

CERTIFICATE OF APPROVAL No 5/6H/1
VARIATION No 1

This is to certify that the following modification of the patterns of the
Gilbarco Flowmeter with Tokheim 600 Series Meter

approved in Certificate No 5/6H/1 dated 16 February 1978

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

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

Date of Approval: 7 February 1978.

The approved modification, described in Technical Schedule No 5/6H/1 -
Variation No 1 and in drawings and specifications lodged with the
Commission, provides for a ZVA 25 ND 6-8 automatic hose nozzle.

The approval is subject to review on or after 1 December 1982.

All instruments conforming to this approval shall be marked with the
approval number "NSC No 5/6H/1".

Signed



Acting Executive Officer



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 5/6H/1

Pattern: Gilbarco Flowmeter with Tokheim 600 Series Meter

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

Date of Approval: 9 November 1977

Conditions of Approval:

1. The flow rate is limited to a maximum of 120 l/min.
2. The maximum system pressure is limited to 600 kPa.
3. The pump suction operates under a positive liquid head.
4. The viscosity of the liquid measured is within the range 0,4 to 8,3 mPa.s.
5. The liquid for which the instrument is verified is nominated on the instrument data plate.

All instruments conforming to this approval shall be marked "NSC No 5/6H/1".

Description:

The pattern (see Figure 1) is a vehicle-mounted instrument for the delivery of liquid petroleum of viscosity between 0,4 and 8,3 mPa.s at a maximum flow rate of 120 l/min and at a maximum system pressure at no flow of 600 kPa.

The flowmeter comprises the following:

1. Positive displacement pump mounted on the assembly at a point lower than the minimum height of the liquid in the supply tank. The supply pipe from the tank to the pump slopes downward to the pump. The pump by-pass is set so that the maximum no-flow system pressure is not more than that marked on the instrument data plate. Provision is made for a

pressure gauge to be connected between the pump and the gas purger.

2. Tokheim 1506A-20 gas purger (see Figure 2).
3. Tokheim 600 Series meter (see Figure 2).
4. 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 scale interval of 1 litre; 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.
5. Non-return valve with integral pressure-relief valve.
6. Hose — any type, bore or length of hose may be used, provided that the minimum delivery determined from Table 1 and marked on the instrument's data plate for reference by the Weights and Measures Authority is acceptable to that Authority taking into account the usage of the instrument.
7. Anti-drain valve (see Figure 3) — an anti-drain valve and swivel coupling is fitted on the end of the hose. The anti-drain valve retains a pressure of not less than 55 kPa.
8. Nozzle — any nozzle fitted with an integral anti-drain valve which retains a pressure of not less than 5 kPa and which is located downstream of the main nozzle valve.
9. Marking — instrument data plate(s) sealed to the instrument marked:
 - (a) "approved for petrol" or "approved for kerosene, heating oil, diesel fuel* or similar liquid";

* The approval for 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>Liquid¹</u>	<u>Permitted viscosity range</u>
Petrol	0,4 to 0,7 mPa.s
Kerosene ²	0,6 to 2,2 mPa.s
Heating oil	0,8 to 4,0 mPa.s
Diesel fuel	1,7 to 8,3 mPa.s

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

² Kerosene includes white spirits and aviation turbine fuel.

- (b) "minimum delivery ...y... litres", y being the minimum delivery determined from Table 1;
- (c) "maximum no-flow pressure ...x... kPa", x being the maximum system pressure when the nozzle is closed.

10. Sealing —

- (a) the meter calibration, cover-plate bolts, and the indicator and ticket printer attachment-mounting bolts, by a sealing wire the ends of which terminate beneath a fixed lead stamping plug;
- (b) the instrument data plate, by attaching it by a lead stamping plug or by threading the indicator sealing wire through a hole or holes in the data plate.

The approval includes:

1. the indicator being a Veeder-Root 1624 zero-start indicator with scale interval of 1 litre; the first element is marked with ten scale-mark lines numbered from 0 to 9 (see Figure 4). The aperture through which the first element is viewed is widened in the direction of travel;
2. a Gilbarco T279P hose nozzle (see Figures 5 and 6) with an integral anti-drain valve downstream of the main nozzle valve, which retains a pressure of not less than 55 kPa. The external anti-drain valve unit is not needed when this nozzle is used.

