

4.125 SQ." MOTOR 6" STROKE

61626-100 HYDRAULIC MOTOR



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

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

GENERAL DESCRIPTION

The 4.125 square inch hydraulic motor is a general purpose power unit and is used on many 2-ball and chop check pumps. It utilizes tie rod type construction for easy serviceability and connects to the various lower pump ends by tie rods for easy operation.

The ARO® 61626-100 hydraulic motor is designed to operate at pressures up to (but not exceeding) 2000 p.s.i. (138 bar) hydraulic pressure.

The 4.125 square inch effective piston area allows the motor to generate up to 8250 lbs of thrust transmitted to the lower pump end.

Hydraulic flow requirement at maximum cycle rate (50 cycles / minute) is 11 gallons / minute.

Hydraulic horsepower required to run the motor 50 cycles / minute at 2000 p.s.i. is 12.5 horsepower (a greater motor horsepower is required due to transmission inefficiencies). Power supplies generating less than this will work but at a reduced pressure or cycle rate.



SERVICE KITS

- **637148-1 Hydraulic Motor Repair Kit.**

OPERATING AND SAFETY PRECAUTIONS

⚠ WARNING The use of parts other than genuine ARO replacement parts may be hazardous and may lead to failure.

⚠ WARNING A pressure relief valve must be used to prevent over pressurization of the system. Failure to install such a device will lead to over pressurization and possible component rupture. See next page for information on proper installation.

⚠ WARNING Be sure that pressure on motor is relieved before attempting service procedures. Failure to do this could result in serious injury.

Never modify components in the unit. Use only genuine ARO replacement parts to assure safe operation.

NOTE: The ARO 61626-100 motor will contain about one pint of hydraulic fluid. Drain fluid before attempting any disassembly.

NOTE: Do not disassemble this motor except in a clean area. Any dust or dirt contamination of this assembly will shorten the service life of this motor and other system components.

NOTE: All power supply pumps should have a ten micron filter on the return line and a 100 mesh filter on the inlet. Failure to maintain filters will shorten service life of this motor and other system components..

Inspect system hoses frequently for wear / damage and, if necessary, replace immediately. Never plug hose leaks with your finger, tape or any similar devices.

⚠ WARNING Never service or disassemble the unit or unit components without relieving hydraulic system pressure first. The high pressures involved could cause serious injury.

HYDRAULIC MOTOR PARTS LIST / 61626-100

ITEM	DESCRIPTION (Size in Inches)	QTY	PART NO.
1	Plug	(1)	61588-1
✓ 2	"O" Ring	(1)	61588-2
3	Cylinder Head, BP	(1)	61626-3
✓ 4	Ball, 3/8" S.S.	(2)	61588-4
✓ 5	Trip Spring	(2)	61626-5
6	Trip Retainer	(2)	61626-6
✓ 7	"O" Ring	(2)	61588-6
8	Stanchion Nut	(2)	61626-8
9	Upper Stanchion	(2)	61626-9
10	Washer	(8)	61626-10
11	Cylinder	(1)	61626-11
12	Spacer	(1)	61626-12
13	Snap Ring	(1)	61626-13
✓ 14	Wear Ring	(1)	61626-14
✓ 15	Piston Seal	(1)	61626-15
16	Piston	(1)	61626-16
17	Motor Base	(1)	61626-17
18	Shifter Actuator Assembly	(1)	61626-18
19	Lock Washer	(2)	61626-19
20	Hexagon Head Bolt	(2)	61626-20
21	Piston Tube Wiper	(1)	61626-21

DISASSEMBLY

- Remove (1) plug and remove (2) "O" ring.
- Unthread (31) hose assembly. Note: If possible, do not remove (27) tee assembly and (35) male elbow assembly.
- Remove (8) stanchion nuts and (10) washers.
- Raise the (3) cylinder head high enough to secure the (18) shifter actuator assembly rod with vise grips. Place a socket wrench on the (24) flex-loc nut and remove.
- Lift (3) cylinder head from (9) upper stanchion. Remove (30) "O" ring and (29) back-up ring from (3) cylinder head.
- Carefully lift (11) cylinder and entire (16, 34) piston and piston tube assembly from (17) motor base.
- Separate the (11) cylinder from the (16, 34) piston and piston tube assembly. Remove (30) "O" ring and (29) back-up ring from (17) motor base.
- Remove (36) cushion gasket from (17) motor base.
- Remove (15) piston seal and (14) wear ring from (16) piston.
- Note: A special tool may be required for installation of (37) piston tube seal. This tool is available from a hydraulic supplier such as Parker. Consider this before removing it. Remove (21) piston tube wiper and (39) wear ring.
- If further disassembly is required, such as removal of (33) piston tube, (18) shifter actuator assembly or (25) valve spool / sleeve set, see next section.

