SERVICE AND INSTRUCTION MANUAL

(PUMPS - 1954 AND AFTER)

for

Trabon®

MODEL

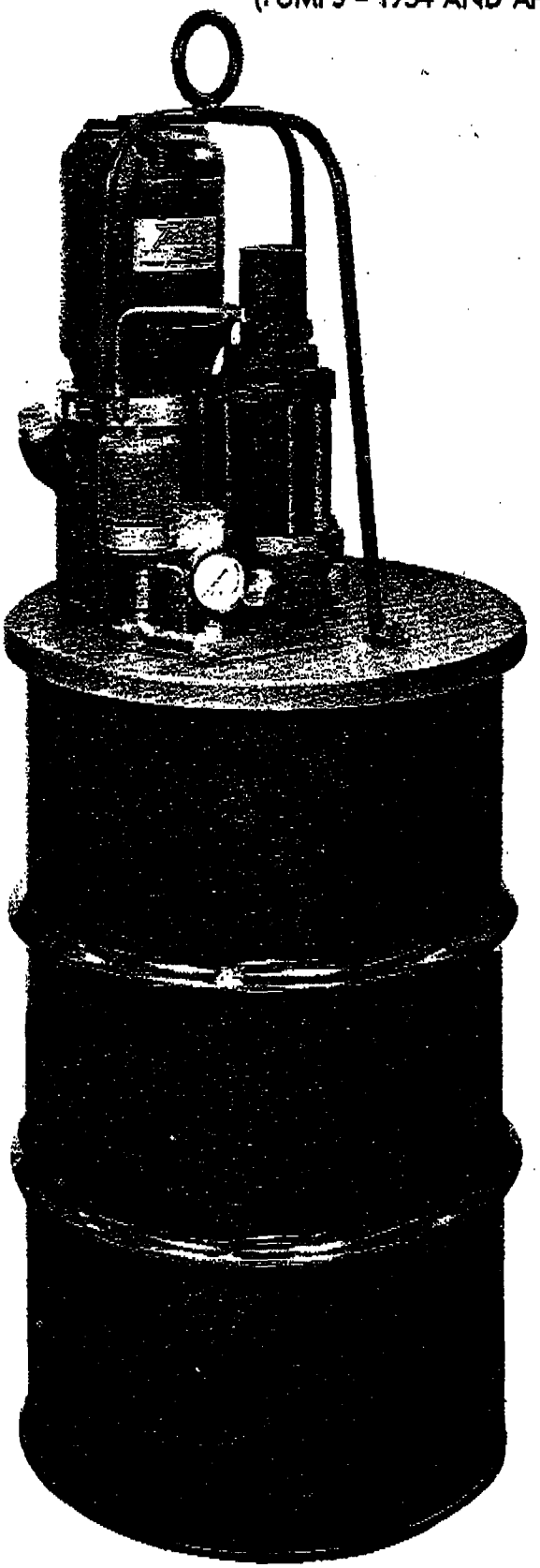
ELECTRIC-HYDRAULIC

BARREL PUMP

for

OIL AND GREASE

SERIES 400



SERIES NO.	*CUBIC IN. PER MIN.
H-411	38
H-410	22
H-420	11
H-430	6

INITIAL INSTALLATION OF NEW OR REPAIRED TRABON ELECTRIC HYDRAULIC BARREL PUMP

(1) REMOVE THE TRABON BARREL PUMP FROM THE CRATE.

(2) WIPE OFF ANY DIRT OR FOREIGN MATERIAL ON FOOT VALVE.

(3) INSTALL FOOT VALVE SCREEN CAGE (OR ADAPTOR WITH BUILT IN SCREEN) IN ATTACHED BAG ON LOWER-GREASE TUBE.

(4) PLACE THE TRABON BARREL PUMP INTO A 400 LB. DRUM OF CLEAN LUBRICANT.

