



**Australian Government**  

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**National Measurement  
Institute**

12 Lyonpark Road, North Ryde NSW 2113

**Cancellation  
Certificate of Approval  
No 5/6A/90A**

Issued by the Chief Metrologist under Regulation 60  
of the  
National Measurement Regulations 1999

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

Compac Industries Model M40P-P-C Fuel Dispenser for Motor Vehicles

submitted by Compac Industries Limited  
52 Walls Road  
Penrose Auckland  
NEW ZEALAND

has been cancelled in respect of new instruments as from 1 May 2006.

Signed by a person authorised by the Chief Metrologist  
to exercise his powers under Regulation 60 of the  
National Measurement Regulations 1999.

A handwritten signature in black ink, appearing to be the initials "JGT" with a stylized flourish extending downwards.



# National Standards Commission

## Certificate of Approval

### No 5/6A/90A

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

Compac Industries Model M40P-P-C Fuel Dispenser for Motor Vehicles

submitted by   Compac Industries Limited  
                  52 Walls Road  
                  Penrose    Auckland  
                  NEW ZEALAND.

**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 reviews of NSC approvals Nos 5/6A/90 and 5/6A/91.

#### CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 March 2004, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No 5/6A/90A 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.

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

#### DESCRIPTIVE ADVICE

**Pattern:** approved 15 March 1999

- A Compac Industries model M40P-P-C fuel dispenser for motor vehicles approved for use to dispense various types of liquid hydrocarbons over a flow rate range of 4 to 40 L/min.

**Variants:** approved 15 March 1999

1. Displaying volume only.
2. With a submersible turbine pump hydraulic system.
3. Certain other models and configurations.
4. Certain multi-product type models and configurations.

Technical Schedule No 5/6A/90A describes the pattern and variants 1 to 4.

#### FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 5/6A/90A dated 22 March 1999  
Technical Schedule No 5/6A/90A dated 22 March 1999 (incl. Test Procedure)  
Figures 1 to 15 dated 22 March 1999

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.



## TECHNICAL SCHEDULE No 5/6A/90A

**Pattern:** Compac Industries Model M40P-P-C Fuel Dispenser for Motor Vehicles.

**Submittor:** Compac Industries Limited  
52 Walls Road  
Penrose Auckland  
NEW ZEALAND.

### 1. Description of Pattern

A Compac Industries model M40P-P-C fuel dispenser for motor vehicles (Figures 1 and 2, & Table 1) approved to dispense various grades of petrol, Avgas, kerosene, Jet A1 and diesel, over a flow rate range of 4 to 40 L/min, in attendant-operated mode, or in attended or unattended self-service mode. The flowmeter is adjusted to be correct for the liquid for which it is to be verified/certified.

The minimum measured quantity is 2 litres.

#### 1.1 Features

The model M40P-P-C dispenser has the following components or features:

- A Bennet type 75 model 190701 integral pump/strainer/gas separator.
- A Bennet type SB100 model N7235-04, 4-piston positive displacement flowmeter.
- A Compac model CU-ENCODER-3CH pulse generator.
- A Compac model C3000H price-computing indicator.
- A ZVA or any other Commission approved nozzle.
- A preset facility using dual position solenoid valves to slow down and cut off the flow.
- A gas detection system (required for products other than petrol and for petrol when the flow rate exceeds 55 L/min).

A Compac model CC1200 or CC4800 central controller and/or a management printer and/or a Compac Commander control system may also be connected.

The dispenser may use various authorising devices (including a card-reader, keypad for PIN (Personal Identification Number) entry, CWID (Compac Wireless ID), smart card, or magnetic key reader) to activate a delivery.

The dispenser may be equipped with an integral receipt printer for use only by authorised card holders or an EFTPOS unit.

## 1.2 Indicator

The model C3000H indicator comprises a computing unit and separate display units. Each computing unit may be connected with up to 3 single or double-sided display units. The indicator has a maximum unit price of 9.999 \$/L and a maximum total price of \$999.99 or \$9999.99, depending on the application.

## 1.3 Central Controller

The optional model CC1200 or CC4800 central controller (Figure 3) which may be connected to up to 16 fuel dispensers, may be used to centrally set the unit price of up to 15 grades of fuel and for other management functions. Figure 4 shows a typical system.

## 1.4 Sealing and Verification/Certification Provision

Provision is made for the application of a verification/certification mark. The K-factor (electronic calibration) switch, which is located on the indicator electronics board, is sealed. The gas separator test valve is also sealed.

## 1.5 Markings

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

Manufacturer's name or mark	Compac Industries Limited
Model number	.....
Serial number	.....
Pattern approval mark	NSC No 5/6A/90A
Year of manufacture	.....
Operating (air) temperature range	-25°C to +55°C
Minimum measured quantity (MMQ)	..... L
Approved for use with (products)	.....
Maximum flow rate ( $Q_{max}$ )	..... L/min
Minimum flow rate ( $Q_{min}$ )	..... L/min
Products (liquids) temperature range	5°C to 40°C
Maximum pressure	..... kPa
Minimum pressure	..... kPa

## **2. Description of Variants**

### **2.1 Variant 1**

With the indicator of the pattern displaying volume (litres) only, provided the instrument carries a notice stating "NOT FOR PUBLIC USE" (or similar wording), in capital letters not less than 6 mm high, either on or adjacent to each reading face (Figure 5).

### **2.2 Variant 2**

With one or more submersible turbine pumps (Figure 6).

Approved systems use either:

- (a) Red Jacket models P75S3-3 or P150S3-3 submersible turbine pumps (STP) with one or more Red Jacket models 116-030-5 PLD or 216-004 leak detectors; or
- (b) FE Petro models STP75B or STP150B submersible turbine pumps with one or more FE Petro models STP-MLD, STP-MLD-D or STP-MLD-E leak detectors.

More than one fuel dispenser may be connected to the same submersible turbine pump hydraulic system.

