

# National Standards Commission



## Certificate of Approval

No 10/1/9

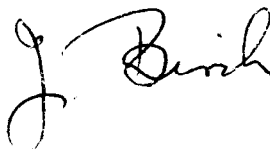
Issued under Regulation 9  
of the  
National Measurement (Patterns of Measuring Instruments) Regulations

This is to certify that an approval for use for trade has been granted in respect of  
the

Batchen Model Commander LPG Driveway Flowmeter

submitted by D J Batchen Pty Ltd  
6 Raglan Road  
Auburn NSW 2144.

Signed and sealed by a person authorised  
under Regulation 9 of the National  
Measurement (Patterns of Measuring  
Instruments) Regulations to exercise the  
powers and functions of the Commission  
under this Regulation.



### CONDITIONS OF APPROVAL

This approval is subject to review on or after 1/9/92.

This approval expires in respect of new instruments on 1/9/93.

Instruments purporting to comply with this approval shall be marked NSC No 10/1/9 and only by persons authorised by the submittor.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the Commission and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with the Commission's Document 106.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

#### **Special:**

The initial verification of each driveway flowmeter shall be carried out under the supervision of a government-licensed LPG installer or a person experienced in the design and installation of LPG systems.

Instruments installed under this approval are to be calibrated at intervals not exceeding 6 months.

### DESCRIPTIVE ADVICE

**Pattern:** provisionally approved 9/7/84 - approved 4/8/87

- A Batchen model Commander attendant-operated driveway flowmeter for the dispensing of liquefied petroleum gas.

**Variants:** provisionally approved 9/7/84 - approved 4/8/87

1. With two flowmetering systems in one housing.
2. With an Epitronic MkI or MkII self-serve control console.
3. In an alternative "round" housing.

Technical Schedule No 10/1/9 describes the pattern and variants 1 to 3.

**Variant:** provisionally approved 9/8/85 - approved 4/8/87

4. Using a Schwelm model ZWM 1237 meter and Neptune 32 mm gas purger.

Technical Schedule No 10/1/9 Variation No 1 describes variant 4.

**Variants:** provisionally approved 3/10/86 - approved 4/8/87

5. With an hydraulic accumulator.
6. In alternative housings.

Technical Schedule No 10/1/9 Variation No 2 describes variants 5 and 6.

**Variants:** approved 4/8/87

7. With a Batchen vapour eliminator and spring-loaded differential valve.
8. Approved for use with LPG of density 0.500 to 0.515 kg/L or 0.530 to 0.540 kg/L.

Technical Schedule No 10/1/9 Variation No 3 describes variants 7 and 8.

**Variants:** approved 29/6/88

9. In an alternative (Email MPP) housing.
10. Approved for use with LPG of density 0.515 kg/L to 0.530 kg/L.

Technical Schedule No 10/1/9 Variation No 4 describes variants 9 and 10.

**Variants:** approved 21/12/90

11. A Batchen model DGS Commander dual driveway flowmeter.
12. A Batchen model SGS Commander single driveway flowmeter.

Technical Schedule No 10/1/9 Variation No 5 describes variants 11 and 12.

**Variants:** approved 24/1/92

13. Without the solenoid-operated nozzle latch.
14. Batchen model MPP Mk II with Email MPP indicators and housing.
15. With a Batchen vapour elimination system.

Technical Schedule No 10/1/9 Variation No 6 describes variants 13 to 15.

#### FILING ADVICE

Certificate of Approval No 10/1/9 dated 14/3/91 is superseded by this Certificate and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 10/1/9 dated 23/3/92  
Technical Schedule No 10/1/9 dated 28/5/85  
Technical Schedule No 10/1/9 Variation No 1 dated 25/11/85  
Technical Schedule No 10/1/9 Variation No 2 dated 2/1/87  
Technical Schedule No 10/1/9 Variation No 3 dated 21/9/87  
Technical Schedule No 10/1/9 Variation No 4 dated 20/10/88  
Technical Schedule No 10/1/9 Variation No 5 dated 14/3/91  
Technical Schedule No 10/1/9 Variation No 6 dated 23/3/92  
Test Procedure No 10/1/9 dated 28/5/85  
Figures 1 to 5 dated 28/5/85  
Figures 6 and 7 dated 25/11/85  
Figure 8 dated 2/1/87  
Figures 9 to 12 dated 21/9/87  
Figure 13 dated 20/10/88  
Figures 14 to 16 dated 14/3/91  
Figures 17 and 18 dated 23/3/92



# NATIONAL STANDARDS COMMISSION

## TECHNICAL SCHEDULE No 10/1/9

Pattern: Batchen Model Commander LPG Driveway Flowmeter

Submittor: D J Batchen Pty Ltd  
6 Raglan Road  
Auburn NSW 2144

### 1. Description of Pattern

The pattern is a Batchen Commander driveway flowmeter (Figures 1 and 2) for the delivery of liquefied petroleum gas of density 0.500 to 0.515 kg/L at 15°C, at temperatures between 0°C and 45°C.

The maximum and minimum flow rates are 60 L/min and 15 L/min respectively.

The hydraulic diagram for the driveway flowmeter is shown in Figure 3.

Volume	999.99 L in 0.01 L increments
Unit price	999.9 c/L in 0.1c increments
Price	\$999.99 in 1c increments
Totaliser volume	99999 L in 1 L increments

### 1.1 Component Structure

The component parts of each driveway flowmeter comprise those components detailed in (iii) to (xi) below.

#### (i) Supply Tank

The supply tank is located above the pump. The capacity of the supply tank is such that the maximum delivery of the driveway flowmeter in one minute is not greater than approximately 2.5% of the tank capacity.

#### (ii) Pump

The pump is positioned as close as possible to the supply tank. There shall be no restrictive fittings within ten pipe diameters of the pump inlet. The inlet pipe to the pump is larger than the outlet from the pump. The external pump by-pass relief valve is installed in a line returning to the supply tank. The external by-pass setting is 100 to 140 kPa LOWER than the internal pump relief valve setting, where such a valve is fitted.

#### (iii) Meter

A Neptune type 4D style N series 100 20 mm LPG meter.

#### (iv) Gas Purger

The meter is protected from the measurement of vapour by correct installation and by a Neptune 20 mm gas purger which is vented through a non-return valve, via a vapour return line not less than 20 mm in diameter to the vapour space in the supply tank.

A thermometer pocket is situated in the gas purger.

(v) Driveway Flowmeter Indicator

An Eclipse model MVR79S price-computing driveway flowmeter indicator is used. The pulse transmitter which is mounted on top of the meter is driven directly by the meter output shaft. The unit price change and test buttons are located on the indicator housing.

The operating cycle is started by removing the nozzle. The display will clear the previous sale and the remote pump will start, after a short delay (minimum 2 seconds). The display then blanks, displays 8's and then all 0's, leaving only the unit price displayed. During this time the nozzle may be attached to the purchaser's tank. At the end of this cycle a solenoid valve opens allowing filling to commence. Replacement of the nozzle stops the remote pump but allows the display to remain until the next cycle.

(vi) Electronic Temperature Compensation

Temperature compensation is achieved by means of an electronic compensator built into the Eclipse MVR79S.

The probe for the compensator is located in the stream of liquid in the gas purger inlet. The electronic probe circuitry senses changes of temperature in the liquid, and the MVR79S adjusts the indicated volume to the equivalent volume at a temperature of 15°C. A switch is provided to de-activate the temperature compensating function for testing purposes.

Fifteen seconds after a sale has been terminated and with the nozzle held in its receptacle, pressing the TOTALS (or TOTES) button in the middle of the indicator will display the following:

Cumulative Dollars Sold in Whole Dollars  
Cumulative Volume Sold in Whole Litres  
Temperature Display

On release of the button the display will revert to the previous sale information.

The temperature display is an indirect display of the temperature. This display can be converted into degrees celsius by the following:

$$\frac{\text{Temperature Display} - 20}{2} = \text{Liquid Temperature in } ^\circ\text{C}$$

Note: When the electronic temperature compensator is de-activated the temperature display will show 50.

(vii) Differential Valve

A Neptune 20 mm spring-loaded piston valve maintains pressure in the metering chamber to prevent the formation of vapour. A pressure-equalising pipe is connected from the differential valve to the supply tank, through the vapour return line from the gas-purger vent (Figure 3).

(viii) Vapour Indicator

A sight glass flow indicator and a pressure gauge are fitted in the outlet of the meter after the check valve, so that it may be seen whether vapour is being metered (Figure 3).

(ix) Outlet Piping

The pipe connection from the meter to the hose is fitted with a check valve immediately after the meter followed by a sight glass, a solenoid valve, a manual shut-off valve incorporating a back-check valve, and an excess-flow valve. Two bleed valves are provided to empty the hose and pipework for maintenance purposes.

(x) Hose

The dispenser is fitted with a hose complying with the SAA code for hoses in use with liquefied petroleum gases, with a bore of either 12.5 mm or 20 mm. The hose is fitted with a hose break coupling which will break with a loss of no more than 15 mL of liquid in the event of an excessive pull on the nozzle.

(xi) Nozzle

The nozzle used is a Gilbarco model 102-ZVG 1.3, also known as an Elaflex and described in the documentation of NSC approval No S158. There is a small loss of liquid whenever the nozzle is released.

(xii) Pressure Equalisation

To facilitate pressure equalisation when the driveway flowmeter is being tested with a pressure prover, provision is made for a vapour line from the prover to the vapour space of the supply tank either directly or via a tee in the vapour return line from the gas purger using a 1 3/4" Acme male adapter. This provision is sealed OFF when not in use. During a normal delivery there is no vapour return connection between the receiving container and the supply tank.

1.2 Markings

The instrument data plate permanently fixed to the external housing of the driveway flowmeter is marked with the following:

Manufacturers name or mark	
Year of manufacture	
Serial number	
NSC approval number	NSC No P10/1/9
Maximum flow rate	60 L/min
Minimum flow rate	15 L/min
Liquid temperature range	0°C to 45°C
Approved for LPG of density 0.500 to 0.515 kg/L only	
Density for which temperature compensator is set	..... kg/L
Maximum operating pressure	2450 kPa

1.3 Sealing

The indicator and temperature compensator switch are sealed as illustrated in Figure 4.

2. Description of Variants

2.1 Variant 1

With two flow metering systems in one housing (Figure 5).

2.2 Variant 2

With an Epitronic Mk I or Mk II self-serve console described in the documentation of NSC approval No 5/6A/70.