(5) WIRE NORMALLY CLOSED CONTACTS OF PRESSURE SWITCH INTO THE MOTOR CONTROL CIRCUIT.

(6) WIRE NORMALLY OPEN CONTACTS OF PRESSURE SWITCH INTO WARNING SYSTEM IF ANY.

(7) WIRE MOTOR - FOLLOWING ROTATION ARROW ON POWER UNIT.

(8) WARNING WARNING WARNING

FILL POWER UNIT RESERVOIR WITH CLEAN TURBINE TYPE HYDRAULIC OIL, 200 to 250 VISCOSITY 100 DEGREE F° TO OIL LEVEL TAG BEFORE STARTING THE PUMP.

(9) START PUMP AND CHECK THRU THE MOTOR INSPECTION PLATE FOR CORRECT ROTATION.

(10) ALLOW THE PUMP TO RUN FREELY FOR TWO (2) MINUTES WITH AIR COCK OPEN ON HYDRAULIC UNIT, TO ASSURE ALL AIR HAS ESCAPED FROM GREASE IN HYDRAULIC UNIT.

(11) NOW CONNECT THE TRABON ELECTRIC HYDRAULIC BARREL PUMP OUTLET INTO THE CIRCUIT LINE.

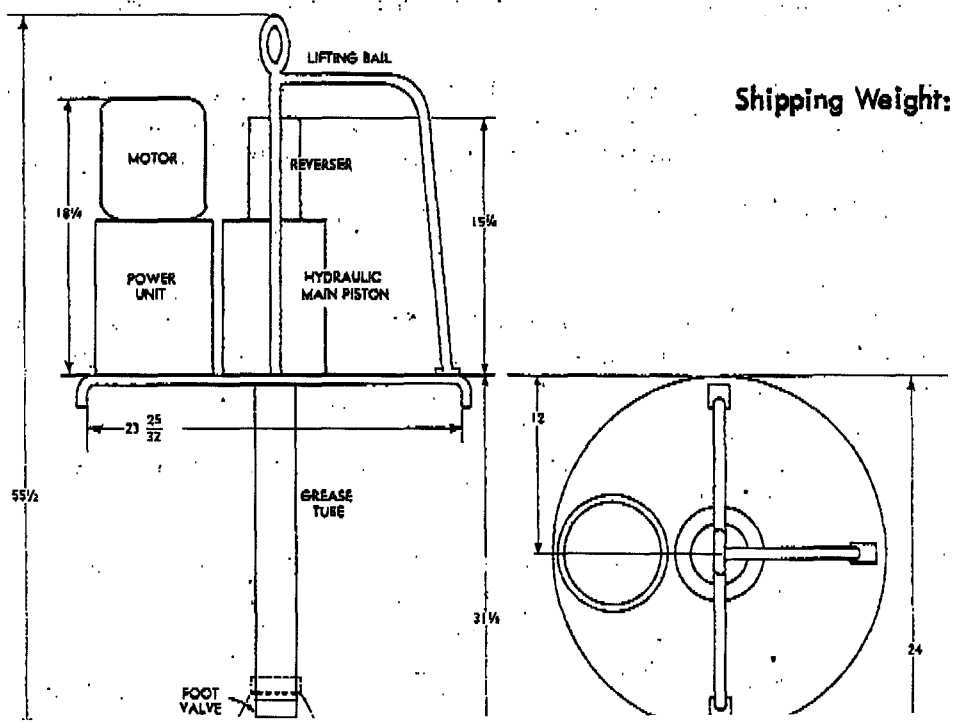
CODE

BARREL PUMP MODEL NO.	CUBIC IN. PER MIN. OUTPUT	TYPE OF MOTOR	CUBIC IN. PER MIN. OUTPUT	TYPE OF MOTOR	TYPE GEAR PUMP	POWER UNIT NO.	GEAR PUMP NO.
H - 411	38	1725 RPM	31	1425 RPM	1 L	25505	25343
H - 410	22	115/230 V single phase 60 C	18	115/230 V single phase 25 or 50 C	0 L	25506	25342
H - 420	11		9		00 L	25507	25341
H - 430	6	220/440 V three phase 60 C	5	220/440 V three phase 25 or 50 C	30 L	25508	25379
		230 V. DC					

The type of motor specified designates the cubic inch output of the pumping unit.