Removal of (25) Valve Spool / Sleeve Set

- Remove (6) trip retainer along with (7) "O" rings, (5) trip springs and (4) balls from (3) cylinder head.
- Remove (13) snap ring and (12) spacer from (3) cylinder head. Remove (25) valve spool / sleeve set by pushing them carefully down through the (3) cylinder head. Note: Be very careful when removing this set. The finish of the part is critical for proper motor performance. Any nicks or scratches may damage this set.

Removal of (33) Piston Tube

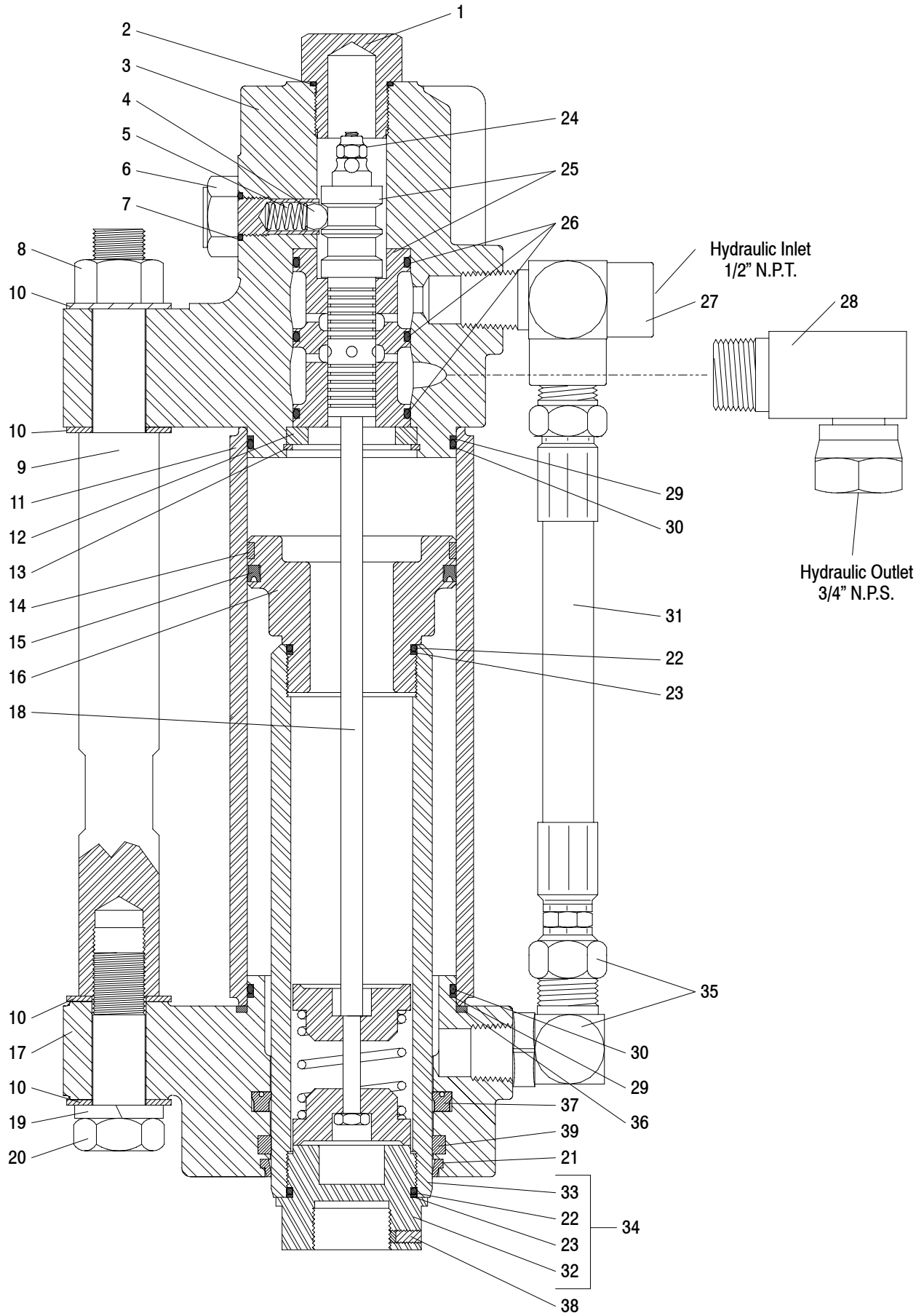
- Place (16, 34) piston and piston tube assembly in horizontal position with (32) lower plug in heavy vise. Note: Never clamp on the (33) piston tube.
- Grip the flats of the (16) piston and unthread. Note: This joint has been treated with a thread locking compound. It may require extra torque to unfasten.
- Remove (22) "O" ring and (23) back-up ring from (16) piston.

