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# R5000G 58:1 RATIO AIR OPERATED GREASE PUMP INSTRUCTION MANUAL

## INTRODUCTION

Thank you for purchasing a Macnaught R5000G (58:1) air operated grease pump. The R5000G grease pump has been designed for the transfer of grease over varying distances, through Macnaught retractable hose reels and Macnaught B2 Booster grease guns.

The R5000G grease pump is suitable for use with greases up to and including NLGI No2 viscosity.

There is an optional R5000GLF drum cover and follower plate kit available if required, which will fit the R5000G to a steel 180kg (400lb) grease drum.

The R5000GLF 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.

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 R5000G grease 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 centre.

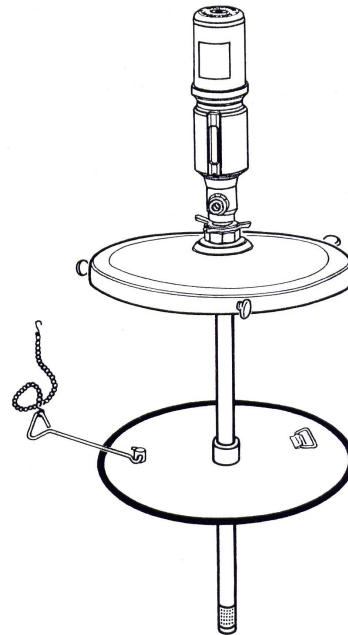
## IMPORTANT INFORMATION



**READ THIS INFORMATION CAREFULLY BEFORE USE**

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

Do not exceed the maximum air inlet pressure of 1035kPa / 150 psi / 10.3 bar. The pump requires a minimum air inlet pressure of 400 kPa / 60 psi / 4 bar.



**Note:** If the pump is connected to 690 kPa / 100psi / 6.9 bar air pressure this relates to a grease outlet pressure of 40,020kpa / 5800psi / 400 bar.

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.

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

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

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



## CAUTION

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

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

The R5000GPLF Pump Unit is complete with Lid and Follower Plate. and is supplied in single carton. If you only have purchased the R5000G pump you may require the R5000GLF Lid and Follower set to fit the R5000G Pump to your grease drum. You may also require a high pressure feeder hose if connecting the pump to pipework.

Typically, the R5000G pump will be connected to a system comprised 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.

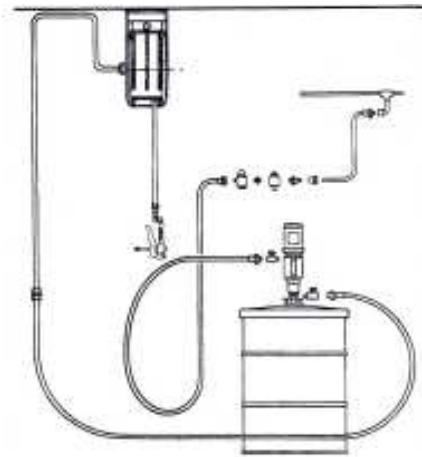
**If pipework is required, it must be rated above the maximum working pressure of the pump. All the system components including hose reels, swivel joints and hand pieces must all be capable of with standing the high pressures generated by the pump.**

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 top of the drum and secure the lid using the thumb screws provided.
- 5) Screw the bung adaptor assembly onto the top of the lid.
- 6) Insert the pump tube through the bung adaptor, then carefully through the centre boss on the follower plate. Tighten the star nut to secure the pump to the lid.
- 7) Before connecting the air supply, the user should fit the air regulator supplied with the pump, then 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.

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) Slowly open the air cock to prime the grease through the pump. Turn off the air cock as soon as the grease appears at the grease outlet on the pump.
- 9) Connect your 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.



- 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.

### 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 grease pressure in the system.**

Inspect your grease 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 grease pressure.**

The R5000G pump has been designed to allow the air motor assembly, to be serviced without removing the pump from the installation.

### **Service Air Motor ( Without removing from installation).**

- 1) Disconnect the air supply and release grease line pressure.
- 2) To remove the air motor cap (1) and housing assembly, 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 and housing assembly anti-clockwise.
- 3) Carefully remove the air motor housing assembly (1,2,3,4,5)
- 4) Pull the air motor and piston rod assembly upwards to allow easy access.

