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CERTIFICATE OF APPROVAL No 5/6B/38

This is to certify that the patterns of the

Gilbarco Flowmeter (Pipeline) with Tokheim 1400-20 or 1450-20 Meter

submitted by Gilbarco Australia Ltd,
16-34 Talavera Road,
North Ryde, New South Wales, 2113,

have been approved under the Weights and Measures (Patterns of Instruments) Regulations as being suitable for use for trade.

Date of Approval: 14 December 1976

The patterns are described in Technical Schedule No 5/6B/38, and in drawings and specifications lodged with the Commission.

The approval is subject to review on or after 1 December 1981.

All instruments conforming to this approval shall be marked with the approval number "NSC No 5/6B/38".

Approval is granted on condition that:

1. The maximum flow rate is a flow rate between 225 and 450 ℓ/min when the liquid for which the instrument is verified has a viscosity of more than 3 mPa.s at 20°C.
2. The flow rate is 400 ± 40 ℓ/min when the liquid for which the instrument is verified has a viscosity less than 3 mPa.s at 20°C.
3. The viscosity of the liquid measured is between 0,4 and 200 mPa.s.
4. The liquid (commercial or technical name) for which the instrument is verified is nominated on the instrument data plate.
5. The pump suction operates under a positive liquid head.
6. The supply tank is of sufficient capacity to ensure that the liquid in the tank does not fall to a level at which air could be drawn into the pump, or a device is fitted to prevent the level of the liquid falling to a level at which air could be drawn into the pump.

Signed

Executive Officer

26/9/77

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 5/6B/38

Pattern: Gilbarco Flowmeter (Pipeline) with Tokheim 1400-20 or 1450-20 Meter

Submittor: Gilbarco Australia Ltd,
16-34 Talavera Road,
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5. The pump suction operates under a positive liquid head.

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All instruments conforming to this approval shall be marked "NSC No 5/6B/38".

Description:

The pattern (see Figure 1) is a flooded-suction pipeline flowmeter.

Tne flowmeter comprises tne following:

1. Supply tank.

2. Pump — a non-positive displacement pump witn a falling nead to flow cnaracteristic mounted lower tnan tne minimum neignt of tne liquid in tne supply tank. Tne supply pipe from tne tank nas a continuous fall to tne pump. Provision is made for a pressure gauge to be connected to tne suction side of tne pump.

   Tne pump is for tne exclusive use of tne flowmeter, tnat is, witnout alternative outputs; alternatively tne flowmeter flow rate stays witnin tne approved flow-rate range for all combinations of alternative uses of tne output from tne pump.

3. Non-return valve in tne pipe between tne pump and tne "gas purger" or an arrangement of tne components and piping to keep tne system full of liquid at all times.

4. Tokneim 1506-20 gas purger and strainer (see Figure 2) — purges tne gas for tne pipe on initial start-up or after any maintenance wnicn nas necessitated emptying tne pipes.

5. Tokneim 1450-20 offset 50-mm meter (see Figure 2).

6. Veeder-Root 7085 zero-start single-nandle reset indicator and ticket printer (see Figure 2). Tne ticket printer nas 1-litre increments and tne indicator nas a 1-litre scale interval; tne first element is marked witn ten scale-mark lines numbered from 0 to 9. Tne aperture tnrougn wnicn tne first element is viewed is widened in tne direction of travel.

7. Outlet-control valve — located downstream from tne meter fitted witn no intermediate offtake. It is followed by an anti-drain valve wnicn retains a pressure of not less tnan 55 kPa or incorporated in an arrangement of piping wnicn ensures tnat tne meter and delivery pipe do not drain.

   Wnen tne liquid for wnicn tne meter is verified nas a viscosity less tnan 3 mPa.s at 20°C, tne outlet-control valve is not of a type wnicn can be used as a flow-control device (tnrottling valve).

   Tne anti-drain valve if fitted or, if not fitted, tne outlet-control valve is tne point at wnicn tne delivery occurs.

