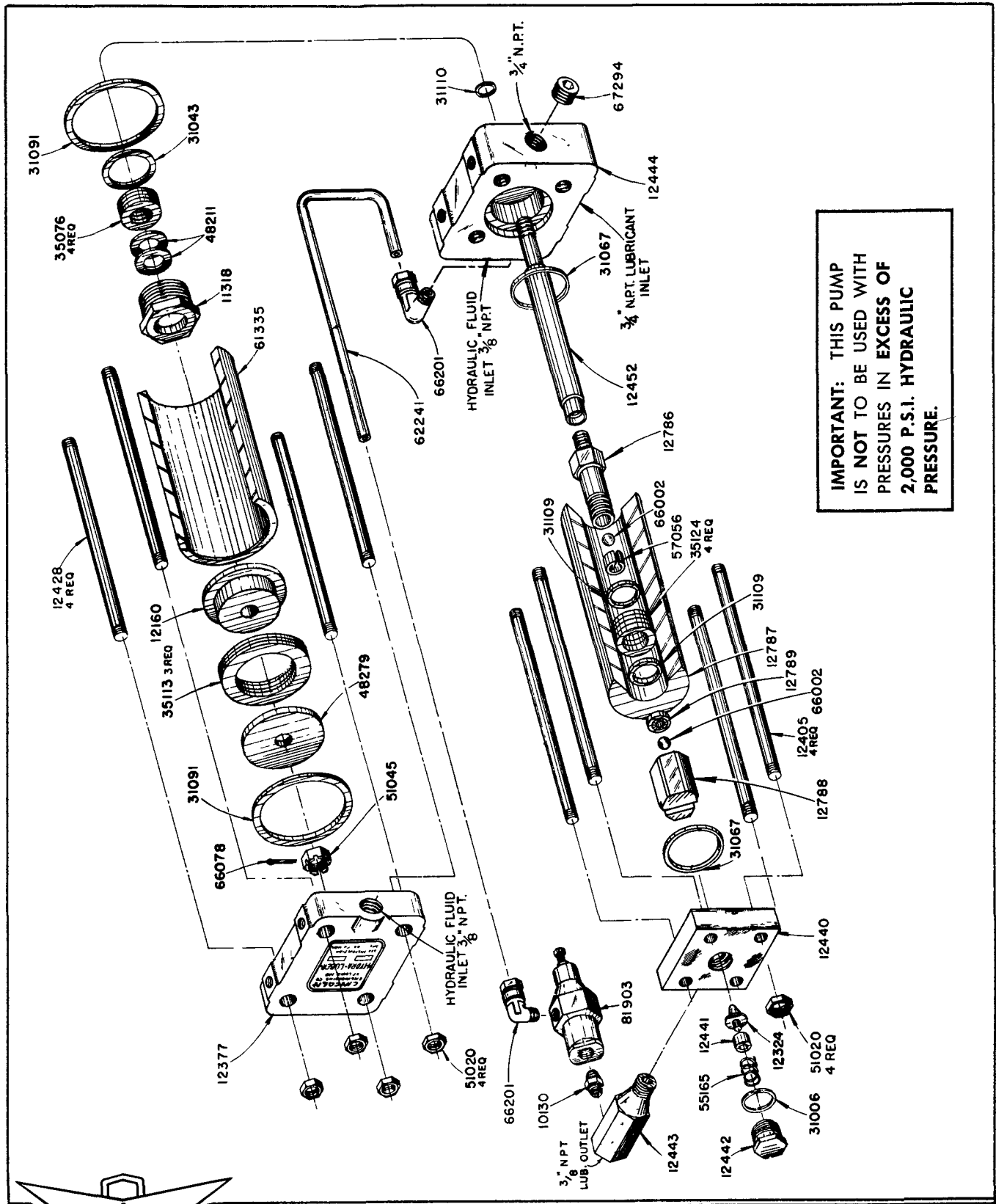
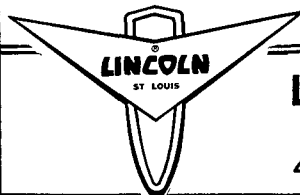


HYDRAULIC POWER DRIVE PUMP

OPERATING INSTRUCTIONS AND REPAIR PARTS



IMPORTANT: THIS PUMP IS NOT TO BE USED WITH PRESSURES IN EXCESS OF 2,000 P.S.I. HYDRAULIC PRESSURE.



LINCOLN ENGINEERING COMPANY

DIVISION OF THE McNEIL MACHINE & ENGINEERING CO.

