5/6A/85A
13 August 2001

National Standards Commission

12 Lyonpark Road, North Ryde NSW

Notification of Change

Certificate of Approval No 5/6A/85A

Change No 3

The following change is made to the approval documentation for the

Email Model MPP4 Multi-product Driveway Flowmeter

submitted by Relqual Petroleum Systems
(formerly submitted by Email Petroleum Systems)
Cnr First Street & First Avenue
MOORABBIN AIRPORT VIC 3194.

In Cancellation Certificate of Approval No 5/6A/85A dated 25 May 2000, the reference to the date of cancellation (given as 1 June 2000, but previously amended by Notification of Change No 2 to read 1 June 2001) should be amended so that it now reads:

"... has been cancelled in respect of new instruments as from 31 December 2001."

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

5/6A/85A
25 May 2000

National Standards Commission

12 Lyonpark Road, North Ryde NSW

Cancellation
Certificate of Approval No 5/6A/85A

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

Email Model MPP4 Multi-product Driveway Flowmeter

submitted by Email Petroleum Systems
now of
33 Wedgewood Road
Hallam VIC 3803

has been cancelled in respect of new instruments as from 1 June 2000.

Instruments which were verified/certified before that date may, with the concurrence of the relevant verifying authority, be submitted for reverification.

Signed by a person authorised under Regulation 63 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

National Standards Commission

Certificate of Approval

No 5/6A/85A

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

Email Model MPP4 Multi-product Driveway Flowmeter

submitted by Email Electronics
88-94 Canterbury Road
Kilsyth VIC 3175.

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

CONDITIONS OF APPROVAL

This approval is subject to review on or after 1 June 1999.
This approval expires in respect of new instruments on 1 June 2000.

Instruments purporting to comply with this approval shall be marked NSC No 5/6A/85A and only by persons authorised by the submittor.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0/A.

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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: for Provisional Variant 7

The approval of variant 7 is subject to review on or after 1 September 1996.
The approval of variant 7 expires in respect of new instruments on 1 September 1997.

Instruments purporting to comply with this approval shall be marked NSC No P5/6A/85A and only by persons authorised by the submittor.

In the event of unsatisfactory performance this approval may be withdrawn.

DESCRIPTIVE ADVICE

Pattern: approved 13 May 1994

- Email model MPP4 multi-product driveway flowmeter.

Variants: approved 13 May 1994

1. Other models and configurations as listed in Table 1.
2. For use with distillate at a maximum flow rate of 80 L/min.
3. With modified hydraulics.
4. With a submersible turbine hydraulic system.
5. Certain other models with up to 8 hoses/4 products.
6. Certain other models in an alternative housing.

Technical Schedule No 5/6A/85A describes the pattern and variants 1 to 6.

Variant: provisionally approved 11 August 1995

7. With pre-pressurisation facility.

Technical Schedule No 5/6A/85A Variation No 1 describes variant 7.

Variant: approved 29 February 1996

8. With a Production Engineering model FST CRIP card-operated terminal.

Technical Schedule No 5/6A/85A Variation No 2 describes variant 8.

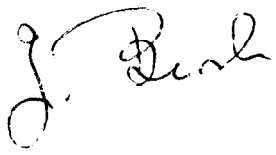
FILING ADVICE

Certificate of Approval No 5/6A/85A dated 10 October 1995 is superseded by this Certificate and may be destroyed.

The documentation for this approval now comprises:

Certificate of Approval No 5/6A/85A dated 20 June 1996
Technical Schedule No 5/6A/85A dated 4 July 1994 (incl. Table 1 and Test Procedure)
Technical Schedule No 5/6A/85A Variation No 1 dated 10 October 1995
Technical Schedule No 5/6A/85A Variation No 2 (incl. Notification of Change) dated 20 June 1996
Figures 1 to 8 dated 4 July 1994
Figure 9 dated 20 June 1996

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.



National Standards Commission

TECHNICAL SCHEDULE No 5/6A/85A

Pattern: Email Model MPP4 Multi-product Driveway Flowmeter.

Submittor: Email Electronics
88-94 Canterbury Road
Kilsyth VIC 3175.

1. Description of Pattern

An Email model MPP4 multi-product driveway flowmeter (Figures 1 and 2) approved for use to dispense various grades of petrol over a flow rate range of 15 to 50 L/min, in attendant-operated or locally or remotely-authorised applications.

1.1 Features (Table 1)

The model MPP4 includes the following components: (Figure 3 is a typical hydraulic diagram - for simplicity, a model MPP2 is shown.)

- 2 Dresser-Wayne model 32-440059 pump/gas separators.
- 4 Dresser-Wayne model 2PM6 2-piston positive displacement meters.
- 4 Email model MPP pulse generators.
- 2 Email model MPP price-computing indicators.
- 4 ZVA or other Commission-approved nozzles.

Each grade of fuel is supplied by one pump and gas separation system and then diverted to two sets of meters and control valves (one for each nozzle). The pulse generators are driven from the output shaft of the meter.

A combination of rigid and flexible internal piping may be used.

Hydraulic control of flow to each nozzle is via a pressure surge reduction valve. Instruments may also be fitted with a preset facility with slow flow controlled by a pilot-actuated diaphragm check valve.

