Australian Government
Department of Industry, Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 5/6A/244

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

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

A CZAR Metric System Private Ltd. Model CZF-TS4210 Fuel Dispenser for Motor Vehicles

Submitted by CZAR Metric System Private Limited,
Plot No C-541, MIDC Industrial Area, Pawne,
Navi Mumbai 400705,
Maharashtra, India.

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 approval has been granted with reference to document NMI R 117, Measuring Systems for Liquids Other than Water, dated June 2011.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & Variant 1,2,3 & 4 approved – certificate issued	11/09/25

CONDITIONS OF APPROVAL

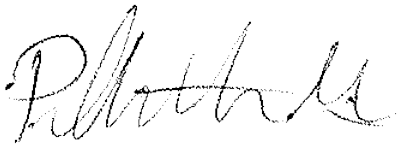
General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 5/6A/244' 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 National Measurement Institute (NMI) 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 document NMI P 106.

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

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



Phillip Mitchell
A/g Manager
Policy and Regulatory Services

TECHNICAL SCHEDULE No 5/6A/244

1. Description of Pattern approved on 11/09/25

A CZAR model CZF-TS4210 fuel dispenser for motor vehicles is approved to dispense various grades of fuels (*), in attendant-operated mode, or in self-service mode using any compatible (#) approved control system. The meter is adjusted to be correct for the liquid for which it is to be verified.

(*) including up to 10% ethanol (E10) and various grades of pure biodiesel and biodiesel/distillate blends (to Australian government standard).

(#) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system.

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} 80 L/min
- Minimum flow rate, Q_{min} 2 L/min
- Maximum pressure of the liquid, P_{max} 350 kPa
- Minimum pressure of the liquid, P_{min} 100 kPa (#1)
- Range of liquids viscosity 0.5 to 20 mPa.s (at 20 °C) (#2)
- Maximum temperature of the liquid, T_{max} +35 °C
- Minimum temperature of the liquid, T_{min} −5 °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 10% ethanol). The pattern and variants constructed for use to dispense various grades of pure biodiesel and biodiesel/distillate blends (to Australian government standard).

1.2 Description of the Metering System

The instrument (Figure 1 & 2) incorporates the following components:

(i) Two CZAR model CZ-VP080 pump/strainer/gas separators (Figure 3). A gas/air test valve is provided for checking the operation of the air elimination device.

(ii) A measurement transducer comprising a CZAR model CZ-FM120 Two piston positive displacement flowmeter (Figure 4) fitted with a CZAR model CZ-MGE-XX Magnetic pulse generator (Figure 5), or any other compatible (*) NMI-approved pulse generator.

(*) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system.

(iii) A hose/nozzle mounted on the front and rear of the dispenser housing. The nozzle used is a 19 mm or 25 mm Tatsuno brand or any compatible size 25 mm or 30 mm model Y02 or Y04 nozzles.

(#) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system. The submittor must be consulted regarding the acceptability of any alternative nozzles.

1.3 Calculator/Indicator

A CZAR model CZ-series calculator/indicator (Figure 6) interfaces to the CZ-MGE-XX Magnetic Pulser; an integrated microcontroller that measures pulses generated by the connected CZ-FM120 flowmeters. An LCD display (Figure 6) is used for indicating dollar, volume and price, and a separate display under the keypad is utilised for the electromechanical totaliser, the display limits and increments are:

- Unit price (5 digits) up to 999.99 or 9999.9 c/L in 0.01 or 0.1 c/L increments
- Volume (7 digits) up to 99999.99 or 999999.9 L in 0.01 or 0.1 L increments
- Price (7 digits) up to 99999.99 in 1 c increments
- Totaliser (non-resettable) (12 digits) up to 9999999999.99 L in 0.01 L increments

A pre-set facility is fitted to allow pre-set to be selected via keypad, by means of volume (litres) or price (dollars).

The instrument is approved with version software 11.11, which can be viewed by following the steps below:

1) Ensure Nozzle rest on the boot i.e. Idle condition

2) Press the "SETUP" key from keypad

3) Login by pressing "P1" – Password "11111111" (Programmable)

4) Press "ENTER" key from keypad

5) Press "6111" to view Firmware Version

Calibration is adjusted via electronic calculation. Access to calibration mode requires a dynamic password.

1.4 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.

Pulser connection error is indicated by a code displayed as "ERROR CODE: E101"

1.5 Descriptive Markings and Notices

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

Pattern approval number	NMI 5/6A/244	
Manufacturer's identification mark or trade mark	CZAR	
Manufacturer's designation (model number)	CZ Series CZF-******	
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}	……	(#3)
Minimum temperature of the liquid, T_{min}	……	(#3)
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' or 'Minimum delivery 2/5 L'.

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

(#3) Required if liquid temperature range differs from −10 °C to +50 °C.

