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R500 5:1 RATIO AIR OPERATED OIL PUMP INSTRUCTION MANUAL

INTRODUCTION

Thank you for purchasing a Macnaught R500 5:1 air operated oil pump. The R500 oil pump has been designed for use in medium to large workshops where the transfer of lubricating oils over varying distances and through hose reels with dispensing nozzles and / or meters are required.

The R500 oil pump is suitable for use with engine oil, gear oil, automatic transmission fluid, anti-freeze/anti-boil and compatible fluids.

Macnaught also manufacture a complete range of retractable hose reels, oil dispensing nozzles, fuel pumps, oil pumps, positive displacement flowmeters, greasing equipment and a complete range of accessories.

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

GENERAL INFORMATION

With the appropriate care combined with the Macnaught guarantee of dependable after sales service, provided by its worldwide distribution network, you will be assured of continuous safe, efficient and reliable product operation.

Please take a few moments to read through this manual before installing and operating your new R500 oil pump. If you experience problems with this product, refer to the trouble shooting sections of this manual. If you require further assistance please contact your local Macnaught distributor or authorised Macnaught service center.

IMPORTANT INFORMATION



READ THIS INFORMATION CAREFULLY BEFORE USE

Please retain this instruction manual for future reference.

Your safety is important to us. Please read, understand and follow all safety instructions listed below. Some of these instructions alert you to the potential for personal injury. "Cautions" listed throughout the manual advise of potential practices or procedures which may cause damage to your equipment.

Before connecting the air supply, the user should add a 'Stop' compressed air cock.

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 be easily recognised

Make sure all operators have access to adequate instructions about safe operating and maintenance procedures.



Do not exceed the maximum recommended air inlet pressure of 1035 kPa/ 150 psi / 10.3 bar. The pumps require a minimum air inlet pressure of 400 kPa / 60 psi / 4 bar and we recommend that you operate the unit at 690 kPa / 100 psi / 6.9 bar.

Do not strike the unit if it fails to operate. Refer to "Trouble Shooting Guide" or return the unit to your nearest Macnaught distributor or Authorised Macnaught Service Centre

Use suitable thread sealant (eg. Teflon tape) on all screwed fittings, but do not over tighten to avoid damage.

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

Most accidents occur because of component rupture. Be certain that any and all system components will withstand the pressures being developed. Never exceed the pressure rating of any component installed in the system.

Before attempting any repairs or maintenance of this product disconnect the air supply and release oil line pressure by operating hand piece / gun trigger.

OPERATION

- 1) Ensure the drum or tank is "vented".
- 2) Partially open the on/off air valve. The pump will prime automatically.
- 3) Open the delivery outlet / nozzle. The pump will start automatically
- 4) Adjust on/off air valve to regulate the flow. Close delivery outlet/nozzle to stop flow.



CAUTION

Do not run the pump dry. Remember to switch off the air supply if the pump is not being used for extended periods. (e.g. at the end of each working day)

MAINTENANCE



CAUTION

Before carrying out any maintenance disconnect the air supply and release the fluid pressure in the system.

Inspect your oil pump and associated hoses weekly for any signs of damage. Replace any suspect or damaged parts or components as required.

PUMP DISASSEMBLY

Note: Disconnect the air supply and release fluid pressure.

The R500 pump has been designed to allow the air motor assembly, and air seal (10) to be serviced without removing the pump from the installation.

To service the Air Motor and Piston Rod Seal without removing pump from the installation.

