



National Standards Commission

12 Lyonpark Road, North Ryde NSW

Cancellation Certificate of Approval No 5/6A/91

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

Compac Industries Model EURO MHP6 Multi-product Driveway Flowmeter

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

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

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 60 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/91

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 EURO MHP6 Multi-product Driveway Flowmeter

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.

CONDITIONS OF APPROVAL

This approval is subject to review on or after 1 March 1997.
This approval expires in respect of new instruments on 1 March 1998.

Instruments purporting to comply with this approval shall be marked NSC No 5/6A/91 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.

It is the submitter'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 4 February 1992

- A Compac Industries model EURO MHP6 multi-product driveway flowmeter approved for use to dispense various grades of petrol in attendant-operated or locally-authorized applications.

Variants: approved 4 February 1992

1. Other models and configurations, identified using Table 1.
2. For use with distillate, kerosene or Jet A1, in which case a gas detection system is fitted.

Variant: provisionally approved 4 February 1992
approved 31 May 1994

3. With certain submersible turbine pumps.

Technical Schedule No 5/6A/91 describes the pattern and variants 1 to 3.

Variant: approved 14 August 1992

4. With a Bennet type SB 100 model N7235-04 meter.

Variant: approved 2 October 1992

5. Certain versions of the HILINE model flowmeters with 2 meters.

Technical Schedule No 5/6A/91 Variation No 1 describes variants 4 and 5.

Variant: approved 28 September 1993

6. Certain EMPEROR model driveway flowmeters.

Technical Schedule No 5/6A/91 Variation No 2 describes variant 6.

Variants: approved 3 December 1993

7. With a Compac model COM125 meter.

Technical Schedule No 5/6A/91 Variation No 3 describes variant 7.

Variants: approved 10 May 1996

8. EURO models in alternative housings.

Technical Schedule No 5/6A/91 Variation No 4 describes variant 8.

FILING ADVICE

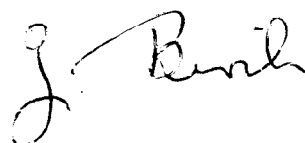
Certificate of Approval No 5/6A/91 dated 28 June 1994 is superseded by this Certificate, and may be destroyed.

Table 1 issued as part of Technical Schedule No 5/6A/91 dated 17 July 1992 is superseded by the Table included as part of the Technical Schedule attached herein.

The documentation for this approval now comprises:

- Certificate of Approval No 5/6A/91 dated 24 June 1996
- Technical Schedule No 5/6A/91 dated 17 July 1992 (incl. Test Procedure)
- Technical Schedule No 5/6A/91 Variation No 1 dated 30 October 1992
- Technical Schedule No 5/6A/91 Variation No 2 dated 20 October 1993 (incl. Table 2)
- Technical Schedule No 5/6A/91 Variation No 3 dated 28 June 1994
- Technical Schedule No 5/6A/91 Variation No 4 dated 24 June 1996 (incl. Table 1)
- Figures 1 to 6 dated 17 July 1992
- Figure 7 dated 30 October 1992
- Figures 8 and 9 dated 20 October 1993
- Figure 10 dated 28 June 1994
- Figures 11 and 12 dated 24 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/91

Pattern: Compac Industries Model EURO MHP6 Multi-product Driveway Flowmeter.

Submitter: Compac Industries Limited
52 Walls Road
Penrose Auckland New Zealand.

1. Description of Pattern

A Compac Industries model EURO MHP6 multi-product driveway flowmeter (Figures 1 and 2) approved for use to dispense various grades of petrol (including Avgas) over a flow rate range of 15 to 50 L/min, in attendant-operated or locally-authorized applications.

1.1 Features (Table 1)

The model EURO MHP6 has the following components or features:

- 3 Bennet type 75 model 190701 pump/strainer/gas separators.
- 6 Bennet type 40 model H607001 4-piston positive displacement meters.
- 6 Compac model CU C3000-3CH pulse generators.
- 2 Compac model C3000H price-computing indicators.
- 6 Commission-approved nozzles.
- A Compac model CC1200 or CC4800 central controller and/or a management printer may also be connected.

The flowmeter may be fitted with a card-reader and/or a keypad for entering a personal identification number (PIN) to activate the flowmeter. Flowmeters may also be fitted with a preset facility which uses solenoid valves to slow down and cut off the flow.

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 maximum unit price of 9.999 \$/L and maximum total price of \$999.99 or of \$9999.99.

1.3 Central Controller

The optional model CC1200 or CC4800 central controller (Figure 3) which may be connected to up to 16 driveway flowmeters, 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 mechanical calibrator for the meter, and the K-factor switch which is located on the indicator electronics board, are both sealed.

1.5 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/91 |
| Maximum flow rate | L/min |
| Minimum flow rate | L/min |
| Liquid temperature range | 5°C to 40°C |
| Operating (air) temperature range | -10°C to 45°C |
| Maximum operating pressure | kPa |
| Approved for use with (products) | |

2. Description of Variants

2.1 Variant 1

Certain other models and configurations, identified using Table 1. Figure 5 shows the EURO, LOLINE and HILINE style housings.

TABLE 1 - Approved Models and Configurations

| Model | Version | Features |
|--------|---------|------------------------------|
| EURO | MHD4 | 4 meters, 2 computing units. |
| EURO | MHD6 | 6 meters, 2 computing units. |
| EURO | MHP4 | 4 meters, 2 computing units. |
| EURO | MHP6 | 6 meters, 2 computing units. |
| LOLINE | MHD4 | 4 meters, 2 computing units. |
| LOLINE | MHD6 | 6 meters, 2 computing units. |
| HILINE | MHD4 | 4 meters, 2 computing units. |
| HILINE | MHD6 | 6 meters, 2 computing units. |
| HILINE | MHP4 | 4 meters, 2 computing units. |
| HILINE | MHP6 | 6 meters, 2 computing units. |

NOTE: ##D# versions use submersible turbine pumps (refer Variant 3).
##P# versions use self-contained pumps.

2.2 Variant 2

For use with distillate, kerosene or Jet A1, in which case a gas detection system is fitted.

2.3 Variant 3

Certain models (identified in Table 1) used with one or more Red Jacket model P75S3-3 or P150S3-3 submersible turbine pumps and with one or more Red Jacket model 116-030-5 PLD or 216-004 leak detectors (Figure 6).

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

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 $\pm 0.3\%$.

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 driveway flowmeter. 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 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 operating flap, 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. The minimum flow rate test is performed by simultaneously running either all hoses on all driveway flowmeters connected to a particular submerged 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.

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.



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TECHNICAL SCHEDULE No 5/6A/91

VARIATION No 1

Pattern: Compac Industries Model EURO MHP6 Multi-product Driveway Flowmeter.

Submitter: Compac Industries Limited
52 Walls Road
Penrose Auckland New Zealand.

1. Description of Variants

1.1 Variant 4

With a Bennet type SB 100 model N7235-04 4-piston meter (Figure 7) instead of the meter described for the pattern.

