Australian Government
National Measurement Institute
Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 9/2/2

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.

Marshall Lethlean Model MLTTA20PER Vehicle Tank

submitted by Marshall Lethlean Industries Pty Ltd
291–291 Hammond Road
Dandenong South VIC 3164

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 General Certificate of Approval No 9/0/B, *Vehicle Tanks of Capacities 0.5 to 105 kilolitres*, dated May 1990.

This approval becomes subject to review on **1/10/16**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – interim certificate issued	24/09/97
1	Pattern approved – certificate issued	22/12/97
2	Variant 1 approved – interim certificate issued	27/11/98
3	Pattern amended & variant 1 approved – certificate issued	16/04/99
4	Pattern & variant 1 reviewed – notification of change issued	6/10/06
5	Pattern & variant 1 reviewed & updated – variant 2 approved – certificate issued	24/02/12

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number ‘NMI (or NSC) 9/2/2’ 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.

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

TECHNICAL SCHEDULE No 9/2/2

1. Description of Pattern approved on 24/09/97

The pattern is a Marshall Lethlean Industries model MLTTA20PER non-pressurised tank of 30 000 L nominal maximum capacity fitted to or forming part of the vehicle.

The tank is divided into 4 compartments and incorporates a dipstick for each compartment for the measurement of the volume of the contents.

1.1 Details of a Typical Configuration

(i) The tank is a horizontal trapezoidal symmetrical vessel constructed of aluminium with the bottom having a slope of 1.8°.

(ii) The tank is divided into 4 compartments in either of the configurations shown in Figures 1 and 2. Compartment 1 has a capacity of approximately 6800 L; compartment 2 has a capacity of approx. 7900 L; compartment 3 has a capacity of approx. 6600 L; and compartment 4 has a capacity of approx. 8600 L.

(iii) A tank with a top-datum dipstick (Figure 3) incorporates a horizontal guide on which the dipstick rests in a vertical position. A tank with a bottom-datum dipstick (Figure 4) incorporates a diptube and has a dip-plate welded to the bottom of the tank. Each dipstick is located in a vertical position located in the centroid of each compartment.

The dipsticks are graduated in 50 L increments. The dipsticks for compartments 1, 2 and 4 (which have tapered bottoms) are not graduated for measurement of volumes less than 200 L. For compartment 3 the dipstick is not graduated for measurement of volumes less than 100 L.

Each dipstick is graduated for use with one compartment only and shall be marked with a serial number of the tank and the compartment number.

(iv) Each compartment is provided with a top-mounted inspection opening.

(v) The outlet slopes towards the discharge valve at a gradient of 1 in 30 to the horizontal plane to ensure complete drainage of the measured quantity when the vehicle is standing unladen on a level surface.

1.2 Markings

The following is marked on a nameplate permanently attached to the instrument in a clearly visible location:

Manufacturer's mark, or name written in full	.....
Model number	.....
Serial number of the instrument	.....
Pattern approval mark for the instrument	NMI (or NSC) No 9/2/2

In addition, tanks shall comply with any relevant requirements given in the National Instrument Test Procedures in regard to markings, numbering and notices.

1.3 Verification Provision

Provision is made for the application of a verification mark.

2. Description of Variant 1 approved on 27/11/98

Other tanks including a model 19M B-double non-pressurised tank of various capacities and/or compartments, but with other details the same as for the pattern.

For compartments which have tapered bottoms, the volume of the lowest graduation mark shall be greater than the volume of liquid which fully covers the tapered bottom.

Figure 5 shows a typical tri-axle tanker of an articulated vehicle, while Figure 6 shows a typical B-double lead tanker (for both tandem and tri-axle tankers).

3. Description of Variant 2 approved on 27/11/98

Of 32 000 L nominal maximum capacity but otherwise similar to the pattern and with the following compartment sizes:

- Compartment 1 has a capacity of approximately 8600 L;
- Compartment 2 has a capacity of approximately 7000 L;
- Compartment 3 has a capacity of approximately 8300 L; and
- Compartment 4 has a capacity of approximately 8100 L.