ITEM	DESCRIPTION (Size In Inches)	QTY	PART NO.
✓ 22	"O" Ring	(2)	61626-22
✓ 23	Back-Up Ring	(2)	61626-23
✓ 24	Flex-Loc Nut	(1)	61588-23
25	Valve Spool / Sleeve Set	(1)	61588-30
✓ 26	"O" Ring	(3)	61588-25
27	Tee Assembly	(1)	61626-27
28	Swivel Adapter	(1)	61626-28
✓ 29	Back-Up Ring	(2)	61626-29
✓ 30	"O" Ring	(2)	61626-30
31	Hose Assembly	(1)	61626-31
32	Lower Plug	(1)	61626-32
33	Piston Tube	(1)	61626-33
34	Piston Tube Assembly (22,23,32,33)	(1)	61626-34
35	Male Elbow Assembly	(1)	61626-35
✓ 36	Cushion Gasket	(1)	61626-36
✓ 37	Piston Tube Seal	(1)	61626-37
38	Set Screw Assembly	(1)	61626-38
✓ 39	Wear Ring	(1)	61626-39
	Hydraulic Motor Assembly	(1)	61626-100
✓	Loctite Sealant (not shown)	(1)	
✓	Included in Service Kit		637148

REASSEMBLY

Reassembly: Cleanse all parts with hydraulic oil.

- Install (37) piston tube seal, (39) wear ring and (21) piston tube wiper in (17) motor base. Install (36) cushion gasket and (30) "O" ring and (29) back-up ring in (17) motor base.
- Slide (34) piston tube assembly into (17) motor base from below.
- Insert (22) "O" ring and (23) back-up ring into (16) piston.
- Clean and coat threads of the (16) piston with Loctite sealant and place (18) shifter actuator assembly into (33) piston tube. Tighten (16) piston securely. Note: Be careful not to scratch (33) piston tube.
- Put (15) piston seal and (14) wear ring on (16) piston.
- Push (33) piston tube to the top of its stroke and place (11) cylinder over (33) piston tube. Seat the (11) cylinder on the (36) cushion gasket and (17) motor base.
- Replace three (26) "O" rings on (25) valve spool / sleeve set.
- Push the (25) valve spool / sleeve set straight into the (3) cylinder head.
- Place (12) spacer behind the (25) valve spool / sleeve set and retain this with the (13) snap ring.
- If (27) tee assembly and (35) male elbow assembly have been removed, wrap threads in PTFE tape and reassemble. Note: The excessive use of this tape could contaminate the hydraulic fluid. Be sure before reinstallation. Do not use the tape on the first several male threads when reinstalling.
- Attach (31) hose assembly to (35) male elbow assembly.
- Place (30) "O" ring and (29) back-up ring on (3) cylinder head and lower (3) cylinder head onto (11) cylinder, (18) shift actuator assembly and (9) upper stanchions.
- Raise the (3) cylinder head to apply vise grips to the (18) shifter actuator assembly rod. Pass the (18) shifter actuator assembly rod through the (25) valve spool / sleeve set. Clean and loctite the (18) shifter actuator assembly rod threads and install and tighten (24) flex-loc nut.
- Thread (1) plug and (2) "O" ring into (3) cylinder head. Insert (4) balls, (5) trip springs and thread (6) trip retainers and (7) "O" rings into (3) cylinder head.
- Place (8) stanchion nuts and (10) washers on (9) upper stanchions. Tighten (8) stanchion nuts alternately.
- Attach (31) hose assembly to (27) tee assembly by tightening swivel.