In ordering additional Trabon Electric Hydraulic Barrel pumps please specify the following:

(1) Electrical current and motor specs.
(2) Barrel pump model No.
(3) For Type MX and M Systems
(4) For Reversible system with Automatic Reverser
(5) Complete control panel
(6) Electrical timer and Contactor only
(7) Special remarks



Shipping Weight: 235 lbs.

OPERATING PRINCIPLES OF THE TRABON ELECTRIC HYDRAULIC BARREL PUMP

TYPE OF SERVICE: Electric Hydraulic Barrel Pumps, furnished complete with motor designed for medium and large type M, MX, or Reversible Systems. The pump unit is mounted on a standard 400 lb. drum head with lifting bail so that the pump can be easily lifted and set on a fresh drum of lubricant. Barrel pumps are ideal for lubricating systems of Blast Furnaces, Large Mill Systems, Trabon "Multizone" (manumatic) systems in Steel, Cement, Coal, etc. Industries, where large grease volumes are required.

OPERATION: The Barrel Pump is basically two units. The POWER UNIT, and the HYDRAULIC UNIT.

The POWER UNIT contains an electric motor, hydraulic gear pump, relief valve and an oil sump in one self contained unit.

The HYDRAULIC UNIT consists of a reversing mechanism, main (hydraulic) piston cylinder assembly, connecting rod assembly, and a grease piston and cylinder assembly.

The pressure side of the POWER UNIT is tubed directly to the REVERSER on the HYDRAULIC UNIT. The return flo is tubed from the exhaust side of the REVERSER (reversing valve) to the sump of the POWER UNIT.

Hydraulic fluid is supplied by the positive gear pump in the POWER UNIT and enters the REVERSING mechanism of the HYDRAULIC UNIT and thru the valving action of the REVERSER, a continuous flo of fluid is supplied into the MAIN (HYDRAULIC) PISTON CYLINDER CHAMBER.

The moving MAIN (HYDRAULIC) PISTON will travel until it engages the reversing linkage which shuttles the REVERSING valve (in the reverser) and changes the flo direction to the MAIN (HYDRAULIC) CYLINDER.

The operation automatically and continuously circulates the hydraulic fluid until the unit is shut down.

The MAIN (HYDRAULIC) PISTON is coupled to a CONNECTING ROD that serves as a guide and separates the hydraulic fluid and the lubricant being pumped by the use of a series of "V" ring packings.

Thru this same connection, a HEAVY DUTY PISTON ROD carries the GREASE PISTON in the exact stroke maintained by the LARGE HYDRAULIC (MAIN PISTON). The combined components, MAIN (HYDRAULIC) PISTON, CONNECTING ROD AND GREASE PISTON are joined as one piece.

The STROKE thru-out the unit therefore will have a constant fixed positive displacement regardless of pressure.

INDICATOR: Electric Hydraulic Barrel Pumps are provided with pressure gauges for observation of the lubricating system pressure. A pressure cutout switch, connected to the pump outlet, automatically cuts out the motor when excessive pressures occur.

OPERATING PRESSURE: The H-400 series Barrel Pump is designed to operate at a maximum pressure of 3500 lbs.

AUTOMATIC REVERSER: The H-400 series Barrel Pump can be furnished with an automatic reverser mounted on the drum head when the pump is used with a Trabon Reversible System.