TEST PROCEDURE No 9/2/2

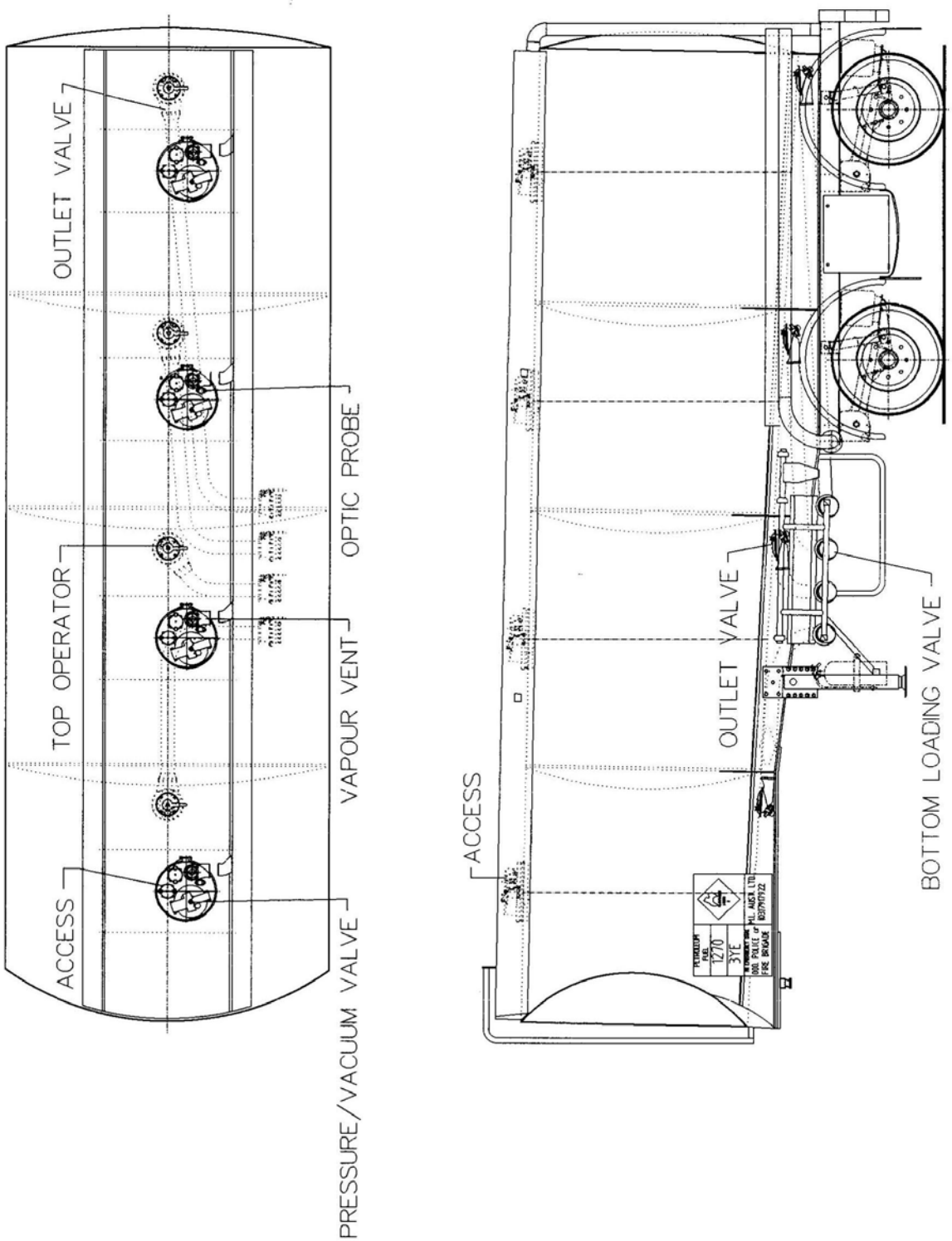
Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

