

# DM100 POSITIVE DISPLACEMENT FUEL METER

## INSTRUCTION MANUAL

### Thankyou for purchasing a DM100 Positive Displacement Fuel Meter.

The DM100 fuel meter 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 low pressure drop through the meter makes the meter ideally suited for use in gravity applications or with the Commercial Fuel Solutions range of electric fuel pumps.

We provide a full range of pumps flow meters and accessories to suit most of you fluid transfer needs oil, please consult your local reseller for more information.

With your appropriate care combined with the 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 DM100 Fuel Meter. 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 oil pump. If you experience problems with the product, refer to the Maintenance and Trouble Shooting sections of this manual. If you require further assistance please contact your local Distributor



### IMPORTANT INFORMATION

recommends, that as added protection to your equipment you install a fuel filter assembly in line before the inlet of your DM Fuel Meter. Contact your local distributor for further details.



**Observe precautions against fire or explosion when dispensing fuel. Do not operate the meter in the presence of any source of ignition including running or hot engines, lighted cigarettes or gas or electric heaters.**

**Ensure that you follow all the correct earthing and grounding procedures before use.**

**Regularly inspect seals and connections for leaks when using Flammable liquids.**

**Do not use teflon tape on any connections when using flammable liquid.**

### INSTALLATION

- 1) Ensure the meter is installed so the flow of the liquid is in the direction of the arrows embossed on the meter body.
- 2) The meter can be installed in any orientation as long as the meter shafts are in a horizontal plane. (see fig 2 for correct installation) The register assembly may be rotated to suit the individual installation.



**Note:**

**Incorrect installation can cause premature wear of components.**

3) Do not over tighten connections.

### REGISTER ROTATION

- 1) Unscrew the 4 screws (32) holding the register assembly (26).
- 2) Carefully lift off the complete register assembly (26) from the register base (9).
- 3) Rotate the register assembly to the desired position.
- 4) Carefully re-fit the register assembly to the meter body.



### CAUTION

**Do not force the register when re-fitting to the meter body. Ensure that both the register drive gear and meter drive gears are properly engaged before replacing the register screws, or damage may occur.**

- 5) Replace the 4 register screws (32).

### METER DISASSEMBLY

- 1) Ensure that the fluid supply to the meter is disconnected, and the line pressure is released before disassembly.
- 2) Unscrew the 4 screws (32) holding the register assembly.
- 3) Carefully lift off the complete register assembly (26) from the register base (9).
- 4) Remove the 4 gear box cover screws (25,32) and carefully remove the gear box cover assembly (16-23), o'ring (24) and gears (13,14,15) from the gear box.

**NOTE:** The gears on the gear box cover assembly should not be removed. If there is any wear or damage the complete gear box cover assembly should be replaced.

- 5) Remove the 4 hex bolts (11) holding the register base (9) to the meter body (1), remove the meter body o'ring (8) and both rotors (6,7).

Check all components for wear or damage and replace as required.

### METER REASSEMBLY

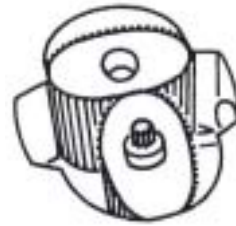
- 1) Clean all components before reassembly.

#### NOTE:

The rotor with the drive pinion (6) must be fitted to the rotor cavity which has D/Gear marked on the meter body.

- 2) Replace the rotors (6,7) so as they are at 90° to each other. (see fig3). Check the rotor rotation by turning either of the rotors. If the rotors are not in mesh correctly or do not move freely remove one of the rotors and replace it correctly at 90° to the other rotor. Recheck the operation of the rotors.
- 3) Insert o'ring (8) into the o'ring groove on the register base (9).

