

CERTIFICATE OF APPROVAL No 5/6A/44

VARIATION No 2

CANCELLED

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This is to certify that the following modifications of the patterns of the
Gilbarco Driveway Flowmeters Model T166R and Others

approved in Certificate No 5/6A/44 dated 11 April 1973 and subsequent
variation

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: Modification No 1 ... 25 June 1976
Modification No 2 ... 17 December 1976

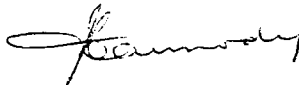
The approved modifications, described in Technical Schedule No 5/6A/44 -
Variation No 2 and in drawings and specifications lodged with the
Commission, provide for:

1. Gilbarco T173-0037 pulse transmitter(s);
2. relocation of the final filter.

The approval is subject to review on or after 1 February 1980.

All instruments conforming to this approval shall be marked with the
approval number "NSC No 5/6A/44".

Signed



Executive Officer



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COMMONWEALTH OF AUSTRALIA

NATIONAL STANDARDS COMMISSION

Weights and Measures
(National Standards)
Act 1960-1966

Weights and Measures
(Patterns of Instruments)
Regulations

Certificate of Approval

CERTIFICATE NUMBER 5/6A/44

In respect of the pattern of

Gilbarco T166R Driveway Flowmeter and Variants.

Submitted and
manufactured by:

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

This is to certify that the pattern and variants of the instrument illustrated and described in this Certificate have been examined by the National Standards Commission under the provisions of the abovementioned Regulations and have been approved as being suitable for use for trade.

The pattern and variants were approved on 4 April 1973.

The pattern and variants are marked "NSC No 5/6A/44" and comply with the General Specifications for Measuring Instruments to be Used for Trade.

The submitter shall notify the Commission of the location and serial number of the first 50 instruments conforming to the pattern or variants submitted to State or Territorial Weights and Measures Authorities for verification. ‡

‡ Inspectors should not verify any instrument conforming to this Certificate until advised in writing by the Pattern Approval Laboratory that the Commission has been notified of these details.

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Cont'd over

The Commission reserves the right to examine the abovementioned instruments after verification.

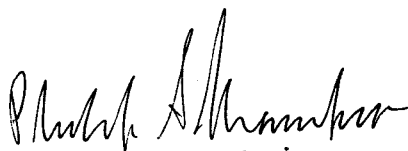
This Certificate comprises:

Pages 1 to 5 dated 11 April 1973.

Figures 5/6A/44 - 1 to 6 dated 11 April 1973.

Date of issue 11 April 1973.

Signed



A person authorized by the Commission
to sign Certificates under the
abovementioned Regulations.

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DESCRIPTION OF PATTERN

The pattern (see Figure 2) is of a driveway flowmeter comprising the components tabulated in Column 5 of Figure 1, which, when assembled in a steel cabinet and arranged as shown in Figure 2, is known as the Gilbarco T166R Driveway Flowmeter. The cabinet is similar to the cabinet of the Gilbarco T167A Driveway Flowmeter, as described in Certificate No 5/6A/24.

The hydraulic diagram is illustrated in Figure 3, and the maximum flow rate is 55 litres per minute.

DESCRIPTION OF VARIANTS

The components tabulated in Columns 6 and 7 of Figure 1 make up variants known as the Gilbarco T166R Driveway Flowmeter, each variant having the housing and component arrangement as in the pattern.

DESCRIPTION OF COMPONENTS

1. Pump — positive displacement rotary pump, with integral gas separator Gilbarco T258AF, which is similar to the Gilbarco T258GD as described in Certificate No 5/6A/24 except that the suction foot — that is, the delivery pipe within the gas separator which ensures that the liquid supplied to the meter is from the bottom of the gas separator — is omitted and the pump by-pass valve is modified to increase the pump pressure.
2. Flow-control valve — Gilbarco T166-0178, comprising a shut-off valve and gas detector, located downstream of the Gilbarco T258AF pump and gas separator assembly. It prevents the flow of liquid from the pump when it detects gas in the pilot pipe between the gas separator and float chamber (see Figures 3 and 4).

Referring to Figure 3, the piston in the flow-control valve is connected by a port to the pump side of the valve and by a rod to a diaphragm, one side of which is at atmospheric pressure, the other side of which is connected by a port to a venturi. A spring above the piston keeps the valve closed.