- 1) Disconnect the air supply and release oil line pressure.
- 2) To remove the air motor cap (1), insert two correct size steel bars or pin punches into the holes located on the top of the air motor cap (1). Hold both steel bars or pin punches in position. Place a screw driver in between the two bars or punches and unscrew the air motor cap anti-clockwise.
- 3) Using a strap pipe wrench, carefully unscrew and remove the air motor housing (50).
- 4) Pull the air motor and piston rod assembly upwards to allow easy access the air motor bolts (53).
- 5) Use a 6mm Allen key to unscrew the 4 air motor bolts (53)
- 6) Lift up the top adaptor (9) to expose the exhaust holes located on the piston rod (41).
- 7) To retain the piston rod (41), insert the correct size steel bar or pin punch into one of the exhaust holes on the piston rod (41).
- 8) Remove the three air valve screws (2), washers (3) and spacers (4) from the air valve assembly, then remove air valve cap (49).
- 9) Unscrew the piston rod bolt (48), and remove the air valve assembly.
- 10) Remove the top adaptor assembly (9,10,53,54,55,57) from the piston rod.
- 11) Carefully remove the air seal (10), o'ring (57) and o'rings (55) from the top adaptor (9).

Note: Ensure you do not damage piston rod (41) during Disassembly or assembly.

- 12) Remove body (11) and silencer (40)

- 13) Clean and inspect all parts. Pay special attention to items 37 and 38 as these are easily damaged. Replace any suspect, worn or damaged components.
- 14) Assembly is the reversal of disassembly.

Note: Use Loctite 222 (or similar retaining compound) on the piston rod bolt thread (48) and the three Allen screws (2) when re-assembling the air motor.

COMPLETE PUMP DISASSEMBLY

- 1) Disconnect air supply and release oil line pressure.
- 2) Remove oil discharge hose from pump outlet.
- 3) Withdraw pump from the oil drum/tank. (Use a clean bench to carry out maintenance).
- 4) Hold air motor housing firmly in a vice and carefully unscrew and remove the pump tube (20) assembly.

Note: Care should be taken not damage air motor housing during disassembly.

- 5) For air motor disassembly see previous section "Pump Disassembly", To service the air motor and piston rod seal section follow items 2 - 12 on this page.
- 6) Using a suitable size pin punch (1/8") remove the roll pin (36) from the Piston rod (41).
- 7) Unscrew and remove the joining pin (35), valve housing (23) and piston assembly from the piston rod (41).
- 8) Dismantle the valve housing (23) and piston assembly (26).
- 9) Remove the piston rod (41) from the bottom adapter (15).
- 10) Remove circlip (12) from the bottom adapter (15) and remove oil seal assembly (14) and o'ring (13).
- 11) Remove foot valve assembly (28) from the pump tube (20).
- 12) Dismantle foot valve assembly.

PUMP ASSEMBLY

- 1) Clean and inspect all parts. Replace any, suspect, worn or damaged parts.
- 2) Ensure that all parts have the correct orientation. If parts are assembled upside down, the pump will not work. Check the parts diagram for correct orientation.

