Australian Government

National Measurement Institute

12 Lyonpark Road, North Ryde NSW 2113

Cancellation

Certificate of Approval

No 5/6A/91A

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 MR40P 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.

National Standards Commission

12 Lyonpark Road, North Ryde NSW

Certificate of Approval

No 5/6A/91A

Issued under Regulation 63
of the
National Measurement Regulations 1999

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

Compac Industries Model MR40P 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 a review of NSC approvals Nos 5/6A/91 and 5/6A/96.

..../2

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 August 2005, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No 5/6A/91A 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 14 July 2000

- A Compac Industries model MR40P fuel dispenser intended for the refuelling of motor vehicles, small boats and small aircraft and approved for use to dispense various types of liquid hydrocarbons over a flow rate range of 4 to 40 L/min.

Variants: approved 14 July 2000

1. Certain other models and configurations.
2. With one or more submersible turbine pumps.
3. For use with a model COM-125 meter.
4. For use with a model COM-250 meter.

Technical Schedule No 5/6A/91A describes the pattern and variants 1 to 4.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 5/6A/91A dated 2 November 2000
Technical Schedule No 5/6A/91A dated 2 November 2000 (incl. Tables 1 & 2, and Test Procedure)
Figures 1 to 7 dated 2 November 2000

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.

TECHNICAL SCHEDULE No 5/6A/91A

Pattern: Compac Industries Model MR40P Fuel Dispenser for Motor Vehicles.

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

1. Description of Pattern

A Compac Industries model MR40P attendant-operated fuel dispenser (Figures 1 and 2) intended for the refuelling of motor vehicles, small boats and small aircraft. The fuel dispenser may be interfaced to a compatible Commission approved self-service device operating in attended or unattended service mode.

1.1 Field of Operation

The field of operation of the measuring system is determined by the following characteristics:

- Minimum measured quantity, V_{min} 2 L
- Maximum flow rate, Q_{max} 40 L/min
- Minimum flow rate, Q_{min} 4 L/min
- Maximum pressure of the liquid, P_{max} .... kPa
- Minimum pressure of the liquid, P_{min} is above the equilibrium vapour pressure of the liquid.
- Maximum temperature of the liquid, T_{max} 50°C
- Minimum temperature of the liquid, T_{min} -10°C
- Operating (air) temperature range -25°C to +55°C
- For use on any liquid having a dynamic viscosity in the range 0.5 mPa.s to 20 mPa.s (at 20°C). The meter is required to be adjusted/calibrated for each type (viscosity) of liquid.

1.1 Features

The model MR40P dispenser has the following components or features:

- A Bennet type 75 model 190701 integral pump/strainer/gas separator.
- A Compac gas detection system fitted to the pump/strainer/gas separator.
- A Compact model COM-50, rotary vane positive displacement flowmeter with integral magnetic drive pulse generator.
- A Compac model C4000 calculator/indicator.
- A ZVA or any other Commission approved nozzle.

..../2

1.2 Calculator/Indicator

The fuel dispenser is fitted with a Compac model C4000 calculator/indicator as described in the documentation of NSC Approval No S377. Figure 3 shows a typical display for a model C4000 calculator/indicator, in this case for a 6 hose/ 3 liquid dispenser. For dispensers with less hoses/liquids, one or two unit price displays are blanked off.

1.3 Sealing and Verification/Certification Provision

Provision is made for the application of a verification/certification mark. The calculator/indicator is sealed as described in its NSC approval documentation, including the K-factor (electronic calibration) switch, which is located on the indicator electronics board. The gas separator test valve is also sealed.

1.4 Markings

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

Pattern approval sign	NSC No 5/6A/91A
Manufacturer's identification mark or trade mark	.....
Manufacturer's designation (model number)	.....
Serial number and year of manufacture	.....
Maximum flow rate (Q_{max})	..... L/min
Minimum flow rate (Q_{min})	..... L/min
Minimum measured quantity (V_{min})	..... L (#)
Maximum operating pressure (P_{max})	..... kPa
Minimum operating pressure (P_{min})	..... kPa
Type of liquid	.....
Environmental class	class C

(#) This may also be marked on the calculator/indicator.