Special Tests:

The instrument should be tested with the liquid for which it will be used and which is marked on the data plate.

Minimum Delivery:

The minimum delivery is marked on the instrument data plate.

Weights and Measures inspectors should check that the maximum hose dilation determined by the method described below corresponds with the appropriate minimum delivery; Table 1 refers.

Hose Dilation:

A measure of the hose-dilation quantity may be obtained by the following method:

1. With the pump operating, open and close the nozzle, then check that the no-flow system pressure is within 20 kPa of the maximum no-flow system pressure marked on the instrument's data plate.
2. With the pump stopped and the hose fully wound on its reel, open the nozzle to reduce the pressure in the hose to the anti-drain valve retaining pressure of about 55 kPa. Then fully unwind the hose from the reel, zero the indicator, start the pump and, after allowing not less than 30 seconds for the hose to fully dilate, and with the pump still running, read the quantity on the indicator. This quantity is equal to the maximum hose dilation.

Gas Purging:

The effect of gas on the quantity delivered should not exceed 1,0 litre when a delivery is interrupted due to the supply tank running dry, and the delivery is continued by, for example, changing supply tanks. To test gas purging it will be necessary to allow the supply tank to empty during a test delivery, to stop the pump, and to refill or change the supply tank to allow the delivery into the proving measure to be completed.

Non-flow-dependent Errors:

1. The non-flow-dependent errors are up to:
 - (a) 1-litre rounding error for the ticket printer with 1-litre increments;
 - (b) 0,2-litre reading error for the indicator which has the first element indicating by 1-litre graduations;
 - (c) 1,0-litre gas-purging error; and
 - (d) ...z...-litre hose dilation, z being the maximum value of hose dilation for which the instrument is verified — see Table 1.
2. The minimum delivery for which the relative error from all sources would not exceed 1,5% is marked on the instrument data plate.

TABLE 1

Minimum delivery marked on instrument data plate	Maximum hose dilation	
	Indicator only fitted	Indicator and printer fitted
ℓ	ℓ	ℓ
50	0,3	-
100	0,8	0
150	1,3	0,5
200	1,8	1,0
250	2,3	1,5
300	2,8	2,0
350	3,3	2,5
400	3,8	3,0
450	4,3	3,5
500	4,8	4,0



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 5/6H/1

VARIATION No 1

Pattern: Gilbarco Flowmeter with Tokheim 600 Series Meter

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

Date of Approval of Variation: 7 February 1978

The modification described in this Schedule applies to the patterns described in Technical Schedule No 5/6H/1 dated 16 February 1978.

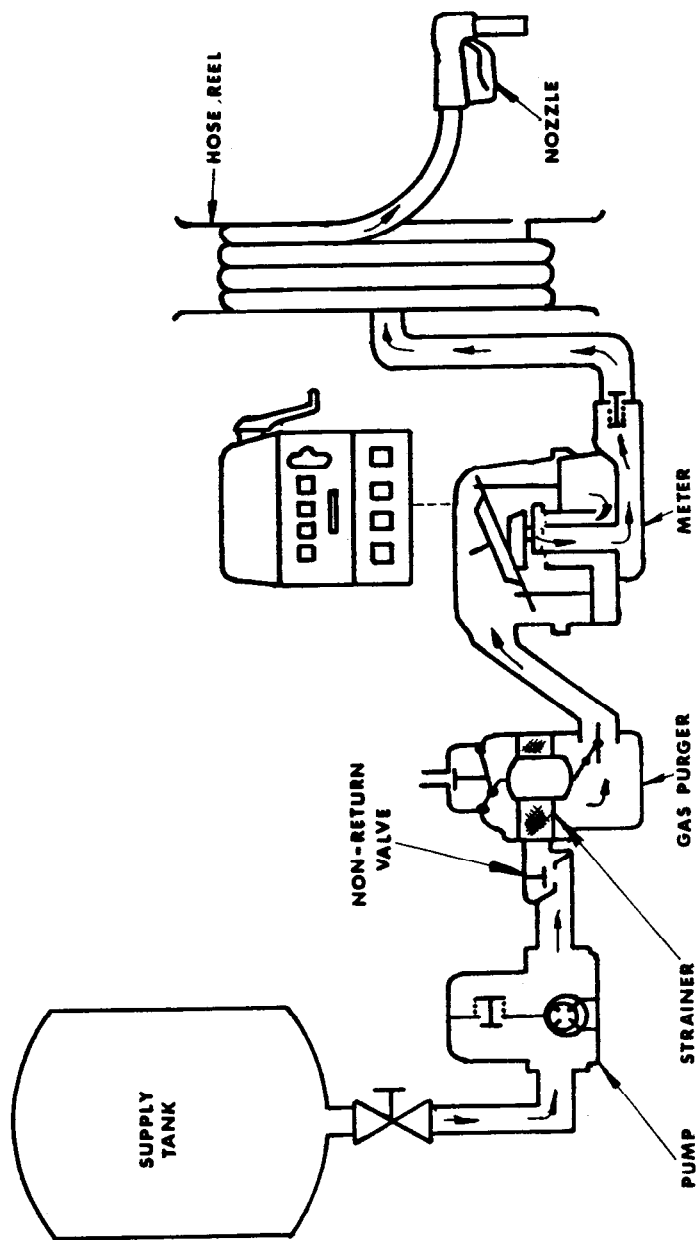
All instruments conforming to this approval shall be marked "NSC No 5/6H/1".

