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IM60 MECHANICAL INLINE METER POSITIVE DISPLACEMENT FLOWMETERS

INSTRUCTION MANUAL

INTRODUCTION

The IM60 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 Macnaught 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

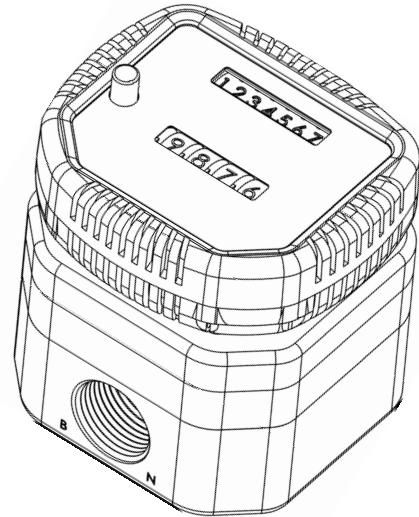
Ensure the fluid supply to the meter is disconnected and the line pressure is released before disassembly.

METER DISASSEMBLY

REGISTER REMOVAL

- 1) Remove the protective shroud (1).
- 2) Peel off the meter faceplate (2).
- 3) Remove the 4 x Philips head screws (3).
- 4) Remove the register assembly (4).

Note: The register (4) is not repairable and will need to be replaced if faulty or damaged. The faceplate will also need to be replaced.



- 5) Assembly is a reversal of the assembly procedure.

GEAR TRAIN REPLACEMENT

- 1) Remove the register (refer to "Register Removal")
- 2) Remove the 8 x socket head screws (23) from the underside of the meter.
- 3) Carefully separate the Register Housing (6) from the Gearbox plate (18).
- 4) Carefully remove the 3 gears (14,15,16)

Note: Do not re-use the old gears. Use new gears when re-assembling.

Note: Ensure the gears are fitted in the correct sequence when re-assembling. Gears are numbered either 0,1 or 2

- 5) Insert gear 0 (16), followed by gear 1 (15) then gear 2 (14). Refer parts diagram.
- 6) Assembly is a reversal of the assembly procedure.

BEVEL GEAR REPLACEMENT

- 1) Separate the register housing from the gearbox plate, refer to "Gear Train Replacement" and follow steps 1-3.
- 2) Pull bevel gear (5) off the shaft (9) from inside register housing (6).

3) Remove gear (13), circlip (12), washer (11), O-Ring (10) and shaft (9) sub-assembly from the underside of register housing (6).

Note: Use all new parts when reassembling the gear and shaft assembly.

4) Assembly is a reversal of disassembly.

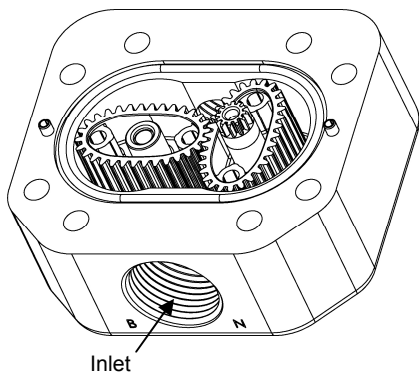
ROTOR REPLACEMENT

1) Remove the 8 x Philips head screws (23) from the underside of the meter.

2) Carefully separate the Gearbox plate assembly (18) from the meter body (22).

3) Remove both rotors (10) and inspect for any signs of wear or damage. (Replace if worn or damaged).

NOTE: When re-assembling the rotors, ensure the rotor with the pinion gear (20) is positioned to the right of the inlet port of the meter.



4) Replace both rotors (19,20) 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.