2.3 Variant 3

In an alternative "round" housing.



TEST PROCEDURE No 10/1/9

The following test procedure is to be used at each six-monthly reverification test. The tests are to be arranged so that one is carried out in the hotter period of each year and the other in the cooler period. One test should also be arranged when there is a low liquid level in the supply tank to ensure that there is still sufficient pressure at the inlet to the pump to avoid vapour being generated.

1. Meter Test With Temperature Compensator De-activated

The maximum permissible errors are specified in Document 118.

- (i) Carry out at least three runs at the normal flow rate at which the meter is used and apply, to each run, any correction factors appropriate to the proving method used.
- (ii) Repeat the above test with the flow rate set at 15 L/min.
- (iii) During the test runs, note whether any vapour is showing in the sight glass.

2. Meter Test With Temperature Compensator Activated

- (i) Carry out at least three runs at the normal flow rate and apply any correction factor appropriate to the proving method used. Reduce the volume delivered to its equivalent volume at 15°C using the temperature indicated at the meter and the appropriate table\* for the density of the liquid for which the temperature compensator is set. Compare the calibrated volume with the meter indicated volume.
- (ii) Repeat the above test with the flow rate set at 15 L/min.

3. Price-computation

- (i) Note the unit price set on the driveway flowmeter. Wait at least 15 seconds after termination of a sale, then press and release the TEST button on the Eclipse indicator. The indicator will then display TEST on all displays.
- (ii) Remove the nozzle from its receptacle.
- (iii) Set the unit price to 30 cents per litre (The price may be changed by simultaneously pressing the PRICE and the UP or DOWN buttons).
- (iv) Replace the nozzle in its receptacle. The indicator will then enter a reset cycle followed by a simulated fuel delivery mode.
- (v) Press the FAST or SLOW button to display a volume between 7.49 and 7.54 litres. The price will be \$2.25 for 7.49, 7.50 or 7.51 litres, or \$2.26 for 7.52, 7.53 or 7.54 litres.
- (vi) Remove the nozzle from its receptacle and wait three seconds. Repeat sequences from step (iv) if further simulated sales are to be performed. Alternatively, change the unit price to 30.9 cents per litre, when ERROR 2 will flash indicating a multiplication error.

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\* ASTM - IP Petroleum Measurement Tables

- (vii) Change the unit price back to the original value noted in (i).
- (viii) Press TEST button once to abandon TEST mode.
- (ix) Replace the nozzle in its receptacle.

#### 4. Computation Tests on Console

Note: In order to allow the service station to continue to function while these tests are carried out, a number of driveway flowmeters may be isolated by switching to ATTENDED (MANUAL) mode at the flowmeter while the remainder are left in CONSOLE Mode.

- (i) Ensure that CONSOLE mode is selected at those driveway flowmeters to be tested.
- (ii) At the control console select CONSOLE (POST-PAY) mode of operation by use of the keyswitch.
- (iii) In turn, press each STATUS button and check that all 8's are displayed.

For one driveway flowmeter (or more if thought to be necessary):

- (iv) Operate the keyswitch and release - the AUTHORISATION light should flash at the console; authorise the driveway flowmeter by pressing AUTHORISATION button for that flowmeter.
- (v) Deliver sufficient liquid to cause the price and quantity indicators on the driveway flowmeter to move significantly off zero.
- (vi) Stop the pump motor by returning the nozzle to its receptacle.
- (vii) Record the driveway flowmeter number and the price indicated on the driveway flowmeter.
- (viii) Operate the keyswitch and release, and check that the price-computing indicator does not reset to zero and that the pump motor does not start (AUTHORISATION and STATUS lights will be illuminated).
- (ix) At the control console press the STATUS button for the driveway flowmeter and check the display price against the price recorded at the driveway flowmeter - refer (vii).
- (x) Authorise the driveway flowmeter by pressing the AUTHORISATION button.
- (xi) After a minimum of 20 seconds the STATUS light for that flowmeter will flash. Press the STATUS button; the price and volume indicators, on both the console and the driveway flowmeter, should zero.

10/1/9  
25/11/85



# NATIONAL STANDARDS COMMISSION

## TECHNICAL SCHEDULE No 10/1/9

### VARIATION No 1

Pattern: Batchen Model Commander LPG Driveway Flowmeter

Submitter: D J Batchen Pty Ltd  
6 Raglan Road  
Auburn NSW 2144

#### 1. Description of Variant 4

With a Schwelm model ZWM 1237 meter and Neptune 32 mm gas purger replacing the Neptune meter and 20 mm gas purger of the pattern (Figure 6).

When two flowmetering systems are used in the one housing, only one common gas purger is required (Figure 7).

10/1/9  
2/1/87



# NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 10/1/9

VARIATION No 2

Pattern: Batchen Model Commander LPG Driveway Flowmeter

Submittor: D J Batchen Pty Ltd  
6 Raglan Road  
AUBURN NSW 2144.

## 1. Description of Variants

### 1.1 Variant 5

With a hydraulic accumulator fitted downstream of the meter, between the solenoid valve and the hose break coupling.

### 1.2 Variant 6

In alternative housings. Figure 8 shows one example.



10/1/9  
21/9/87

## NATIONAL STANDARDS COMMISSION

### TECHNICAL SCHEDULE No 10/1/9

#### VARIATION No 3

Pattern: Batchen Model Commander LPG Driveway Flowmeter.

Submittor: D J Batchen Pty Ltd  
6 Raglan Road  
Auburn NSW 2144.

#### 1. Description of Variants

##### 1.1 Variant 7

A Batchen Commander LPG driveway flowmeter using a Schwelm model ZWM 1237 meter as approved in variant 4 but with a Batchen model BVE-1 vapour eliminator (Figure 9) located immediately before the meter and a Batchen model BDV-1 spring-loaded pressure differential valve (Figure 10) located immediately after the meter (Figures 11 and 12).

##### 1.2 Variant 8

The pattern or variants approved for use with LPG of density 0.500 to 0.515 kg/L or 0.530 to 0.540 kg/L.



# NATIONAL STANDARDS COMMISSION

10/1/9  
20/10/88

## TECHNICAL SCHEDULE No 10/1/9

### VARIATION No 4

Pattern: Batchen Model Commander LPG Driveway Flowmeter.

Submittor: D J Batchen Pty Ltd  
6 Raglan Road  
Auburn NSW 2144.

#### 1. Description of Variants

##### 1.1 Variant 9

In an alternative (Email MPP) housing (Figure 13).

##### 1.2 Variant 10

The pattern or variants approved for use with LPG of density 0.515 kg/L to 0.530 kg/L.



10/1/9  
14/3/91

## National Standards Commission

### TECHNICAL SCHEDULE No 10/1/9

#### VARIATION No 5

**Pattern:** Batchen Model Commander LPG Driveway Flowmeter.

**Submitter:** D J Batchen Pty Ltd  
6 Raglan Road  
Auburn NSW 2144.

#### 1. Description of Variants

##### 1.1 Description of Variant 11

A Batchen model DGS Commander dual LPG driveway flowmeter (Figures 14 and 15) for the delivery of liquefied petroleum gas of density 0.510 to 0.560 kg/L (at 15°C), at temperatures between -5°C and +45°C.

##### 1.1.1 Component Structure

The instrument's major hydraulic components (Schelm model ZWM 1237 meter, Batchen model BVE-1 vapour eliminator, hydraulic accumulator, etc.) are those of variants 5 and 7; those components which are different are detailed below. The Eclipse model MVR79S indicator of the pattern is replaced by a Gilbarco LPG Electroline CD module with electronic temperature compensation.

The hydraulic diagram of the flowmeter is shown in Figure 16.

##### (i) Driveway Flowmeter Indicator

A Gilbarco LPG Electroline CD module is used and is mounted in a separate housing atop the main housing. The pulse transmitter is driven from the output shaft of the meter through a gear assembly on which is mounted a checking (peripheral) pulser. A weights and measures ("W & M test") switch is located within the module.

Unit prices may be changed either by buttons within the module, or centrally if connected to a control console which is Commission-approved with that facility.

Volume	999.99 L in 0.01 L increments
Unit price	999.9 c/L in 0.1 c increments
Price	\$999.99 in 1 c increment
Totaliser volume	9999999 L in L increments

The operating cycle is started by actuating the start lever, the pump motor immediately starting. When the hose is full of liquid the solenoid-operated latch holding the nozzle will release. The nozzle may then be removed from its receptor and connected to the purchaser's tank. During this time the reset cycle will have been completed and delivery can commence.

**(ii) Electronic Temperature Compensation**

Temperature compensation is achieved by means of an electronic compensator built into the Gilbarco model CD indicator/computer module.

The probe for the compensator is located in the inlet of the gas purger. The electronic probe circuitry senses changes of temperature in the liquid, and the CD module adjusts the indicated volume to the equivalent volume at 15°C. For testing purposes, the uncompensated volume is displayed if the W & M switch is depressed; the probe temperature is also displayed instead of the unit price. In this mode the price is blank. The display will revert to the previous sale information if the switch is depressed again.

**Note:** In the uncompensated mode the price is blank.

**(iii) Nozzle**

The nozzle used is either a Gilbarco model 102-ZVG 1.3, also known as an Elaflex, as described in the documentation of NSC approval No S158 or a Gasguard model LG1 liquefied petroleum gas nozzle.

The nozzle cannot be removed from the purchaser's tank if the trigger is not released. A small loss of liquid is evident whenever the trigger is released.

**1.1.2 Markings**

The instrument data plate permanently fixed to the external housing of the driveway flowmeter is marked as described for the pattern, except that the approved density range is 0.510 to 0.560 kg/L.

**1.1.3 Sealing**

The meter calibration adjustments are sealed. The "W & M test" switch, and the density adjustment switches, are also sealed.

**1.2 Description of Variant 12**

A Batchen model SGS Commander single LPG driveway flowmeter which is similar to the model DGS (Variant 11) but uses one flowmetering system.





10/1/9  
23/3/92

## National Standards Commission

### TECHNICAL SCHEDULE No 10/1/9

#### VARIATION No 6

**Pattern:** Batchen Model Commander LPG Driveway Flowmeter.

**Submittor:** D J Batchen Pty Ltd  
6 Raglan Road  
Auburn NSW 2144.

#### 1. Description of Variants

##### 1.1 Variant 13

A Batchen model DGS or SGS Commander LPG driveway flowmeter as described in Variants 11 and 12, but with the solenoid valve located immediately upstream of the hose inlet (Figure 17) and without the solenoid-operated nozzle latch.