When gas-free liquid is flowing through the venturi in the pilot pipe,

a vacuum is created which reduces the pressure on one side of the diaphragm allowing atmospheric pressure to move the diaphragm and, through the connecting rod, to open the valve. When gas is present in the liquid flowing through the venturi, the vacuum acting on the diaphragm is destroyed, allowing the spring to close the valve, thus preventing liquid flow.

3. Gas separator — Gilbarco T257AA (see Figures 3 and 4), similar to the Gilbarco T257Y as described in Certificate No 5/6A/35, except that the pilot valve and associated float are not fitted and the vent valve and float are mounted higher to increase the effective capacity of the gas separator.
4. Float chamber — Gilbarco T257AD (see Figures 2 and 3), similar to the Gilbarco T257AC, as described in Certificate No 5/6A/45, except that the cylinder is not less than 255 mm in length.
5. Gas-separation test valve — Gilbarco T166-0170 (see Figure 5), a needle valve with a maximum orifice of 2.1 mm, fitted to the pipe between the suction side of the pump and the liquid-return pipe from the float chamber (see Figure 3). The valve is sealed by a lead plug seal in an undercut hole above the valve stem.

The needle test valve allows a quantity of air to be admitted to test the gas separator and gas detector. Gradually opening the valve allows the quantity of air admitted to be gradually increased, thus gradually reducing the liquid flow, until it becomes less than the minimum of 15 litres per minute, or until the flow stops due to the flow-control valve closing or the pump losing prime.

6. Non-return valve — Gilbarco T260AH, with integral pressure-relief valve.
7. Meter — Gilbarco T262T, as described in Certificate No 5/6A/35.
8. Meter sealing — lead plug seal, as described in Certificate No 5/6A/24.
9. Computer — Veeder-Root 1611, 1613 or VR 101, indicating the quantity in litres and the unit price in cents per litre, as described in Certificate No 5/6A/35.

10. Computer — Veeder-Root 1611, 1613 or VR 101, indicating the quantity in gallons and the unit price in cents per gallon, as described in Certificate No 5/6A/35.
11. Back-pressure valve — Gilbarco T162-0006, similar to the Gilbarco T162-6, as described in Certificate No 5/6A/24.
12. Sight glass — Gilbarco T261X, as described in Certificate No 5/6A/7.
13. Hose — external retractable.
14. Final filter — as described in Certificate No 5/6A/1/3.
15. Nozzle — Gilbarco T250H manual hose nozzle, as described in Certificate No 5/6A/7.
16. Nozzle — STM 363 automatic hose nozzle, as described in Certificate No 5/6A/7.
17. Nozzle - OPW 1A or 1AM automatic hose nozzle, as described in Certificate No 5/6A/7.
18. Pump interlock 240 mm — as described in Certificate No 5/6A/35.
19. Dial face — on each side of the housing behind a glazed window is a dial face; the quantity aperture and unit-price aperture are marked "litres" and "cents per litre" respectively and the price aperture is marked "dollars" (see Figure 6).
20. Dial face — Component 19 with the quantity and unit-price apertures marked "gallons" and "cents per gallon" respectively.
21. Nameplate — marked "approved for petroleum $\cong 2 \text{ mm}^2/\text{s}$ $\cong 15 \text{ mm}^2/\text{s}$ ", which means that the design is approved for liquid petroleum of viscosity between 2 and 15 mm^2/s .
22. Meter — Gilbarco T262S, as described in Certificate No 5/6A/35.



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 5/6A/44

VARIATION No 1

Pattern: Gilbarco T166R Driveway Flowmeter

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

Date of Approval of Variation: 30 January 1976

The modification described in this Schedule applies to the patterns described in Certificate No 5/6A/44 dated 11 April 1973.

All instruments conforming to this approval shall be marked "NSC No 5/6A/44".

Description:

The approved modification provides for a ZVA Slimline automatic hose nozzle (see Figures 7 and 8). The anti-drain valve which is integral with the main valve retains a pressure of not less than 15 kPa. A swivel hose coupling is fitted to the nozzle.

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NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 5/6A/44

VARIATION No 2

Pattern: Gilbarco Driveway Flowmeter Model T166R and Others approved in Certificate No 5/6A/44 dated 11 April 1973 and subsequent variation

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

Dates of Approval of Variation: 25 June 1976 and 17 December 1976

The modifications described in this Schedule apply to the patterns described in Certificate No 5/6A/44 dated 11 April 1973 and Technical Schedule No 5/6A/44 - Variation No 1 dated 15 April 1976.

All instruments conforming to this approval shall be marked "NSC No 5/6A/44".