This meter, like that it replaces, is approved for use over a flow rate range of 15 to 80 L/min.

1.2 Variant 5

Certain versions of the HILINE model having 2 meters, 1 or 2 computing units, and 2 displays, and known as MHP2A or, when used with a submersible turbine pump, as MHD2A.

NOTIFICATION OF CHANGE

In Technical Schedule No 5/6A/91 dated 17/7/92, the reference to nozzles in clause 1.1 **Features** should be amended to read:

"6 ZVA or other Commission-approved nozzles."



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TECHNICAL SCHEDULE No 5/6A/91

VARIATION No 2

Pattern: Compac Industries Model EURO MHP6 Multi-product Driveway Flowmeter.

Submitter: Compac Industries Limited
52 Walls Road
Penrose Auckland New Zealand.

1. Description of Variant 6

Certain models and versions as listed in Table 2, with components of the EURO series in an alternative housing (Figure 8) and known as the EMPEROR series.

Figure 9 shows an instrument with more than one set of indicators.

TABLE 2 - Approved Models and Configurations - Variant 6

| Model | Version | Features |
|---------|---------|------------------------------|
| EMPEROR | E-MHD4 | 4 meters, 2 computing units. |
| EMPEROR | E-MHD6 | 6 meters, 3 computing units. |
| EMPEROR | E-MHP4 | 4 meters, 2 computing units. |
| EMPEROR | E-MHP6 | 6 meters, 3 computing units. |



National Standards Commission

TECHNICAL SCHEDULE No 5/6A/91

VARIATION No 3

Pattern: Compac Industries Model EURO MHP6 Multi-product Driveway Flowmeter.

Submitter: Compac Industries Limited
52 Walls Road
Penrose Auckland New Zealand.

1. Description of Variant 7

With a Compac model COM125 rotary vane meter (Figure 10) instead of the meter described for the pattern.

This meter, like that it replaces, is approved for use over a flow rate range of 15 to 80 L/min.

NOTIFICATION OF CHANGE

In the Test Procedure included as part of Technical Schedule No 5/6A/91 dated 17/7/92, the tests for instruments fitted with submersible turbine pumps should be amended by adding the following test:

3. 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.



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TECHNICAL SCHEDULE No 5/6A/91

VARIATION No 4

Pattern: Compac Industries Model EURO MHP6 Multi-product Driveway Flowmeter.

Submitter: Compac Industries Limited
52 Walls Road
Penrose Auckland New Zealand.

1. Description of Variant 8

Any version of the EURO model listed in Table 1 now in alternative housings as shown in Figures 11 and 12.

NOTIFICATION OF CHANGE

In Technical Schedule No 5/6A/91 dated 17 July 1992, Table 1 is replaced by the Table below, in which versions with 4 meters may now use 1 or 2 computing units.

TABLE 1 - Approved Models and Configurations

| Model | Version | Features |
|--------|---------|-----------------------------------|
| EURO | MHD4 | 4 meters, 1 or 2 computing units. |
| EURO | MHD6 | 6 meters, 2 computing units. |
| EURO | MHP4 | 4 meters, 1 or 2 computing units. |
| EURO | MHP6 | 6 meters, 2 computing units. |
| LOLINE | MHD4 | 4 meters, 1 or 2 computing units. |
| LOLINE | MHD6 | 6 meters, 2 computing units. |
| HILINE | MHD4 | 4 meters, 1 or 2 computing units. |
| HILINE | MHD6 | 6 meters, 2 computing units. |
| HILINE | MHP4 | 4 meters, 1 or 2 computing units. |
| HILINE | MHP6 | 6 meters, 2 computing units. |

NOTE: ##D# versions use submersible turbine pumps (refer Variant 3).
##P# versions use self-contained pumps.

National Standards Commission



NOTIFICATION OF CHANGE

CERTIFICATE OF APPROVAL No 5/6A/91

CHANGE No 1

The following change is made to the approval documentation for the

Compac Industries Model EURO MHP6 Driveway Flowmeter

submitted by Compac Industries Limited
52 Walls Road
Penrose Auckland New Zealand.

In Technical Schedule No 5/6A/91 Variation No 1 dated 30/10/92, clause 1.1 **Variant 4** is amended by replacing the 2nd paragraph with the following:

"This meter, like that it replaces described for the pattern, is approved for use with a maximum flow rate of 50 L/min."

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.

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

National Standards Commission



Notification of Change Certificate of Approval No 5/6A/91 Change No 2

The following changes are made to the approval documentation for the
Compac Industries Model EURO MHP6 Multi-product Driveway Flowmeter

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

In Certificate of Approval No 5/6A/91 dated 24 June 1996;

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

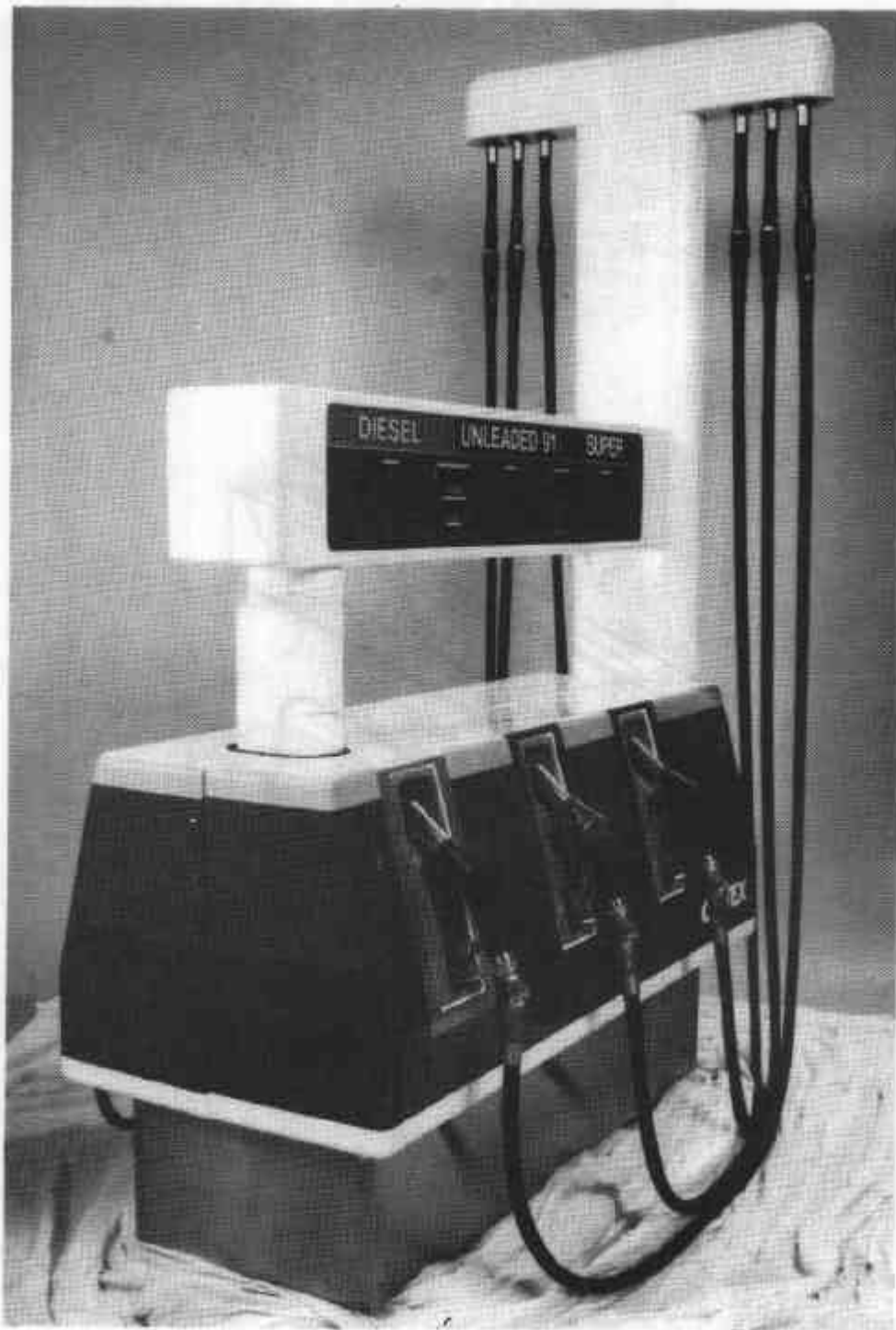
This approval becomes subject to review on 1 March 1997, and then every 5 years thereafter.
2. The Condition of Approval referring to the expiry of the approval should be deleted.