5) Remove the three air valve screws, washers (6) and spacers (8) from the air valve assembly, then remove air valve cap (7).

6) Place the correct size spanner across the 2 x flats located on the top of the piston rod (21), and unscrew the piston rod bolt (9), then remove the air valve assembly.

**Note: Ensure you do not damage piston rod (21) during Disassembly or assembly.**

7) Clean and inspect all parts. Replace any suspect, worn or damaged components.

8) Assembly is the reversal of disassembly.

**Note:** Use Loctite 222 (or similar retaining compound) on the piston rod bolt thread (9) and the three Allen screws (6) when re-assembling the air motor.

## COMPLETE PUMP DISASSEMBLY

1) Disconnect air supply and release grease line pressure

2) Remove grease hose from pump outlet.

3) Withdraw pump from the grease drum. (Use a clean bench to carry out maintenance).

**Note:** Always use soft vice jaws (grips) to prevent against any chance of damaging the pump tubes.

4) Hold the connecting tube firmly in a vice.

5) Locate the correct size spanner on the spanner flats located on the bottom of the strainer tube (59) and, carefully remove the strainer tube.

6) Carefully remove the primer nut (58), primer (57), primer washer (55), primer shaft assembly (54), valve seat (53) and valve spacer (52).

**Note:** Always use soft vice jaws (grips) to prevent against any chance of damaging the pump tubes.

7) Hold the suction tube (35) firmly in a vice

8) Use a pipe wrench or vice grips and carefully unscrew the connecting tube (50).

**Note:** Repair any damage caused to the connecting tube with a file or emery paper.

9) Inspect the circlip (51) located inside the connecting tube (50) for damage and replace if required.

10) Carefully grip the large diameter of the high pressure piston rod (46) with set of multi-grips or vice grips. Place a suitable size screw driver through the cross hole on the Primer rod (49) and remove the primer rod, steel ball (48) and spring (47).

11) Hold the suction tube (35) firmly in a vice. Place a suitable sized steel bar into the outlet fitting (33), suction tube (35) from the body assembly (30).

**Note: Be careful not to damage the internal thread on the outlet fitting (33) when unscrewing the suction tube.**

12) Remove the pump assembly from the vice. Pull the suction tube (35) out of the body (30) to expose the small piston rod (23) and connecting rod (31).

13) Support the small piston rod (23) and with the use of a 1/8" pin punch, carefully remove the spring pin.

14) Unscrew the connecting rod assembly (31) from the small piston rod (23).

15) Pull the high pressure piston rod and connecting rod assembly out from the suction tube.

16) Unscrew the grub screw (39) locking the high pressure piston rod (46) to the connector (38), then carefully remove the high pressure piston rod (46) and ball (45).

**Note: Ensure you do not damage the high pressure piston rod during disassembly.**

17) Remove the high pressure seal assembly and spacer (40, 41, 42, 43, 44) from the high pressure piston rod (46).

18) For air motor disassembly see previous section "Service Air Motor" (Items 1 - 6).

19) Remove the piston rod (21), air seal (24) and o-ring (29) from the body.

20) Remove the outlet fitting (33), and slide the seal carrier (25) out of the body (30).

## 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 (9) and the three air valve screws (6) when re-assembling air motor.**