Description:

The approved modifications provide for:

1. A Gilbarco T173-0037 pulse transmitter (see Figure 9) on the quantity and/or price drive shaft of the Veeder-Root VR 101 computer in each of the approved driveway flowmeter models.

The output from the pulse transmitter(s) may be used to provide data to peripheral devices which are not a part of the measuring instrument.* These devices, which may only be provided with the authorisation of the Weights and Measures Authority of the State, may, for example, print receipts or store and process the data, etc. The use of such peripheral equipment will not affect the operation of the driveway flowmeter.

2. A "final filter" unit fitted on the side of the cabinet between the back-pressure valve and the hose, or between the hose and the nozzle.

* The measuring instrument examined and approved by the Commission is limited to those devices which determine the value of a physical quantity, control the measurement, and indicate the result of the measurement on a non-permanent visual display, for example, a seven-segment indicator or Veeder-Root computer.

FIGURE 5/6A/44 - 1

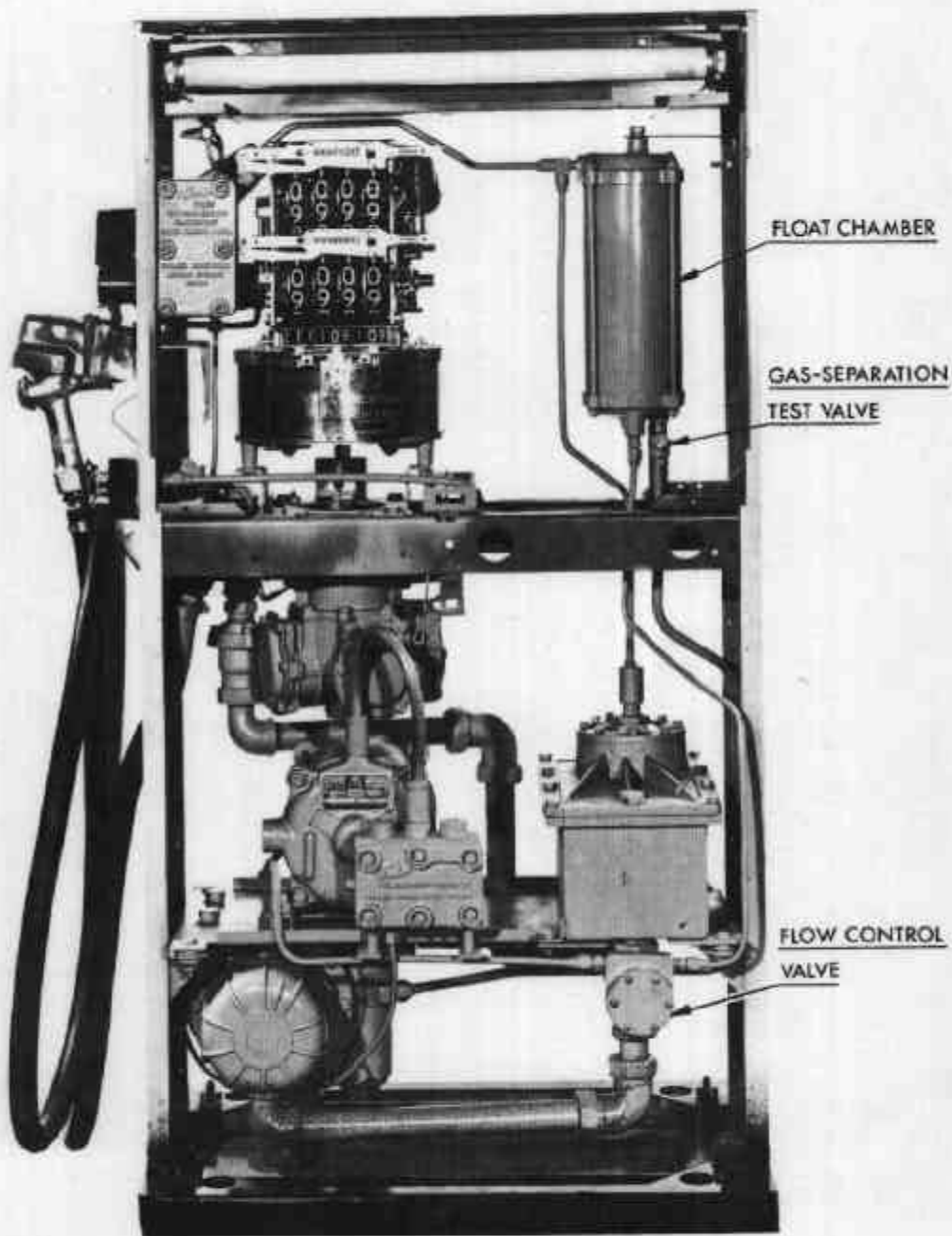
1	2	3	4	5	6	7
	COMPONENTS	DATE APPROVED	FOOT-NOTES	PATTERN T166R	VARIANTS	
					T166R	T166R
1	Pump — Gilbarco T258AF	4 APRIL 73		*	*	*
2	Flow-control valve — Gilbarco T166-0178	4 APRIL 73		*	*	*
3	Gas separator — Gilbarco T257AA	4 APRIL 73		*	*	*
4	Float chamber — Gilbarco T257AD	4 APRIL 73		*	*	*
5	Gas-separation test valve — Gilbarco T166-0170	4 APRIL 73		*	*	*
6	Non-return valve — Gilbarco T260AH	4 APRIL 73		*	*	*
7	Meter — Gilbarco T262T	4 APRIL 73		*	*	*
8	Seal — lead plug	4 APRIL 73		*	*	*
9	Computer — VR 1611, VR 1613, VR 101 "litres"	4 APRIL 73		*	*	*
10	Computer — VR 1611, VR 1613, VR 101 "gallons"	4 APRIL 73				*
11	Back-pressure valve — Gilbarco T162-0006	4 APRIL 73		*	*	*
12	Sight glass — Gilbarco T261X	4 APRIL 73		*	*	*
13	Hose	4 APRIL 73		*	*	*
14	Final filter	4 APRIL 73		*	‡	‡
15	Nozzle — Gilbarco T250H	4 APRIL 73		*	A	A
16	Nozzle — STM 363	4 APRIL 73			A	A
17	Nozzle — OPW 1A	4 APRIL 73			A	A
18	Pump interlock — 240 mm	4 APRIL 73		*	*	*
19	Dial face — "litres"	4 APRIL 73		*	*	*
20	Dial face — "gallons"	4 APRIL 73				*
21	Nameplate — "approved for petroleum $\cong 2 \text{ mm}^2/\text{s} \cong 15 \text{ mm}^2/\text{s}$ "	4 APRIL 73		*	*	*
22	Meter — Gilbarco T262S	4 APRIL 73				*