2. Description of Variants

2.1 Variant 1

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

- 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 4).

- With a maximum flow rate of 80 L/min, e.g. model MR80P. The minimum measured quantity is 5 L.
- In alternative housings e.g. model L40P, LL40P (Figure 5), MMR40P, PR40P and PPR40P.
- With up to 4 metering systems in the same housing, e.g. model MR40PD (2 meters) and model MR40PQ (4 meters).
- With a pre-set facility including a price pre-set panel and a two-stage flow control valve, e.g. model MR40P-P.
- Various models of the LEGEND series (Figure 6) as listed in Table 2.

2.2 Variant 2

With one or more compatible submersible turbine pumps (STPs) incorporating a leak detection system (Figure 7). The STP replaces the equivalent components (i.e. motor, pump/strainer/gas separator, and associated pipework) in any fuel dispenser covered by this approval. The model number of the pattern (MR40P) would then become model MR40S.

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

2.3 Variant 3

With hydraulics modified for use with COM-125 meter and two pumps connected in parallel. A pump selector switch is located in the vicinity of the nozzle hang-up which enables the use of either one or two pumps depending on the flow rate required.

- Maximum flow rate *(Q_{max})* is 80 L/min with a single pump selected or up to 160 L/min with both pumps selected.
- Minimum flow rate *(Q_{min})* is 15 L/min.
- Minimum measured quantity (V_{min}) is 10 L.

2.4 Variant 4

With hydraulics modified for use with COM-250 meter and with a compatible submersible turbine pump incorporating a leak detection system. The volume indicator is set for 0.1 L scale interval.

- Maximum flow rate *(Q_{max})* is 400 L/min.
- Minimum flow rate (Q_{min}) is 20 L/min.
- Minimum measured quantity (V_{min}) is 20 L.

TABLE 1

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

*	HOUSING TYPE:
L	Retail, 1 or 2 meters, 1 computing unit, 1 or 2 displays.
LL	Retail, 2 or 4 meters, 1 computing unit, 2 or 4 displays.
MR	Commercial, 1 or 2 meters, 1 computing unit, 1 or 2 displays.
MMR	Commercial, 2 or 4 meters, 1 computing unit, 2 or 4 displays.
PR	Commercial, 1 or 2 meters, 1 computing unit, 1 or 2 displays.
PPR	Commercial, 2 or 4 meters, 1 computing unit, 2 or 4 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 (STP), dual hose.
PQ	2 internal pumps, 4 meters (dual suction, quad hose).
SQ	Submersible turbine pump (STP), 4 meters (dual suction, quad hose).
*	OPTIONS:
	Various codes for options, e.g. pre-set (-P).

e.g. MR40P (the pattern)

TABLE 2

Approved LEGEND series model designations and their configurations.

MD2 2 meters, 1 computing unit, 2 displays, submersible turbine pump (STP). (*)
MP2 2 meters, 1 computing unit, 2 displays, internal pump. (*)
MD4N 4 meters, 1 computing unit, 2 displays, submersible turbine pump (STP). (*)
MP4N 4 meters, 1 computing unit, 2 displays, 2 internal pumps. (*)
MD4 4 meters, 1 computing unit, 2 displays, submersible turbine pump (STP). (#)
MP4 4 meters, 1 computing unit, 2 displays, 2 internal pumps. (#)
MD6 6 meters, 2 computing units, 2 displays, submersible turbine pump (STP). (#)
MP6 6 meters, 2 computing units, 2 displays, 3 internal pumps. (#)

(*) Narrow housing
(#) Wide housing

TEST PROCEDURE

Instruments should be tested in accordance with any relevant tests specified in the Inspector's Handbook using the liquid with which they will be used and which is marked on the instrument. Tests should be conducted in conjunction with any tests specified in the approval documentation for any controller used.

Maximum Permissible Errors at Verification/Certification

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 meter (adjusted/calibrated); and

±0.5% for the complete system (without adjustment).

Other applicable maximum permissible errors are:

±0.5% for gas elimination device for petrol;

±1.0% for gas elimination device for liquids having a dynamic viscosity exceeding 1 mPa.s;

±20 mL for deliveries equal to the minimum measured quantity; and

±20 mL due to hose dilation.

