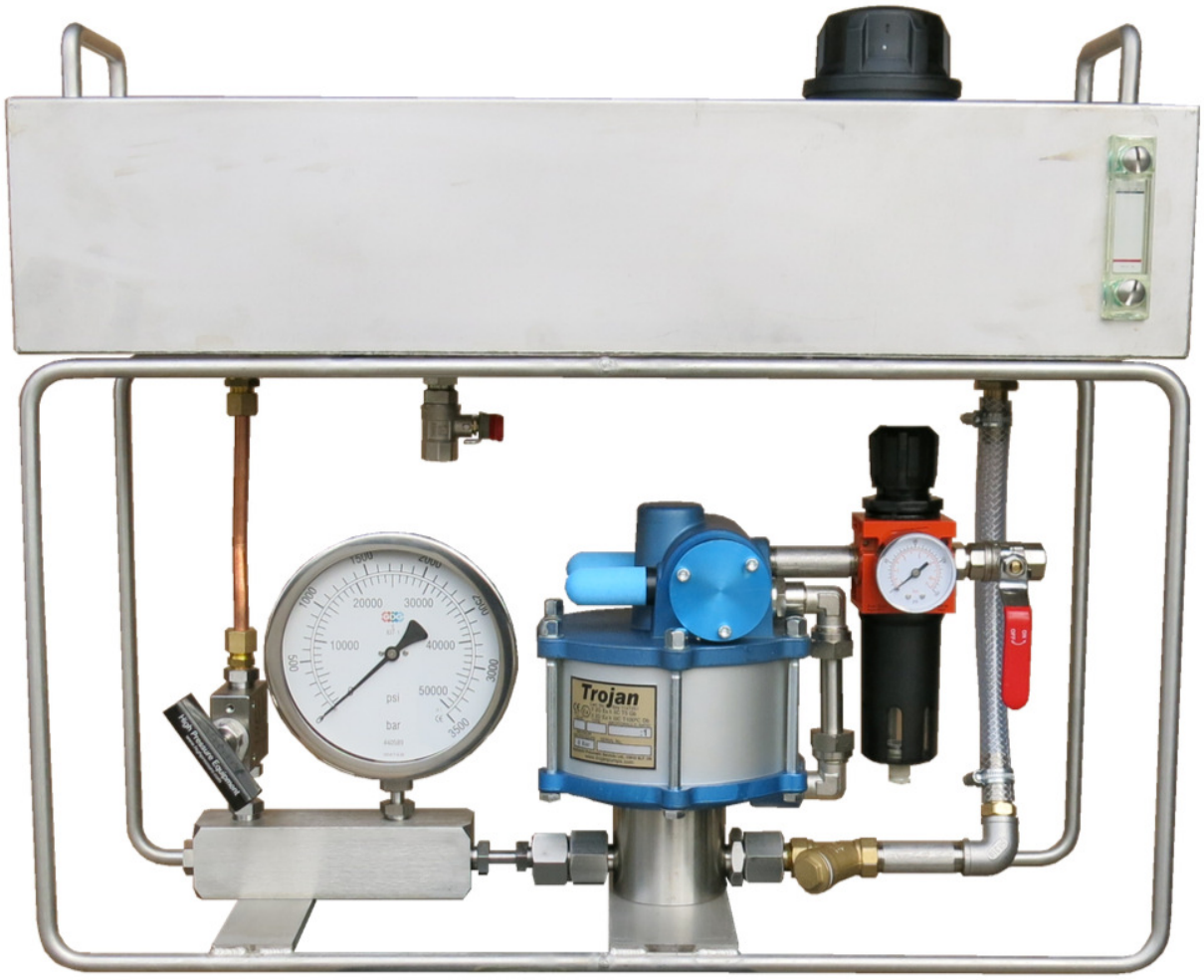
Hydraulic Pneumatic Services Ltd

Trojan Type 'M'
Portable Power Pack
Operating and Maintenance Instructions



(Shown with optional Reservoir & Carrying Handles)

ATEX II 2G Ex h IIC T5 Gb
II 2D Ex h IIIC T 100°C Db

TROJAN Type 'M' PORTABLE POWER PACK OPERATING INSTRUCTIONS

Pressure Equipment Directive 2014/68/EU Categories:-

Ratios 4.4:1 to 53:1	SEP
Ratios 79:1 & 114:1	SEP (Group 2 liquids only)
Ratios 159:1 to 400:1	Category I (Group 2 liquids only)

PLEASE NOTE: - These instructions are intended as a guide to operating the power pack, it is assumed the operator is familiar with the safe and correct procedure for performing pressure testing.

