National Standards Commission

Certificate of Approval

No 5/6A/70B

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 ECC1 Driveway Flowmeter

submitted by Email Electronics
88-94 Canterbury Road
Kilsyth VIC 3137.

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.

This Certificate is issued upon completion of a review of NSC approval No 5/6A/70A.

CONDITIONS OF APPROVAL

This approval is subject to review on or after 1/6/1999.
This approval expires in respect of new instruments on 1/6/2000.

Instruments purporting to comply with this approval shall be marked NSC No 5/6A/70B and only by persons authorised by the submittor.

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

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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.

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

DESCRIPTIVE ADVICE

Pattern: approved 11/5/94

- An Email model ECC1 driveway flowmeter approved for use over a flow rate range of 15 to 55 L/min, in attendant-operated or locally-authorised applications.

Variants: approved 11/5/94

1. Certain other models and configurations, identified using Tables 1 and 2.

2. With certain submersible turbine pumps.

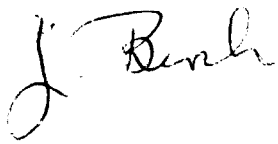
Technical Schedule No 5/6A/70B describes the pattern and variants 1 and 2.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 5/6A/70B dated 15/6/94
Technical Schedule No 5/6A/70B dated 15/6/94 (incl. Tables 1 & 2, and Test Procedure)
Figures 1 to 8 dated 15/6/94

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/70B

Pattern: Email Model ECC1 Driveway Flowmeter.

Submittor: Email Electronics
88-94 Canterbury Road
Kilsyth VIC 3137.

1. Description of Pattern

An Email model ECC1 driveway flowmeter (Figures 1 and 2) approved for use to dispense various grades of petrol over a flow rate range of 15 to 55 L/min, in attendant-operated or locally-authorised applications.

1.1 Features

The model ECC1 has the following components or features:

- An Eclipse MVR series electronic price-computing driveway flowmeter indicator, as described in the documentation of NSC approval No S110A.
- A Dresser-Wayne model 2PM6 two-piston positive displacement meter.
- A Dresser-Wayne model 32-44059 combined pump and gas separator.
- A gas separator/detector test valve is provided on all instruments and any accumulated gas is exhausted via a float chamber and a vent to atmosphere; provision is made for the valve to be sealed.
- A non-return valve located upstream of the meter.
- A ZVA or any other compatible Commission-approved nozzle.

1.2 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/70B
Maximum flow rate	..... L/min
Minimum flow rate	..... L/min
Maximum operating pressure	..... kPa
Approved for use with (products)	.....

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1.3 Sealing and Verification/Certification Provision

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

Provision is made for the calibration device of the meter to be sealed by means of the sealing bracket and screw. Provision is also made for the Eclipse indicator to be sealed using the sealing lugs provided.

2. Description of Variants

2.1 Variant 1

Certain other models and configurations, identified using Tables 1 and 2, and including the following:

- With two flowmetering systems in the one housing, in which case the model number has a '2' suffix, e.g. the pattern (model ECC1) becomes model ECC2 (Figure 3). Figure 4 shows a dual flowmeter which also has a preset facility - see below.

- With a preset facility, in which case the second character of the model number is a 'D', e.g. the pattern (model ECC1) becomes model EDC1. Slow flow is controlled by either a pilot-actuated flow control diaphragm valve and control valves (Figures 4 and 5) or an ASCO model FAXR29214 or FAXR29212 solenoid-operated control and shut-off valve (Figure 6).

- With a gas purging system consisting of a gas detector and a combined non-return/shut-off valve located upstream of the meter, in which case instruments are approved for use to dispense distillate, identified by a 'D' suffix, e.g. the pattern (model ECC1) becomes model ECC1D (Figure 7).

- With a Dresser-Wayne model 33-44059 combined pump and gas separator, and a gas purging system consisting of a gas detector and a combined non-return/shut-off valve located upstream of the meter, in which case instruments are approved for use with a maximum flow rate of 80 L/min, identified by an 'H' suffix, e.g. the pattern (model ECC1) becomes model ECC1H.

- With a Commission-approved driveway flowmeter control system in which case instruments may be used in remotely-authorised applications, identified by the third character of the model number being an 'S', e.g. the pattern (model ECC1) becomes model ECS1.