For instruments fitted with compatible submersible turbine pumps:

1. Check the operation of the leak detector in accordance with the procedures specified by the manufacturer for the submersible turbine pump (STP).

2. Check that the STP is able to provide at least the minimum approved flow rate to all corresponding fuel dispensers operating simultaneously. For the purpose of this test, where two or more STPs are connected in parallel, they shall be considered as one pump.

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, check all hoses to ensure that flow and metering only occurs through hoses that have been authorised for delivery.

5/6A/91A
18 February 2005

Australian Government

National Measurement Institute

12 Lyonpark Road, North Ryde NSW 2113

Notification of Change
Certificate of Approval No 5/6A/91A
Change No 1

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

The following changes are made to the approval documentation for the

Compac Industries Model MR40P Fuel Dispenser for Motor Vehicles

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

A. In Technical Schedule No 5/6A/91A dated 2 November 2000 the first paragraph of the **Maximum Permissible Errors at Verification/Certification** should be amended to read, in part:

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

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

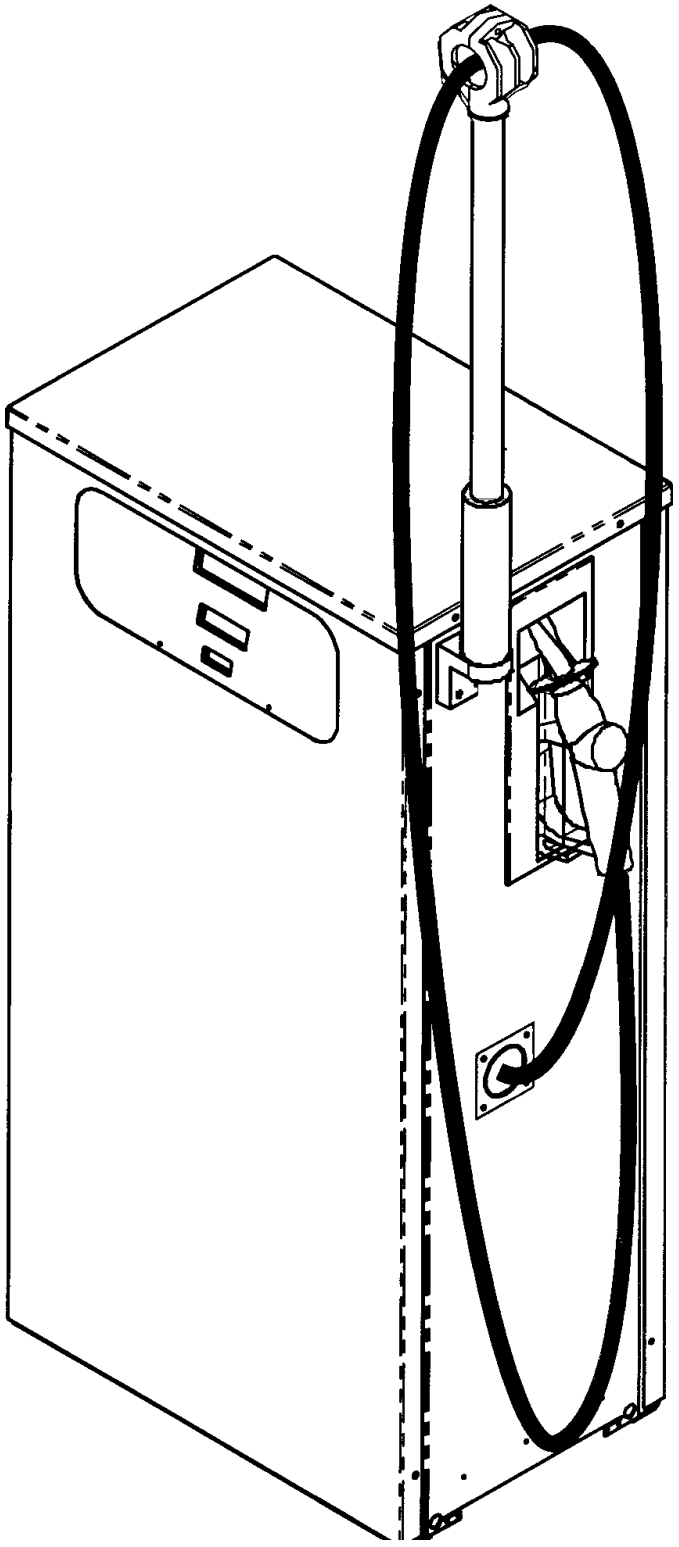
Note: Adjusting the errors of a meter to values OTHER than as close as practical to zero is forbidden, even when these values are within the maximum permissible errors."