The operating sequence is similar to that described in Technical Schedule No 10/1/9 Variation No 5 (cl. 1.1.1 (i) para. 3) except that the nozzle is not latched; upon lifting the nozzle the pump motor will start immediately. After a delay to compress any vapour in the system, the reset cycle commences, with the solenoid valve opening at the end of the cycle to allow delivery to begin.

##### 1.2 Variant 14

With Batchen Commander hydraulics, a Schwelm model ZWM 1237 meter, and Email model MPP2G electronic price-computing indicators, in an Email MPP2G type housing, and known as a Batchen model MPP Mk II (Figure 18).

The electronics for the indicators are located in the supporting column.

##### 1.3 Variant 15

Any model flowmeter covered by this approval fitted with a Batchen vapour elimination system incorporating a Batchen model BVE-1 vapour eliminator and model BDV-1 pressure differential valve (Figures 9 to 12), and which may now be used with the pump positioned above the supply tank, in which case the pump shall be specifically designed for use with LPG in **negative suction head** installations (i.e. a multi-stage regenerative turbine pump).

The installation shall be constructed in accordance with the relevant requirements of the Commission's Code of Practice No 2.



P10/1/9  
8/7/86

# NATIONAL STANDARDS COMMISSION

## NOTIFICATION OF CHANGE

PROVISIONAL CERTIFICATE OF APPROVAL No P10/1/9

### CHANGE No 1

The following changes are made to the approval documentation for the  
Batchen Model Commander LPG Driveway Flowmeter

submitted by D J Batchen Pty Ltd  
6 Raglan Road  
Auburn NSW 2144.

In Test Procedure No 10/1/9 dated 28/5/85:

- a) Delete the reference to Maximum Permissible Errors in clause 1.
- b) Insert the following before clause 1;

The maximum permissible error applied during a verification test from normal flow rate to the minimum flow rate \* specified in the Technical Schedule is:

± 1.0% with the temperature compensator deactivated

and ± (1.2% + 0.02% per °C difference from 15°C) with the temperature compensator activated.

- \* The minimum flow rate for driveway flowmeters is 15 L/min unless otherwise specified in the Technical Schedule.

Signed

Executive Director

## National Standards Commission



### NOTIFICATION OF CHANGE

### VARIOUS CERTIFICATES OF APPROVAL

The following changes are made to the approval documentation for various LPG flowmeter approvals as listed below:

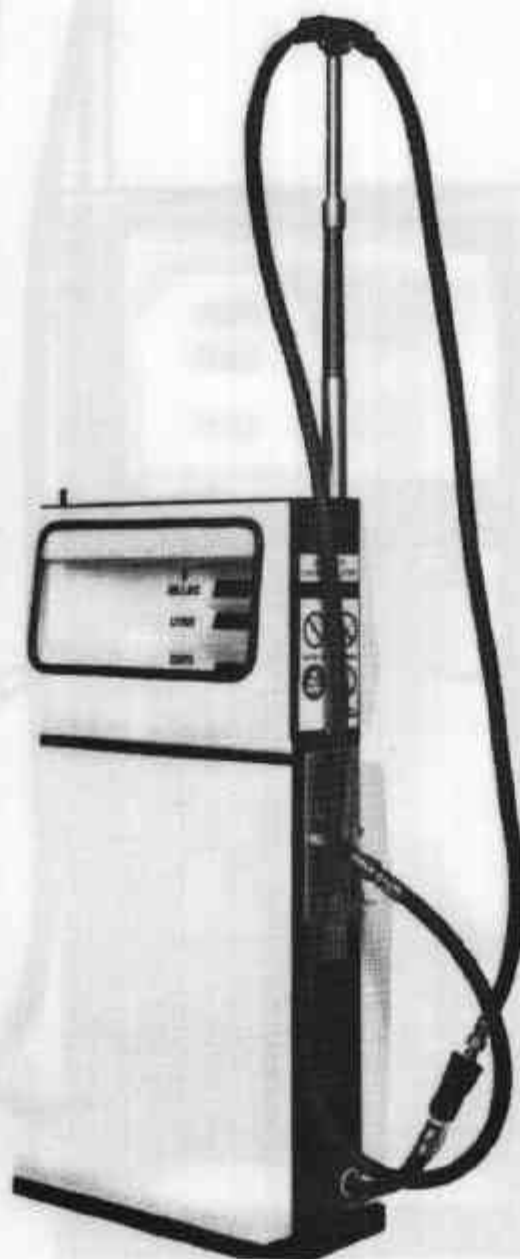
In the approvals listed below, remove from the Certificate, Technical Schedule and Test Procedure, any Condition of Approval or clause that refers to instruments being verified, re-verified or calibrated at specific intervals. (Note that the re-verification period is determined by the Trade Measurement Authority in the State or Territory in which the instrument is located.)

APPROVAL NUMBER	PATTERN
10/1/2	Halco Neptune 32/38 mm LPG Flowmeter
P10/1/3	Acme Model LGD 100 LPG Driveway Flowmeter
10/1/3A	Acme Model LGD 105S LPG Driveway Flowmeter
P10/1/5	Batchen Model Mk II LPG Driveway Flowmeter
P10/1/6	Wayne Model ELC1 LPG Driveway Flowmeter
10/1/6A	Email Model ELC1 LPG Driveway Flowmeter
P10/1/7	Indeng Model MKO LPG Driveway Flowmeter
10/1/8	Gilbarco Model T093D LPG Driveway Flowmeter
10/1/8A	Gilbarco Model T093D LPG Driveway Flowmeter
10/1/9	Batchen Model Commander LPG Driveway Flowmeter
P10/1/10	LPG Engineering Model Stargas LPG Driveway Flowmeter
10/1/10A	LPG Engineering Model Stargas LPG Driveway Flowmeter
10/1/11	LPG Engineering Model Stargas EPSN LPG Driveway Flowmeter
10/1/12	CleverHead Model 93 LPG Driveway Flowmeter
10/1/13	Batchen Model SCB Commander LPG Driveway Flowmeter
P10/2/2	Liquid Controls Model MA-7-GY-10 Bulk LPG Flowmeter
10/2/3	Neptune Model 4D 32 mm Bulk LPG Flowmeter
P10/2/4	Euromatic Model FL 1 1/2-125 Turbine Bulk LPG Flowmeter

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.