2.2 Variant 2

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 a '-D' suffix, e.g. the model ECC1 becomes ECC1-D.

The replacement hydraulic system includes a Red Jacket model P75S3-3 or model P150S3-3 (or Gilbarco model T221X or model T221W) 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.

TABLE 1

(Attendant-operated or locally-authorised models only)

MODEL	[WITH PRESET OR PREPAY]	TYPE	PRODUCT	MAX. FLOW RATE L/min	
ECC1	[EDC1]	single	petrol	55	
ECC2	[EDC2]	dual	petrol	55	
ECC1D	[EDC1D]	single	diesel	55	(#)
ECC1H	[EDC1H]	single	petrol	80	(#)
ECC1DH	[EDC1DH]	single	diesel	80	(#)

TABLE 2

(Attendant-operated, or locally or remotely-authorised models)

MODEL	[WITH PRESET OR PREPAY]	TYPE	PRODUCT	MAX. FLOW RATE L/Min	
ECS1	[EDS1]	single	petrol	55	
ECS2	[EDS2]	dual	petrol	55	
ECS1D	[EDS1D]	single	diesel	55	(#)
ECS1H	[EDS1H]	single	petrol	80	(#)
ECS1DH	[EDS1DH]	single	diesel	80	(#)

NOTE: (#) A gas detection system is mandatory for products other than petrol, and is required for petrol when the flow rate exceeds 55 L/min.

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. MECHANICAL LEAK DETECTOR TEST

Operation of the leak detector is tested by the following procedure:

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

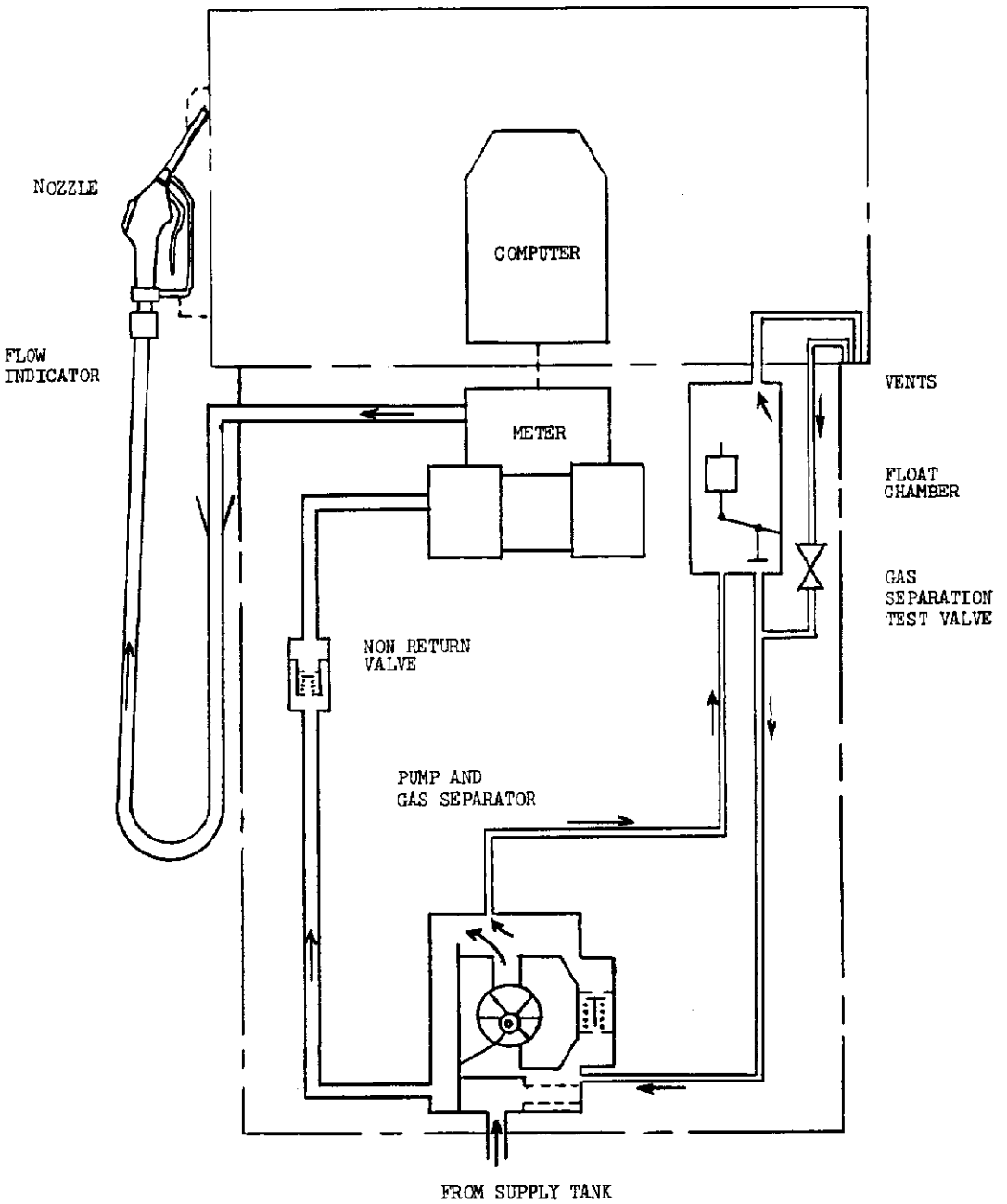
For systems where more than one driveway flowmeter is connected to the same pump, begin a delivery from one flowmeter.