**Use Loctite 577 (or similar retaining compound) when assembling the outlet fitting to the seal carrier.**

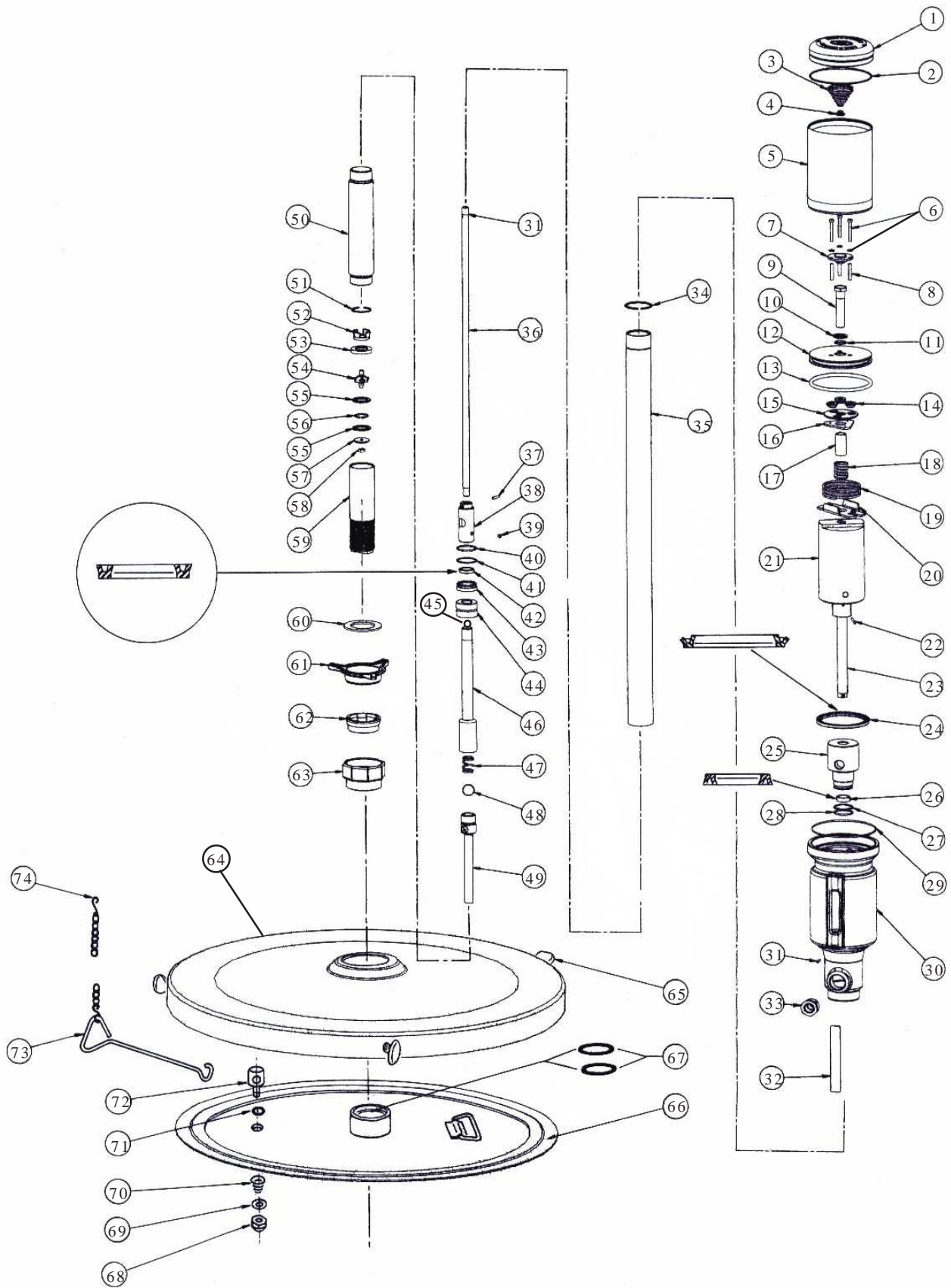
**Ensure correct orientation when fitting the high pressure piston seal, seal and air seal. Refer to the exploded diagram for correct orientation, be careful you do not damage the seal during assembly.**

**Note:** Assembly of the pump is a reversal of the disassembly procedure. Hand tighten the suction tube (35), connecting tube (49) and strainer tube (58). Use the spanner flats on the strainer tube to tighten all three tubes.

3) Re-fit the pump to the installation, fit the air regulator and air fittings. Test pump for correct operation.