4010 GOODFELLOW BLVD.

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DIAGRAMMATIC VIEW OF LINCOLN HYDRAULIC POWER DRIVE PUMP IN OPERATION

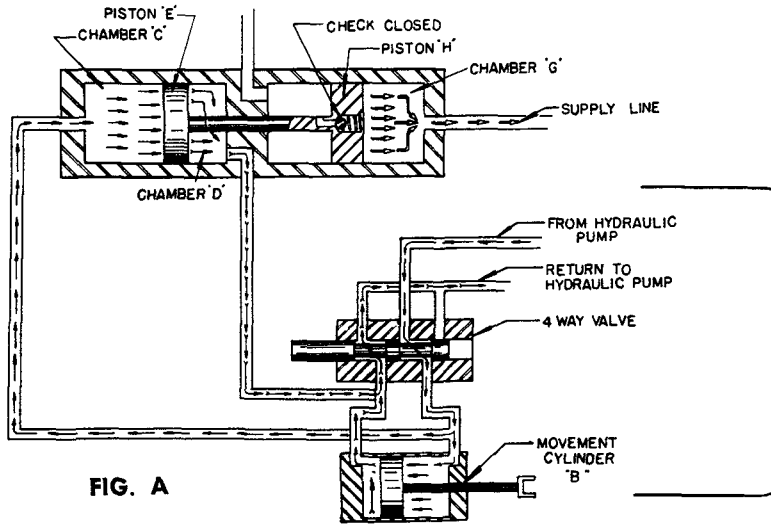


FIG. A

Fig. A. Handle of four way valve in position illustrated admits Hydraulic Fluid under pressure from HYDRAULIC PUMP into MOVEMENT CYLINDER "B" and CHAMBER "C" of HYDRAULIC POWER DRIVE PUMP. PISTONS "E" and "H" forced forward expell Hydraulic Fluid from CHAMBER "D" at same time forcing lubricant from CHAMBER "G" into SUPPLY LINE to Centromatic injector system.

NOTE:

4 way Valve-Movement Cylinder-supply lines illustrated are part of hydraulic system of machine to which HYDRAULIC POWER DRIVE PUMP (Model 201820) can be adapted.

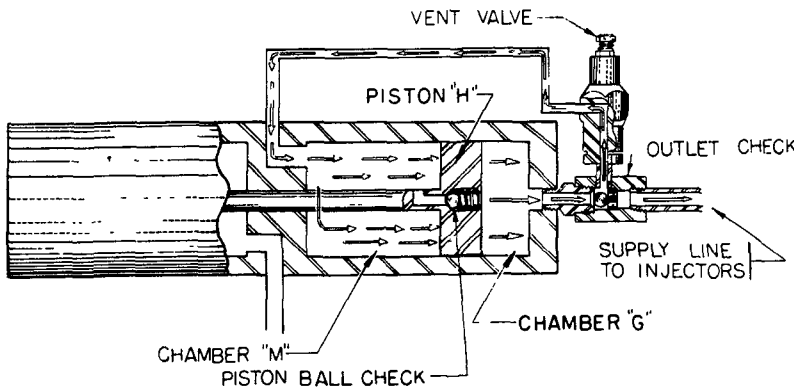


FIG. B

Fig. B. On the forward stroke of PISTON "H" the PISTON BALL CHECK closes, which permits PISTON "H" to force the lubricant from CHAMBER "G" through the open OUTLET CHECK into the SUPPLY LINE to the Centromatic Injectors. The OUTLET CHECK closes on each reverse stroke of PISTON "H" to maintain the lubricant under pressure in the SUPPLY LINE. The lubricant pressure developed in the SUPPLY LINE operates the injectors, which discharge a measured quantity of lubricant to the bearings. After the Injectors discharge, the lubricant pressure continues to build up in the SUPPLY LINE to a pre-determined pressure which automatically opens the VENT VALVE to release the SUPPLY LINE pressure. The Centro-Matic Injectors recharge when the pressure in SUPPLY LINE is relieved.