TROUBLE - CAUSE - AND REMEDY SHEET OF THE TRABON ELECTRIC HYDRAULIC BARREL PUMP

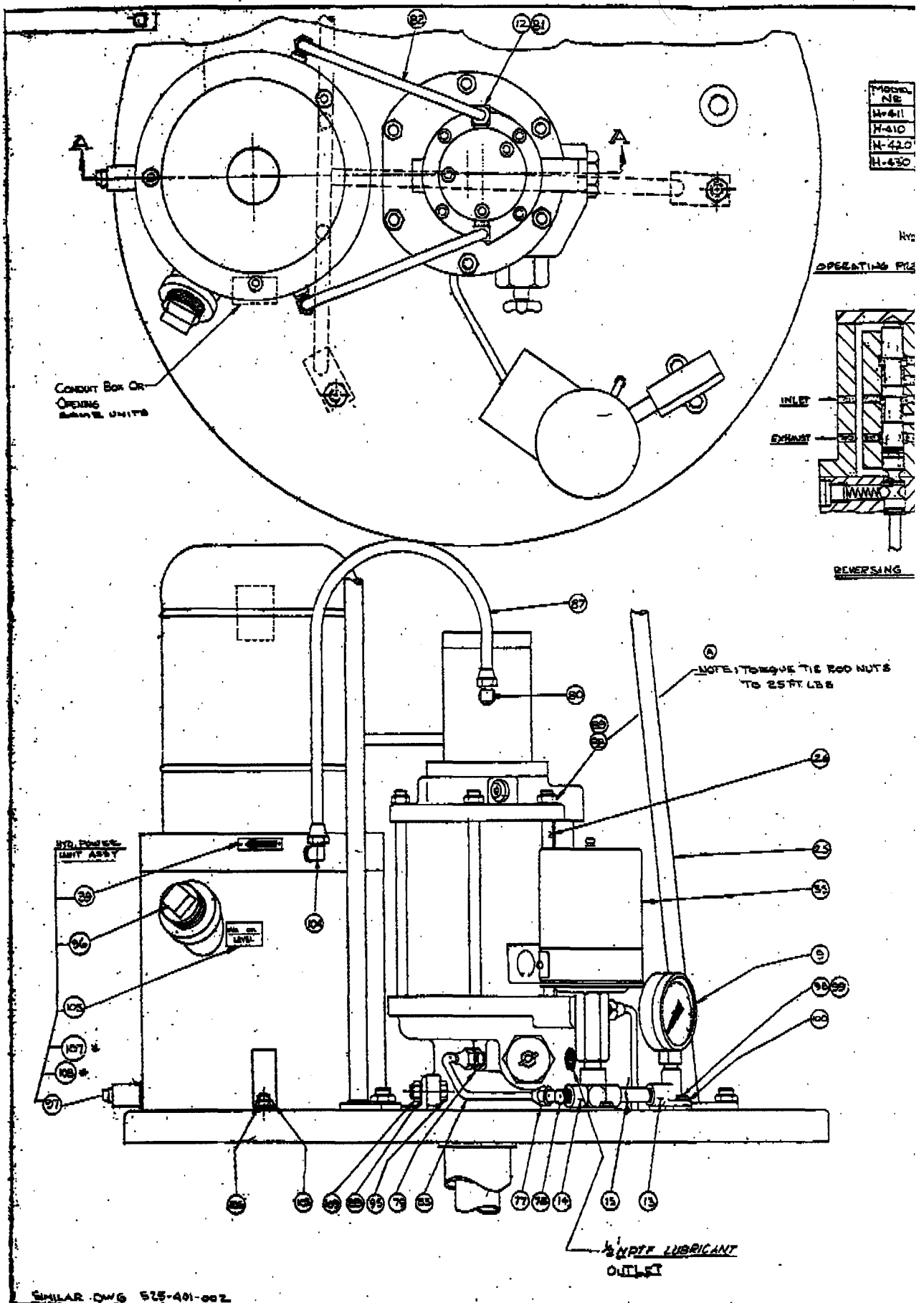
Below are listed TROUBLE SITUATIONS (the cause and their remedies) that can occur during the operation of the Trabon Barrel Pump. Contamination is the cause of 90 per cent of the trouble situations. Please examine the contents of this remedy sheet BEFORE DISASSEMBLING ANY PORTION OF THE BARREL PUMP.

