



# NATIONAL STANDARDS COMMISSION

## TECHNICAL SCHEDULE No 5/6B/35

Pattern: Gilbarco Flowmeter (Drum-filler) with Tokneim 682 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 a flow rate between 25 and 150 l/min.
2. The viscosity of the liquid measured is between 0,5 and 200 mPa.s.
3. The liquid (commercial or technical name) for which the instrument is verified is nominated on the instrument data plate.
4. The pump suction operates under a positive liquid head.
5. Air does not enter the pump, either by the supply tank being of adequate capacity to prevent the entry of air, or by other means.

All instruments conforming to this approval shall be marked "NSC No 5/6B/35".

### Description:

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

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 (5 : 1) 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. Tokheim 683 gas purger and strainer (see Figure 2).
5. Tokheim 682 Inline 38-mm meter (see Figure 2); a back-pressure valve may be incorporated in the outlet of the meter.
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. Preset counter\* — a Veeder-Root VR 1646 preset counter is fitted (see Figure 2). The counter may cause the outlet-control valve to close in two stages.
8. Outlet-control valve, Tokheim 637 (see Figure 2) — the valve which is located between the gas purger and the meter may be closed manually or by the preset counter.
9. Hose of up to 1,5 metres in length.
10. Nozzle — Gilbarco T285A (see Figures 3 and 4). An anti-drain valve ensures that the meter and hose are not drained.

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\* The preset counter is not a part of the measuring instrument examined and approved by the Commission; its inclusion is approved by the Commission only on the basis that it facilitates the measurement of a set quantity of liquid and its use does not affect the performance of the measuring instrument.

11. 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 ..... l/min" for which the instrument is verified,

is attached to the instrument either by the above sealing wire or by a lead-plug seal (see Figure 5).

The approval includes —

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 5).

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.

\* 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:

<u>Liquid<sup>1</sup></u>	<u>Permitted viscosity range</u>
Petrol	0,4 to 0,7 mPa.s
Kerosene <sup>2</sup>	0,6 to 2,2 mPa.s
Heating oil <sup>3</sup>	0,8 to 4,0 mPa.s
Diesel fuel <sup>4</sup>	1,7 to 8,3 mPa.s
..... <sup>4</sup>	8,3 to 200 mPa.s

Note: <sup>1</sup> A known trade abbreviation of the name of the liquid is acceptable.

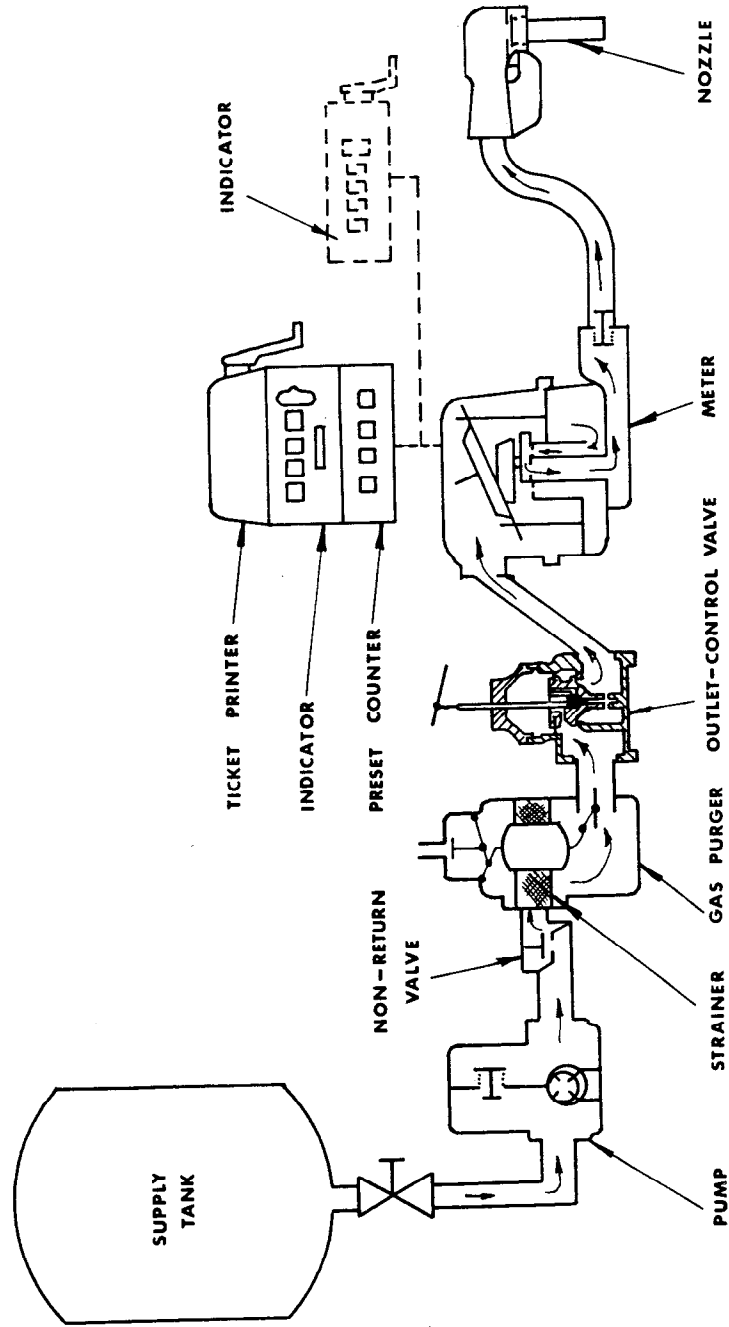
<sup>2</sup> "Kerosene" includes white spirits and aviation turbine fuel.