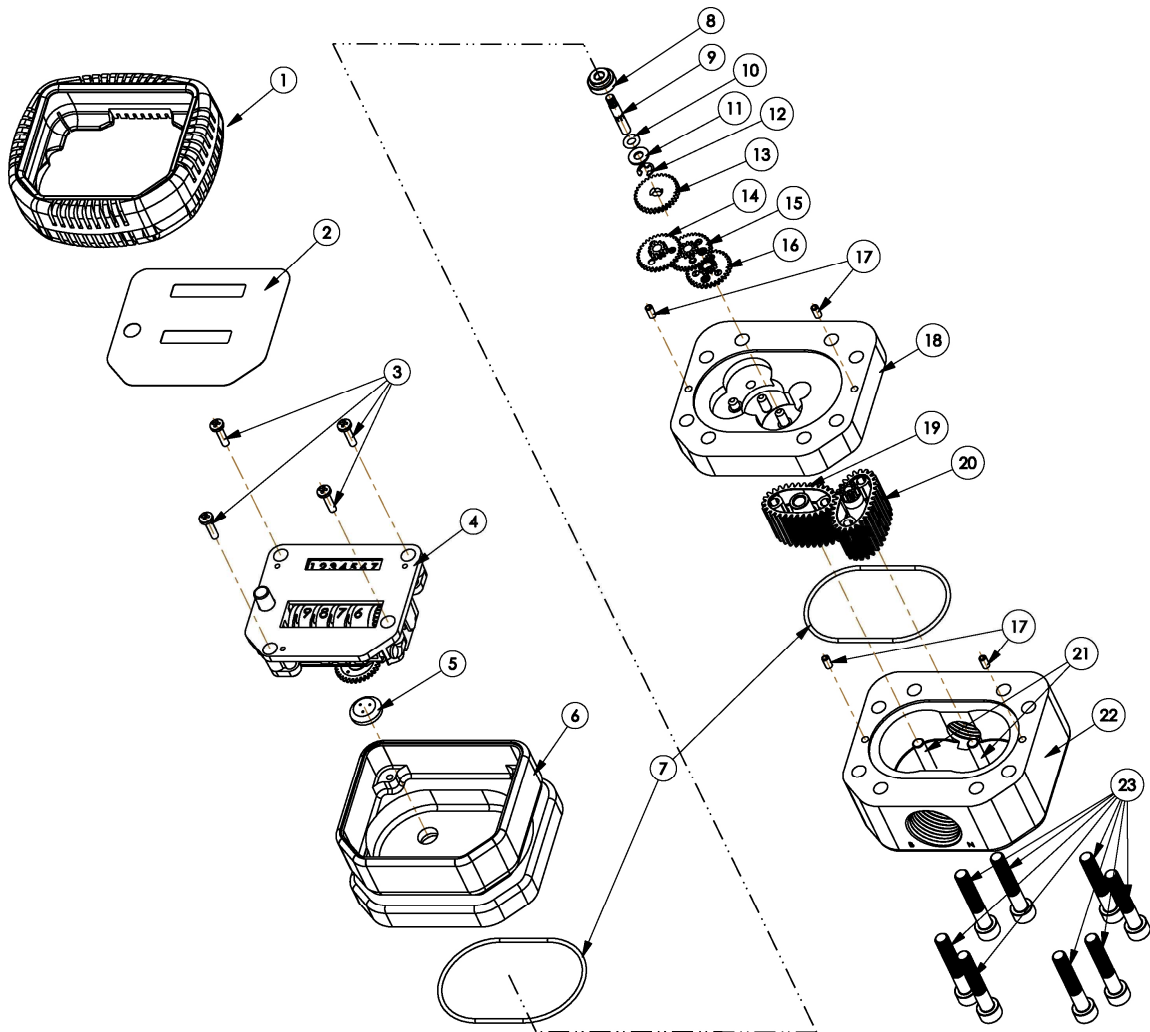
5) Lightly grease the o'ring (7) and place it on the meter body.

6) Clean the gearbox plate (18) and place it on the body. Take care not to damage the o'ring (7).

7) Replace the 8 x socket head screws (23).

8) Re-fit the protective shroud (1).

PARTS DIAGRAM



SPARE PARTS LIST

			ORDER FOR REPLACEMENT	
ITEM	PART NO	No. off	PART/SET	DESCRIPTION
1	IM071BKS	1	IM071BKS = (BLACK)	Protective Shroud
1	IM071BUS	1	IM071BUS = (BLUE)	Protective Shroud
1	IM071GRS	1	IM071GRS = (GREEN)	Protective Shroud
1	IM071RDS	1	IM071RDS = (RED)	Protective Shroud
1	IM071YLS	1	IM071YLS = (YELLOW)	Protective Shroud
2	IM166L	1	IM166Ls	Decal
3	N87	4	N87s	Screw (M3 x 12)
4	IM168A	1	IM168Ls (incl item 2)	Register Assembly
5	HG235	1	order HG233s	Bevel Gear
6	IM205	1	IM205s	Register Housing
7	BS035	2	BS035s	O'Ring
8	HG233	1	HG233S (INCL ITEM 5)	Brass Bush
9	HG232	1		Outlet Shaft
10	BS007V	1		O'Ring (Viton)
11	N138	1		Washer
12	N266	1		Circlip (E-Clip)
13	IM176	1	HG243s	Gear (Litre)
14	HG245	1		Gear (Litre)
15	HG246	1		Gear
16	HG243	1		Gear
17	N270	4	N/A	Roll Pin
18	IM203	1	IM203s	Gearbox Plate
19	HG005	1	HG006s (INCL ITEM 7)	Oval Gear
20	HG006	1		Oval Gear - with Pinion
21	HG008	2	N/A	Dowel Pin
22	IM206	1	IM206s (incl item 21)	Meter Body
23	MS333	8	MS333s	Allen Screw - (M6 x 35)

TROUBLE SHOOTING GUIDE

TROUBLE	CAUSE	REMEDY
Meter not accurate	Flowrate not correct	Adjust flowrate to correct rate (1-50 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 (4) b) Damaged gear or gears (5,13,14,15,16)	a) Replace register assembly b) Relpace complete gear set.
Oil leak from between gearbox plate (18) and the meter body (22)	Damaged o'ring (7)	Replace damaged o'ring (7)
Oil leak from between gearbox plate (18) and the register housing (6)	Damaged o'ring (7)	Replace damaged o'ring (7)
Oil in the register housing	Damaged o'ring (10)	Replace damaged o'ring (10)

SPECIFICATIONS

Accuracy:	+/- 1%
Max. working pressure:	10,350 kPa / 1500 psi / 103.5 Bar
Flow Range:	1-50 litres/minute (0.26-13 US gal/min)
Wetted components:	Acetal, Aluminium, Nitrile (NBR), Mild Steel
Inlet thread	3/4" BSPT or NPT (F)
Outlet thread:	3/4" BSPT or NPT (F)
Operating temperature:	-10°C (14°F) to +55°C (131°F)
Weight (approx):	950g (2.09lbs)



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