1.6 Sealing Provision

The gas separator test valve has provision for sealing as shown in Figure 7, the meter is sealed as shown in Figure 4, the Magnetic Pulser is sealed as shown in Figure 5.

1.7 Verification Provision

Provision is made for the application of a verification mark.

1.8 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.

2. Description of Variant 1 (SUCTION or PRESSURE)

approved on 11/09/25

Certain other models and configurations of the CZF series of fuel dispensers identified using Table 1 below, including dispensers with one (1) to Eight (8) meters/hoses/nozzles.

Model numbers are made up of a series of fields representing the various approved components/features, as follows *(For example, the pattern is a model CZF-TS2210):*

TABLE 1 – Approved model designations

CZ**[1]** – **[2][3][4][5][6]**

[1] – F
F = Fuel/Adblue

[2] – TS
TS = Tower Standard (Figure 11)
TW = Tower Wide (Figure 12)
LS = L Standard (Figure 13 & 14)
BN = Fuel/AdBlue (Figure 8 & 9)

[3] – Number of Nozzles:
1 Nozzle
2 Nozzle
4 Nozzle
6 Nozzle
8 Nozzle

[4] – Pump meter configuration:

1 = STP + Flow Meter (SD/HD)
2 = Suction + Flow Meter (SD/HD)
3 = STP + 2 x Flow Meter UHD)
4 = DC Pump + Flow Meter (SD)
5 = 2 x Suction Pump + 2 x Flow Meter (UHD)

[5] – ATC Automatic Temperature Conversion:
0 = ATC not Available
1 = ATC Available

[6] – Vapour Recovery:
The Fuel dispenser has an option for Vapour recovery

3. Description of Variant 2 (DEF) approved on 11/09/25

Models having Approved Series designation CZF-BN1010, CZF-TS1010, and CZF-TS2010 (Figure 8) configured for dispensing Diesel Exhaust Fluid (DEF), also known as Adblue fluid. 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} 2 L/min
- Maximum pressure of the liquid, P_{max} 350 kPa
- Dynamic viscosity (at 25 °C) 100 kPa (#3)
- Maximum temperature of the liquid, T_{max} +35 °C
- Minimum temperature of the liquid, T_{min} −5 °C
- Ambient temperature range −25 °C to +55 °C
- Accuracy class 0.5

(#3) The flowmeter is adjusted to be correct for AdBlue fluid AUS32 (aqueous urea solution 32.5%) for which it is to be verified.

The model uses a CZAR model 2 pistons positive displacement AdBlue flowmeter (Figure 9).

4. Description of Variant 3 (PRESSURE) approved on 11/09/25

Models having the pump type designation as Pressure (Figure 10) as indicated by Table 1 utilizes a CZAR models as listed below submersible pump or any compatible (#) submersible pump.

5. Description of Variant 4 (HEAVY DUTY) approved on 11/09/25

Models having designation High flow rate as indicated by Table 1, fitted with CZAR model as listed below:

CZ-FM120 fuel flowmeter (Figure 4), using a JINKOH hose or compatible size 25 mm hoses, using a Tatsuno 24 mm nozzle or other compatible (#) nozzle, with the following field of operation:

- Minimum measured quantity, V_{min} 2 L/min
- Maximum flow rate, Q_{max} 80 L/min (Heavy Duty)
- Minimum flow rate, Q_{min} 2 L/min (Heavy Duty)

Models having designation Ultra-high flow rate as indicated by Table 1, fitted with two CZAR model CZ-FM120 as listed below:

(Figure 13) flowmeters in parallel, JINKOH hose or equal size 38 mm hoses, OPW 30 mm nozzle or 30 mm nozzle or other compatible (#) nozzle, with the following field of operation:

- Minimum measured quantity, V_{min} 5 L
- Maximum flow rate, Q_{max} 130 L/min
- Minimum flow rate, Q_{min} 5 L/min

(#) ‘Compatible’ is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system.

TEST PROCEDURE No 5/6A/244

Instruments shall be tested in accordance with any relevant tests specified in the national instrument test procedures.

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

Tests should be conducted in conjunction with any tests specified in the approval documentation for any components used, including indicator/controller and submersible turbine pump (STP) hydraulic systems.

