NATIONAL STANDARDS COMMISSION

PROVISIONAL CERTIFICATE OF APPROVAL No P5/6B/55

This is to certify that the pattern and variants of a

Pipeline/Loading Rack System with AO Smith "G" Series Flowmeter

submitted by Wayne Pumps Australia Pty Ltd,
29 Anzac Highway,
Keswick, South Australia, 5035,

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

Pattern: approved 24/9/80

Variants: approved 24/9/80

1. Without ticket printer.

2. Without preset-control indicator and preset valve.

3. With rigid extension between the meter and indicator.

4. Without pulse transmitters.

5. Without flow-rate control valve.

The pattern and variants are described in Technical Schedule No P5/6B/55 issued on 10/10/80, and in drawings and specifications lodged with the Commission.

Approval is granted subject to the following conditions:

1. The maximum and minimum flow rates are 4600 L/min and 920 L/min respectively.

2. When the difference between maximum and minimum flow rate, in normal conditions of use, exceeds 460 L/min, these maximum and minimum flow rates shall be marked on the data plate.

   When the flow rate, in normal conditions of use, is within $\pm$5% of a nominal flow rate, the nominal flow rate shall be marked on the data plate.

3. The instrument is not used for liquified gases.

4. The type of liquid for which the instrument is verified is marked on the data plate.

5. The system is designed so that gas cannot enter the meter.

6. Instruments are installed in the manner described in Technical Schedule No P5/6B/55.

7. Each system is tested in a manner approved by the Commission at intervals of approximately three months, or, if the throughput is less than 2 ML per month, at intervals of not less than 6 ML, such tests to be arranged by the submittor, and the results sent to the Commission.

8. In the event of unsatisfactory performance the approval may be cancelled.

9. The approval is liable for cancellation after one year from the date of approval if suitable test results are not received by the Commission.

10. The Commission reserves the right to inspect any installation incorporating a meter covered by this approval.

All instruments conforming to this approval shall be marked with the approval number "NSC No P5/6B/55".

Signed

Executive Director

10/10/80

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No P5/6B/55

Pattern: Pipeline/Loading Rack System with AO Smith "G" Series Flowmeter

Submittor: Wayne Pumps Australia Pty Ltd,
29 Anzac Highway,
Keswick, South Australia, 5035.

1. Description of Pattern

1.1 Pipeline flowmeter

Refer to Figure 1.

The system comprises:

1.1.1 Supply tank.

1.1.2 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; if the pump is not for the exclusive use of the flowmeter, the flow rate through the meter must stay within the appropriate flow-rate range for all combinations of alternative uses of the output from the pump.

1.1.3 A non-return valve between the pump and the meter, or an arrangement of the components and the piping to keep the system full of liquid at all times.

*1.1.4 Strainer with air release head or strainer with separate de-aerator (Figures 4 and 5).

1.1.5 AO Smith "G" series flowmeter (Figure 3).

1.1.6 One of the following combinations of assemblies:

(a) Indicator model VR1624.

*Neither the strainer with air release head or strainer with separate de-aerator are a part of the measuring instrument examined and approved by the Commission.

(b) Indicator model VR1624 with accumulative or zero-start ticket printer.

(c) Indicator model VR7887.

(d) Indicator model VR7887 with accumulative or zero-start ticket printer.

The indicators and ticket printers are single-handle reset. A preset indicator, either VR7889 or Smith 300B, and preset-control valve may be fitted to the indicator with or without a ticket printer. The preset indicator is not approved for trade use.

1.1.7 A single pulse transmitter or a multiple-head transmitter with a maximum of three pulsers with interface to remote indicators which are not in use for trade.

1.1.8 Flow-rate control valve.

1.1.9 Outlet-control valve located downstream of the meter with no intermediate outlet.

1.2 Loading-rack Flowmeter System

This system is identical to the pipeline system except for the outlet which is replaced by one of the following:

Top-loading arrangement (Figure 2) - the highest point of the pipework forms a sharply defined weir at a fixed level from which the delivery pipe drains to the outlet for all configurations of the loading arm whilst in operation: the outlet-control valve is installed at or upstream of the highest point and a syphon breaker is installed to ensure complete draining of the pipework downstream of the weir,

OR

Bottom-loading arrangement - drybreak coupling located at the delivery point of the piping.