B. In Certificate of Approval No 5/6A/91A dated 2 November 2000, the FILING ADVICE should be amended by adding the following:

"Notification of Change No 1 dated 18 February 2005"

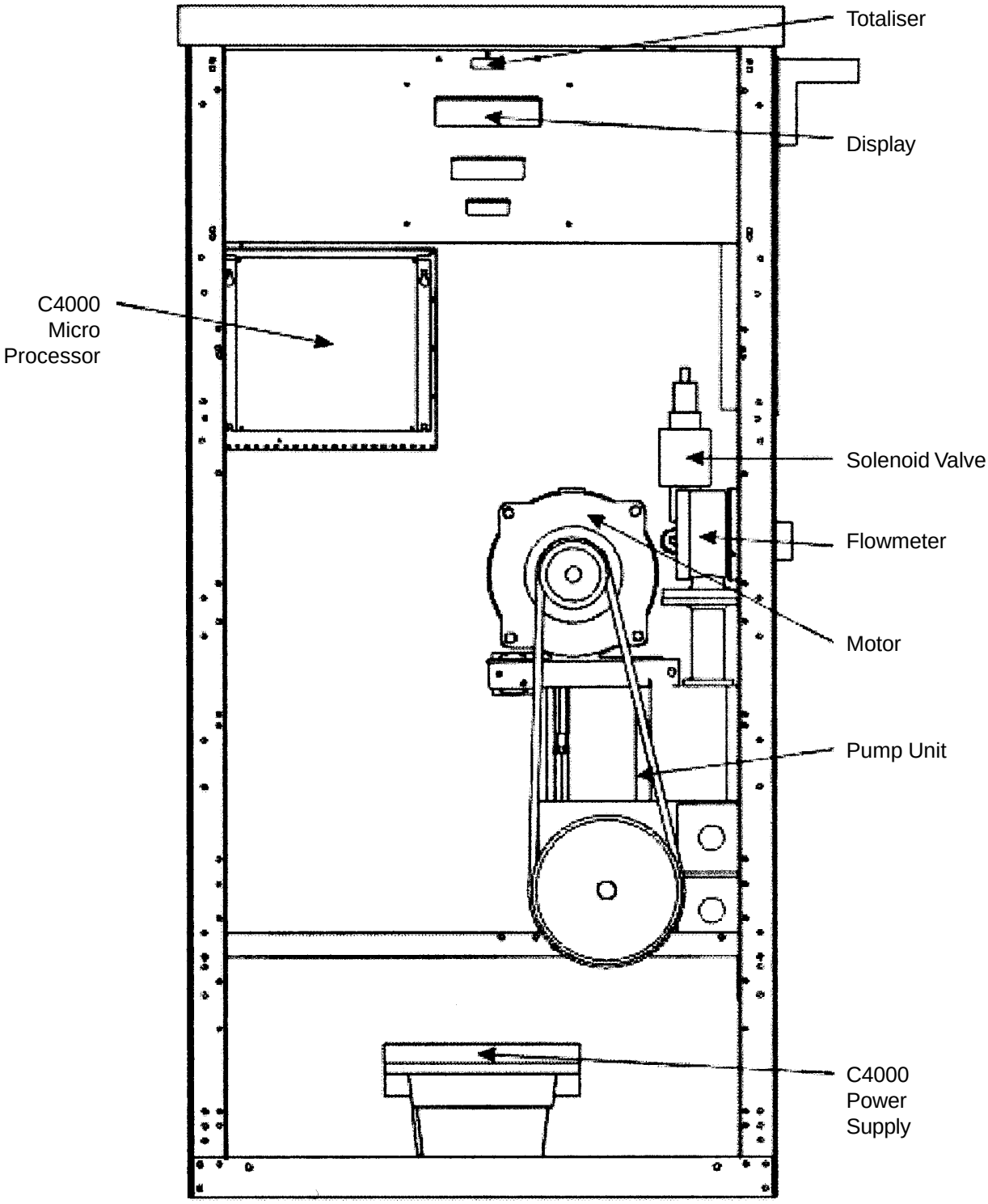
Signed by a person authorised by the Chief Metrologist to exercise his powers under Regulation 60 of the National Measurement Regulations 1999.