- * - indicates required component
- A - indicates alternative component, one of which is required
- ‡ - optional component

Compatibility Table for Components Described
in this Certificate

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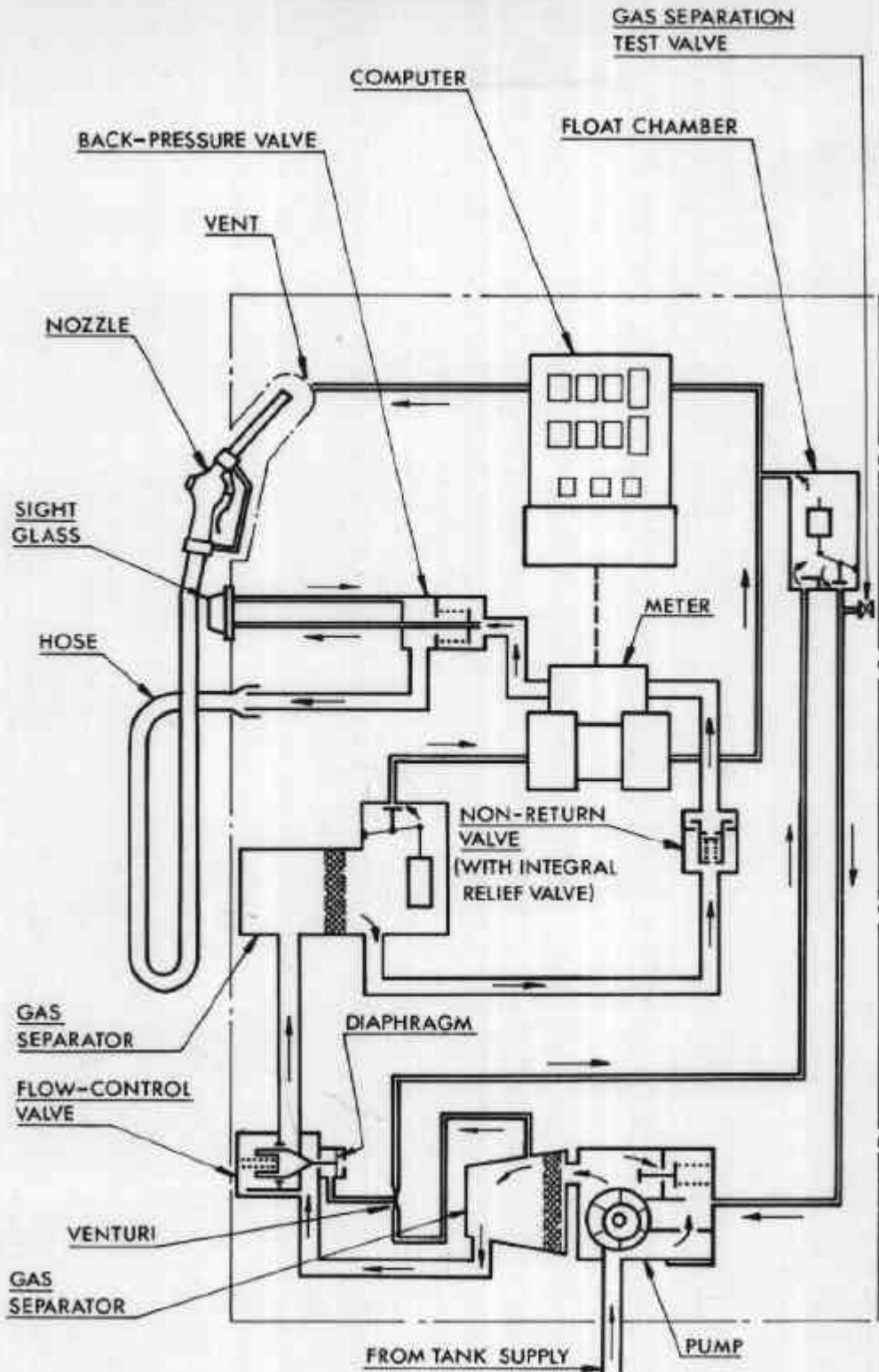
FIGURE 5/6A/44 - 2