Description:

The approved modification provides for a ZVA 25 ND 6-8 automatic hose nozzle (see Figures 7 and 8). The anti-drain valve which is downstream of the main nozzle valve retains a pressure of not less than 55 kPa. The external anti-drain valve unit is not needed when this nozzle is used.

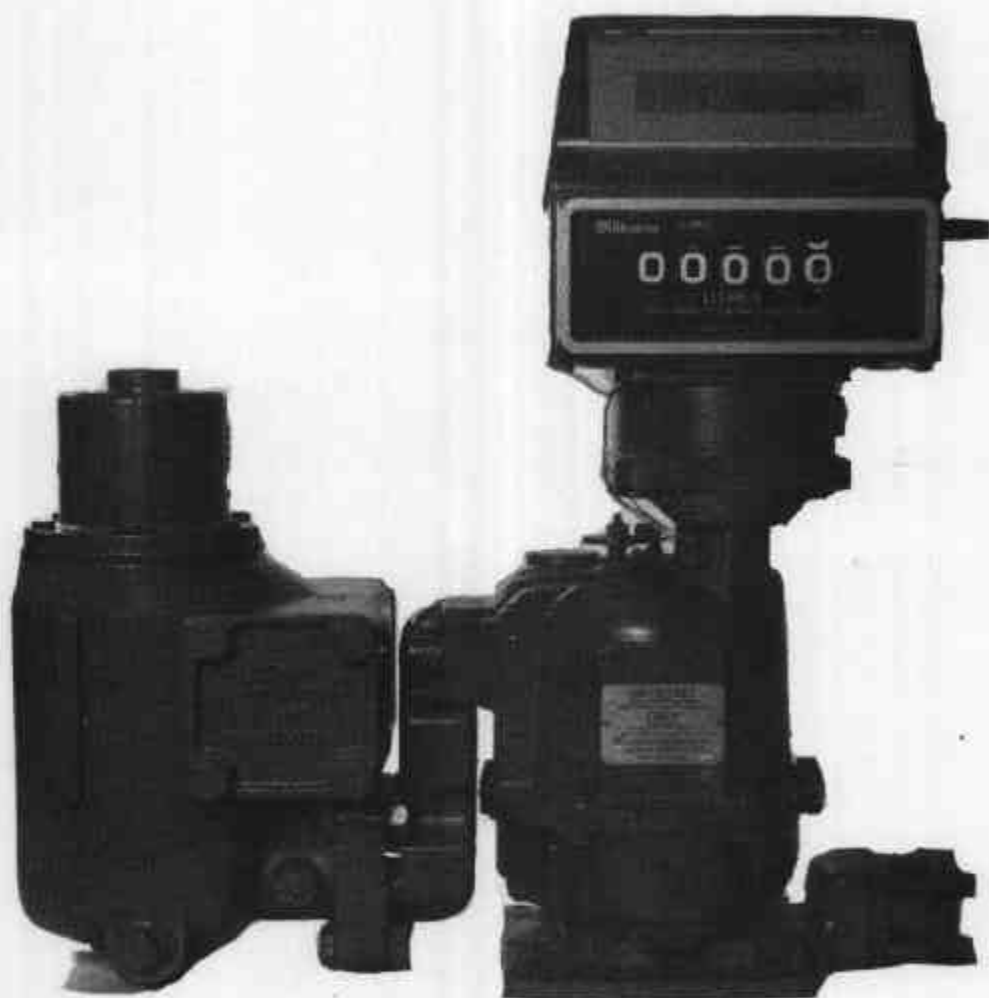
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FIGURE 5/6H/1 - 1