4) Re-fit the grease hose to the pump after priming the pump

# PARTS DIAGRAM



# PARTS LIST

			ORDER FOR REPLACEMENT			
Item	Part no	No off	Part or Set	Kit ref	Description	
			TJ-1K	A	AIR MOTOR OVERHAUL KIT	
			TJ-2K	B	LOWER PUMP SERVICE KIT	
			TJ-3K	C	SEAL KIT	
1	TG001	1	TG001s		AIR MOTOR CAP	
2	BS045	1		A - C	O'RING	
3	TE002	1	TE002s	C	BUFFER SPRING	
4	TE003	1		C	BUFFER STOPPER	
5	TG002	1	TG002s		HOUSING (AIR MOTOR)	
6	N35	3		A - C	SCREW (AIR VALVE)	
7	TE011	1	TE011s	A - C	AIR VALVE CAP	
8	TG031	3		A - C	SPACER (AIR VALVE)	
9	TG003	1		A	BOLT (PISTON ROD)	
10	TG005	1		A - C	WASHER	
11	BS016	1		A - C	O'RING	
12	TG004	1		A	PISTON	
13	BS343	1		A - C	O'RING	
14	TG011	3		A - C	RUBBER BUSH	
15	TG032	1		A - C	WASHER	
16	TG030	1		A	SEAL PLATE	
17	TG036	1		A	SPACER	
18	TC38	1		A	SPRING (AIR VALVE)	
19	TG001	1		A	SPRING (PISTON)	
20	TJ008	1		A	RETAINER	
21	TJ012	1	TJ012s (incl item 22)		PISTON ROD (LARGE)	
22	N245	1		C	SEL LOK PIN (3 X 30)	
23	TJ004	1	TJ004s (incl item 22)		PISTON ROD (SMALL)	
24	TJ003	1		A - C	SEAL (AIR)	
25	TJ010	1	TJ010s		SEAL CARRIER	
26	TL005	1		B - C	SEAL	
27	TJ038	1		B - C	BACK UP RING	
28	BS024	1		B - C	O'RING	
29	BS046	1		C	O'RING	
30	TJ001	1	TJ001s (incl item 31,32)		BODY	
31	N350	1		B - C	PIN (SPRING)	
32	TE020	1	TE020s		SILENCER	
33	TJ021	1	TJ021s		OUTLET FITTING	
34	N254	1		B - C	CIRCLIP	
35	TJ009	1	TJ009s (incl item 34)		SUCTION TUBE (180KG)	
36	TJ016	1	TJ016s (incl item 37)		CONNECTING ROD (180KG)	
37	N349	1		B - C	PIN (SPRING)	
38	TJ002	1	TJ002s		CONNECTOR (PISTON ROD)	
39	N579	1		B - C	GRUB SCREW	
40	BS025	1	TJ005s	B - C	O'RING	
41	TJ037	1		B - C	BACK UP RING	
42	TJ005	1		B - C	SEAL (HIGH PRESSURE)	
43	TJ007	1		C	WASHER (SEAL)	
44	TJ019	1			SPACER	
45	N410	1		B	BALL	
46	TJ035	1	TJ035s		PISTON ROD (HIGH PRESSURE)	
47	TJ020	1			SPRING	
48	N416	1		B - C	STEEL BALL	
49	TJ034	1	TJ034s	B - C	PRIMER ROD	
50	TJ018	1	TJ018s (incl item 50)		CONNECTING TUBE	
51	N256	1	TJ014s	B	CIRCLIP	
52	TJ015	1		B	VALVE SPACER	
53	TJ014	1		B	VALVE SEAT	
54	TJ033	1		B	SHAFT (PRIMER)	
55	TJ032	2		B	WASHER (PRIMER)	
56	N246	1		B	CIRCLIP	
57	TJ006	1		B	PRIMER	
58	N234	1		B	NUT	
59	TJ013	1	TJ013s		SUCTION TUBE (BOTTOM)	
60	TJ031	1	TJ023s	B - C	WEATHER SEAL	
61	TE026	1				BUNG NUT (STAR)
62	TJ023	1				CLAMP RING
63	TE024	1				BUNG NUT (BOTTOM)
64	PK176	1	PK176s (incl item 64)		LID ASSEMBLY	
65		3			THUMB SCREWS	
66	TJ011A	1	TJ011s		FOLLOWER ASSEMBLY	
67	BS216	1		C	O'RING	
68	N216	1				1/4" NYLOCK NUT
69	N103	1				WASHER
70	KM57	1				SPRING
71	BS113	2		PK147s	C	O'RING
72	PK148	1				SUCTION RELIEF VALVE
73	PK206	1				HANDLE CHAIN
74	PK147	1				HANDLE