Gilbarco T166R with Panels Removed

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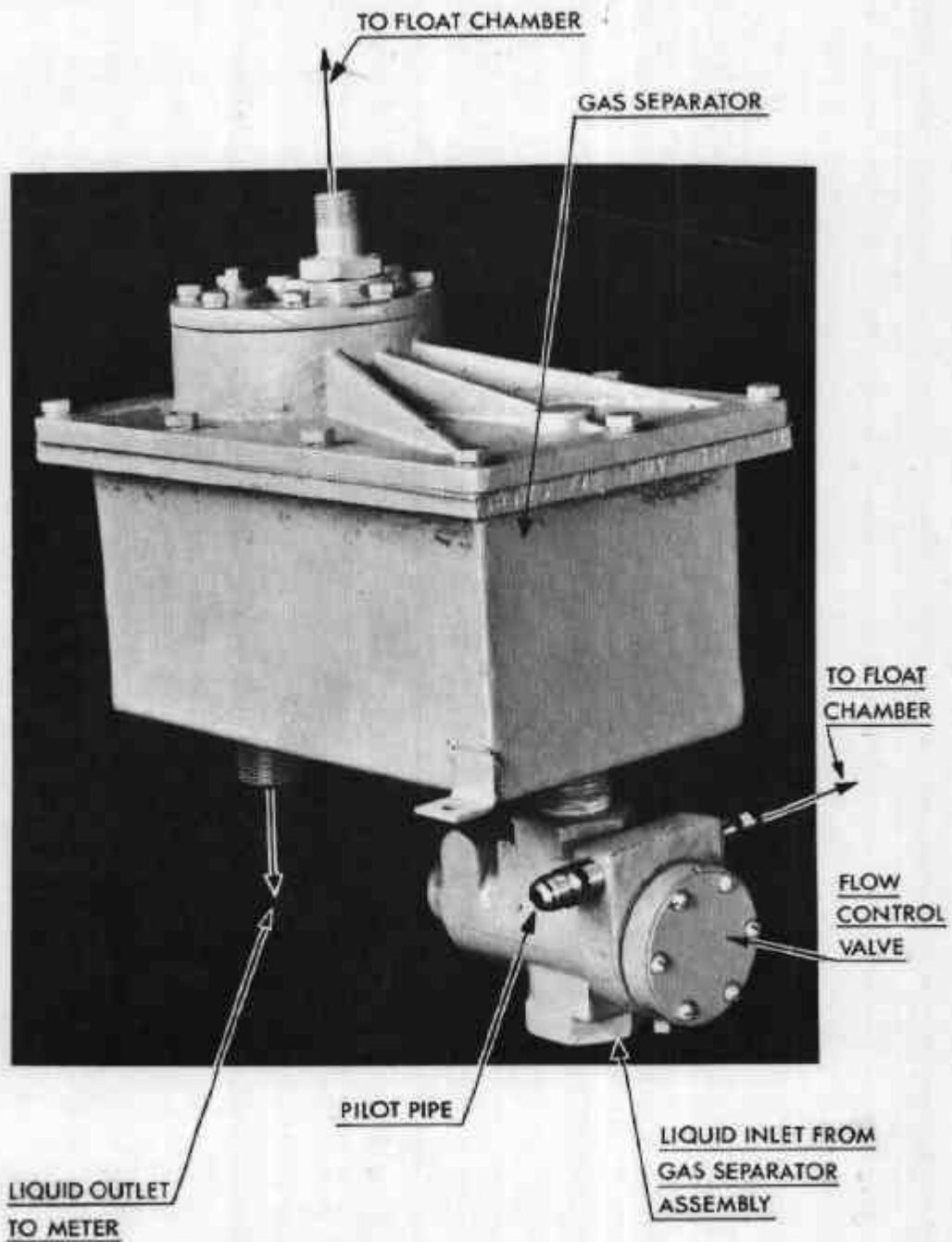
FIGURE 5/6A/44 - 3