Gilbarco Flowmeter with Tokheim 600 Series Meter — Schematic Diagram

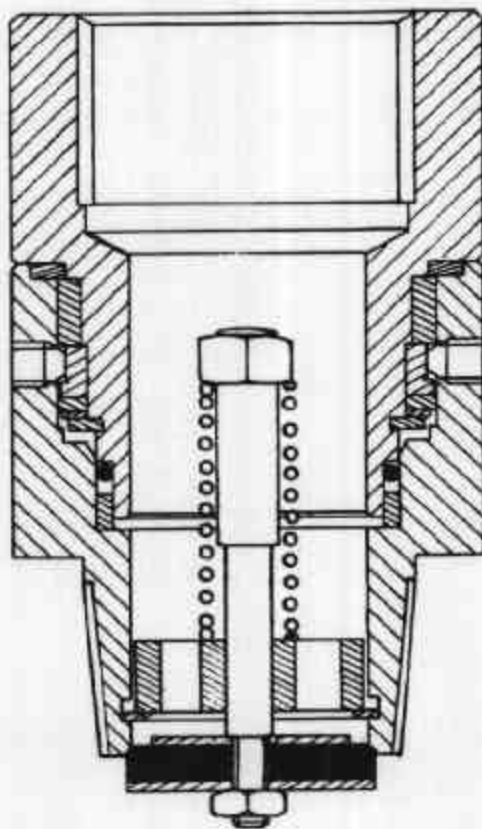
FIGURE 5/6H/1 - 2



Tokheim Gas Purger, Meter and Non-return Valve
with Veeder-Root 7085 Indicator and Ticket Printer

