

CERTIFICATE OF APPROVAL No 5/6B/41

This is to certify that the patterns of the

Gilbarco Flowmeter (Pipeline) with Tokheim 1400-15 or 1450-15 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/41, 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/41".

Approval is granted on condition that:

1. The maximum flow rate is 230 ℓ /min when the liquid for which the instrument is verified has a viscosity between 3 and 80 mPa.s at 20°C or, if only a volume indicator is fitted, a viscosity between 0,5 and 80 mPa.s at 20°C.
2. The operating flow rate is 180 ± 40 ℓ /min when the liquid for which the instrument is verified has a viscosity of less than 3 mPa.s at 20°C and a ticket printer or preset counter is fitted.
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

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NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 5/6B/41

Pattern: Gilbarco Flowmeter (Pipeline) with Tokheim 1400-15
or 1450-15 Meter

Submittor: Gilbarco Australia Ltd,
16-34 Talavera Road,
North Ryde, New South Wales, 2113.

Date of Approval: 14 December 1976

Conditions of Approval:

1. The maximum flow rate is 230 l/min when the liquid for which the instrument is verified has a viscosity between 3 and 80 mPa.s at 20°C or, if only a volume indicator is fitted, a viscosity between 0,5 and 80 mPa.s at 20°C .
2. The operating flow rate is $180 \pm 40 \text{ l/min}$ when the liquid for which the instrument is verified has a viscosity of less than 3 mPa.s at 20°C and a ticket printer or preset counter is fitted.
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.

All instruments conforming to this approval shall be marked "NSC No 5/6B/41".

Description:

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

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The flowmeter comprises the following:

1. Supply tank.
2. Pump — a positive or non-positive displacement pump mounted lower than the minimum height of the liquid in the supply tank. The supply pipe from the tank has a continuous fall to the pump. Provision is made for a pressure gauge to be connected to the suction side of the pump.

The pump is for the exclusive use of the flowmeter, that is, without alternative outputs; alternatively the flowmeter flow rate stays within the approved flow-rate range for all combinations of alternative uses of the output from the pump.

3. A non-return valve in the pipe between the pump and the "gas purger", or an arrangement of the components and piping to keep the system full of liquid at all times.
4. Tokneim 1506-20 gas purger and strainer (see Figure 2).
5. Tokneim 1450-15 offset 38-mm meter (see Figure 2).
6. Veeder-Root 7085 zero-start single-handle reset indicator and ticket printer (see Figure 2). The ticket printer has 1-litre increments and the indicator has a 1-litre scale interval; the first element is marked with ten scale-mark lines numbered from 0 to 9. The aperture through which the first element is viewed is widened in the direction of travel.
7. Outlet-control valve — located downstream from the meter fitted with no intermediate offtake. It is followed by an anti-drain valve which retains a pressure of not less than 55 kPa or it is incorporated in an arrangement of piping which ensures that the meter and delivery pipe do not drain.

When the liquid for which the meter is verified has a viscosity less than 3 mPa.s at 20 C and a ticket printer is fitted, the outlet-control valve is not of a type which can be used as a flow-control device (throttling valve).

The anti-drain valve if fitted or, if not fitted, the outlet-control valve is the point at which the 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 between 115 and 230 l/min if a ticket printer is not fitted or, if fitted and the liquid for which the instrument is verified has a viscosity of between 3 and 80 mPa.s at 20°C, or
- (iii) "operating flow rate 180 ± 40 l/min" if a ticket printer is fitted and 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 of 1 litre; the first element is marked with ten scale-mark lines numbered from 0 to 9 (see Figure 4).
2. A Veeder-Root 7084 single-handle reset accumulative ticket printer and zero-start indicator. The ticket printer has

* 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 within the output from a single refinery or between different refineries and at different times throughout each year:

<u>Liquid</u> ¹	<u>Permitted viscosity range</u>
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.

