

# SERVICE INSTRUCTIONS

## OILGEAR TYPE "2F" DUAL PRESSURE COMPENSATOR W/LOAD SENSOR CONTROLS FOR "PVWH" AND "PVW" PUMPS

### PURPOSE OF INSTRUCTIONS

These instructions have been prepared to simplify and minimize your work of operating Oilgear type "2F" controlled units. This material will inform you as to basic construction, principle of operation and service parts listings. Some controls may be modified for specific applications from those described and other changes may be made without notice.

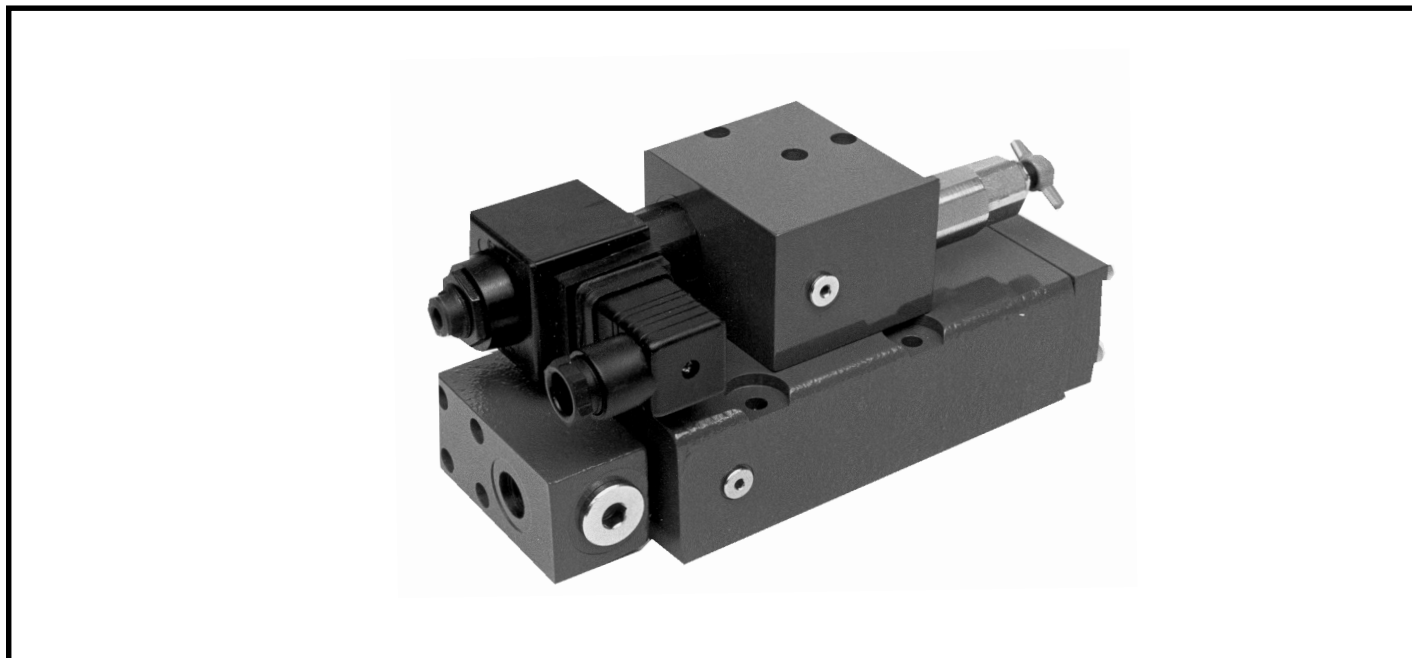


Figure 1. Typical "2F" control for Oilgear "PVWH" and "PVW" pumps (N89-002-03).