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.

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

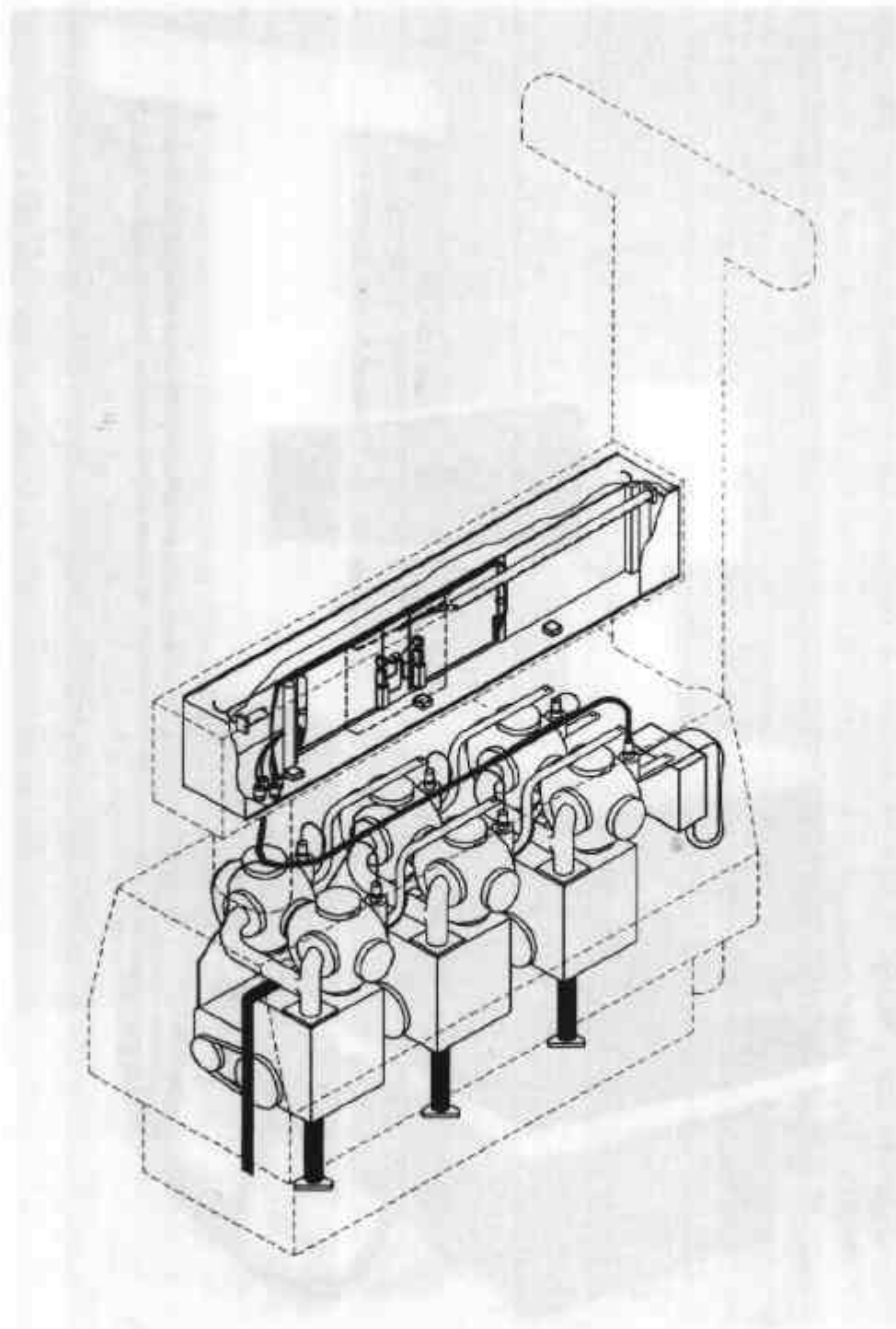
5/6A/91
17/7/92

FIGURE 5/6A/91 - 1



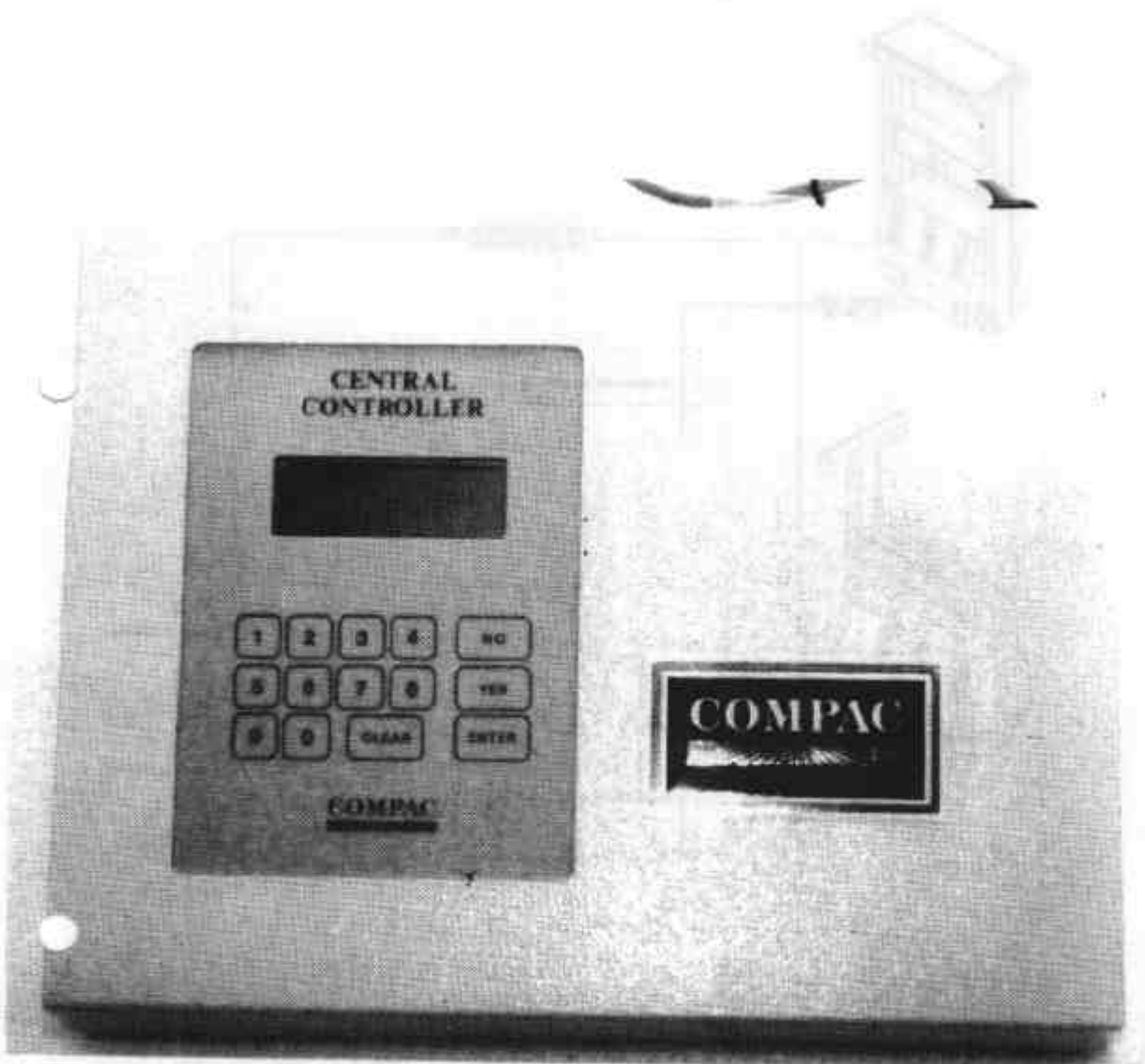
Compac Industries Model EURO MHP6 Driveway Flowmeter

FIGURE 5/6A/91 - 2



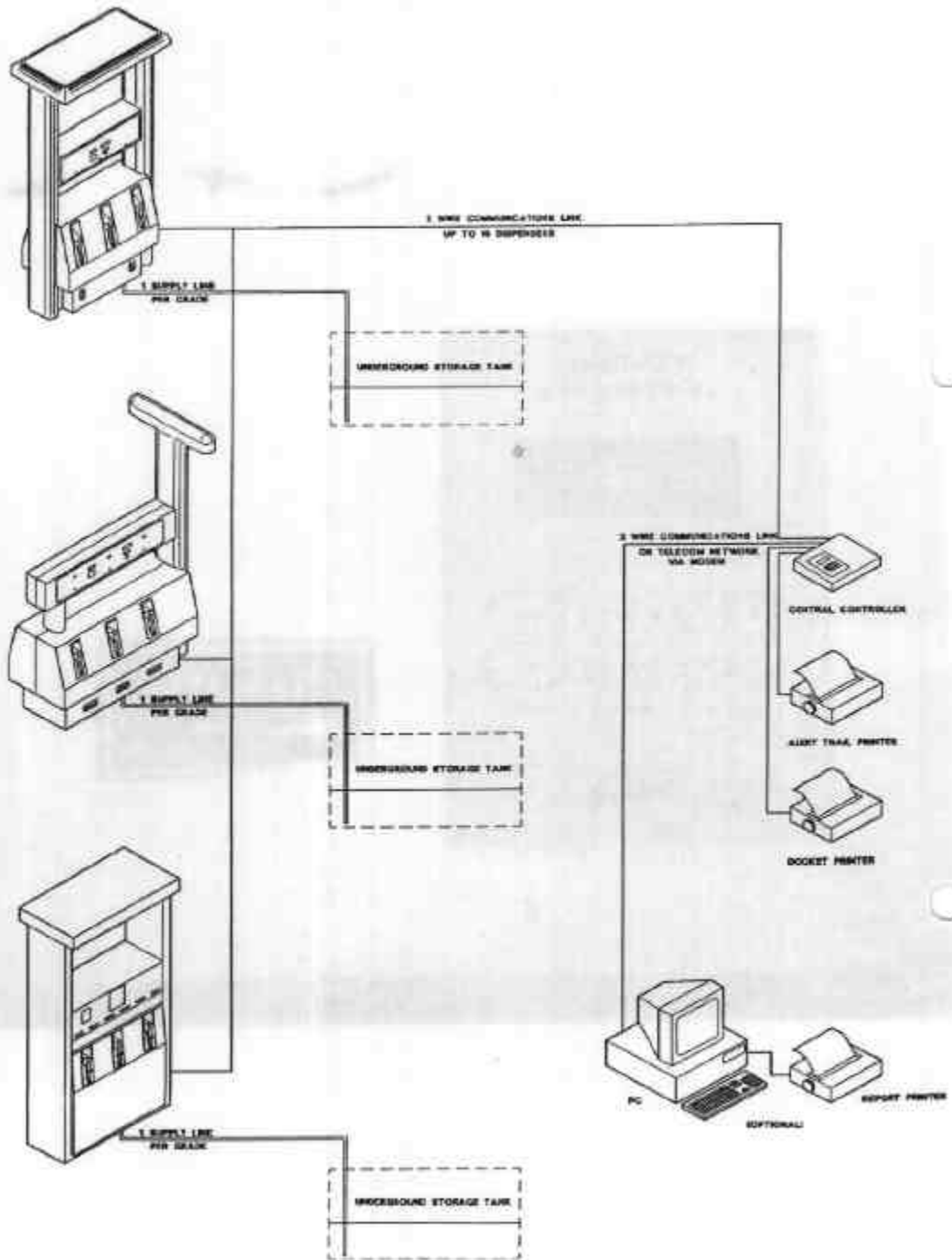
Model EURO MHP6 Showing Hydraulic Components