1.3 Features Common to Both Systems

1.3.1 Marking

The instrument data plate is marked with the following:

Manufacturer's name or mark
Meter model
Serial number
NSC number
Maximum flow rate) (when operating over a range
Minimum flow rate) of more than 460 L/min)
Nominal flow rate) (when flow rate is within ±5% of nominal)
Viscosity range or type of liquid for which the instrument is verified
Minimum delivery

1.3.2 Sealing

1.3.2.1 The indicator, ticket printer, preset indicator and pulse transmitter are sealed by passing a sealing wire through the attachment-mounting bolts. The calibration is sealed by the same wire or a separate wire terminating beneath a lead-stamping plug (Figure 6).

1.3.2.2 The instrument data plate is sealed to the instrument by a lead stamping plug or by threading the indicator-sealing wire through a hole in the data plate (Figure 6).

1.3.2.3 If the peripheral equipment is fitted, sealing is to be provided at the peripheral equipment plugs and sockets.

1.4 Minimum Delivery

The following minimum deliveries are applicable:

100 L with indicator only;
200 L with zero-start printer and indicator;
400 L with accumulative-start printer and indicator.

2. Variants

1. Without ticket printer.

2. Without preset-control indicator and preset valve.

3. With rigid extension between the meter and indicator.

4. Without pulse transmitters.

5. Without flow-rate control valve.

3. Test Procedure

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

   The maximum permissible errors at verification are:

   (a) $\pm$0,3% for all flow rates; when operating over a flow rate range within the marked maximum and minimum flowrates, of more than 460 L/min; or

   (b) $\pm$0,15% when operating at a flow rate, within $\pm$5% of nominal as marked on the meter.

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 on the measurement of the quantity delivered should not exceed 1% of the minimum delivery.

3. Test delivery - if the test delivery is less than ten times the minimum delivery, the reading error of the indicator or the rounding error of the ticket printer is minimised by completing the delivery at a graduation line.

   The following information shall be recorded for sending to the Commission:

(a) NSC approval number
(b) Installation address
(c) Meter serial number
(d) Identification of meter assembly in terms of pattern and variants described in this Schedule
(e) Totaliser reading at beginning of test
(f) Type of liquid
(g) Temperature of liquid entering the meter
(h) Information from the Weights and Measures inspection as to the calibration results as recorded in 1. above.

FIGURE P5/6B/55 - 1

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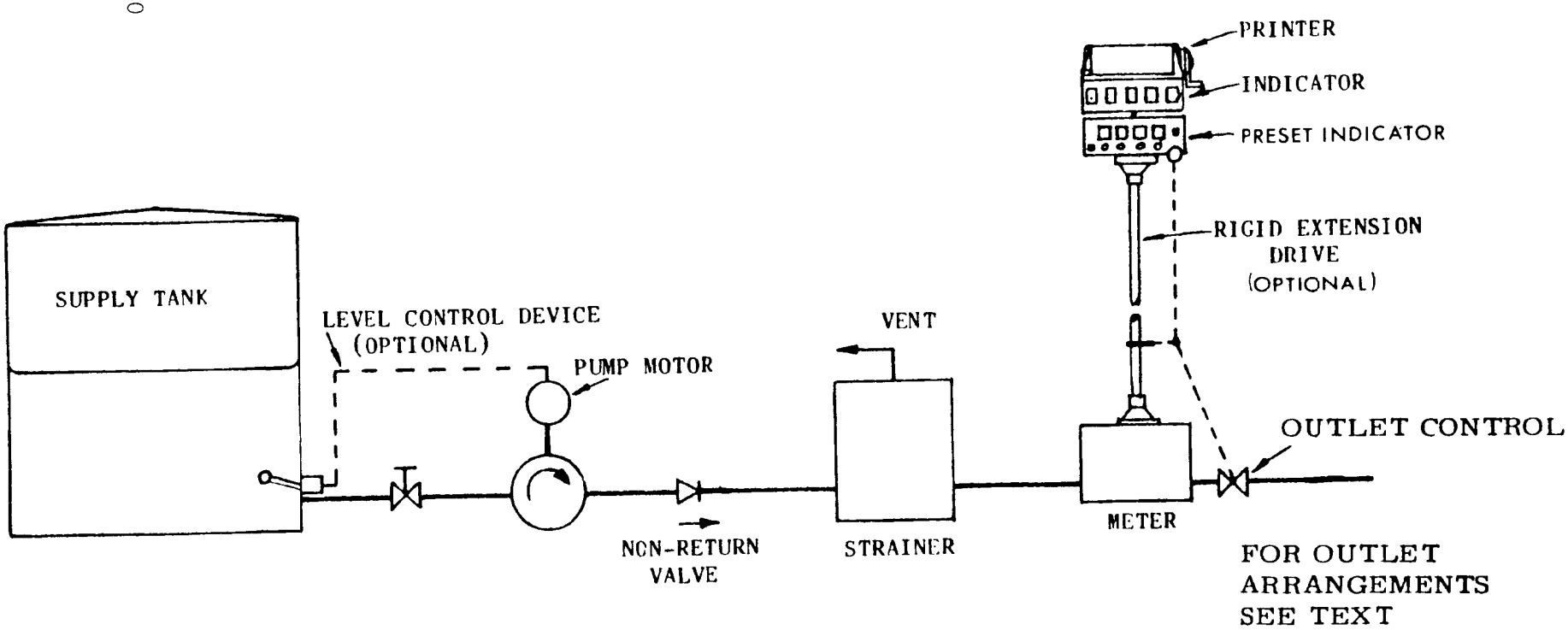