10/1/9  
28/5/85

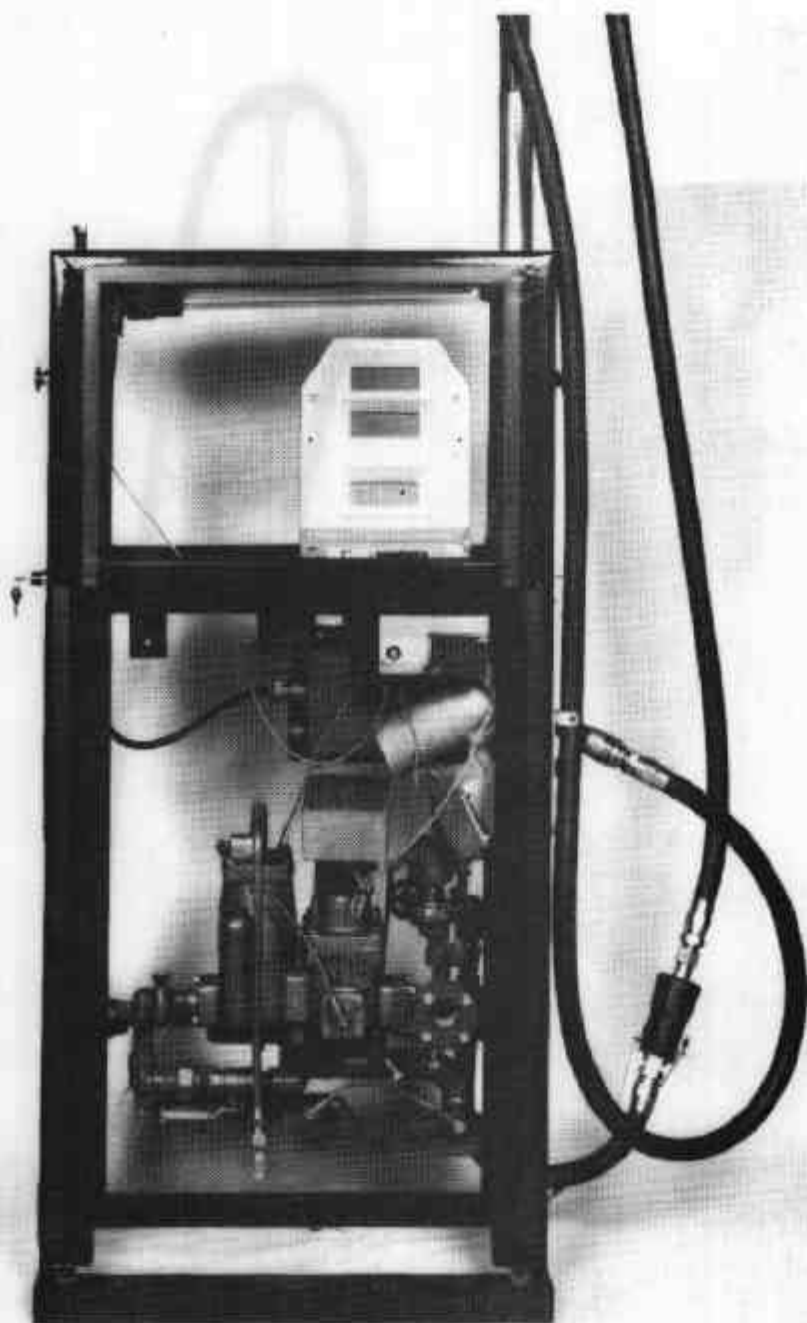
FIGURE 10/1/9 - 1



Batchen Commander

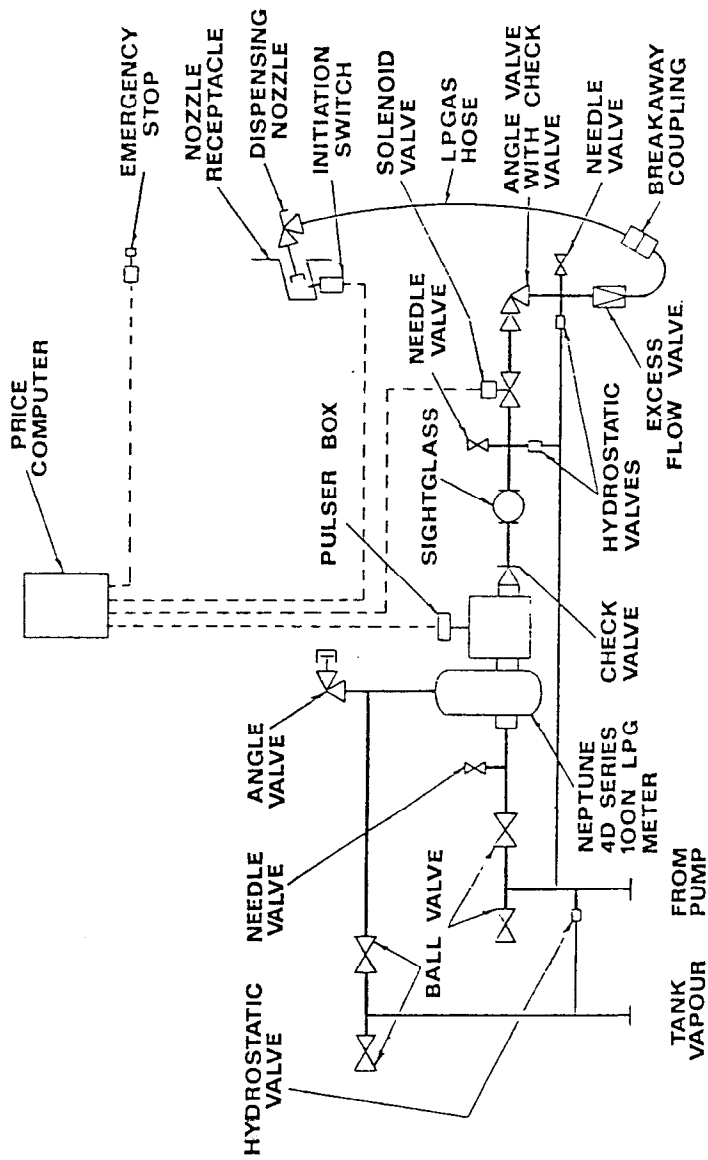
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FIGURE 10/1/9 - 2



Batcher Commander  
With Covers Removed

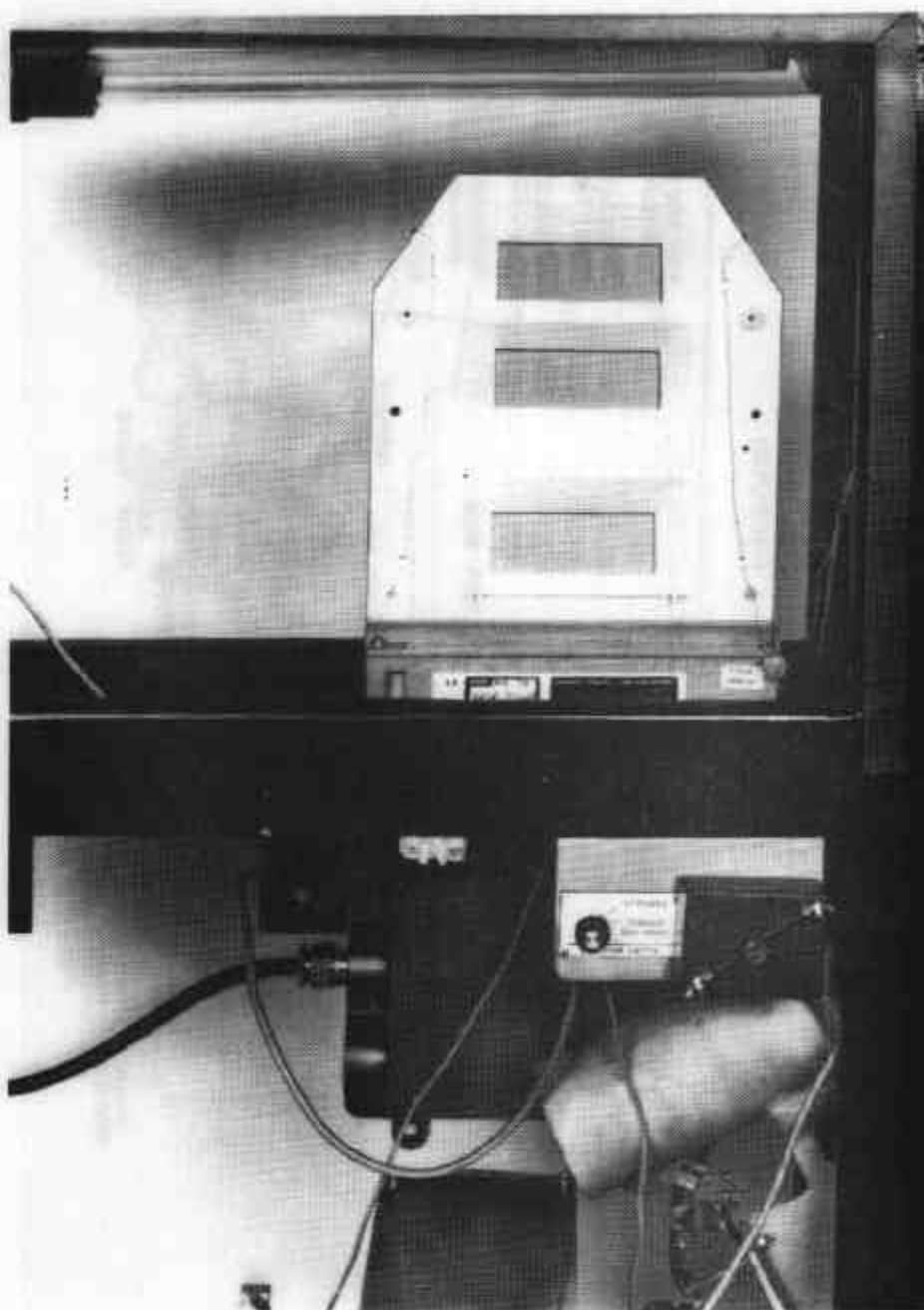
FIGURE 10/1/9 - 3



Hydraulic Diagram

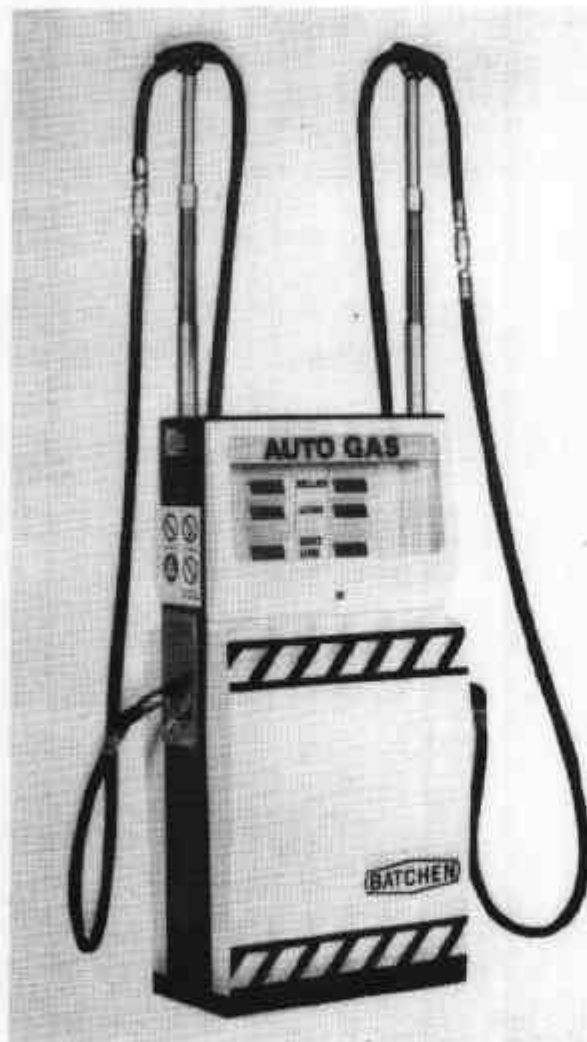
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28/5/85