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

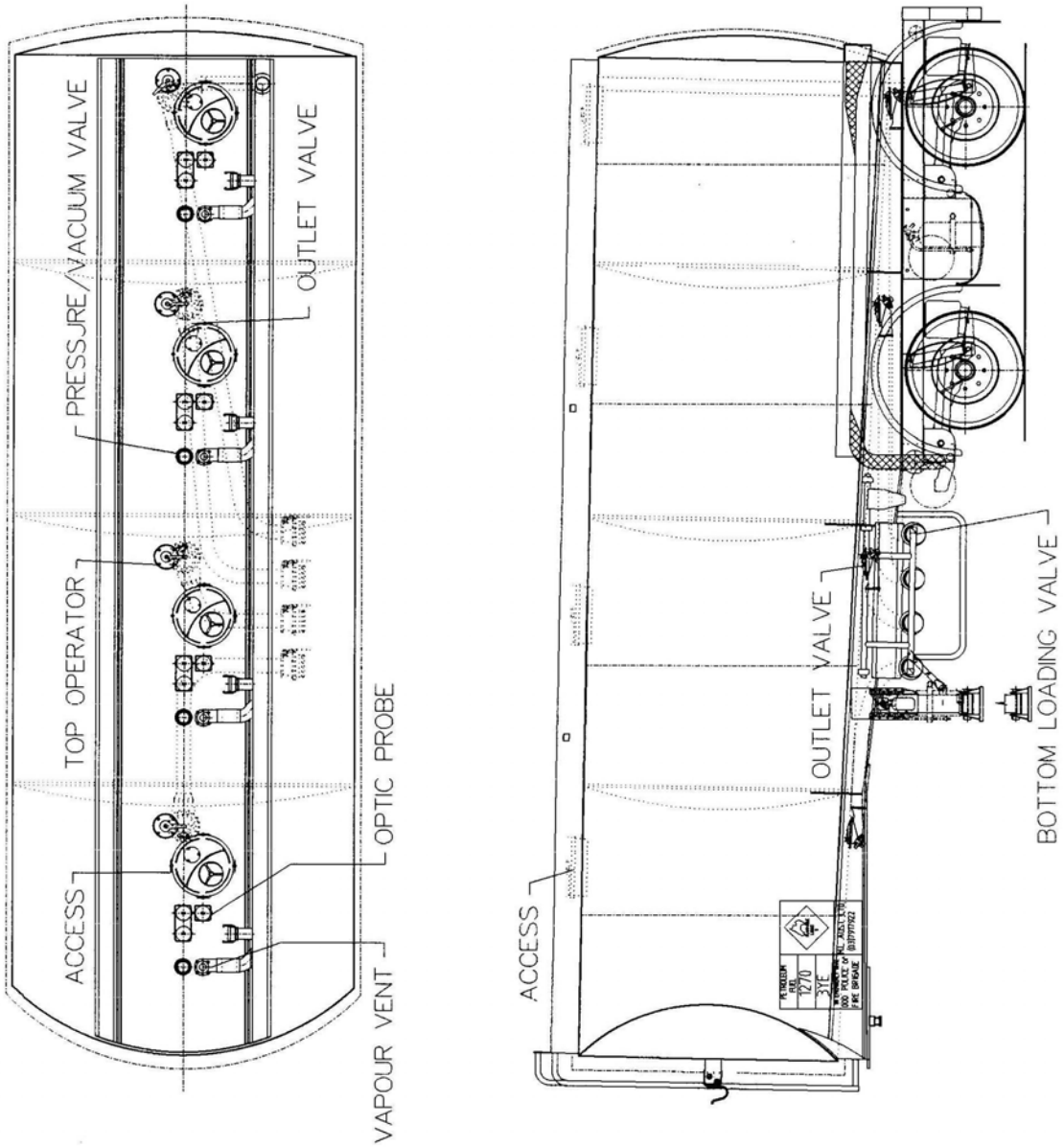
The maximum permissible error applicable to vehicle tanks provided with a dipstick is ±0.5 scale interval for each scale mark on the dipstick.