### REFERENCE MATERIAL

Fluid Recommendation .....	Bulletin	90000
Filtration Recommendations .....	Bulletin	90007
"PVWH" and "PVW" Open Loop Pumps .....	Bulletin	947015
HSLR Relief Valve .....	Section 5, Page B2.1	
HS2VO Two-Way Valve .....	Section 5, Page C1.1	

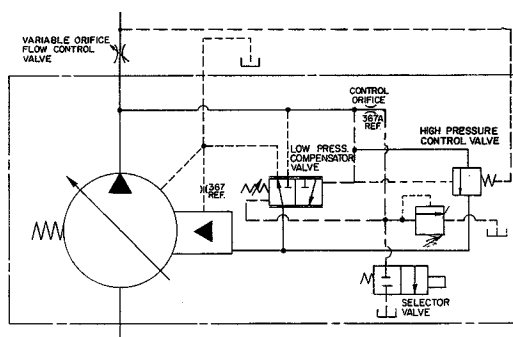


Figure 2. ASA diagram for "2F" control with typical pump (E51215).

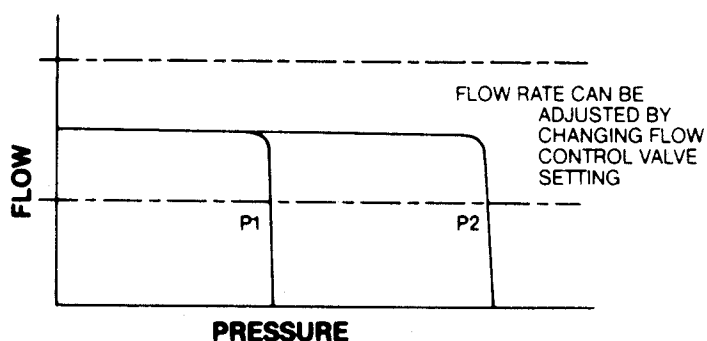


Figure 3. Typical Pressure vs. Volume Curves

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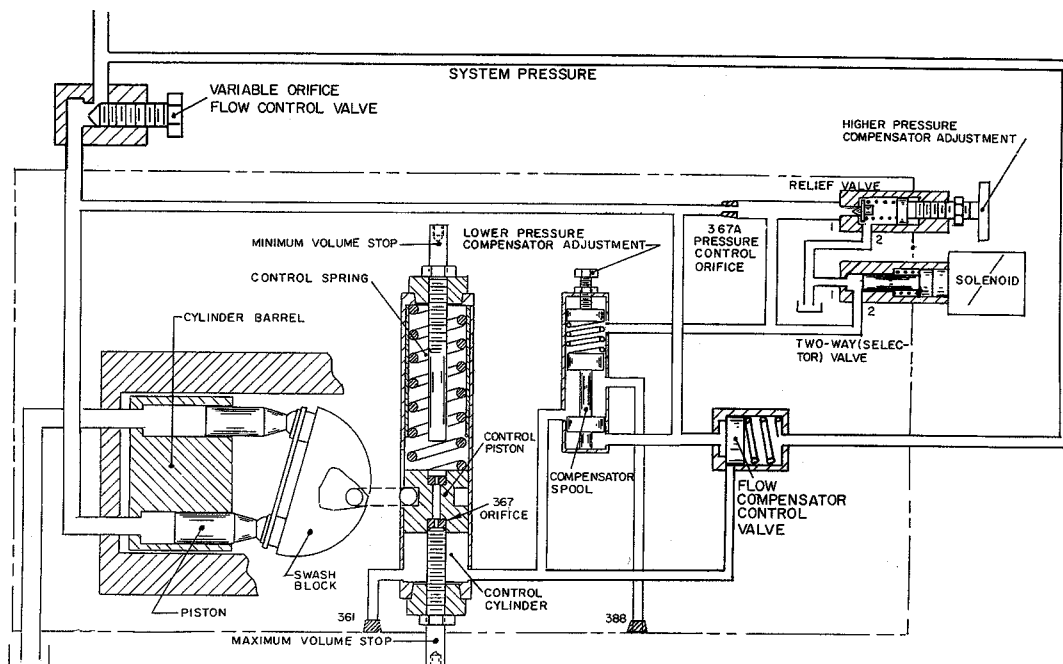


Figure 4. Diagram illustrating swashblock at full delivery and “2F” control at maximum volume stop. (E51215).