1/ Ensure there is a supply of hydraulic fluid to the pump, either from the reservoir if fitted, or if not, directly to the inlet strainer.

2/ Turn the knob of the air pressure regulating valve anti-clockwise until it is free and connect a supply of compressed air not exceeding 8 bar to the inlet of the air pressure regulator. If using dried air a lubricator must be used.

3/ Using suitable high-pressure pipework and fittings connect the test equipment to the high-pressure outlet of the manifold block.

4/ Open the high-pressure release valve by turning the handle anti-clockwise.

5/ Check the air on/off ball valve is open; when open the handle is in line with the flow of air.

6/ Slowly turn the knob of the air pressure regulator clockwise until the pump starts to operate.

7/ Fluid should soon be pumped out of the high-pressure release valve, allow this to continue for a short time to purge the pump of air.
Do not allow the pump to run for long periods with no liquid passing through it as this will cause the main seal to overheat and fail.

8/ Turn off the air ball valve and close the high-pressure release valve.

9/ If the air ball valve is now opened the pump will start to operate and soon the hydraulic pressure gauge should show a rise in pressure, this pressure will increase up to a set figure which will be approximately the applied air pressure multiplied by the ratio of pump. This pressure can be raised or lowered by altering the air pressure regulator. The air pressure applied to the pump must never exceed 8 bar.

10/ After the test is complete the hydraulic pressure can be released by slowly opening the high-pressure release.

MAINTENANCE:-
If water gathers in the air filter/regulator pressing the button at the bottom of the filter bowl will expel it.

Occasionally the liquid inlet strainer should be removed by unscrewing the large nut and the element cleaned.

SERVICING:-

All packings are lubricated when assembled and should not require further lubrication. If the air is filtered and dry, a lubricator should be fitted and kept filled. Indication of dry cylinder O' rings is jerky travel or shuddering of the air piston.

To Change the Hydraulic Seal and Air Piston O' Ring.

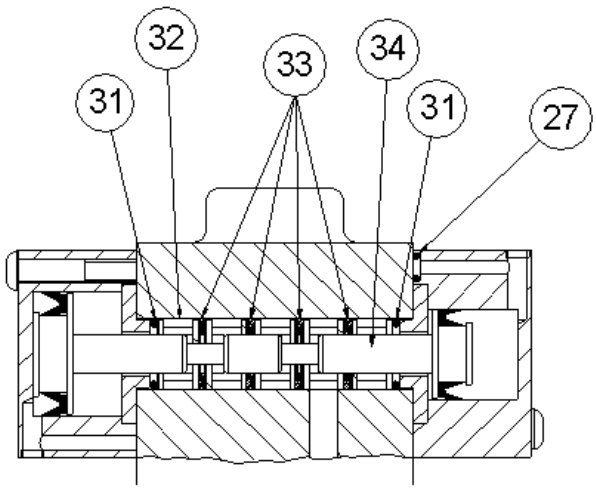
a) Disconnect the air supply from the pump!

b) Unscrew the retaining nuts on the two air elbows (item 7), remove the four retaining bolts (item 40). The two halves of the pump can now be pulled apart. Remove the air cylinder (item 8) by sliding it off the air piston (item 6) and pull the piston assembly along with the hydraulic ram (item 47) out of the pump. On ratios 1:38 and lower the main hydraulic seal is held on the end of the ram by a screw (item 51) and washer. Higher ratios use a retaining-ring (item 45) with two peg spanner holes to retain the seal in the hydraulic cylinder. This should be unscrewed using a suitable Pin Type Face Spanner During re-assemble all sliding surfaces should be lubricated with a general purpose grease.

Servicing the air change over valve.

a) Disconnect the air supply from the pump!

b) Separate the two halves of the pump as described above. Remove the pilot bush retaining circlip (item 4) and carefully pull the bush from the housing. The main air valve is dismantled by removing the end caps (items 20 & 29) and sliding the internal seals etc. out. The end caps will retain the pistons which should also be pulled out and examined. Make careful note as to the order in which the various components are fitted. The two end caps are designed in such a way that it is impossible to fit them incorrectly. The return end cap is fitted with a small O' Ring (item 25) to seal the pilot hole, the other end cap has no O' Ring. This is correct and no attempt should be made to seal this hole.



