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P8 MAXI-LUBE

AIR OPERATED GREASE PUMP

INSTRUCTION MANUAL

INTRODUCTION

Thank you for purchasing a P8 Maxi-Lube Air Operated High Pressure Grease Pump. The P8 Maxi-Lube is an air operated 50:1 ratio high pressure grease pump for 180kg (400lb) grease drums. The optional P8LF drum cover and follower plate kit (seperate package, not packed with the P8 pump) is required to fit the P8 to your grease drum.

The P8LF follower plate features a rubber edge for effective drum wall wipe down, reducing waste and air pockets, plus a suction relief valve and long handle for easy removal from the bottom of empty grease drums.

A full range of greasing accessories are available to suit your Maxi-Lube, including high pressure grease hoses, hose reels, swivel joints and hand pieces. Consult your local Macnaught reseller for more information.

Please read and retain this instruction manual to assist you in the operation and maintenance of this quality product.

GENERAL INFORMATION

This manual assists you in operating and maintaining your new Maxi-Lube. The information contained will help you ensure many years of dependable performance and trouble free operation.

Please take a few moments to read through this manual before installing and operating your Maxi-Lube. If you experience problems with the product, refer to the Maintenance and Trouble Shooting sections of this manual. If you require any further assistance please contact your local Maxi-Lube distributor.

IMPORTANT INFORMATION

Read this information carefully before use. Your safety is important to us. Please read and follow all operating and safety instructions listed below. Make sure all operators have adequate access to the following instructions.



CAUTION

This is a 50:1 ratio high pressure grease pump. Because of the high pressures developed by this pump, the possibility of fluid injection into the flesh, or eyes, is a potential hazard.



Never allow any part of the human body to come in front of, or in direct contact with a material outlet. Never point the nozzle of the gun at yourself or anyone else.

Most injections occur because of component rupture. Never exceed the pressure rating of any component in the system. Remember, fluid pressure generated is fifty times the air inlet pressure.

Weak, worn or damaged hoses are also a hazard. Before operation check hoses for signs of wear, leaks or loose fittings. Tighten all fluid connections regularly and replace weak or damaged hose. Your personal safety and well being are at stake.

If accidental injection should occur, seek immediate emergency medical attention.

Do not use air pressure greater than 1035kPa /150psi / 10.3bar.

Do not hit the unit if it fails to operate. Refer to the 'Trouble Shooting Guide' or return the unit to your nearest Authorised Macnaught service centre.



CAUTION

Before attempting any maintenance or repairs of this product, disconnect air supply then squeeze gun trigger to release pressure.

Should more than one hose reel (grease outlet) be fitted to the system, we recommend the use of high pressure on/off valves to isolate each reel (outlet) to facilitate maintenance.

ASSEMBLY

Your P8 Pump Unit and P8LF Drum Cover / Follower plate are supplied in separate cartons. You will need the P8LF to fit the P8 Pump to your grease drum, and a PF8 high pressure feeder hose if connecting the pump to pipework.

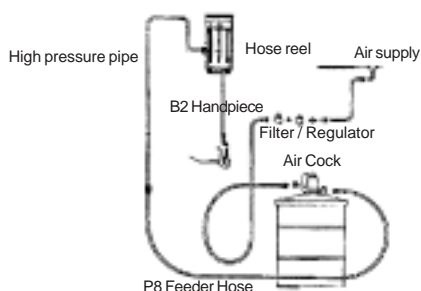
Typically, the P8 pump will be connected to a system comprising of high pressure pipework and hose reels fitted with swivel joints / handpieces (see Fig 1), however, fitting a high pressure grease hose plus swivel /handpiece directly to the pump will suffice in some applications.

If pipework is required, use 10mm (3/8") I/D. or 1/2" I/D high pressure pipe with a working pressure of at least 42 MPa (6000psi). All the system components including hose reels, swivel joints and hand pieces must all be capable of with standing the high pressures generated by the pump.