<sup>3</sup> Maximum viscosity at 20°C is 3 mPa.s.

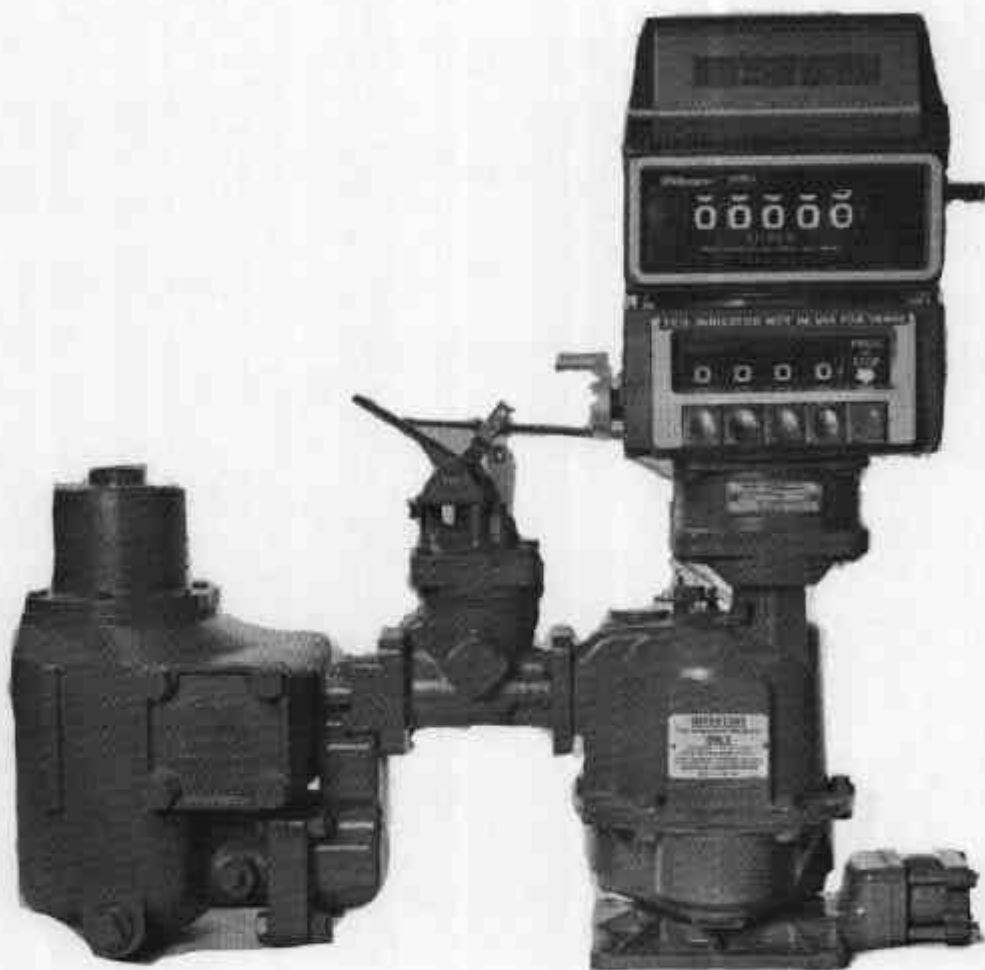
<sup>4</sup> Name of liquid petroleum to be inserted.

