

# OPERATOR'S MANUAL

# 650924-X

INCLUDING: SERVICE KITS, GENERAL DESCRIPTION & TROUBLESHOOTING  
ALSO INCLUDE MANUALS: 661588-100 BASIC MOTOR MANUAL.

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(REV. B) IPP

**2.062" MOTOR**  
**.2:1 RATIO**  
**6" STROKE**

## 650924-X FOUR-BALL HYDRAULIC PUMP STAINLESS STEEL

**IMPORTANT: READ THIS MANUAL CAREFULLY BEFORE INSTALLING,  
OPERATING OR SERVICING THIS EQUIPMENT.**

### SERVICE KITS

- Use only genuine ARO® replacement parts to assure compatible pressure rating and longest service life.
- 637164 for general repair of the Hydraulic Motor Section.

### GENERAL DESCRIPTION

- The ARO® **0.2:1** ratio basic pump assembly consists of a 2.062 sq. in. hydraulic motor and two ball lower pump end. The hydraulic motor is a general purpose power unit utilizing tie rod construction for easy breakdown of unit.

#### SPACER SECTION

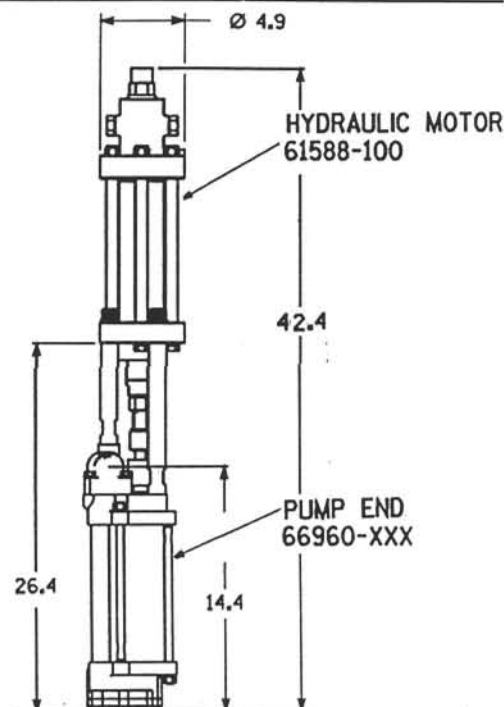
- The hydraulic motor is connected to the lower pump end by a spacer section. This allows for lubrication of the upper packing gland and prevents motor contamination because of normal wear and eventual leakage through the material packing gland.

#### LOWER PUMP END

- The ball and check design provides for easy priming of the lower foot valve and the double acting feature which is standard in all ARO industrial pumps. Material is delivered to the pump discharge outlet on both the up and down stroke.

PUMP RATIO X REGULATED PRESSURE = MAXIMUM  
FLUID PRESSURE

### MAJOR COMPONENTS CHECK LIST



### WARNING:

**MAXIMUM INLET PRESSURE TO HYDRAULIC MOTOR IS 1,200 P.S.I..  
READ GENERAL INFORMATION SHEET (FORM 3638-2) FOR OPERATING AND SAFETY PRECAUTIONS.**

### PACKING MATERIAL

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- 1 THIKOL LEATHER
- 6 LEATHER (UPPER)  
VIRGIN PTFE (LOWER)
- 7 GLASS FILLED PTFE (UPPER)  
VIRGIN PTFE (LOWER)
- 8 (G/F) PTFE / LEATHER STG'D (UPPER)  
VIRGIN PTFE (LOWER)
- A UHMW-PE (UPPER)  
LEATHER (LOWER)
- B UHMW-PE (UPPER)  
PTFE (LOWER)

### 650924-X X X

#### PACKING MATERIAL

- C UHMW-PE
- D UHMW-PE / LEATHER STG'D (UPPER)  
LEATHER (LOWER)
- E UHMW-PE / LEATHER STG'D (UPPER)  
PTFE (LOWER)
- F UHMW-PE / LEATHER STG'D (UPPER)  
UHMW-PE (LOWER)
- P UHMW-PE / PTFE STG'D (UPPER)  
UHMW-PE (LOWER)
- R PTFE / UHMW-PE STG'D (UPPER)  
PTFE (LOWER)

### TYPE OF PLUNGER

- 3. HD SS W/HD CHROME PLATING

### SPRING ARRANGEMENT

- 1. COIL SPRING
- 2. COMPOSITE SPRING
- 3. NO SPRING

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## TROUBLE SHOOTING FOR HYDRAULIC PUMPS

The simplest way to troubleshoot a system is to include plenty of gauges in the design. These will help to follow the path of hydraulic fluid and simplify the proper diagnosis.

### • PROBLEM

\_\_\_Cause, solution.

