X	Dim Y	2-Bolt SAE Mounting Flange	Rotation	Disp. CC	Disp. CIR	Inlet Port	Outlet Port	Nominal GPM @ 1200 RPM	GPM @ 1800 RPM & 1000 PSI	GPM @ 3600 RPM & 1000 PSI	Max. Cont. Rated Pressure PSI	Min. Rated RPM	Max. Rated RPM	Model Number	Northern Number	Wt.
Keyed	5.15	2.62	B	R	25	1.52	1 5/16-12	1 1/16-12	7.9	11.2	22.3	4000	700	3100	1830427	10604	18.35
Keyed	5.15	2.62	B	L	25	1.52	1 5/16-12	1 1/16-12	7.9	11.2	22.3	4000	700	3100	1830426	10605	18.35
Keyed	5.27	2.68	B	R	28	1.71	1 5/8-12	1 5/16-12	8.9	12.5	25.0	4000	700	3100	1830425	10606	18.66
Keyed	5.27	2.68	B	L	28	1.71	1 5/8-12	1 5/16-12	8.9	12.5	25.0	4000	700	3100	1830424	10607	18.66
Keyed	5.93	3.00	B	R	44	2.68	1 5/8-12	1 5/16-12	14.0	21.0	41.7	3200	700	2800	1830423	10608	20.3
Keyed	5.93	3.00	B	L	44	2.68	1 5/8-12	1 5/16-12	14.0	21.0	41.7	3200	700	2800	1830422	10609	20.3
Keyed	6.17	3.13	B	R	50	3.05	1 5/8-12	1 5/16-12	15.8	23.8	47.5	2900	700	2700	1830421	10610	20.92
Keyed	6.17	3.13	B	L	50	3.05	1 5/8-12	1 5/16-12	15.8	23.8	47.5	2900	700	2700	1830420	10611	20.92

**General Safety Information**

**⚠ WARNING! ⚠**

**DISCONNECT POWER AND RELEASE ALL SYSTEM PRESSURE BEFORE SERVICING THIS EQUIPMENT.**

- Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
- Never exceed the maximum operating speed or pressure.
- When using AC motors, ground the motor properly by wiring with a grounded, metal-clad raceway system, using a separate ground wire connected to bare metal of the motor frame, or other suitable means.
- Guard all moving parts.
- Drain all liquids from the system before servicing.
- Check hoses and connections for security before each use.
- Periodically check the pump and system components.
- Provide a means of pressure relief for pumps whose discharge line can be shut off or obstructed.
- Wear safety glasses at all times when working with pumps.
- Keep work area clean, uncluttered and properly lighted; replace all unused tools and equipment.
- Keep visitors at a safe distance from the work area.
- Make the workshop child-proof with padlocks, master switches, and by removing starter keys.
- Do not operate an engine in an enclosed area.
- Do not spill gasoline on hot engine surfaces.
- Store gasoline only in an approved container.
- Keep dirty and oily cleaning rags in a tightly closed metal container.
- Check engine oil level before operating the engine.
- Familiarize yourself with the controls and emergency shut-down procedures.
- Never operate the equipment when you are fatigued.
- All system components pressure ratings should be greater than maximum system pressure.
- Guard all moving parts.
- Replace all guards when servicing is complete.

**Assembly**

Our hydraulic gear pumps are packaged fully assembled and require no further assembly before installation.

**MOUNTING PUMP ASSEMBLY TO FLEXIBLE COUPLING DRIVE SYSTEMS**

- Assemble the flexible coupling half to the pump shaft.

**⚠ CAUTION**

**Do not force coupling half onto drive shaft; it must be a slip fit for adjustment and to avoid internal damage.**

- Tighten the setscrew and insert rubber spider in coupling half.
- Assemble the other coupling half loosely to the engine/motor shaft.
- Bolt the pump loosely to the SAE type four bolt mounting pump adapter as furnished by the equipment manufacturer.
- Align the shafts to make sure they are on center with each other.
- Tighten the mounting bolts.
- Mate the coupling halves together, allowing 1/16" gap between halves.
- Check the alignment again.

**IMPORTANT: THE GAP IN THE COUPLING HALVES IS TO PREVENT END LOADING OF THE PUMP DRIVE.**

- Tighten the setscrew in the mating coupling half.
- Remove plastic shipping plugs from the inlet and outlet ports.
- Squirt clean oil into pump for pre-lubrication and start-up.
- Turn shaft coupling slowly to ensure proper shaft alignment and coupling installation.
- Connect inlet and outlet lines with an SAE straight thread fitting and tighten.

