



# INSTRUCTIONS

BULLETIN 946600B

## OILGEAR TYPE "HG" CONSTANT DELIVERY PUMPS

### REFERENCE BULLETINS

Oil Recommendations . . . . .	90000
Fire Resistant Fluids . . . . .	90001
Contamination Evaluation Guide . . . . .	90004
Piping Information . . . . .	90011
Gear Pump Filter . . . . .	DS-89904

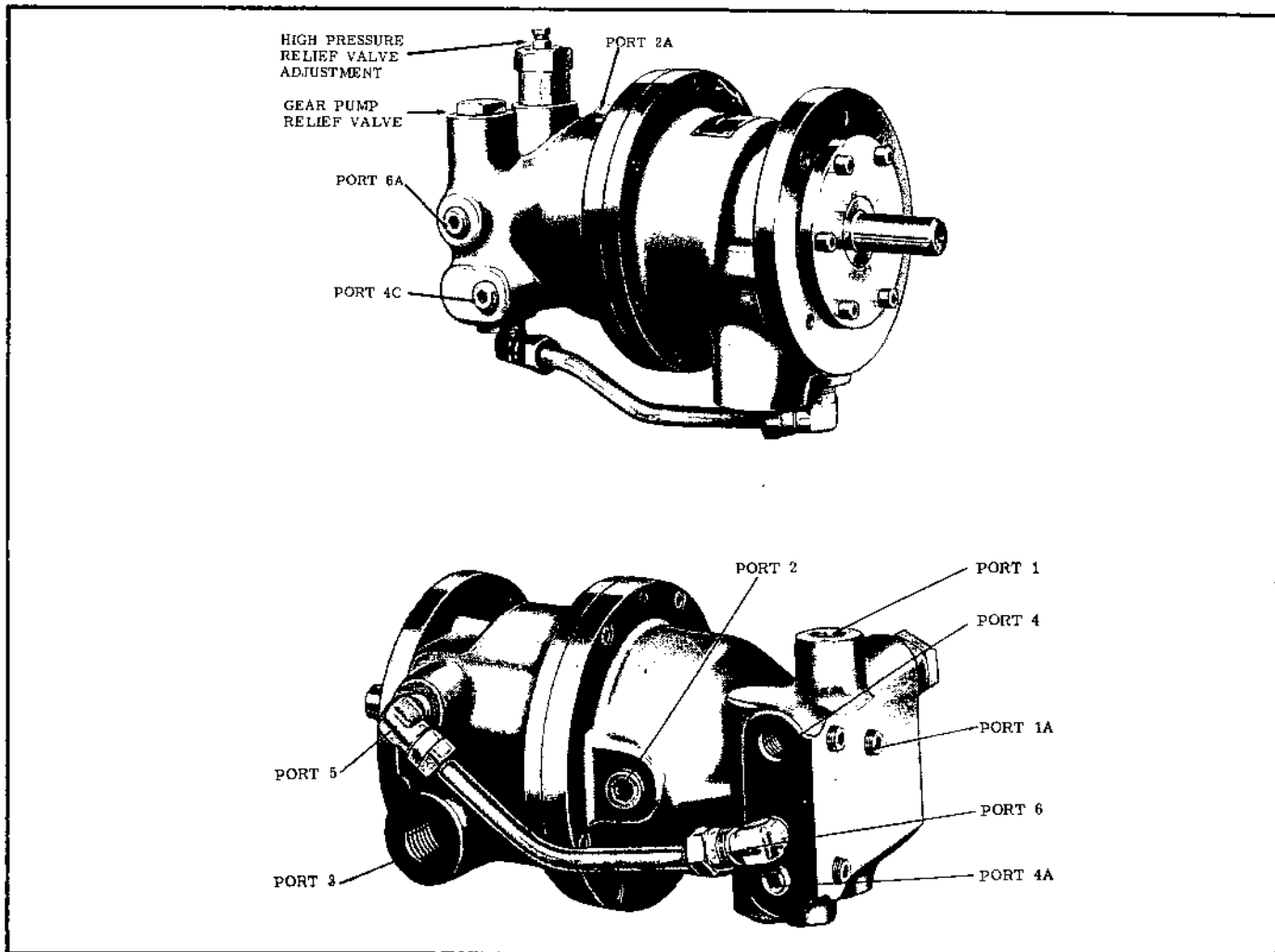


Figure 1. Typical Oilgear Type "HG" Pumps (52266 and 53524)

### TO THE USER AND OPERATOR OF OILGEAR TYPE "HG" PUMPS:

These instructions are written to simplify your work of installing, operating and maintaining Oilgear Type "HG" pumps. Your acquaintance with the construction, principle of operation and characteristics of these units will help you attain satisfactory performance, reduce shutdowns and increase the pump's life. We feel confident the Oilgear pump will operate to your satisfaction if these instructions are adhered to. Some Oilgear units have been modified from those described in this bulletin and other changes may be made without notice.