PREVENTIVE MAINTENANCE WILL ELIMINATE COSTLY REPAIRS AND REDUCE DOWNTIME TO A MINIMUM. EXAMINING AND CORRECTING THE SIMPLIEST DIRT PROBLEMS (GREASE HANDLING METHODS) AND LOCATION OF THE PUMP SHOULD BE CONSIDERED AS PART OF PREVENTIVE MAINTENANCE TO ASSURE MAXIMUM OPERATING EFFICIENCY OF THE TRABON BARREL PUMP.

TROUBLE	CAUSE	REMEDY
(1) Motor will not start	(a) Faulty connection (b) Not wired properly (c) Improper voltage	Inspect thoroughly for open or poor connections
(2) Will not pump lubricant	Empty drum	Renew with fresh, clean lubricant
(3) Pump operates but will not pump grease	Rotation of motor is wrong	Correct by changing wire hook-up to make motor turn clockwise (arrow on power unit shows direction motor should operate)
(4) Pump operates but will not pump grease	(in rare cases) open pressure relief valve in power unit	Check for dirt in the power unit relief valve
(5) Pump operates but will not pump grease	Large quantity of grease still in drum, however, drum probably is greater in depth than standard drum.	Utilize new trabon adaptor #25550. This adaptor with built-in screen corrects 400 lb. drum depth variation. This adaptor eliminates screen cage.
(6) Pump operates but will not pump grease	(unusual condition) broken linkage, extreme high pressure condition, connecting rods sheared.	Remove grease tube. Complete piston and rod assembly can be removed easily. Replace with new assembly.
(7) Reoccurring grease stop - page while pump is operating	(contaminated lubricant) preventing the foot valve and piston check valve from operating properly	(a) remove screen, foot valve, grease tube, and grease piston (b) wash with clean solvent (c) blow all parts thoroughly with compressed air (d) examine for deep metal impressions or objects causing this failure
(8) Pumps grease intermittently while pump is in operation	Foreign material in grease piston check valve	(a) remove screen, foot valve, grease tube and grease piston (b) remove check valve assembly in grease piston (c) wash in solvent (d) Clean with compressed air (e) examine for deep metal impressions or objects causing the failure.
(9) Will not pump grease but pump continues to operate	Foreign material in foot valve	(a) remove screen, remove foot valve (b) examine for deep metal impressions or objects causing this failure (c) check screen for fraying or broken edges, if damaged replace with new screen