**NOTES:**

## TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Air motor runs but does not pump grease.	a) The grease is too thick or too cold).	a) Use NLGI no 2 or thinner grease. Store grease in a warm place.
	b) The grease container is damaged causing the follower to stop.	b) Repair or replace container. Follower must be able to move freely.
Air motor runs slower than normal.	a) The air pressure is too low.	a) Increase air pressure, Minimum is 400 kPa/ 60 psi/ 4 bar, Maximum is 690 kPa/ 100 psi/ 6.9 bar.
Air motor cycles intermittently when not using the pump.	a) Grease leaking from connections at hose, pipe or grease gun.	a) Check all connections. Use thread sealant and tighten leaking connections.
	b) High Pressure seal (42) is damaged.	b) Replace the high pressure seal.
Air leaks continuously from the air exhaust.	a) Air piston seal (24) is damaged.	a) Replace air piston seal.
Air motor does not operate.	a) Damaged air valve cap (7).	a) Replace air valve cap.

## SPECIFICATIONS

Pump Ratio	58:1
Maximum Air Pressure	1035kPa / 150psi / 10.3Bar
Minimum Air Pressure	400kPa / 60psi / 4Bar
Air Consumption	18cfm/min
Output (At The Pump)	6.8 kg / min (free flow) @ 100psi
Air Inlet Thread	1/4" NPT
Pump outlet Thread	3/8" BSP (3/8" NPT USA)
Bung Adapter Thread	2" (M)
Wetted Components	Aluminium, Nitrile Rubber, Zinc plated carbon steel, Carbon PTFE
Dimensions	1380mm x 120mm x 120mm



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### macnaught warranty

1. Macnaught Pty Ltd ("Macnaught") warrants that all products manufactured by Macnaught and/or supplied by Macnaught under the "Macnaught" brand, excluding M-Series positive displacement meters ("Meters") and components subject to wear, will be free from any defects caused by faulty materials or workmanship ("Warranty") for a period of 5 years from the date of purchase of the product.
  2. For products (excluding Meters) which carry the "Macnaughtdesign" endorsement, an additional Warranty period of 5 years applies to all mechanical components (excluding electronic and electrical components), giving a total Warranty period of 10 years.
  3. For Meters, the Warranty period is 12 months from the date of purchase of the product.
  4. For components contained in all products which are usually subject to wear from normal operation of the products (such as o-rings, seals, springs, hoses and batteries), the Warranty period is 12 months from the date of purchase of the relevant product.
  5. For products and components which are not manufactured by Macnaught and are supplied by Macnaught under a brand name other than "Macnaught", the Warranty period is the longer of 12 months from the date of purchase of the relevant product and the period of the manufacturer's warranty.
  6. The warranties contained in clauses 1, 2, 3, 4 and 5 above are conditional on the purchaser, during the relevant Warranty period:
    - a. delivering to Macnaught a detailed notice setting out full details of any defect in any product and details of the date and place of purchase (together with copies of purchase receipts and/or other supporting documents), and
    - b. at the purchaser's own cost, returning the defective product to the nearest authorised Macnaught service centre.
  7. Subject to compliance by the purchaser with clause 6, Macnaught shall, at its option, repair or replace any product or component found defective by its inspection by reason of faulty materials or workmanship of Macnaught.
  8. This Warranty does not cover the failure of products, parts or components which, in the sole judgment of the Macnaught, arises other than from faulty materials or workmanship of Macnaught, including misuse, abrasion, corrosion, negligence, accident, substitution of non-Macnaught parts, unauthorised modification, improper use, storage or handling, faulty installation or tampering by the purchaser or any third party.
  9. If Macnaught's inspection discloses no defect in material or workmanship, repair or replacement and return (at Macnaught's sole option) will be made at customary charges, which will be advised to the purchaser.
  10. Macnaught's liability and the purchaser's rights under this Warranty shall be limited to the repair or replacement of defective products or components and particular, shall not extend to any direct, special, indirect or consequential damage or losses of any other warranties.
  11. The foregoing Warranty supersedes, voids and is in lieu of any other warranties.
- 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, Division 2, 2A, and Part VA of the Trade Act 1974 (Commonwealth) or other rights conferred on the end-user or purchaser or duties or liabilities imposed upon Macnaught.