Flowmeters may be fitted with a purchaser-operated preset keypad or the preset facility may be set via the vendor's console. Instruments without preset facility cannot be used for PREPAY transactions.

Instruments may be used with an Email model TASK driveway flowmeter control system (also described in the documentation of NSC approval No S276) in remotely-authorised applications.

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All driveway flowmeters are fitted with an attended/unattended ('stand-alone/self-serve') mode switch, and with a manager's keypad located on one side of the flowmeter indicator panel, which permit the following functions:

Unit price (*)	- for each grade of product
Totals	- in $ or L for front or rear display, and for each grade of product
Test Service	- allows field test procedures - initiates manual multi-segment check.

(*) Note: To initiate this function, first ensure that the instrument is in attended ('stand-alone') mode.

1.2 Indicator

The purchaser displays show:

Volume	000.00 L to 990.00 L in 0.01 L increments
Unit price	0.1 to 499.9 c/L in 0.1 c/L increments
Price	$000.00 to $999.00 in 1 c increments
Preset	$00.00 to $99.00 in $1.00 increments

1.3 Sealing and Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

The mechanical calibrator on each meter and the gas separation test valve are both sealed.

1.4 Markings

Instruments are marked with the following data, together in one location:

Manufacturer's name or mark	
Model number	
Serial number	
NSC approval number	5/6A/85A
Maximum flow rate	..... L/min
Minimum flow rate	..... L/min
Liquid temperature range	5°C to 40°C
Maximum operating pressure	..... kPa
Approved for use with (products)	.....

2. Description of Variants

2.1 Variant 1

Other models and configurations, as listed below and in Table 1:

- With 6 meters/hoses/nozzles. Figure 4 shows a model MPP6 flowmeter.
- With one or more nozzles dispensing distillate, in which case a gas detection system is fitted, and the model number has a 'D' suffix, e.g. the model MPP2 becomes model MPP2D (the model MPP4D2 is a 6 nozzle instrument where 2 nozzles dispense distillate).

TABLE 1

Model Number	Number of Hoses
MPP1D	1
MPP1D-S	1
MPP2	2
MPP2D	2
MPP2-S	2
MPP4	4
MPP4D2	6
MPP4D2-S	6
MPP6	6
MPP6-S	6

2.2 Variant 2

Of models as listed below approved for dispensing distillate, in which case a gas detection system is fitted, and with a maximum flow rate of 80 L/min.

The model number has the letters DH included, viz. MPP2DH (Figure 5), MPP1DH and MPP1DH-S.

Figure 6 shows a schematic diagram for a typical MPP flowmeter covered by this variant, including with preset facility.

2.3 Variant 3

Any model of this approval with modified hydraulics as described below and as shown in Figure 7.

The modifications include a solenoid control and shut-off valve in lieu of the control valves and diaphragm check valves of the pattern. The solenoid valve is either a model FAXR29214 (25 mm) for use up to 80 L/min or a model FAXR29212 (20 mm) for use up to 50 L/min. Only flowmeters which also comply with variant 2 may be used above 50 L/min and then only to dispense distillate.

2.4 Variant 4

With a submersible turbine pump hydraulic system (Figure 8) replacing the equivalent components (i.e. motor, pump, gas separator, and associated pipework) in any driveway flowmeter covered by this approval, in which case the model number has an 'MPD' prefix, e.g. the pattern (model MPP4) becomes model MPD4.

The replacement hydraulic system includes a Red Jacket model P75S3-3 or model P150S3-3 (or Gilbarco model T221X or model T122W) submersible turbine pump with a Red Jacket model 116-030-5PLD (or Gilbarco model DTO4966) leak detector.

More than one driveway flowmeter may be connected to the same submersible turbine pump hydraulic system.

2.5 Variant 5

Of models as listed below equipped with up to 8 meters/hoses/nozzles and to deliver up to 4 products:

MPD8 (8 hose), MPD6/91 (6 hose), MPD4/91 (4 hose), MPD2/91 (2 hose), MPD6P2D (8 hose), MPD4P2D (6 hose), MPD2P2D (4 hose), & MPD2D (2 hose).

2.6 Variant 6

In an alternative housing and known as a model MPP-L5 and, when also complying with variant 4, as a model MPD-L5.

TEST PROCEDURE

Instruments should be tested in accordance with any relevant tests specified in the Inspector's Handbook.

Maximum Permissible Errors at Verification/Certification

The maximum permissible error applied during a verification test from normal flow rate to the minimum flow rate specified in the Certificate of Approval or Technical Schedule is ±0.3%.