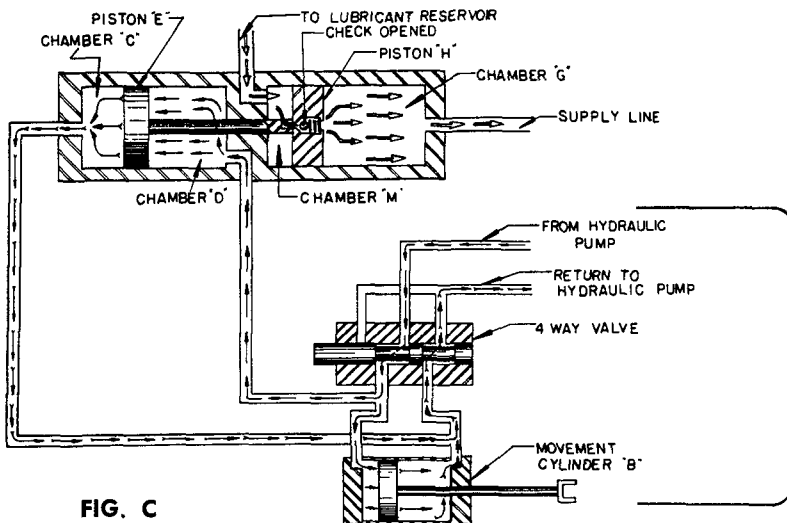


FIG. C

Fig. C. Handle of four way valve in position illustrated admits Hydraulic Fluid under pressure from HYDRAULIC PUMP into MOVEMENT CYLINDER "B" and CHAMBER "D" of HYDRAULIC POWER DRIVE PUMP. PISTONS "E" and "H" forced backward expell Hydraulic Fluid from CHAMBER "C" at same time forces lubricant from CHAMBER "M", supplied by Lubricant Reservoir, through open check into CHAMBER "G".

If desirable, the HYDRAULIC POWER DRIVE PUMP can be installed with its own four way Valve coupled directly into the HYDRAULIC PUMP and return lines, making it a complete unit that can be cycled independent of the MOVEMENT CYLINDER.

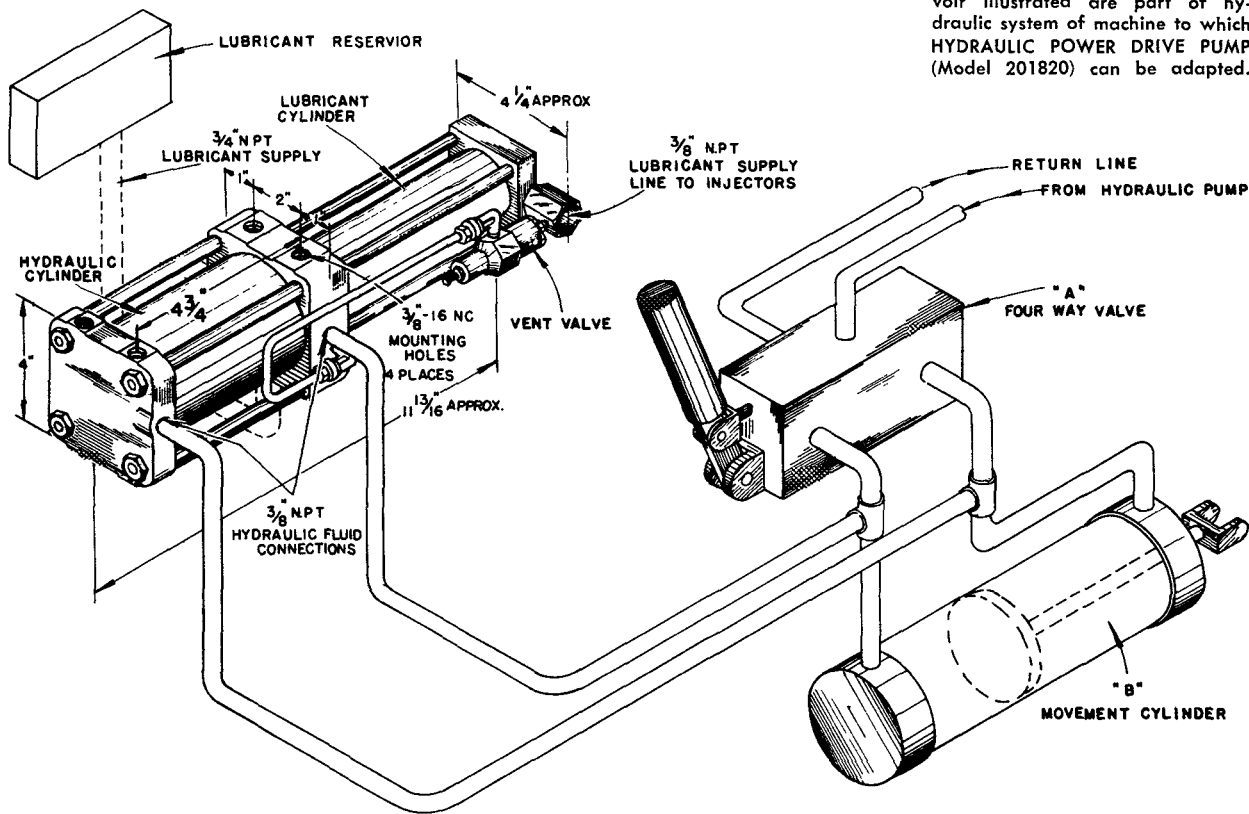
NOTE:

4 way Valve-Movement Cylinder-supply lines illustrated are part of hydraulic system of machine to which HYDRAULIC POWER DRIVE PUMP (Model 201820) can be adapted.