While this delivery is still in progress, attempt to make a delivery from a 2nd flowmeter connected to the same pump WITHOUT this flowmeter first being authorised (either locally or remotely) and WITHOUT the indicator reset cycle for this flowmeter first being initiated; the 2nd delivery should not be possible.

FIGURE 5/6A/70B - 1

Email Model ECC1 Driveway Flowmeter

FIGURE 5/6A/70B - 2

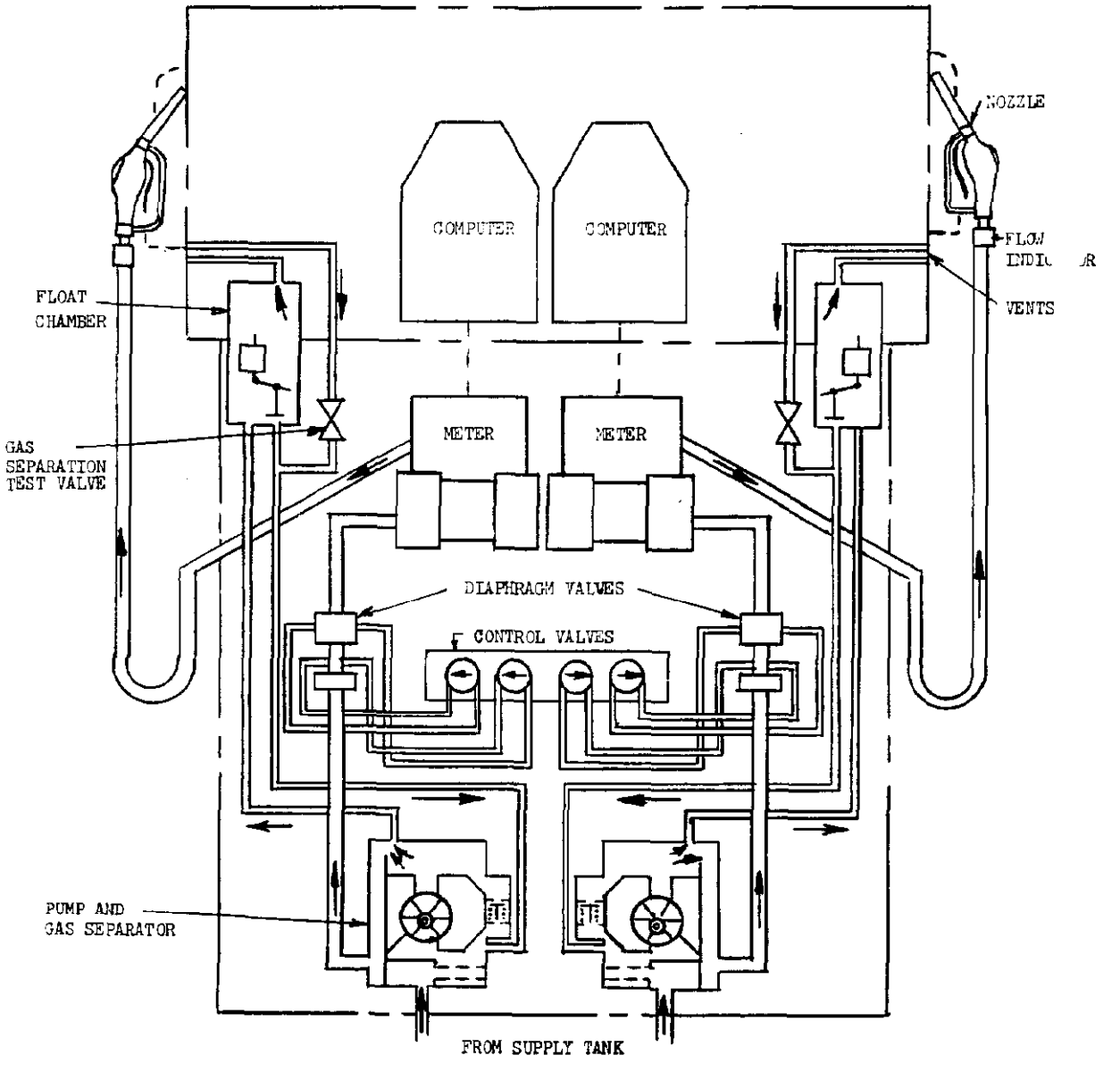


Hydraulic Diagram of Model ECC1

FIGURE 5/6A/70B - 3

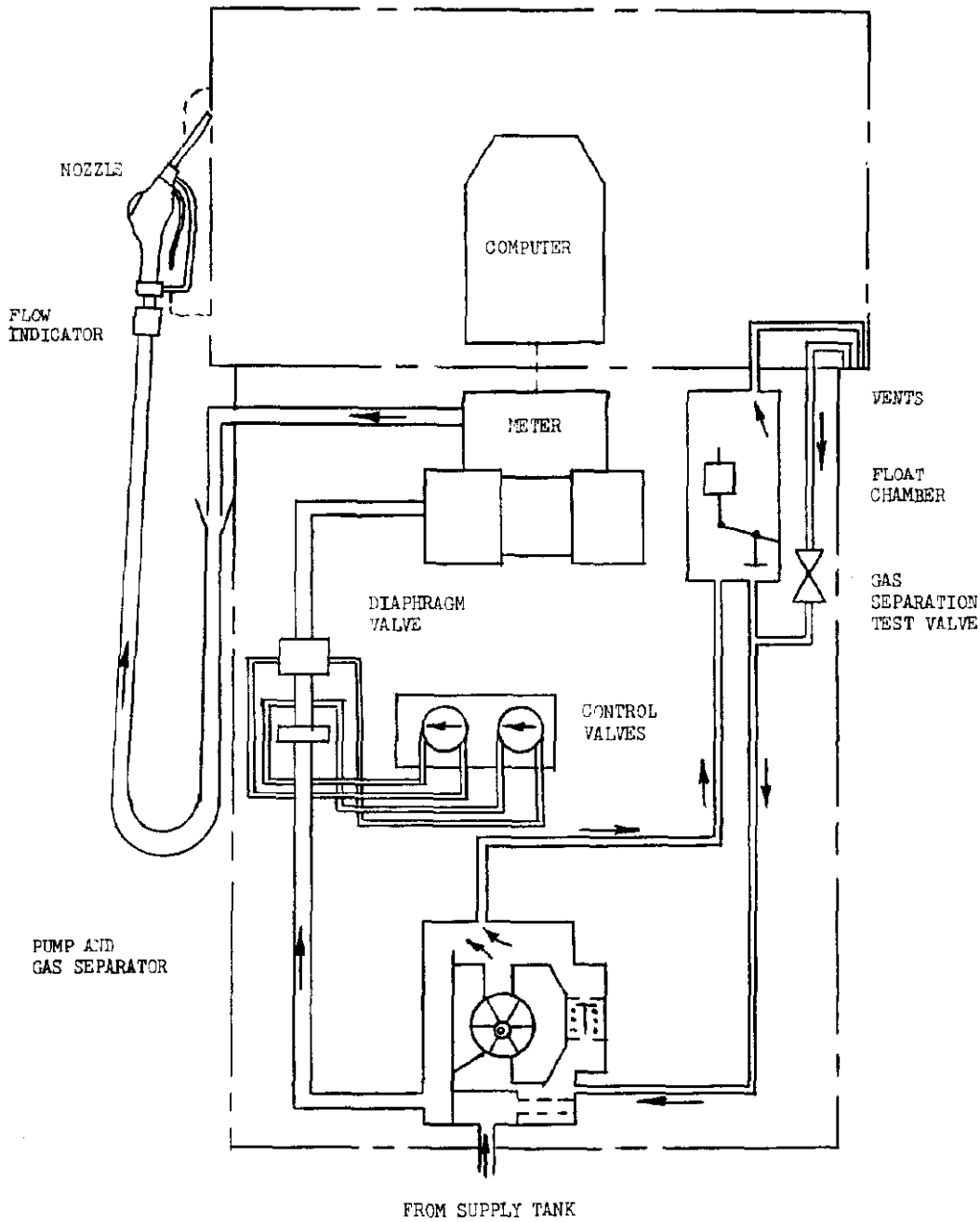
Model ECC2

FIGURE 5/6A/70B - 4



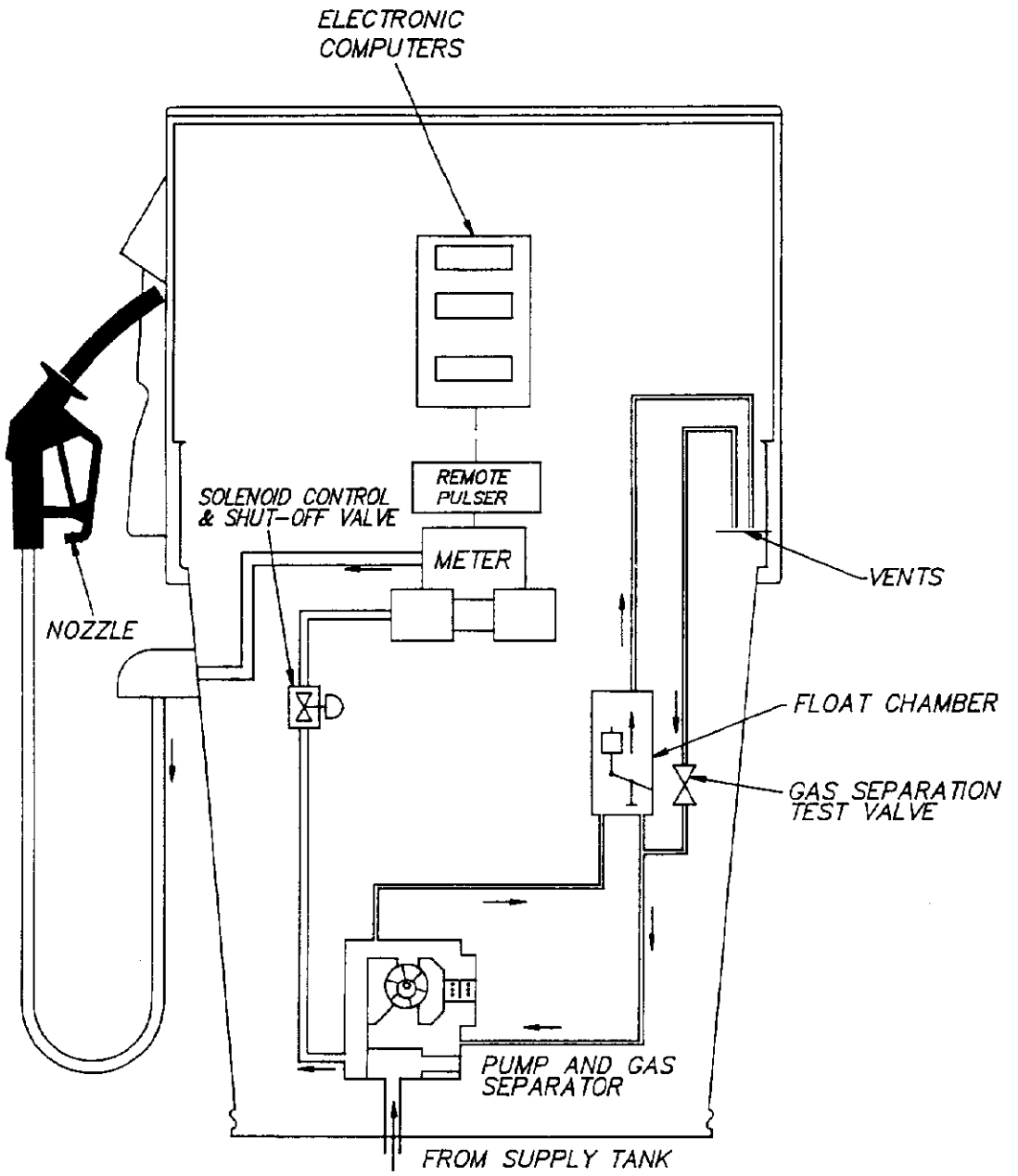
