



Australian Government
**Department of Industry, Science,
Energy and Resources**

**National
Measurement
Institute**

**Certificate of Approval
NMI 5/6A/239**

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.

Censtar Science & Technology Corp., Ltd. Model CS30J2220G Fuel Dispenser for Motor Vehicles

submitted by Fueltech Pty Ltd
Suite 308/838 Collins Street
Docklands Vic 3008

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 becomes subject to review on 1/10/25, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 & 2 approved – certificate issued	24/02/20

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 5/6A/239' 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.



Darryl Hines
Manager
Policy and Regulatory Services

TECHNICAL SCHEDULE No 5/6A/239

1. Description of Pattern **approved on 24/02/20**

A Censtar Science & Technology Corp., Ltd Model CS30J2220G 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 console. 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} 50 L/min
- Minimum flow rate, Q_{min} 5 L/min
- Maximum pressure of the liquid, P_{max} 300 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} 50°C
- Minimum temperature of the liquid, T_{min} -10°C
- Ambient temperature range -25 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) incorporates the following components:

- (i) Two Censtar model CSP03 pumping unit (Figure 2 & 2(a)).
- (ii) A measurement transducer comprising a Censtar model LLJ05 four piston positive displacement flowmeter (Figure 3) fitted with a Zhejiang Maide Machine Co., Ltd. model PS-100 pulse generator (Figure 4), 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 side of the dispenser housing. The nozzle used is a 19 mm OPW model 11-A nozzle. (*).

(*) Note that the submitter must be consulted regarding the acceptability of any alternative nozzles.

1.3 Calculator/Indicator

A Censtar model CS30 series calculator/indicator (Figure 1 & 5) which has a dual display or an alternative single LCD display model for indicating dollar, volume and price.

The indicators display the following maximum values:

- Volume 0000.00 L to 9999.99 L (*) in 0.01 L increments
- Unit price 0.1 to 999.9 c/L in 0.1 c/L increments
- Price \$0000.00 to \$9999.99 in 1 cent increments
- Totaliser (#) To 9 999 999.9 L, mechanical or electronic

(*) Always less than 9999.99 L

(#) Electronic totaliser (software driven and resettable) and mechanical totaliser (non-resettable)

The instrument is approved with version software 310XX.XXX, 420XX.XXX and 620XX.XXX, which can be viewed by pushing the RES button then pushing PRI buttons twice on the keypad.

A pre-set device may also be fitted to allow pre-set to be selected by means of volume (litres) or price (dollars).

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.

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/239
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}	..... (#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'.

(#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. The meter calibration access is sealed as shown in Figure 4.

1.7 Verification Provision

Provision is made for the application of a verification mark.

1.8 Checking Facilities

Removing the nozzle from its normal hang-up position initiates a segment check of the price, volume and unit price displays.

- In the event of a power failure, the displayed value for a delivery is retained.
- Delivery is halted and an error code displayed if an error in pulse output is detected.

2. Description of Variant 1

approved on 24/02/20

Certain other models and configurations of the Censtar CS30 series of fuel dispensers identified using Table 1 below, including dispensers with from one (1) to Six (6) meters/hoses/ nozzles.

Meaning of model designations for the CS30 series of fuel dispensers: (the pattern is a model CS30J2220G)

1st and 2nd digits –Manufacturer code;

CS

3rd and 4th digits –appearance features, either;

30 = Conventional type, as in Figure 1 (the pattern, CS30J2220G) and Figure 5 (variant 1, CS30*111**)

2 =High hose and wide cabinet type, as in Figure 6 (variant 1, e.g. CS42*636** or CS42*424**)

52=Horizontal type, as in Figure as in Figure 7 (variant 1, e.g. CS52*636**)

5th digit - pump type, either;

J= Suction pump group

D= Submersible pump

6th digit - number of nozzles, 1 to 8

7th digit - number of products, 1 to 4

8th digit - number of main boards per side, 1 to 8

9th digit- Type of main board

0= 3100 main board

1= 4200 main board

Suffix, either;

G = Censtar LLJ05 flow meter & CSP03 gear pump

F = Censtar LLJ05 flow meter & CSP04 vane pump or remote dispenser with Censtar LLJ05 flow meter

3. Description of Variant 2**approved on 24/02/20**

CENSTAR model CS30J111NSC1 AdBlue dispenser (Figure 8) for certain motor vehicles (#1) and which is approved to dispense AdBlue (#2), in attendant-operated mode. The meter is adjusted to be correct for the liquid for which it is to be verified.