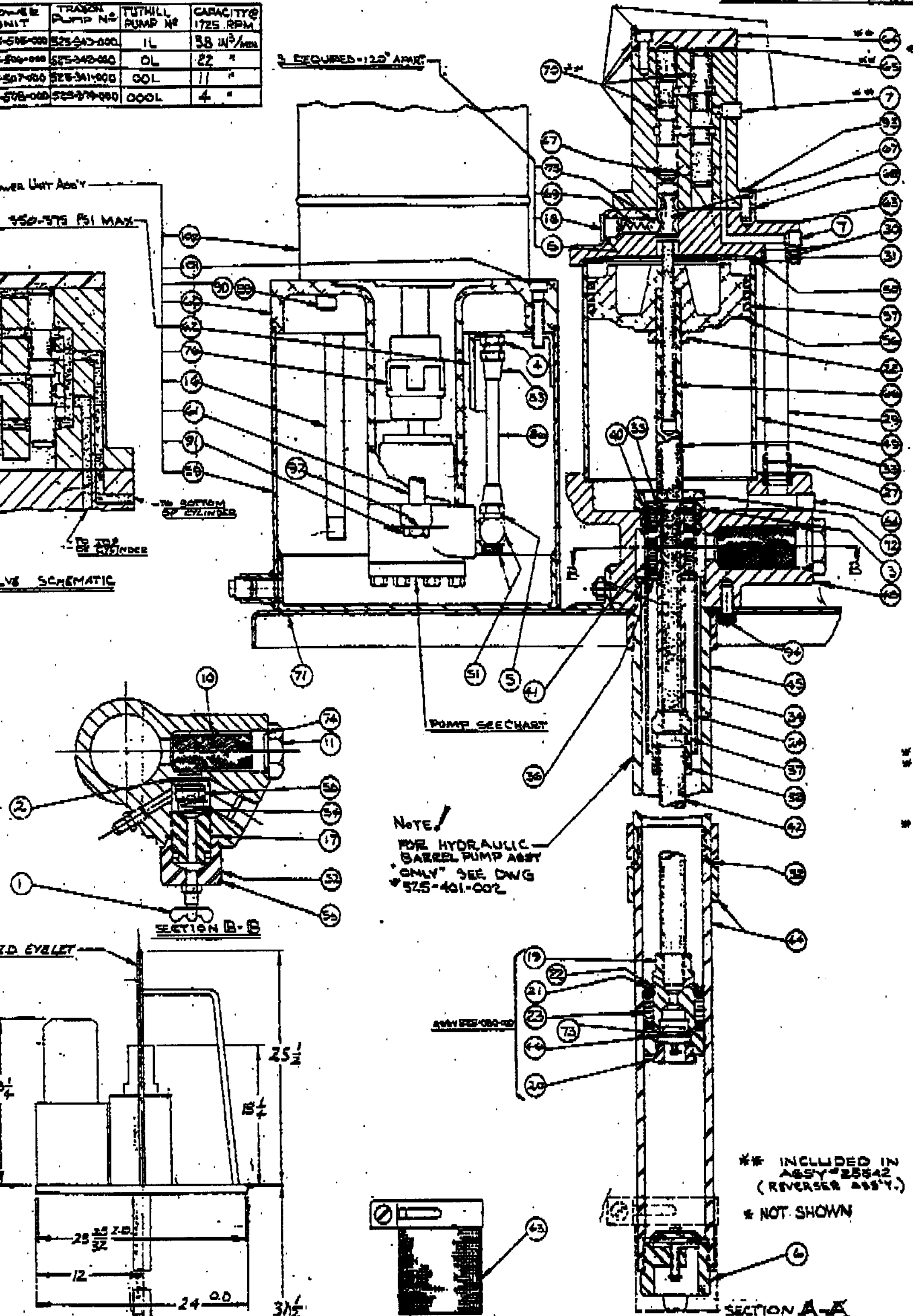
TROUBLE	CAUSE	REMEDY
(10) Pump will not prime	Usually occurs on low volume pump with heavy lubricant, while servicing lower pumping tube when all parts are dry	(a) remove foot valve screen, & foot valve (b) pack grease tube well with grease (c) replace foot valve, and screen (d) replace pumping unit into grease drum
(11) Pump will not prime	Air pocket trapped between upper pumping piston and pump line check valve	Open air cock at base of the hydraulic unit (air will be expelled quickly since no resistance is applied on the line check valve.)
(12) Pump operates with jerks	Hydraulic oil in sump of power unit is low	Fill with turbine type hydraulic oil between the viscosity 200 to 250 at 100°F. to the level indidated on the sump.
(13) Pump motor hums but will not start	motor incorrectly wired	Check wiring diagram in the inside inspection plate on motor
(14) Pump operates at low pressure	(a) Oil viscosity incorrect (b) Oil level low	Fill power unit pump to the required oil level with the recommended oil type specified on Page 1.
(15) Pump operates at low pressure	(a) Broken grease line (b) excessive oil leakage	Inspect for open circuit breaks and all leaks that are visable, make necessary corrections
(16) Pump operates at low pressure	Pressure switch out of adjustment, reason, pressure switch trips out prematurely	Readjust to proper setting follow instructions provided in this manual (2500 lb. minimum)
(17) Pump operates at low pressure	(a) pump check valve held open (b) foot valve held open	Repair or replace either foot valve or piston check
(18) Pump operates at high pressure	Plugged system or bearings	Find defective: (a) feeder (b) Plugged line (c) mashed line (d) tight bearing Correct and test.
(19) Pump operates at high pressure	Heavy grease	Replace with pumpable grease
(20) Hydraulic fluid continuously overflows at the power unit sump.	(Unusual condition) defective guide tube in the hydraulic unit. This condition is generally caused by contaminated lubricant, particles of dirt, wire draw, the guide tube, and damage to the "V" ring packing.	Advisable to ship to factory for overhaul.

