

# National Standards Commission



## Certificate of Approval

No 5/6A/95

Issued under Regulation 9  
of the  
National Measurement (Patterns of Measuring Instruments) Regulations

This is to certify that an approval for use for trade has been granted in respect of the

Metric Calibration Model T181 Driveway Flowmeter

submitted by Metric Calibration Services Pty Ltd  
4B Melissa Street  
Auburn NSW 2144.

**NOTE:** This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

### CONDITIONS OF APPROVAL

This approval is subject to review on or after 1/5/97.  
This approval expires in respect of new instruments on 1/5/98.

Instruments purporting to comply with this approval shall be marked NSC No 5/6A/95 and only by persons authorised by the submittor.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the Commission and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with the Commission's Document 106.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0/A.

### DESCRIPTIVE ADVICE

**Pattern:** approved 1/5/92

A Metric Calibration model T181 driveway flowmeter approved for use in attendant-operated, or locally or remotely-authorized applications.

**Variant:** approved 1/5/92

1. In certain other configurations.

Technical Schedule No 5/6A/95 describes the pattern and variant 1.

**Variant:** approved 22/2/93

2. With a submersible turbine pump hydraulic system.

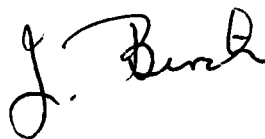
Technical Schedule No 5/6A/95 Variation No 1 describes variant 2.

### FILING ADVICE

Certificate of Approval No 5/6A/95 dated 9/10/92 is superseded by this Certificate and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 5/6A/95 dated 25/6/93  
Technical Schedule No 5/6A/95 dated 9/10/92 (incl. Test Procedure)  
Technical Schedule No 5/6A/95 Variation No 1 dated 25/6/93 (incl. Test Procedure)  
Figures 1 and 2 dated 9/10/92  
Figure 3 dated 25/6/93

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.





## National Standards Commission

### TECHNICAL SCHEDULE No 5/6A/95

**Pattern:** Metric Calibration Model T181 Driveway Flowmeter.

**Submittor:** Metric Calibration Services Pty Ltd  
4B Melissa Street  
Auburn NSW 2144.

#### 1. Description of Pattern

A Metric Calibration model T181 driveway flowmeter approved for use to dispense various grades of petrol over a flow rate range of 15 to 55 L/min, in attendant-operated, or locally or remotely-authorized applications.

Instruments may be as shown in Figures 1 and 2, or in alternative housings.

#### 1.1 Features

The model T181 has the following components or features:

- Two Gilbarco type T258 pump units with internal or external gas separator, and mounted integrally with or remotely from the flowmeter.
- Two Gilbarco type T257 gas separator sumps. The pump and gas separator are matched to the flow rate and products of the flowmeter.
- Two Gilbarco type T262-1 2-piston meters.
- Any Gilbarco Calcopac computing indicators as described in the documentation of NSC approval No S100A.
- An optional preset facility, using a flow control valve. The instrument may be fitted with a purchaser-operated preset control or the preset facility may be set via the vendor's console.
- ZVA or any other Commission-approved nozzles.

#### 1.2 Sealing and Verification/Certification Provision

Provision is made for the application of a verification/certification mark. The meter calibration is sealed.

### 1.3 Markings

Instruments are marked with the following data, together in one location:

Manufacturer's name or mark	
Model number	
Serial number	
NSC approval number	5/6A/95
Maximum flow rate	..... L/min
Minimum flow rate	..... L/min
Maximum operating pressure	..... kPa
Approved for use with (products)	.....

## 2. Description of Variants

### 2.1 Variant 1

Other configurations as listed below:

- As a single driveway flowmeter.
- With a Production Engineering model Retron 80 computing indicator as described in the documentation of NSC approval No S101A.
- For use with products other than petrol (#).
- With an alternative Gilbarco meter, viz. a type T262 B-series 4-piston meter or a type T262 C-series 4-piston meter, each approved for use up to 90 L/min (#).

# A gas detection system is mandatory for products other than petrol, and is required for petrol when the flow rate exceeds 55 L/min. The system comprises either a gas detection and flow control valve or a gas detection pilot valve and flow control valve.

## TEST PROCEDURE

Instruments should be tested in accordance with any tests included in the approval documentation for the control console (where used), and in accordance with any relevant tests specified in the Inspector's Handbook.

### Maximum Permissible Errors at Verification/Certification

The maximum permissible error applied during a verification test from normal flow rate to the minimum flow rate specified in the Certificate of Approval or Technical Schedule is  $\pm 0.3\%$ .