### I. PREPARATION AND INSTALLATION

#### A. MOUNTING

**1. PUMPS WITHOUT RESERVOIRS** These units are shipped without tubes or base. Remove pipe tap protectors (not pipe plugs) and screw tubes into ports 3 and 4. See bulletin on "Piping Information".

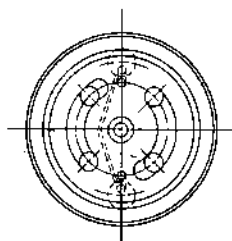
Suction and discharge tubes should reach within one or two times their outside diameter from the bottom of the reservoir. Screw suction tube securely in place to prevent air being drawn into the system. Seal tube entries into the reservoir to keep out dirt.

When round face mounting, electric motor adapter is used for direct drive, secure the adapter to the pump

**THE OILGEAR COMPANY**

# PORT DATA & TAP SIZES

PORT NO.	PORT DESCRIPTION	TAP SIZE
1	HIGH PRESS. CONN.	3/8
1A	AUX. HIGH PRESS. CONN.	1/4
2	AUX. CASE DRAIN	1/2
2A	CASE DRAIN	1/2
3	GEAR PUMP SUCTION	3/4
4	RELIEF VALVE DRAIN	3/8
4A	AUX. RELIEF VALVE DRAIN	3/8
4B	GEAR PUMP AUX. PLUG	1/4
4C	AUX. RELIEF VALVE DRAIN	3/8
5	GEAR PUMP DISCHARGE	3/8
6	GEAR PUMP SUPPLY	3/8
6A	AUX. GEAR PUMP PRESS.	3/8



VIEW A-A  
SHOWING FACE OF FLAT VALVE

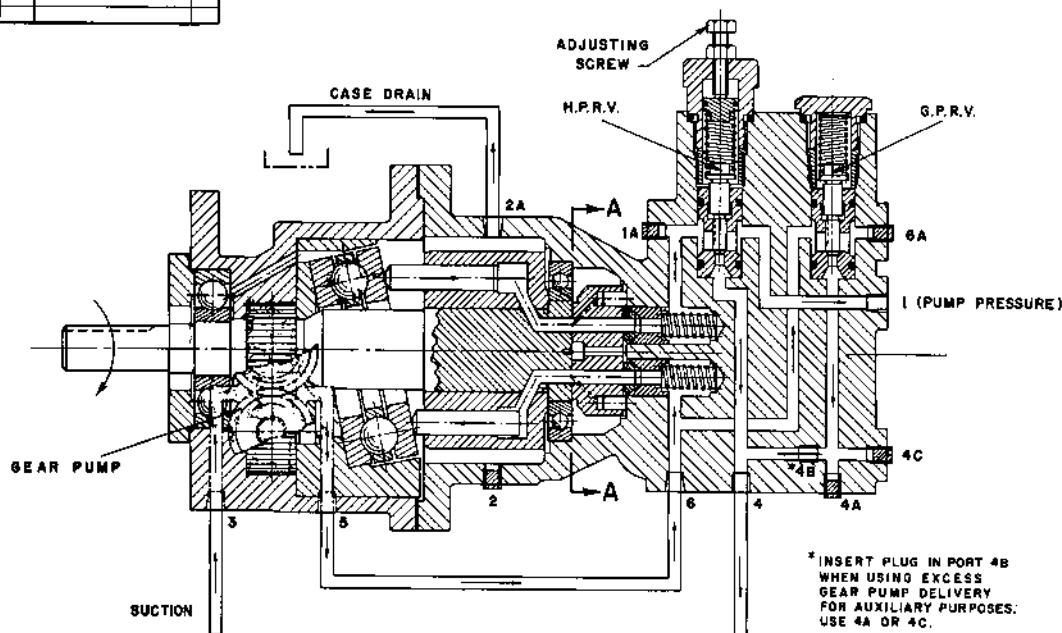


Figure 2. Cutaway Circuit Diagram of "HG" Pump. DS-946600 (57144).

