



Australian Government
Department of Industry and Science

National Measurement Institute

General Certificate of Approval

NMI 9/1/0A

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.

Vehicle Tanks of Capacities 5 to 105 kilolitres for Effluent

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 becomes subject to review on **1/4/20**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – certificate issued	29/04/94
1	Pattern amended (maximum capacity), updated & reviewed – certificate issued	31/08/15

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) 9/1/0A' and only by persons authorised by the manufacturer.

It is the manufacturer's responsibility to ensure that all instruments purporting to comply with this approval number are constructed in accordance with this General Certificate of Approval and its 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.

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

A handwritten signature in black ink, appearing to read 'Dr A Rawlinson', with a horizontal line underneath.

Dr A Rawlinson

TECHNICAL SCHEDULE No 9/1/0A

1. Description of Pattern

**approved on 29/04/94
amended on 31/08/15**

The pattern is a measuring instrument in the form of a non-pressurised tank of a capacity from 5 kilolitres to 105 kilolitres, fitted to or forming part of a vehicle, and which incorporates 2 sight-gauges for the measurement of the volume of effluent contained in the tank.

1.1 Tank Design

1.1.1 Rigidity

Every tank shall be of sufficient strength and of such construction so as to prevent distortion under normal conditions of transport and use.

1.1.2 Inspection Opening

Every tank shall have an inspection opening of sufficient size to facilitate examination of the inside of the tank.

1.1.3 Construction

- (i) If the tank is a trailer tank, it shall not be of 'throated' construction.
- (ii) The slope of every tank when mounted, whether it is of rigid or of trailer type, shall not exceed an angle of 2.5° to a horizontal plane when the vehicle is standing unladen on a level surface.
- (iii) Every tank shall have only one compartment.

1.1.4 Internal Venting

- (i) Every tank shall be provided with effective venting in order to:
 - (a) prevent the trapping of air under all conditions of levelling which can reasonably be anticipated;
 - (b) permit air to escape during filling; and
 - (c) permit influx of air during discharge.
- (ii) The top of the fill pipe and the internal skirt surrounding the inspection opening shall each be vented into the tank by a hole of at least 10 mm diameter.
- (iii) Baffle plates shall be constructed so as to prevent the trapping of air or liquid.

1.1.5 Sump

No sump shall be permitted to project above the bottom of the tank.

1.2 Outlet

An outlet pipe, if fitted, shall be sloped to the discharge valve at a gradient of not less than 1 in 30 to a horizontal plane to ensure complete drainage when the vehicle is standing unladen on a level surface. Only one valve shall be fitted to the outlet pipe.

1.3 Measuring Device

1.3.1 General

- (i) A sight-gauge, which is comprised of a sight-tube and a graduated scale, shall be mounted at each end of the tank.
- (ii) The sight-gauges shall be mounted vertically, within ± 25 mm of the centre line at each end of the tank, from the bottom to the top of the tank, and shall show the liquid level over the whole vertical axis of the tank.
- (iii) The volume of effluent collected or discharged shall be the difference of the volume contained in the tank before and after the collection or discharge. To obtain the volume of effluent in the tank at any time, the average reading of the two sight-gauges shall be taken.

1.3.2 Sight-tube

- (i) The sight-tubes shall be rigid and made of transparent material suitable for clearly viewing the meniscus of the effluent in the tube.
- (ii) The sight-tubes shall be removable for cleaning purposes.
- (iii) Every sight-tube shall have a bore of not less than 15 mm nor more than 20 mm.

1.3.3 Graduated Scales

- (i) Every tank shall be fitted with graduated brass scales not less than 75 mm wide and not less than 3 mm thick, permanently fixed to the tank behind the sight-tubes.
- (ii) The brass scales shall be calibrated from zero, or the first discernible 100 L graduation, to full capacity of the tank.
- (iii) The thickness of all graduation lines shall be not less than 1 mm nor more than 1.5 mm.
- (iv) The scale spacing shall be not less than 5 mm.
- (v) Scale marks shall extend so as to be visible on both sides of the sight-tube.
- (vi) The height of letters and numbers on the graduated scale shall be not less than 8 mm. The graduated scale shall be numbered and denominated in litres and the scale interval shall be in accordance with Table 1 below. Every 500 litre scale mark shall be numbered.