AIR CHANGE OVER VALVE

To Service the Non-Return (check) Valves.

a) Disconnect the air supply from the pump!

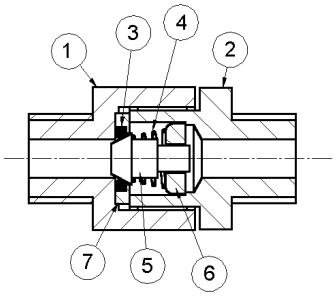
b) Unscrew the Non-Return Valves (items 43) from the pump. Grip the wider part of the Valve, the Seat (item 1) in a sturdy vice using soft jaws to protect the valve from damage. Using a large spanner unscrew the Valve Body (item 2) and separate the two halves of the Valve.

During reassembly place the Body of the Valve (item 2) with the open end upwards in a vice. Insert the Guide (item 6), Spring, (item 4) wide end against the Guide, Poppet (item 5) into position then place the Seal Retainer (item 7) fitted with a new O' Ring on top of the Poppet, be sure this is the correct way round. (Note:- Ratios 256:1 & 400:1 have the Seal Ring (item 3) placed directly into the Seat of the Valve (item 1).

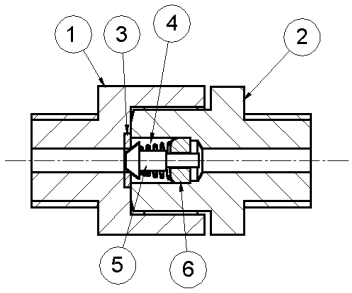
Apply anti-seize grease to the threads and carefully lower the Seat (item 1) into position and screw the two parts together.

Grip the Valve in a vice as before and tighten fully.
1" & 3/4" BSP 440 Nm, 1/2" BSP ratios 4.4:1 to 159:1 237 Nm,
Ratio 256:1 339 Nm, ratio 400:1 372 Nm.

Before refitting the Non-Return Valves to the ratio 4.4:1 and 165:1 pumps it is necessary to seat the poppets onto the seats. A suitable rod is inserted through the Body (item 2) and pushed firmly against the end of the poppet forcing it onto the Seal.