Gilbarco T166R — Hydraulic Diagram

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FIGURE 5/6A/44 - 4



Gilbarco T166-0178 Flow-control Valve and
T257AA Gas Separator

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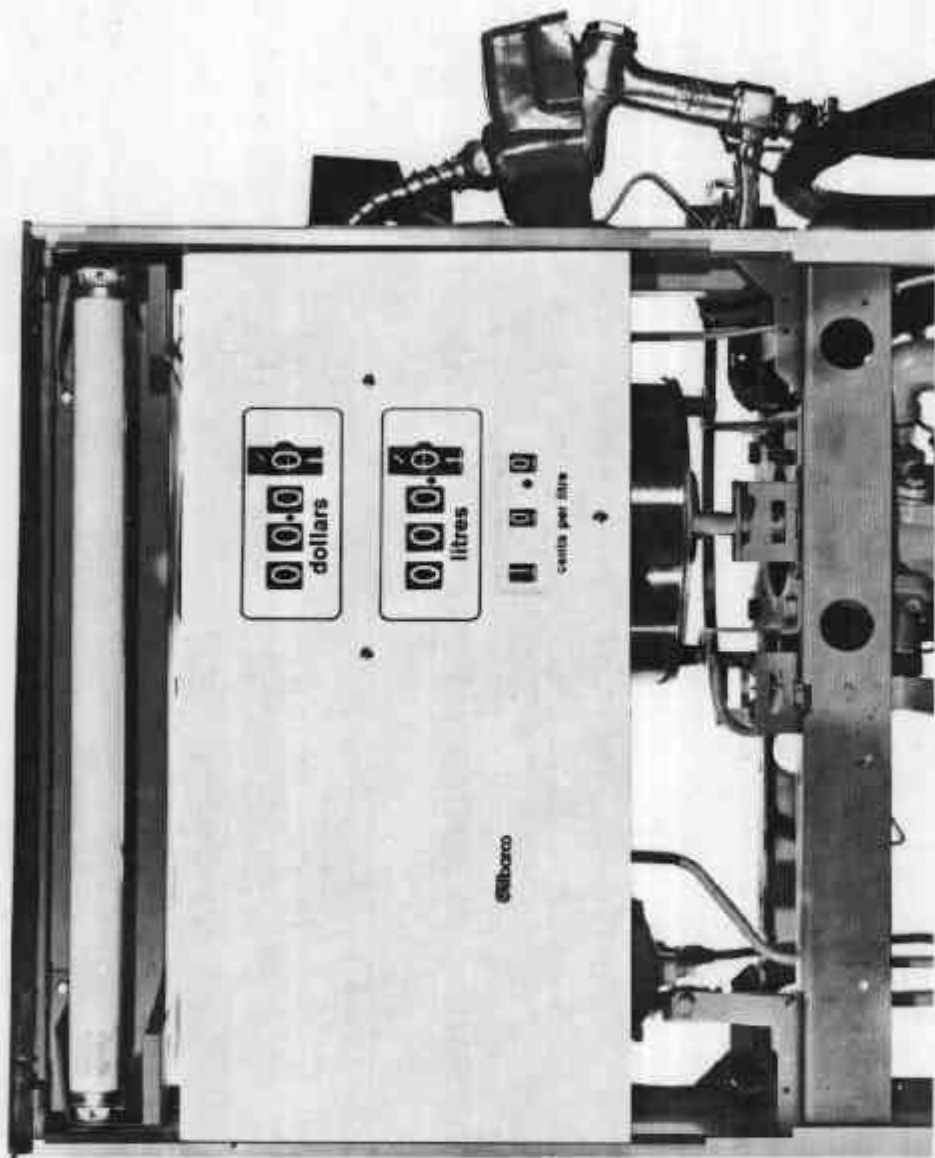
FIGURE 5/8A/44 - 5