When all pipework and other system components are in place:

- 1) Position the grease drum adjacent to the air supply and grease line pipework. Remove the grease drum lid.
- 2) Remove the protective packaging from the pump, lid and follower.
- 3) Position the follower centrally in the grease drum and hook the follower handle chain over the edge of the drum.
- 4) Place the lid on the drum. The weight of the pump will hold the lid on the drum, there is no need to secure the lid on to the drum.
- 5) Insert the suction tube of the pump through the hole in the lid and follower. The pump is not connected to the lid to allow easy change over when the drum is empty.
- 6) Attach the fixed end of the PF8 2.5m high pressure feeder hose to the pump outlet, then the swivelling end of the hose to your pipework or manifold. Use thread tape on all male threads and tighten firmly. The feeder hose must be long enough to allow the pump to be removed from the drum without disconnecting it.
- 7) Before connecting the air supply, the user should add a 'stop' compressed air cock to the swivel type brass air inlet on the pump. There is a wire mesh strainer located in the brass air inlet. It is recommended that a micro-fine (5 micron) inline air filter be fitted to ensure the maximum efficiency of this pump.

Typical Greasing System



(Fig 1)

Note: The air cock must be a 1/4 turn type (allowing quick closure) and should be located close to the body of the pump and easily recognised.

- 8) Fully depress the reset button (located under the valve body, see Fig 2) then turn on the air supply.
- 9) Open the air bleeder valve at the pump outlet. Close the valve when grease appears.
- 10) The pump will stall when the system is full of grease. You will need to purge air in the system at initial start up.

OPERATION

CAUTION

All safety precautions and warnings must be followed when using this product.

- 1) Before connecting the air supply check that all fittings have been tightly fastened and all hoses are checked for wear or damage.
- 2) Fully depress the reset button (Fig 2). Add an air cock and recommended air filter (as described in item '7' in the assembly section) then connect the air supply.

Note: The optimum air pressure range is 550 to 700kPa (80 - 100psi / 5.5 - 7.0 bar).

- 3) When air is connected to the pump and is turned on, the air motor will start operating, this will allow grease pressure to build, which pushes grease through the pump and hose to the grease gun until 'stall' pressure is reached, at this pressure the pump will stop (stall).

For grease delivery press the trigger on the booster gun. To stop grease delivery release the trigger on the grease gun. When the trigger is released the grease flow will stop and the pump will again build to 'stall' pressure and stop.

- 4) When the grease drum is empty, turn off the air supply and disconnect the air line from the pump.
- 5) Withdraw the pump and place on a clean surface, remove the lid.
- 6) Use the chain to reach the follower handle, it automatically opens the suction release valve which allows for easy withdrawal of the follower.
- 7) Remove the lid from the new grease drum. Place the follower centrally in the new drum, then fit the lid and pump unit.

Note: Any dents in the grease drum can obstruct the follower plate. Use a rubber mallet to remove the dents so as the follower can move down the drum.

- 8) Connect the air supply. open the bleeder valve to assist priming. Close valve when grease appears.

Note: Disconnect the air supply then release the grease line pressure at the end of each working day.

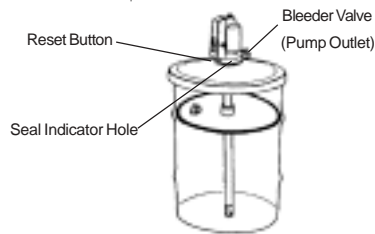
MAINTENANCE



CAUTION

Before attempting any maintenance or repairs of this product, disconnect air supply then squeeze gun trigger to release pressure.

- 1) Keep your pump, high pressure grease hose and air-line clean.
- 2) Inspect your pump, high pressure hose and air-line weekly for any signs of deterioration or damage. ie: hose separation, hose distortion etc. (Replace any suspect or damaged components as required).
- 3) Every 2 weeks or sooner if the pump is used every day apply a few drops of light oil, (Sewing machine oil is ideal), to the air inlet of the pump.
- 4) Check the top seal condition hole (Fig 2). A small quantity of grease indicates seal lubrication is OK. A continuous 'worm' of grease indicates a worn seal. (Replace if required).



(Fig 2)

PUMP DISASSEMBLY

The following procedure should be followed for pump disassembly to carry out routine maintenance. Refer to the exploded parts diagram and listing on the following pages.

