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TM TURBINE FLOWMETER

INSTRUCTION MANUAL

INTRODUCTION

Thank you for purchasing a Macnaught TM Flowmeter.

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

GENERAL INFORMATION

The Macnaught TM Flowmeter is an electronic digital turbine meter which is factory calibrated for precise measurement of diesel, kerosene and petrol.

The low pressure drop and high pressure rating allows the TM to be used for both gravity and pump (in-line) applications.

INSTALLATION

Note: Use thread sealant on all pipe threads

- 1) For pump hose end applications, use the appropriate fittings and install the meter as shown in figure 1. Make sure that the arrow on the meter port outlet points in the direction of the fluid flow.

NOTE: Use a spanner to hand tighten the fittings at each end of the meter housing.

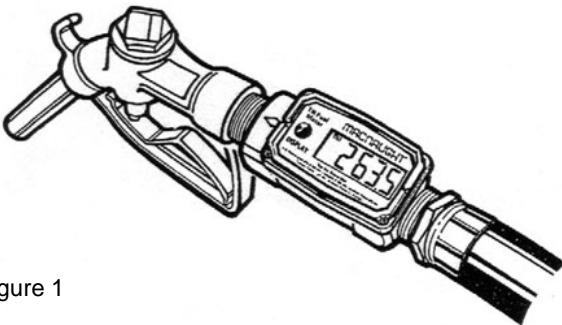


Figure 1

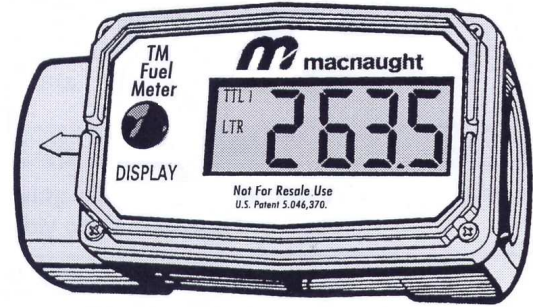
- 2) For applications, the meter may be installed either in a horizontal or vertical position. Make sure the arrow on the meter outlet port points in the direction of the fluid flow.



CAUTION

When using meter with petrol and kerosene. The meter must **NOT** be fitted in a hose or at the nozzle end of a powered operated petrol pump. The meter may be installed in a pipeline provided that it is:

- * at least 1.5m above ground and above the pump.



- * at least 1.5m horizontally from the pump.

- * and at least 1m further away from anywhere the nozzle can reach horizontally.

The meter may be installed in a pipeline provided that the meter is outside the Hazardous Areas as defined in Australian Standard AS2430.3 Section 9 "Petrol Dispensing and Service Stations."

OPERATION

The TM meter maintains two totals. The batch total may be reset to measure flow during a single use. The cumulative total provides continuous measurement and may not be manually reset. The batch total is labeled as TTL1. The cumulative total is labeled TTL2.

When the cumulative total reaches a maximum reading of 9999, it will automatically reset to zero.

Press the DISPLAY button briefly to switch between the batch and cumulative total.

Turn the meter ON by starting fuel flow or briefly pressing the DISPLAY button. The meter will display the batch or cumulative total from last use.

Press DISPLAY briefly to display the batch total. Hold the DISPLAY button down for three seconds to reset the batch total to Zero.

The meter is programmed to turn off automatically if not used for one minute.



CAUTION

DO NOT operate meter within 2 to 5cm of an electric motor.

SERVICE INSTRUCTIONS

Proper handling and care will extend the life and service of the meter.

The TM meter is virtually maintenance-free. However, it is important the rotor moves freely. Keep the meter clean and free of contaminants.

If the rotor does not turn freely, apply a penetrating lubricant on the rotor, shaft, and bearings. Remove any debris or deposits from the rotor using a soft brush or small probe. Be careful not to damage the turbine rotor or supports.



Blowing compressed air through the turbine assembly could damage the rotor.

Battery Replacement

The TM meter is powered by two AAA alkaline batteries which may be replaced while the meter is installed. When batteries are removed or lose power, the batch and cumulative totals reset to zero but the factory calibration is retained.

If the meter display becomes dim or blank, replace the batteries as follows:

- 1) Remove the four Phillips-head screws from the face of the meter and lift the faceplate from the turbine.
- 2) Remove the old batteries and clean any corrosion from the terminals.
- 3) Install new batteries. Make sure the positive post is in the correct position.
- 4) When the batteries are replaced, the faceplate will power ON. Check the display to ensure normal functions have resumed before assembling again.
- 5) Reseat batteries, if necessary, and position the faceplate on the turbine housing. To avoid moisture damage, make sure the seal is fully seated. Tighten the four screws on the faceplate.

TECHNICAL SPECIFICATIONS

Accuracy:	+/- 5% of reading
Flow Range:	10-100 litres/minute
Max. working pressure:	2000 kPa / 300 psi / 20 Bar
Inlet / Outlet Thread	1" BSPT
Max temperature:	54°C (131°F)
Weight (approx):	370 grams
Dimensions	102mm (L) x 54mm (W) x 62mm (H)



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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 "Macnaught design" 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.
- 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.