Pipeline Flowmeter - Schematic Diagram

FIGURE P5/6B/55 - 2

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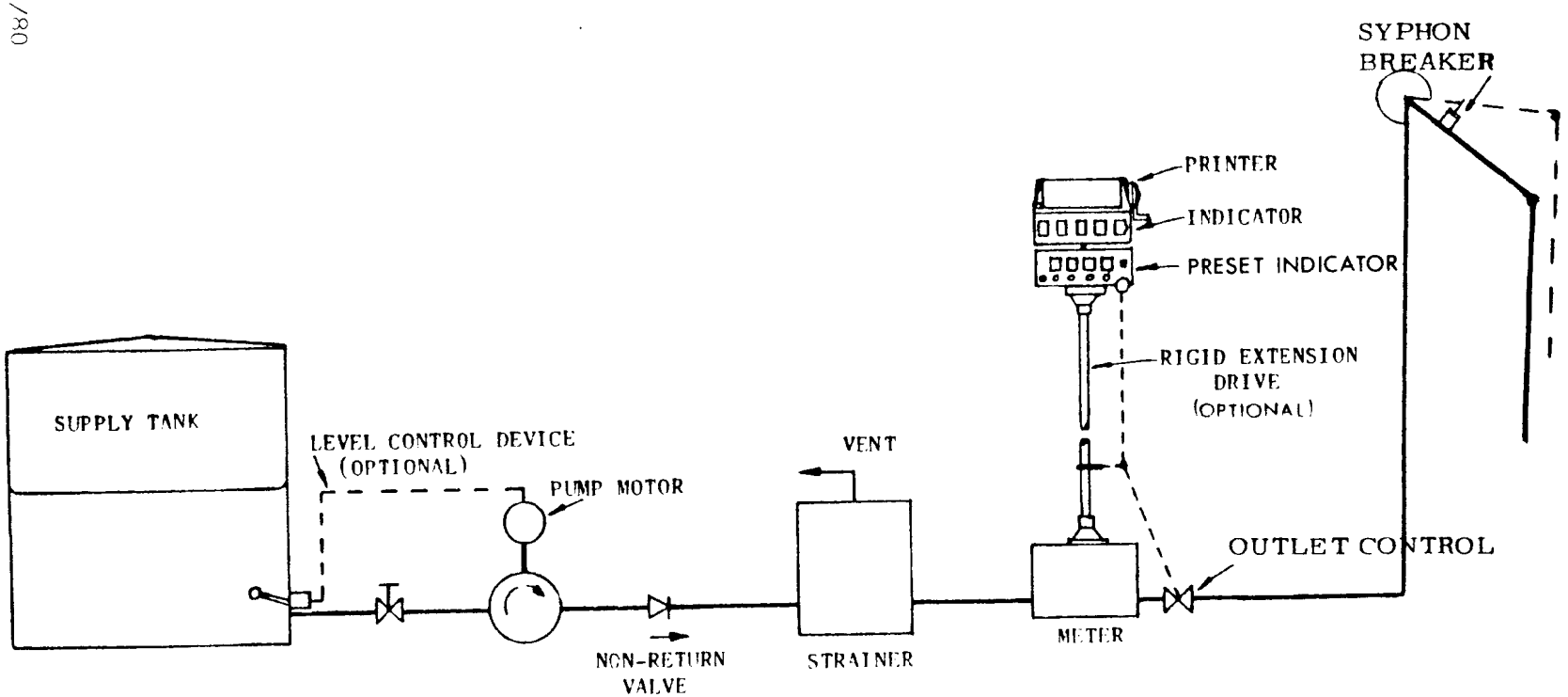