## National Standards Commission

TECHNICAL SCHEDULE No 5/6A/95

VARIATION No 1

**Pattern:** Metric Calibration Model T181 Driveway Flowmeter.

**Submittor:** Metric Calibration Services Pty Ltd  
4B Melissa Street  
Auburn NSW 2144.

### 1. Description of Variant 2

With a submersible turbine pump hydraulic system replacing the equivalent components (i.e. motor, pump/gas separator, and associated pipework) in any driveway flowmeter covered by this approval, in which case the model number now has a 'D' suffix.

The replacement hydraulic system (Figure 3) includes one or more Red Jacket model P75S3-3 or P150S3-3 submersible turbine pumps and one or more Red Jacket model PLD 116-030-5 or XLP 116-035-5 mechanical leak detectors.

More than one driveway flowmeter may be connected to the same submersible turbine pump hydraulic system.

## TEST PROCEDURE

### For Submersible Turbine Pump Hydraulic Systems

1. Operation of the leak detector is tested by the following procedure:

**Note:** This Test should be carried out on initial verification. Thereafter, it need not be done at every verification/certification but should be done periodically at the discretion of the relevant verifying authority.

- a) Connect a pressure gauge and test valve to the test port of the impact valve ('safety shut-off valve') under the driveway flowmeter. Ensure that the submersible turbine pump is not turned on during this operation by disabling at the STP control box.
- b) Start the test by closing the test valve. The line pressure should be zero as indicated on the pressure gauge. At the control box, enable the pump and dispense at least 15 L of fuel to remove any air introduced by installing the gauge and valve.

- c) Turn off the pump and open the test valve sufficiently so that a steady, unbroken stream of fuel is observed to flow from the test valve. Wait until flow ceases from the valve and the gauge reads zero. Leave the test valve open.
- d) Start the pump by lifting the operating flap, but leaving the nozzle closed. A steady stream of fuel should be observed to flow from the test valve. The pressure on the gauge should not exceed 150 kPa during this step.

Attempt to deliver fuel from the nozzle. A flow rate of less than 11 L/min indicates correct operation of the leak detector.

- e) Close the test valve and nozzle with the pump still running. A rise in pressure on the gauge should be noted after not more than 10 seconds.
- f) Disable the pump at the control box. Remove the test fixture and replace the plug in the test port. Enable the pump, and dispense at least 15 L of fuel from the flowmeter to remove any air introduced into the system.

2. The minimum flow rate test is performed by simultaneously running either all hoses on all driveway flowmeters connected to a particular submersible turbine pump (where the number of hoses is 6 or less) or by simultaneously running between 2/3 and 3/4 of all such hoses (where the number of hoses is more than 6). For the purpose of this test, where two or more pumps are connected in parallel, they shall be considered as one pump. Check that the lowest flow rate is not less than 15 L/min.

Note: This Test should be carried out on initial verification. Thereafter, it need not be done at every verification/certification but should be done periodically at the discretion of the relevant verifying authority.

3. For systems where more than one driveway flowmeter is connected to the same pump, begin a delivery from one flowmeter.

While this delivery is still in progress, attempt to make a delivery from a 2nd flowmeter connected to the same pump WITHOUT this flowmeter first being authorised (either locally or remotely) and WITHOUT the indicator reset cycle for this flowmeter first being initiated; the 2nd delivery should not be possible.

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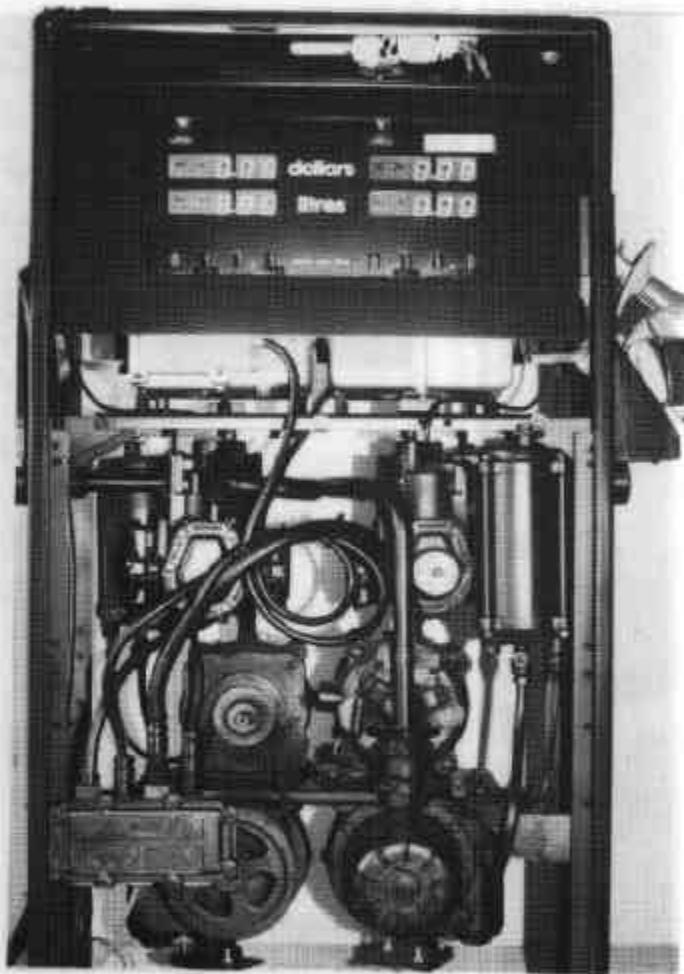
FIGURE 5/6A/95 - 1