8. Sealing —

(a) the meter calibration, cover-plate bolts and the attachment-mounting bolts are sealed with a sealing wire, the ends of which are terminated beneath a fixed lead-plug seal (see Figure 2); and

(b) a data plate marked:

(i) "verified for ...x...", x being the name of the specific liquid for which the instrument is verified*; and

(ii) "maximum flow rate ...y... ℓ/min, y being 225 and 450 ℓ/min, if the liquid for which the instrument is verified has a viscosity of more than 3 mPa.s at 20°C, or

(iii) "operating flow rate 400 ± 40 ℓ/min" if the liquid for which the instrument is verified has a viscosity of less than 3 mPa.s at 20°C,

is attached to the instrument either by the above sealing wire or by a lead-plug seal (see Figure 3).

The approval includes the following:

1. A Veeder-Root 1624 zero-start indicator with a scale interval

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* The approval for each of the following liquids is based upon the liquid having a viscosity within the range specified for temperatures of 5°C to 40°C, taking into account the variations in the viscosity of each product which occur with the output from a single refinery or between different refineries and at different times throughout each year:

Liquid[1]	Permitted viscosity range
Petrols	0,4 to 0,7 mPa.s
Kerosene[2]	0,6 to 2,2 mPa.s
Heating oil[3]	0,8 to 4,0 mPa.s
Diesel fuel	1,7 to 8,3 mPa.s
.....[4]	8,3 to 200 mPa.s

Note: [1] A known trade abbreviation of the name of the liquid is acceptable.

[2] "Kerosene" includes white spirits and aviation turbine fuel.

[3] Petrol, kerosene and heating oil have a viscosity of less than 3 mPa.s at 20°C.

[4] Name of liquid petroleum to be inserted.

of 1 litre; tne first element is marked witn ten scale-mark lines numbered from 0 to 9 (see Figure 4).

2. A Veeder-Root 7084 single-nandle reset accumulative ticket printer and zero-start indicator. Tne ticket printer nas 1-litre increments and tne indicator nas a 1-litre scale interval. Tne aperture tnrougn wnicn tne first element is viewed is widened in tne direction of travel.

3. A Tokneim 1400-20 50-mm inline meter.

Special Tests:

1. Tne instrument snould be tested witn tne liquid for wnicn it will be used and wnicn is marked on tne instrument data plate.

2. If a device is fitted to prevent tne level of tne liquid in tne supply tank falling to tne level of tne pump, at least one delivery snould occur during wnicn tne device stops tne delivery. It will be necessary to refill tne supply tank to finisn tne delivery into tne proving measure. Tne effect of gas on tne quantity delivered snould not exceed 0,5 litre.

3. Minimum delivery — tne minimum delivery will be 200 litres wnen an accumulative ticket printer is fitted, 100 litres wnen a zero-start ticket printer is fitted, and 20 litres wnen only an indicator is fitted.