For instruments fitted with submersible turbine pumps:

1. **Leak Detector Test**

Note: This Test should be carried out on initial verification. Thereafter, it need not be done at every verification/certification but should be done periodically at the discretion of the relevant verifying authority.

a) Connect a pressure gauge and valve to the test port of the impact valve under the driveway flowmeter. Ensure that the submersible turbine pump is not turned on during this operation by disabling at the STP control box.

b) Start the test by closing the test valve. The line pressure should be zero as indicated on the pressure gauge. At the control box, enable the pump and dispense at least 15 L of fuel to remove any air introduced by installing the pressure gauge and valve.

c) Turn off the pump and open the test valve sufficiently so that a steady, unbroken stream of fuel is observed to flow from the test valve. Wait until flow ceases from the valve and the test gauge reads zero. Leave the test valve open.

d) Start the pump by lifting the nozzle at the flowmeter but leaving the nozzle closed. A steady stream of fuel should be observed to flow from the test valve. The pressure on the gauge should not exceed 150 kPa during this step.

Attempt to deliver fuel from the nozzle. A flow rate of less than 11 L/min indicates correct operation of the leak detector.

e) Close the test valve and nozzle with the pump still running. A rise in pressure on the test gauge should be noted after not more than 10 seconds.

f) Disable the pump at the control box. Remove the test fixture and replace the plug in the test port. Enable the pump, and dispense at least 15 L of fuel from the flowmeter to remove any air introduced into the system.

2. MINIMUM FLOW RATE TEST

Note: This Test should be carried out on initial verification. Thereafter, it need not be done at every verification/certification but should be done periodically at the discretion of the relevant verifying authority.

The minimum flow rate test is performed by simultaneously running either all hoses on all driveway flowmeters connected to a particular submersible turbine pump (where the number of hoses is 6 or less) or by simultaneously running between 2/3 and 3/4 of all such hoses (where the number of hoses is more than 6). For the purpose of this test, where two or more pumps are connected in parallel, they shall be considered as one pump. Check that the lowest flow rate is not less than 15 L/min.

3. AUTHORISATION TEST

For driveway flowmeters connected to a remote authorisation device, begin a delivery from any flowmeter. While this delivery is still in progress, attempt to make a delivery from a 2nd flowmeter connected to the same submersible turbine pump WITHOUT this flowmeter first being authorised; the 2nd delivery should not be possible.

National Standards Commission

TECHNICAL SCHEDULE No 5/6A/85A

VARIATION No 1

Pattern: Email Model MPP4 Multi-product Driveway Flowmeter.

Submittor: Email Electronics
88-94 Canterbury Road
Kilsyth VIC 3175.

1. Description of Variant 7

With modified software controlling the sequence of pump and flow control valve operation to achieve pressurisation of the product prior to a delivery being started.

National Standards Commission

TECHNICAL SCHEDULE No 5/6A/85A

VARIATION No 2

Pattern: Email Model MPP4 Multi-product Driveway Flowmeter.

Submittor: Email Electronics
88-94 Canterbury Road
Kilsyth VIC 3175.

1. Description of Variant 8

With a Production Engineering model FST CRIP card-operated terminal fitted to one or both sides of any driveway flowmeter described for this approval.

The FST CRIP terminal is fitted to the Email model MPP indicator 'POD' ('point of display') as shown in Figure 9.

The FST CRIP terminal is described in the documentation of NSC approval No S278 dated 31 May 1994 and should be tested according to the Test Procedure included therein.

NOTIFICATION OF CHANGE

In Technical Schedule No 5/6A/85A Variation No 1 dated 10 October 1995 (for Variant 7), the following should be added:

> Instruments fitted with the modified software are inhibited from displaying the volume for the first 100 mL of any delivery.

National Standards Commission

Notification of Change

Certificate of Approval No 5/6A/85A

Change No 1

The following changes are made to the approval documentation for the

Email Model MPP4 Multi-product Driveway Flowmeter

submitted by Email Petroleum Systems
(formerly Email Electronics)
88-94 Canterbury Road
Kilsyth VIC 3175.

In Certificate of Approval No 5/6A/85A dated 20 June 1996;

1. The Condition of Approval referring to the review of the approval should be amended to read:

   This approval becomes subject to review on 1 June 1999, and then every 5 years thereafter.

2. The Condition of Approval referring to the expiry of the approval should be deleted.

3. The Special Condition of Approval referring to the review of the provisional approval of variant 7 should be amended to read:

   The approval of variant 7 is subject to review on 1 September 1997.

4. The Special Condition of Approval referring to the expiry of the provisional approval of variant 7 should be amended to read:

   The approval of variant 7 expires in respect of new instruments on 1 September 1998.

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

5/6A/85A
2 June 2000

National Standards Commission

12 Lyonpark Road, North Ryde NSW

Notification of Change

Certificate of Approval No 5/6A/85A

Change No 2

The following change is made to the approval documentation for the

Email Model MPP4 Multi-product Driveway Flowmeter

submitted by Email Petroleum Systems
now of
33 Wedgewood Road
Hallam VIC 3803

In Cancellation Certificate of Approval No 5/6A/85A dated 25 May 2000, the reference to the date of cancellation (given as 1 June 2000) should be amended so that it now reads:

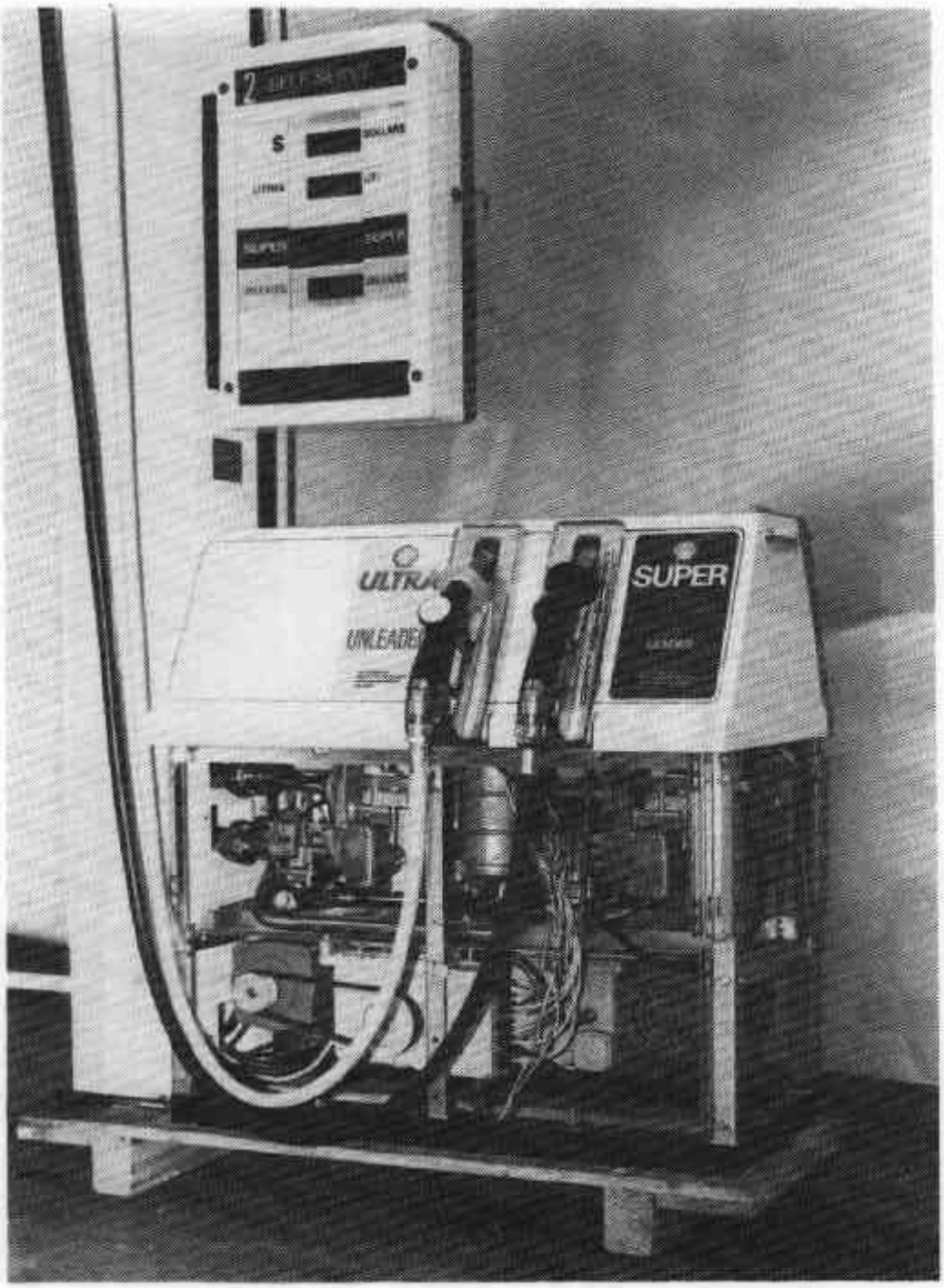
"... has been cancelled in respect of new instruments as from 1 June 2001."

Signed by a person authorised under Regulation 63 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