## PRINCIPLE OF OPERATION

“2F” load sensing controls match pump flow and (either of two) pressures to load demand. As the load on the system increases, pump pressure will also increase but the flow (volume) will remain constant.

Refer to figure 4. The control senses and maintains a constant pressure differential across an orifice (flow control valve) in the delivery line resulting in pump flow becoming a function of control valve position. For a given flow control valve setting, the pump will maintain a constant flow regardless of changes in pump input speed and/or working pressure.

The flow compensator has no tank port. Therefore, the pressure compensator valve takes priority and short strokes the pump when compensator setting is reached. With solenoid de-energized and when pressure in the delivery line reaches a pressure high enough to shift the pressure compensator spool against its' spring, high pressure is ported into the control

chamber behind the piston which compresses the control spring and shifts the pump (swashblock) for reduced delivery until pressure in delivery line holds the preset pressure compensator valve setting. With solenoid energized, the pressure in the pressure compensator valve spring chamber is raised to the level of the high pressure relief valve. This pressure adds to spring setting of the pressure compensator valve, raising the pressure at which the pump compensates (reduces delivery).

As load pressure falls below the compensator setting, the load sensing function automatically resumes.

Lower pressure settings (P1) can be made from 400 psi (27,6 bar) and to 1500 psi (103 bar) higher pressure settings (P2) from 900 psi (60 bar) to units rated pressure.

