



MINISTRY OF CONSUMER AFFAIRS
MANATŪ KAIHOKOHOKO

MINISTRY OF CONSUMER AFFAIRS
Wellington, New Zealand

CERTIFICATE OF APPROVAL

Weights and Measures Regulations 1999
Part 1 Regulations 5 and 6

Current Date of Issue: 26 March 2011
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Certificate 2025

Overseas Certificate No: NMI 5/6A/222

This certifies that the Gilbarco T92*** SK700-2 Series (fuel dispenser for vehicles), Liquid Measuring Instrument described overleaf has been approved as suitable for trade use subject to any conditions stated in the schedule:

Figure 1 - Gilbarco model T920A6NP SK700-2 Fuel Dispenser



S R Bobbala

J P Crane

Under delegated authority from the Chief Executive of The Ministry of Economic Development

Note: This is not an approval to any person but only with respect to the type and pattern of weight, measure, or weighing or measuring instrument.

SCHEDULE

Pattern:	Liquid Measuring Instrument
Make:	Gilbarco
Model:	T92*** SK700-2 Series (fuel dispenser for motor vehicles)
Manufacturer:	Gilbarco Aust. Ltd, New South Wales, Australia.
Submitter:	Gilbarco (NZ), Lower Hutt, New Zealand.
Display capacity:	up to 9999.99 L
Display interval:	0.01 L
Class:	0.5
Minimum Delivery:	2 L or 5 L (see description)
Maximum flowrate:	160 L/min (see description)
Minimum flowrate:	0.1 x Max flow rate (See description)
Conditions of Approval:	<ol style="list-style-type: none">1. This certificate does NOT approve the pattern for use to dispense LPG.2. Where approved for use with biodiesel , the only biodiesel that can be used is product that complies with Engine Fuel Specifications Regulations 2008.3. MAPSS reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.4. The verification and subsequent certifications of the instrument must be carried out by Accredited Persons who are accredited under the Weights and Measures Act 1987 Section 30A or an Inspector of Weights and Measures.5. The pattern marked with this approval number must be constructed as per the manufactures specifications.6. This Certificate only covers compliance with respects to the relevant sections of the Weights and Measures Act and Regulations and should not be construed as guarantee of compliance with any safety requirements.

Description:

A Gilbarco model T92*** SK700-2 Series (*) fuel dispenser for motor vehicles is approved to dispense distillate or various grades of fuels including up to 85% ethanol (E85) and various grades of pure biodiesel and biodiesel/distillate blends that complies with the Engine Fuel Specifications Regulations 2008.

(*) Note: See Table 1 for other models and configuration of the T92*** SK700-2 Series of fuel dispensers.

The pattern operates in attendant-operated mode, or in attended self-service mode using any compatible control console. The meter is adjusted to be correct for the liquid for which it is verified/certified.

The field of operation of the model T920A6NP SK700-2 (see Figure 1) measuring system is determined by the following characteristics:

- Minimum measured quantity, V_{min} 2 L
- Maximum flow rate, Q_{max} 50 L/min
- Minimum flow rate, Q_{min} 5 L/min
- Maximum pressure of the liquid, P_{max} 350 kPa
- Minimum pressure of the liquid, P_{min} 140 kPa (#1)
- Range of liquids viscosity (at 20°C) 0.5 to 20 mPa.s (#2)
- Maximum temperature of the liquid, T_{max} 50°C
- Minimum temperature of the liquid, T_{min} -10 °C
- Ambient temperature range -25°C to 55°C
- Accuracy class 0.5

(#1) Minimum pressure required for effective operation of the gas elimination device.

(#2) The flowmeter is adjusted for use with one product viscosity. Fuels include kerosene, distillate and various grades of petrol (which may include up to 85% ethanol).

Components of the metering System:

I. Each supply line of fuel to the nozzle incorporates a Gilbarco model GPU-90 pumping unit (figure 2), a measurement transducer comprising a Gilbarco model C+ (also known as model T19976 G3, may also have a suffix 'S') four piston positive displacement flowmeter fitted with an SK700 model Encore 510 pulse generator. See Figure 3.

Gilbarco model Eco screw type flowmeters (figure 4) may be used to replace the model C+ flowmeters. The Eco screw type meter is fitted with an Eltomatic model ME 01 04 pulse generator.

Note: Dispensers using Submersible Turbine Pumps (STPs):

Certain models of T92** SK700-2 series fuel dispensers may be built with one or more compatible STPs incorporating a leak detection system. In such case, the STP replaces the equivalent components (i.e. motor, pump/strainer/gas separator, and associated pipe work). Figure 5, shows a typical fuel dispenser with a submersible turbine pump system.