FIGURE 5/6A/91A - 1



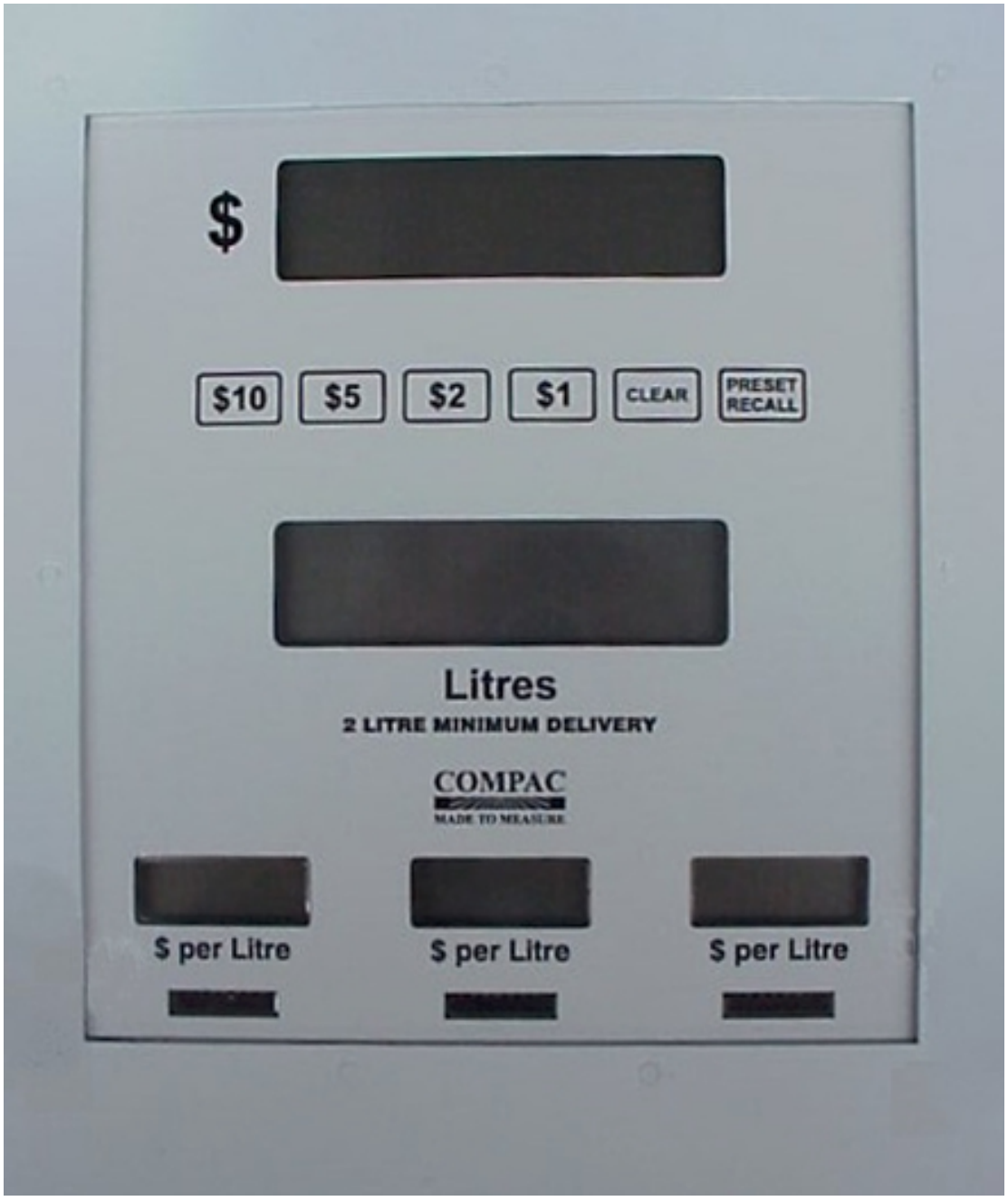
Compac Industries Model MR40P Fuel Dispenser for Motor Vehicles