FIGURE 5/6A/91 - 3



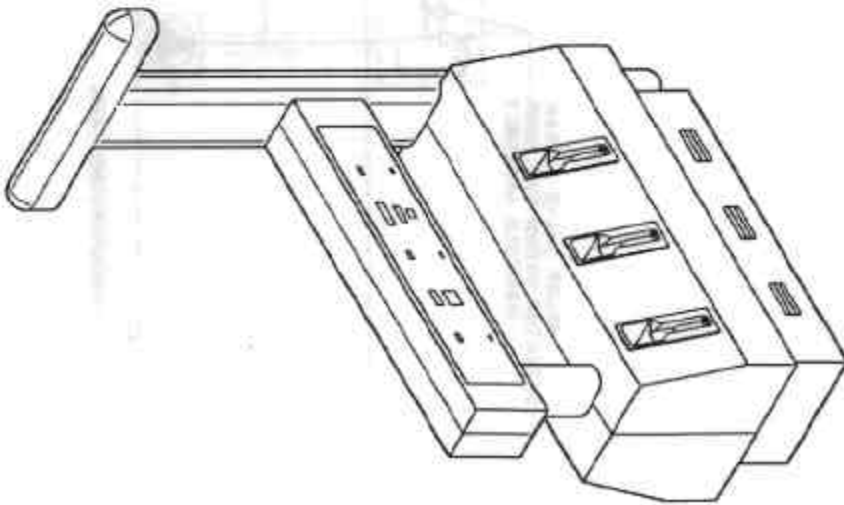
Model CC1200 or CC4800 Central Controller