- 1) Disconnect the air supply and release the grease pressure by squeezing the B2 booster gun trigger.
- 2) Remove the high pressure feeder hose from the pump unit.
- 3) Withdraw the pump from the grease drum. Use a clean bench to carry out maintenance.
- 4) Remove 4 screws (22) holding cylinder (7) to the base (21). Lever the cylinder off the base. There's a slot in the base near the valve body (31).
- 5) Remove cover screw (6) and valve body cover (32).
- 6) Remove 6 screws (34) holding valve body (31) to cylinder (7). Pull off the valve body assembly and valve gasket (29).
- 7) Pull out 2 brass pins (33) from valve body. Lever out plugs (30) and (37).
- 8) Gently push spool (35) out of valve body. Be careful when removing "o" rings (3) and (14).
- 9) Remove top (long) poppet valve assembly (2,4,5) and 'o'rings (1,3).

- 10) Hold the hex section of insert (23) horizontally in a vice. Hold piston rod (13) as close as possible to the piston (11) with multi-grips. Remove nut (8), piston (11), washers (9) and 'o' ring (12).

Note: If the piston rod is damaged, premature wear can occur to piston rod seal (18).

- 11) Remove the strainer tube (54). there are spanner flats on the bottom of this tube.
- 12) Remove the circlip (53), primer (52), valve seat (51) and valve spacer (50).
- 13) Use a pipe wrench or vice grips to remove the tube link (49).

Note: Repair any damage caused to the tube link or high pressure suction tube with a file and emery paper.

- 14) Grip the high pressure suction tube (44), with a pipe wrench, as close as possible to the top. Remove the high pressure suction tube.

Note: There is thread sealant on the insert /suction tube thread.

- 15) Pull out the primer rod (43) / piston rod assembly (13) from the base (21). Use this rod assembly to push the washer (45), seal (46), and high pressure piston cylinder (47) out of the high pressure suction tube (44).

- 16) Remove the gland nut (17), then the bottom (short) poppet valve assembly (27,4,26), including o'ring (1,3), from the cylinder base (21).

- 17) Use the primer / piston rod assembly to push the piston rod seal (18) from the cylinder base (21).

- 18) Knock out the 2 roll pins (39) with a pin punch. Unscrew the primer / piston rod assembly and remove the steel balls (40) and suction spring (42).

- 19) Clean all parts. Replace any damaged or worn parts.

PUMP RE-ASSEMBLY

- 1) Ensure that all parts have correct orientation. If the parts are assembled upside down, the pump will not work. Check the parts diagram for the correct orientation.

Note: Assembly of the pump is a reversal of disassembly procedure.

- 2) Apply thread sealant (loctite or similar) to insert (23) and primer rod (43) threads.