FIGURE 9/2/2 – 1



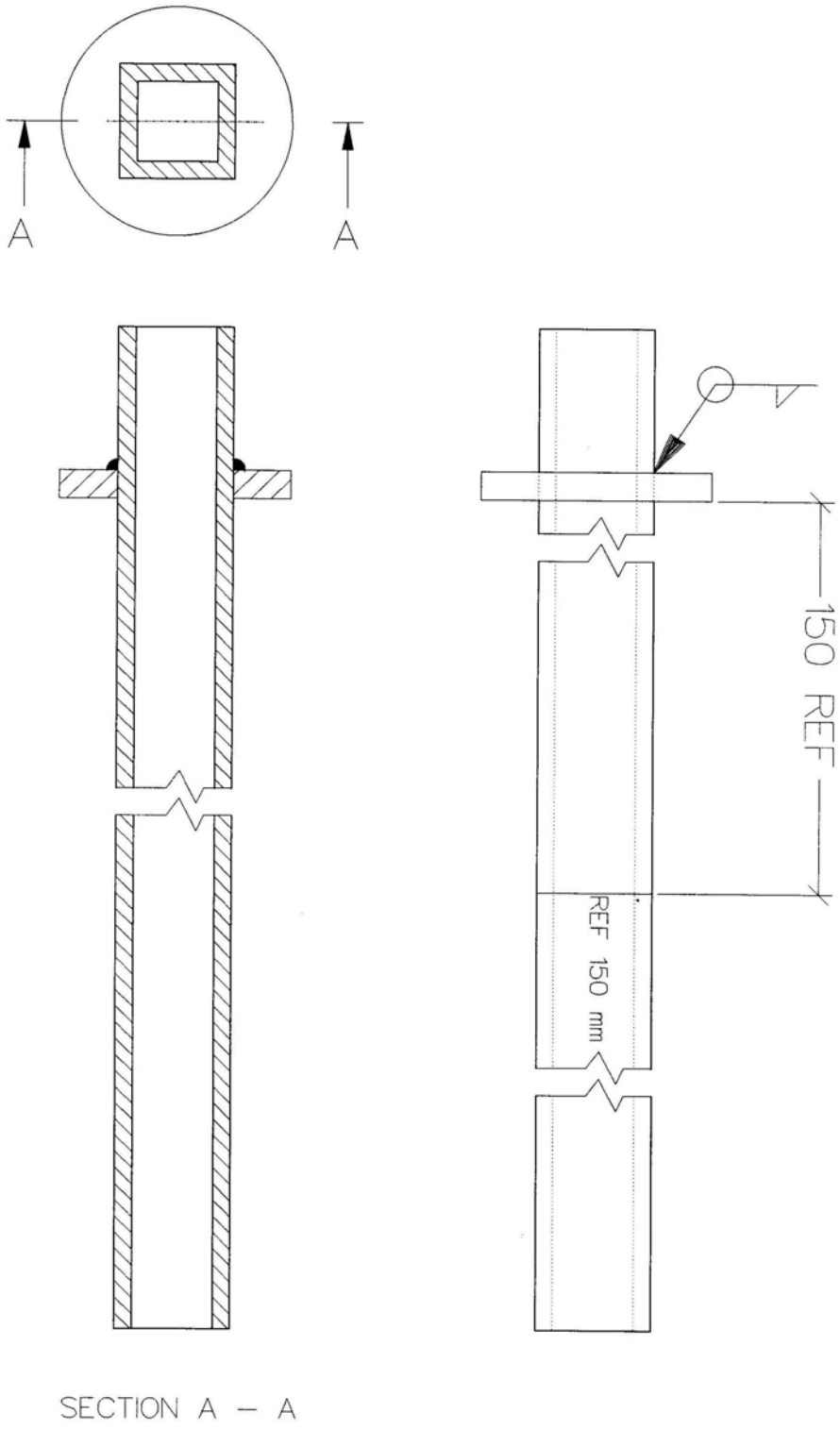
Marshall Lethlean Model MLTTA20PER Vehicle Tank –
Tandem Axle Tanker