NOTES:


MODEL NO.
H-411
H-410
H-420
H-430
OPERATING PRE
INLET
EXHAUST
REVERSING
CONDUIT BOX OR OPENING
NOTE: Torque TIE ROD NUTS TO 25 FT. LBS
HYD. POWER UNIT ASSY
OIL LEVEL
½" NPTF LUBRICANT OUTLET
SIMILAR DWG 525-401-002

POWER UNIT	TRABON PUMP Nº	TUTHILL PUMP Nº	CAPACITY @ 1725 RPM
[illegible]-506-000	525-343-000	1L	38 IN³/MIN
[illegible]-509-000	525-340-000	OL	22 "
[illegible]-507-000	525-341-000	OOL	11 "
[illegible]-508-000	525-379-000	OOOL	4 "

* 107	1	DECAL WARNING	504-[illegible]
* 108	1	DECAL "TRABON"	504-[illegible]
109	2	NUT 3/8-16	410-[illegible]



BILL OF MATERIAL

ITEM	REQ.	PART NAME	PART NO.
1	1	AIR COCK	[illegible]
2	1	GASKET	[illegible]
3	1	GASKET	[illegible]
4	1	CONNECTOR-MALE	[illegible]
5	1	ELBOW-MALE	[illegible]
6	1	FOOT VALVE ASS'Y	[illegible]
7	4	PLUG-1/8 PIPE SOC. HD.	[illegible]
8	3	GASKET	[illegible]
9	1	PRESSURE GAUGE	[illegible]
10	1	STRAINER SCREEN	[illegible]
11	1	[illegible]	[illegible]
12	1	STREET ELBOW	[illegible]
13	1	FEMALE [illegible]	[illegible]
14	1	[illegible] TEE	[illegible]
15	1	PIPE NIPPLE	[illegible]
16	1	NIPPLE	[illegible]
17	1	GASKET	[illegible]
18	3	ENCLOSURE PLUG	[illegible]
19	1	GREASE PISTON BODY	[illegible]
20	1	ENCLOSURE PLUG	[illegible]
21	1	PACKING RETAINING WASHER	[illegible]
22	1	SNAP RING [illegible]	[illegible]
23	1	PACKING	[illegible]
24	1	GUIDE TUBE ASS'Y	[illegible]
25	1	LIFTING BAIL	[illegible]
26	6	TIE RODS	[illegible]
27	1	PACKING NUT	[illegible]
28	1	LOCKNUT	[illegible]
29	1	TUBE	[illegible]
30	4	TUBE-PACKING	[illegible]
31	1	WASHER	[illegible]
32	2	GASKET	[illegible]
33	1	CONNECTING-ROD	[illegible]
34	1	CONNECTING ROD SPACER	[illegible]
35	[illegible]	PACKING [illegible]	[illegible]
36	[illegible]	PACKING - SPACER	[illegible]
37	1	COUPLING BODY	[illegible]
38	1	COUPLING [illegible]	[illegible]
39	1	PLATE, ROTATION ARROW	[illegible]
40	1	VEE PACKING ASS'Y	[illegible]
41	1	VEE PACKING ASS'Y	[illegible]
42	1	PISTON ROD	[illegible]
43	1	FOOT VALVE SCREEN ASS'Y	[illegible]
44	1	GREASE CYLINDER ASS'Y	[illegible]
45	1	TUBE ASSEMBLY	[illegible]
46	1	GASKET	[illegible]
47	2	SPRING CLIP	[illegible]
48	1	CYLINDER CASTING	[illegible]
49	1	TUBE	[illegible]