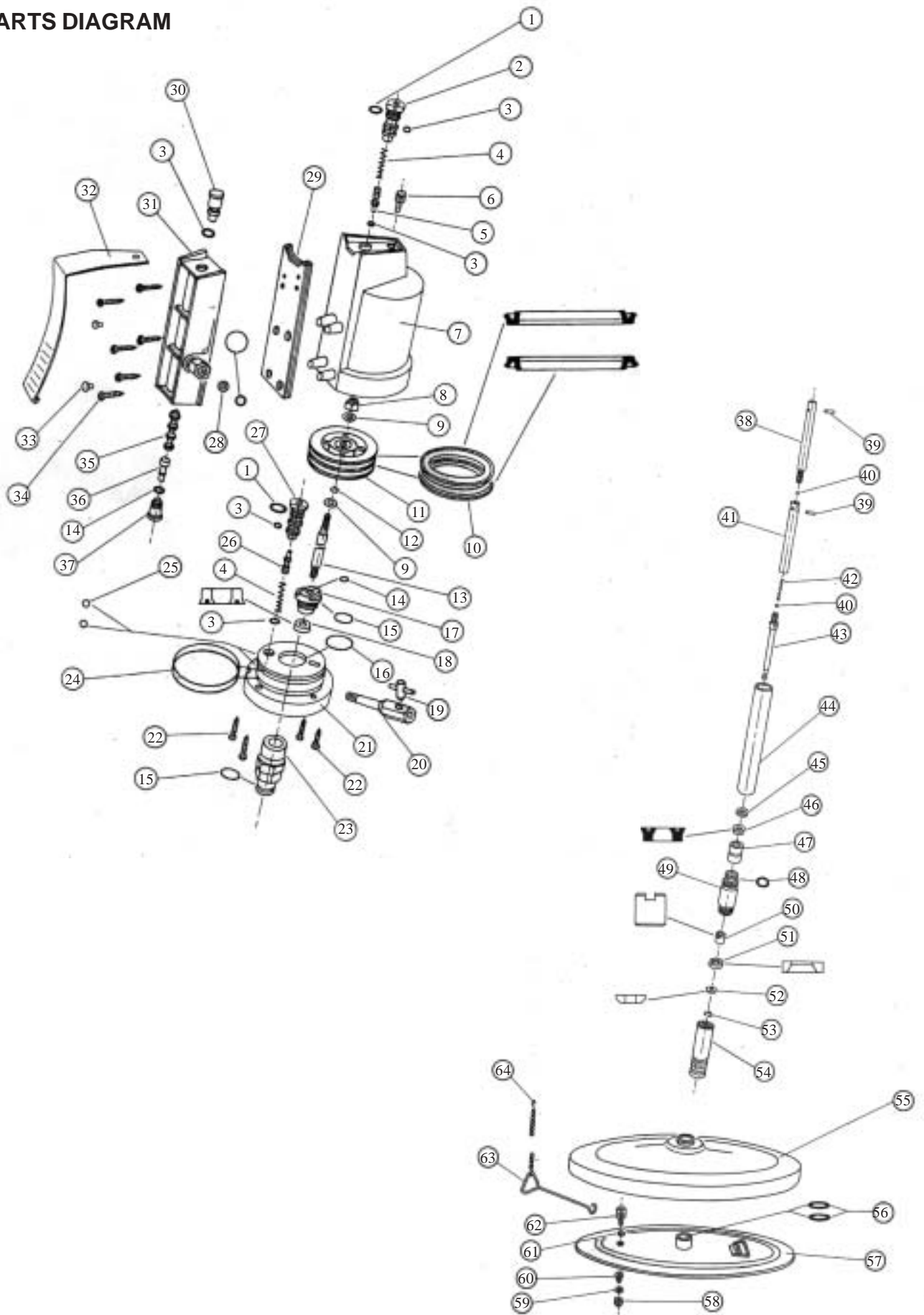
- 3) Fill the strainer tube (54) with grease for initial prime. Hand tighten the suction tube (44), tube link (49) and strainer tube (54). Use the spanner flats on the strainer tube (54) to tighten all three tubes.

- 4) Ensure that all o'rings, particularly in the valve body (31) and the poppet valve (2), (27) areas, sit square.

- 5) Apply Light grease eg. petroleum jelly to the o'rings (24), (25) and piston seals (10) before fitting the cylinder (7) to the cylinder base (21).

- 6) Fit the pump to your grease drum and re-connect the high pressure feeder hose and air supply. Open the air b bleeder valve (19,20) at the pump outlet. Close the valve when grease appears.