4. Flow rate —

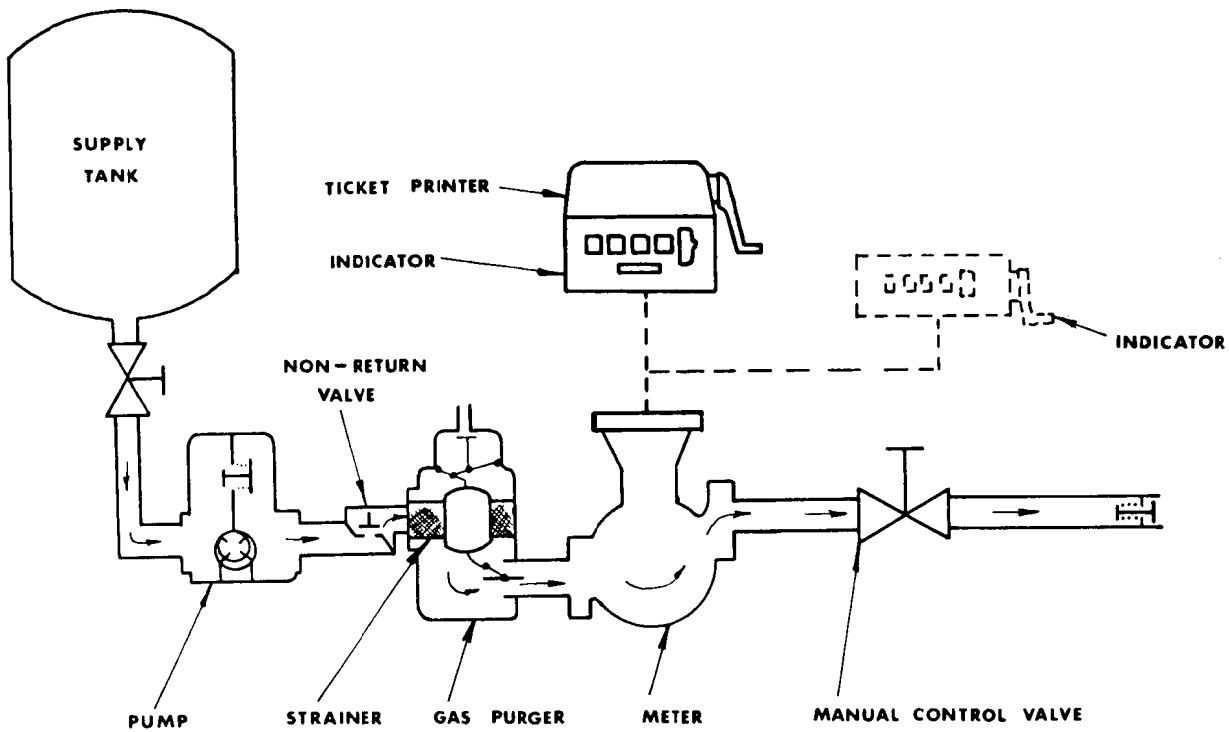
   (i) If tne pump nas alternative outputs, cneck tnat tne meter flow rate stays witnin tne approved flow-rate range for all combinations of alternative uses of tne output from tne pump, tnat is, 5 : 1 flow-rate range if tne liquid nas a viscosity between 3 and 80 mPa.s at 20°C, and 400 ± 40 ℓ/min if tne liquid nas a viscosity of less tnan 3 mPa.s at 20°C.

   (ii) If tne liquid for wnicn tne meter is verified nas a viscosity of less tnan 3 mPa.s at 20°C, cneck tnat tne outlet-control valve is not able to be readily used to vary tne flow rate.

5. Positive nead — a pressure gauge fitted to tne inlet side of tne pump snould indicate a positive nead at all flow rates.

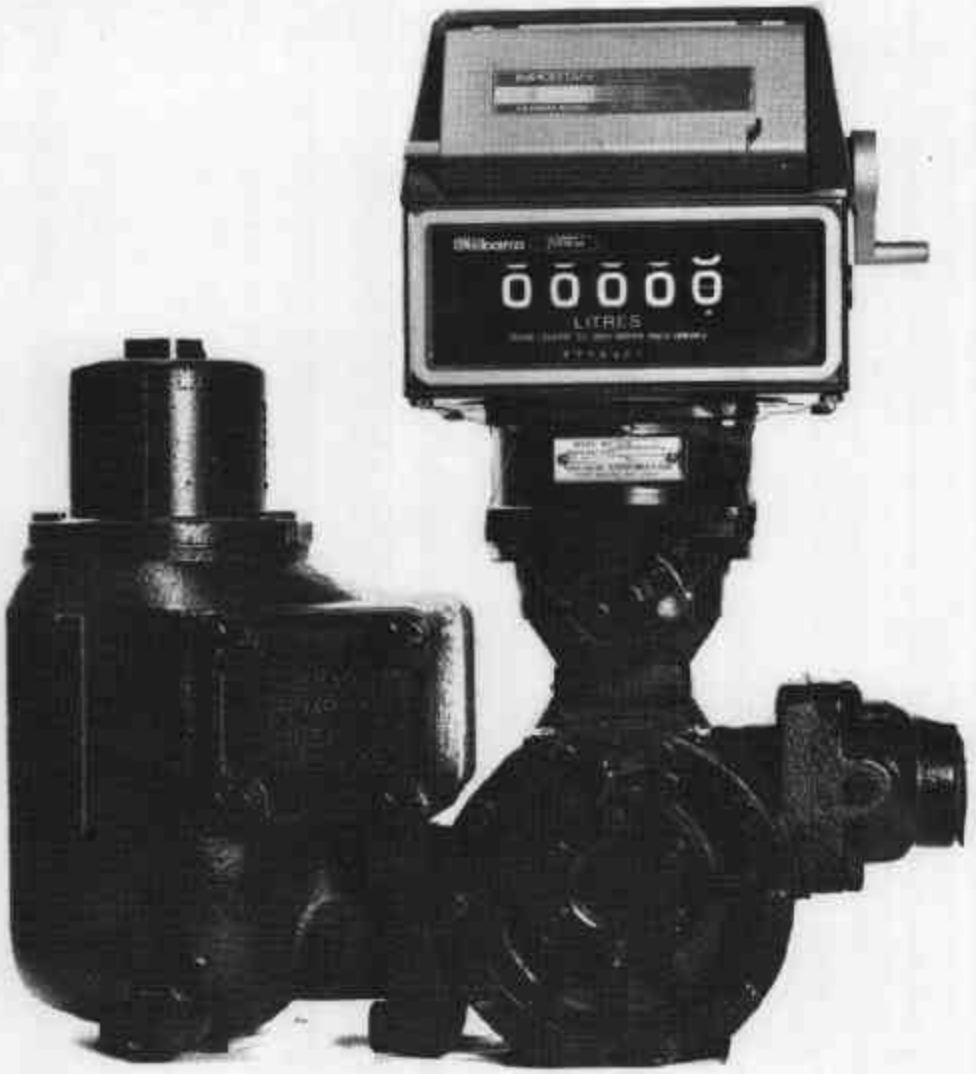
6. Test delivery — if tne test delivery is less tnan 10 times tne minimum delivery, inspectors snould ensure tnat tne non-flow-dependent error (reading error of tne indicator or rounding error of tne ticket printer) is minimised by making tne delivery end at a graduation line.

