



NATIONAL STANDARDS COMMISSION

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CERTIFICATE OF APPROVAL No 9/0

This is to certify that the patterns of

Vehicle Tanks of Capacity 0,5 to 105 kilolitres

have been approved under the Weights and Measures (Patterns of Instruments) Regulations as being suitable for use for trade.

Date of Approval: 5 May 1975


The patterns are described in Technical Schedule No 9/0.

The approval is subject to review on or after 1 July 1976.

All instruments conforming to this approval shall be marked with the approval number "NSC No 9/0".

This Certificate replaces Certificate No 9/0 dated 19 November 1973 which was cancelled on 5 May 1975.

Signed


Acting Executive Officer

From 1/10/83
Carce Head

6/5/75



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 9/0

Pattern: Vehicle Tanks of Capacity 0,5 to 105 kilolitres

Date of Approval: 5 May 1975

Scope of Approval:

A vehicle tank is a measuring instrument in the form of a tank or the compartment of a tank, fitted to or forming part of a vehicle and intended to be used for the measurement of liquid.

This Schedule relates only to the metrological performance of vehicle tanks of capacities from 0,5 kilolitre to 105 kilolitres.

Description:

1. TANK DESIGN

1.1 Where a vehicle tank is subdivided into two or more compartments, the capacity of any compartment shall not vary by more than 0,1% if any adjacent compartment is empty or full.

1.2 Every tank shall have an inspection opening of sufficient size to facilitate examination of the inside of the tank and, when the inspection-opening cover has a dipstick guide attached, it shall only be possible to fit the cover in the opening in one position.

1.3 Every tank shall be provided with effective venting to prevent the formation of gas pockets under all conditions of levelling which can be reasonably anticipated, and shall have any fill-pipe or baffle plate so constructed as to prevent the trapping of gas or liquid.

1.4 No sump shall be permitted to project above the bottom of the tank, except that a retaining weir is permitted for tanks intended for aviation fuel only.

2. PIPING DESIGN

2.1 Where a vehicle tank with two or more compartments is

constructed to discharge through a manifold common to two or more compartments, means shall be provided to ensure that:

- (a) liquid can flow through the outlet pipe from only one compartment at a time, and that flow of liquid from one compartment to another is automatically prevented; or that
- (b) all compartments connected to a common manifold discharge simultaneously.

2.2 Where a vehicle tank with two or more compartments is not constructed to discharge through a manifold in accordance with clause 2.1, the following notice in letters not less than 4 mm high shall be fixed adjacent to the discharge valve:

NOTICE

THIS VEHICLE TANK IS NOT APPROVED AS A MEASURING INSTRUMENT FOR DISCHARGE THROUGH A MANIFOLD

2.3 The outlet pipe shall be sloped to the discharge valve at a gradient of not less than 1 in 30 to ensure complete drainage of the measured quantity when the vehicle is standing on a level surface.

3. MEASURING SYSTEM

3.1 Calibration

3.1.1 Tolerances. The measuring system shall be capable of determining the volume to within the tolerance specified in Table 1.

TABLE 1 — TOLERANCES

<u>Indicated volume</u>	<u>Tolerances</u>
Up to 1,0 kl	± 2,5 litres
Over 1,0 kl but not over 2,5 kl	± 5 litres
Over 2,5 kl but not over 5,0 kl	± 10 litres
Over 5,0 kl	± 0,2% of indicated volume

3.1.2 Exclusion of unmeasured liquid. Where an aviation fuel tank is constructed so that a quantity of liquid is retained by a

weir after complete delivery, the calibration shall exclude that quantity.

3.1.3 Effect of internal valve. Where a tank is fitted with an internal valve as well as a valve on the discharge end of the outlet pipe, the tank shall be calibrated with the internal valve open, provided that this clause shall not apply to rail tank cars, which shall be calibrated with the internal valve closed.