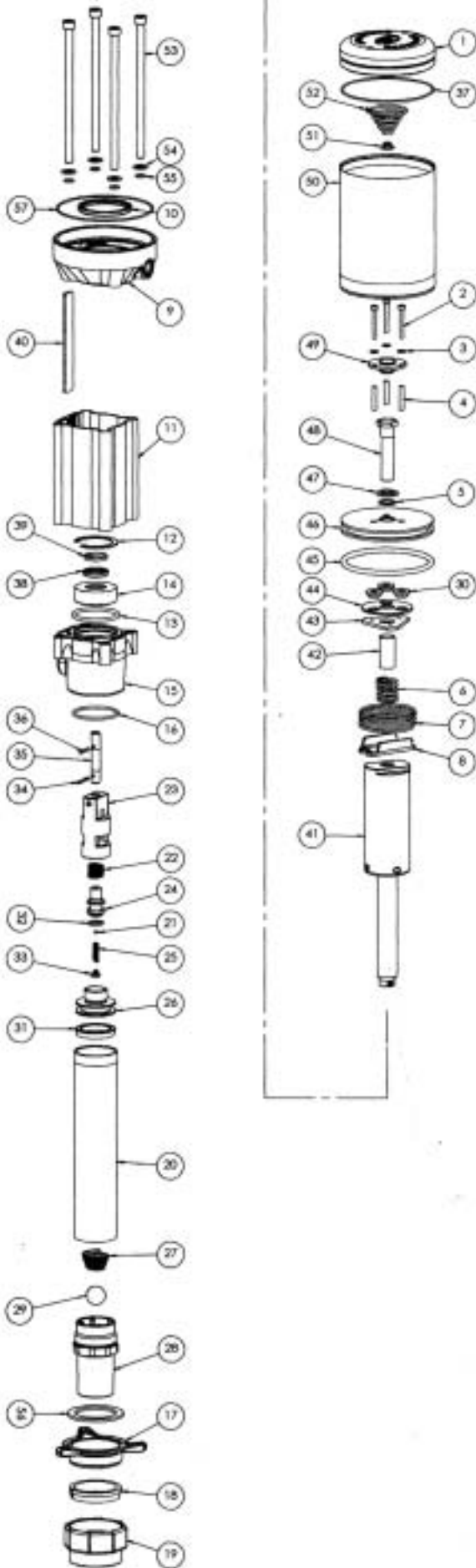
Note: Use Loctite 222 (or similar retaining compound) on the piston rod bolt thread (48) and the three air valve screws (2) when re-assembling air motor.

Use Loctite 222 (or similar retaining compound) when assembling the pump piston (26) to the valve housing (23)

Ensure correct orientation when fitting the seal carrier (14), place the side with the oil seal (38) into the bottom adapter first, be careful you do not damage the seal during assembly.

- 3) Assembly of the pump is a reversal of the disassembly procedure.
- 4) Fit the pump to your drum/tank and re-connect the oil hose and air supply. Open dispensing nozzle to ensure correct operation.

PARTS DIAGRAM



PARTS LIST

Item	Part no	No off	Order for replacement		Description
			Part or Set	Kit ref	
			TG01-1K (A)		OVERHAUL SEAL KIT
			TG01-2K (B)		AIR MOTOR OVERHAUL KIT
			TG01-3K (C)		LOWER PUMP SERVICE KIT
1	TG001	1	TG001s incl BS045		AIR MOTOR CAP
2	N35	3		B	AIR VALVE SCREW
3	N117	3		B	AIR VALVE WASHER
4	TG031	3		B	AIR VALVE SPACER
5	BS016	3		A B	O'RING
6	TC38	1		B	SPRING
7	TG007	1		B	SPRING
8	TG008	1		B	RETAINER
9	TG010	1	TG010s		TOP ADAPTOR (BSP)
9	TG021	1	TG021s		TOP ADAPTOR (NPT)
10	TG012	1		A B	AIR MOTOR SEAL
11	TE006	1	TE006s incl TE020		BODY
12	N247	1			CIRCLIP
13	BS225	1	TG014s incl TG027, TG028	A C	O'RING
14	TG014	1			OIL SEAL CARRIER
15	TG015	1	TG015s		BOTTOM ADAPTOR (BSP)
15	TG022	1	TG022s		BOTTOM ADAPTOR (NPT)
16	BS134	1		A C	O'RING
17	TE026	1			STAR NUT
18	TG016	1	TG016s incl TG006		SPACER
19	TE024	1			LOWER BUNG NUT
20	TG017	1	TG017s		PUMP TUBE (STUB)
20	TG018	1	TG018s		PUMP TUBE (DRUM)
21	N404	1			STEEL BALL 5/32"
22	TB3	1			SPRING
23	TG020	1	TG020s incl TB4, BS015, B.J6		VALVE HOUSING
24	TB47	1			PRESSURE RELIEF VALVE
25	TB46	1			SPRING
26	TB48	1			PUMP PISTON
27	TB8	1		C	FOOTVALVE SPRING
28	TB15	1	TB15s incl TB8, N418		FOOTVALVE (STUB) BSP
28	TB34	1	TB34s incl TB8, N418		FOOTVALVE (STUB) NPT
28	TG019	1	TG019s incl TB8, N419		FOOTVALVE (DRUM)
29	N418	1		C	STEEL BALL 7/8"
30	TG011	3		A	RUBBER BUSH
31	TB4	1		A C	PLUNGER SEAL
32	BS015	1		A C	O'RING
33	PA16	1		A C	RESET END PLUG
34	N349	1		A C	PIN
35	TF004	1	TF004s incl N349, N350		JOINING PIN (STUB)
35	TF014	1	TF014s incl N349, N350		JOINING PIN (DRUM)
36	N350	1		A C	PIN
37	BS045	1		A B	O'RING
38	TG027	1		A C	OIL SEAL
39	TG028	1		A C	GUIDE RING
40	TE020	1	order TE006s		SILENCER
41	TG013	1	TG013s		PISTON ROD
42	TG036	1		B	SPACER
43	TG030	1		B	SEAL PLATE
44	TG032	1		B	WASHER
45	BS343	1		A B	O'RING
46	TG004	1		B	PISTON
47	TG005	1		B	WASHER
48	TG003	1		B	PISTON ROD BOLT
49	TE011	1		A B	AIR VALVE CAP
50	TG002	1	TG002s incl BS045, BS046		AIR MOTOR HOUSING
51	TE003	1	TE002s	B	BUFFER STOPPER
52	TE002	1		B	SPRING
53	TE004	4			BOLT
54	N104	4	TE004s		WASHER
55	BS011	4		A	O'RING
56	TG006	1		A	WEATHER SEAL
57	BS046	1		A B	O'RING