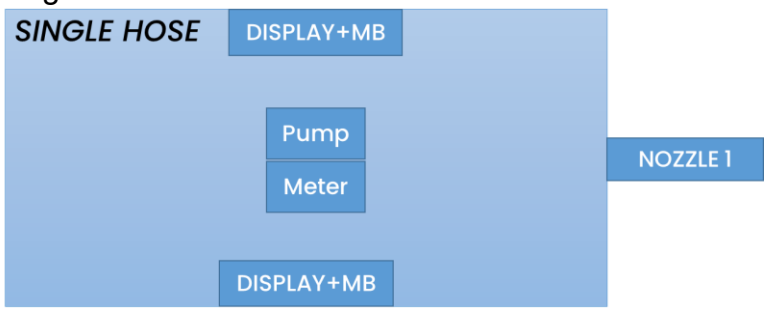
Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

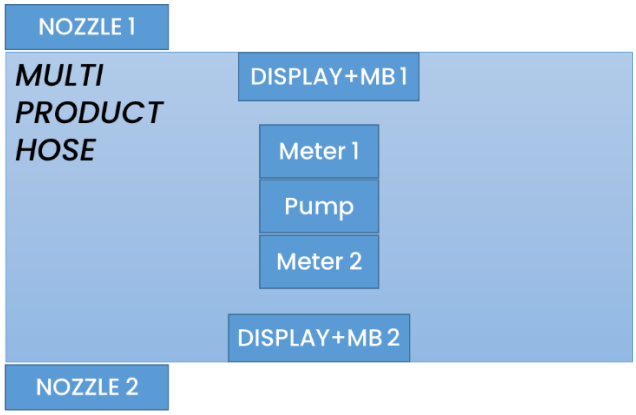
Hose Configuration

Where the serial number on the data plate is 12345, the suffix for a hose is as appended as identified in the following figures, for example the Dual Hose dispenser is numbered 12345A, and 12345B:

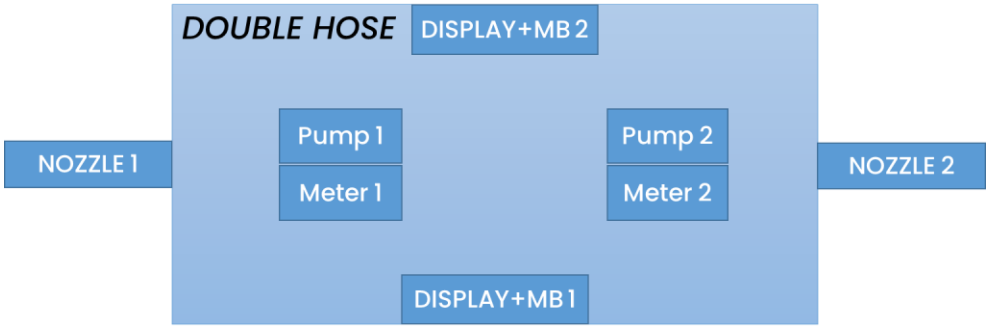
Single Hose:

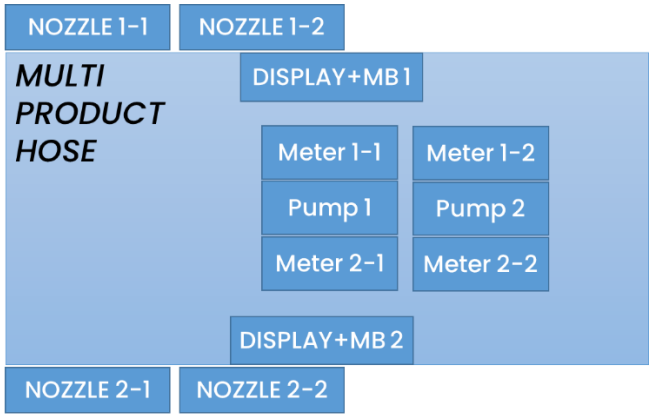


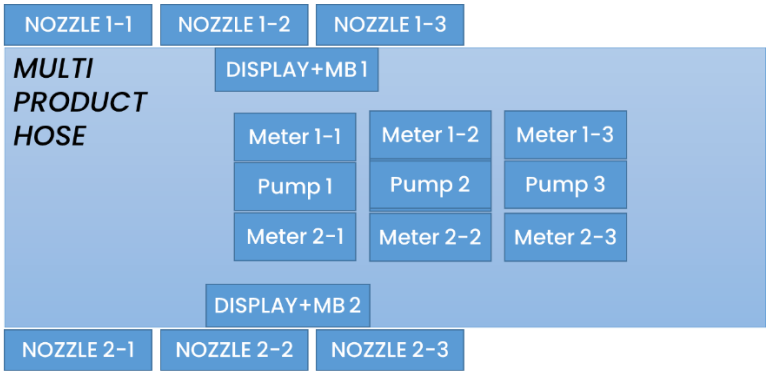
Double Hose:



Multiproduct Hoses:







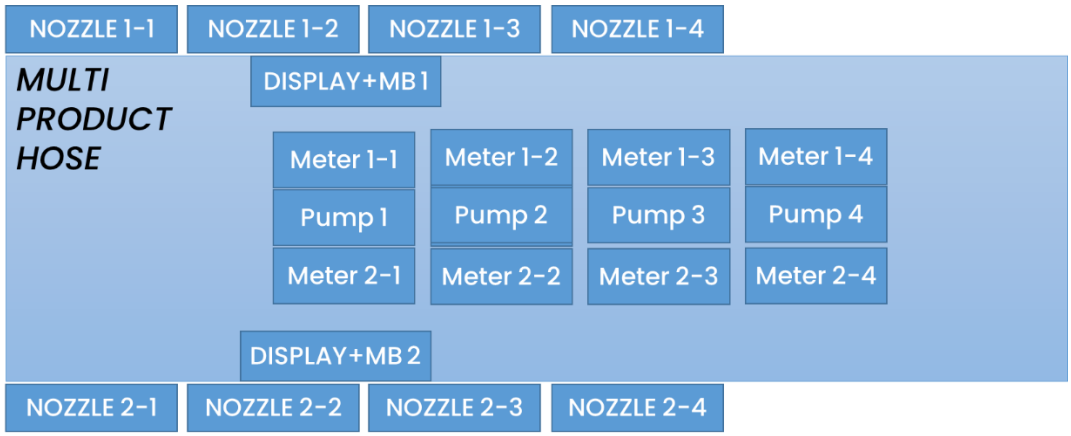
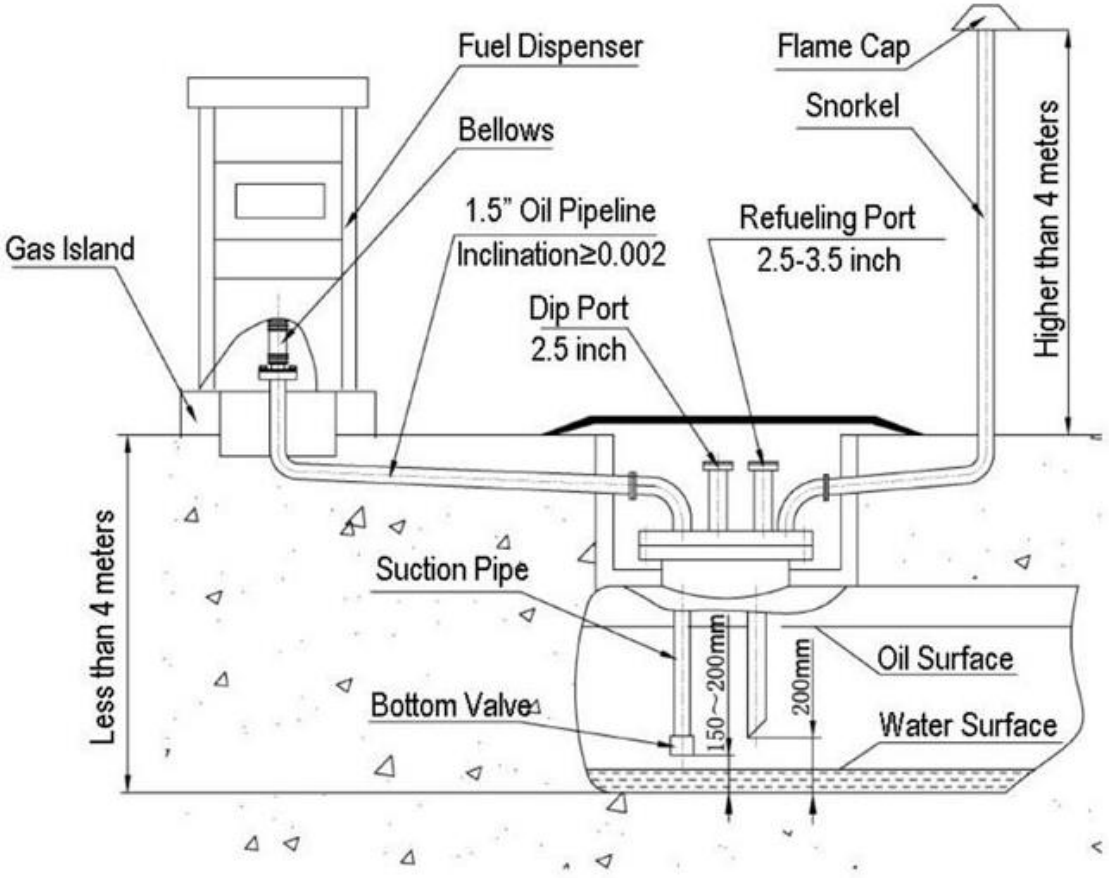