NON RETURN VALVE
FITTED TO RATIOS 1:4.4 - 1:159



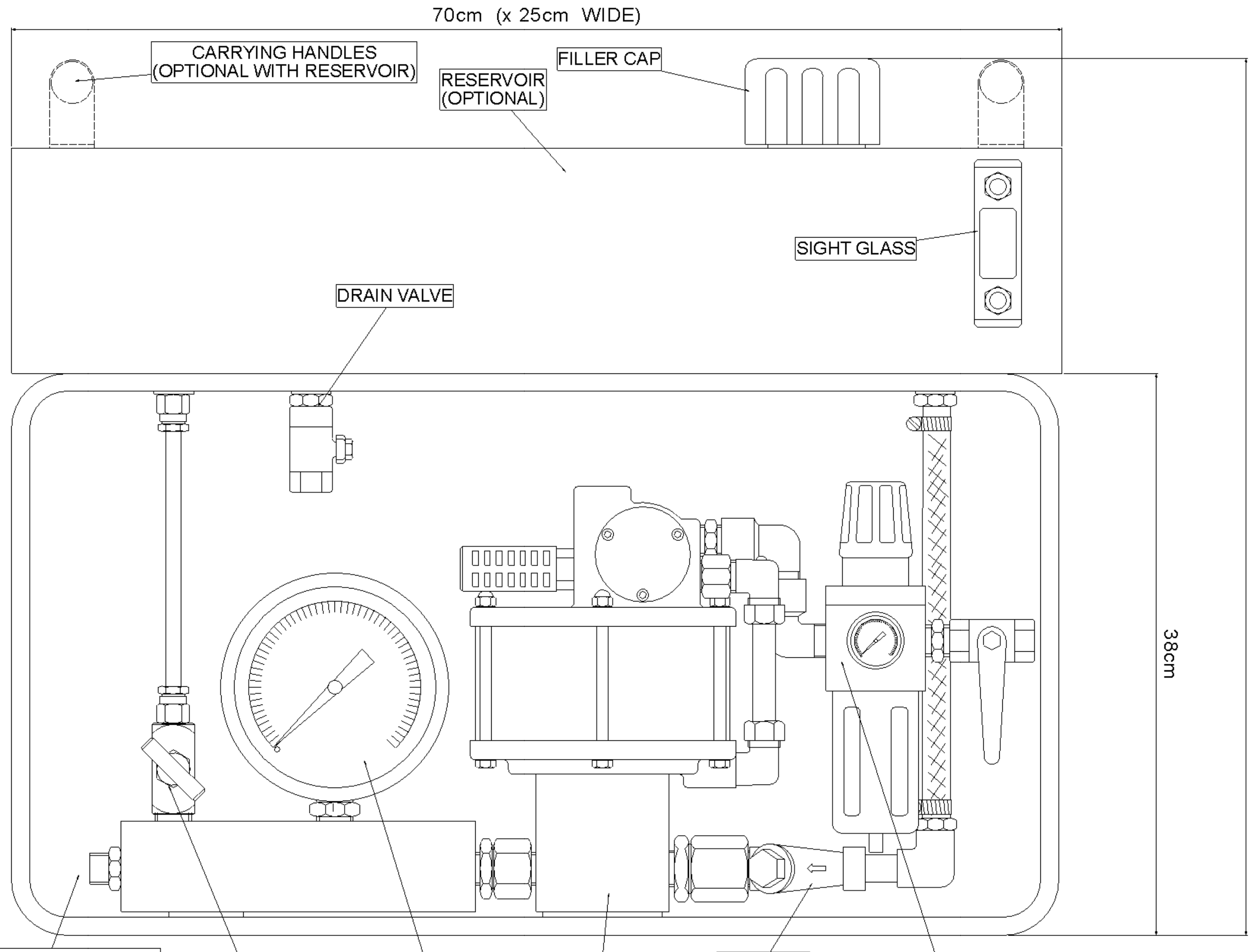
NON RETURN VALVE
FITTED TO RATIO 1:256 & 1:400
(Outlet is slightly different externally)

Important

a) Ensure air and L. P. hydraulic supply lines are adequately filtered.
b) KEEP PUMP CLEAN.
c) When ordering spares quote the item number and description from the assembly drawing and state the ratio and serial number of the pump.

Pumps and spares are all available from:-

Hydraulic Pneumatic Services Ltd, Unit 17, King Street Trading Estate
Middlewich, Cheshire UK
CW10 9LF Tel: +44 (0) 1606 835725 www.trojanpumps.com



RATIO	OUTLET CONNECTION
4.4:1 - 13.8:1	3/4" BSP MALE
17.6:1 - 159:1	1/2" BSP MALE
256:1 - 400:1	3/8" HIGH PRESSURE (3/4" UNF FEMALE - HF6)