### NOTE:

**Higher ranges are available (and may be used) for the lower (P1) range.**

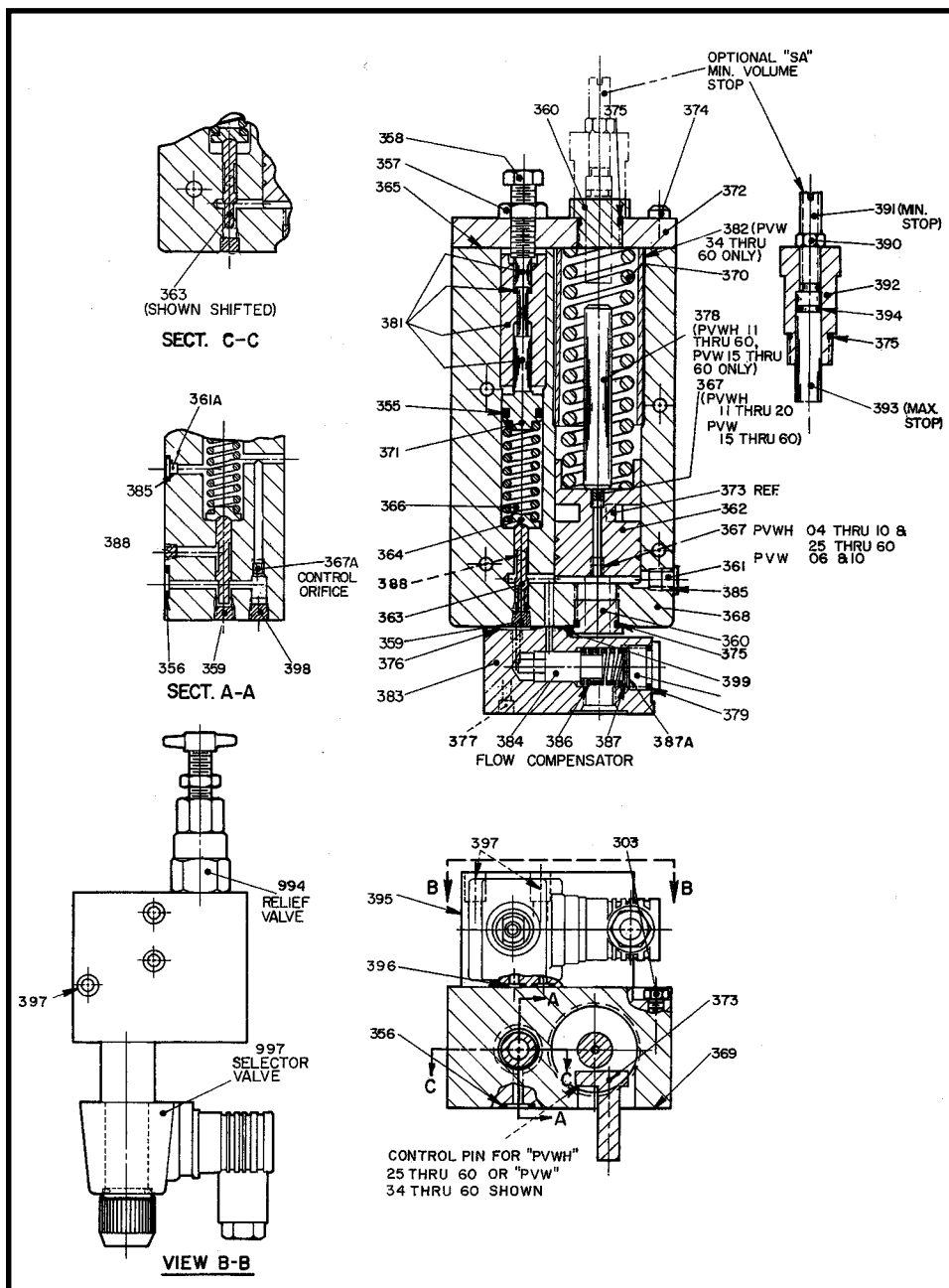


Figure 5. Parts drawing, Oilgear Type "2F" Control (E51215).

## PARTS LIST

Parts used in this assembly are per Oilgear specifications. Use Oilgear parts to ensure compatibility with assembly requirements. When ordering replacement parts, be sure to include pump type designation and serial number stamped on nameplate, bulletin and item number. To assure seal and packing compatibility, specify type of hydraulic fluid used.

### ITEM

#### NO.

#### DESCRIPTION

303	Screw, HHC Mounting
355	Seal, O'ring
356	Seal, O'ring
357	Nut, Jam
358	Screw, Pressure Adjusting
359	Plug, Pipe, NPT
360	Plug, SAE
361	Plug, SAE

### ITEM

#### NO.

#### DESCRIPTION

361A	Plug, SAE
362	Piston, Control
363	Spool, Pressure Compensator
364	Seat, Spring
365	Gasket, Cover
366	Spring, Pressure Compensator
367*	Orifice, Control Piston
367A	Orifice, Pressure Control

### ITEM NO.

#### DESCRIPTION

368	Housing, Control
369	Gasket, Control Housing
370	Spring, Control Piston
371	Plug, Pressure Control Spring
372	Cover, Control Housing
373	Pin, Control Piston
374	Screw, SHC
375	Seal, O'ring
376	Seal, O'ring
377	Screw, S.H.C.
378**	Stop, Control Piston Min. Vol.
379	Seal, O'ring
381	Assembly, Pressure Compensator Adjusting
382***	Sleeve, Control Pressure Stop
383	Housing, Flow Compensator
384	Spool, Flow Compensator
385	Seal, O'ring
386	Spring, Flow Compensator
387	Shims, Flow Compensator
387A	Shim, Solid
388	Screw, Set
390	Nut, Jam
391	Stem, Minimum Vol. Stop
392	Adaptor, Minimum Vol. Stop
394	Seal, O'ring
395	Module, Cart. Relief Valve
396	Seal, O'ring
397	Screw, S.H.C.
398	Plug, Pipe
399	Gasket, "CF" Module
994	Assembly, Relief Valve Cartridge
997	Assembly, Solenoid 2-Way Cartridge

\* Spring side of control piston for "PVWH" 11 thru 20 sizes and for "PVW" 15 thru 60 sizes. Opposite side of control piston for all others.

\*\* Used only for "PVWH" 11 thru 60 sizes, and "PVW" 15 thru 60 sizes.

\*\*\* Used only on "PVW" 34 - 60 units.

## NOTES



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