FIGURE 5/6A/244 – 1

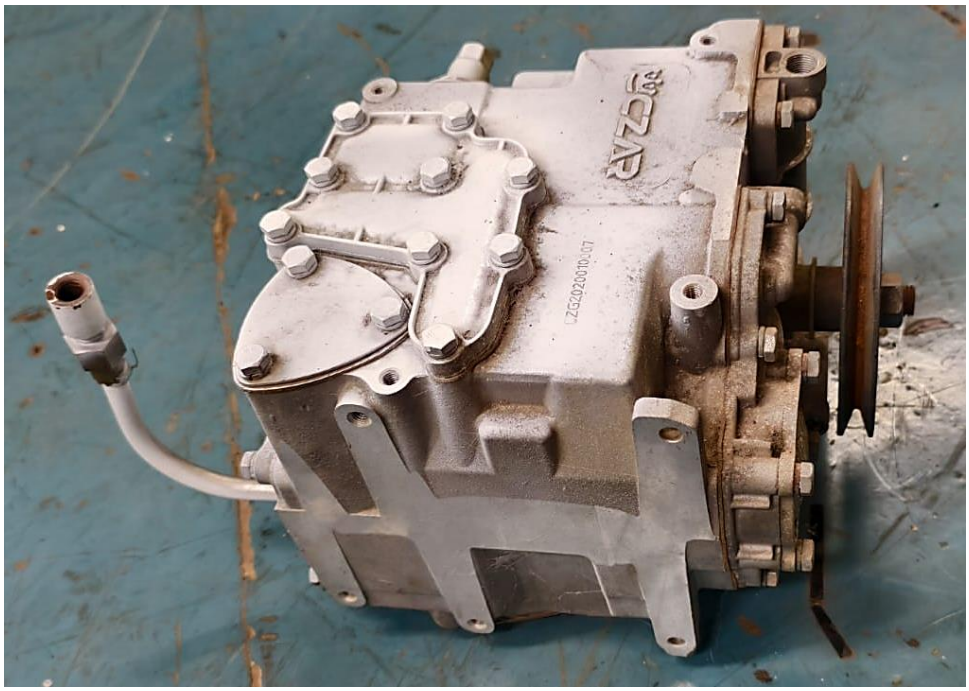


Submersible Tank Connection

FIGURE 5/6A/244 – 2

CZAR Model CZF-TS4210 - Fuel Dispenser for Motor Vehicles (Pattern)

FIGURE 5/6A/244 – 3



CZAR model CZ-VP080 pump/strainer/gas separators.