### **2.3 Variant 3**

Certain other models and configurations, identified using Table 1, and including the following instruments:

- With a maximum flow rate of 80 L/min e.g. model CC80.
- In alternative ("retail") housings e.g. models C80, CC80 and CC80PQ-P (Figures 7 to 9).
- With up to 4 metering systems in the same housing e.g. model CC80PQ-P (Figure 9)

TABLE 1

Approved single or dual product type model designations and their meanings.

*	HOUSING TYPE:
C	Retail, 1 meter, 1 computing unit, 2 displays.
CC	Retail, 2 meters, 1 computing unit, 2 displays.
M	Commercial, 1 meter, 1 computing unit, 2 displays.
MM	Commercial, 2 meter, 2 computing unit, 2 displays.
MME	Commercial, 2 meter, 1 computing unit, 2 displays.
P	Commercial (upmarket), 1 meter, 1 computing unit, 2 displays.
PP	Commercial (upmarket), 2 meter, 2 computing unit, 2 displays.
PPE	Commercial (upmarket), 2 meter, 1 computing unit, 2 displays.
*	MAXIMUM NOMINAL FLOW RATE:
40	40 L/min.
80	80 L/min.
*	PUMP TYPE:
P	Internal pump.
S	Submersible turbine pump (STP).
PD	1 internal pump, 2 meters, (Single suction, Dual hose).
SD	Submersible turbine pump, Dual hose.
PQ	2 internal pumps, 4 meters, (Dual suction, Quad hose).
SQ	Submersible turbine pump, 4 meters, (Dual suction, Quad hose).
*	OPTIONS:
	Various codes for options including preset (-P) and cardreader (-C).

e.g. M40P-P-C (the pattern)

**2.4 Variant 4**

Certain multi-product type models in various housings (Figures 10 to 15) and listed in Table 2.

TABLE 2

Approved multi-product type models/versions and their configurations.

<b>Model</b>	<b>Version</b>	<b>Features</b>
EURO	MHD4	4 flowmeters, 1 or 2 computing units, 2 displays.
EURO	MHD6	6 flowmeters, 2 computing units, 2 displays.
EURO	MHP4	4 flowmeters, 1 computing unit, 2 displays.
EURO	MHP6	6 flowmeters, 2 computing units, 2 displays.
LOLINE	MHD4	4 flowmeters, 1 computing unit, 2 displays.
LOLINE	MHD4A	4 flowmeters, 1 computing units 4 displays.
LOLINE	MHD6	6 flowmeters, 2 computing units, 2 displays.
LOLINE	MHD6A	6 flowmeters, 2 computing units, 6 displays.
HILINE	MHD2A	2 flowmeters, 1 computing unit, 2 displays.
HILINE	MHP2A	2 flowmeters, 1 computing unit, 2 displays.
HILINE	MHD4	4 flowmeters, 1 computing unit, 2 displays.
HILINE	MHD4A	4 flowmeters, 1 or 2 computing units, 4 displays.
HILINE	MHD6	6 flowmeters, 2 computing units, 2 displays.
HILINE	MHD6A	6 flowmeters, 2 or 3 computing units, 6 displays.
HILINE	MHP4	4 flowmeters, 1 computing unit, 2 displays.
HILINE	MHP4A	4 flowmeters, 1 or 2 computing units, 4 displays.
HILINE	MHP6	6 flowmeters, 2 computing units, 2 displays.
HILINE	MHP6A	6 flowmeters, 2 or 3 computing units, 6 displays.
HILINE	MHQD4	4 flowmeters, 1 computing unit, 2 displays.
HILINE	MHQD4A	4 flowmeters, 1 or 2 computing units, 4 displays.
HILINE	MHQP4	4 flowmeters, 1 computing unit, 2 displays
HILINE	MHQP4A	4 flowmeters, 1 or 2 computing units, 4 displays

NOTE: ##D## or ###D## versions use submersible turbine pumps (refer Variant 2).



## 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 of the flowmeter using the liquid for which it is to be verified/certified, and from normal flow rate to the minimum flow rate specified in the Certificate of Approval or Technical Schedule is  $\pm 0.3\%$ .

For instruments fitted with submersible turbine pumps:

1. 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 fuel dispenser. Ensure that the submerged 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 when the pressure gauge and valve were connected.
- 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 out of its hang-up, but leave 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 fuel dispenser to remove any air introduced into the system.

2. The minimum flow rate test is performed by simultaneously running either all hoses on all fuel dispensers connected to a particular submerged turbine pump (where the number of hoses is 6 or less) or by simultaneously running between  $\frac{2}{3}$  and  $\frac{3}{4}$  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 the rate specified in the Certificate of Approval or Technical Schedule.

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.

3. For systems where more than one fuel dispenser is connected to the same pump, begin a delivery from one fuel dispenser. While this delivery is still in progress, select a second fuel dispenser that is connected to the same pump. Attempt to make a delivery WITHOUT this fuel dispenser first being authorised (either locally or remotely) and WITHOUT the indicator reset cycle first being initiated; the second delivery should not be possible.



# National Standards Commission

## Notification of Change

### Certificate of Approval No 5/6A/90A

### Change No 1

The following changes are made to the approval documentation for the

Compac Industries Model M40P-P-C Fuel Dispenser for Motor Vehicles

submitted by Compac Industries Limited  
52 Walls Road  
Penrose Auckland  
NEW ZEALAND.

- A. In Technical Schedule No 5/6A/90A dated 22 March 1999 the paragraph referring to the Maximum Permissible Errors in the Test Procedure should be amended to read, in part;

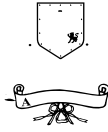
*“...  $\pm 0.3\%$  for the meter, whereas the maximum permissible error for the complete system is  $\pm 0.5\%$ .”*

- B. In Certificate of Approval No 5/6A/90A dated 22 March 1999, the FILING ADVICE should be amended by adding a reference to this Notification of Change as follows:

“Notification of Change No 1 dated 18 April 2000”

Signed and sealed 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.

A handwritten signature in black ink, appearing to read 'J. Bush'. The signature is written in a cursive style with a large initial 'J'.



