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## STATUTORY INSTRUMENTS

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# 1983 No. 1390

## The Measuring Equipment (Liquid Fuel delivered from Road Tankers) Regulations 1983

### PART II

#### PRINCIPLES OF CONSTRUCTION AND MARKING OF MEASURING EQUIPMENT

7. Measuring equipment to which these Regulations apply shall consist of a contents gauging system, a dipstick measuring system or a meter measuring system.

##### *Contents gauging systems*

8. Regulations 9 to 12 below apply to contents gauging systems.

9.—(1) Every contents gauging system shall be made in accordance with a pattern in respect of which a certificate of approval is in force.

(2) Every contents gauging system shall be legibly and durably marked with the number of the certificate of approval, preceded by the words “Certification No.” or “Cert. No.”.

10. The minimum delivery and the liquid fuel which a contents gauging system is designed to measure shall be marked legibly, permanently and conspicuously in a suitable position on or adjacent to the sales indicator.

11. Every contents gauging system shall be fitted with a sales indicator reading in litres or gallons and so arranged that:

- (a) the indicator reading is capable of being set to zero before a delivery commences; and
- (b) the indicator reading cannot be advanced by any means other than by the discharge of liquid fuel from the system.

12. Every contents gauging system shall incorporate a ticket printing mechanism to enable a ticket to be issued indicating the quantity of liquid fuel delivered in each transaction.

##### *Meter measuring systems*

13. Regulations 14 to 17 below apply to meter measuring systems.

14.—(1) Every meter measuring system shall be made in accordance with a pattern in respect of which a certificate of approval is in force.

(2) Notwithstanding paragraph (1) above, a meter measuring system which does not comply with that paragraph at 1st July 1984 may continue to be tested and stamped and used for trade until 1st July 1987 if it has before 1st July 1984 been passed as fit for use for trade in accordance with these Regulations.

(3) Every meter measuring system made in accordance with a pattern as mentioned in paragraph (1) above shall be legibly and durably marked with the number of the certificate of approval, preceded by the words “Certification No.” or “Cert. No.”.

15. The minimum delivery, the liquid fuel which a meter measuring system is designed to measure and the minimum and maximum rates of flow shall be marked legibly, permanently and conspicuously in a suitable position on or adjacent to the meter.

16. Every meter measuring system shall be fitted with a sales indicator reading in litres or gallons and so arranged that:

- (a) the indicator reading is capable of being set to zero before a delivery commences; and
- (b) the indicator reading cannot be advanced by any means other than by the discharge of liquid fuel from the system.

17. Every meter measuring system shall incorporate a ticket printing mechanism to enable a ticket to be issued indicating either the quantity of liquid fuel delivered in each transaction or two numbers from which the quantity delivered may readily be calculated.

#### *Dipstick measuring systems*

18. Regulations 19 to 35 below apply to dipstick measuring systems.

19. Every dipstick shall relate to, and be used for measuring the quantity of fuel in, one compartment only.

20.—(1) Every dipstick shall consist of a blade and a crosspiece.

(2) The blade shall be made of hard wood treated to reduce absorption, glass-reinforced plastic or other material approved by the Secretary of State.

(3) The blade shall be free from flaws and sufficiently straight to be satisfactory for measurement.

(4) Subject to paragraph (6) below, the blade shall extend to within 20 mm of the bottom of the compartment beneath the dipstick but not so as to touch the bottom:

Provided that for compartments the use of which commenced before 1st July 1980 this paragraph shall have effect as if for “20 mm” there were substituted “25 mm”.

(5) Subject to paragraph (6) below, the blade shall be sufficiently long so that it will indicate when the compartment contains liquid fuel equal to 0.5% of the nominal capacity of the compartment.

(6) In the case of compartments the use of which commenced before 1st July 1983—

- (a) the blade shall only have to comply with either the requirements of paragraph (4) above or those of paragraph (5);
- (b) if the blade does not comply with the requirements of both paragraphs (4) and (5) above, the dipstick measuring system shall not be used for trade after 31st December 1993.

21. The cross-sectional area of a dipstick shall not exceed 5 cm<sup>2</sup>.

22. Every dipstick blade made from glass-reinforced plastic or other materials which it is not practicable to stamp shall have a metal rivet suitable for receiving the stamp rivetted into the blade adjacent to the line 50 mm below the datum face referred to in Regulation 27 below.

23.—(1) The crosspiece of every dipstick shall be made of metal or other material approved by the Secretary of State and shall be positively located and securely fixed to the blade to withstand fair wear and tear in ordinary use for trade.

(2) If the crosspiece is made in two parts they shall be spigotted together.

(3) The datum face shall be flat and at right angles to the axis of the blade.

**24.—**(1) The unit of measurement to be used in marking a dipstick shall be either the litre or the gallon.

(2) The unit shall be marked on the dipstick at each end of the scale referred to in Regulation 28 below, beneath the crosspiece on the graduated face of the blade in letters and figures not less than 6 mm high.