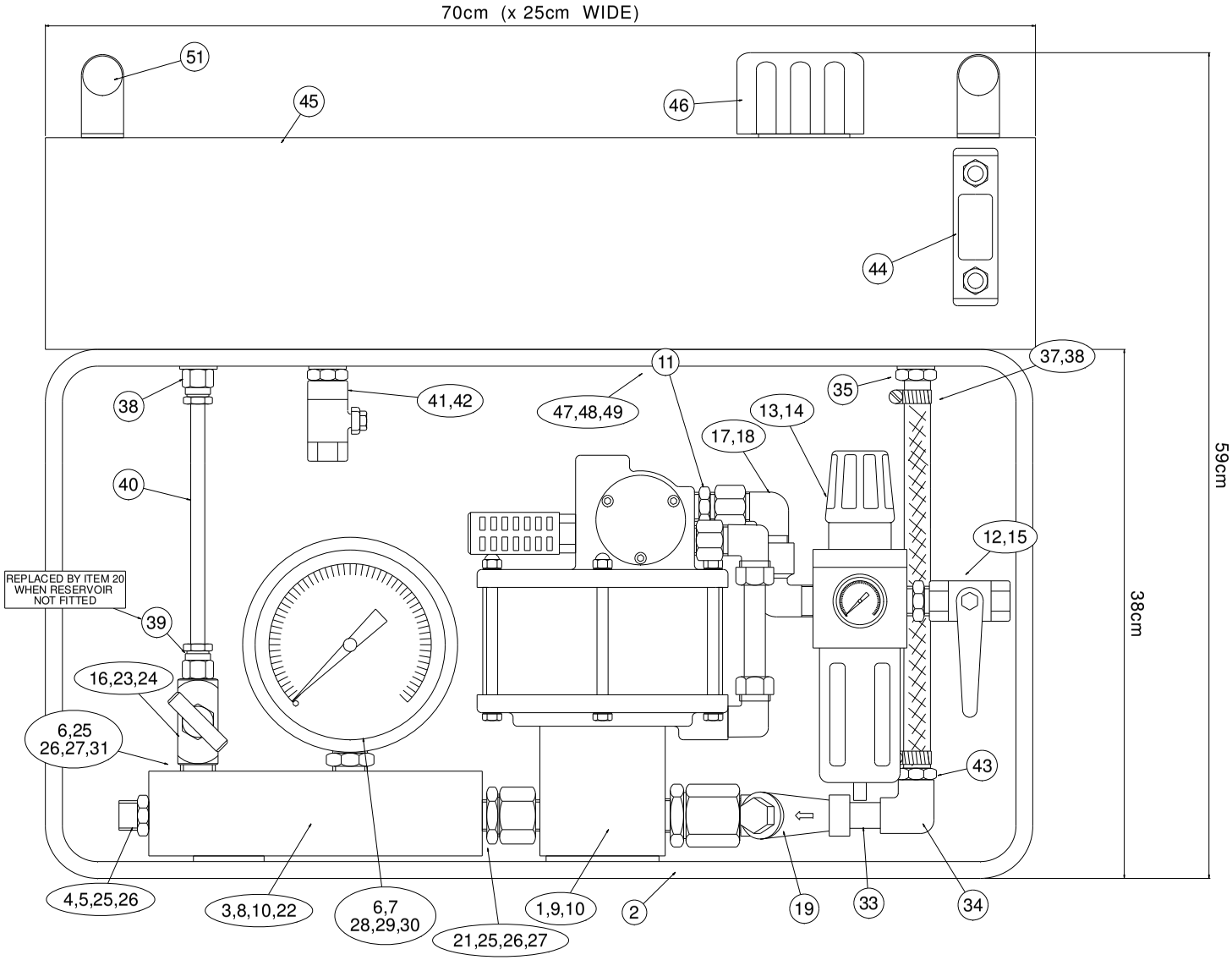
APPROXIMATE WEIGHT STANDARD = 25kg
APPROXIMATE DRY WEIGHT WITH RESERVOIR = 35kg

DRAWN: JAC
DATE: 24-11-06
FIRST ANGLE PROJECTION
SCALE = 1:1 WHEN PRINTED A0

TITLE: TROJAN Type 'M' / MARK 7 PORTABLE POWERPACK (LAYOUT)

DRG. No. 10131

ITEMS MARKED ∗ ON THE PARTS LIST ARE OPTIONAL AND ONLY FITTED WHEN THE EQUIPMENT IS SUPPLIED WITH A RESERVOIR



∗51	HANDLE (OPTIONAL)	
∗50	NAMEPLATE	
∗49	WASHER	
∗48	BOLT	
∗47	NUT	
∗46	FILLER CAP	
∗45	RESERVOIR	
∗44	SIGHT GLASS	
∗43	HOSE BARB	
∗42	DRAIN VALVE	
∗41	ADAPTOR	
∗40	COPPER PIPE	
∗39	CONNECTOR	
∗38	TANK CONNECTOR	
∗37	HOSE CLIP	
∗36	HOSE	
∗35	HOSE BARB	
∗34	ELBOW	
∗33	ADAPTOR	
32		
31	ADAPTOR	
30	NIPPLE	
29	COLLAR	
28	NUT	
27	NIPPLE	
26	COLLAR	
25	NUT	
24	SEALING WASHER	
23	BUSH	
22	SPACER	
21	SEALING WASHER	
20	ELBOW (only without reservoir)	
19	STRAINER	
18	ELBOW MxM	
17	ELBOW MxF	
16	RELEASE VALVE	
15	BALL VALVE	
14	AIR GAUGE	
13	AIR FILTER/REGULATOR	
12	ADAPTOR	
11	EXTENSION	
10	WASHER	
9	BOLT	
8	BOLT	
7	HYDRAULIC GAUGE	
6	SEALING WASHER	
5	SEALING WASHER	
4	OUTLET CONNECTOR	
3	MANIFOLD	
2	FRAME	
1	PUMP	
ITEM	DESCRIPTION	