FIGURE 10/1/9 - 4



Sealing Of Indicator And  
Temperature Compensator Switch

FIGURE 10/1/9 - 5

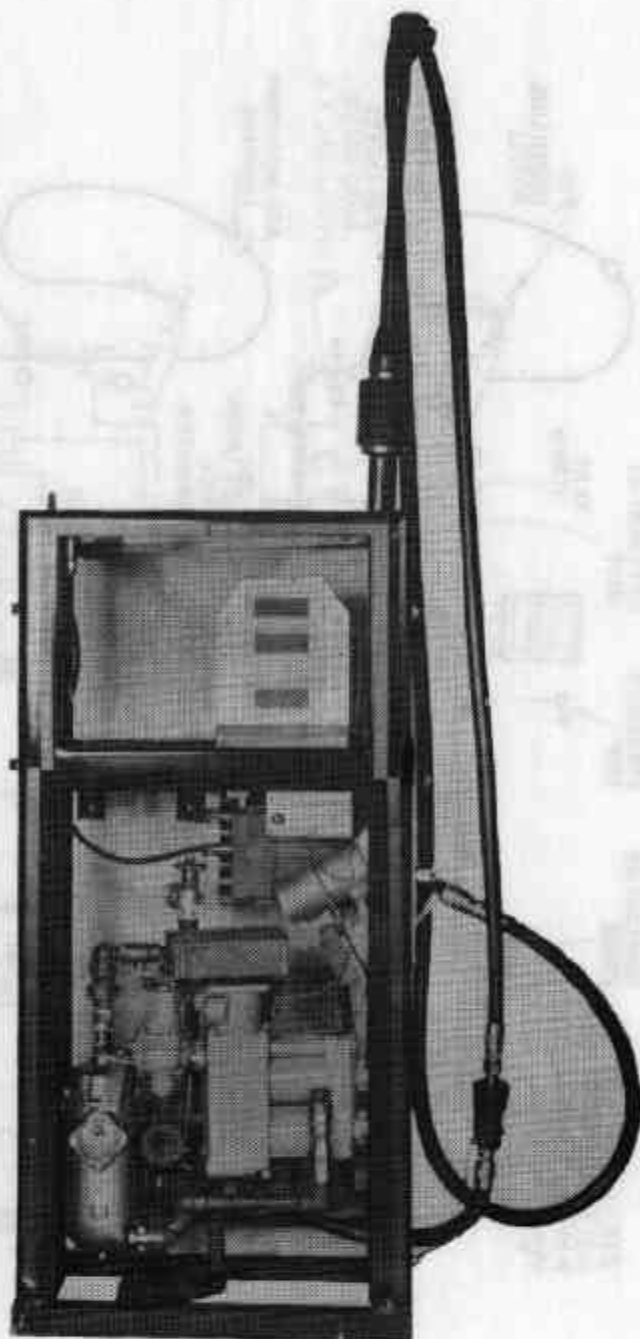


Batchen Commander Dual LPG Driveway Flowmeter



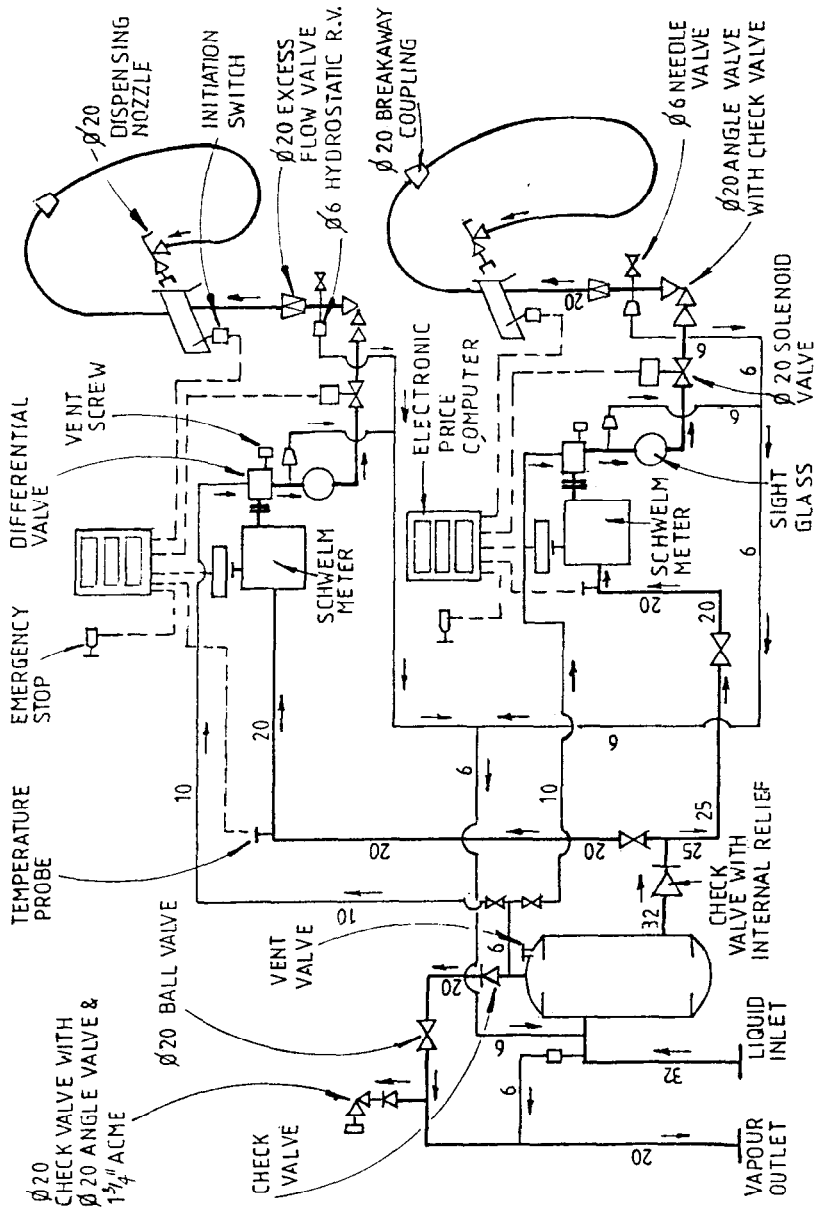
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FIGURE 10/1/9 - 6