FIGURE 5/6A/91A - 2



Model MR40P Dispenser Without Covers

FIGURE 5/6A/91A - 3



Display of Model C4000 Calculator/Indicator

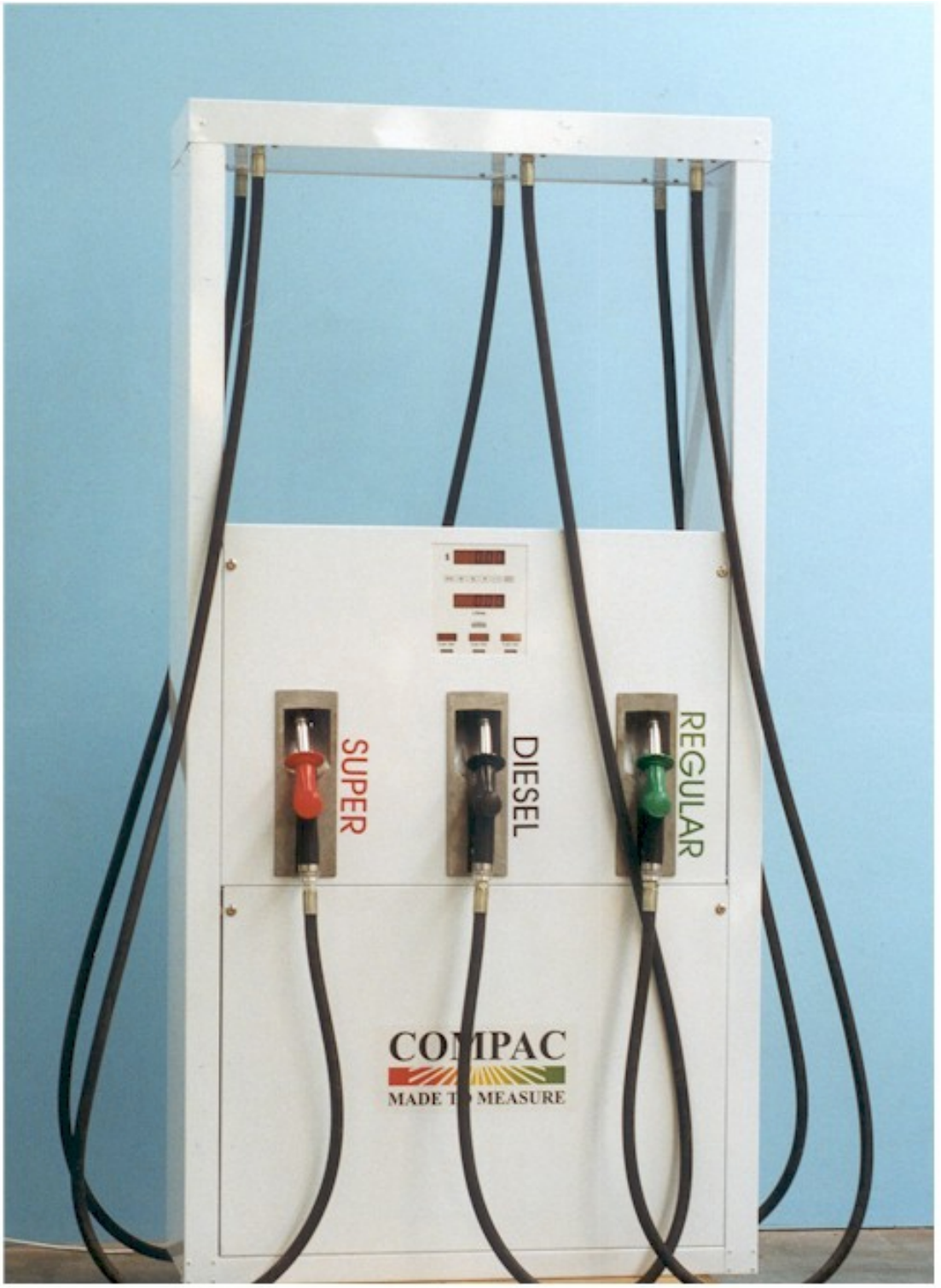
FIGURE 5/6A/91A - 4

Volume Only Display