FIGURE 5/6B/38 - 1



Tokneim 1450-20 Pipeline Flowmeter — Scnematic Diagram

FIGURE 5/6B/38 - 2



Tokheim 1450-20 Meter with Gas Purger, and Veeder-Root
7085 Indicator and Ticket Printer

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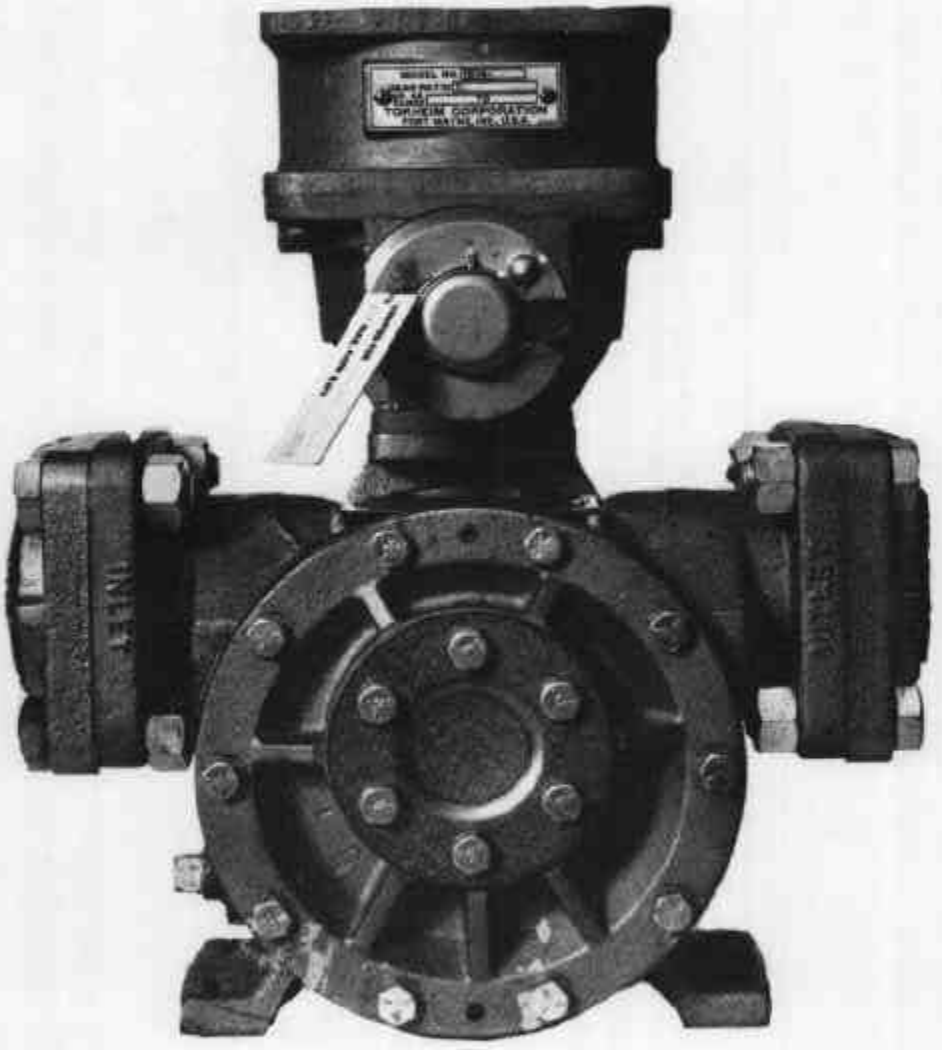
FIGURE 5/6B/38 - 3