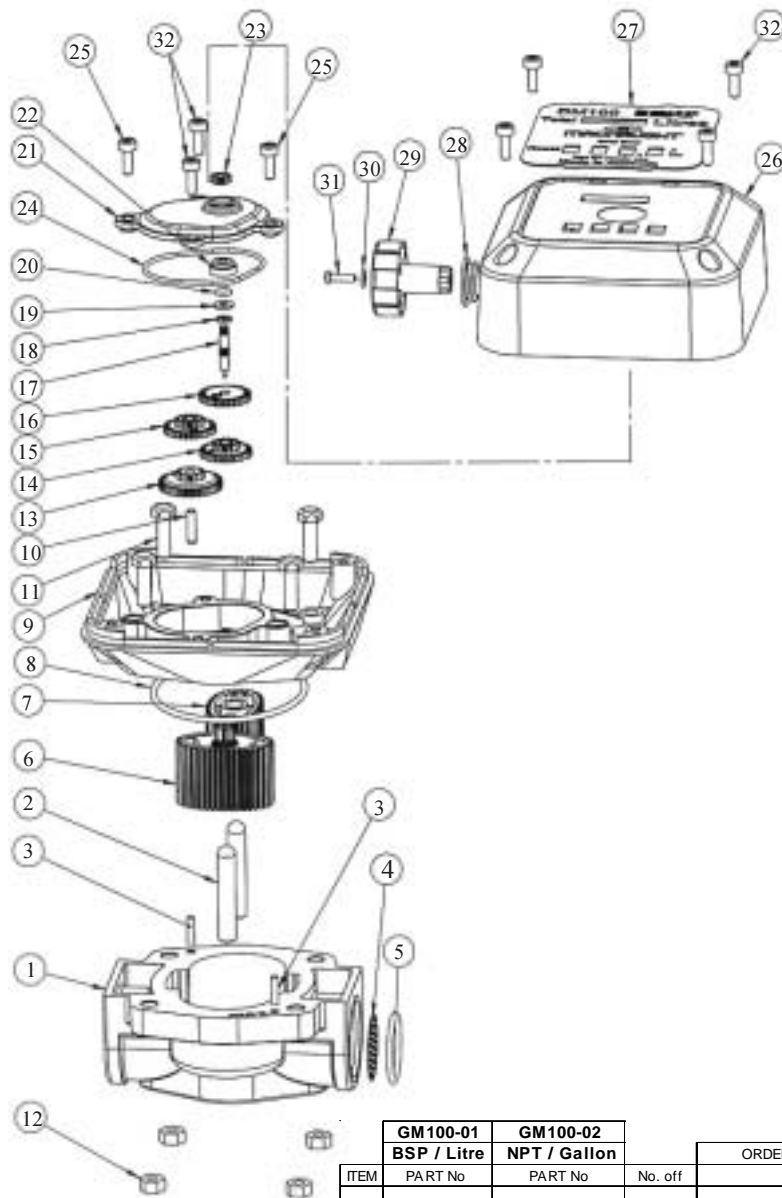
- 4) Carefully align the spring pins (3) on the meter body (9) to the spring pin holes on the register base (9).



( fig3 )

- 5) Replace the 4 hex screws (11) and nuts (12) and tighten firmly.
- 6) Insert gear (13) marked L1(Litre) or Q1 (Quart) onto the shaft (10) located in the gear box.
- 7) Place the gear (14) marked L2 (Litre) or Q2 (Quart) on top of gear 1. The hole in gear 2 (14) should be positioned to align with the output shaft hole in the gear box.
- 8) Place the gear (15) marked L3 (Litre) or Q3 (Quart) onto the same shaft (10) as gear 1 (13).
- 9) Insert the gearbox cover o'ring (24) into the o'ring groove on the gear box cover (21)
- 10) Fit the gear box cover assembly by carefully inserting the output shaft (17) through gear 2 (14), and into the output shaft hole in the gear box.
- 11) Fit the 4 gear box cover screws (25,23) and tighten securely.
- 12) Rotate the register assembly to the desired position.
- 13) Carefully re-fit the register assembly to the meter body.
- 14) Press the reset button to reset the batch total to zero
- 15) 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 and that the number wheels are ascending.