(3) Where the unit of measurement is the litre, if the number of digits on any marking would exceed four (9999) the marking may read “litres × 10” or “litres × 100”

**25.** The related compartment number shall be marked on the graduated face of every dipstick at each end of the blade in figures not less than 10 mm high.

**26.** The related tank number shall be marked at the crosspiece end of the blade of every dipstick in figures not less than 6 mm high.

**27.** Every dipstick shall have a line marked on its graduated face, at right angles to the axis of its blade 50 mm from the datum face measured to the further edge of that line.

**28.** Every dipstick used to measure deliveries of less than a full compartment shall be marked and graduated in accordance with the following provisions of this Regulation:—

- (a) the graduation shall be in a reasonable and convenient scale;
- (b) all scale marks, letters and figures shall be legibly and permanently marked;
- (c) each scale mark shall be at right angles to the axis of the blade of the dipstick and shall extend across the full width of the dipstick;
- (d) each scale mark shall be not less than 1 mm deep and not less than 1 mm nor more than 1.5 mm wide;
- (e) the lower edge of each scale mark (the further edge from the datum face) shall indicate the quantity of liquid fuel being measured;
- (f) each scale mark shall be numbered by figures not less than 6 mm high, with lines not less than 1 mm deep and not less than 1 mm nor more than 1.5 mm wide;
- (g) the figures shall be placed immediately above the scale mark to which they relate and shall not extend above half way between the lower edges of two adjacent scale marks;
- (h) the distance between the lower edges of two adjacent scale marks shall be not less than 18 mm and not more than 150 mm;
- (i) major scale divisions shall be of equal value:  
Provided that in the case of compartments the use of which commenced before 1st January 1981 one additional scale mark may be included to indicate the nominal capacity of the compartment; and
- (j) the bottom two and top three major scale divisions may be subdivided with subdivisions of equal value.

**29.—**(1) Every compartment shall be fitted with a fixed vertical dipstick guide tube.

(2) The tube shall be positioned so that the dipstick shall pass as nearly as practicable through the longitudinal and transverse centre lines of the compartment:

Provided that—

- (a) this paragraph shall not apply in the case of compartments the use of which commenced before 1st July 1983; and
- (b) if the tube is not so positioned, the dipstick measuring system shall not be used for trade after 31st December 1993.

**30.—**(1) In the case of compartments used for petroleum spirit the dipstick guide tube shall—

- (a) be, throughout its depth of immersion, of not less than 50 mm internal diameter or equivalent cross-sectional area; and
- (b) have venting uniformly throughout its length of at least 0.01 square metre area per metre of length, excluding any gauze covering or retaining clips.

(2) In the case of compartments used for liquid fuel other than petroleum spirit a dipstick guide tube shorter than the length of the dipstick may be used, but it shall be of such diameter and length that the dipstick is guided sufficiently near to the vertical plane so that any inaccuracy in the indication of quantity cannot exceed the prescribed limits of error.

**31.** At the top of every dipstick guide tube there shall be provided a flat surface to create a datum surface, which shall consist of an annulus not less than 5 mm in width.

**32.—**(1) The design of every dipstick guide tube shall be such as to permit the height of the datum surface to be easily and accurately measured from the identified datum point.

(2) The said height in mm, the tank number and the compartment number shall be marked legibly and permanently on the dipstick guide tube, adjacent to the datum surface.

**33.—**(1) Every compartment number shall be marked—

- (a) legibly and permanently in line with the dipstick guide tube on the same side of the tank as the outlet valves so that the number is legible from the ground; and
- (b) legibly, permanently and conspicuously adjacent to the compartment's outlet valve.

(2) The nominal capacity of each compartment and the minimum quantity of fuel which may be delivered by the use of a dipstick from each compartment shall be marked legibly, permanently and conspicuously on the same side of the tank as the outlet valves with the same unit of measurement as is used for marking the dipstick.

(3) A legible, permanent and conspicuous notice shall be positioned on the same side of the tank as the outlet valves stating that dipsticks should be read at scale marks only.

**34.** Where more than one compartment discharges through a common outlet manifold means shall be provided to prevent liquid flowing from one compartment into another compartment.

**35.—**(1) Tanks and compartments shall be so constructed that the prescribed limits of error at any scale mark shall not be exceeded whether the adjacent compartments are empty or contain liquid.

(2) Every tank shall be made of any metal, alloy or synthetic material that is suitable for the type of liquid contained, and such metal, alloy or synthetic material must possess sufficient strength, durability and stability and a co-efficient of linear expansion not exceeding  $25 \times 10^{-6} > ^\circ\text{C}$ .

(3) Every compartment shall be so shaped and constructed that—

- (a) when the vehicle is standing on a level surface, no air pockets form on filling and no liquid is retained on discharge; and
- (b) any baffles or stiffeners inside a compartment do not interfere with its filling or emptying.

(4) The emptiness of a compartment and its associated discharge pipes shall be easily verifiable.