Hydraulic Pneumatic Services Ltd
Unit 17, King Street Trading Estate
Middlewich, Cheshire, CW10 9LF
Telephone: 01606835725
Fax: 01606 737358

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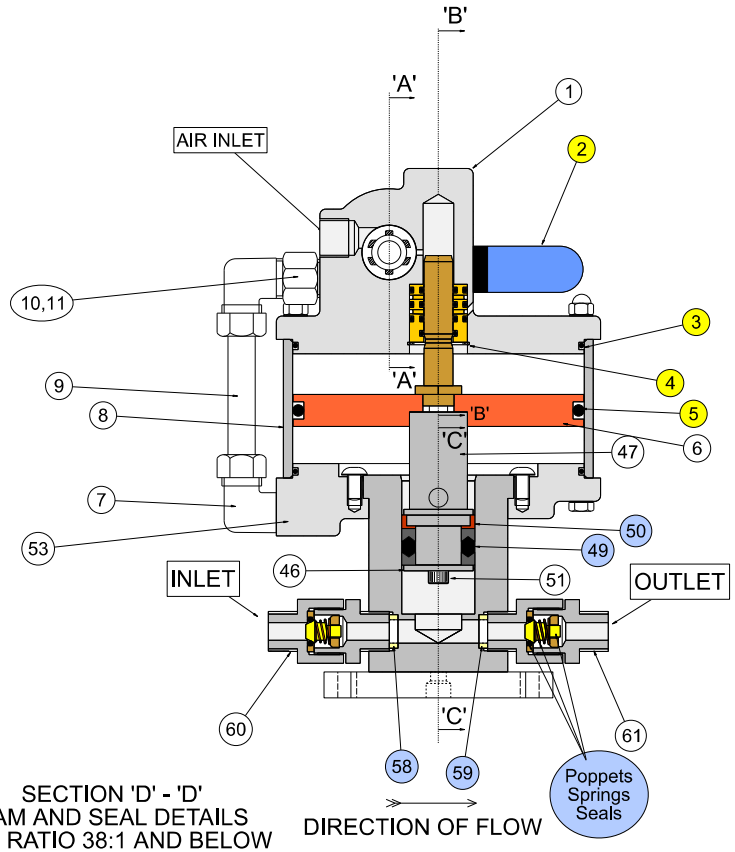
DATE: 24-11-06
FIRST ANGLE PROJECTION
SCALE = 1:1 WHEN PRINTED A0

TITLE: TROJAN Type 'M' PORTABLE POWERPACK

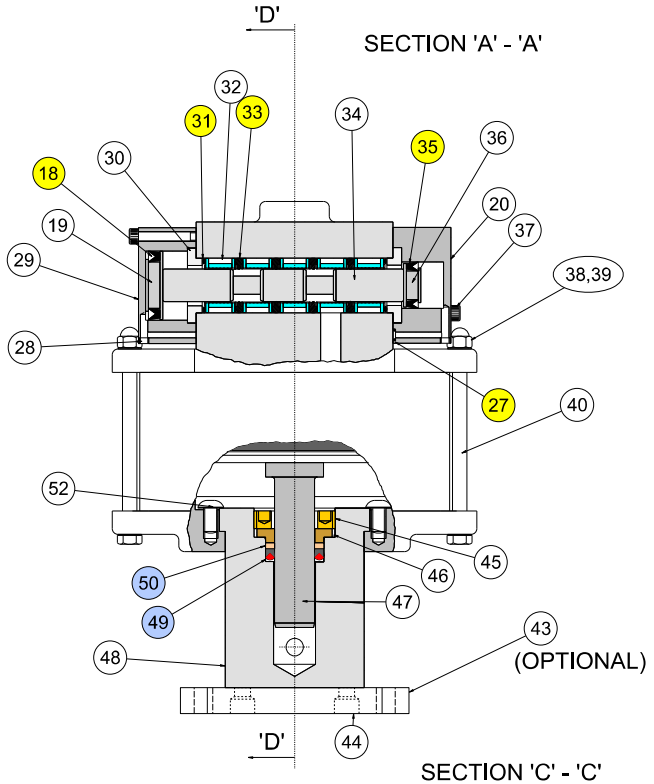
DRG. No. 10131

Items highlighted in YELLOW are included in the Pneumatic Service Kit 10098KPS.
Items highlighted in BLUE, along with the Poppets Seals and Springs from the Check Valves are included in the Hydraulic Service Kit 10098KH/(Ratio).