HYDRAULIC POWER DRIVE PUMP FIG. D

NOTE:

4 way Valve-Movement Cylinder-supply lines and Lubricant Reservoir illustrated are part of hydraulic system of machine to which HYDRAULIC POWER DRIVE PUMP (Model 201820) can be adapted.



The Lincoln HYDRAULIC POWER DRIVE PUMP is hydraulically actuated for dispensing of oils and light lubricants under pressure. The HYDRAULIC POWER DRIVE PUMP is designed for installation on machinery which utilizes a hydraulic pressure system for operation of various movements of the machine. For example: Coal mining and earth moving equipment, etc. which use a hydraulic pressure system for controlling and operating various movements on the machines, such as raising, lowering or swinging ramps, conveyors and scraper blades.

Fig. "D" illustrates a complete automatic lubrication system for all machines having a hydraulic pressure system. This illustration shows the Lincoln HYDRAULIC POWER DRIVE PUMP used in conjunction with the movement cylinder and four way valve, which are part of the hydraulic system of the machine.

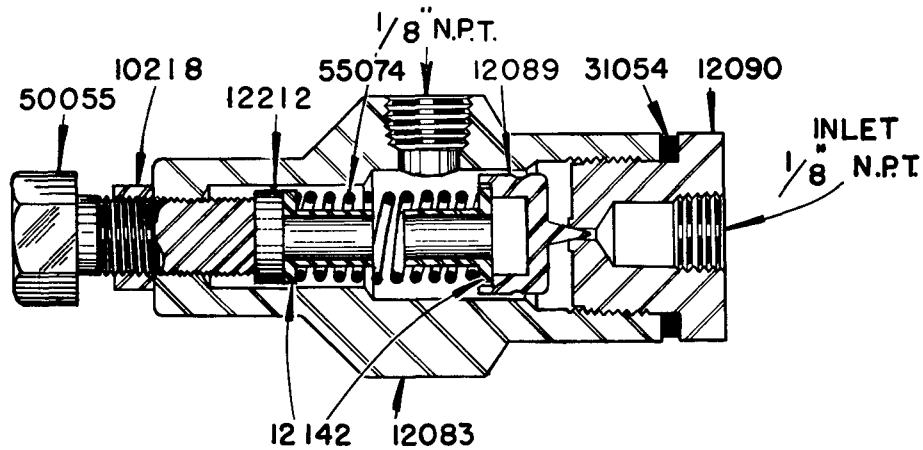
To Prime

Before connecting lubricant supply line between HYDRAULIC POWER DRIVE PUMP and lubricant reservoir, fill lubricant cylinder through inlet port. Continue filling until lubricant is forced through supply line to injectors. Remove plug from injector manifold to bleed air trapped in supply line and manifold.