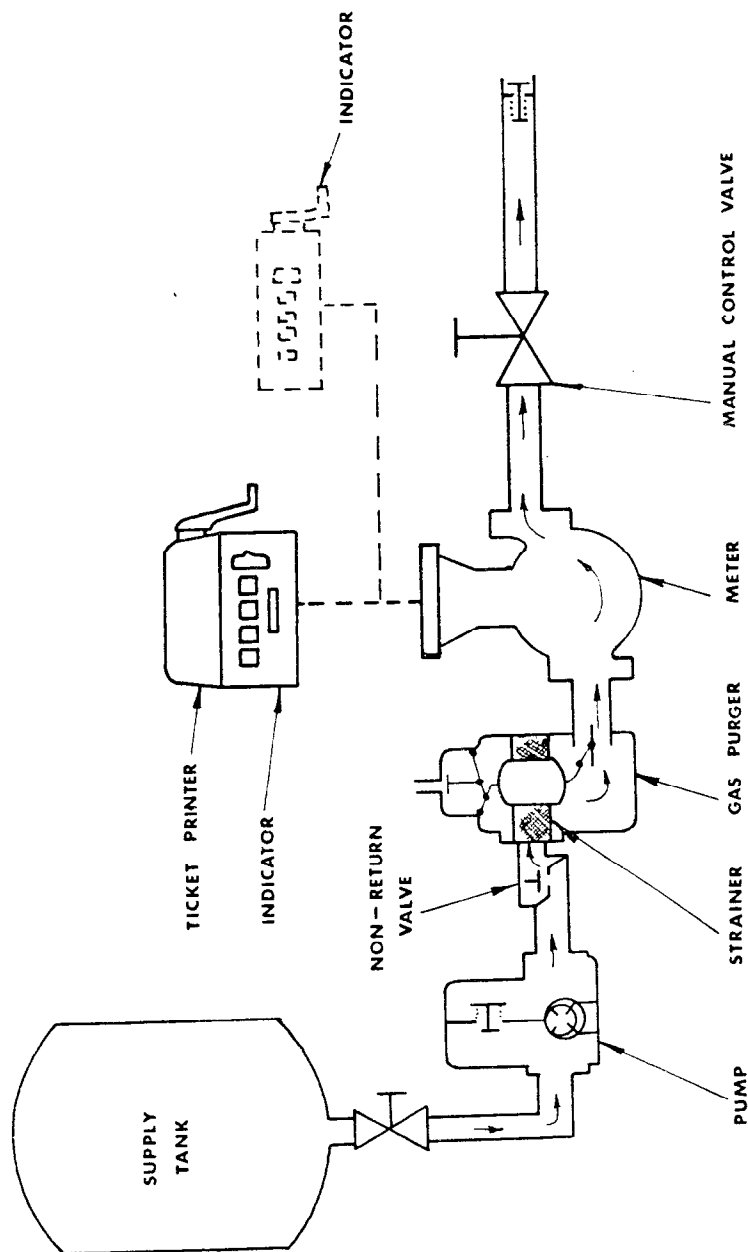
1-litre increments and the indicator has a 1-litre scale interval. The aperture through which the first element is viewed is widened in the direction of travel.

3. A Tokheim 1450-20 50-mm offset meter (see Figure 4).

Special Tests:

1. The instrument should be tested with the liquid for which it will be used and which is marked on the instrument data plate.
2. If a device is fitted to prevent the level of the liquid in the supply tank falling to the level of the pump, at least one delivery should occur during which the device stops the delivery. It will be necessary to refill the supply tank to finish the delivery into the proving measure. The effect of gas on the quantity delivered should not exceed 0,5 litre.
3. Minimum delivery — the minimum delivery will be 200 litres when an accumulative ticket printer is fitted, 100 litres when a zero-start ticket printer is fitted, and 20 litres when only an indicator is fitted.
4. Flow rate —
 - (i) if the pump has alternative outputs, check that the meter flow rate stays within the approved flow-rate range for all combinations of alternative uses of the output from the pump, that is, 5 : 1 flow-rate range if a ticket printer is not fitted, or if fitted the liquid has a viscosity between 3 and 80 mPa.s at 20°C, and 180 ± 40 cP/min if a ticket printer and/or preset counter is fitted and the liquid has a viscosity of less than 3 mPa.s at 20°C.
 - (ii) If the liquid for which the meter is verified has a viscosity of less than 3 mPa.s at 20°C, or if a ticket printer is fitted, check that the outlet-control valve is not able to be readily used to vary the flow rate.
5. Positive head — a pressure gauge fitted to the inlet side of the pump should indicate a positive head at all flow rates.
6. Test deliveries — if a test delivery is less than 10 times the minimum delivery, inspectors should ensure that the non-flow-dependent error (reading error of the indicator or rounding error of the ticket printer) is minimised by making the delivery end at a graduation line.