Loading-rack Flowmeter - Schematic Diagram

FIGURE P5/6B/55 - 3

A.O. Smith "G" Series Meter and
Attachments showing Rigid Extension

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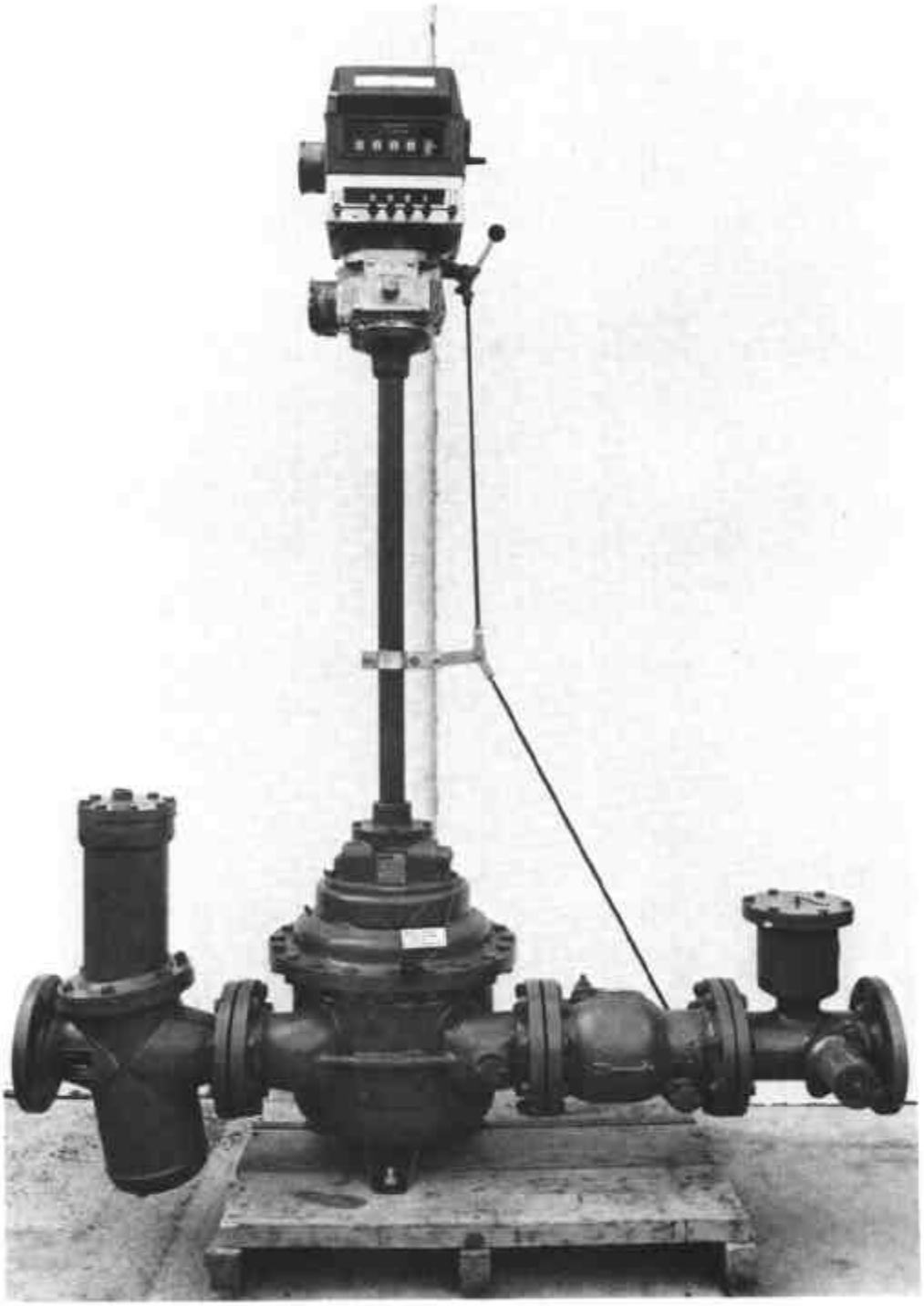
FIGURE P5/6B/55 - 4