- (#1) For filling dedicated storage tanks on vehicles having heavy duty diesel engines fitted with a Selective Catalytic Reduction (SCR) unit (for the reduction of NOx in exhaust gases).
- (#2) AdBlue fluid AUS32 (NOx reduction agent AUS 32 – 32.5% aqueous urea solution, according to ISO 22241).

3.1 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} 320 kPa
- Dynamic viscosity (at 25°C) 1.4 mPa.s (#3)
- Maximum temperature of the liquid, T_{max} 30°C
- Minimum temperature of the liquid, T_{min} 0°C
- Ambient temperature range -25 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.

TEST PROCEDURE No 5/6A/239

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.

Hose Configuration

Model CS 30 series (Figure 1 (a))

Model CS 42 series (Figure 6 (a))

Model CS 52 series (Figure 7 (a))

Maximum Permissible Errors

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

FIGURE 5/6A/239 – 1



Censtar Science & Technology Corp., Ltd Model CS30J2220G Fuel Dispenser for Motor Vehicles (Pattern)

a) Hose Configuration (Model CS30 series)

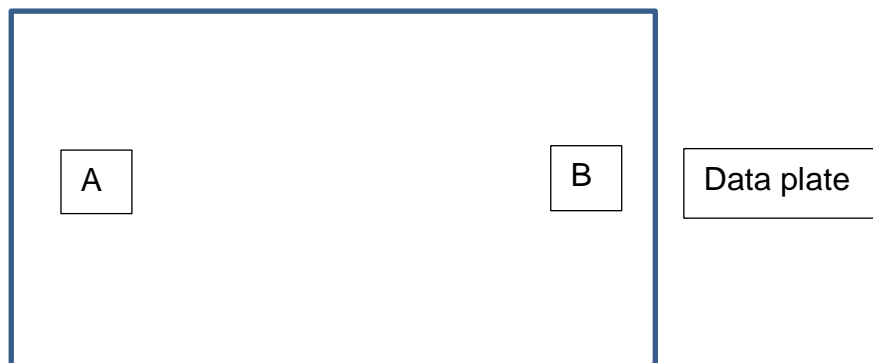
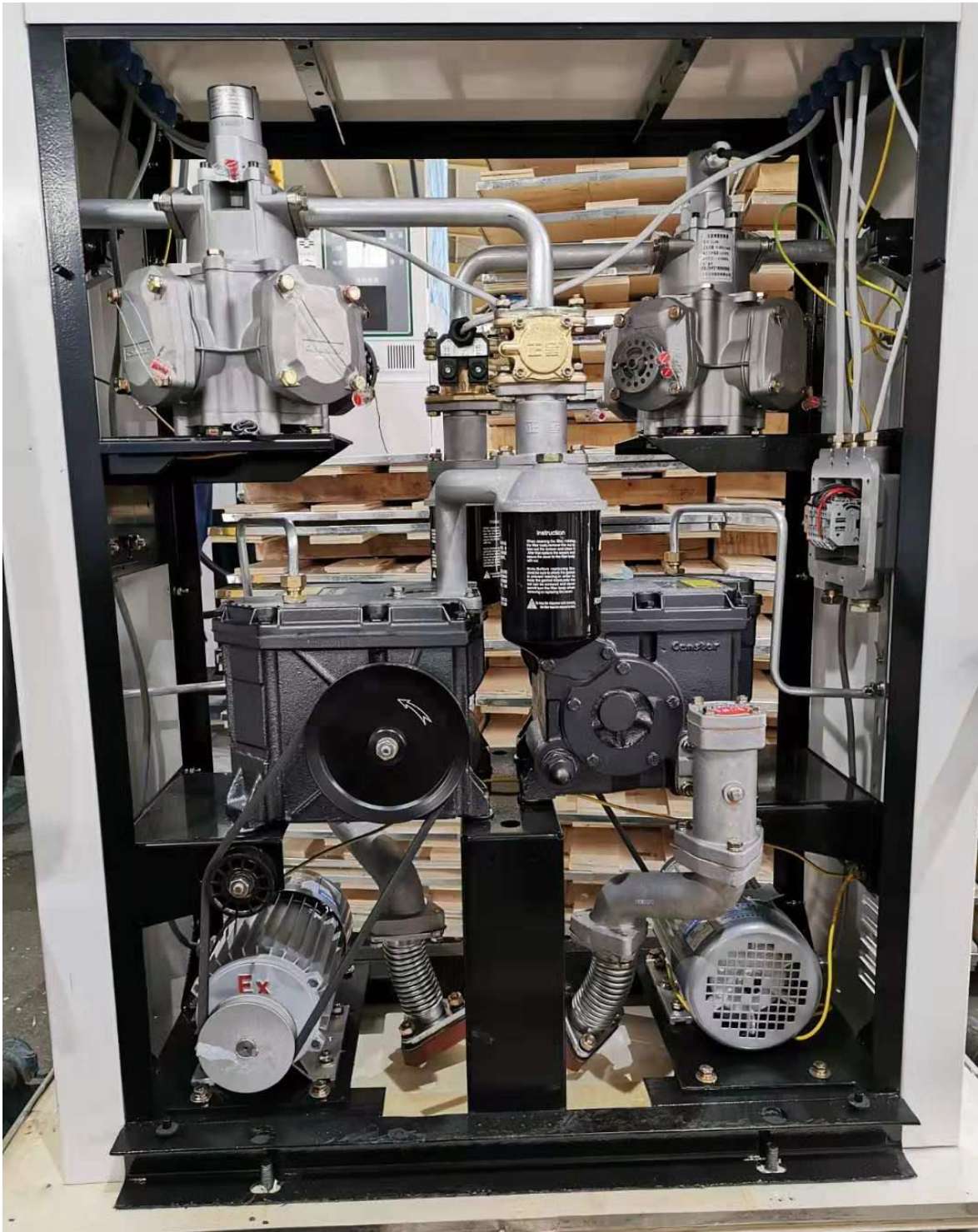