TABLE 1 – Maximum Scale Intervals for Graduated Scales

Up to and including	35 kL	100 litres
Over 35 kL but not over	50 kL	200 litres
Over 50 kL but not over	105 kL	500 litres

- (vii) The arrangement of the graduated scale is shown in Figure 1.
- (viii) Each graduated scale shall be marked with the serial number of the tank.
- (ix) Provision shall be made for sealing the graduated scales.

1.4 Markings

- (i) Instruments shall carry a nameplate marked with the following in a location clearly visible to a person standing on the ground:

Manufacturer's name or mark
Tank serial number
Pattern approval number	NMI (or NSC) No 9/1/0A

Provision shall be made for a verification mark to be applied to the nameplate.

- (ii) The tank serial number shall be not less than 10 mm high and the remaining letters and numbers not less than 4 mm high.
- (iii) The serial number of the tank shall be repeated on the graduated scale for each sight-gauge.

1.5 Notices

- (i) Every vehicle tank shall have the following notice:

WARNING
REPAIRS OR ALTERATIONS TO THE TANK, PIPING
OR VALVES MUST NOT BE MADE WITHOUT PRIOR
OBLITERATION OF VERIFICATION MARKS

The notice shall have letters not less than 4 mm high and be securely fixed adjacent to the outlet valve and clearly visible to a person attending the valve.

- (ii) Every vehicle tank shall bear the following additional notice in letters not less than 10 mm high in a permanent position adjacent to each sight-gauge and clearly visible to a person standing on the ground:

TO OBTAIN VOLUME OF LIQUID IN TANK AVERAGE THE
READINGS OF BOTH FRONT AND REAR SIGHT-GAUGES

1.6 Verification and Sealing Provision

Provision shall be made for a verification mark to be applied to the nameplate.

Provision shall be made for sealing the graduated scale on each sight-gauge.

TEST PROCEDURE

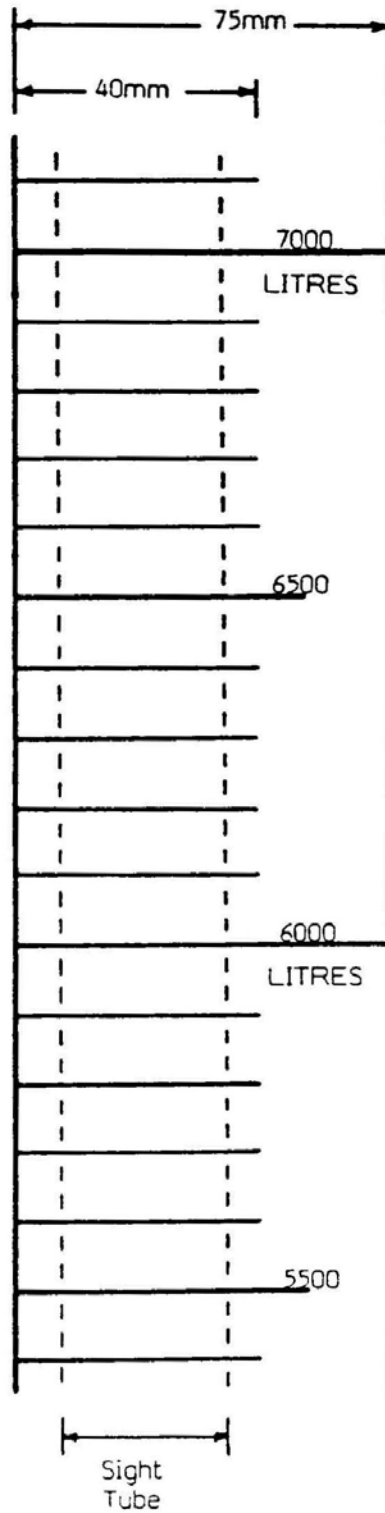
Instruments should be tested in accordance with any relevant tests specified in the National Instrument Test Procedures

Maximum Permissible Error at Verification

The maximum permissible error at verification for vehicle tanks incorporating sight-gauges for measurement of effluent is ± 0.5 scale interval for each scale mark on the graduated scales.

During verification, the vehicle on which the tank is mounted shall be on a level surface and the two sight-gauges shall be correct within the maximum permissible error and shall not differ by more than the absolute value of the maximum permissible error.

FIGURE 9/1/0A – 1



Arrangement of Graduated Scale

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