FIGURE 5/6A/85A - 1

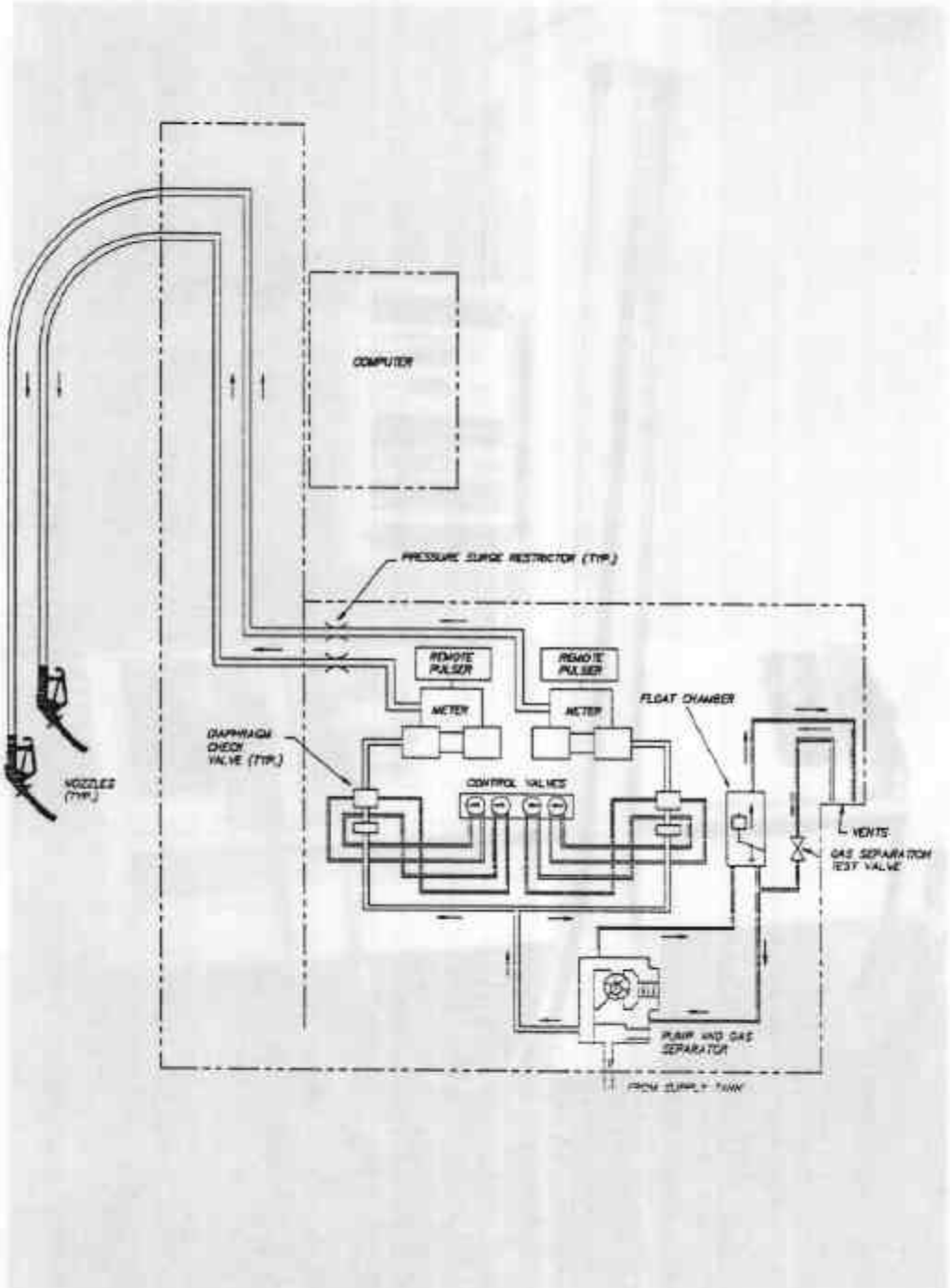
Email Model MPP4 Driveway Flowmeter

FIGURE 5/6A/85A - 2



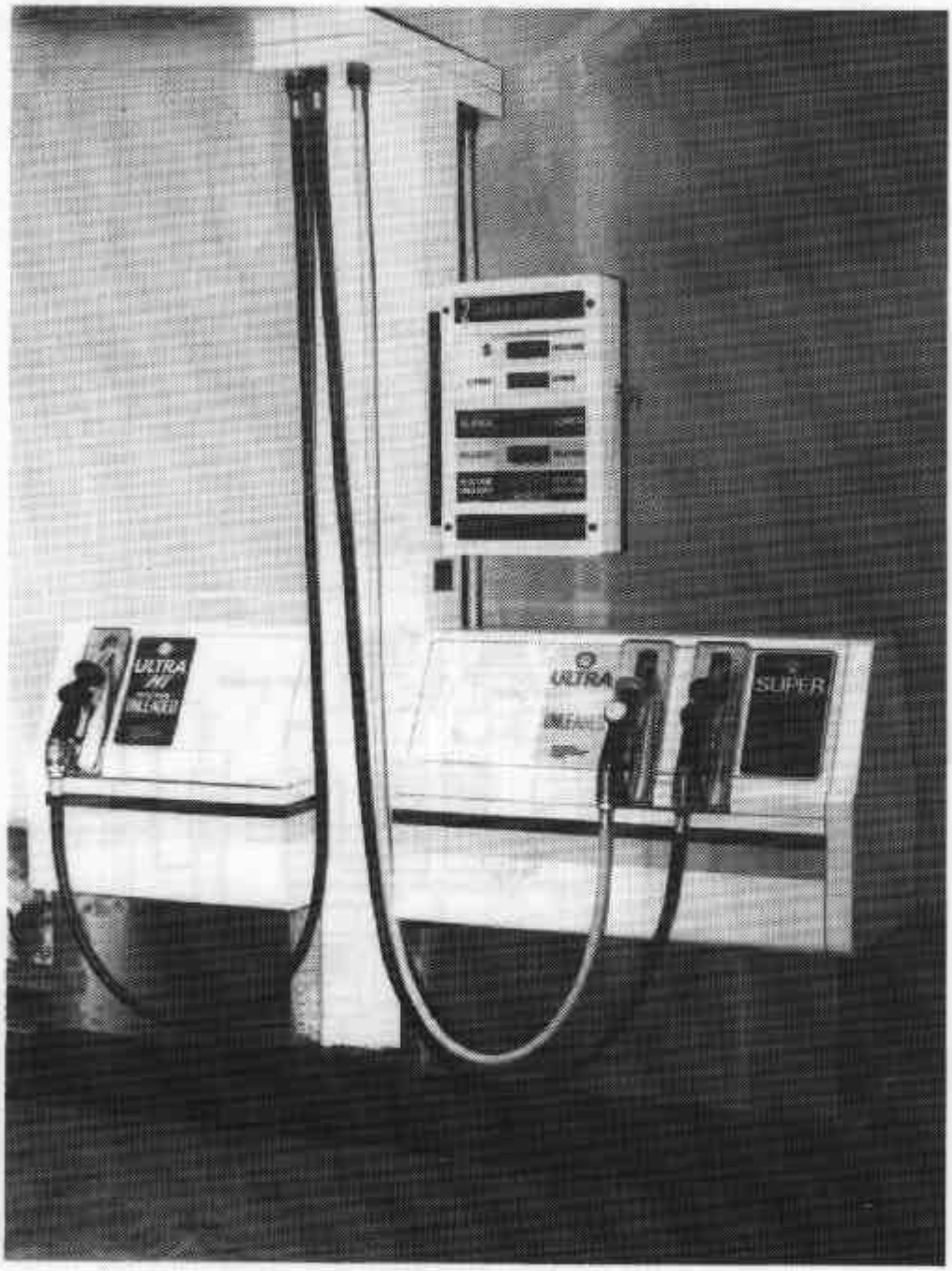
Model MPP4

FIGURE 5/6A/85A - 3



Schematic Diagram of Model MPP2 (Typical)