FIGURE 5/6A/239 – 2



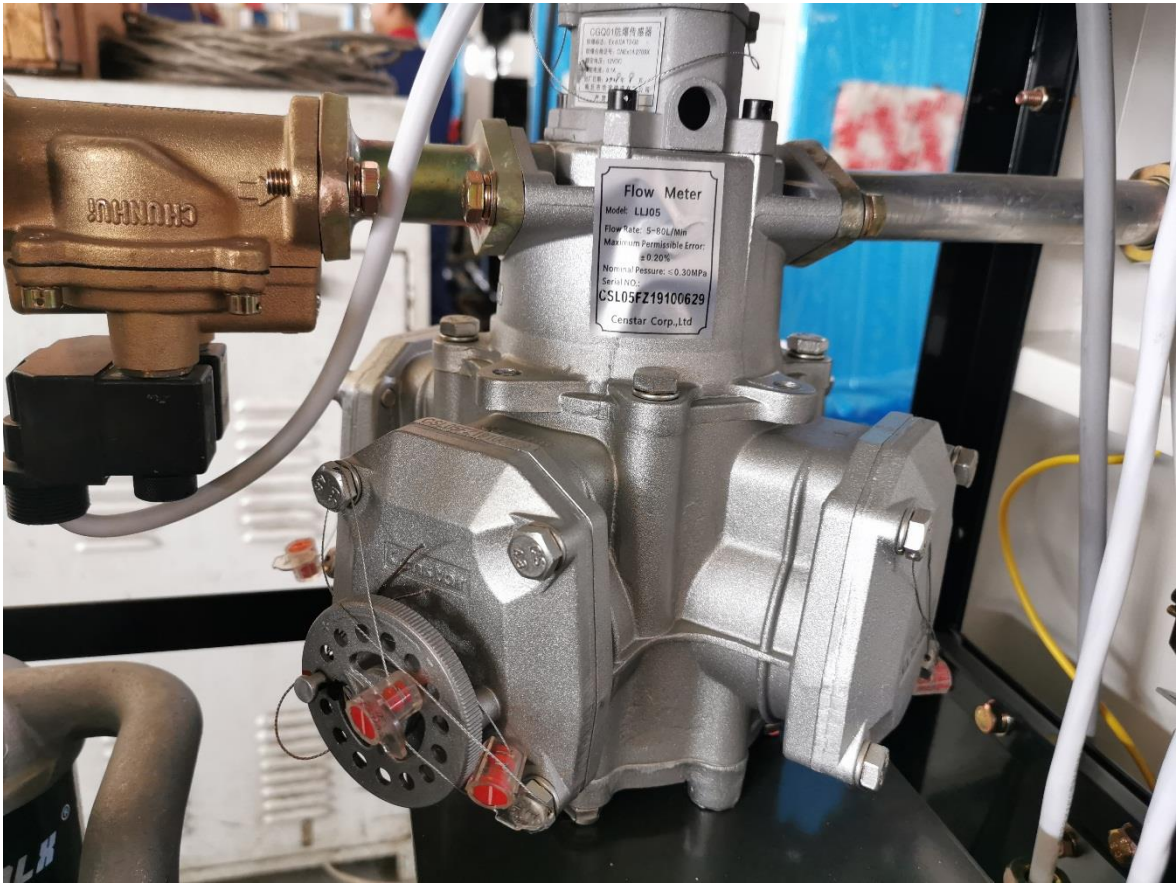
Censtar Science & Technology Corp., Ltd Model CS30J2220G Fuel
Dispenser Hydraulics (Pattern)

FIGURE 5/6A/239 – 2(a)



CENSTAR Model CSP03 Pumping Unit

