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IM75P (PULSE) POSITIVE DISPLACEMENT FLOWMETERS INSTRUCTION MANUAL

INTRODUCTION

Thank you for purchasing a Macnaught Positive Displacement Flowmeter.

The Macnaught IM75P Positive displacement flowmeter have incorporated the oval rotor principal into its design. This has proven to be a highly reliable and highly accurate method of measuring flow, providing exceptional repeatability and high accuracy.

The IM75P meter is designed to be used as an in line meter.

Macnaught manufacture a full range of pumps and accessories to suit most of your fluid transfer needs, please consult your local Macnaught reseller for more information.

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

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 positive displacement flowmeter. 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 new meter. If you experience problems with this product, refer to the Maintenance and Trouble Shooting sections of this manual. If you require further assistance please contact your local Macnaught Distributor, Authorised Macnaught Service Centre or Macnaught P/L.



IMPORTANT INFORMATION

Macnaught recommends, that when using your meter for in-line applications you should install a filter before the inlet of the meter. Contact your local Macnaught distributor for further details.



INSTALLATION

1. Always ensure that the fluid to be used is compatible with the meter.
2. It is strongly recommended that a strainer be installed before the meter for every application. Meters damaged by particles in the fluid may not be covered by warranty.
3. To prevent damage to the meter from entrapped air, during initial commissioning or after maintenance, slowly refill the piping system with fluid before starting the pumping system.
4. Use a liquid thread sealant on all pipe fittings.
5. Use flexible pipe connections to prevent meter strain.
6. Ensure the meter is mounted with the shafts in the horizontal plane.
7. Fit a system pressure relief valve to prevent meter damage due to thermal expansion.
8. Refer to specifications for sensor electrical details.

METER DISASSEMBLY



CAUTIONS

- Ensure the fluid is isolated from the meter to be repaired.
- Ensure the fluid line is depressurized before commencing disassembly.
- Ensure electrical wiring is isolated and disconnected before commencing disassembly.
- To prevent damage to the meter during recommissioning, slowly refill the piping system with fluid before starting the pumping system.
- Refer to specifications for sensor electrical details.

- 1) Remove the 8 x socket head screws (1) from the meter cover.
- 2) Remove the meter cover (2) and o'ring (3).
- 3) Remove both rotors (4).
- 4) Clean and inspect all parts. Replace any suspect, worn or damaged components.

METER REASSEMBLY

NOTE: Both rotors contain magnets. When the rotors are installed in the meter body correctly the magnets in the rotors must be closest to the sensor module, see Fig 2.

- 1) Replace both rotors (4) so as they are at 90° to each other, see Fig 1. Check the rotor rotation by turning either of the rotors. If the rotors are not in mesh correctly or do not rotate freely remove one of the rotors and replace it correctly at 90° to the other rotor. Re-check the operation of the rotors.

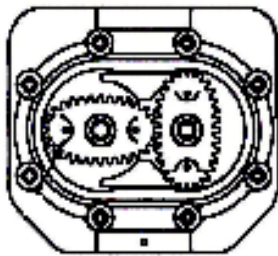


Fig 1

- 2) Lightly grease the o'ring (3) and place it in the groove in the meter body.
- 3) Clean the meter cover plate (2) and place it on the body. Take care not to damage the o'ring (3).
- 4) Install the 8 screws (1) and tighten in a diagonal pattern to 5Nm (3.7 ft.lb). Visual check the cap has been pulled down evenly.
- 5) Test the meter by turning the rotors with a finger or by applying low air pressure to the inlet port of the meter. This will confirm the meter is operating correctly.

SENSOR MODULE

Note: Sensor module (Item 6) is non-repairable. The module will need to be replaced if found to be damaged or faulty.

SENSOR MODULE REMOVAL

- 1) Using a 2mm Allen key remove the two grub screws located on each side of the sensor module, refer Fig 2.
- 2) Lift the sensor module (Item 6), remove the PCB spring block and support the sub PCB as the sensor module is removed.
- 3) Remove the oring under the sensor module.
- 4) Clean and inspect all parts. Replace any suspect, worn or damaged components.

SENSOR MODULE REPLACEMENT

- 1) Locate the sub PCB into the angled slot in the meter body (Item 5), refer Fig 2, ensure it is located at the end of the slot.
- 2) Install the foam into the slot and press it down gently to ensure the sub PCB is not able to move.