Dispenser may operate with Q_{max} of 50 L/min or dispensers when used with distillate may operate with the Ultra-high maximum flowrate, Q_{max} of 160 L/min.

II. The different hoses, Nozzels and pump motors applicable to the pattern are as detailed below:

- (a) The pattern when incorporated with Gilbarco model GPU-90 pumping units with 16 mm piping, 16 mm hoses and ZVA Elaflex (16 mm) nozzles, in which case the fuel dispenser has the following field of operation:
 - Max flow rate (Q_{max}) 50 L/min
 - Min flow rate (Q_{min}) 5 L/min
 - Min measured quantity (V_{min}) 2 L
- (b) The pattern when incorporated with Gilbarco model GPU-90 pumping units with 21 mm piping, 21 mm hoses and ZVA Elaflex (25 mm) nozzles, in which case the fuel dispenser has the following field of operation:
 - For use with distillate
 - Max flow rate (Q_{max}) 90 L/min
 - Min flow rate (Q_{min}) 9 L/min
 - Min measured quantity (V_{min}) 5 L
- (c) The pattern when incorporated with Gilbarco model GPU-140 pumping units with 32 mm piping, 32 mm hoses, and ZVA Efaflex 32 nozzles are known as Extended flow rate fuel dispensers. The fuel dispenser has the following field of operation:
 - For use with distillate
 - Max flow rate (Q_{max}) 130 L/min
 - Min flow rate (Q_{min}) 13 L/min
 - Min measured quantity (V_{min}) 5 L
- (d) The pattern when incorporated with two Gilbarco model GPU-140 pumping units in parallel with 32 mm piping, 32 mm hoses, and ZVA Efaflex 32 nozzles are known as Ultra-high flow rate fuel dispensers. The fuel dispenser has the following field of operation:
 - For use with distillate
 - Max flow rate (Q_{max}) 160 L/min
 - Min flow rate (Q_{min}) 16 L/min
 - Min measured quantity (V_{min}) 5 L

NOTE: The submittor must be consulted for using other alternative nozzles.

INDICATOR/CALCULATOR:

A Gilbarco model Sandpiper 2 (also known as the E101 electronic set, figure 6) indicator/calculator comprises a computing unit and a display unit.

The display limits and increments are:

Price: (6 digits) up to 9999.99 in 0.01 \$ increments

Volume: (6 digits) up to 9999.99 in 0.01 L increments
Unit price: (4 digits) up to 999.9 in 0.1 ¢/L increments

A pre-set facility (keypad and display) may also be fitted.

The software version number for the calculator/indicator is 25.xx.xx_A, which can be viewed by at power up or when restarting by pushing the F1 then the F2 buttons on the Manager's keypad.

CHECKING FACILITIES:

An automatic segment test is performed at the start of each delivery.

The calculator monitors the presence and correct transmission of signal from the measurement transducer, and in the event of detecting a fault the instrument indicates an error code and has provision for controlling electrically-operated valves to stop the delivery.

TABLE – 1: Different models and configurations of the T92* SK700-2 series of fuel dispensers.**

1st, 2nd and 3rd digits, Series:

T92 = Gilbarco Australia product, base model

4th digit, Models:

- 0 = lane oriented with hose retraction
- 4 = lane oriented without hose retraction
- 8 = island oriented with flexmast
- 9 = island oriented without flexmast

5th digit, Country code:

A = Australia

6th digit, N = number of houses:

1 to 12 (for up to 6 petrol grades)

7th digit, Flow rate:

- N = Normal (50 L/min)
- H = High (90 L/min)
- E = Extended (130 L/min)
- U = Ultra high (160 L/min)
- M = Mixed (combination of 'N' and 'H' hydraulics)

8th digit, Hydraulic module:

- P = pump (suction pump unit, either type GDP90 or GDP140)
- D = Dispenser (pressure system using approved submersible turbine pump)

METROLOGICAL MARKINGS:

Each measuring system shall bear the following information, placed together on a data plate:

Pattern approval No:

Manufacturer's identification mark or trade mark

Manufacturer's designation (model number)

Serial number

Year of manufacture

Maximum flow rate (Q_{max}) L/min

Minimum flow rate (Q_{min}) L/min

Minimum measured quantity (V_{min}) L (#1)

Maximum operating pressure (P_{max}) kPa

Minimum operating pressure (P_{min}) kPa

Nature of liquids to be measured (#2)

Maximum temperature of the liquid, T_{max} 50° C

Minimum temperature of the liquid, T_{min} -10° C

Environmental class class C

(#1) In addition, the minimum measured quantity (V_{min}) shall be clearly visible on any indicating device visible to the user during measurement, in the form 'Minimum delivery 2 L / 5 L'.