FIGURE 5/6A/91A - 5

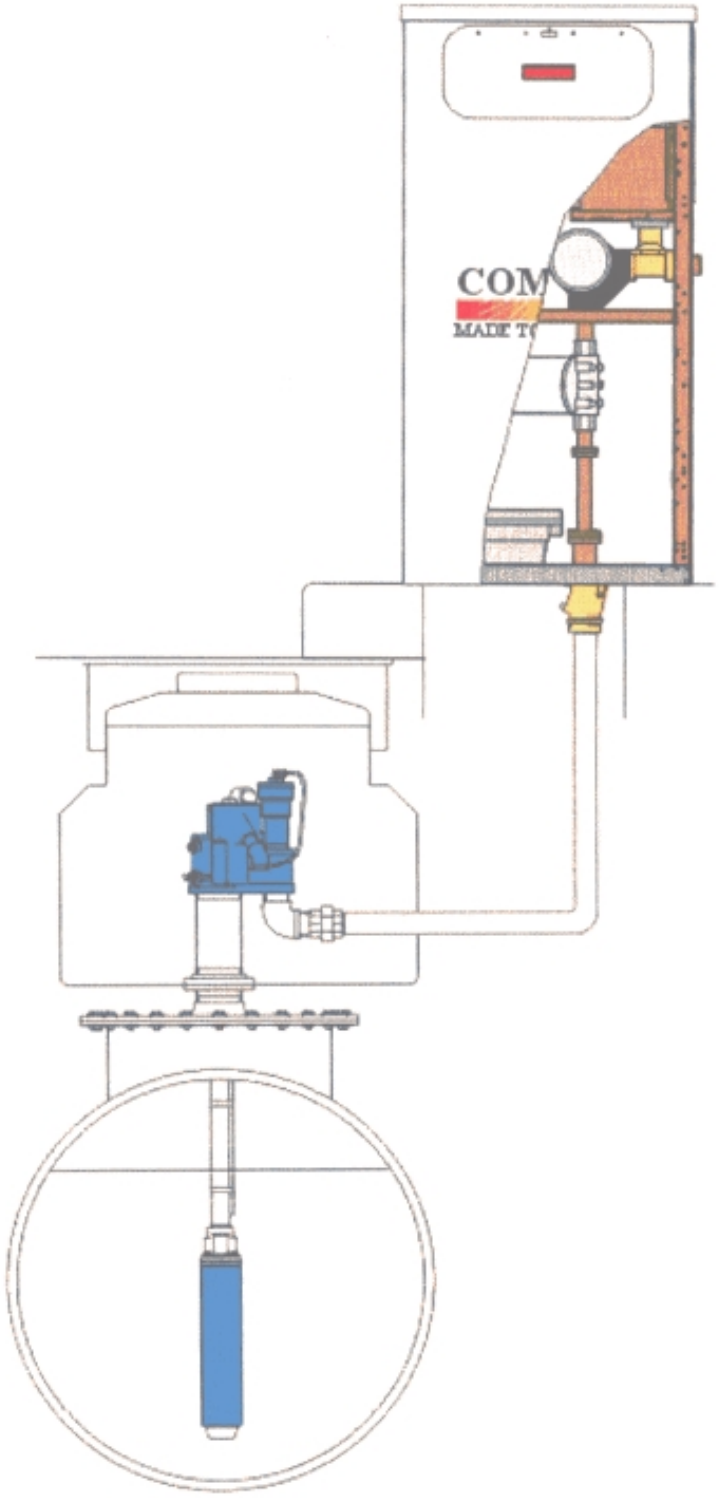
Model LL40PQ Dispenser

FIGURE 5/6A/91A - 6



Model LEGEND MP6 Dispenser

FIGURE 5/6A/91A - 7



Typical Submersible Turbine Pump System