16/2/78

FIGURE 5/6H/1 - 3



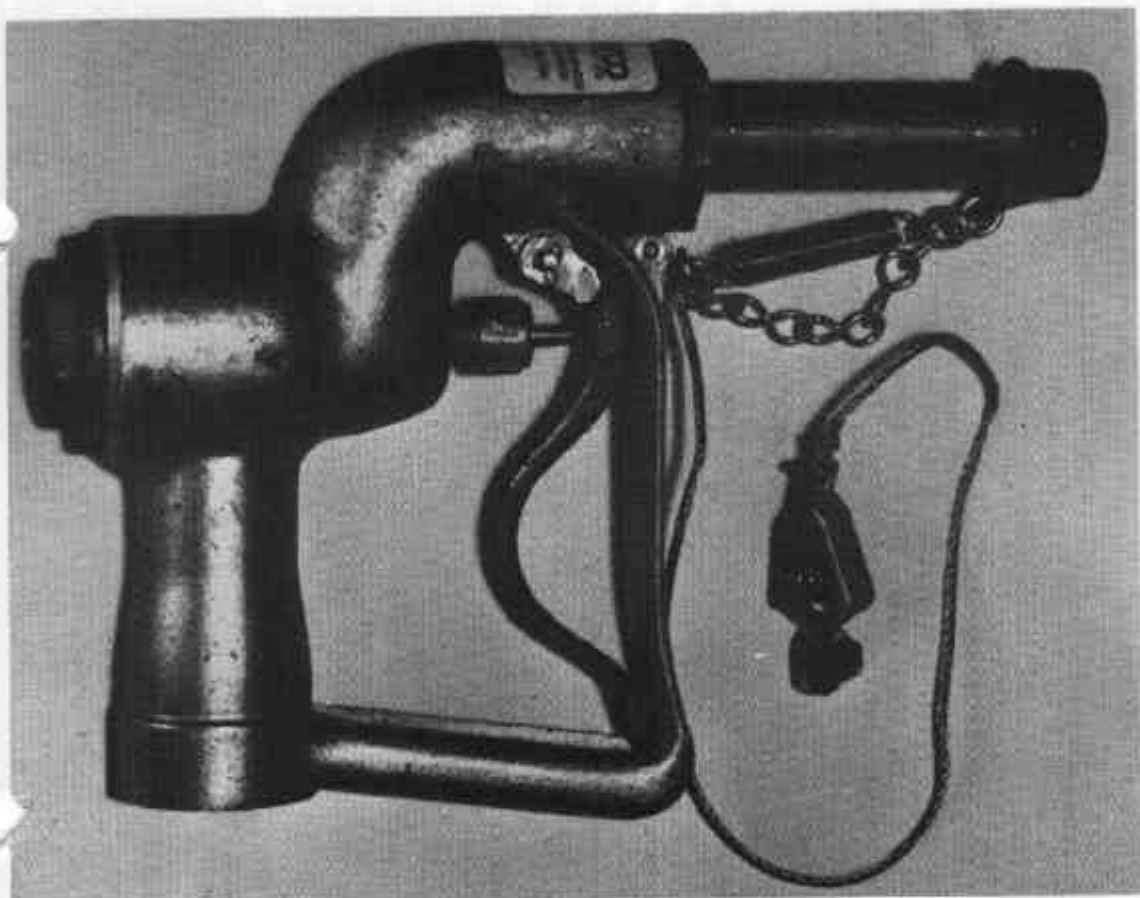
Anti-drain Valve and Swivel Coupling

16/2/78

FIGURE 5/6H/1 - 4



Veeder-Root 1624 Indicator



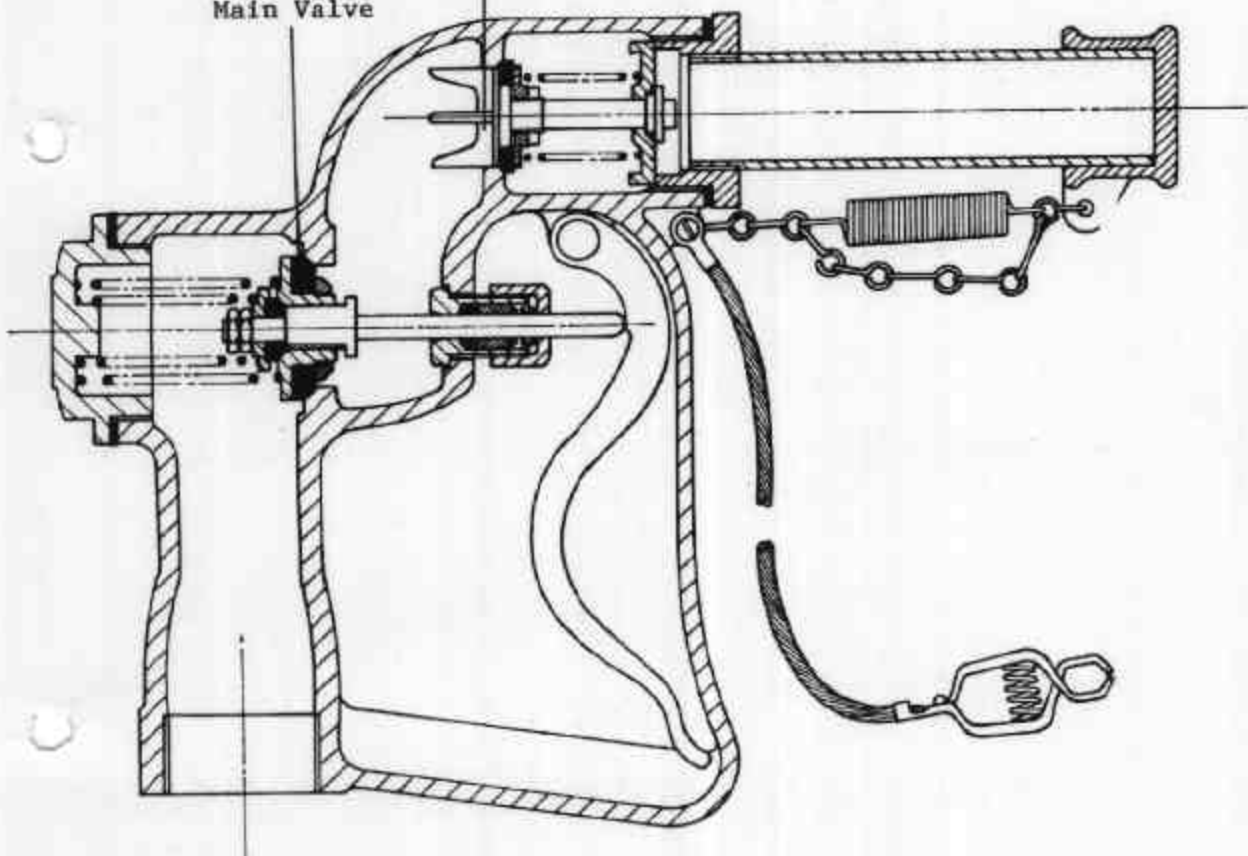