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 the cut-off on the quantity delivered should not exceed 0,5 litre.
3. Minimum delivery — the minimum delivery will be 100 litres when a ticket printer is fitted and 20 litres when only an indicator is fitted.
4. Flow rate — 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.
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 delivery — if the 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/35 - 1



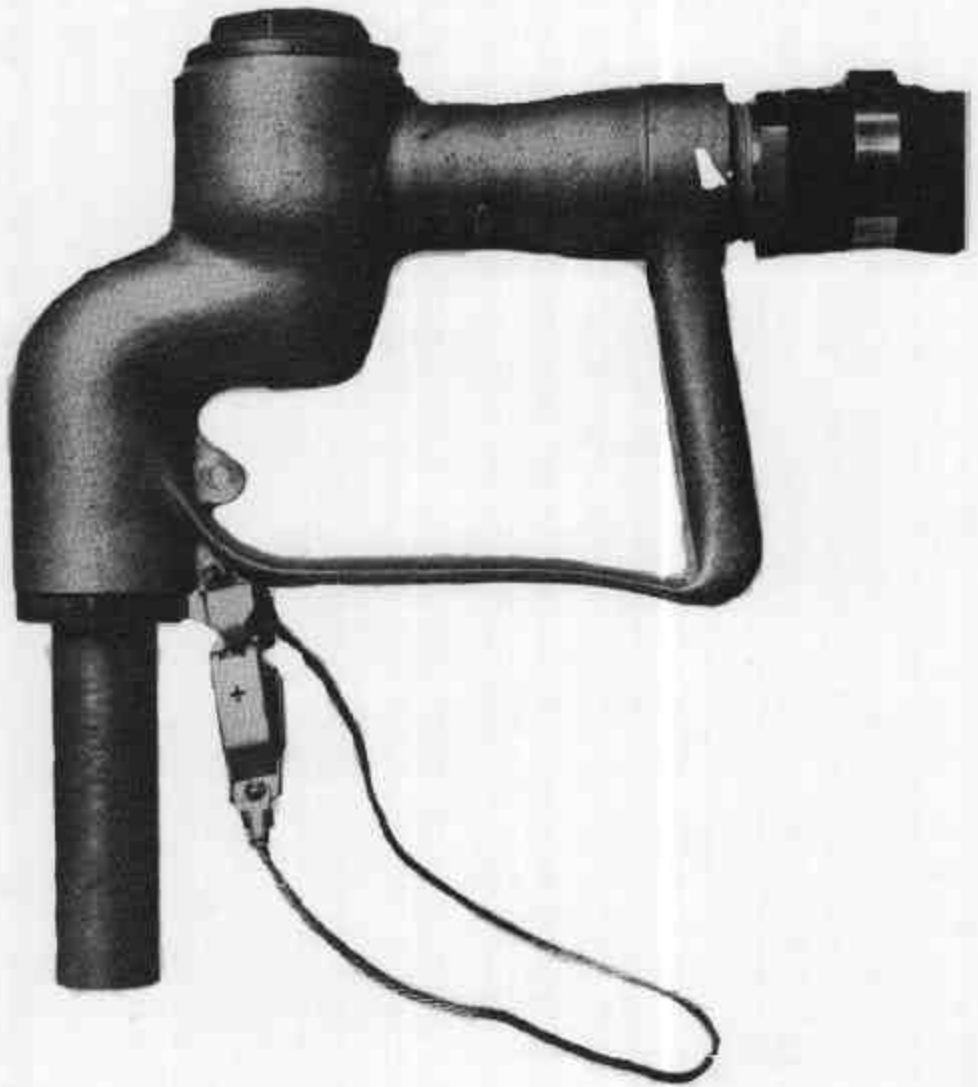
Drum Filler — Schematic Diagram (alternative shown dotted)



Tokheim 682 — Gas Purger, Outlet-control  
Valve, Meter, Preset Counter, Indicator and  
Ticket Printer