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**National Measurement  
Institute**

**Notification of Change  
Certificate of Approval No 5/6A/90A  
Change No 2**

Issued by the Chief Metrologist under Regulation 60  
of the  
National Measurement Regulations 1999

**Maximum Permissible Errors at Verification/Certification** should be amended to read:

“The maximum permissible errors applied during a verification test of the fuel dispenser using the liquid for which it is to be verified/certified, and from normal flow rate to the minimum flow rate specified in the Certificate of Approval or Technical Schedule are:

±0.3% for the calibration/adjustment of the meter; and

±0.5% for in-service inspection of the complete measuring system.

Note: Adjusting the errors of a meter to values OTHER than as close as practical to zero is forbidden, even when these values are within the maximum permissible errors.”

- B. In Certificate of Approval No 5/6A/90A dated 22 March 1999, the FILING ADVICE should be amended by adding the following:

“Notification of Change No 2 dated 18 February 2005”

Signed by a person authorised by the Chief Metrologist to exercise his powers under Regulation 60 of the National Measurement Regulations 1999.

FIGURE 5/6A/90A - 1



Compac Industries Model M40P-P-C Fuel Dispenser for Motor Vehicles

FIGURE 5/6A/90A - 2



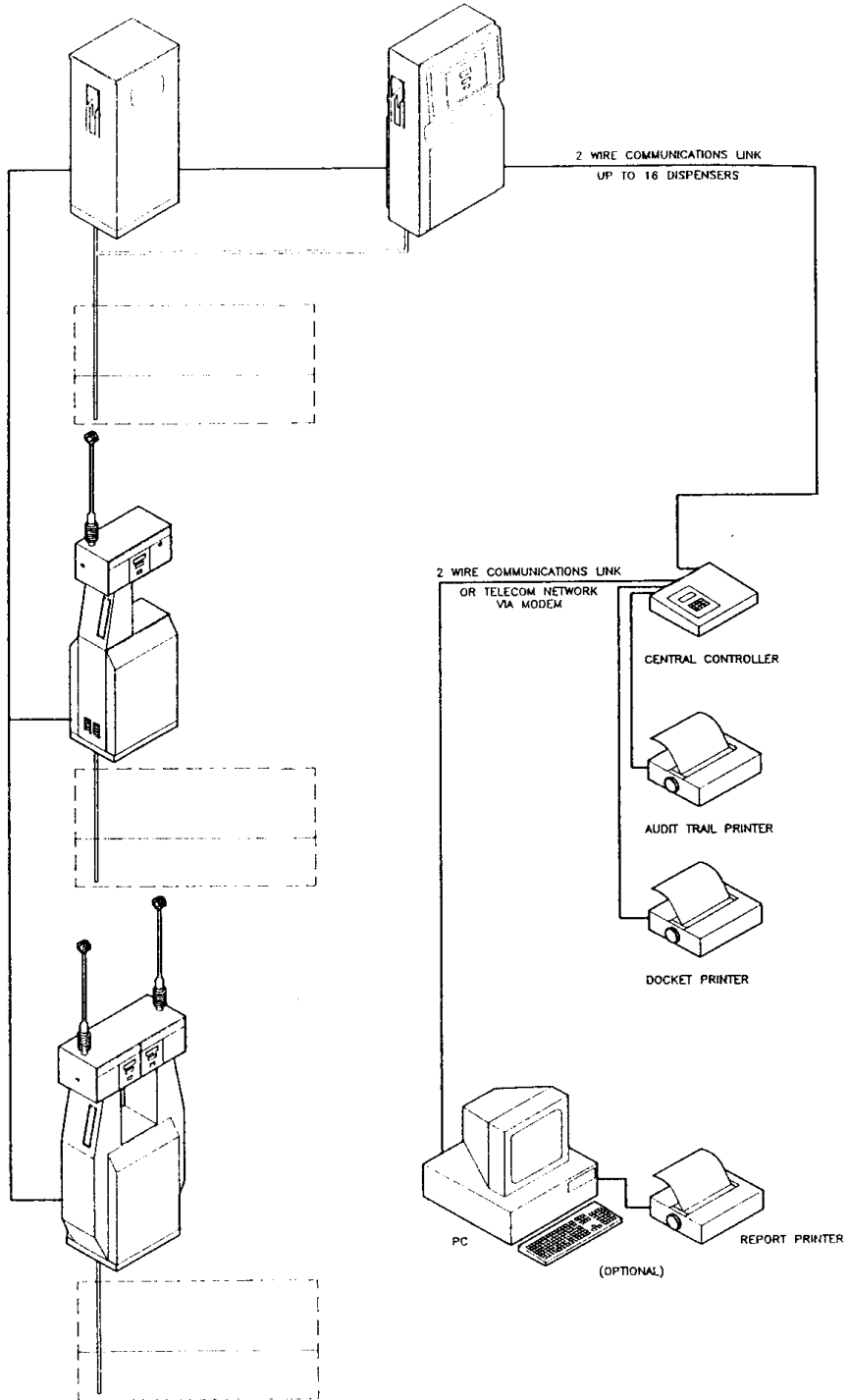
Model M40P-P-C Fuel Dispenser

FIGURE 5/6A/90A - 3