PARTS DIAGRAM



PARTS LIST

ORDER FOR REPLACEMENT					
ITEM	PART No.	No.off	PART/SET	KIT. REF	DESCRIPTION
			P3-1K (KIT A)		AIR MOTOR SERVICE KIT
			P3-5K (KIT B) incl 2xBS117		LOWER PUMP KIT
			P3-3K (KIT C)		O'RING KIT
1	BS013	2	PA31s	A & C	O'RING
2	PA31	1		TOP POPPET BODY (LONG)	
3	BS011	6		A & C	O'RING
4	PA8	2		A & C	POPPET SPRING
5	PA45	1		A	POPPET PISTON ASSEMBLY
6	PA21	1	order PA44s		COVER SCREW
7	PA68	1	PA68s		AIR CYLINDER
8	N216	1	PA4s		1/4" UNF NYLOCK NUT
9	N129	2		1/4" WASHER	
10	PA25	2		A	CUP SEAL
11	PA3	1			AIR PISTON
12	BS010	1		A & C	O'RING
13	PA19	1	PA19s		PISTON ROD
14	BS012	2	PA48s	A & C	O'RING
15	PA36	2		A & B & C	O'RING (90 IRHD)
16	BS022	1		A & C	O'RING
17	PA48	1			GLAND NUT
18	PA23	1		PA23s	A
19	PK143	1	PK145s		BLEEDER SCREW
20	PK142	1		BLEEDER BODY	
21	PA46	1	PA46s		CYLINDER BASE
22	N38	4	order PA2s incl 4xN38, 6xN37		HI-LO SCREW
23	PK95	1	PK95s incl 1xPA36		STEEL INSERT
24	BS231	2		A & C	O'RING
25	BS006	2		A & C	O'RING
26	PA32	1	PA33s incl 1xBS013, 1xBS011, PA8	A	POPPET PISTON ASSEMBLY
27	PA33	1		LOWER POPPET BODY (SHORT)	
28	PA65	1	PA65s incl BS011		AIR STRAINER
29	PA38	1	order PA39s	A	VALVE GASKET
30	PA93	1	order PA97s		VALVE PLUG
31	PA39	1	PA39s incl PA38		VALVE BODY
			(For comp assy order PA30s)		
32	PA44	1	PA44s incl PA21		VALVE BODY COVER
33	PA15	2	order PA97s		END PLUG PIN
34	N37	6	order PA2s incl 6xN37, 4xN38		HI-LO SCREW
35	PA34	1	PA34s	A	VALVE SPOOL ASSEMBLY
36	PA95	1	PA97s incl BS012, 1xBS011, 2xPA15, PA93	A	RESET BUTTON ASSEMBLY
37	PA16	1		END PLUG	
38	PK152	1	PK170s		CONNECTING ROD
39	N325	2		B	3/32" X 1/2" ROLL PIN
40	N404	2		B	5/32" STEEL BALL
41	PK73	1	PK73s		H.P. PISTON
42	PK84	1		B	SUCTION SPRING
43	PK167	1	PK167s		PRIMER ROD
44	PK175	1	PK175s		H.P. SUCTION TUBE
45	PK165	1	PK88s	B	SEAL SUPPORT WASHER
46	PK88	1		B	H.P. PISTON SEAL
47	PK166	1		B	H.P. PISTON CYLINDER
48	PA36	1		B & C	O'RING (90 IRHD)
49	PK97	1		PK97s	
50	PK203	1	PK78s		VALVE SPACER
51	PK78	1		VALVE SEAT	
52	PK159	1		B	PRIMER
53	N373	1		B	CIRCLIP
54	PK158	1		PK158s	
55	PK151	1	PK151s		LID ASSEMBLY
56	BS216	2	PK147s PK138s	B & C	O'RING
57	PK135	1		FOLLOWER ASSEMBLY	
58	N216	1		1/4" UNF NYLOCK NUT	
59	N103	1		WASHER	
60	KM57	1		SPRING	
61	BS113	1			O'RING
62	PK148	1			SUCTION RELEASE VALVE
63	PK147	1			FOLLOWER HANDLE
64	PK206	1			HANDLE CHAIN

NOTES:

TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
1) Air motor runs but does not pump grease	<ul style="list-style-type: none"> a) The grease is too thick or too cold b) The grease container is damaged causing the follower to stop. 	<ul style="list-style-type: none"> a) Use NLGI No 2 or thinner grease. Store grease in a warm place b) Repair or replace container. Follower must be able to move freely.
2) Air motor runs slower than normal	<ul style="list-style-type: none"> a) The air pressure is too low 	<ul style="list-style-type: none"> a) Increase air pressure, Minimum 400 kPa/ 60 psi/ 4 bar, Maximum 1000 kPa/ 150 psi/ 10 bar.
3) Air motor cycles intermittently when not using the pump	<ul style="list-style-type: none"> a) Grease leaking at hose connections hose or bleeder valve (19,20) or grease gun. b) Grease leaks at the seal condition hole d) High pressure seal (46) worn or damaged 	<ul style="list-style-type: none"> a) Check all connections. Use thread sealant and tighten leaking connections. b) See 'Problem 4' below d) Replace high pressure seal (46)
4) Grease leaks out of the seal condition hole	<ul style="list-style-type: none"> a) Small quantity of grease indicates seal lubrication is OK b) Continuous 'worm' of grease indicates the seal is worn or damaged 	<ul style="list-style-type: none"> a) No action required b) Replace Piston rod seal (18)
5) Air leaks continuously from the valve body cover	<ul style="list-style-type: none"> a) Replace worn air piston cup seals (10) and / or piston (11) 	<ul style="list-style-type: none"> a) Replace cup seals and / or piston
6) Air motor does not operate, but will cycle when the reset button is pressed	<ul style="list-style-type: none"> a) The spool (35) is jammed in the valve body (31) b) Top poppet spring (4) is fatigued 	<ul style="list-style-type: none"> a) i) Push the reset button ii) If the motor starts, disconnect the air line and apply 3 or 4 drops of light oil to the air inlet of the pump iii) If the motor does not start, follow 'Pump unit disassembly' steps 1,2 and 4 through 7 iv) Replace spool (35) and clean valve bore v) When re-assembled, apply 3 or 4 drops of light oil to the air inlet of the pump b) Replace the top poppet spring
7) Air motor does not operate or cycle when the reset button is pressed	<ul style="list-style-type: none"> a) Lower poppet spring (4) is fatigued 	<ul style="list-style-type: none"> a) Replace the bottom poppet spring

