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IM50 (PULSE/HALL EFFECT) POSITIVE DISPLACEMENT FLOWMETERS

INSTRUCTION MANUAL

INTRODUCTION

Thank you for purchasing a Macnaught Positive Displacement Flowmeter.

The Macnaught IM50 Positive displacement flowmeter has 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 IM50 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

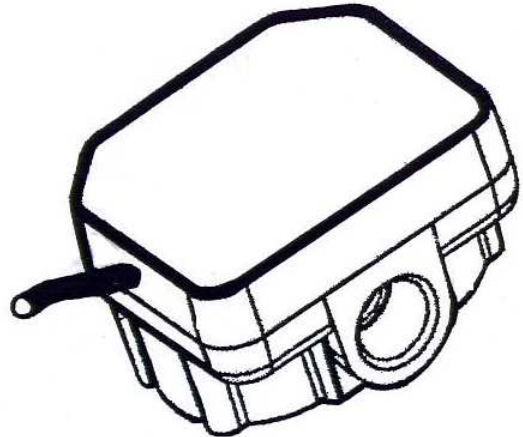
This manual assists you in operating and maintaining your new positive displacement flowmeter. The information contained will help you ensure many years of dependable performance and trouble free operation.

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 if you are using your meter as an in-line application you should install a filter before the inlet of the meter. Contact your local Macnaught distributor for further details.



INSTALLATION

- 1) Do not over tighten connections.
- 2) Ensure the meter is connected so as the fluid is flowing through the meter in the correct direction (refer to Fig 3).



CAUTION

Ensure the fluid supply to the meter is disconnected and the line pressure is released before disassembly.

METER DISASSEMBLY

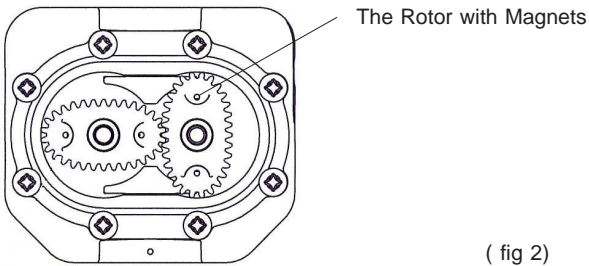
Note: The electronic computer circuit board is non-repairable. The meter will need to be replaced if found to be damaged or faulty.

- 1) Remove the 8 x philips 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: Ensure the rotor with the magnets is assembled on the opposite side to the batteries. The magnets in the rotor must face towards the electronic display .

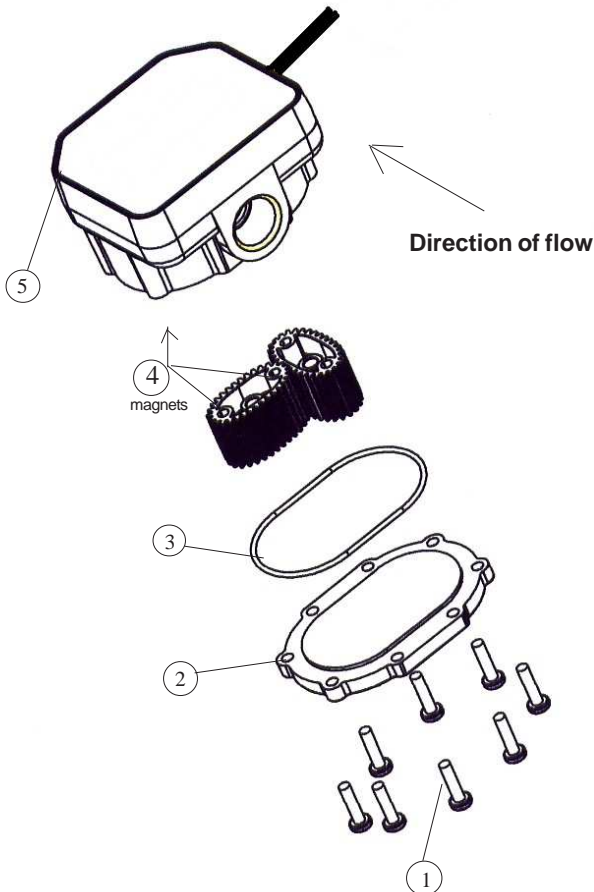
- 1) Replace both rotors (4) so as they are at 90° to each other. (see fig 2). Check the rotor rotation by turning either of the rotors. If the rotors are not in mesh correctly or do not rotate freely remove one of the rotors and replace it correctly at 90° to the other rotor. Re-check the operation of the rotors.
- 2) Lightly grease the o’ring (3) and place it on 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).