FIGURE 5/6A/244 – 4

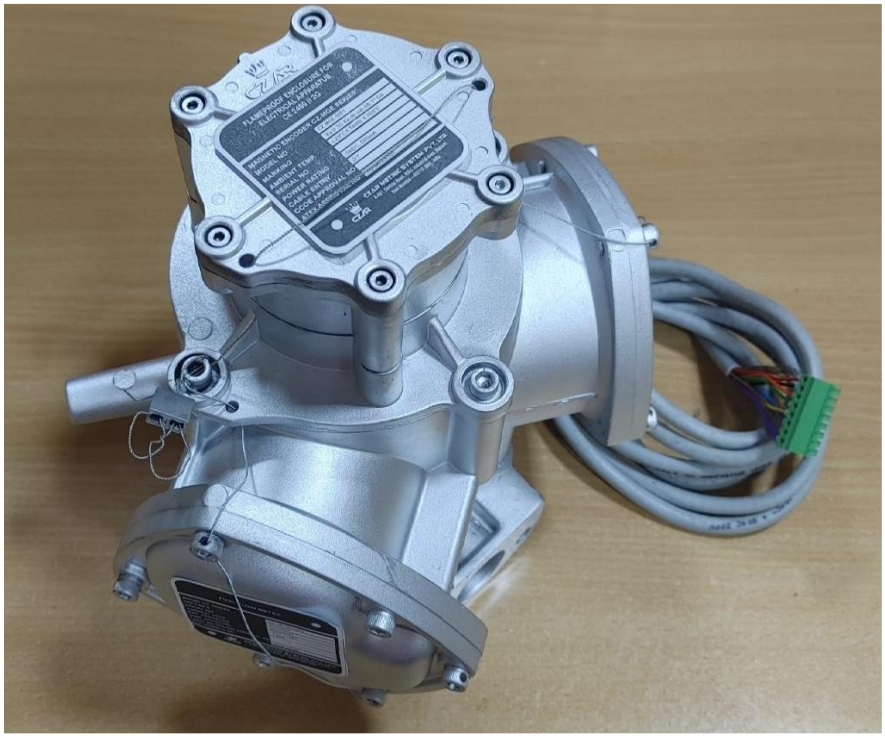
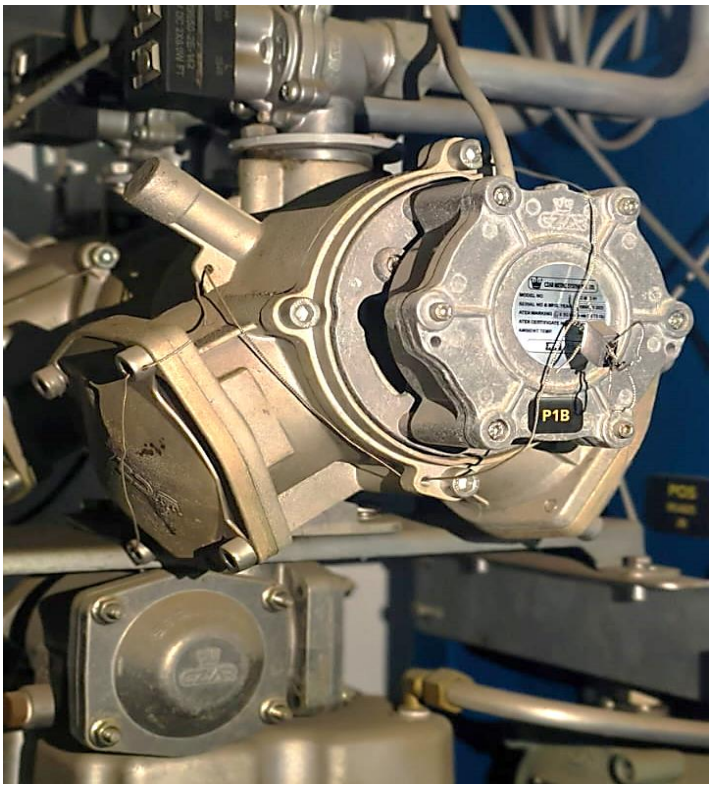
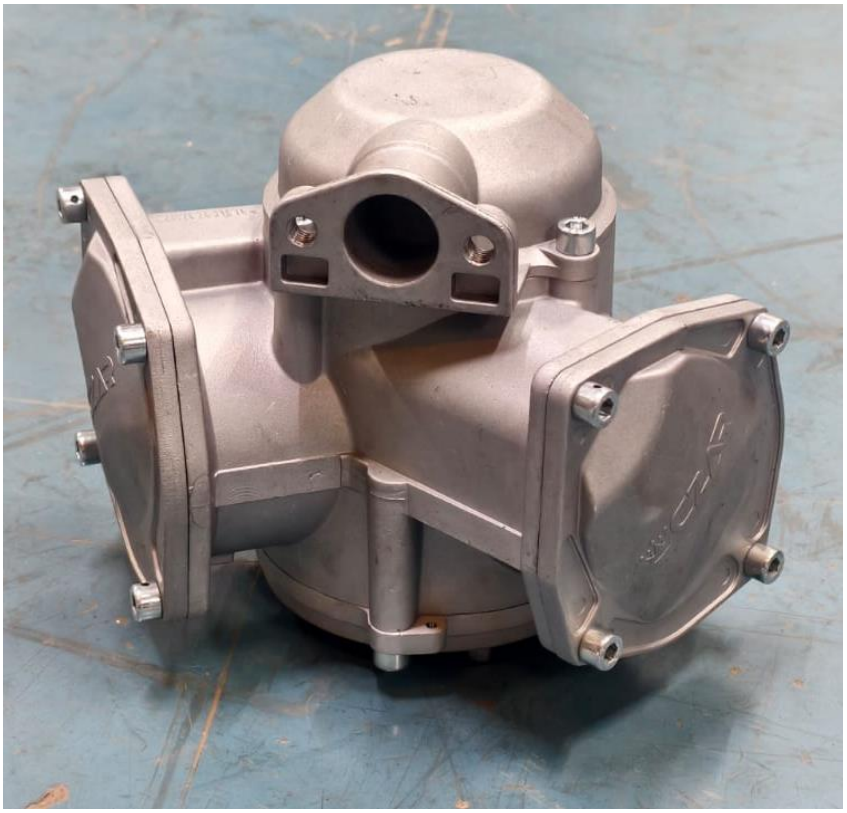