Model CC1200 or CC4800 Central Controller

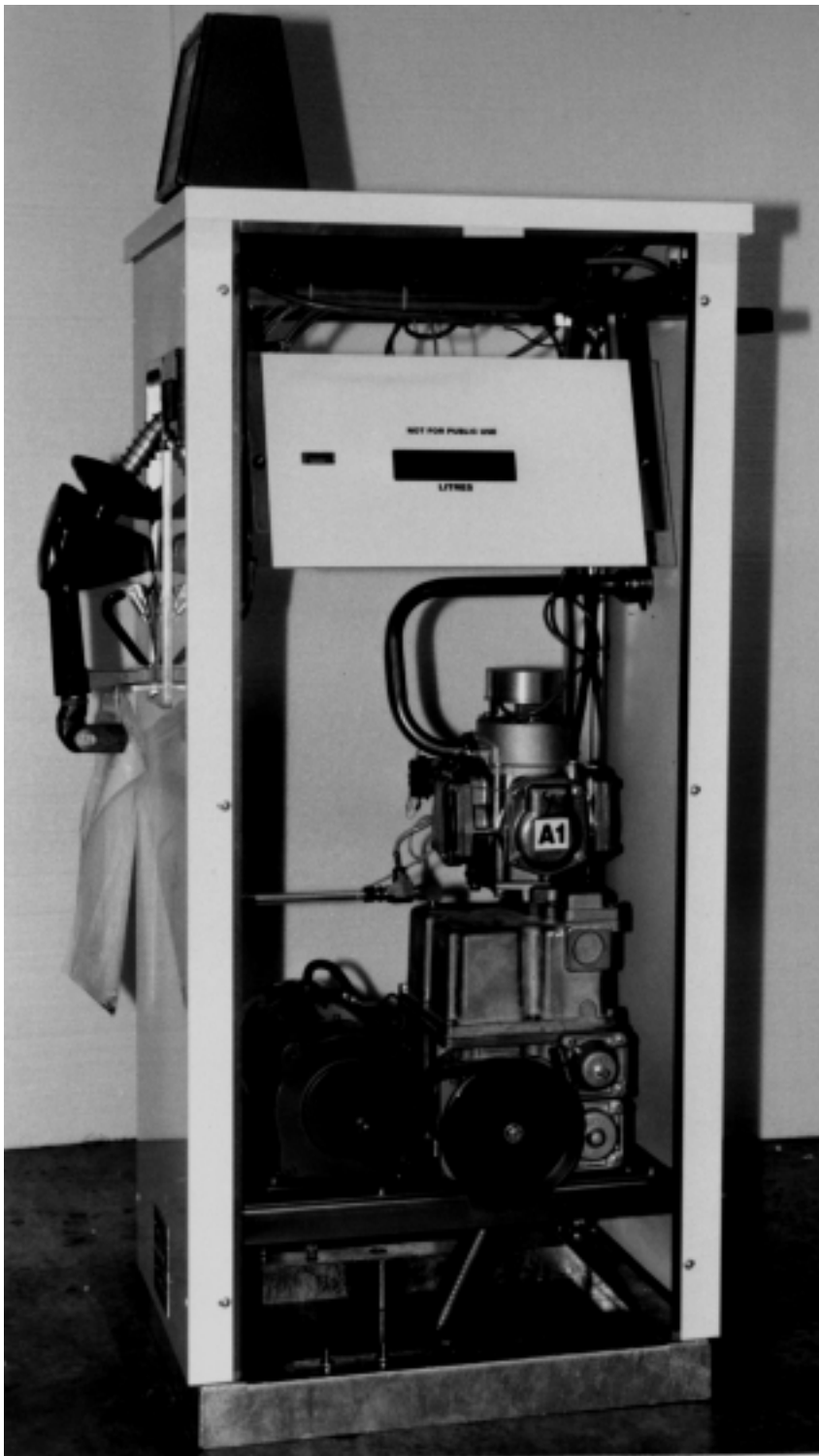
FIGURE 5/6A/90A - 4



Typical System Layout

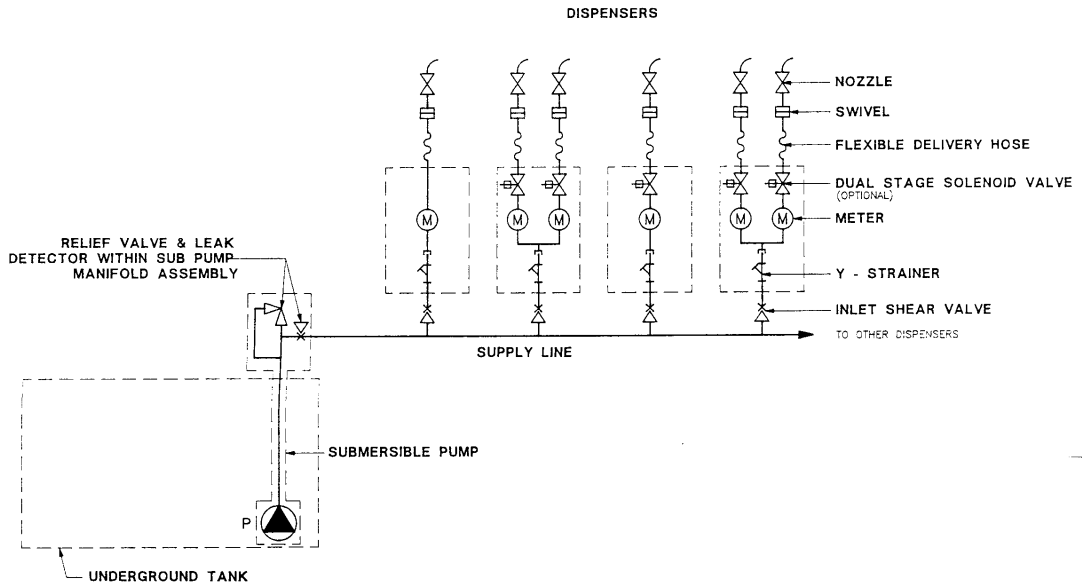


FIGURE 5/6A/90A - 5



Fuel Dispenser Displaying Volume Only

FIGURE 5/6A/90A - 6



Typical Submersible Turbine System

FIGURE 5/6A/90A - 7



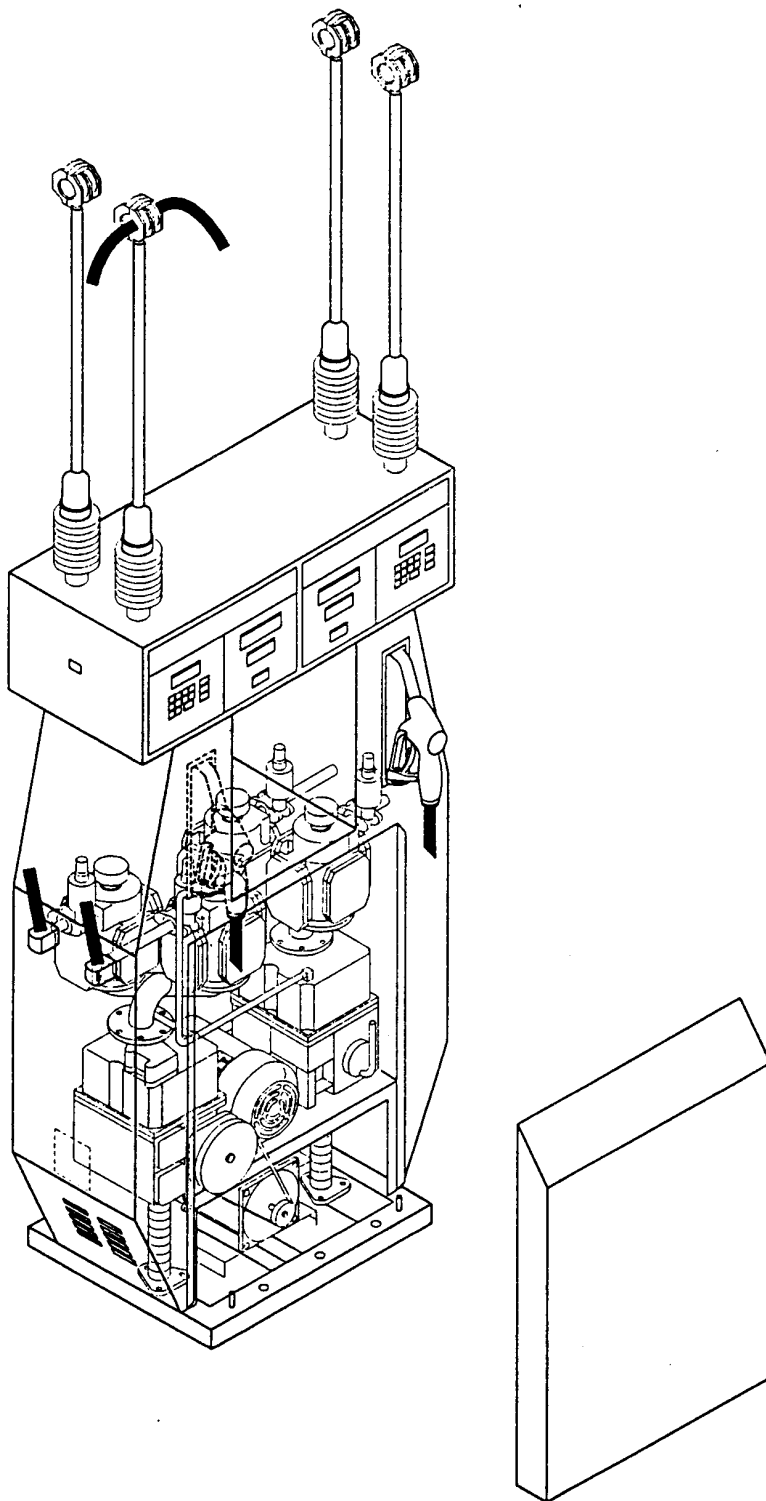
Model C80 Fuel Dispenser

FIGURE 5/6A/90A - 8



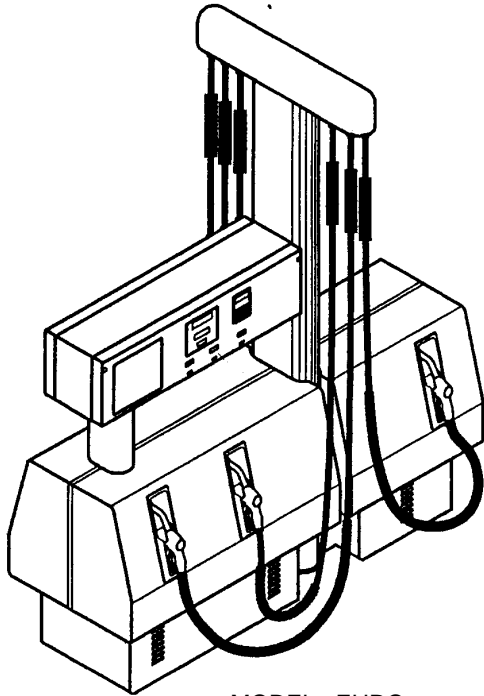
Model CC80 Fuel Dispenser

FIGURE 5/6A/90A - 9