FIGURE 5/6B/41 - 1



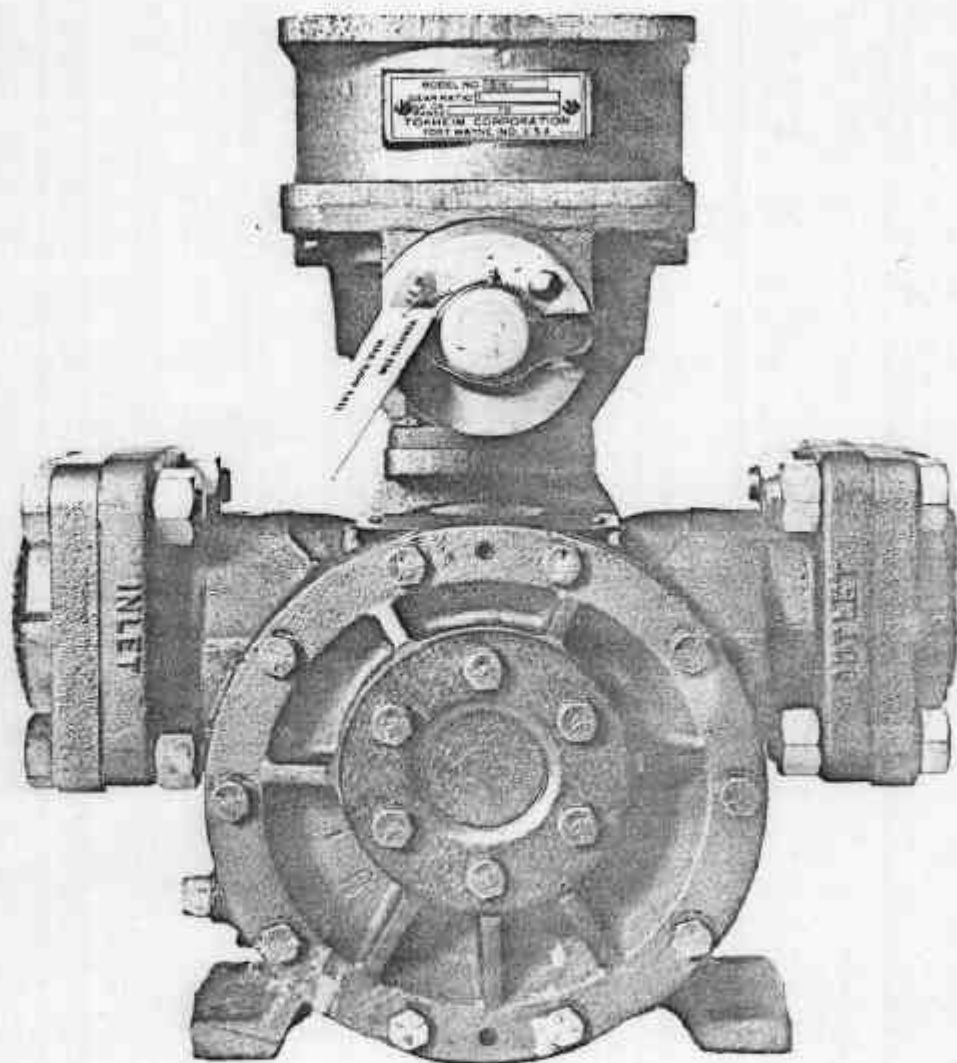
Tokneim 1450-15 Pipeline Flowmeter — Schematic Drawing



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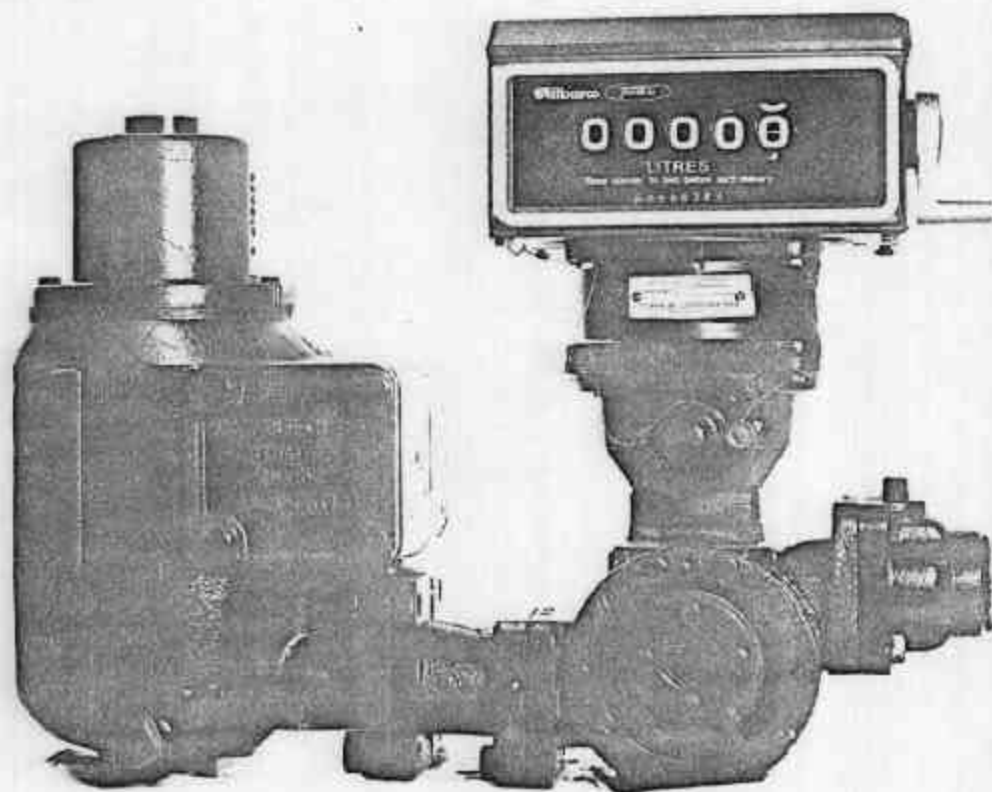
Tokneim 1450-15 Meter
with Gas Purger and Veeder-Root 7085
Indicator and Ticket Printer

FIGURE 5/6B/41 - 3



Toknein 1400-15 In-line Meter
with Data Plate attached to Meter Sealing Wire
(Sealing of Indicator not shown)

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Tokheim 1450-15 Meter
with Gas Purger and Veeder-Root 1624 Indicator

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