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| IM182 |
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| 0005 |



IM40 MECHANICAL INLINE METER POSITIVE DISPLACEMENT FLOWMETERS INSTRUCTION MANUAL

INTRODUCTION

The IM40 has been designed specifically to dispense lubricating oils, diesel and kerosene. This high pressure, positive displacement-type meter is suitable for all in-line and end-of-line applications and features a rugged and robust register with Total and re-settable Totals.

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

GENERAL INFORMATION

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 IM40 Distributor.



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.

NOTE: If using in an in line application open the valve slowly to prevent over spinning the rotors.

OPERATION

RESET BUTTON

The **RESET** button allows you to reset the Reset Total to zero.

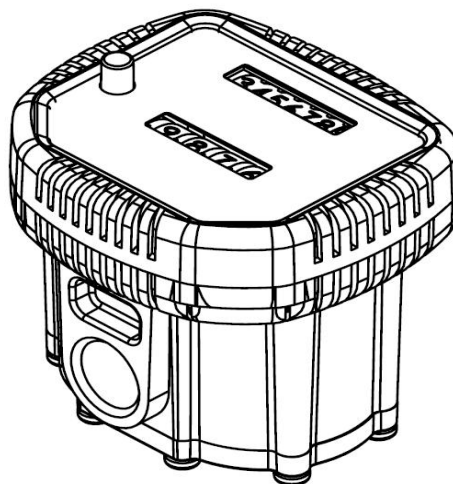


CAUTION

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

REGISTER AND GEAR TRAIN REMOVAL

- 1) Remove the protective shroud (1)
- 2) Peel off the meter faceplate (2)
- 3) Remove the 4 x philips head screws (4)



- 4) Remove the register assembly (3)
- 5) Take careful note of the orientation of the gears on the gear train, then carefully remove the gears (8,5,6,7, litre and quart version) or (8,3x6,7) gallon version.

Note: Assembly is a reversal of the assembly procedure.

- 6) Replace the gears (7,6,5,8) litre and quart versions and (7,3x6,8) gallon version

Note: The register (3) is not repairable and will need to be replaced if faulty or damaged.

- 7) Replace the register (3) and screws (4)
- 8) Fit a new faceplate (2) onto the register face (3)
- 9) Re-fit the protective shroud (1)

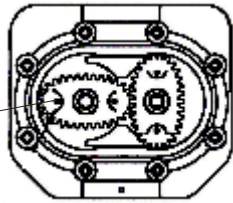
ROTOR REPLACEMENT

- 1) Remove the 8 x philips head screws (13) from the underside of the meter.
- 2) Remove the coverplate (12) and o'ring (11).
- 3) Remove both rotors (10) and inspect for any signs of wear or damage. (Replace if worn or damaged)

NOTE: Ensure the rotor with the magnets is assembled on the correct side (Ref fig 2) The magnets in the rotor must face towards the mechanical display .

- 1) Replace both rotors (10) positioned 90 Deg to each other. (see fig 2). Check rotation by turning the rotors. If the rotors do not rotate freely remove one of the rotors and replace it correctly at 90 Deg to the other rotor. Re-check the operation of the rotors.

- 2) Lightly grease the o'ring (11) and place it on the meter body.
- 3) Clean the meter cover plate (12) and place it on the body. Take care not to damage the o'ring (11).



The Rotor with Magnets

(fig 2)

- 4) Install the 8 screws (13) 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 LIST