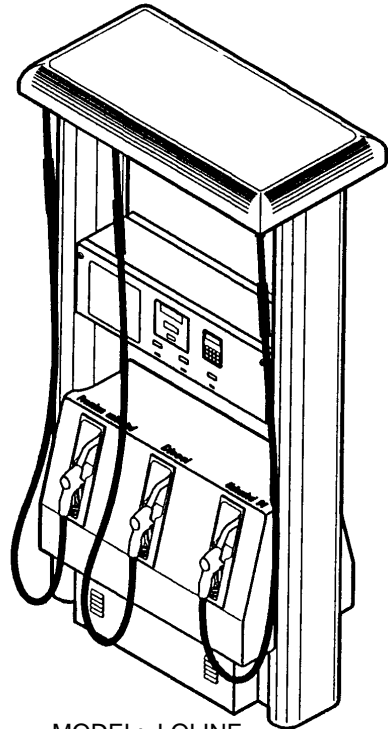


Model CC80PQ-P Fuel Dispenser

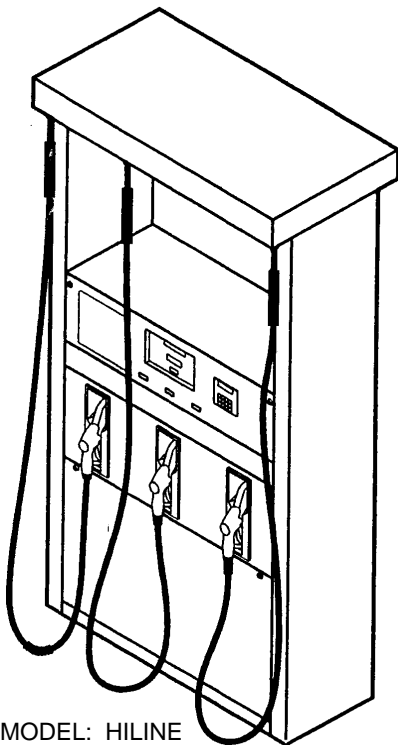
FIGURE 5/6A/90A - 10



MODEL: EURO  
VERSION: MH#6



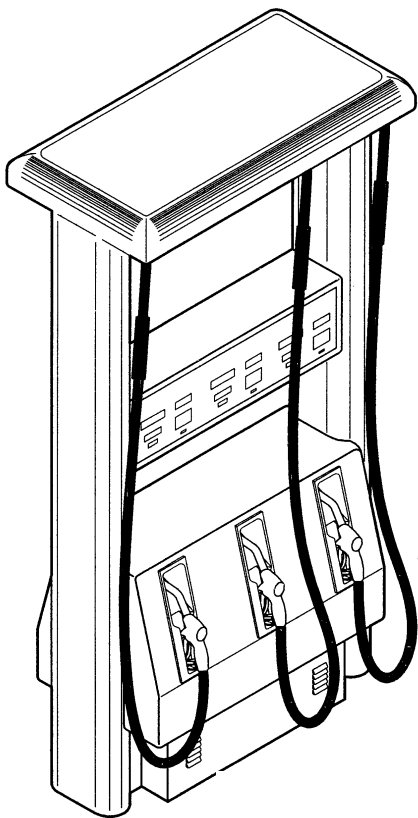
MODEL: LOLINE  
VERSION: MH#6



MODEL: HILINE  
VERSION: MH#6

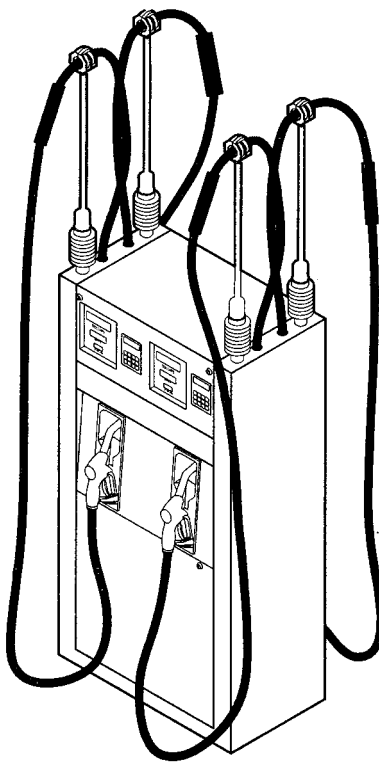
Various Multi-Product Fuel Dispensers

FIGURE 5/6A/90A - 11



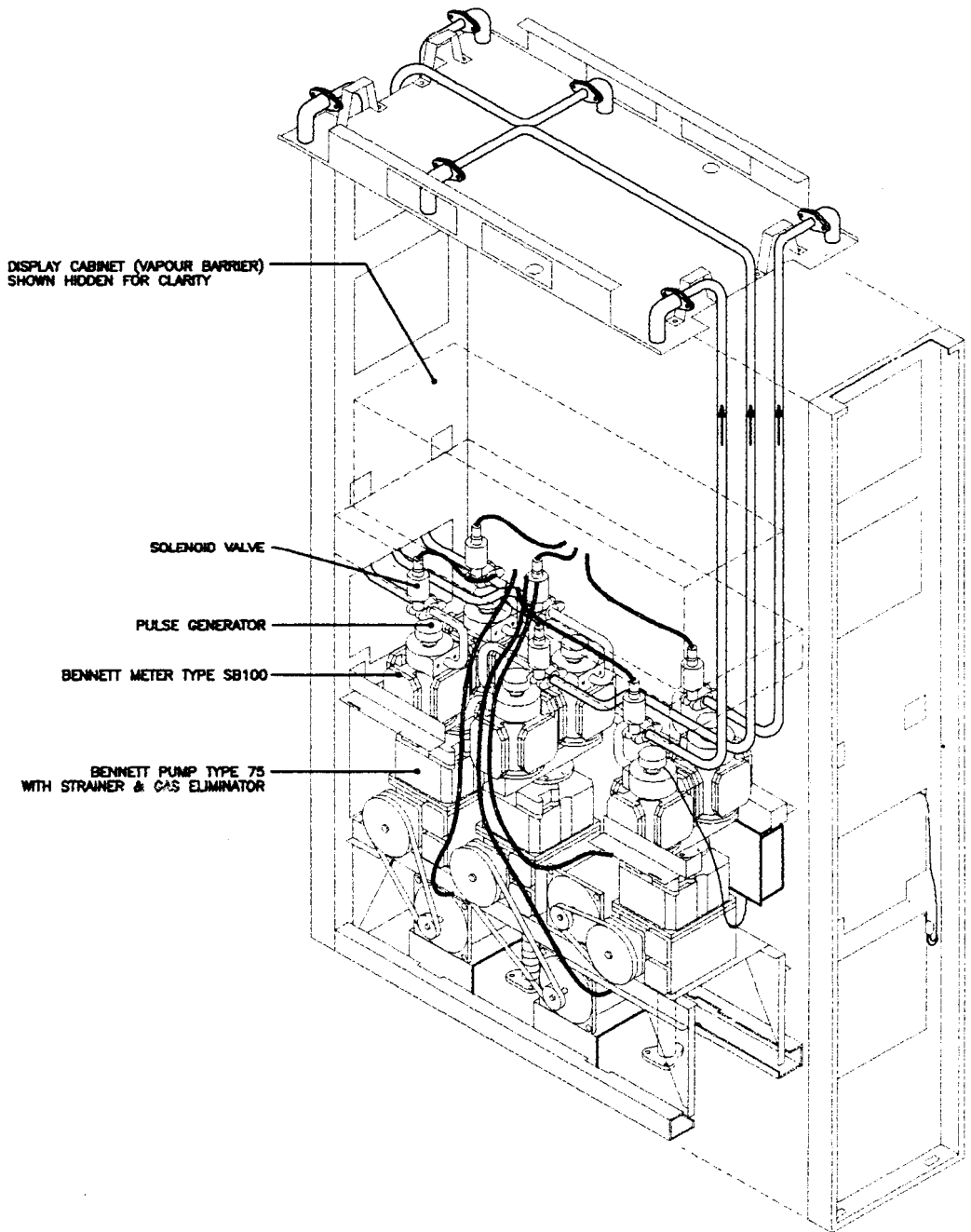
LOLINE MHD6A  
ALL HOSE HOUSING

HILINE MHQD4A or  