FIGURE 5/6A/91 - 4

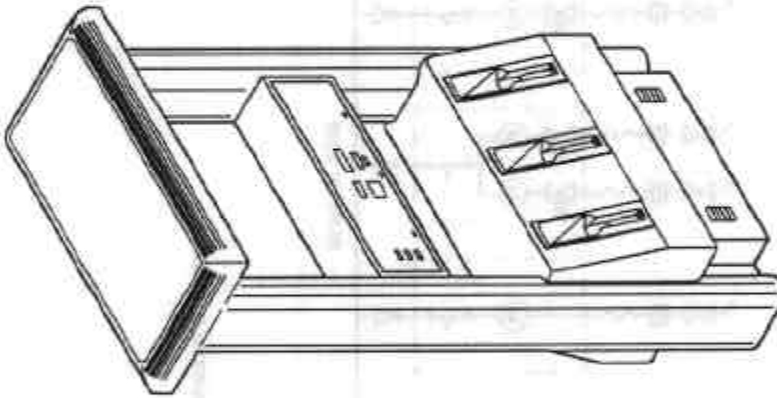


Typical System Layout

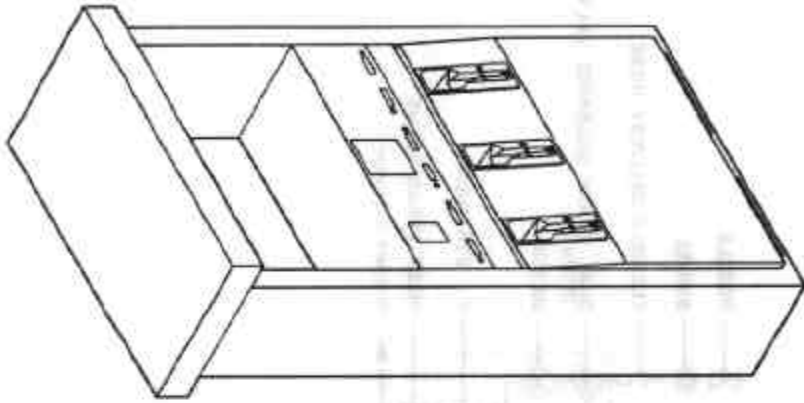
FIGURE 5/6A/91 - 5



MODEL: EURO
VERSION: MH#6



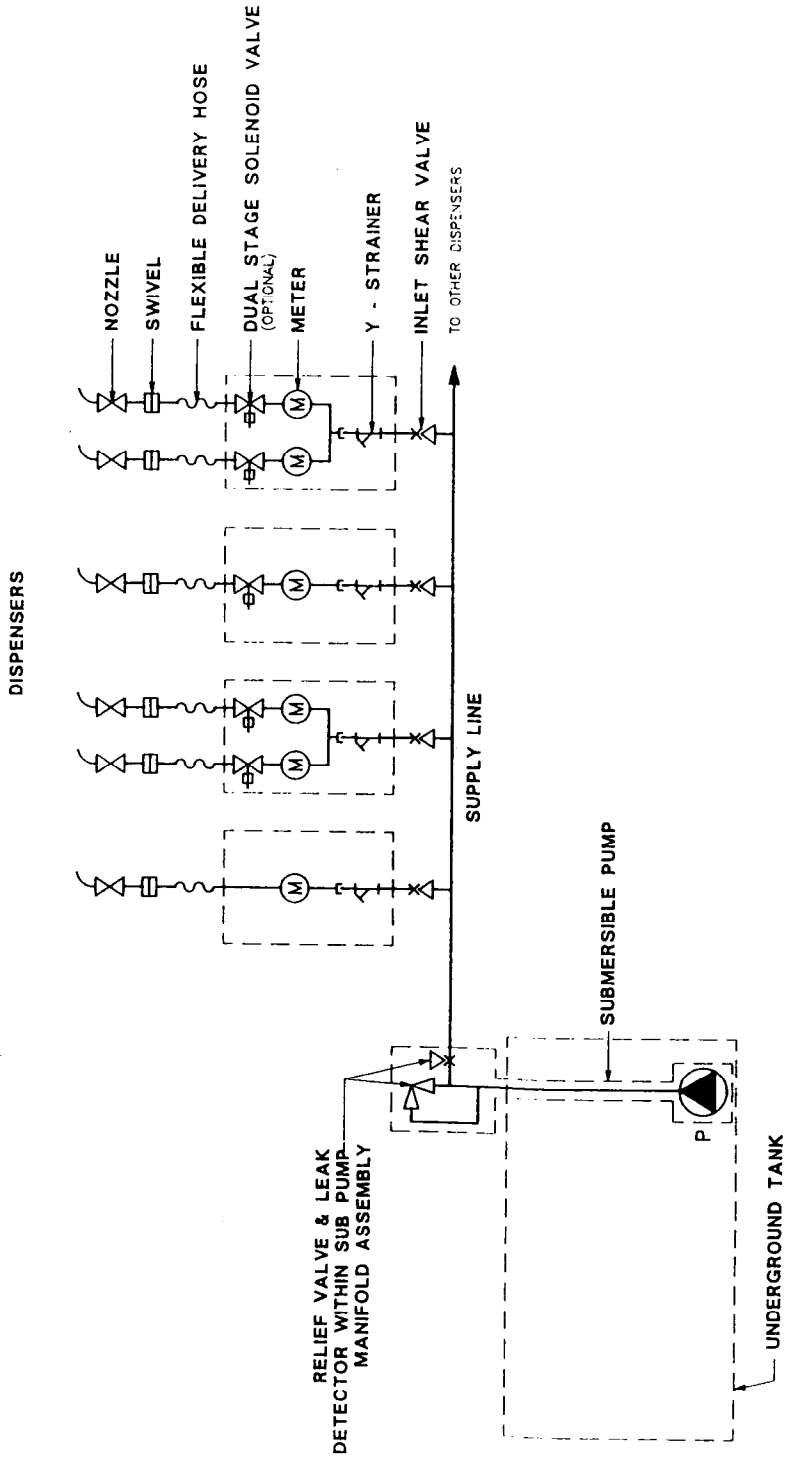
MODEL: LOLINE
VERSION: MH#6



MODEL: HILINE
VERSION: MH#6