50	1	CYLINDER ASS'Y	[illegible]
51	1	SUCTION FITTING ASS'Y	[illegible]
52	1	VALVE RETAINER	[illegible]
53	1	CHECK VALVE CAP	[illegible]
54	1	CHECK VALVE SPRING	[illegible]
55	1	PRESSURE SWITCH ASS'Y	[illegible]
56	1	HYDRAULIC PISTON	[illegible]
57	3	PISTON RINGS	[illegible]
58	1	CHECK VALVE ASS'Y	[illegible]
59	1	HYDRAULIC PUMP	[illegible]
60	1	ADAPTER CASTING	[illegible]
61	2	STUD	[illegible]
62	1	RELIEF VALVE ASS'Y	[illegible]
63	1	CYLINDER [illegible] CASTING	[illegible]
** 64	1	REVERSER BODY COVER	[illegible]
** 65	1	VALVE BODY - TOP	[illegible]
66	1	CONNECTING ROD	[illegible]
67	1	PILOT PISTON	[illegible]
68	1	VALVE BODY GASKET-[illegible]	[illegible]
69	3	SPRING, [illegible] VALVE	[illegible]
** 70	1	[illegible] BODY & PISTON	[illegible]
71	1	DRUM COVER ASS'Y	[illegible]
72	1	GASKET	[illegible]
73	1	CHECK VALVE	[illegible]
74	1	O-RING	[illegible]
75	3	BALL - [illegible] DIA.	[illegible]
76	1	COUPLING	[illegible]
77	2	TUBE NUT	[illegible]
78	1	MALE ELBOW	[illegible]
79	1	MALE CONNECTOR	[illegible]
80	1	MALE ELBOW	[illegible]
81	1	MALE CONNECTOR	[illegible]
82	1	HOSE ASS'Y 20V4	[illegible]
83	2	TUBE NUT	[illegible]
84	1	PIPE PLUG 1/4	[illegible]
85	1 FT	1/4 STEEL TUBING	[illegible]
86	1 FT	3/8 COPPER TUBING	[illegible]
87	1	HOSE ASS'Y 18V4	[illegible]
88	1	3/8 - 16 NUT	[illegible]
89	14	3/8 LOCK WASHER	[illegible]
90	4	3/8 [illegible] HD SCR	[illegible]
91	2	7/16 - [illegible] NUT	[illegible]
92	2	7/16 - LOCKWASHER	[illegible]
93	7	[illegible] SOC. HD. SCR	[illegible]
94	1	[illegible] LG. SOC. HD. SCR.	[illegible]
95	2	[illegible] LG HEX. HD. SCR	[illegible]
96	1	PIPE-PLUG	[illegible]
97	1	DRAIN PLUG	[illegible]
98	4	1/4-20 x 3/4 LG. HEX HD. SCR	[illegible]
99	6	1/4-20 NUT	[illegible]
100	6	1/4 LOCK WASHER	[illegible]
101	3	5/16-18 x 1 1/2 LG. SOC. HD. SCR.	[illegible]
102	1	1/2 H.P. FRAME [illegible] MOTOR	[illegible]
103	5	NUT - HEX. 5/16 - 18	[illegible]
104	1	[illegible]	[illegible]
105	1	OIL LEVEL SIGHT [illegible]	[illegible]
106	5	WASHER-LOCK [illegible]	[illegible]

TRABON ENGINEERING CORP.
28815 AURORA RD.
CLEVELAND OHIO 44139

NAME: HYDRAULIC BARREL PUMP

A	4-5-73	[illegible]

D-145-000-010