MHQP4A ALL HOSE HOUSING



Various Multi-product Fuel Dispensers

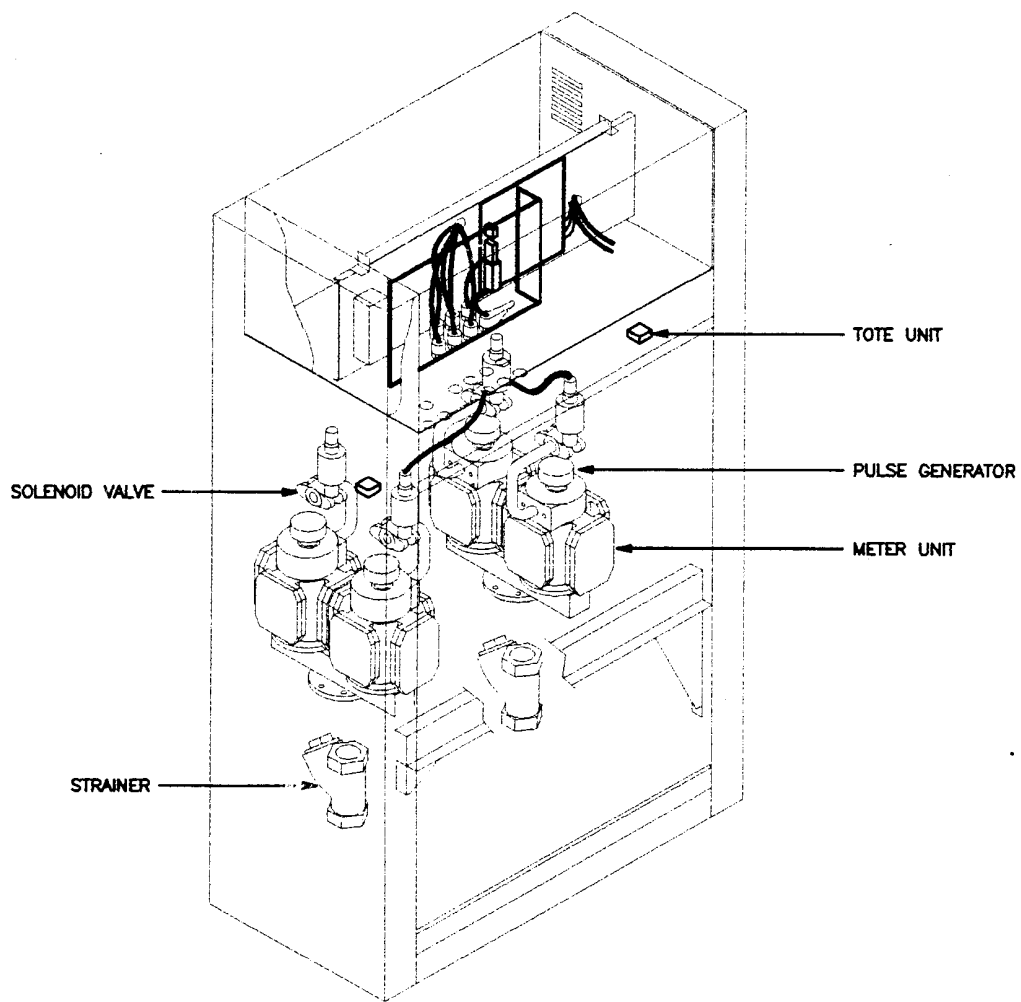
FIGURE 5/6A/90A - 12



Typical Internal Pump Instrument - HILINE Housing

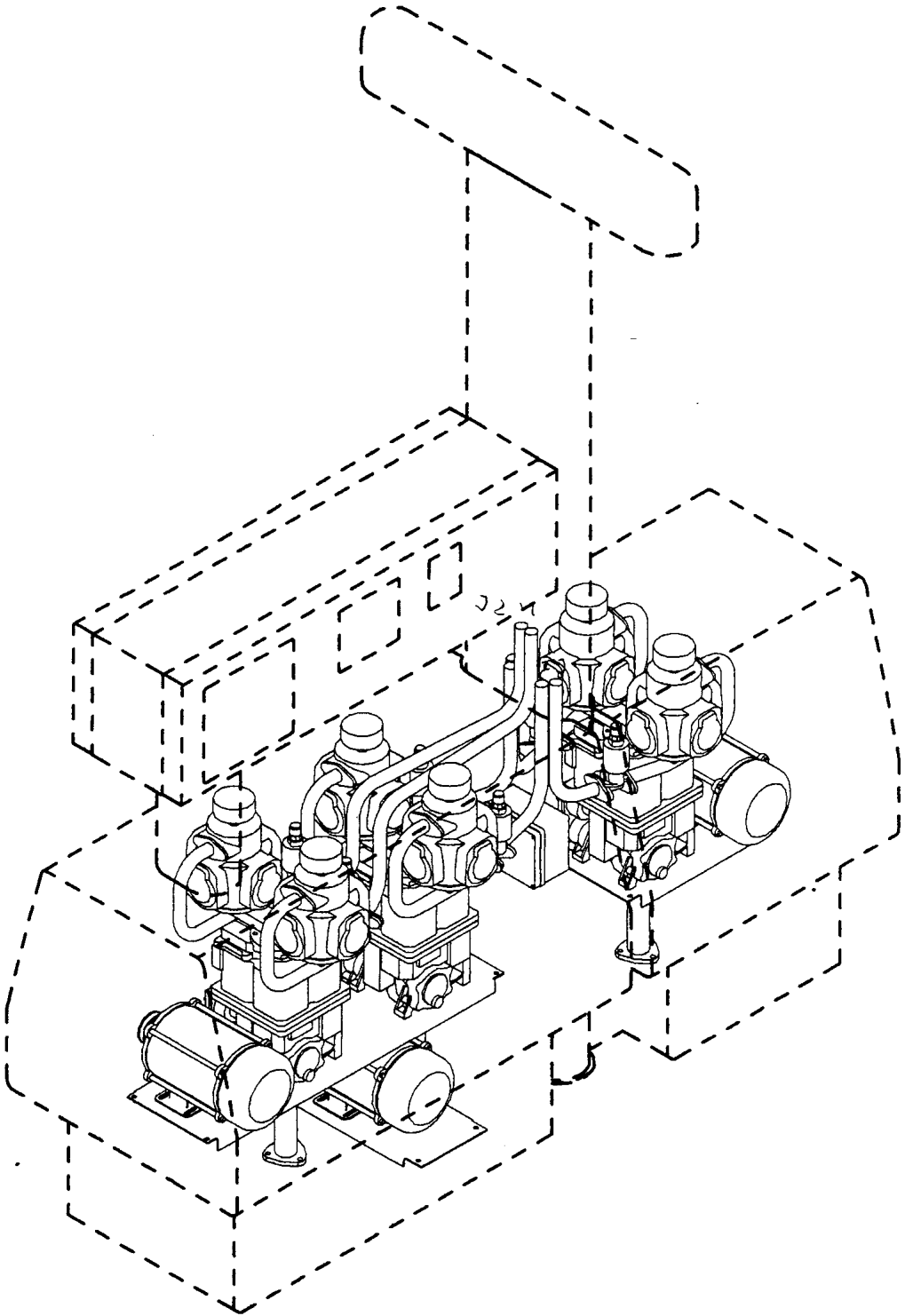


FIGURE 5/6A/90A - 13



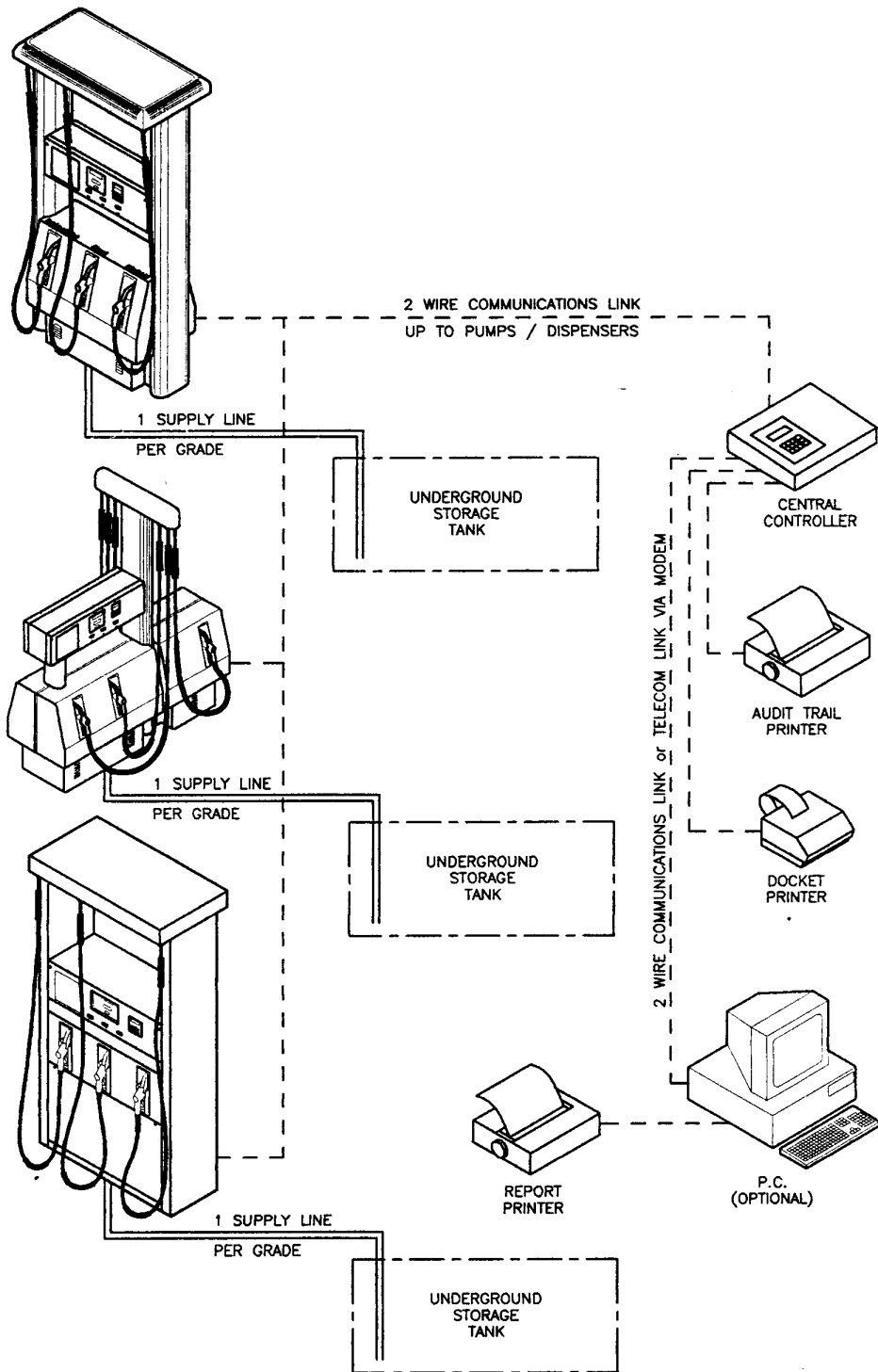
Typical Hydraulic System With (Remote) Submersible Turbine Pumps

FIGURE 5/6A/90A - 14



Typical Internal Pump Dispenser - EURO Housing

FIGURE 5/6A/90A - 15



Typical Multi-product Dispenser System Layout