FIGURE 5/6A/85A - 4

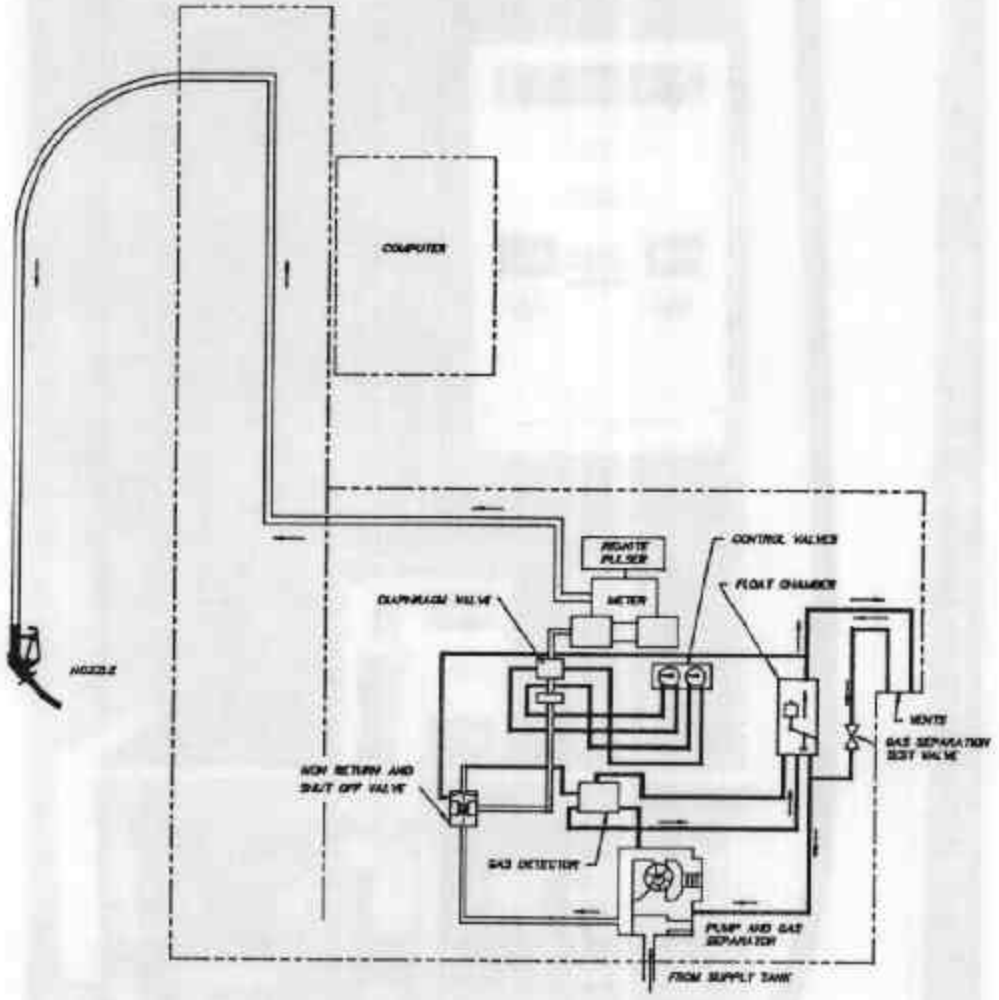


Model MPP6

FIGURE 5/6A/85A - 5

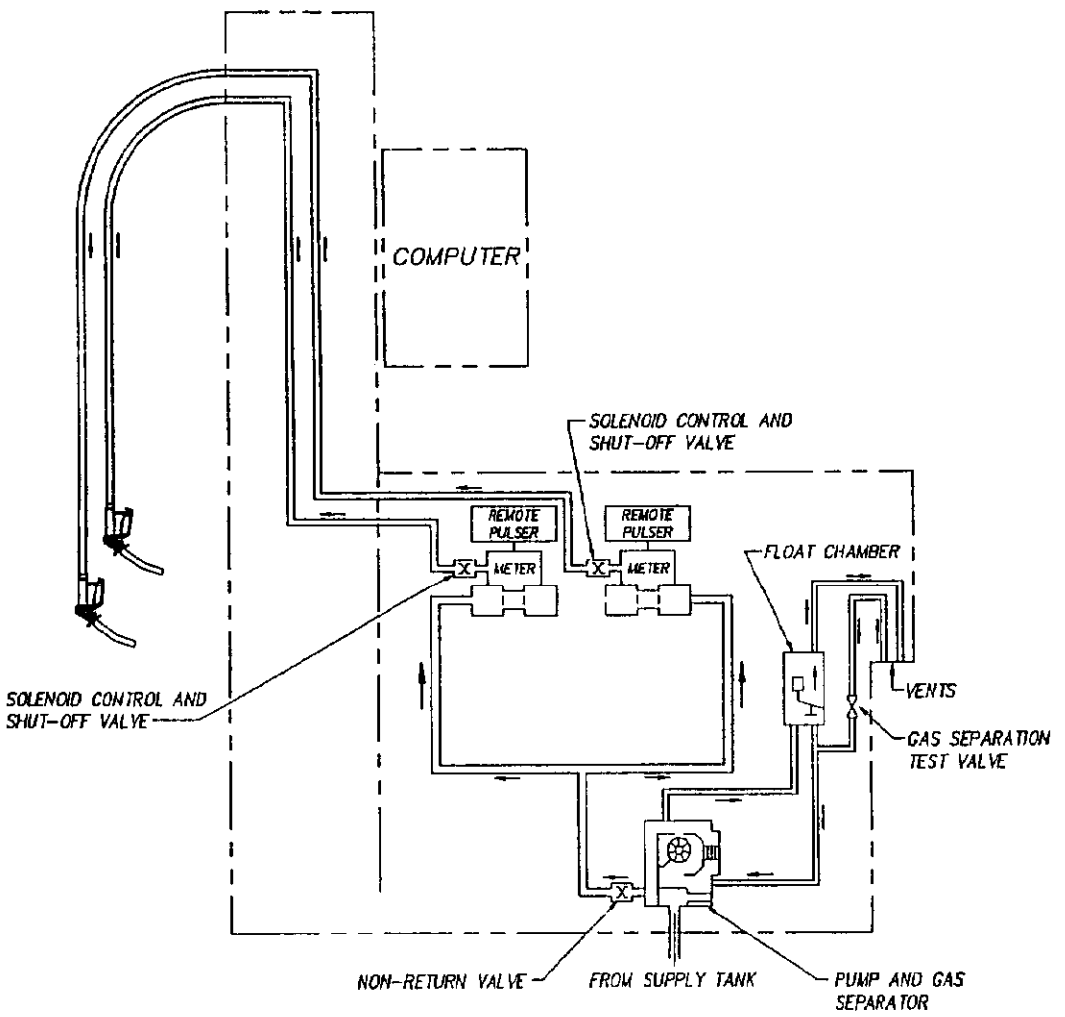
Model MPP2DH

FIGURE 5/6A/85A - 6