FIGURE 5/6A/239 – 3



CENSTAR Model LLJ05 Flowmeter (incl. sealing)

FIGURE 5/6A/239 – 4



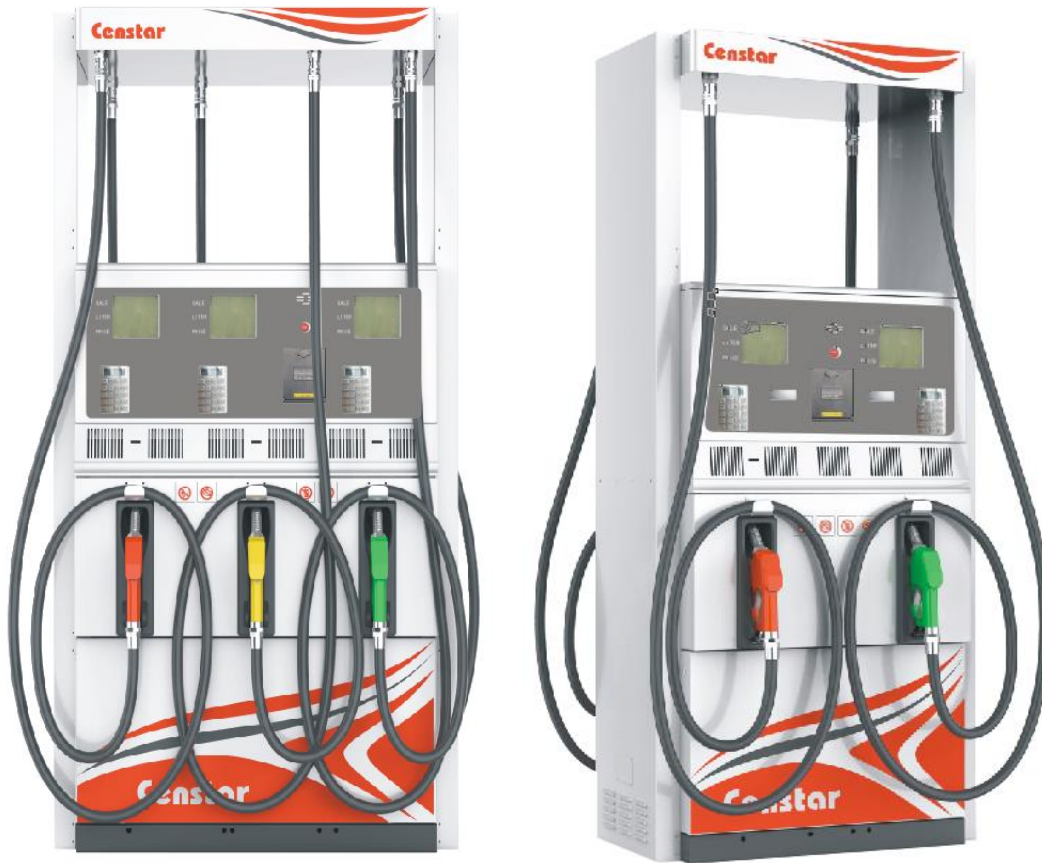
Maide Model PS-100 Pulse Generator (incl. sealing)