SPECIFICATIONS

Maximum Air Pressure	1035 kPa / 150 psi / 10.3 bar
Minimum Air Pressure	400kPa / 60 psi / 4 bar
Typical Air Consumption	0.3m ³ per minute (9 cfm)
Compressor Size	0.08m ³ per minute (3 cfm)
Noise Level	85 Db @ 2 Meters
Air Inlet	1/4" (F) NPT (Swivel Type)
Pump Outlet	1/4" (F) NPT
Pump Ratio	50:1 (Grease Pressure is 50 times the air pressure)
B2 Booster Gun (Manual boost only)	Up to 69.000 kPa / 10,000 psi / 690 bar
Hose Type/Threads	4m x 6mm I.D. SAE 100 R2 / 1/4" (M) NPT
Swivel Type/Threads	High Pressure 'Z' type 1/4" (F) NPT / 1/8" (M) NPT
Manufacture Date	Week / Year located on the side of the cylinder base
Free flow output	563g/min @ 150psi applied air pressure (8000psi stall pressure)

Typical grease output = Air pressure 800kPa, 15m x 6mm pipework, 10m hose reel plus swivel joint handpiece.

WARRANTY POLICY

Macnaught Pty Ltd ("Macnaught") warrants that all Products manufactured by Macnaught and purchased after 1st of July 1999 will be free from any defects caused by faulty materials or workmanship for a period of (5) years from the date of purchase of the product, provided that during the Warranty period:

- 1) Macnaught receives notice setting out full details of any defect in any product and details of the time and place of purchase.
- 2) The Purchaser, at their own cost returns the product to the nearest authorized Macnaught service center.

For componentry contained in the product, (such as o'rings, seals, springs and hoses) which are subject to wear, the warranty period will be (12) months from the date of purchase of the product.

Macnaught shall, at its option repair or replace any product found defective by its inspection. This warranty does not cover failure of parts or components which, in the judgment of Macnaught, arises from misuse, abrasion corrosion, negligence, accident, substitution of non-Macnaught parts, faulty installation or tampering.

If Macnaught inspection discloses no defect in material or workmanship, repair or replacement and return will be made at customary charges.

Macnaught's liability and the purchaser's rights under this Warranty shall be limited to such repair or replacement and in particular, shall not extend to any direct, special, indirect or consequential damage or losses of any nature.

The foregoing warranty supersedes, voids and is in lieu of all or any other warranties.

"Note: This warranty does not form part of, nor does it constitute, a contract between Macnaught and the end-user or purchaser. It is additional to any warranty given by the seller of the products.

This warranty does not exclude, limit, restrict or modify the non-excludable rights or remedies conferred upon the end-user or purchaser, or the non-excludable duties or liabilities imposed on the seller or Macnaught, by Part V, Divisions 2 and 2A of the Trade Practices act 1974 (Commonwealth) or other legislative provisions. Macnaught otherwise excludes, to the extent permitted by law, any rights conferred on the end-user or duties or liabilities imposed upon it."



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