- 3) Lightly grease the oring and fit it into the groove on the underside of the sensor module (item 5).
- 4) Orientate the sensor module into the desired position and fit it onto the 2 bollards on the meter body
- 5) Lightly press the sensor module to compress the o-ring and using a 2mm Allen key tighten the 2 grub screws located on each side of the sensor module.
- 6) Reconnect the sensor wiring as detailed in the specification section.

PARTS DIAGRAM

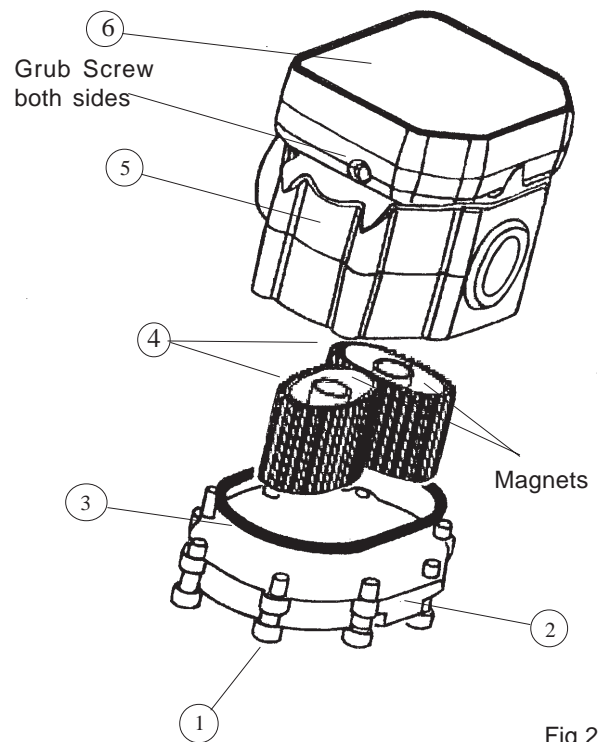


Fig 2

PARTS LIST

ITEM	PART NO	No. off	ORDER FOR REPLACEMENT		DESCRIPTION
			PART/SET		
1	MS277	8		IM152s	SCREWS
2	IM152	1			METER COVER PLATE
3	BS147	1		ME022s	O'RING SEAL
4	ME022	2			ROTOR SET
5		1	N/A		METER BODY
6		1	TBA		ELECTRONIC MODULE

NOTES:

TROUBLE SHOOTING GUIDE

TROUBLE	CAUSE	REMEDY
No flow	a) Dirt particles jamming the rotors	a) Remove rotors and remove any dirt or contamination b) Fit inline filter
The meter is not registering fluid output	a) Sensor failed b) Magnets damaged	a) Replace sensor module b) Replace rotors
Meter not accurate	a) Flowrate outside recommended flow rate b) "K" factor incorrect	a) Adjust flowrate to b) Re-set "K" factor to factory setting

SPECIFICATIONS

Accuracy	+ / - 0.5% of Reading
Type	Oval Gear
Flow rate	3 Ltr -80 Ltr (0.8 - 21.1 US Gal) per minute
Maximum Working Pressure	10350kPa / 1500psi / 103.5 Bar
Suitable for use with :	Engine Oil, Diesel Oil, Automatic Transmission Fluid (Maximum Viscosity SAE140), Ethelene Glycol Based Anti-Freeze / Anti-Boil mixture (Max 50% water)
Wetted Materials	Ultem, Aluminium, Steel, Nitrile Rubber
Connections	3/4" BSPT (Female) or 3/4" NPT (Female)
K factor	54.6 pulses per Litre / 206.5 pulses per US Gallon
Maximum Temperature	80 deg C (176 deg F)
Sensor Type	Single Reed Switch
Maximum Voltage	30 VDC
Maximum Current	0.5A
Sensor Life (Typical)	500x10 ⁶ cycles 10 VDC @ 10mA
Sensor Cable length	3.3 ft (1 meter)
Wiring	Sensor connections are not position sensitive



macnaught warranty

- 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.
- 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.
- For Meters, the Warranty period is 12 months from the date of purchase of the product.
- 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.
- 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.
- The warranties contained in clauses 1, 2, 3, 4 and 5 above are conditional on the purchaser, during the relevant Warranty period:
 - 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
 - at the purchaser's own cost, returning the defective product to the nearest authorised Macnaught service centre.
- 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.
- 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.
- 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.
- 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.
- 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.



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