| ORDER FOR REPLACEMENT | | | | DESCRIPTION | |
|-----------------------|----------|---------|-------------------------------|--------------------------------|-----------|
| ITEM | PART NO | No. off | PART/SET | | |
| 1 | IM071BKS | 1 | IM071BKS = (BLACK) | PROTECTOR SHROUD SET | |
| 1 | IM071BUS | 1 | IM071BUS = (BLUE) | PROTECTOR SHROUD SET | |
| 1 | IM071GRS | 1 | IM071GRS = (GREEN) | PROTECTOR SHROUD SET | |
| 1 | IM071RDS | 1 | IM071RDS = (RED) | PROTECTOR SHROUD SET | |
| 1 | IM071YLS | 1 | IM071YLS = (YELLOW) | PROTECTOR SHROUD SET | |
| 2 | IM166LS | 1 | IM166Ls (Litre) | FACE PLATE | |
| 2 | IM166QS | 1 | IM166Qs (Quart) | FACE PLATE | |
| | IM166Gs | 1 | IM166Gs (Gallon) | FACE PLATE | |
| 3 | IM168A | 1 | IM168As | REGISTER ASSEMBLY | |
| 4 | N87 | 4 | N87s | REGISTER SCREW SET | |
| 5 | | 1 | IM176s (LITRE) (Incl 5,6,7,8) | GEAR | |
| 6 | | 1 | | IM177s (QUART) (Incl 5,6,7,8) | GEAR |
| 7 | | 1 | | IM178s (Gallon) (Incl 3&6,7,8) | GEAR |
| 8 | | 1 | | BEVEL GEAR | |
| 9 | IM165 | 1 | | METER BODY (BSP) | |
| 9 | IM165-1 | 1 | | METER BODY (NPT) | |
| 10 | IM181A | 2 | IM181s | ROTOR SET | |
| 11 | BS035 | 1 | BS035s | ORING | |
| 12 | IM011 | 1 | IM011s | COVER PLATE | |
| 13 | N65 | 8 | | | SCREW SET |

TROUBLE SHOOTING GUIDE

| TROUBLE | CAUSE | REMEDY |
|---|------------------------------------|---|
| Meter not accurate | Flow rate not correct | Adjust flow rate to correct rate (1-30 Ltr/min) |
| No fluid passing through the meter | Dirt particles jamming the rotors | Dismantle meter assembly and clean (refer to meter disassembly) |
| The meter is not registering fluid output | a) Damaged register assembly (3) | a) Replace register assembly |
| | b) Damaged gear or gears (5,6,7,8) | b) Replace complete gear set, also replace |
| Oil leak from coverplate (11) | Damaged o'rings (12) | Replace damaged o'ring |

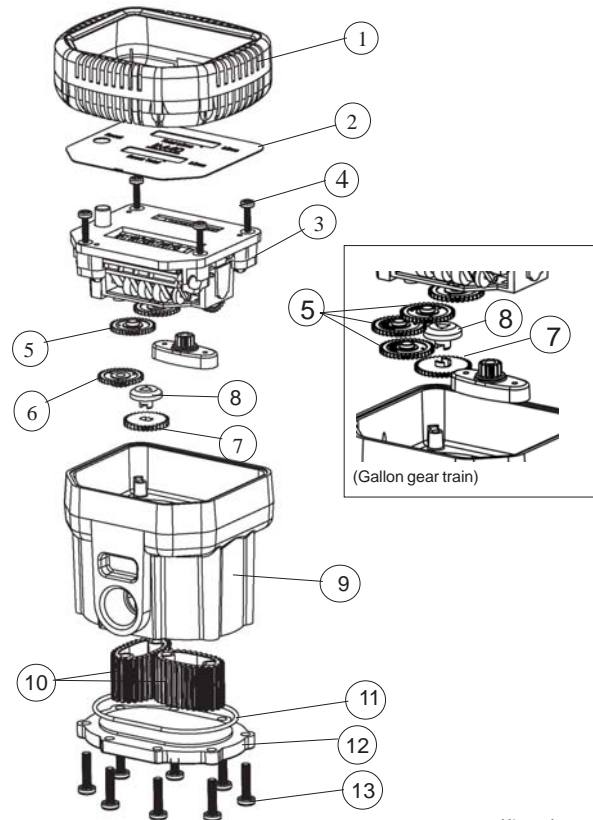
SPECIFICATIONS

| | |
|------------------------|--|
| Wetted components: | Acetal, aluminium, nitrile (NBR), mild steel |
| Accuracy: | +/- 1% |
| Flow Range: | 1-30 litres/minute (0.26-8 US gal/min) |
| Max. working pressure: | 10,350 kPa / 1500 psi / 103.5 Bar |
| Inlet thread: | ½" BSPT or NPT (F) |
| Outlet thread: | ½" BSPT or NPT (F) |
| Operating temperature: | -10°C (14°F) to +55°C (131°F) |
| Weight (approx): | 490g (1.08lbs) |



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PARTS DIAGRAM



(fig 3)

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.
12. 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.