Gilbarco T166-0170 Gas-separation Test Valve

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FIGURE 5/6A/44 - 6



Gilbarco TI66R Dial Face

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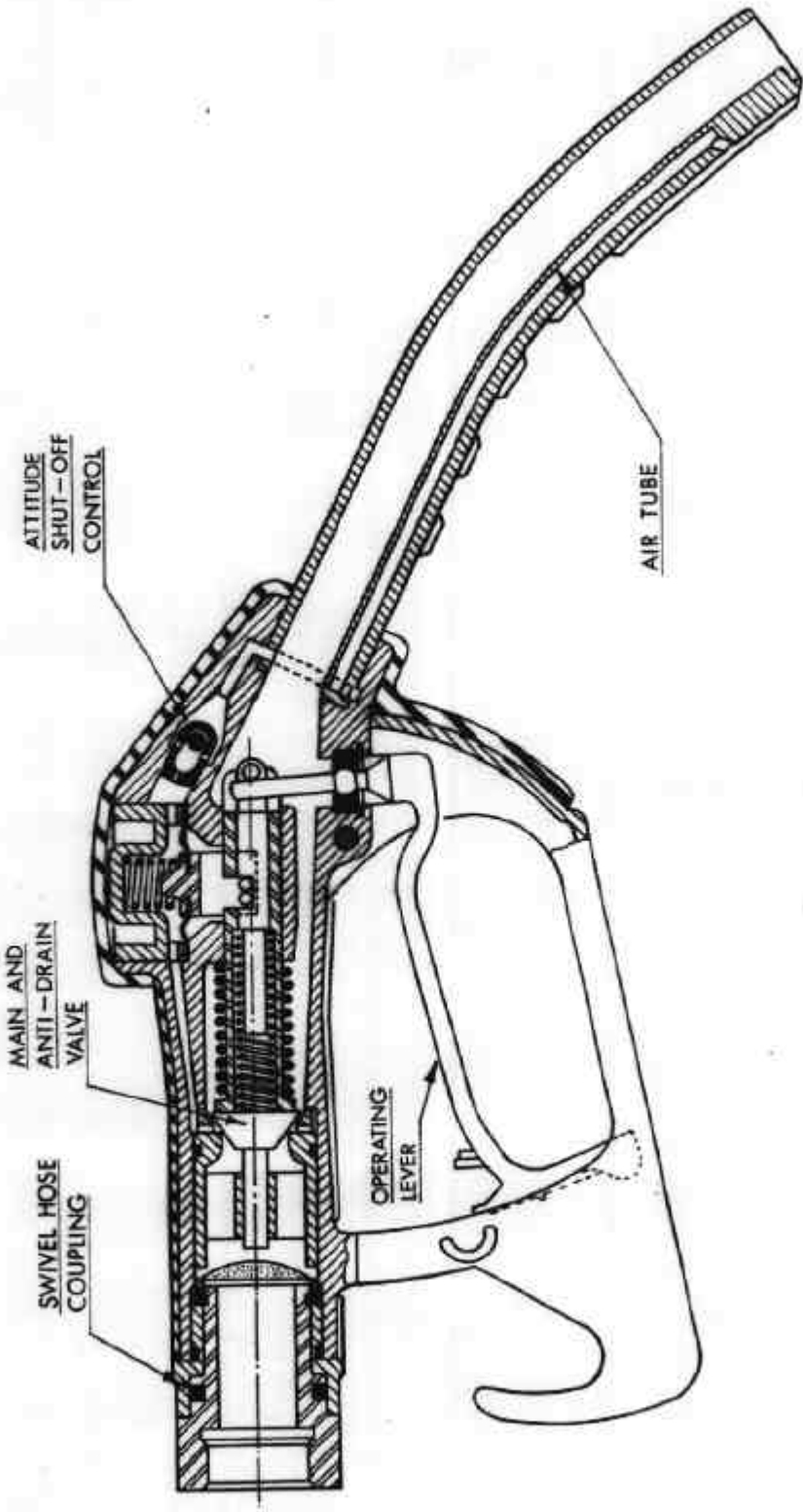
FIGURE 5/6A/44 - 7