(#2) e.g. distillate or D.

Components:

- Gilbarco model GPU-90 or GPU-140 pumping unit
- Gilbarco model C+ (also known as model T19976 G3) flowmeter fitted with SK700 model Encore 510 pulse generator.
- Eco screw type flowmeter fitted with Eltomatic model ME 01 04 pulse generator
- Gilbarco model Sandpiper 2 (also known as the E101 electronic set) indicator/calculator

Sealing:

- The gas separator test valve have provision for sealing and must be sealed; and
- Access to the meter calibration must be sealed using approved adhesive destructible labels across the calibration switches as shown in figure 8.

Mark of Verification:

An approved type seal that inhibits access to calibration should carry a Mark of Verification. Removal of seal deems the instrument not verified.

Temperature:

Ambient temperature range: - 25° C to 55° C

Figure 1.1



Typical T924* Series Dispenser Without a Hose Retraction Facility

Figure 2 - Model GPU-90 Pumping Unit



Gilbarco Model GPU-90 Pumping Unit (without inlet filter bowl)



Gilbarco Model GPU-90 Pumping Unit (rear view no inlet filter bowl)

Figure 3 - Gilbarco model C+ Flowmeter

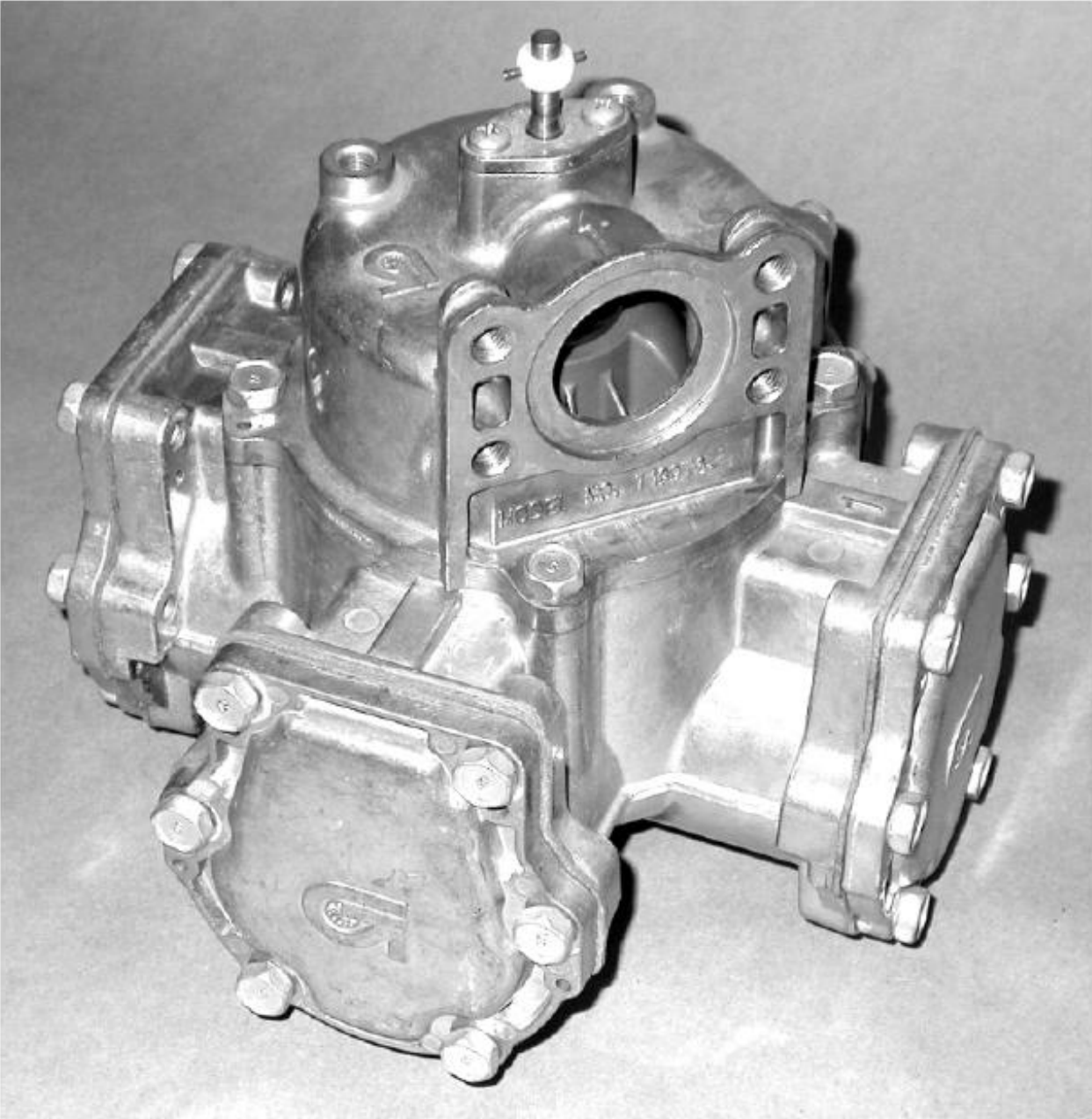


Figure 4 - Gilbarco Model Eco Flowmeter

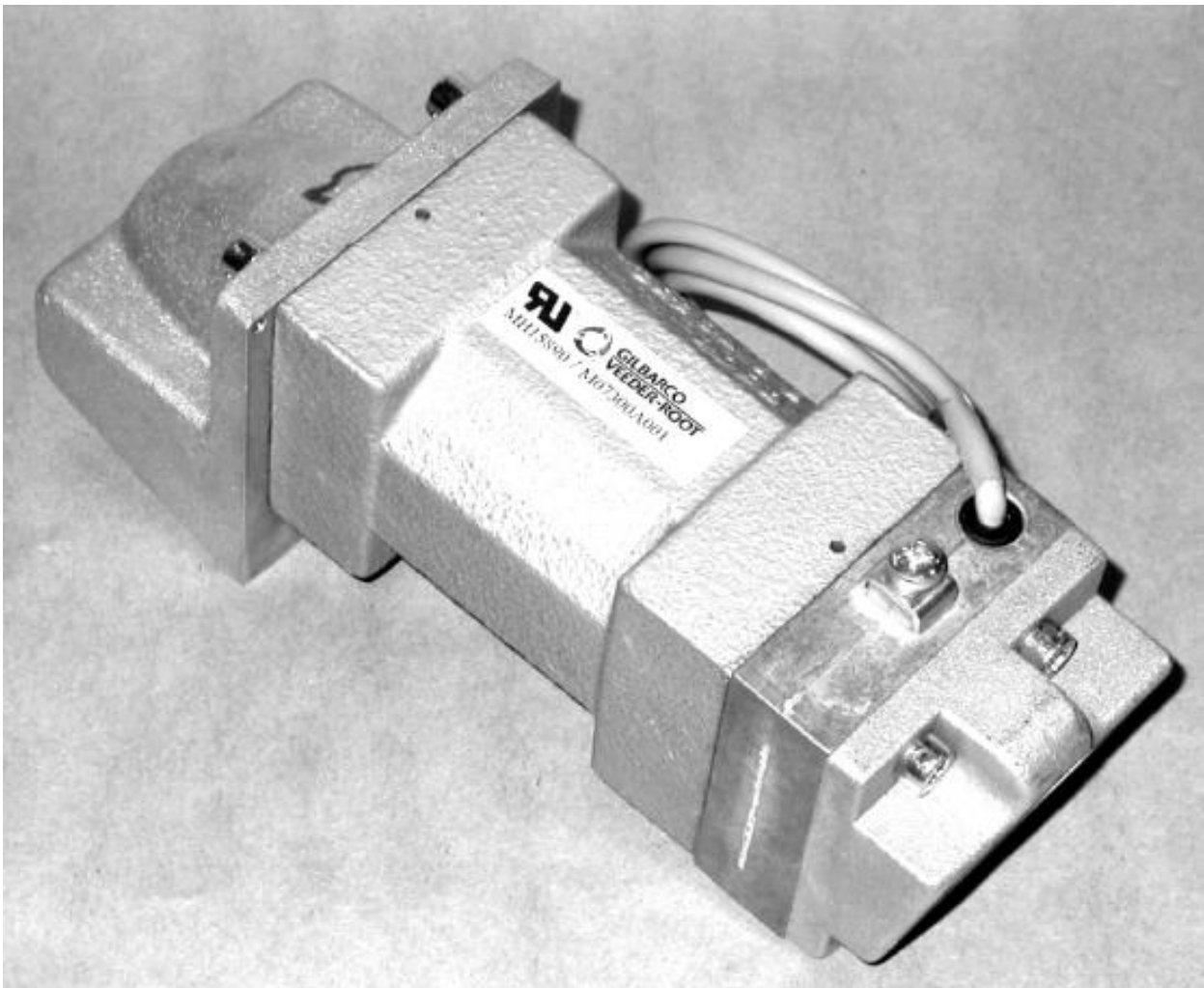


Figure 5 - Submersible Turbine Pump (STPs) System

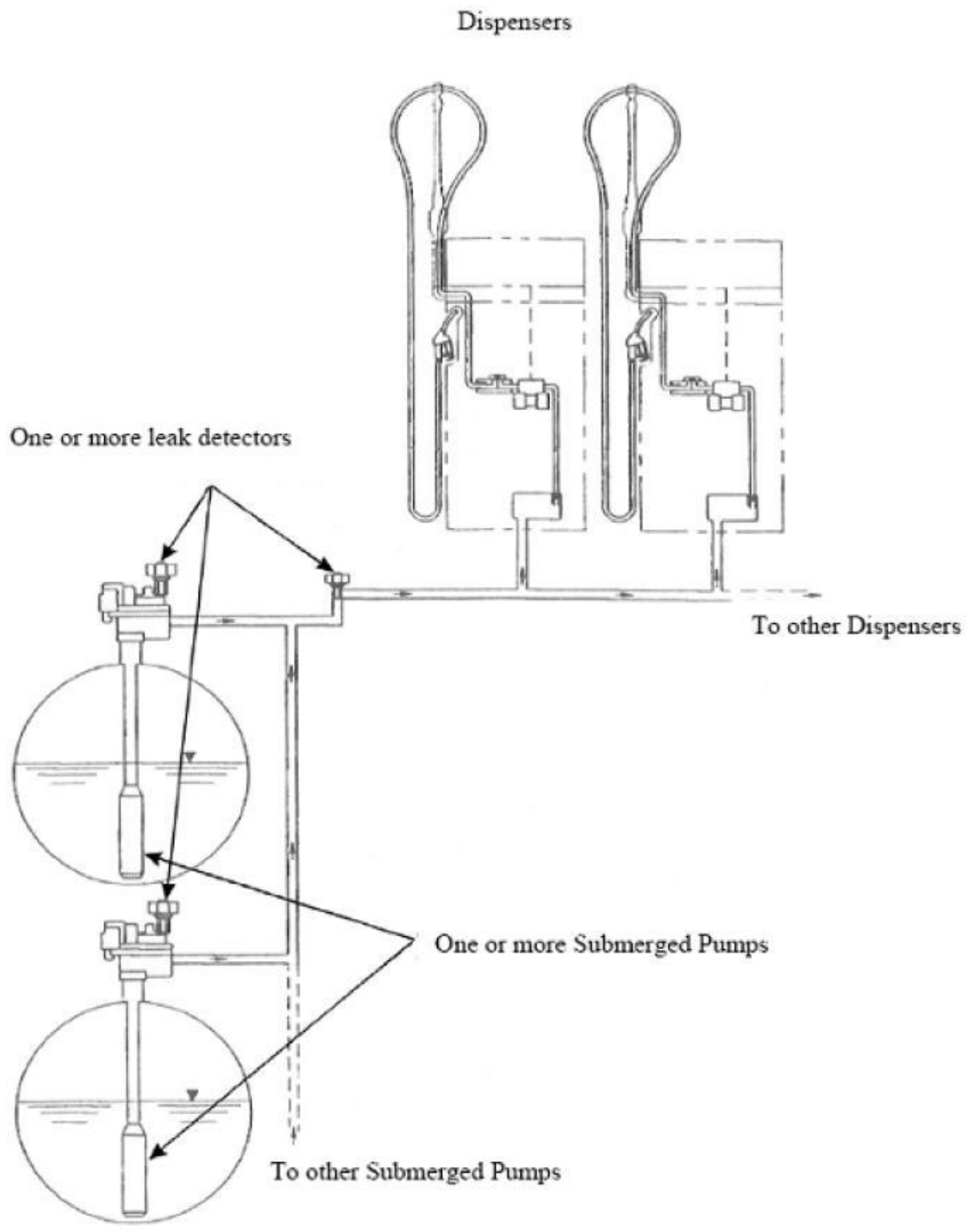


Figure 6 - Model Sandpiper 2 Calculator Indicator Electronics



Power Supply and Driver Printed Circuit Boards