Metric Calibration Model T181 Driveway Flowmeter

5/6A/95  
9/10/92

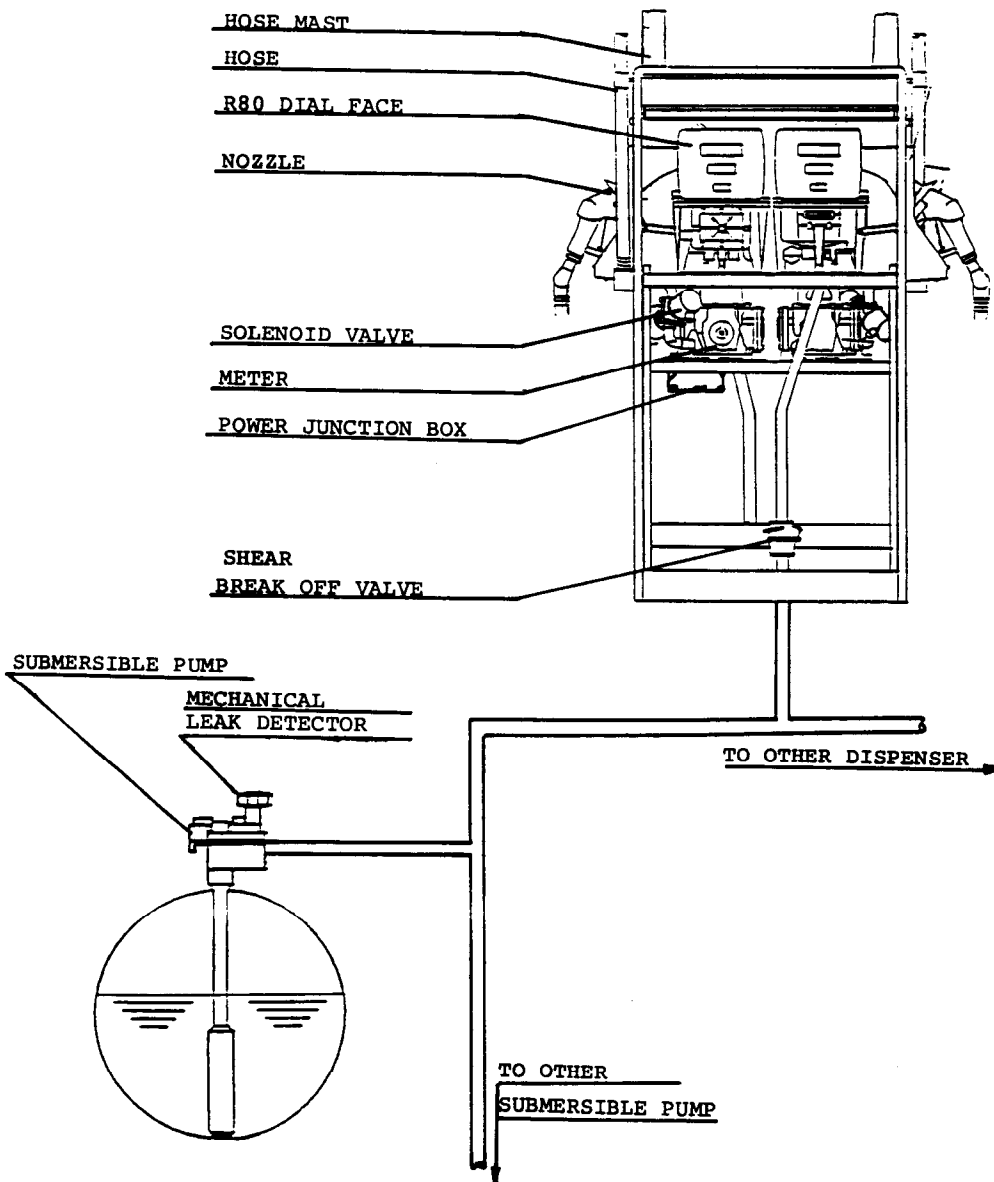
FIGURE 5/6A/95 - 2



Model T181 With Covers Removed



FIGURE 5/6A/95 - 3



Typical Submersible Turbine Pump Hydraulic System