3.2 Dipstick. Where a dipstick is used for measurement the following requirements shall apply:

3.2.1 Material. It shall be of rigid construction and made of metal.

3.2.2 Graduation requirements.

- (a) It shall be graduated for use with one compartment only.
- (b) The scale spacing shall be not less than 3 mm.
- (c) The maximum scale interval shall be in accordance with Table 2.
- (d) Scale marks shall be numbered in accordance with Table 2.

TABLE 2 — SCALE INTERVALS FOR DIPSTICKS

<u>Capacity of Tank</u>	<u>Scale interval</u>	<u>Numbering interval</u>
1 kl and under	5 litres	50 litres
Over 1 kl but not over 2,5 kl	10 litres	100 litres
Over 2,5 kl but not over 8,0 kl	20 litres	100 litres
Over 8,0 kl but not over 18 kl	50 litres	500 litres
Over 18 kl but not over 36 kl	100 litres	1000 litres
Over 36 kl	200 litres	1000 litres

- (e) The dipstick for a tank of a capacity greater than 10 kl shall not be graduated between marks representing 10% and 75% of capacity, provided that this clause shall not apply to tanks designed to carry bituminous liquids.

3.2.3 Marking.

- (a) The dipstick shall be marked with the serial number of the

vehicle tank and the compartment (if any) with which it is to be used.

- (b) A bottom-datum dipstick, when constructed to be removed from the diptube when not in use, shall have a clearly scribed mark passing around it, corresponding with distance of the top of the diptube above the dip plate.
- (c) A bottom-datum dipstick shall have a scribed line on one of its ungraduated sides not less than 100 mm and not more than 150 mm from the bottom, and have the distance between that mark and the bottom of the dipstick legibly stamped adjacent to the line.

3.2.4 Meniscus effect. During verification (or re-verification) the dipstick shall be surface-treated, if necessary, to ensure that the line-of-contact of the liquid is between 1 mm and 2 mm above the liquid surface.

If check-calibrated in service with the liquid for which the tank is intended, the tolerances shall be 1,5 times the values specified in Table 1.

3.2.5 Dipstick guide.

- (a) Tanks with a bottom datum shall have a diptube not less than 75 mm and not more than 100 mm internal diameter, which shall be vented into the tank to ensure that the liquid level in the diptube coincides with the liquid level in the tank.
- (b) Tanks with a top datum shall have a dipstick guide which will prevent the dipstick from deviating more than 1 in 20 (approximately 3°) from vertical when the dipstick is in the measuring position.
- (c) There shall be nothing in a diptube likely to obstruct the dipstick.
- (d) The axis of diptube or guide shall be within 25 mm of the point determined from Figure 1.
- (e) Where a tank is so constructed that the dipstick may be accidentally inserted in the fill-pipe, the diptube opening shall be marked to distinguish it from the fill-pipe.

3.2.6 Dip plate. A tank with a bottom-datum dipstick shall have a dip plate fixed to the bottom of the tank; the dip plate shall cover the projected area of the diptube and shall be perpendicular to the axis of the diptube. (The tank bottom may be used as a dip plate if it complies with this requirement.)

4. TANK MARKINGS

4.1 Every vehicle tank shall have a nameplate bearing a verification stamping plug, the tank number, the approval number "NSC No 9/0", and the manufacturer's name, rivetted or welded to the tank in a position visible to a person standing on ground level. The tank number shall be not less than 10 mm high and the remaining letters and numbers not less than 4 mm high.

4.2 Every vehicle tank shall have the following notice, in letters not less than 4 mm high, fixed adjacent to the outlet valves so that it is clearly visible to a person attending an outlet valve:

WARNING

REPAIRS OR ALTERATIONS TO PIPING, MANIFOLDS OR
VALVES MUST NOT BE MADE WITHOUT PRIOR OBLITERATION
OF VERIFICATION AND DATE STAMPS

4.3 Where a vehicle tank is subdivided into two or more compartments, each compartment shall be prominently numbered consecutively from front to rear on the body of the compartment adjacent to each dip hatch, and the safe-filling capacity shall be indicated in numerals at least 50 mm in height adjacent to the filling point.