Meter and Strainer with Air Release Head

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FIGURE P5/6B/55 - 5

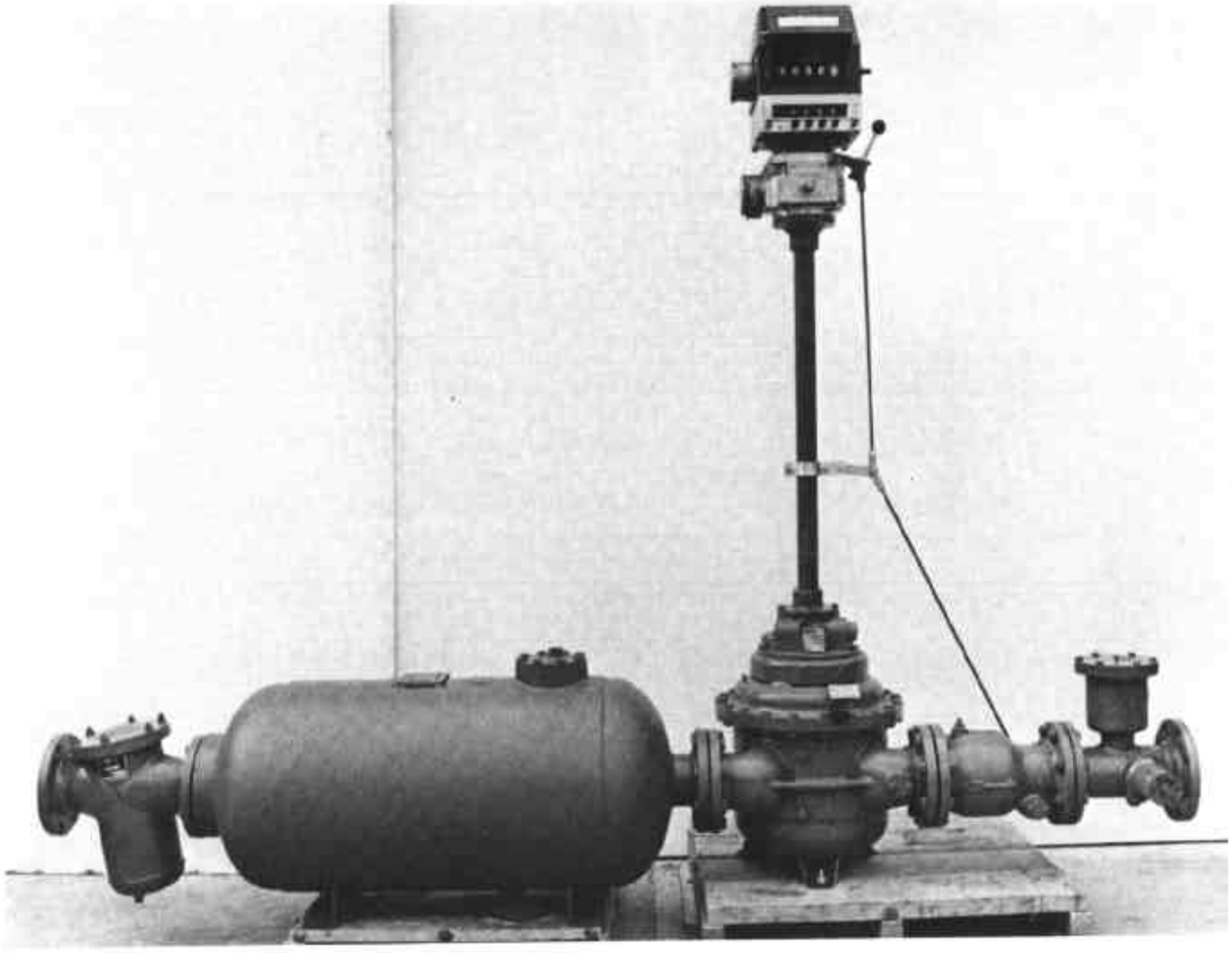

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