## IV. SPECIFICATIONS

Unit	HG-530		HG-830		HG-850	
Rated Pressure	psi	Bar	psi	Bar	psi	Bar
	3000	206.9	3000	206.9	5000	344.8
Capacity *	gpm	l/m	gpm	l/m	gpm	l/m
@ rpm						
710	1.01	3.82	1.77	6.73	0.88	3.35
860	1.25	4.73	2.19	8.29	1.10	4.18
950	1.39	5.27	2.45	9.30	1.26	4.76
1140	1.71	6.46	2.99	11.32	1.56	5.91
1450	2.20	8.35	3.87	14.68	2.04	7.73
1750	2.68	10.17	4.72	17.88	2.51	9.52

\* at rated pressure

## V. MALFUNCTIONS & CAUSES

### A. PUMP FAILS TO OPERATE

1. Defective electric drive motor.
2. Loose, dirty or defective electrical wiring.
3. Frozen or jammed gear pump.
4. Frozen or broken bearings

### B. LOW DELIVERY WHEN UNDER PRESSURE

1. Worn cylinder and piston.
2. Worn flat valve.
3. High pressure relief valve stuck open.
4. Worn gear pump.

5. Clogged or dirty filter.
6. Clogged or dirty cooler.
7. Low reservoir fluid level.
8. Loose suction tube.

### C. ABNORMAL NOISE LEVEL

1. Low fluid level.
2. Loose suction tube.
3. Worn bearings.
4. Worn gear pump.
5. Low supercharge (gear pump) pressure.
6. Clogged or dirty filter.
7. Clogged or dirty cooler.
8. Worn piston and cylinder assembly.
9. Over heating.
10. Sticking pistons.

## VI. TESTING & ADJUSTING

### A. PREPARATION

Install a low pressure gage (0-200 psi) in place of the pipe plug in port 6A. Install a high pressure gage (0-3500 psi for 3000 psi pump and 0-7500 psi for 5000 psi pumps) in port 1A.

### C. GEAR PUMP RELIEF VALVE

Unscrew G.P.R.V. cap (55), remove shims (53), spring (52), spacer (48), lower spring guide (49), O'Ring (54), plunger (51). Remove bushing (50) by pushing out with brass rod in port 4A.

### VIII. INSPECTION

Clean all parts thoroughly, inspect all bearings for galling, pitting, binding or roughness. Inspect pistons and piston bores. Check flat valve and drive shaft end face for scratches or grooves. Inspect all seals, gaskets, packings, and O'Rings for hardening and deterioration. Check flat valve guide pins to make certain they are not damaged. Inspect relief valve plungers for scratches or wear. Replace any parts that are damaged or show undue wear.

### IX. ASSEMBLY

Clean and lubricate parts with a film of fluid just prior to assembly. If bearing races are heated in oil to ease assembly, exercise extreme care to prevent heating over 300° F.

#### A. RELIEF VALVES

Assemble in reverse order of disassembly. Do not interchange plungers or bushings; keep them as assemblies.

#### B. PUMP

Place gear pump housing (32) on gland end. Press stub shaft (25) into housing (if it was removed) with lubricating slot at 135° from center line drawn down from driving gear center to stub shaft center. Place driving gear (22) and driven gear (23) in housing. Place gear pump cover (24) with wide side at bottom of pump (as illustrated) and start screws. Drive dowel pins (30) thru cover until flush with facing surface. Make certain gears can be rotated by hand. Insert thrust bearing assembly (2) into gear pump cover making certain it is completely seated.

If the cylinder (6) and rear shaft bearing (12) were removed, replace key (10) and press cylinder and bearing on shaft. Take care not to damage rear shaft face, and insert pistons (8) into bores with convex ends outward. Insert woodruff key (26) into shaft keyway. Insert drive shaft assembly into housing assembly with caution. Be sure the key (26) lines up with keyway in driving gear (22). Place assembly on rear end of shaft and on a cushioned surface to protect face end of shaft. Place front shaft bearing (11) on shaft with "Thrust Here" note facing away from cylinder when note appears on outer race, when note appears on inner race, it faces cylinder. Press into place. Press seal (27) if replaced, flush into gland. Place gasket (28) in position, place gland in position (caution: - do not cut seal lip) and secure to housing with cap screws. Rotate shaft by hand to be sure parts are free.

Place pump case (56) on relief valve end. Insert back-up piston springs (17), pistons (16) and tumblers (15).- If guide pins (13 & 13A) were removed, press new ones into case until they protrude 1/2". Note: pin (13) flats must be at right angle to centerline between pins (as illustrated). Place compensating pistons (9), with tapped portion outward, into flat valve (7) and lower flat valve into position securing with snap ring (14). Press down on flat valve; the springs should force its return to position. Place case gasket (29) in position.

Lower the gear pump housing and drive shaft assemblies into the pump case. Make sure that the rear shaft bearing (12) seats completely in the case. Secure pump case (56) to gear pump housing (32) with cap screws. Install piping and fittings. Caution: - shaft should be rotated by hand to test for "freeness".