NATIONAL STANDARDS COMMISSION

CANCELLATION OF CERTIFICATE OF APPROVAL No 9/0

This is to certify that General Certificate of Approval No 9/0 for the pattern of

Vehicle Tanks of Capacity 0.5 to 105 kilolitres

will expire in respect of new instruments on 1 October 1983.

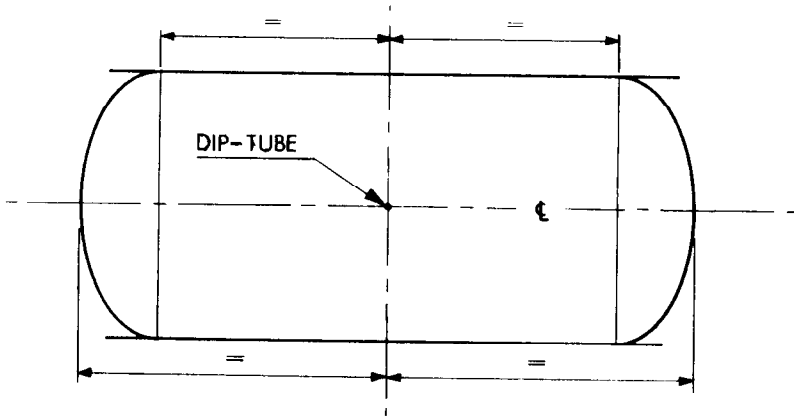
Instruments which were verified before that date may, with the concurrence of the State or Territorial verifying authorities, be submitted for reverification.

Signed

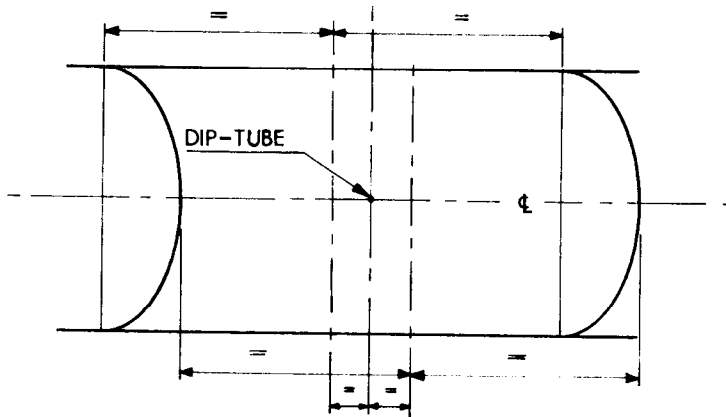
Executive Director

22/9/83

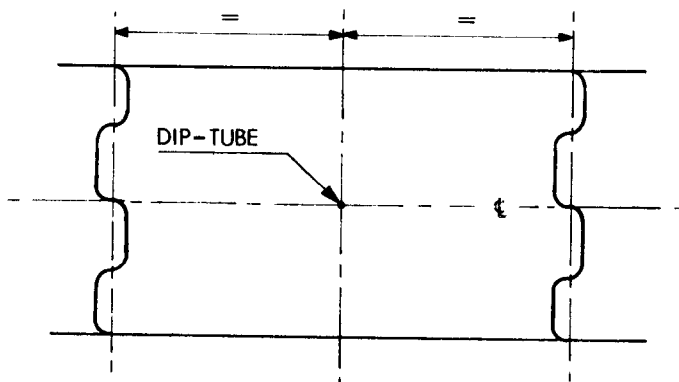
FIGURE 9/0 - 1



SYMMETRICAL



NON - SYMMETRICAL



CORRUGATED

Location of Diptube in Vehicle Tanks (plan views)