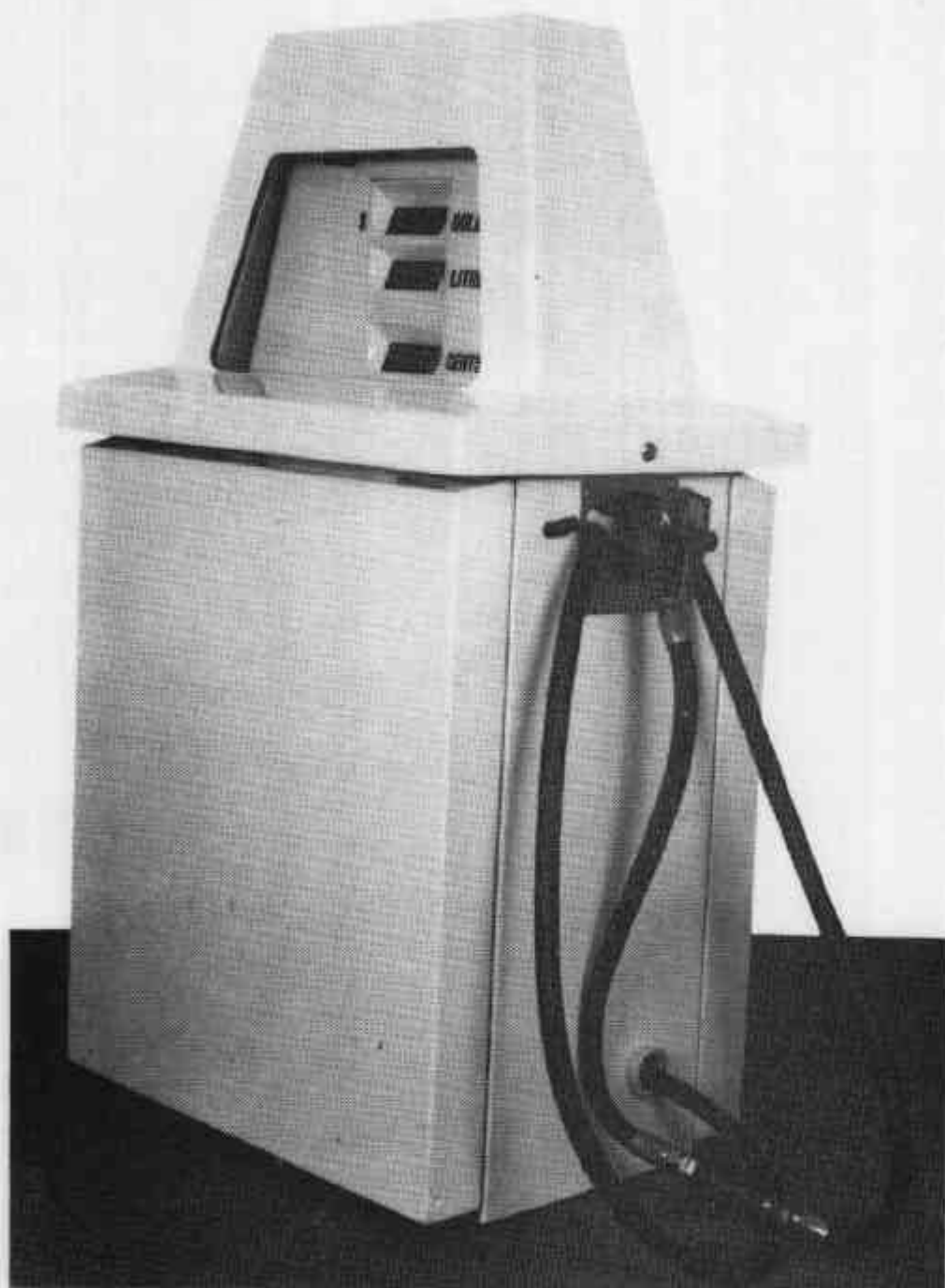
With Schwimm Meter

FIGURE 10/1/9 - 7



10/1/9  
2/1/87

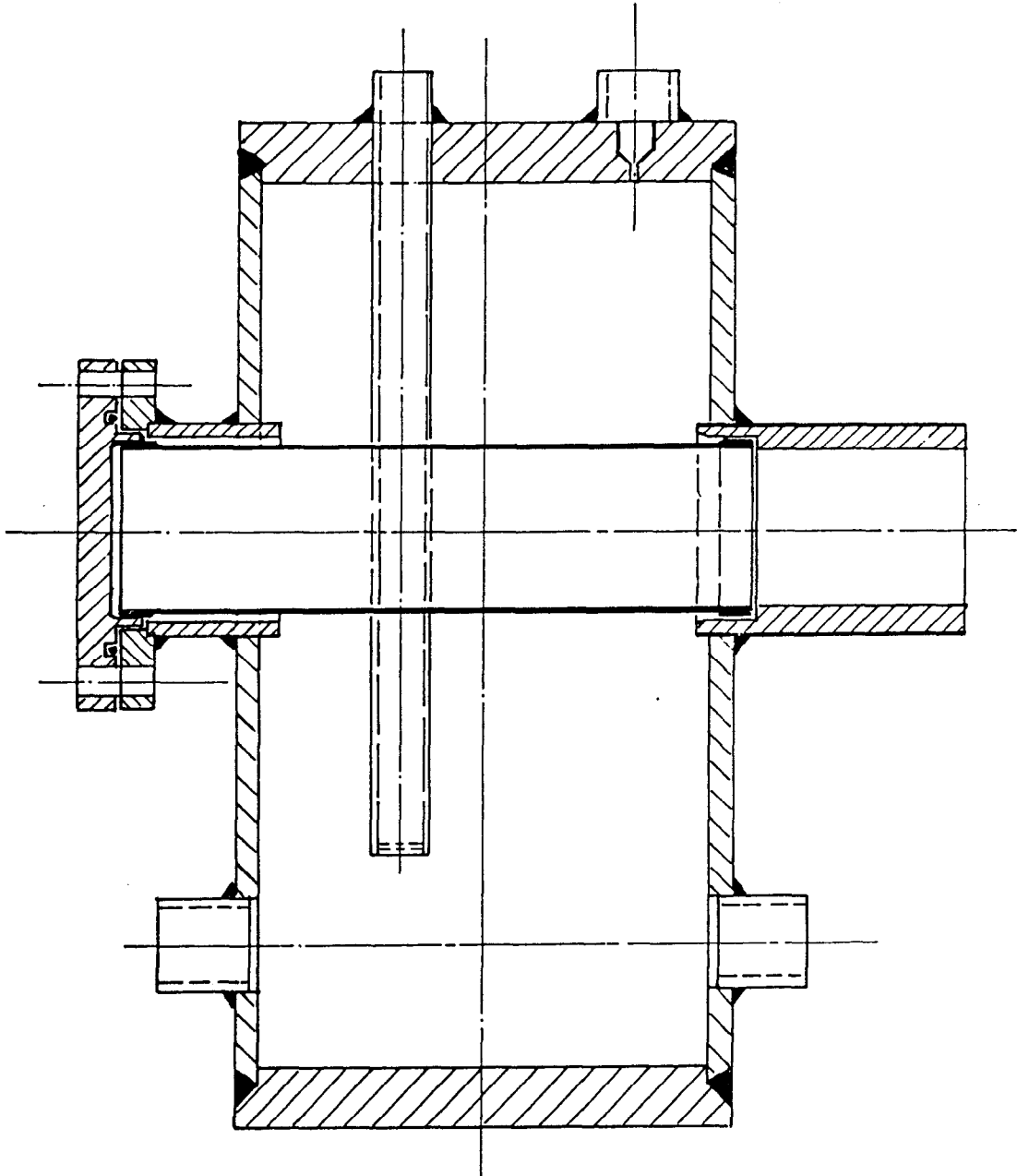
FIGURE 10/1/9 - 8



An Alternative Housing

10/1/9  
21/9/87

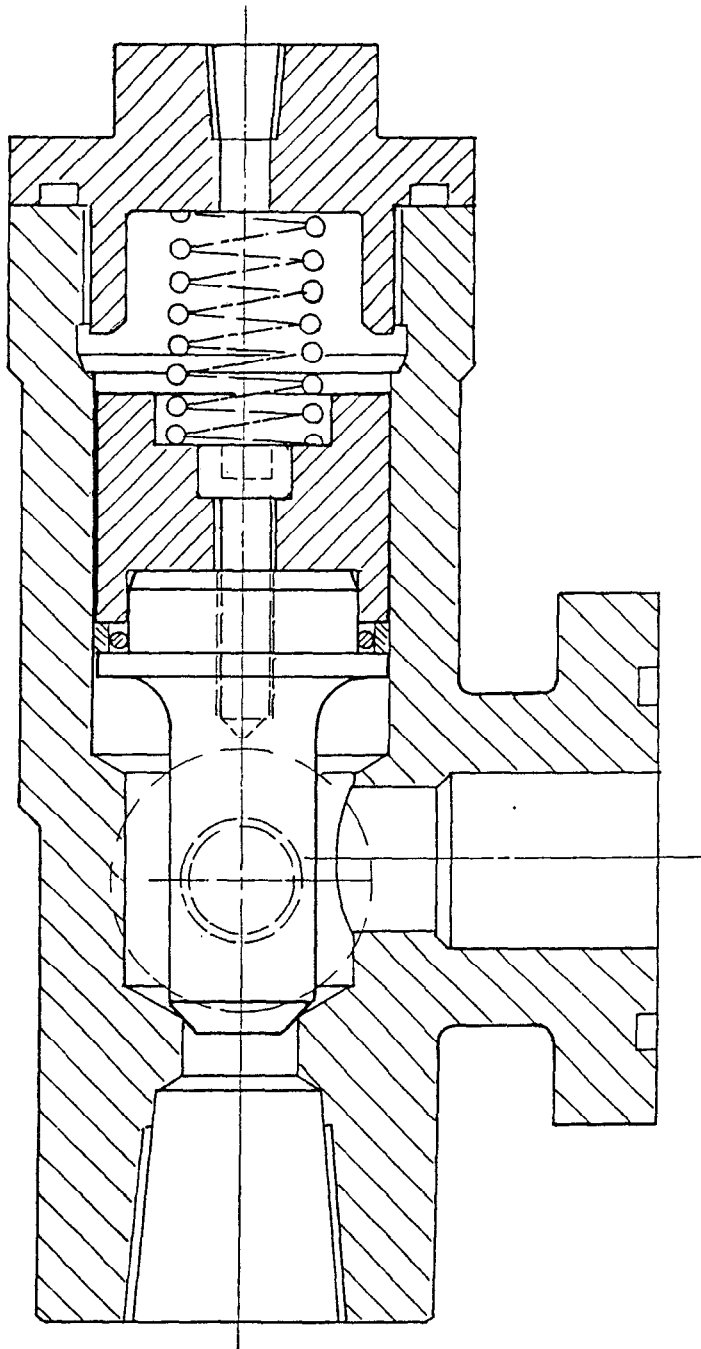
FIGURE 10/1/9 - 9



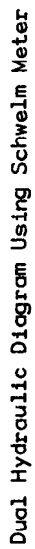
Batchen BVE-1 Vapour Eliminator

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21/9/87

FIGURE 10/1/9 - 10

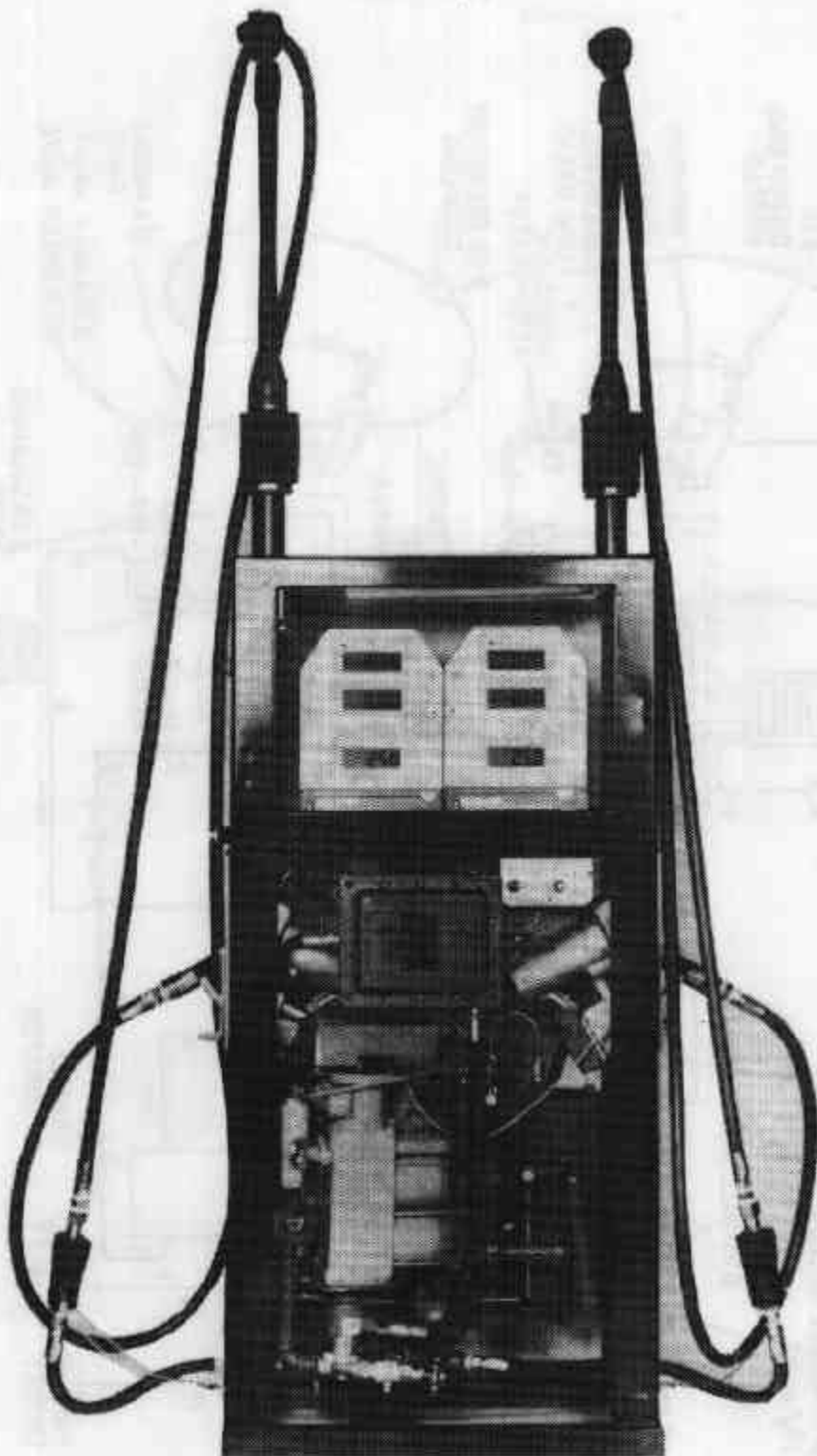


Batchen BDV-1 Pressure Differential Valve



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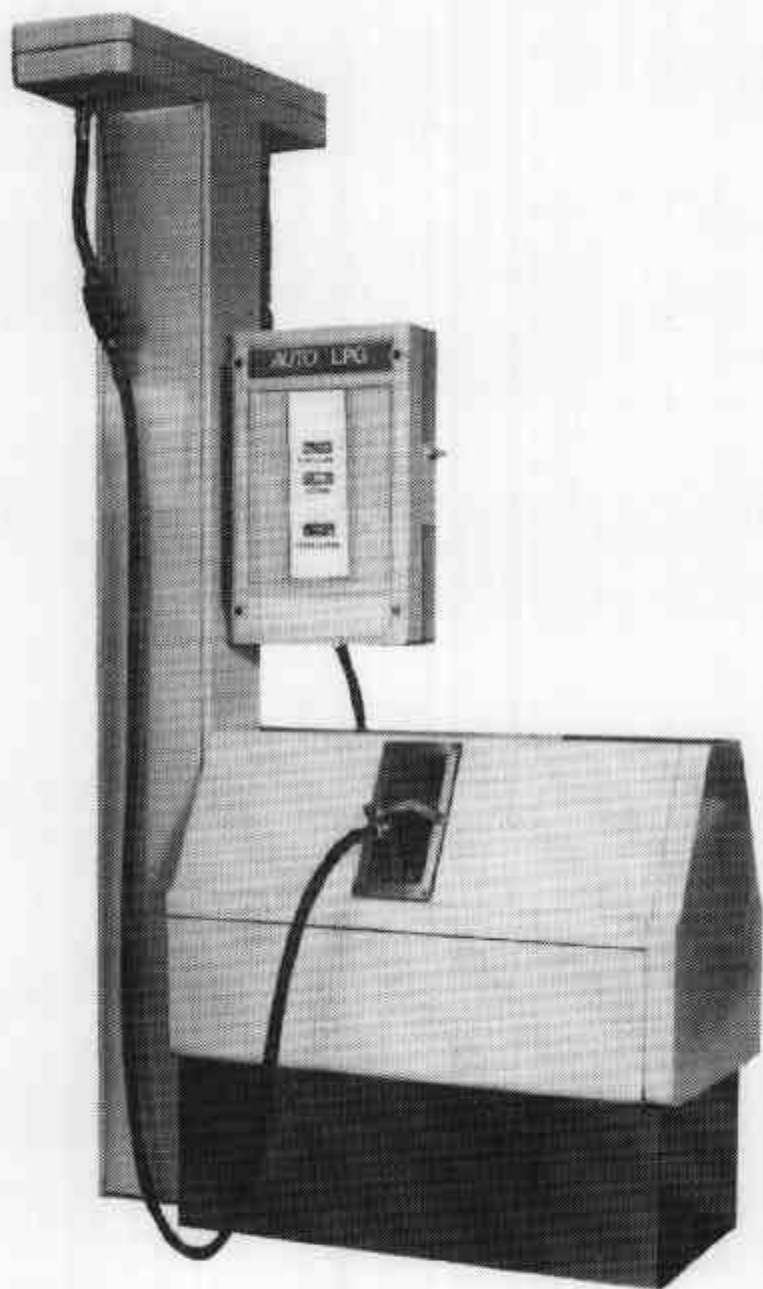
FIGURE 10/1/9 - 12