### • Pump will not cycle.

\_\_\_No pressure to hydraulic motor, See next section.

\_\_\_Restricted return lines, clean obstruction.

\_\_\_Damaged hydraulic motor, service hydraulic motor.

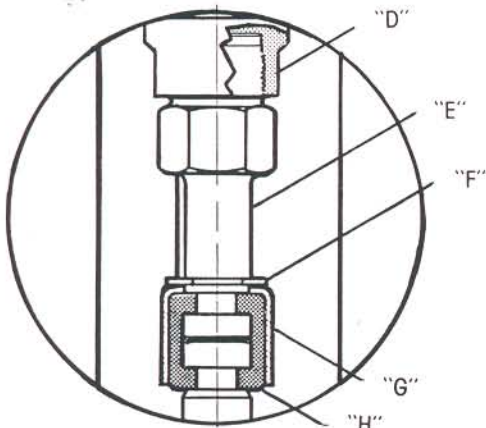
## PUMP DISASSEMBLY

Refer to Figure 2

- \_\_\_Lay the pump assembly down on a work bench.
- \_\_\_Remove three A screws and three B washers from three C spacer rods.
- \_\_\_Push the motor from the spacer rods and lower pump end until the motor piston rod is in the full "down" position and the lower pump end rod is in the full "up" position.
- \_\_\_Remove the three C extension rods.
- \_\_\_Slide F retaining ring upward.
- \_\_\_NOTE: A snap ring tool is recommended for proper handling of retaining ring.
- \_\_\_Slide G sleeve towards motor on the D motor plug.
- \_\_\_Remove two H connectors and lay motor aside.
- \_\_\_Unscrew E adapter from the D motor plug and lower pump end plunger.

## SPACER KIT

	PART NO.	DESCRIPTION
"A"	93342-1 (3)	SCREW
"B"	Y14-625-C (3)	WASHER
"C"	SEE VIEW	ROD
"D"	61588-22	PLUG
"E"	93344-1	ADAPTER
"F"	90102	RETAINING RING
"G"	90109	SLEEVE
"H"	90096 (2)	CONNECTOR



## PUMP REASSEMBLY

Refer to Figure 2

- \_\_\_Screw E adapter to D motor plug.
- \_\_\_Align the D motor plug and the lower pump end piston rod.
- \_\_\_Position two H connectors in place and slide G sleeve over two H connectors.
- \_\_\_Slide F retaining ring into groove.
- \_\_\_Push motor and pump together and place the three C extension rods into the motor base.
- \_\_\_Replace three B washers and three A screws.

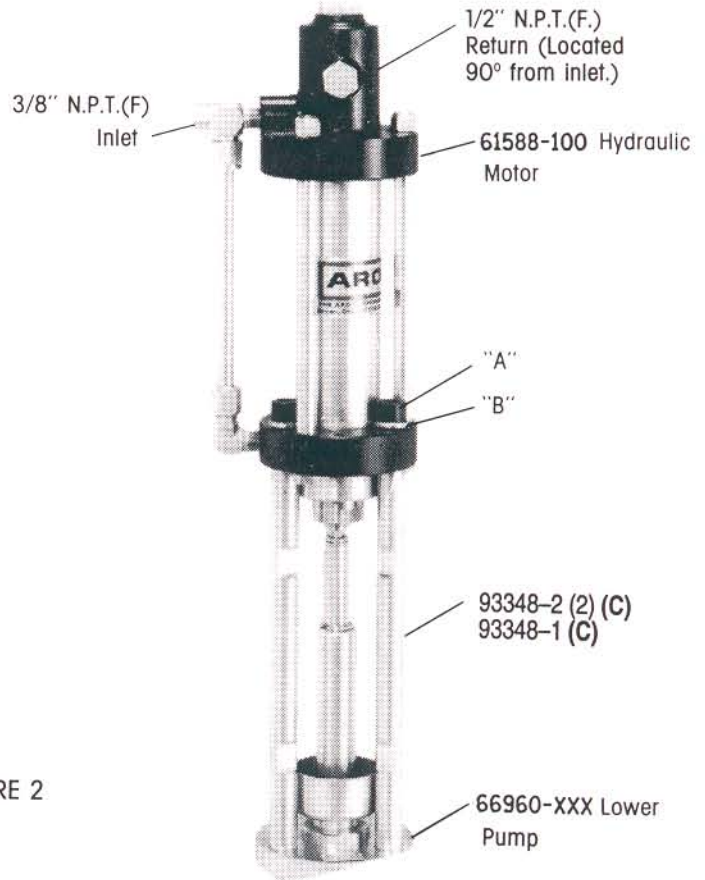


FIGURE 2

MAX. WORKING PRESSURE 360 P.S.I. (25 BAR) @ 1200 P.S.I. INLET.