### OILGEAR EXCHANGE SERVICE

Standard replacement pumps and motors are available to users of Oilgear equipment where comparable units will be returned in exchange. These rebuilt and tested replacements are usually carried in stock for quick delivery, subject to prior requests. When standard replacements must be modified to replace units which are special, shipment will depend on availability of parts and assembly and test time necessary.

To obtain this service, place an order for an exchange unit and for repair of the worn pump or motor (give serial number and type designation). The replacement will be shipped F.O.B. our factory, Milwaukee, Wisconsin. User retains the replacement and returns the worn unit prepaid to The Oilgear Company for reconditioning and test. When the unit is reconditioned and stocked, the user is billed the cost of reconditioning, or a flat rate exchange price, if one has been applied to that particular type of unit.

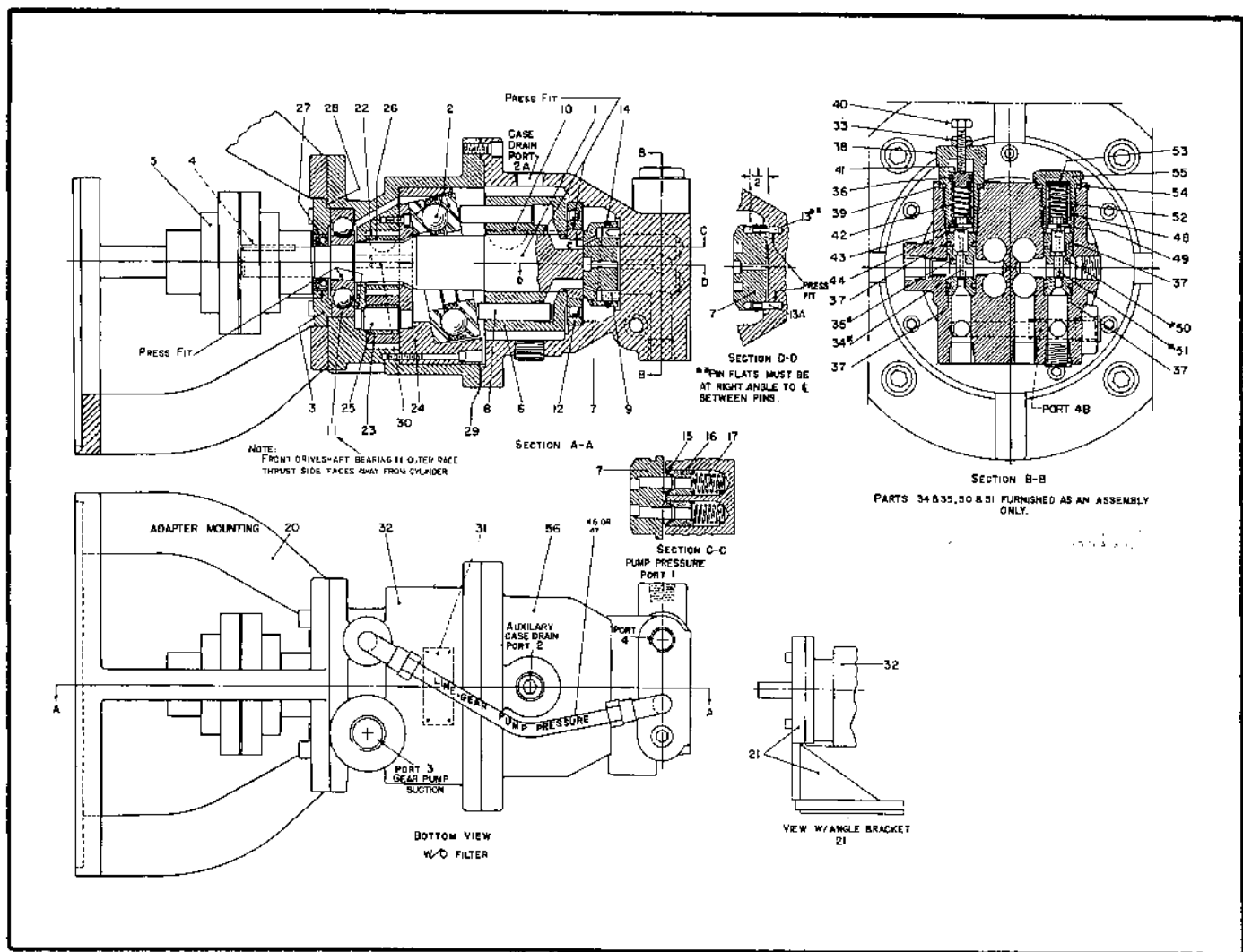


Figure 3. Oilgear Type "HG" Pump Parts Drawing. DS-946600B (57143)