TROUBLE SHOOTING

TROUBLE	CAUSE	REMEDY
Air motor operates without pressing trigger	1. Drum or tank is empty	1. Change drum or fill tank
	2. Foreign matter in footvalve (28)	2. Remove footvalve, clean and reassemble
Air motor operates but little or no oil flow s	1. Drum or tank is empty	1. Change drum or fill tank
	2. Foreign matter in footvalve (28)	2. Remove footvalve, clean and reassemble
	3. Faulty plunger (23) / piston (26) assembly	3. Inspect plunger assembly and replace damaged or faulty parts
Air continuously leaks through the exhaust	1. Air seal (10) worn or damaged	1. Replace air seal (10)
	2. Air valve cap (49) is worn or damaged	2. Replace air valve cap (49)
	3. O'ring (55) under the air motor bolts (53) are leaking	3. Replace damaged o,ring (55)
Oil leaks through the exhaust	Oil seal (38) is worn or damaged	Replace oil seal (38)
Pump is operating erratically and there is air in the oil	1. Suction tube is sucking air (R300S)	1. Re-seal the suction. (use either Teflon tape or suitable thread sealant)
	2. Pump tube (20) of Footvalve is sucking air	2. Re-seal the pump tube (20) or footvalve (28). (Use either Teflon tape or suitable thread sealant)

SPECIFICATIONS

Air Motor	104.7mm (4.12") diameter
Maximum Air Pressure	1035kPa / 150psi / 10.3Bar
Minimum Air Pressure	400kPa / 60psi / 4Bar
Air Consumption	18cfm/min
Output (At The Pump)	28 litres / minute of SAE10 oil @ 100psi
Maximum Suction Head	7metres
Maximum Static Head	500metres / 1600ft
Air Inlet Thread	1/4" NPT
Pump outlet Thread	3/4" BSP (3/4" NPT USA)
Pump Intlet Thread	1" BSP (1" NPT USA)
Bung Adapter Thread	2" (M)
Wetted Components	Aluminium, Nitrile Rubber, Zinc plated carbon steel, Carbon PTFE
Dimensions	R500S (stub) 635 x 120 x 120
	R500T (drum) 1325 x 120 x 120
Weight	R500S (stub) 5.5kg
	R500T (drum) 6.7kg

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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