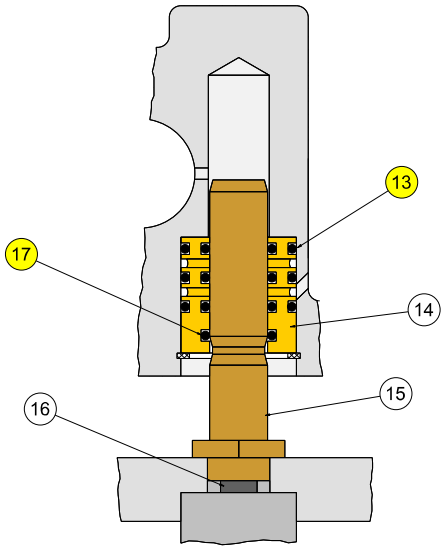


SECTION 'D' - 'D'
RAM AND SEAL DETAILS
FOR RATIO 38:1 AND BELOW

DIRECTION OF FLOW



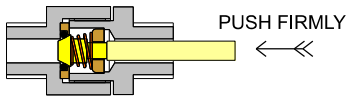
SECTION 'C' - 'C'
RAM AND SEAL DETAILS
FOR RATIO 53:1 AND ABOVE



SECTION 'B' - 'B'
PILOT VALVE ASSEMBLY

IMPORTANT

Before refitting the Non-Return Valves to the pump you need to seat the poppets onto the seals.
A suitably sized rod. is inserted through the Body and pushed firmly against the end of the poppet forcing it onto the Seal.



ITEM	DESCRIPTION	QTY.
66		
65		
64		
63		
62		
61	OUTLET N.R.VALVE	1
60	INLET N.R. VALVE	1
59	OUTLET PORT WASHER	1
58	INLET PORT WASHER	1
57		
56		
55		
54		
53	BOTTOM COVER	1
52	SCREW	4
51	SCREW	1
50	ANTI-EXTRUSION RING	1
49	HYDRAULIC SEAL	1
48	HYDRAULIC CYLINDER	1
47	RAM	1
46	BACK UP RING	1
45	LOCK RING	1
44	SCREW (WITH ITEM 43)	2
43	BASE (OPTIONAL)	1
42	RIVET	4
41	LABEL	1
40	BOLT	6
39	WASHER	12
38	DOME NUT	6
37	SCREW	6
36	RETURN PISTON	1
35	U' RING	1
34	MAIN VALVE SPOOL	1
33	SEALING RING	4
32	CAGE	5
31	O' RING	2
30	LOCATING DISC	2
29	END CAP, SIGNAL	1
28	PLUG	2
27	O' RING	1
26		
25		
24		
23		
22		
21		
20	END CAP, RETURN	1
19	SIGNAL PISTON	1
18	U' RING	1
17	O' RING	4
16	CONNECTING STUD	1
15	PILOT SHAFT	1
14	BUSH	1
13	O' RING	3
12		
11	WASHER	1
10	ADAPTOR	1
9	AIR PIPE	1
8	AIR CYLINDER	1
7	ELBOW	2
6	PISTON	1
5	O' RING	1
4	CIRLCLIP	1
3	O' RING	2
2	SILENCER	2
1	TOP COVER/VALVE BODY	1

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Hydraulic Pneumatic Services Ltd
Unit 17, King Street Trading Estate
Middlewich, Cheshire, CW10 9LF (UK)
Telephone: +44 (0)1606 835725
Web: www.trojanpumps.com.

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DATE: 17-4-2001
FIRST ANGLE PROJECTION
SCALE = 1:1 WHEN PRINTED A0

TITLE:

The **Trojan** Type 'M'

DRG. No. 10098/2