FIGURE 9/2/2 – 2



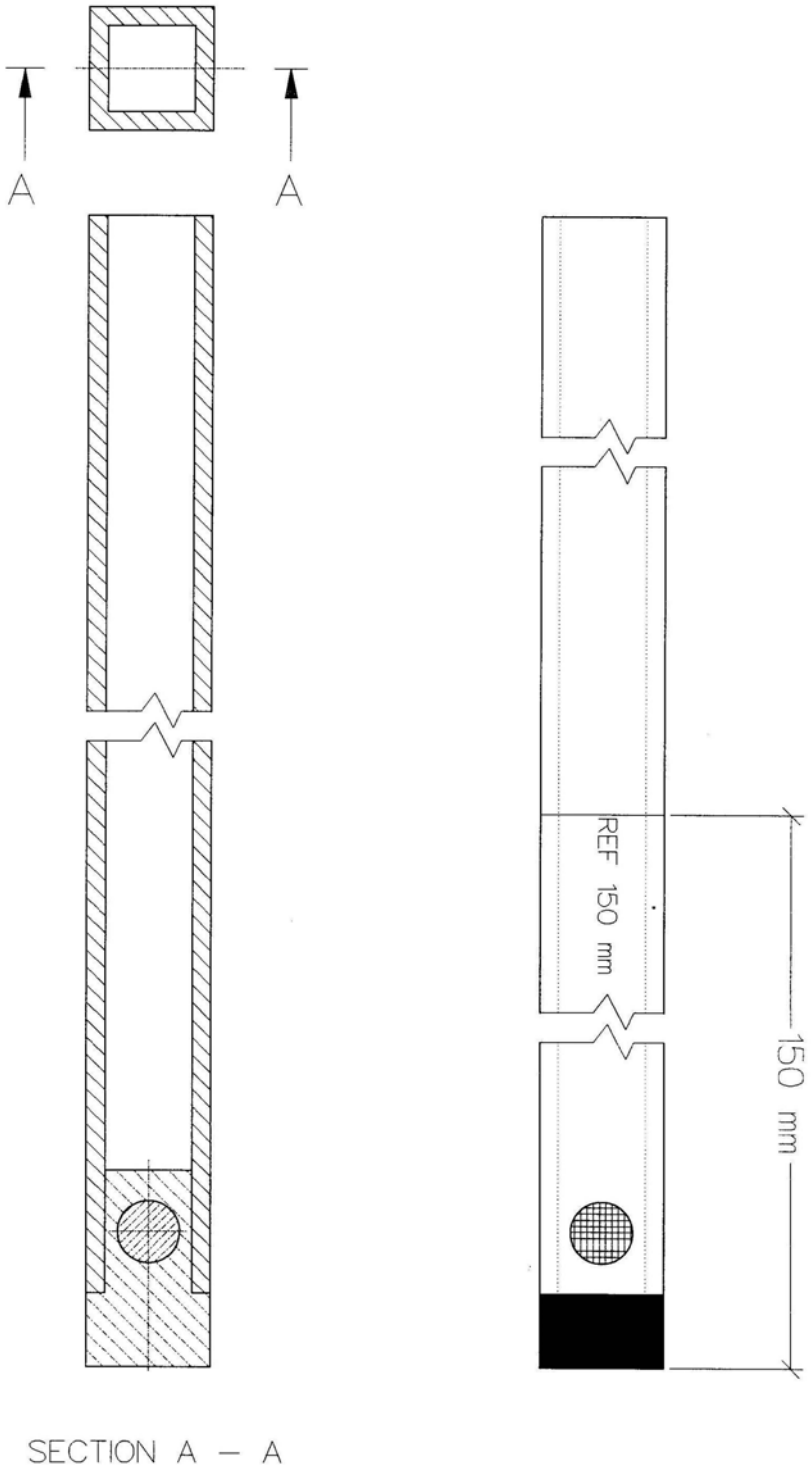
Tandem Axle Tanker –
An Alternative Configuration