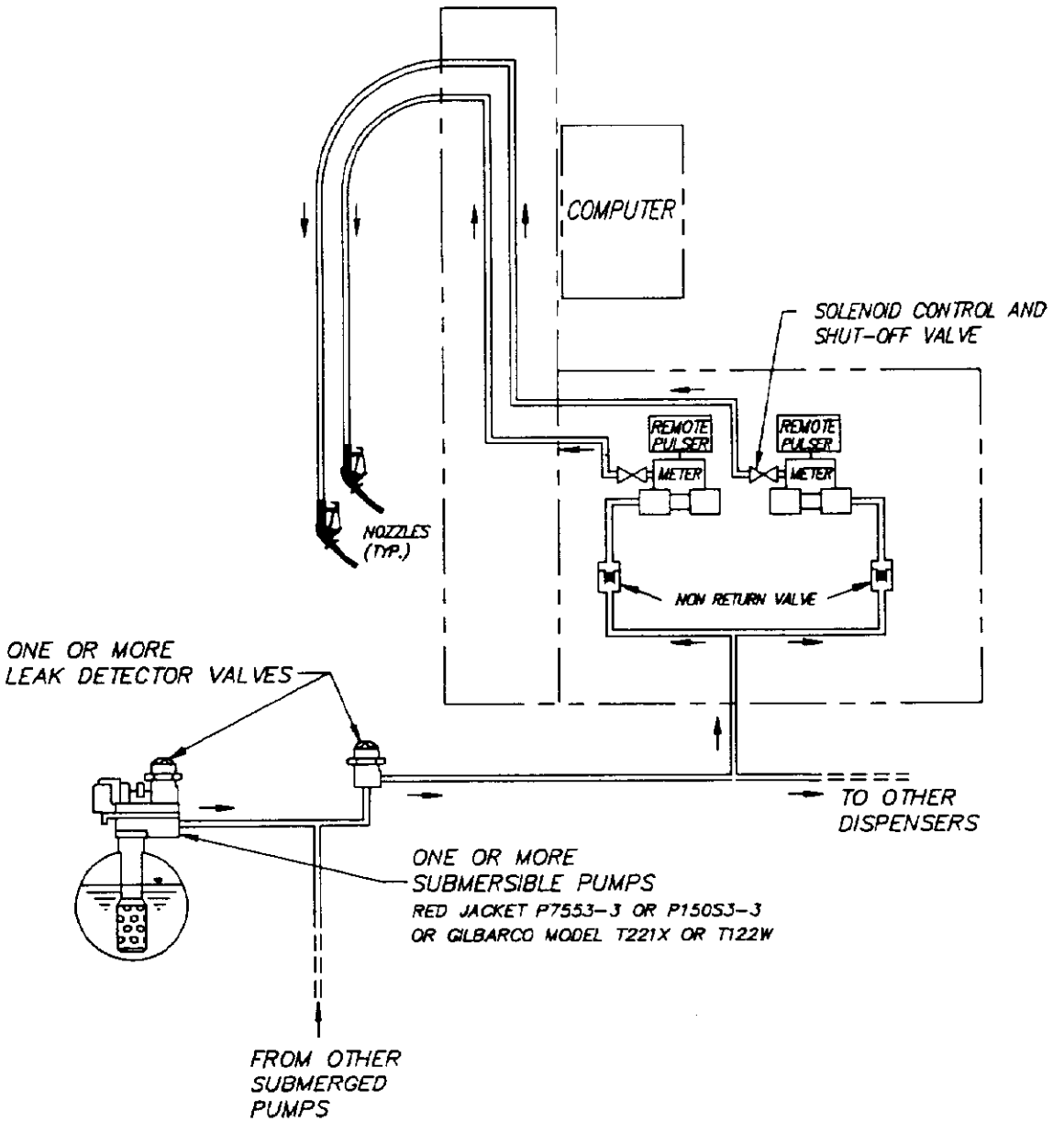
Schematic Diagram of Model MPP1DH With Preset (Typical)

FIGURE 5/6A/85A - 7



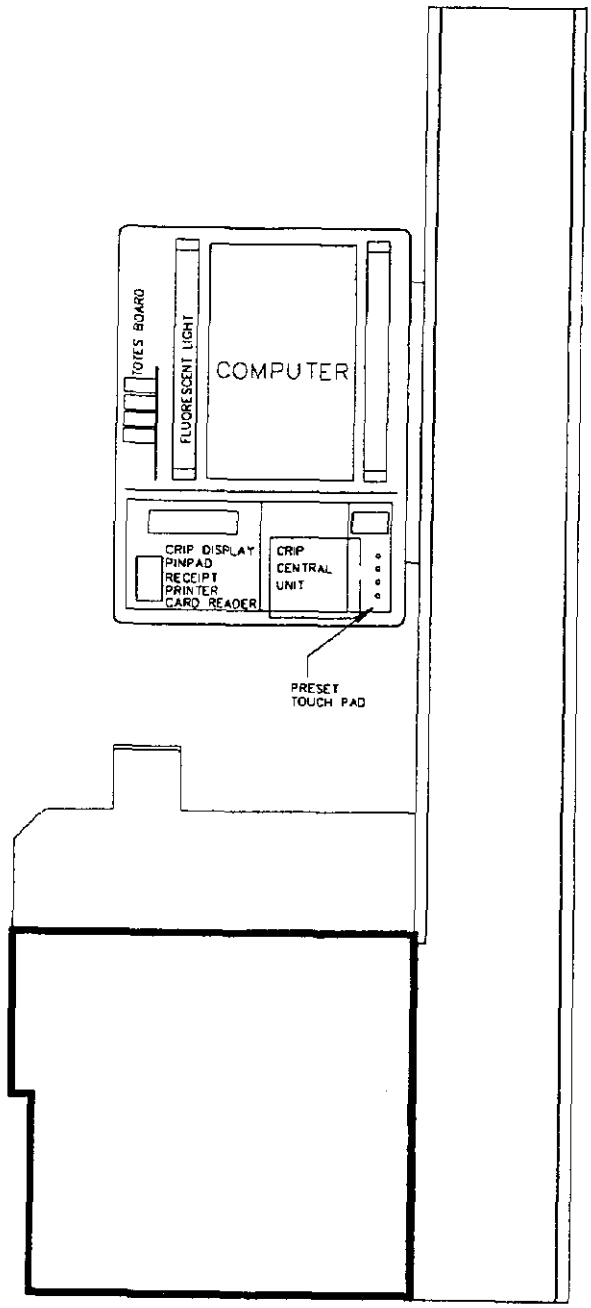
Schematic Diagram Showing Modified Hydraulics (Variant 3)

FIGURE 5/6A/85A - 8



Typical System With a Submersible Turbine Pump

FIGURE 5/6A/85A - 9



Typical Email MPP Indicator/FST CRIP Terminal Installation