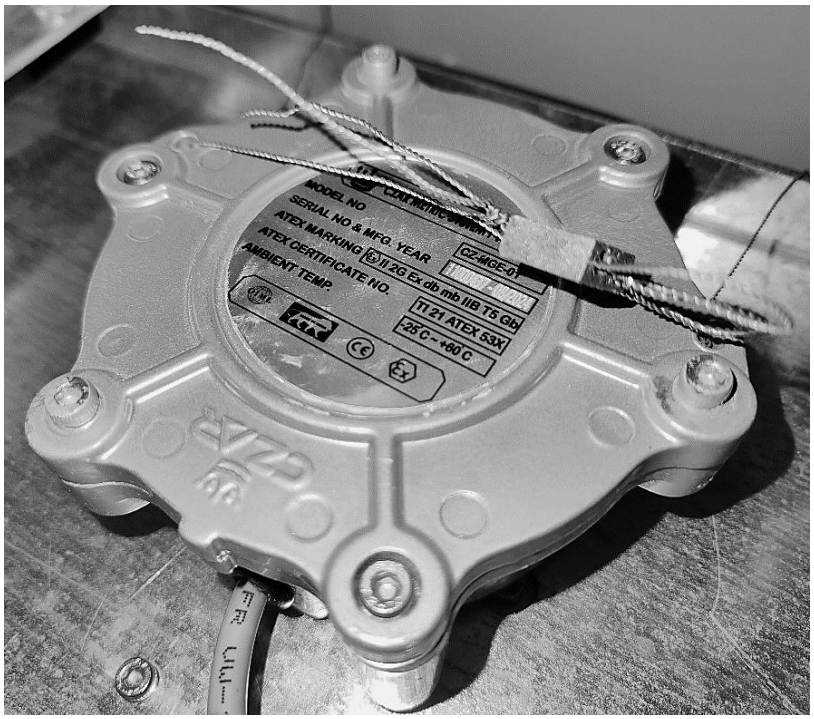
FIGURE 5/6A/244 – 4 (continued)





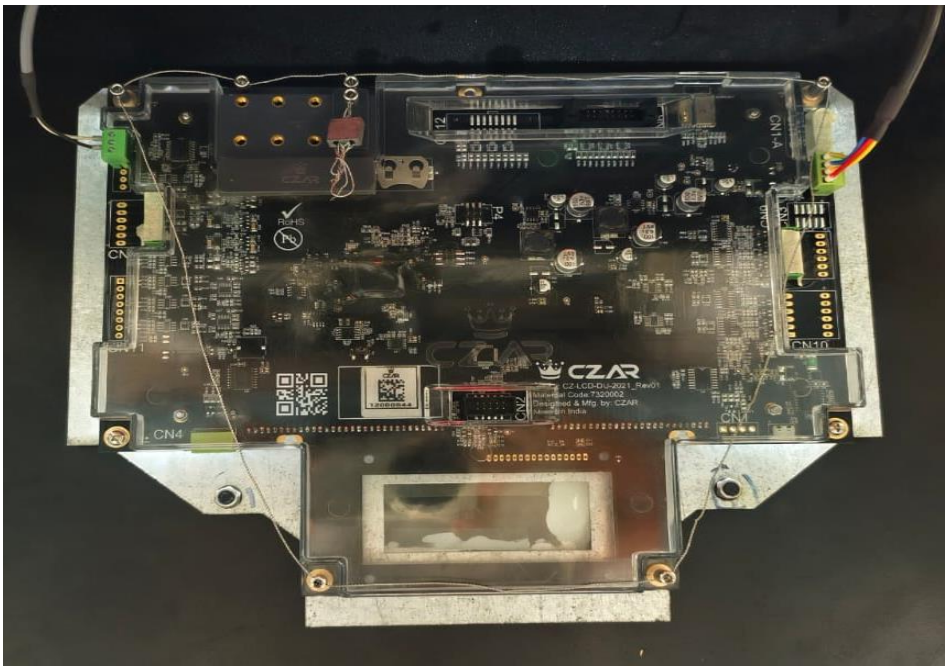
CZ-FM120 Two piston positive displacement flow meter- Variant 2

FIGURE 5/6A/244 – 5



CZAR model CZ-MGE-XX Magnetic Pulser with sealing method.

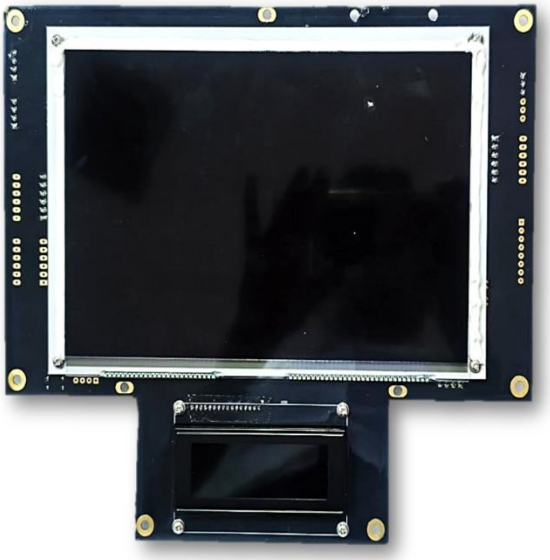
FIGURE 5/6A/244 – 6



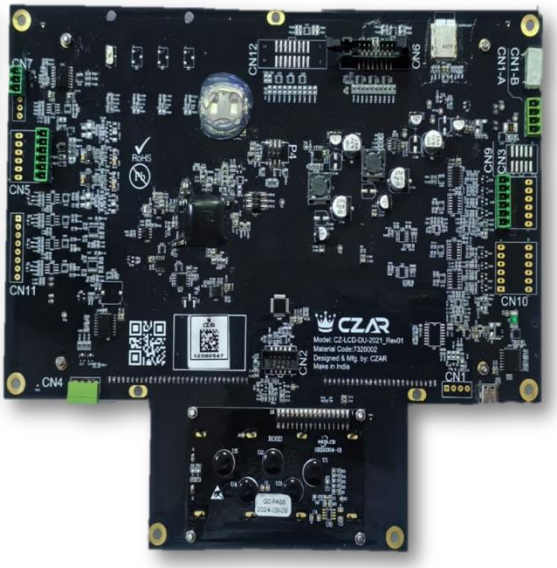
CZAR model CZ-series calculator/indicator with sealing method.