FIGURE 5/6A/239 – 5



Conventional Type Single Hose 30-style Housing Dispenser – Model CS30*111**
(Variant 1)

FIGURE 5/6A/239 – 6



High hose and wide cabinet type 42-style Housing Dispensers – Models
CS42*636* & CS42*424** (Variant 1)

a) Hose Configuration (model CS42 series)

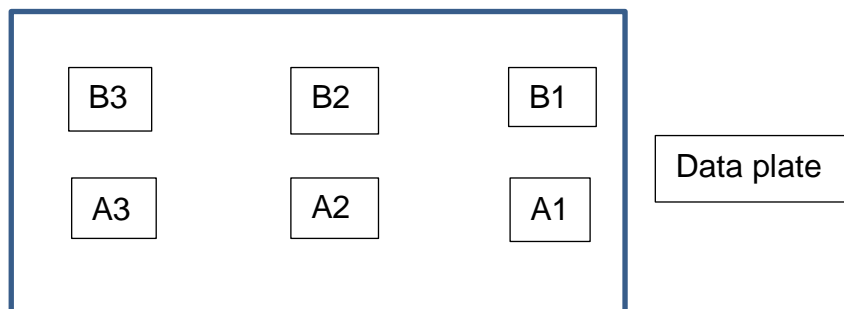


FIGURE 5/6A/239 – 7



Horizontal type 52-style Housing Dispensers – Models CS52*636**

a) Hose Configuration (model CS52 series)

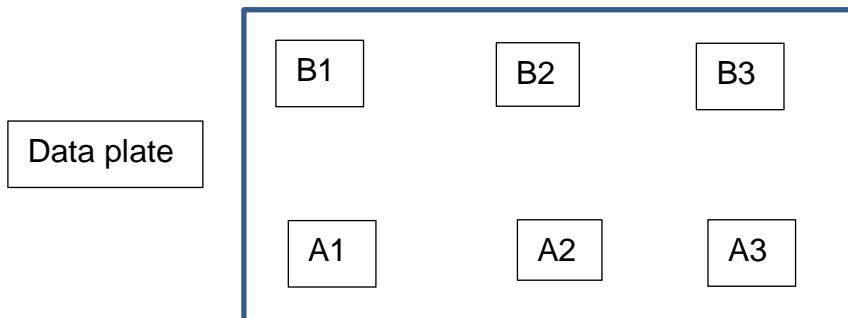


FIGURE 5/6A/239 – 8



CENSTAR model CS30J111NSC1 AdBlue single liquid dispenser

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