## PARTS DIAGRAM



## PARTS LIST

ITEM	GM100-01		No. off	ORDER FOR REPLACEMENT		DESCRIPTION
	BSP / Litre	NPT / Gallon		PART / SET	KIT. REF	
				GM100-1K (A)		SEAL KIT
						METER BODY
1	ME021 (BSP)	ME036 (NPT)	1			DOWEL PINS
2	N322	N322	2			SPRING PINS
3	N350	N350	2	ME021s (Litre / BSP)		STRAINER
4	ME034	ME034	1	ME036s (US Gal / NPT)	A	O'RING (Viton)
5	BS121V	BS121V	1		A	ROTOR w ith DRIVE PINON
6	ME023	ME023	1	ME023s		ROTOR
7	ME022	ME022	1			O'RING (Viton)
8	BS150V	BS150V	1		A	REGISTER BASE
9	ME019	ME019	1	ME019s		DOWEL PIN
10	N352	N352	1			HEX SCREW (M6 X 20)
11	N75	N75	4	N75s		NUT (M6)
12	N202	N202	4			1st GEAR
13	ME027	ME015	1			2nd GEAR
14	ME028	ME016	1			3rd GEAR
15	ME029	ME031	1			4th GEAR
16	ME030	ME032	1	ME035s (Litre)		OUTPUT SHAFT
17	ME014	ME014	1	incl 2x item 25, 2 x item 32		CIRCLIP
18	N266	N266	1	ME035US (US Gal)		WASHER
19	N138	N138	1	incl 2x item 25, 2 x item 32		O'RING (Viton)
20	BS007V	BS007V	1		A	GEAR BOX COVER
21	ME035	ME035	1			BUSH
22	HG233	HG233	1			GEAR
23	ME012	ME012	1			O'RING (Viton)
24	BS032V	BS032V	1			SCREW (M4 X 16)
25	N65	N65	2	N65s incl 2 x item 32		REGISTER ASSEMBLY
26	ME041s (Litre)	ME041US (US Gal)	1			FACIAL PLATE
27	ME017 (Litre)	ME020 (US Gal)	1			WEATHER SEAL
28	ME033	ME033	1		A	WEATHER SEAL
29	ME025	ME025	1	ME025s		KNOB
30	N118	N118	1		ME041s (Litre)	WASHER
31	N30	N30	1		ME041US (US Gal)	SCREW
32	N70	N70	6			SCREW (M4 X 12)

## TROUBLE SHOOTING GUIDE

TROUBLE	CAUSE	REMEDY
Fluid will not flow through the meter	a) Foreign matter blocking the rotors (6,7)	a) Dismantle the meter and clean the rotors (6,7) (Fit an in line strainer)
	b) Strainer (4) is blocked	b) Clean strainer (4)
	c) Damaged rotors (6,7)	c) Replace rotors (6,7)
	e) Connections over tightened	e) Re-adjust connections
Reduced flow through the meter	Strainer partially blocked (4)	Clean strainer (4)
Meter reading inaccurate	a) Flow rate is either too high or too low	a) Adjust flow rate (refer to specifications)
	b) Excess wear caused by incorrect installation	b) Check meter body (1) register base (9) and rotors (6,7) for wear or damage.(Replace as required)
Fluid flows but no reading on the meter	a) Drive gear loose (23)	a) Replace gear box cover assembly (16-23)
	b) Rotor (6) drive gear damaged	b) Replace rotor (6)
	c) Gearbox gears (13-16) damaged	c) Replace damaged gears
	d) Register gears damaged	d) Replace register assembly
Fluid leaks into the register	Damaged o'ring (20) or o'ring (24)	Replace gear box cover assembly (13-23) or o'ring (24)

## SPECIFICATIONS

Accuracy	+ / - 1% of Reading
Type	Oval Gear
Flowrate	3 Ltr -80 Ltr (0.8 - 21.1 US Gal) per minute
Maximum Pressure	1000kPa / 145psi / 10 Bar
Suitable for use with :	Diesel, Petrol, and oils up to 1000cps
Resettable Totalizer	999.9 ( ltr or gal )
Non-Resettable Totalizer	999999 ( ltr or gal )
Connections	1" BSP or 1" NPT