FIGURE 5/6A/244 – 6 (continued)

Display/CPU Board-Front

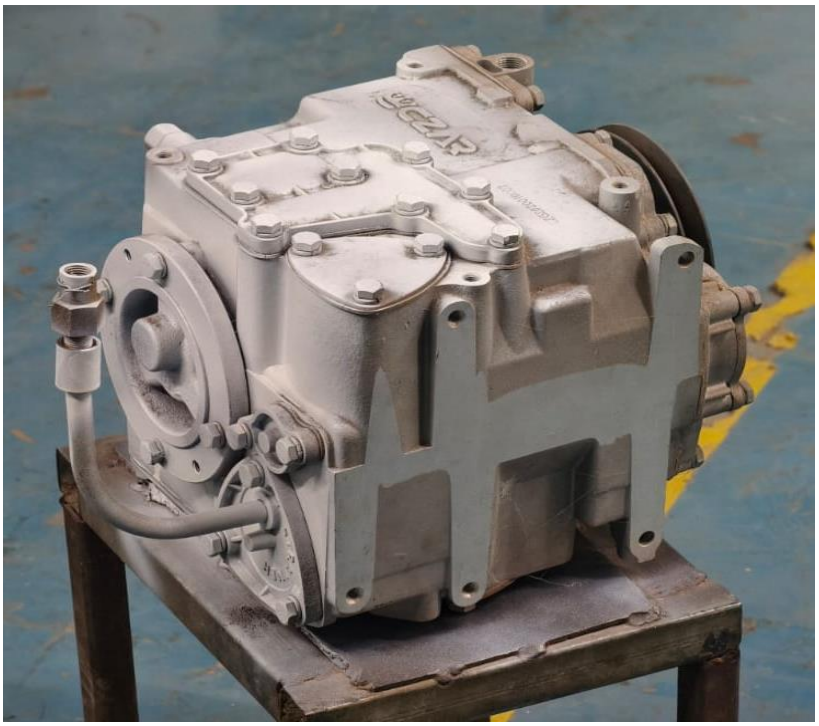


Display/CPU Board-Back



CZAR model CZ-series calculator/indicator LCD Displays

FIGURE 5/6A/244 – 7



The gas separator test valve with provision for sealing.

FIGURE 5/6A/244 – 8

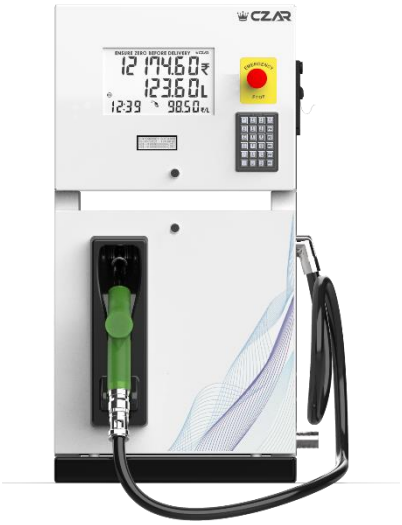
CZAR model CZF-TS2110 Dispenser Diesel Exhaust Fluid (DEF)- Variant 2

FIGURE 5/6A/244 – 9

CZAR model CZF-TS1110 Dispenser Diesel Exhaust Fluid (DEF)- Variant 1

FIGURE 5/6A/244 – 10

MPD
CZF-TS2110



MDU
CZF-BN1110

SDU
CZF-BN1210

Utilizes a CZF-TS2110 model submersible pump
(Pressure Type) – Variant 3

FIGURE 5/6A/244 – 11

TS = Tower Standard (Figure 11) CZF-TS4110 / CZF-TS4210

FIGURE 5/6A/244 – 12

TW = Tower Wide (Figure 12) CZF-TW8110 / CZF-TW8210

FIGURE 5/6A/244 – 13

LS = L Standard (Figure 13) CZF-LS-8110 / CZF-LS-8210

FIGURE 5/6A/244 – 14
LS = L Standard (Figure 13) CZF-LS-8110 / CZF-LS-8210

LS = L Standard (Figure 13) CZF-LS-8110 / CZF-LS-8210

~ End of Document ~