(fig 2)

- 4) Install the 8 screws (1) and tighten in a diagonal pattern to 1nm (0.73 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 (No more than a good breath) to the inlet port of the meter. This will confirm the meter is operating correctly.

PARTS DIAGRAM



(Fig3)

REMOVE THE CIRCUIT BOARD

- 1) Remove the decal from the meter face.
- 2) Remove the 4 screws holding the meter cover plate.
- 3) Unscrew the cable grommet and remove the circuit board from the meter body.

REPLACE THE CIRCUIT BOARD

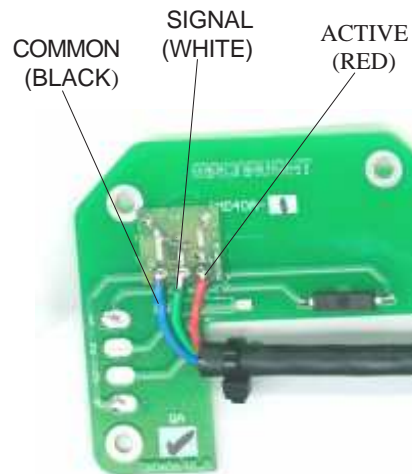
- 1) Thread the cable on your new circuit board through the cable opening and grommet inside the meter housing and carefully place your new circuit board into position.

Note: Be careful not to force or damage the circuit board.

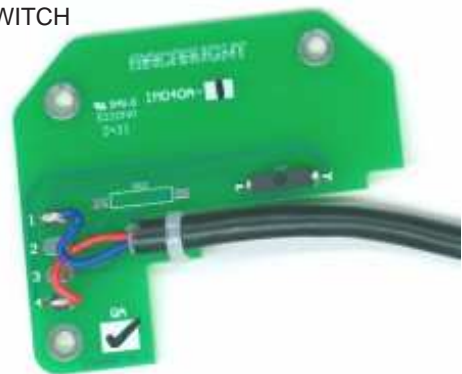
- 2) Carefully place the cover plate over the circuit board and screw the coverplate into position.
- 3) Fit a new facia cover to the meter face
- 4) Slide the cable grommet nut over the cable and thighten to secure the cable.

CIRCUIT BOARD CONNECTIONS

HALL EFFECT SENSOR



REED SWITCH



PARTS LIST

ITEM	PART NO	No. off	ORDER FOR REPLACEMENT		DESCRIPTION
			PART/SET		
1	N65	8	IM011s (incl item 2)		Screw set
2	IM011	1			
3	BS035	1	IM020s		O’ring
4	IM020	2			
5		1	N/A		Meter body
6	IM040A	1	IM040As		Circuit board
7	IM057	1	IM057s		Decal (Not show n)
8	N87	4	N87s		Face plate screw set (not show n)
9	IM685	1	IM685s		Cable grommet set (not Show n)

NOTES:

TROUBLE SHOOTING GUIDE

TROUBLE	CAUSE	REMEDY
No fluid passing through the meter	a) Dirt particles jamming the rotors	a) Remove rotors and remove any dirt or contamination
The meter is not registering fluid output	a) No signal from rotor the magnets	a) Check magnets and replace rotors if required
	b) No signal from rotor the magnets	b) Check magnets and replace rotors if required
	c) Damaged computer (reed switch unit)	c) Replace meter
Meter not accurate	a) Flowrate outside recommended flow rate	a) Adjust flowrate to

SPECIFICATIONS

Accuracy	+ / - 0.5% of Reading
Type	Oval Gear
"K" Factor	112 pulses per Litre (424 pulses per US gallon)
Flow rate	1 Ltr -30 Ltr (0.26 - 7.9 US Gal) per minute
Voltage	5 to 30 volts (Open collector output)
Maximum Pressure	6900kPa / 1000psi / 69 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% w ater)
Wetted Materials	Acetal, Aluminium, Steel, Nitrile Rubber
Connections	1/2" BSP or 1/2" NPT
Maximum Temperature	55 deg C (131 deg F)
Minimum Temperature	-5 deg C (23 deg F)



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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.
 - 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.
- 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.