With Botchen Vopour Eliminator And Differential Valve

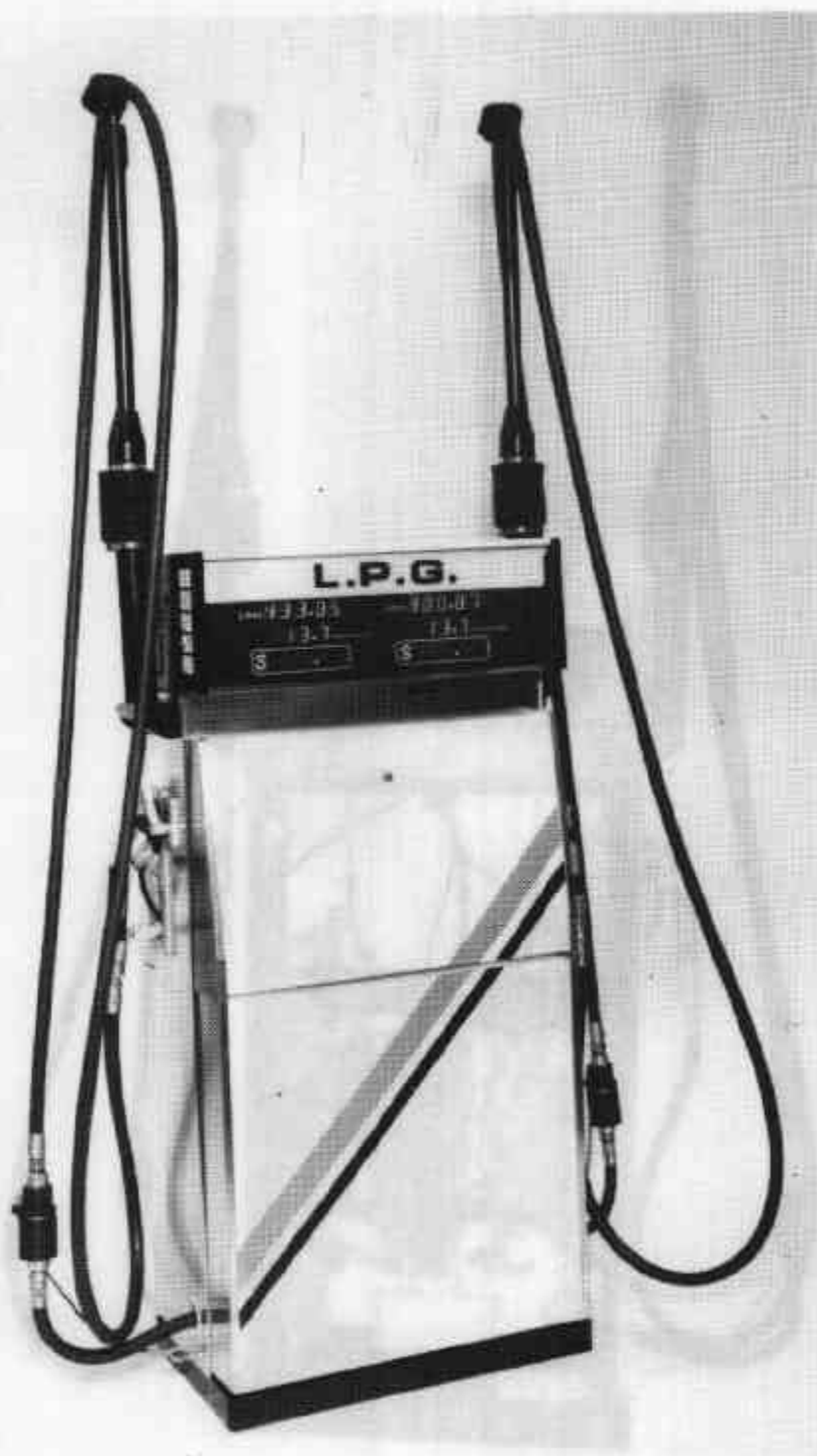
10/1/9  
20/10/88

FIGURE 10/1/9 - 13



Botchen Commander In MPP Housing

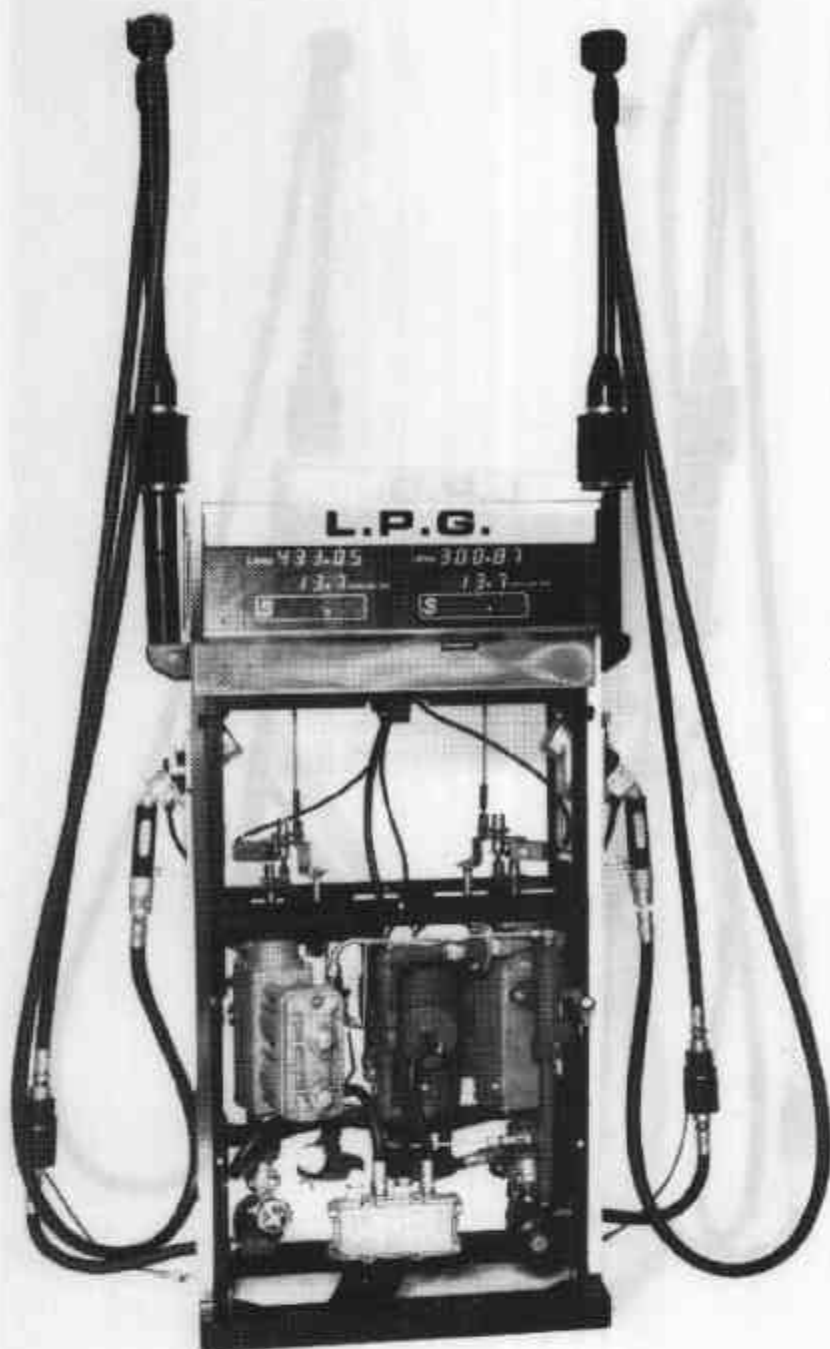




Batchen Model DGS Commander

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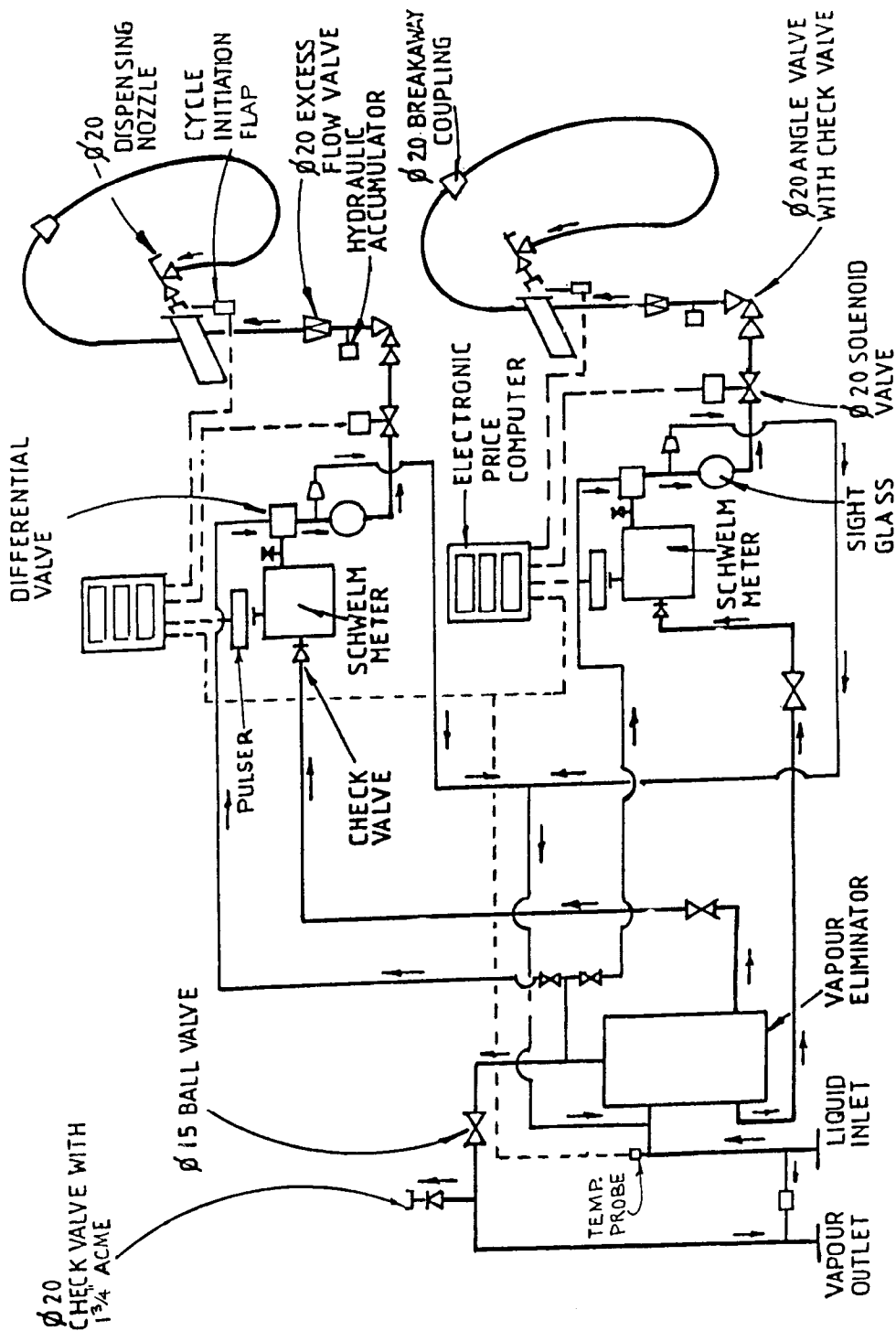