Showing Housings of Different Models

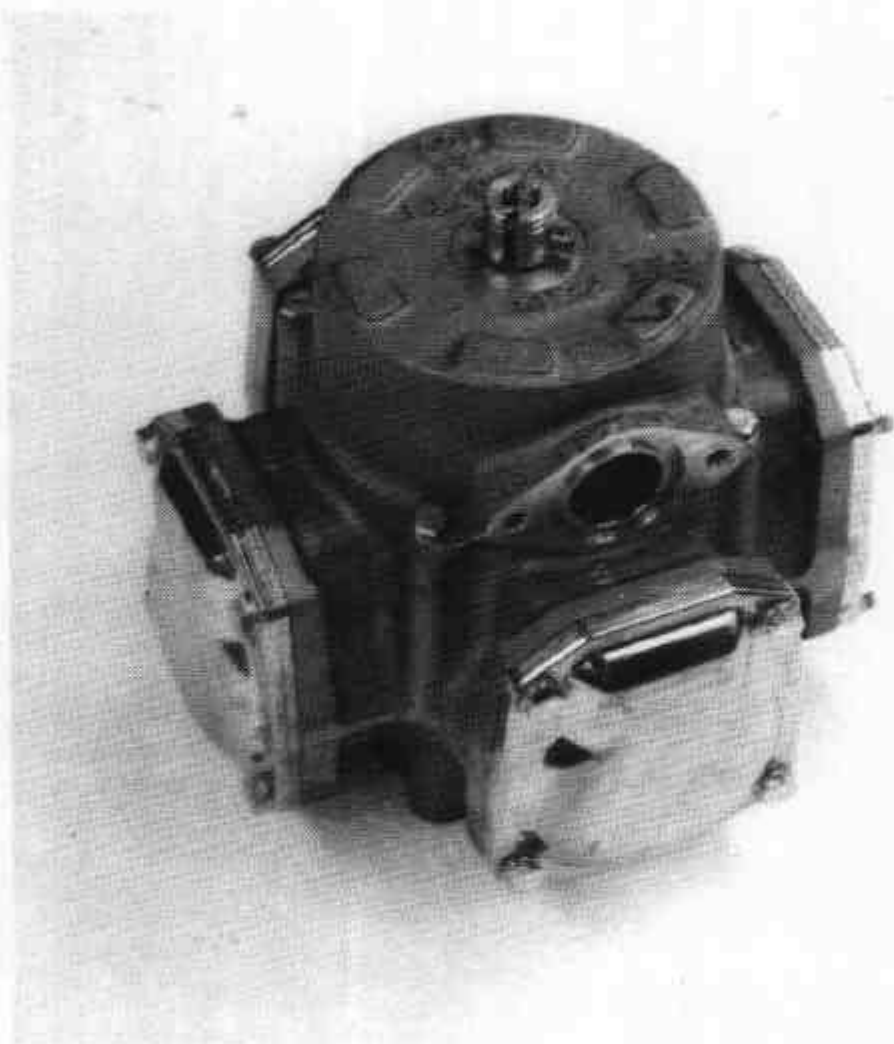
FIGURE 5/6A/91 - 6



Typical System With a Submersible Turbine Pump

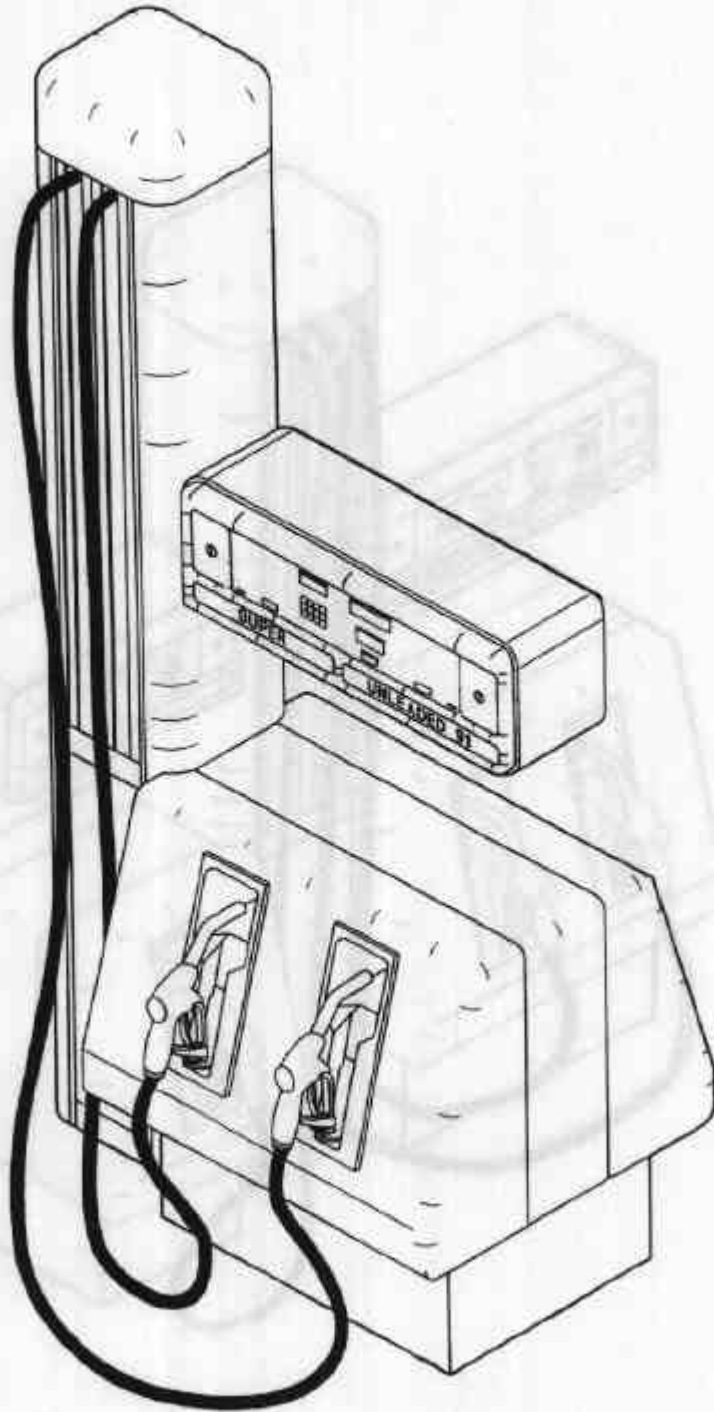
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FIGURE 5/6A/91 - 7