**⚠ WARNING! ⚠**

**THREADS ARE SAE, NOT NPTF. USING INCORRECT FITTINGS COULD DAMAGE THE HYDRAULIC COMPONENT OR CAUSE PERSONAL INJURY.**

NOTE: Do not use teflon tape; the O-ring provides the seal and teflon tape is not required.

- To avoid pump cavitation, inlet hose diameter should be as large as possible and inlet hose length should be as short as possible.

NOTE: Cavitation is recognized by excessive noise and foaming of hydraulic fluid.

**⚠ CAUTION**

**Never run assembly without hydraulic oil.**

- At initial start-up, turn the drive shaft several times by hand to prime.
- Bleed all air from the system to prevent erratic operation.
- After several cycles, check the reservoir oil level and refill as necessary.

NOTE: Be sure adequate cooling for the hydraulic oil is provided. Excessive temperatures can cause damage

to oil and/or system components. Cooling of oil is especially important on systems where continuous operation is required. Cooling requirements must be based on: duty cycle, pressure/flow, ambient temperatures, oil and component maximum temperature specifications, and reservoir capacity. Systems operating at excessively high temperatures can be hazardous and may cause property damage and/or personal injury.

NOTE: When the ambient temperature is below 32°F, allow the pump to operate unloaded for several minutes to warm the oil in the reservoir.

**Operation**

**⚠ CAUTION**

**Never run pump without oil in the system.**

- At initial start-up, start and stop motor several times to allow the pump to prime before full flow begins.
- Bleed all air from the hydraulic system to prevent erratic system operation.
- Recheck reservoir oil level after a few cycles of the hydraulic system and refill if necessary.

NOTE: When the ambient temperature is below 32°F, allow the pump to operate unloaded for several minutes to warm the oil in the reservoir.

NOTE: Be sure adequate cooling for the hydraulic oil is provided. Excessive temperatures can cause damage to oil and/or system components. Cooling of oil is especially important

on systems where continuous operation is required. Cooling requirements are based upon: duty cycle, pressure/flow, ambient temperatures, oil and component maximum temperature ratings, and reservoir surface area. Systems operating at excessively high temperatures can be hazardous and may cause premature damage and/or personal injury.

**Maintenance**

**⚠ CAUTION**

**Use a clean funnel fitted with a fine mesh wire screen. Do not use a cloth strainer. Most premature pump failures can be attributed to dirt or foreign material entering the hydraulic system during filling, or lack of cleaning before filling.**

- Keep reservoir filled with hydraulic fluid.
- Make frequent inspections of hydraulic fluid and change if contaminated.
- Keep the unit clean of dirt and foreign materials.
- Keep electrical connections clean and all electrical cabinets closed.

**⚠ CAUTION**

**To perform the dual function of lubrication and power transmission, we recommend the use of a good quality automatic transmission fluid.**

**Troubleshooting Chart**

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Pump does not develop full pressure	<ol style="list-style-type: none"> <li>System relief valve set too low, or leaking</li> <li>Oil temp is too high</li> <li>Pump is worn out</li> <li>Double acting cylinder piston seals are cut or worn out</li> </ol>	<ol style="list-style-type: none"> <li>Check system relief valve for proper setting with pressure gauge in outlet line</li> <li>Let oil cool below 140°F</li> <li>Replace worn parts or pump</li> <li>Replace or repair cylinder</li> </ol>
Pump won't start	<ol style="list-style-type: none"> <li>Loose connection</li> <li>Circuit breaker tripped</li> <li>Voltage drop</li> <li>Seized pump</li> </ol>	<ol style="list-style-type: none"> <li>Check wiring</li> <li>Reset circuit breaker</li> <li>Use heavier gauge wire</li> <li>Replace pump</li> </ol>
Will not pump oil (Motor runs but cylinder does not move, or moves slowly)	<ol style="list-style-type: none"> <li>No oil in reservoir</li> <li>Oil level low</li> <li>Suction strainer is clogged</li> <li>Double acting cylinder piston seals are cut or worn out</li> <li>Reservoir breather is dirty or clogged</li> </ol>	<ol style="list-style-type: none"> <li>Check oil level, refill</li> <li>Add oil as needed</li> <li>Clean suction strainer</li> <li>Replace or repair cylinder</li> <li>Clean reservoir breather and reinstall</li> </ol>
Pump motor unit is noisy	<ol style="list-style-type: none"> <li>Low oil level</li> <li>Air in system</li> <li>Suction strainer or inlet filter is clogged</li> </ol>	<ol style="list-style-type: none"> <li>Add oil as needed</li> <li>Bleed air from highest fitting in system by loosening fitting very slightly and operating unit until bubbling of air stops, then tighten</li> <li>Clean suction strainer or inlet filter</li> </ol>