REPAIR PARTS LIST

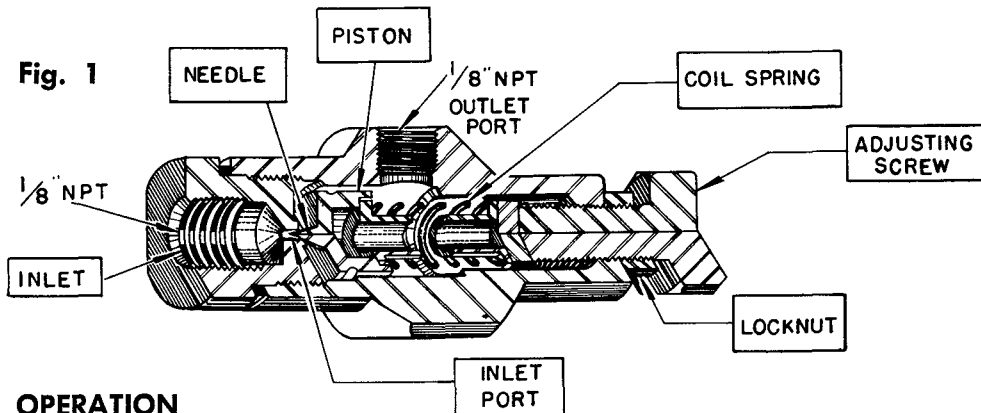
Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description
10130	Nipple	12440	Outlet End Plate	31110	Piston Rod Gasket	55074	Valve Spring
10218	Stem Nut	12441	Check Stop	31067	Lub. Tube Gasket	55165	Check Spring
11318	Gland Packing Nut	12442	Check Housing	31091	Hyd. Cylinder Gasket	57056	Ball Stop
12083	Valve Body	12443	Reducing Tee	31109	Piston Washer	61335	Hydraulic Cylinder
12089	Valve Check	12444	Inlet Block	35076	Gland Packing	62241	Vent Tube
12090	Valve Seat	12452	Piston Rod	35113	Hyd. Piston Packing	65631	Name Plate
12142	Spacer	12786	Lubricant Piston	35124	Piston Packing	66002	5/16" Dia Ball
12160	Hydraulic Piston	12787	Lubricant Cylinder	48211	Gland Washer	66078	Cotter Pin
12212	Spacer	12788	Piston Cap	48279	Piston Washer	66201	Tube Connector
12324	Needle	12789	Check Seat	50055	3/8"-24 Hex. Hd. Cap Screw	67294	3/4" Pipe Plug
12377	End Plate	31006	Gasket	51020	7/16"-20 Tie Rod Nut	81903	Relief Valve Assembly
12405	Tie Rod	31043	Gland Gasket	51045	7/16"-20 Cast. Nut		
12428	Tie Rod	31054	Pump Tube Gasket				

CENTRO-MATIC VENT VALVE MODEL 81903



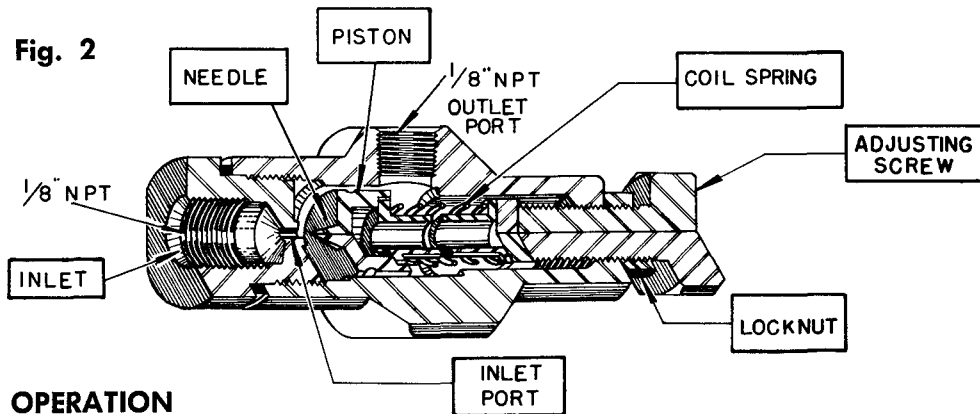
OPERATION OF CENTRO-MATIC VENT VALVE

The LINCOLN CENTRO-MATIC VENT VALVE is designed to relieve the lubricant supply line pressure after the cycle of Centro-Matic injectors has been completed.



OPERATION

Fig. 1. Illustrates VALVE in a closed position. NEEDLE POINT of PISTON is held in INLET PORT by force of COIL SPRING. PISTON remains in this position until Lubricant Supply Line Pressure exceeds the force exerted by COIL SPRING.



OPERATION

Fig. 2. Illustrates VALVE opened. When Lubricant Supply Line Pressure on NEEDLE POINT exceeds force of COIL SPRING, the PISTON is forced forward exposing the INLET PORT. Lubricant entering INLET PORT passes around PISTON to OUTLET PORT where it is vented to Container. With pressure relieved in Supply Line, force of COIL SPRING returns PISTON to original position in Fig. 1 with NEEDLE POINT held in INLET PORT. VALVE closed is again ready for another cycle.

ADJUSTMENT

Operating Pressure is determined by force of COIL SPRING which is controlled by the Adjusting SCREW. To increase Operating Pressure turn ADJUSTING SCREW to right. To lower Operating Pressure turn ADJUSTING SCREW to left. A LOCK NUT is provided to hold ADJUSTING SCREW in position.

PARTS - LOANER PUMPS - REPAIRS BY FACTORY TRAINED SERVICEMEN AVAILABLE IN AUTHORIZED SERVICE DEPARTMENTS. LIST FURNISHED UPON REQUEST.

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