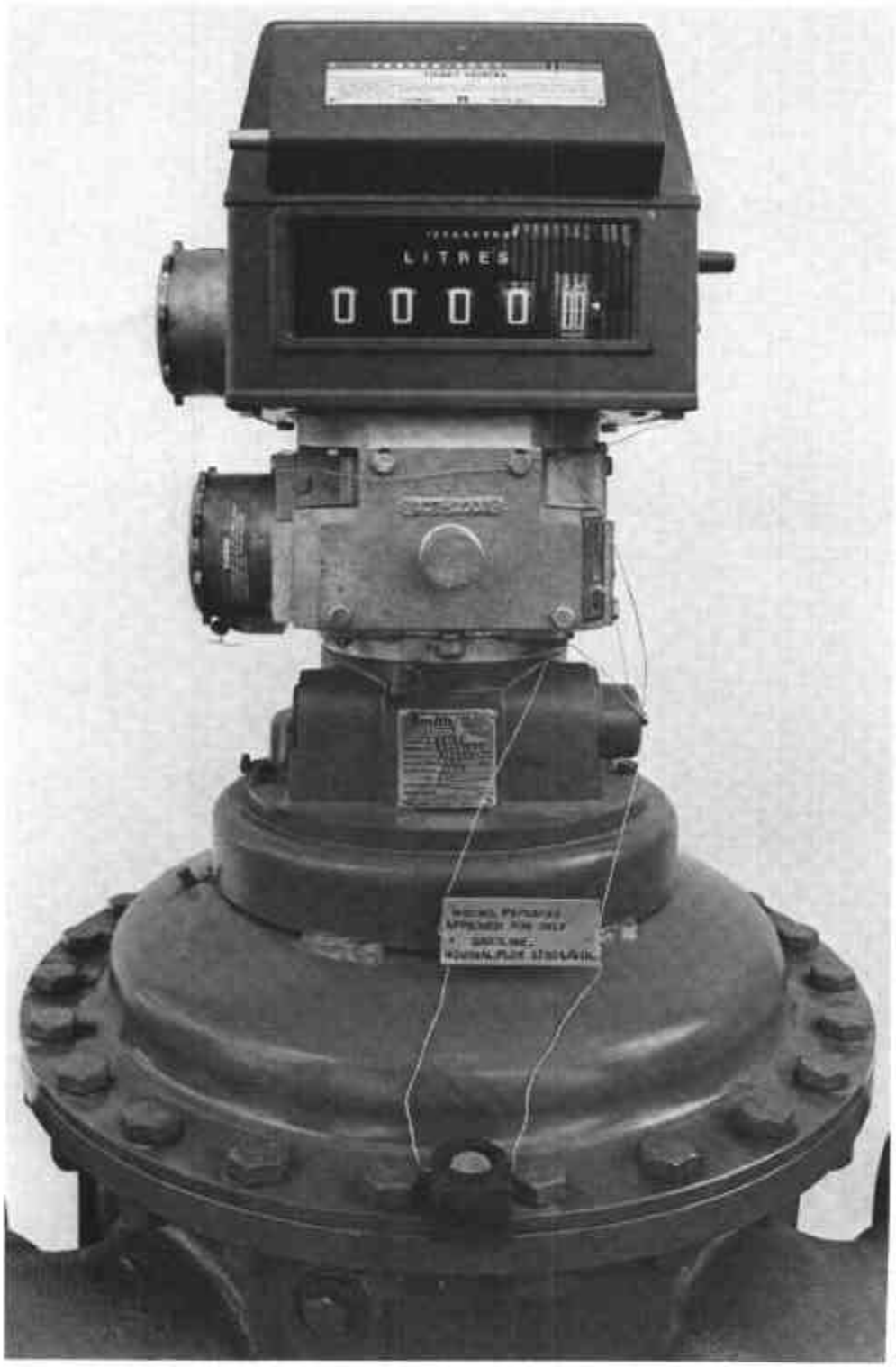
FIGURE P5/6B/55 - 6



"G" Series Meter and Attachments
showing Sealing

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