Bennet Type SB 100 Model N7235-04 Meter

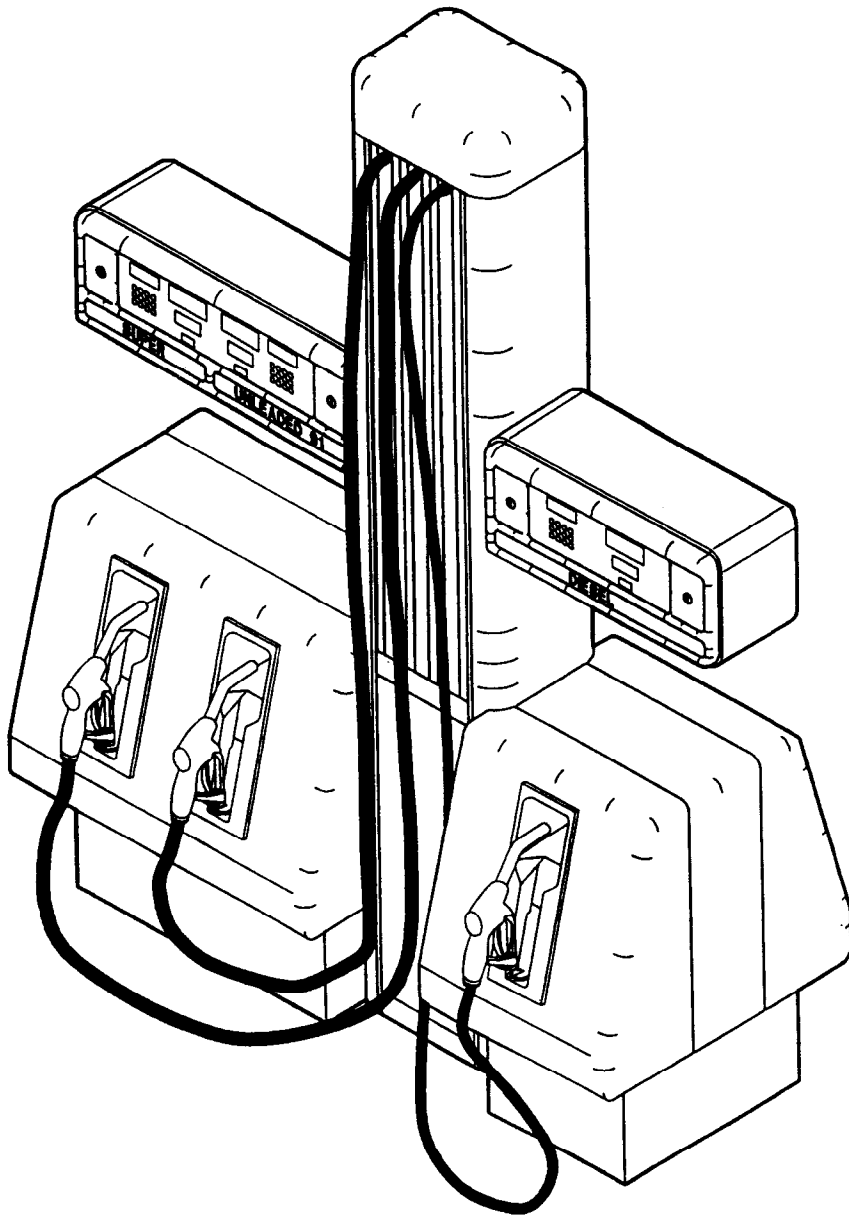
FIGURE 5/6A/91 - 8



Typical Compac Industries EMPEROR Series Driveway Flowmeter

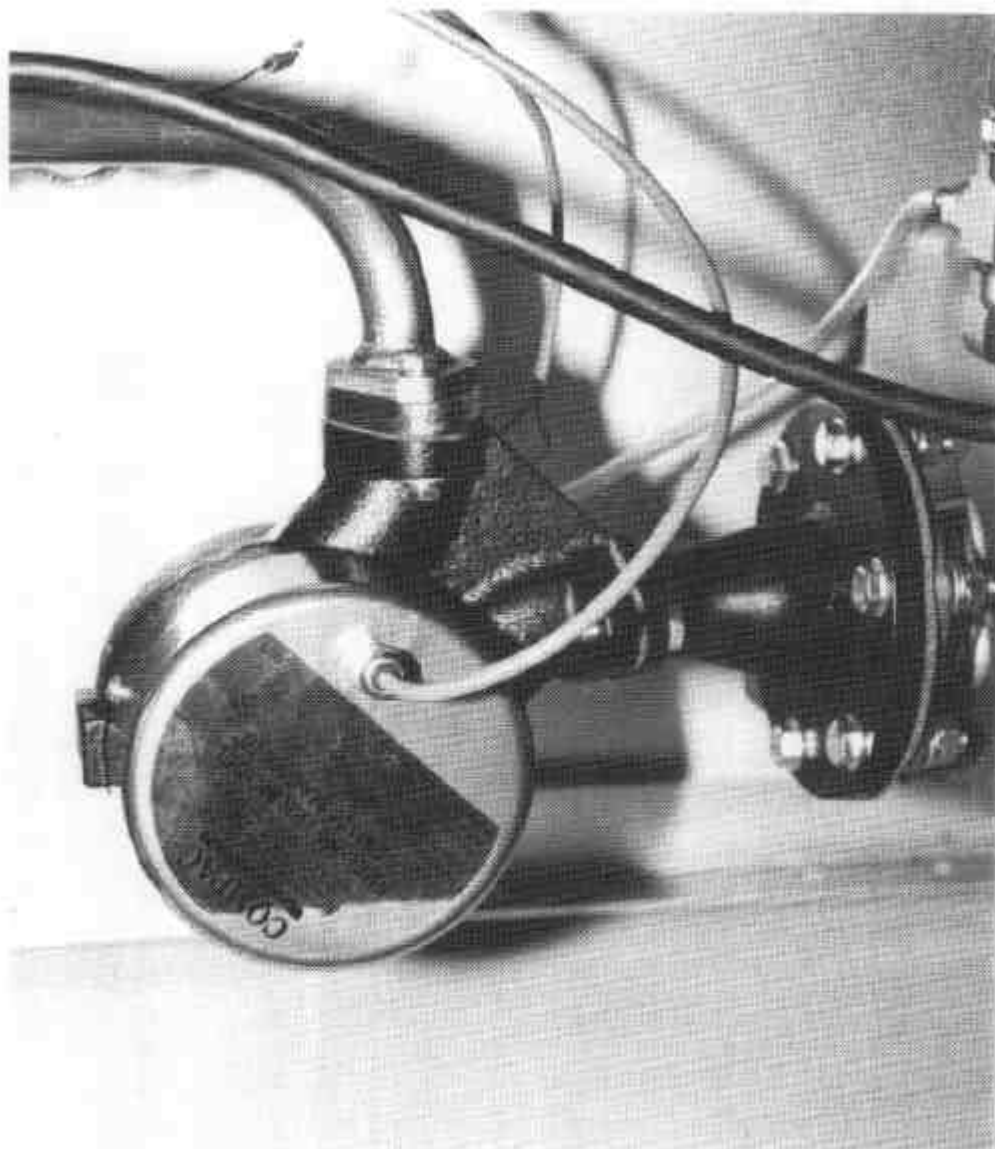
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20/10/93