Gilbarco T279F Hose Nozzle

16/2/78

FIGURE 5/6H/1 - 6

Anti-drain Valve

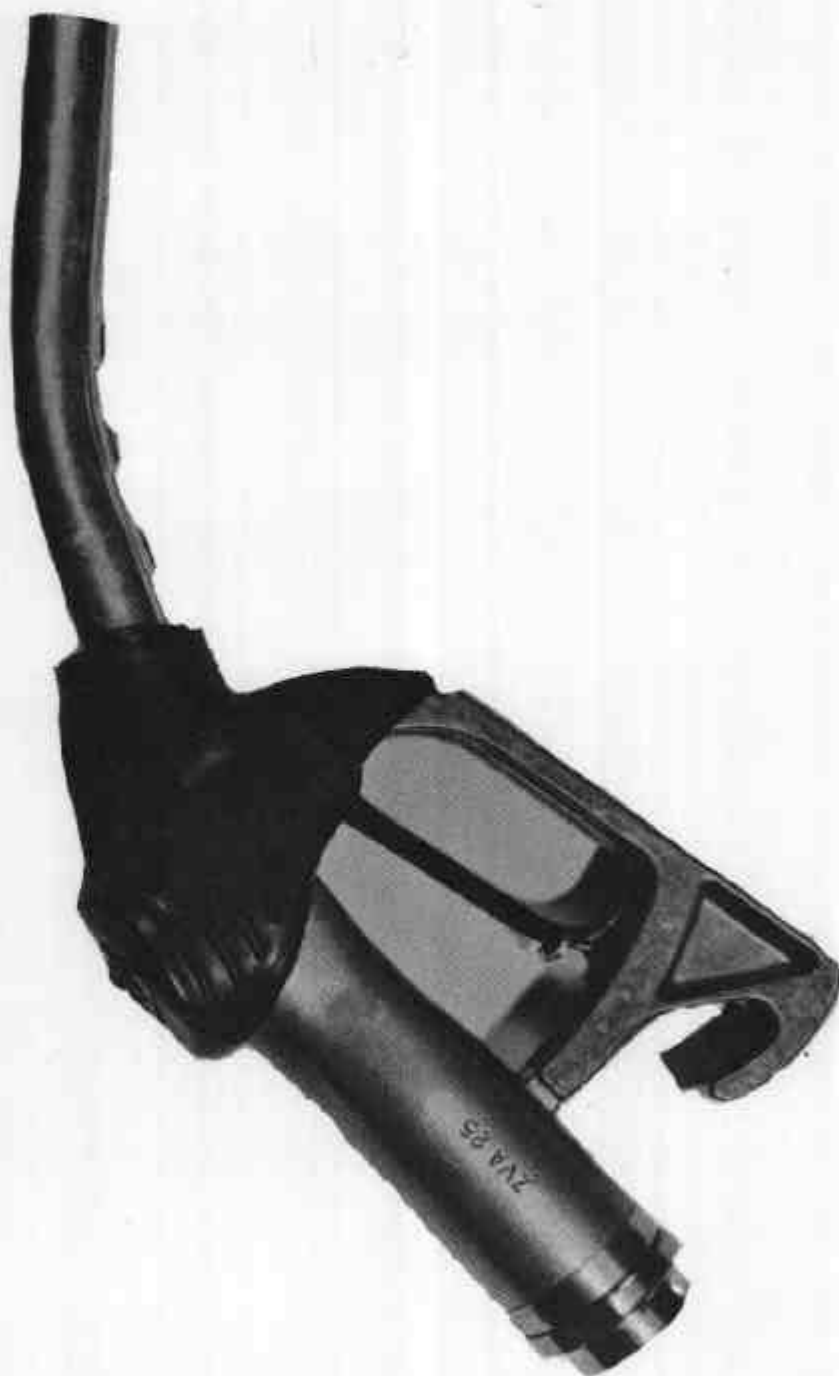
Main Valve



Gilbarco T279P Hose Nozzle

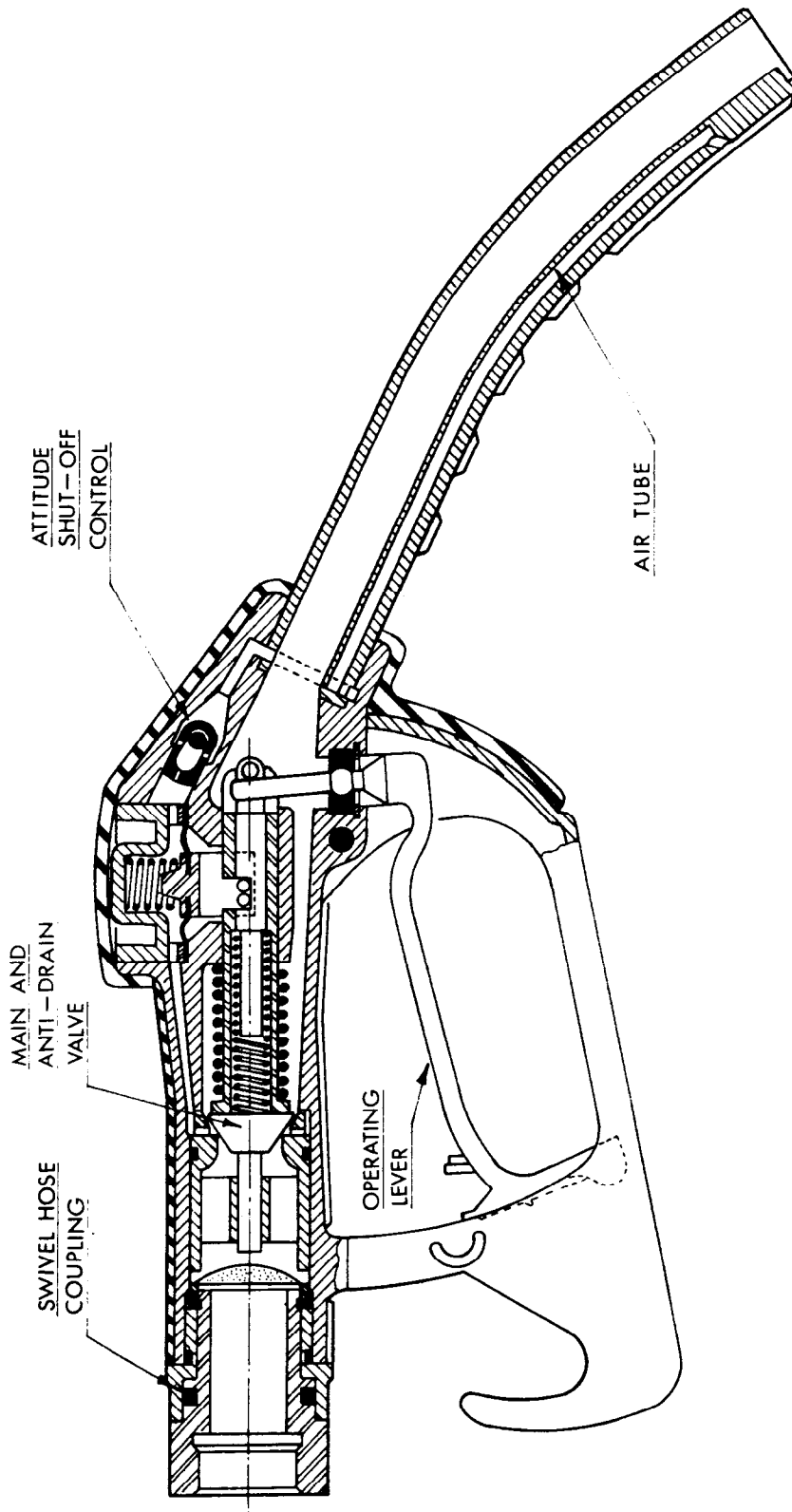
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FIGURE 5/6H/1 - 7



ZVA 25 ND 6-8 Automatic Hose Nozzle

FIGURE 5/6H/1 - 8



ZVA 25 ND 6-8 Automatic Hose Nozzle — Schematic Diagram