FIGURE 10/1/9 - 15



Model DGS Commander

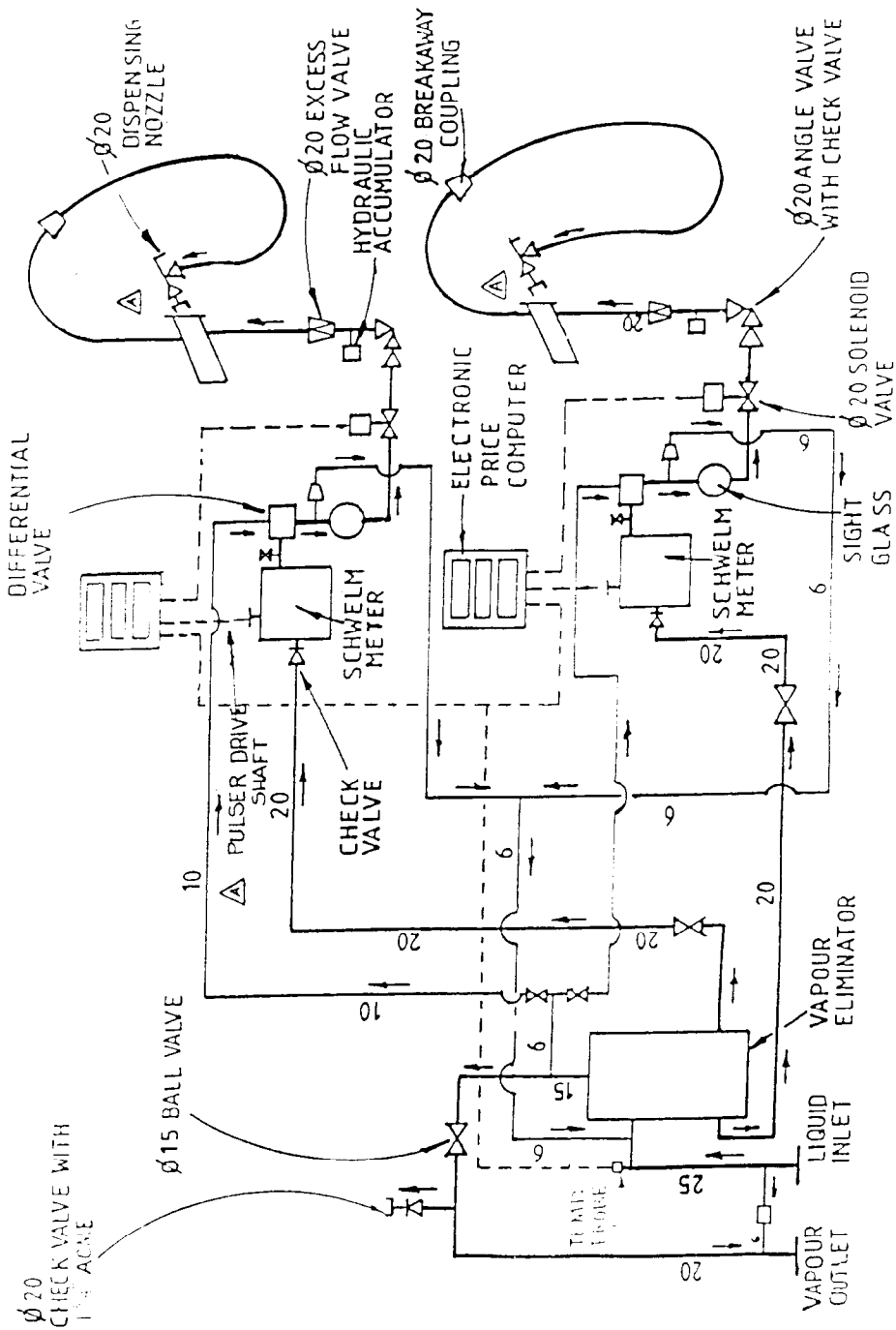
FIGURE 10/1/9 - 16

10/1/9  
14/3/91



Model DGS Commander - Schematic Diagram

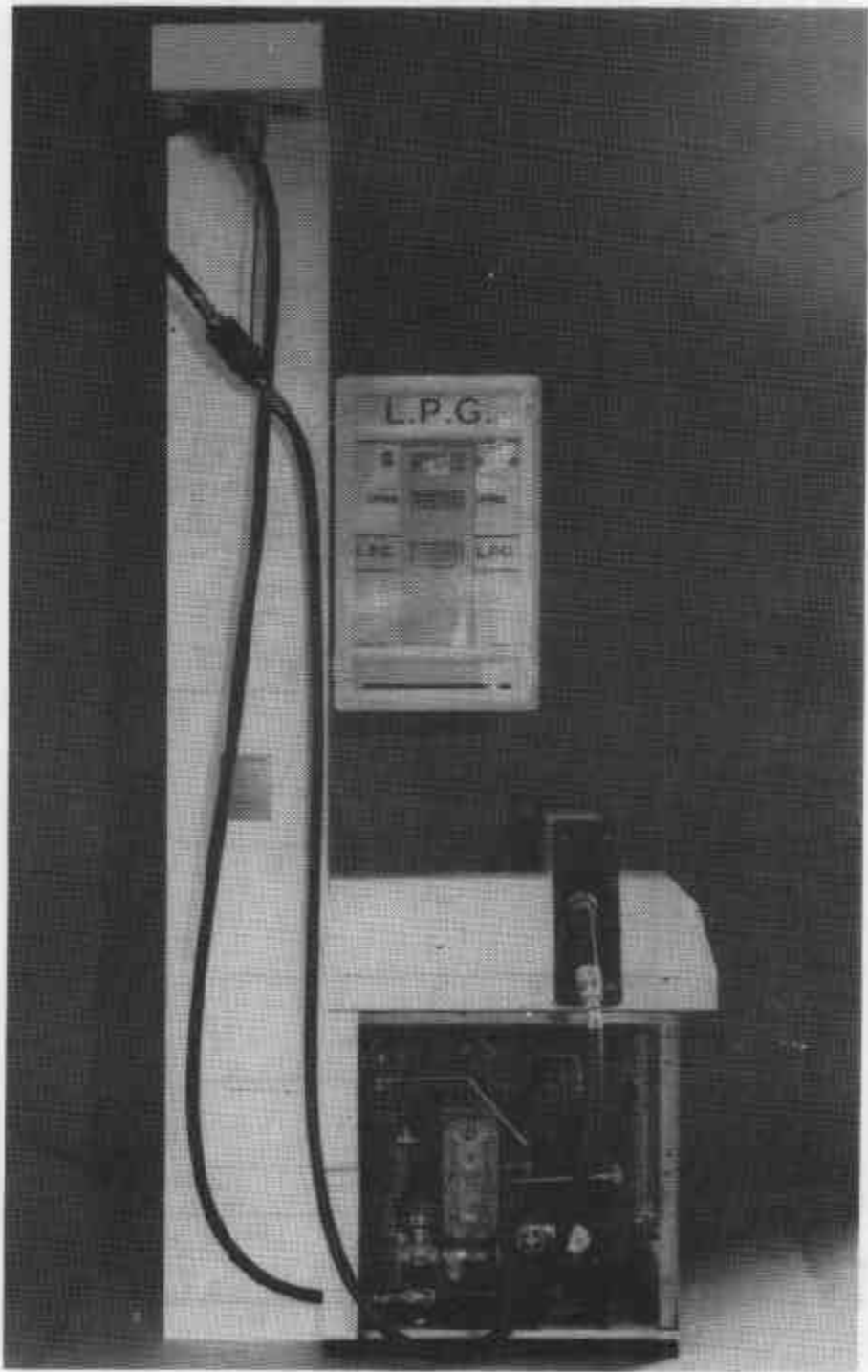
FIGURE 10/1/9 - 17



Model DGS of Variant 13

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FIGURE 10/1/9 - 18



Model MPP Mk II