FIGURE 5/6A/91 - 9



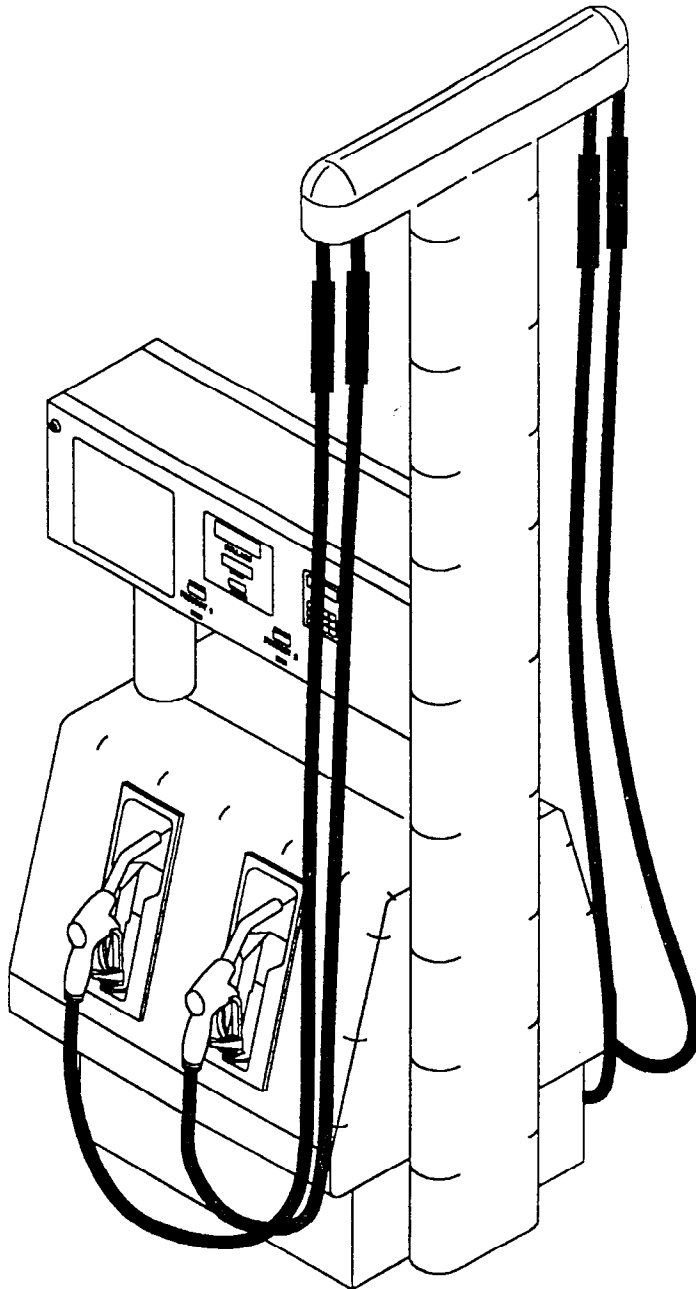
Compac Industries Model E-MHD6

FIGURE 5/6A/91 - 10



Compac Model COM125 Meter

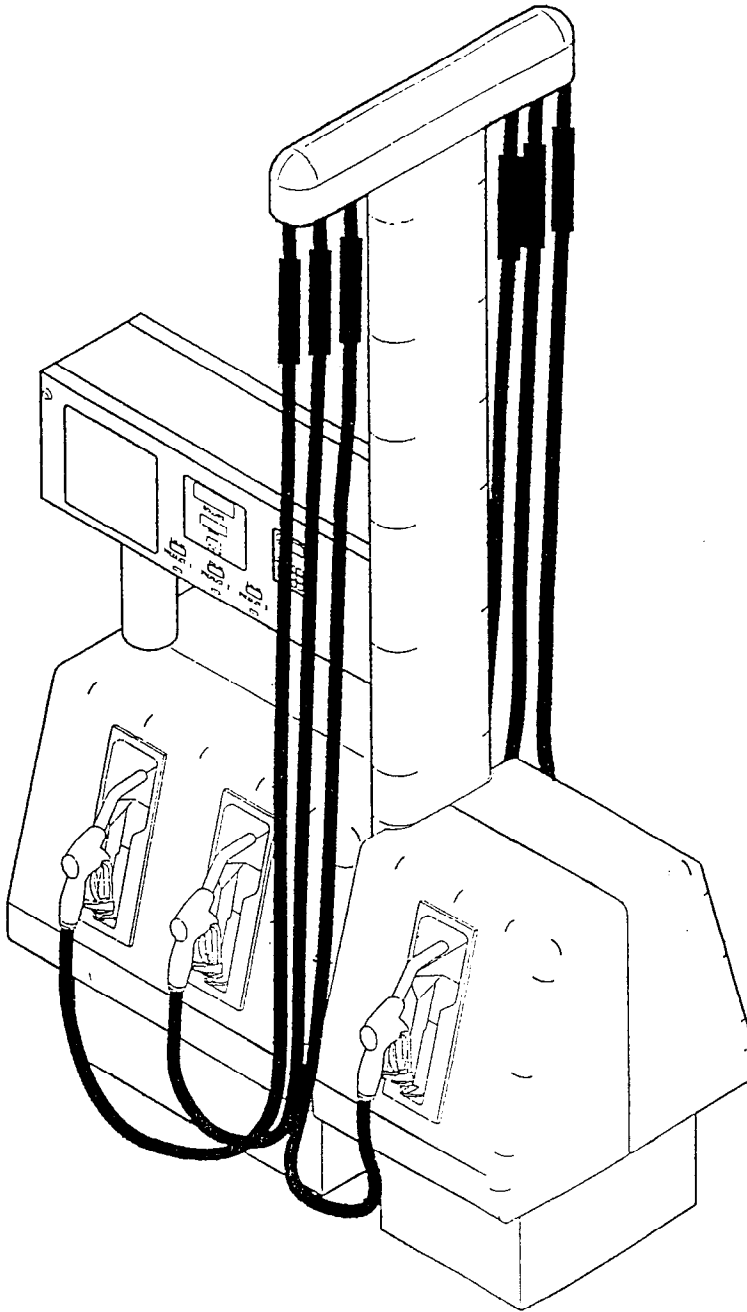
FIGURE 5/6A/91 - 11



Model EURO MHP4

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24 June 1995

FIGURE 5/6A/91 - 12



Model EURO MHP6