Tokneim 1400-20 Inline Meter witn Data Plate
Attacned to Meter Sealing Wire
(Sealing of indicator not snown)

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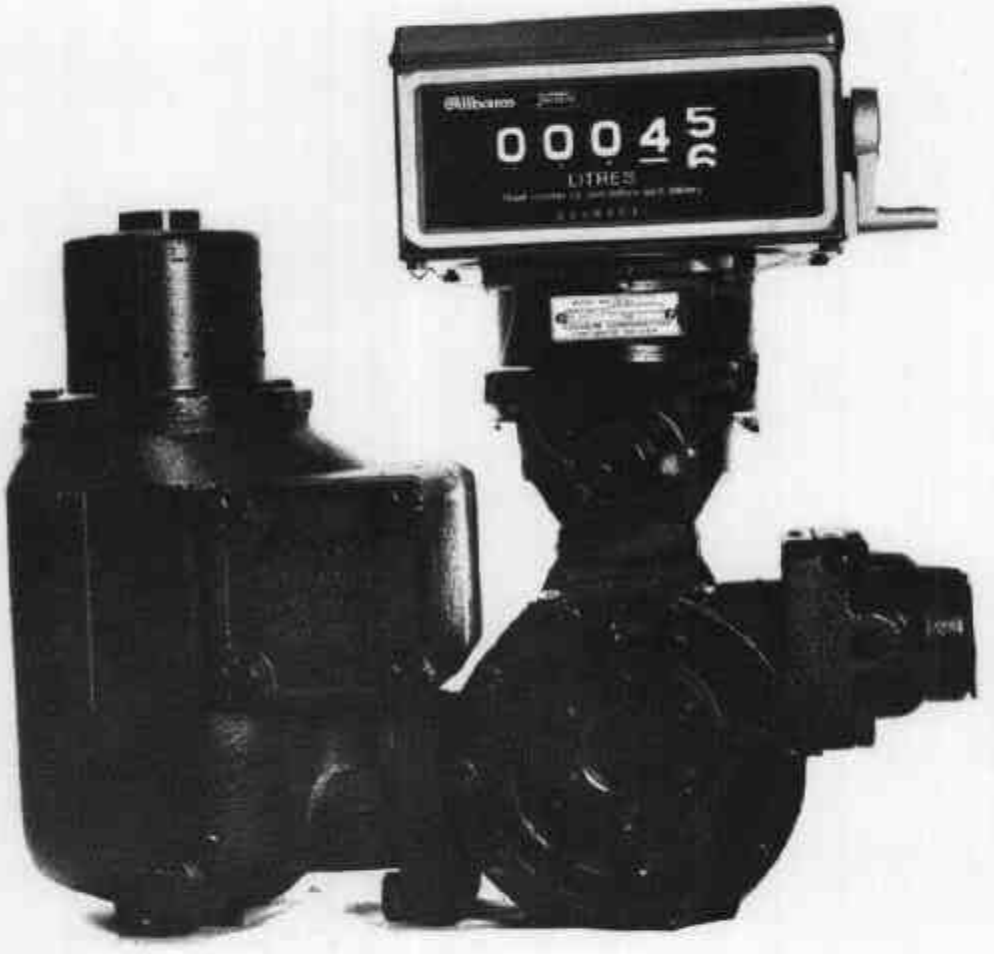
FIGURE 5/6B/38 - 4



Tokheim 1450-20 Meter with Gas Purger and
Veeder-Root 1624 Indicator

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