FIGURE 9/2/2 – 3



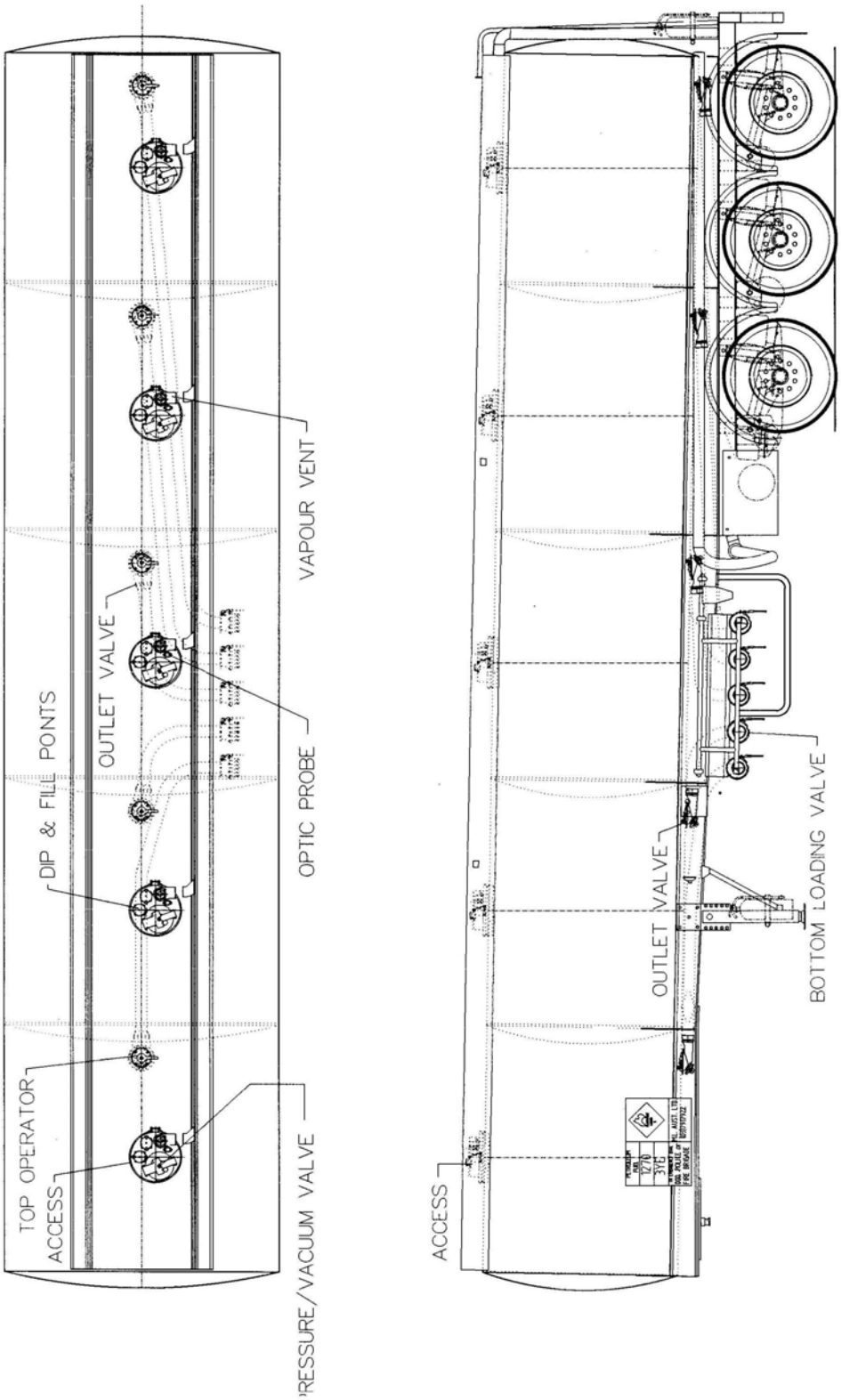
Typical Top-datum Dipstick

FIGURE 9/2/2 – 4



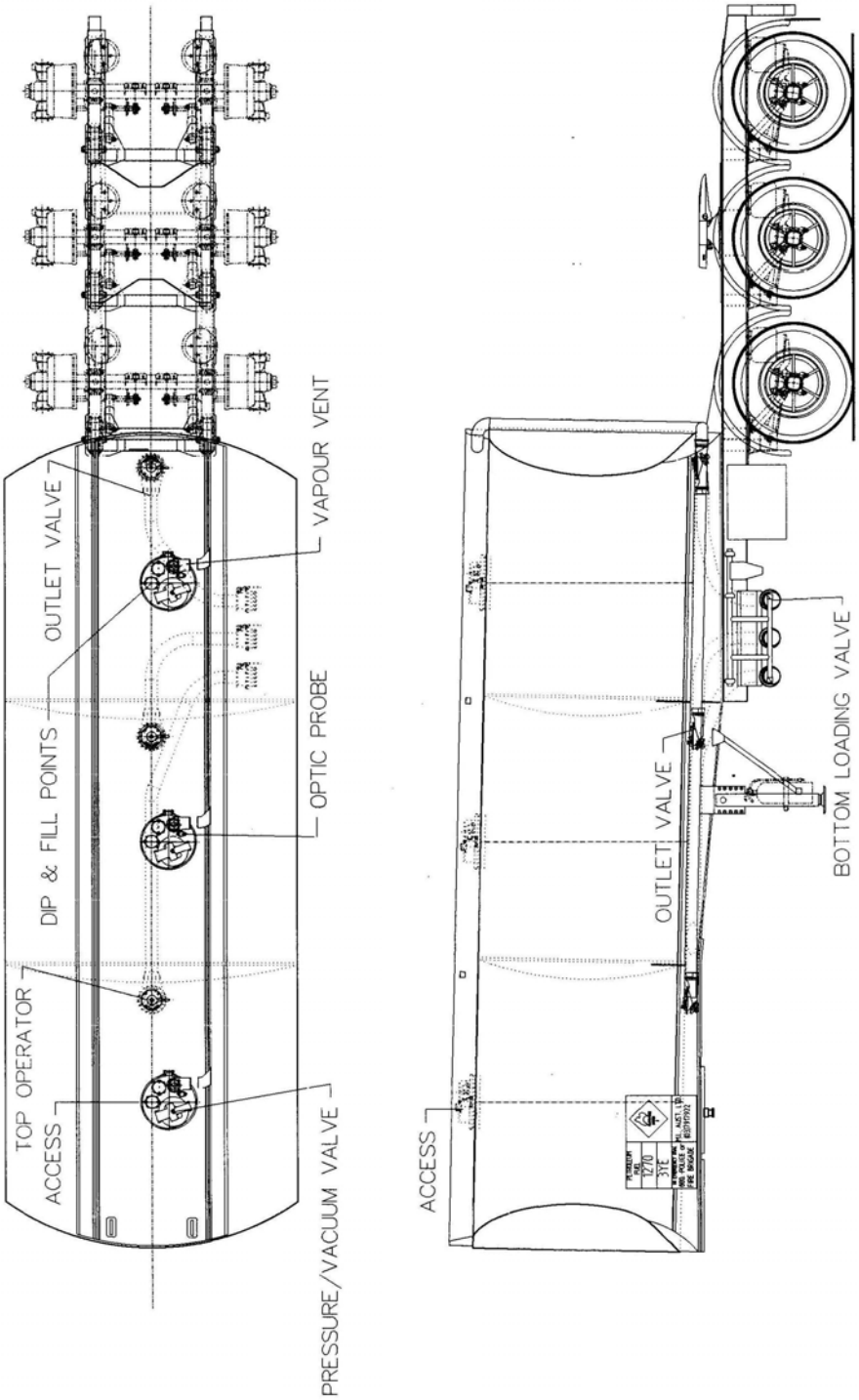
Typical Bottom-datum Dipstick

FIGURE 9/2/2 – 5



Typical Tri-axle Tanker

FIGURE 9/2/2 – 6



A Typical B-double Lead Tanker

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