TROUBLE SHOOTING FOR HYDRAULIC MOTOR

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.

Pump problems will typically occur in one of two areas:

1. The Hydraulic Motor Section.
2. The Lower Pump Section.

- Determine which section is affected.

Hydraulic Motor Problems

Pump will not cycle.

- No pressure to hydraulic motor, see next section.
- Restricted return lines, clean obstruction.
- Damaged hydraulic motor, service hydraulic motor.

No pressure to Hydraulic Motor.

- Fluid bypassing through relief valve, set relief valve to higher setting.
- Flow control valve shut, open flow control valve.
- Fluid bypassing ("short circuiting") through open valves and system leaks, check system for "short circuits".

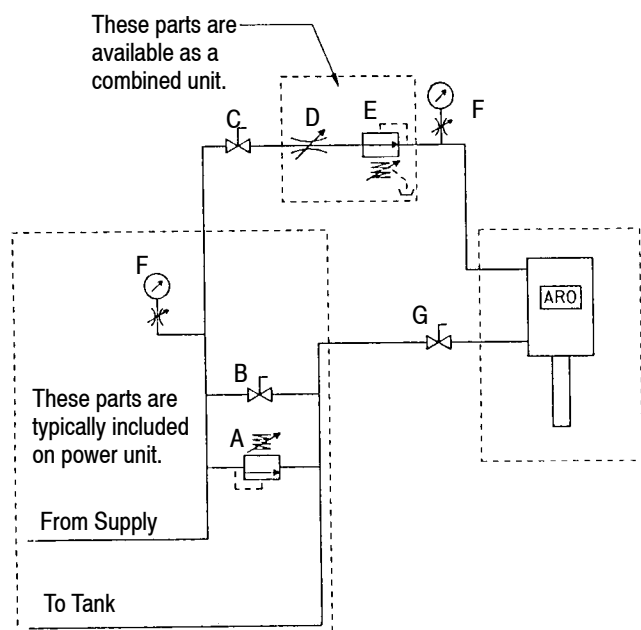
⚠ WARNING REFER TO OPERATING AND SAFETY PRECAUTIONS CONCERNING SERVICE UNDER PRESSURE. (Page 2.)

- Be sure to eliminate any possible non-pump problems before suspecting pump malfunction and continuing.

Pump runs poorly.

- Restricted supply / return lines, clear obstruction.
- Damaged hydraulic motor, service hydraulic motor.

TYPICAL SINGLE PUMP INSTALLATION



- A **The Adjustable Relief Valve** is installed to prevent over pressurization of the hydraulic system. It is adjusted to bypass hydraulic fluid back to tank in the event of a rise in pressure upstream of the valve.
- B **This shut-Off Valve** is used to open / close a direct line between the supply and return lines. (Bypassing everything else in the system, this should be closed during normal operation.)
- C **This Shut-Off Valve**, along with G, is used to isolate the pump unit from the supply lines for service. They are open during normal operation.

⚠ WARNING Pump unit may still be under pressure even with these valves closed. Be sure all pressure to the unit is relieved before servicing. Never use valve G to regulate fluid flow.

- D **The Flow Control Valve** is used to vary the flow rate of the pump unit.
- E **The Variable Pressure Reducing Valve** is used to control pressure downstream. It is used to set the pumping pressure. (With a single pump this unit isn't needed.)
- F **The Pressure Gauge** should be used with an isolation valve to preserve the integrity of the gauge. It identifies system pressure.

NOTE: All lines leading back to tank should be free of restriction and should be sized larger than the supply lines. The bypass line should be larger than the supply line.

TYPICAL MULTIPLE INSTALLATION