Hydraulic Diagram of Model EDC2

FIGURE 5/6A/70B - 5



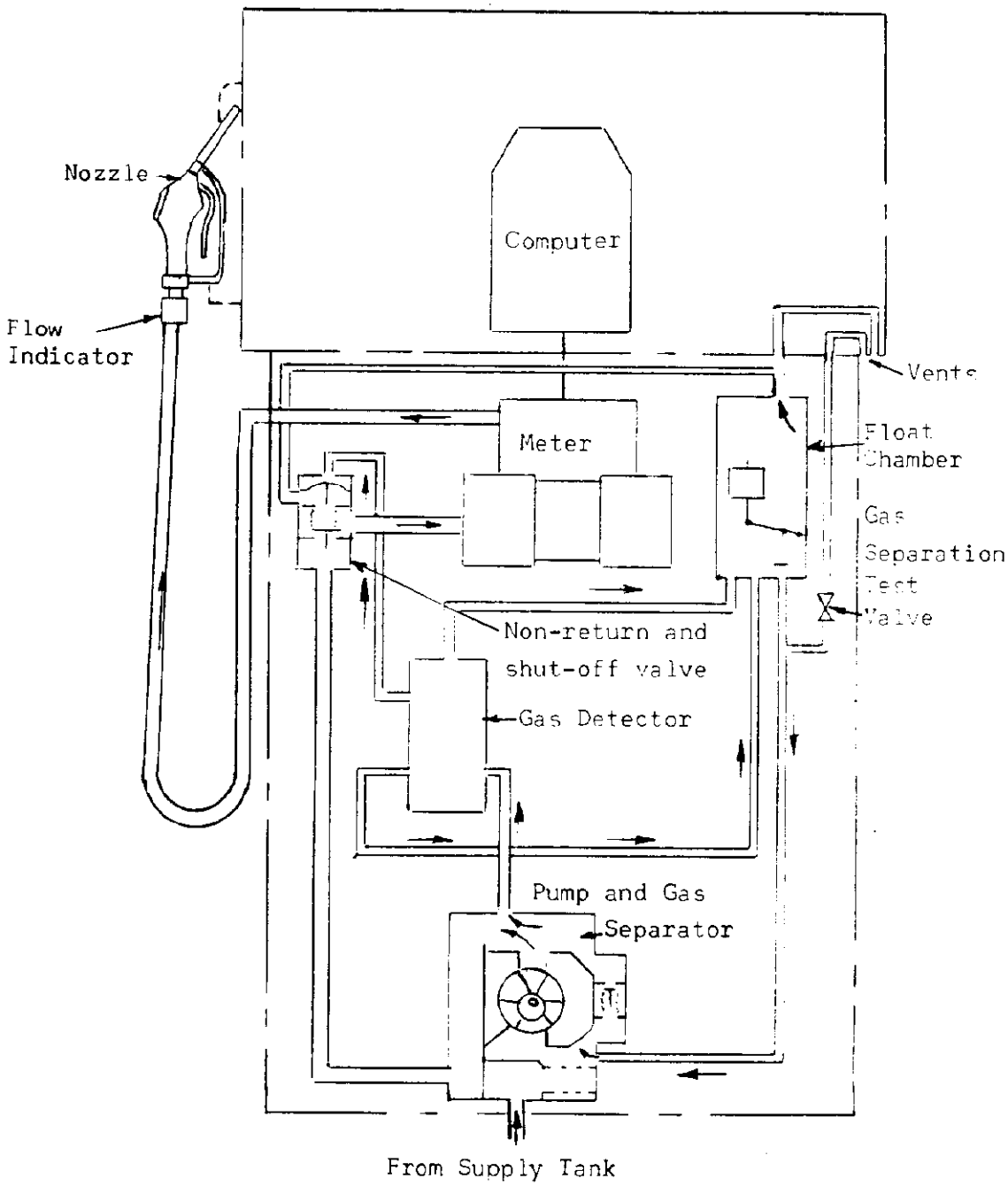
Hydraulic Diagram of Model EDC1

FIGURE 5/6A/70B - 6



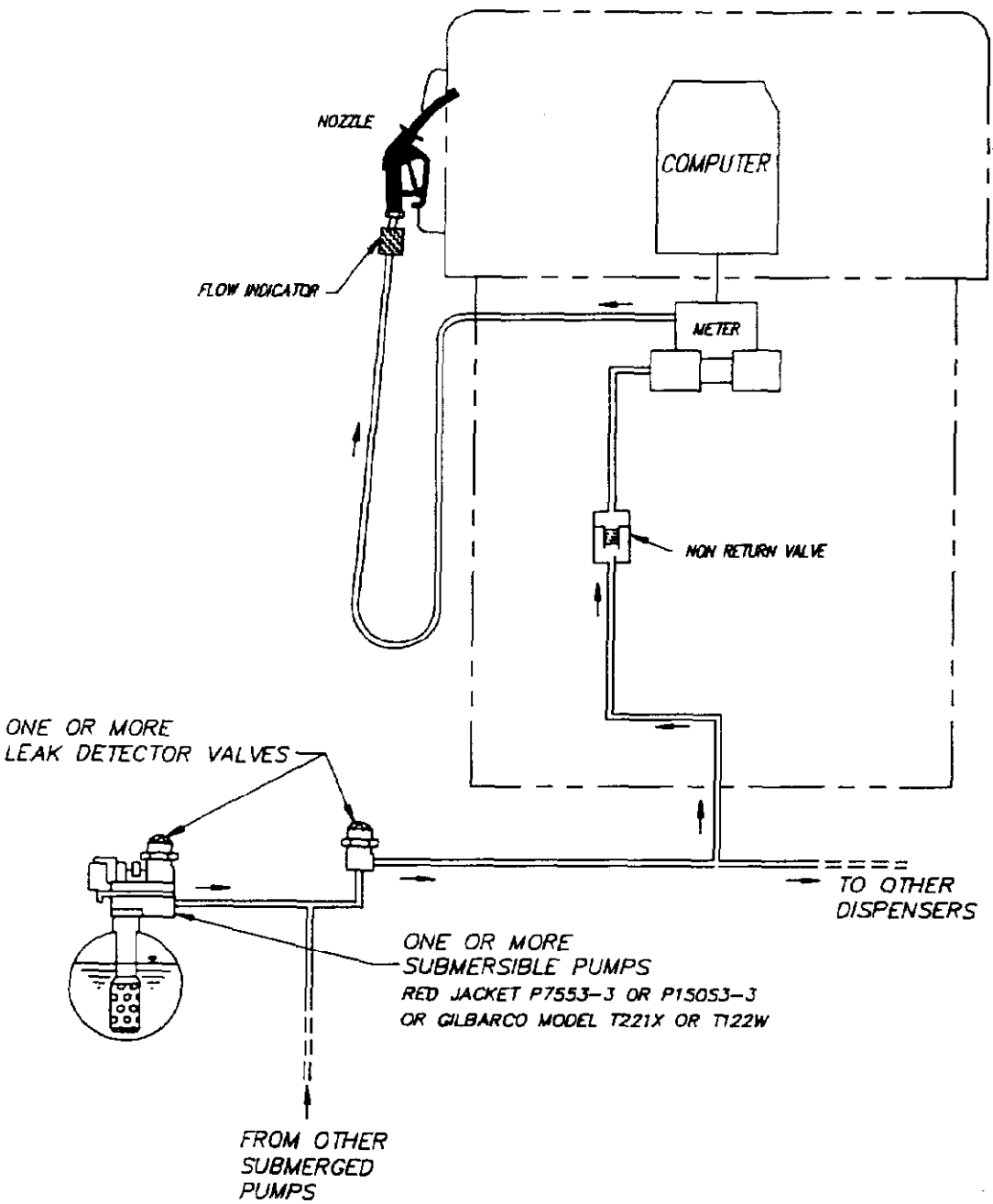
Showing System With Preset Facility Using Solenoid-operated Control Valve

FIGURE 5/6A/70B - 7



Hydraulic Diagram of Model ECC1D

FIGURE 5/6A/70B - 8



Typical System With a Submersible Turbine Pump