Processor PCB and Interface Cards

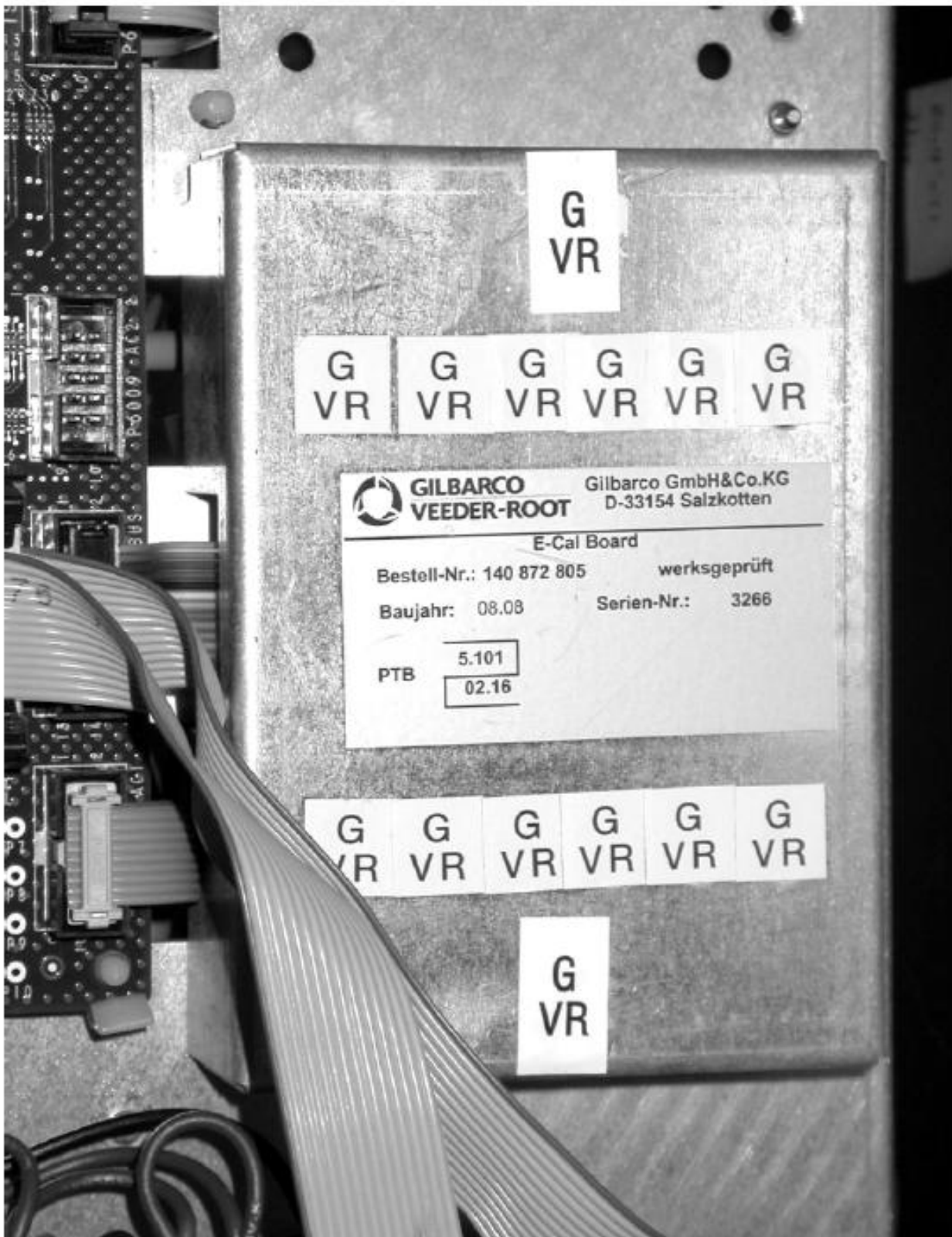
Sandpiper 2 Calculator/Indicator (aka Model E101) Electronics
(typical mounting arrangement)

Figure 7 - Model T928*** SK700-2 Island Oriented Dispenser



Typical T928* Series Island Oriented Dispenser
(Two Hose With Flexmast Facility)

Figure 8 - Sealing of Meter Calibration Access



G
VR

- typical sealing sticker

Typical Sealing of Meter Calibration Access
(using destructible adhesive labels)