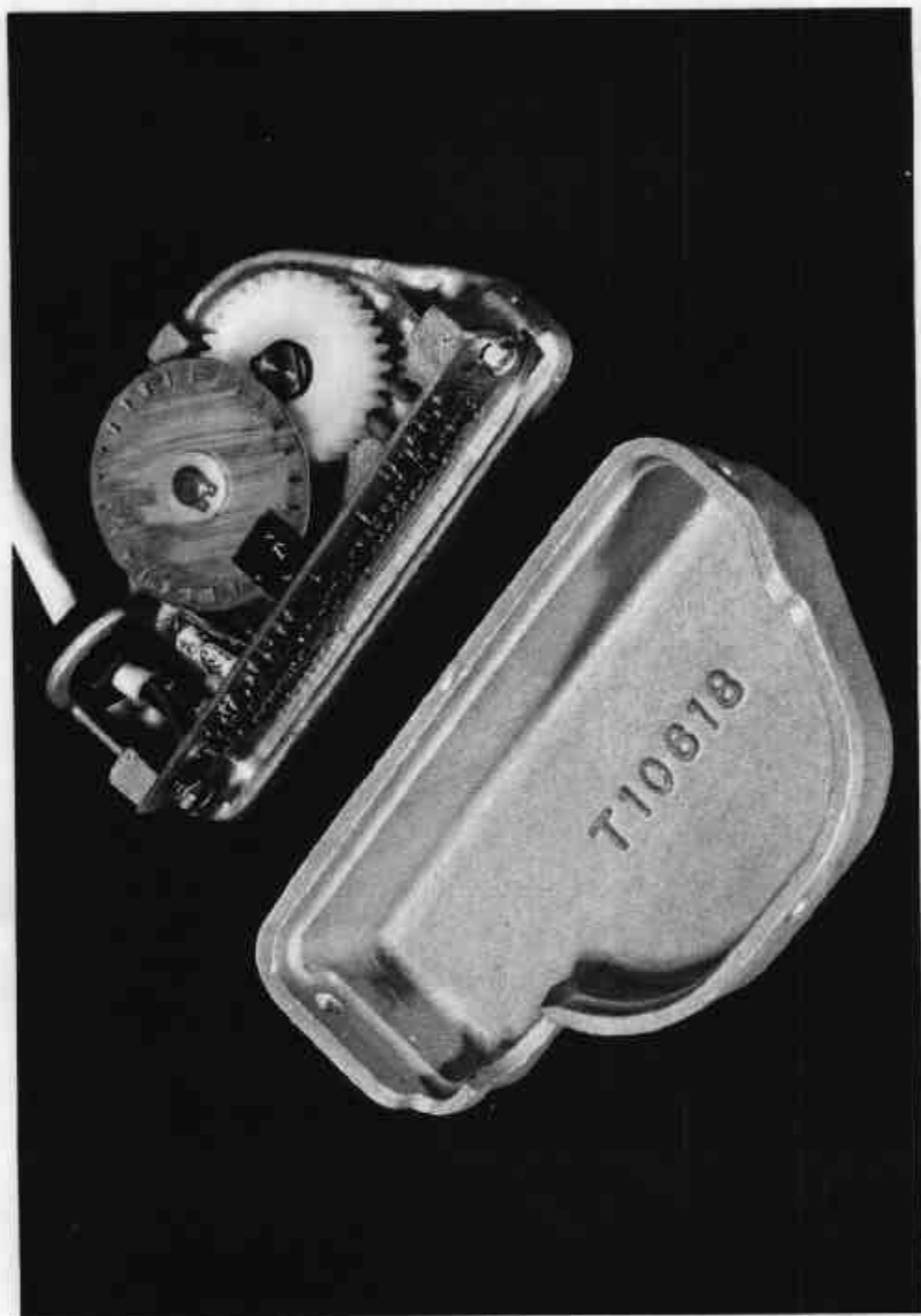
ZVA Slimline Automatic Hose Nozzle

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FIGURE 5/6A/44 - 8



ZVA Slimline Automatic Hose Nozzle



Gilbarco T173-0037 Pulse-transmitter Unit

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