13/5/77

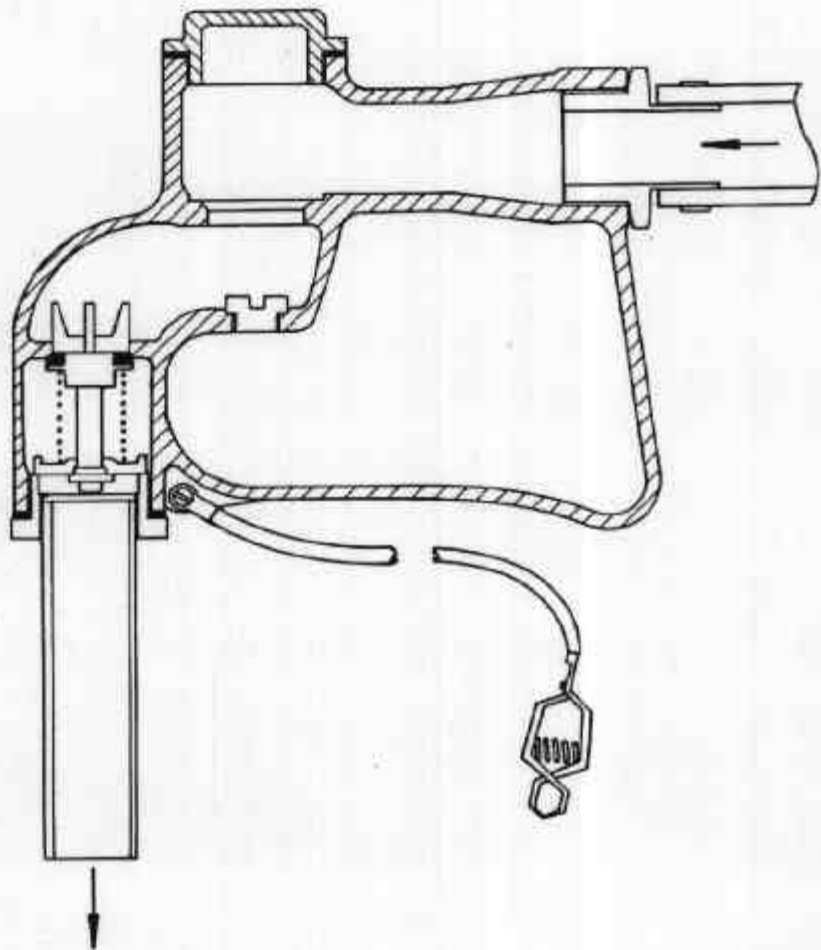
FIGURE 5/6B/35 - 3



Gilbarco T285A Hose Nozzle

13/5/77

FIGURE 5/6B/35 - 4



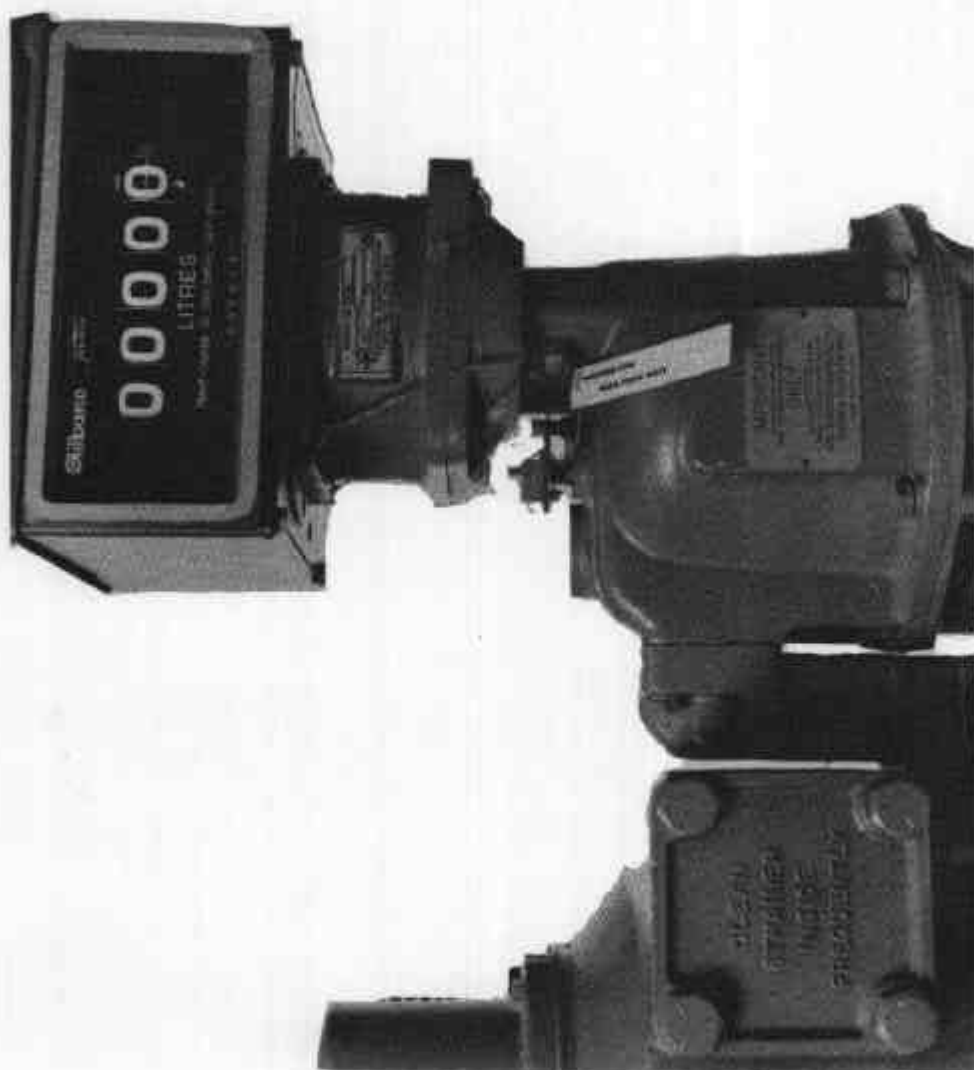
Gilbarco T285A Hose Nozzle — Schematic Diagram

13/5/77



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GURE 5/6B/35 - 5



Tokheim 682 — Sealing of Data Plate

13/5/77