STATUTORY INSTRUMENTS

1979 No. 1720

WEIGHTS AND MEASURES

The Measuring Equipment (Liquid Fuel delivered from Road Tankers) Regulations 1979

Made - - - -	19*th December* 1979
Laid before Parliament	9*th January* 1980
Coming into Operation:	
All Regulations except Regulations 4 *and* 8(1)	1*st July* 1980
Regulations 4 *and* 8(1)	1*st July* 1983

The Secretary of State, in exercise of the powers conferred by sections 11(1) and (3), 12(4), 14(1) and 58 of the Weights and Measures Act 1963(**a**) (hereinafter called "the Act") and now vested in him(**b**), and of all other powers enabling him in that behalf, hereby makes the following Regulations:—

PART I

GENERAL

Citation and commencement

1. These Regulations may be cited as the Measuring Equipment (Liquid Fuel delivered from Road Tankers) Regulations 1979 and shall come into operation as follows:—

(*a*) all Regulations except Regulations 4 and 8(1), on 1st July 1980; and

(*b*) Regulations 4 and 8(1), on 1st July 1983.

Interpretation

2.—(1) In these Regulations—

"approved" means approved in accordance with a pattern in respect of which a certificate of approval has been granted under section 12 of the Act, and is in force for the time being or, if none, in accordance with the manufacturer's recommendations;

"calibration chart" means a table of figures which relates the volume of liquid in a particular compartment with the linear distance between the surface of the liquid and the datum surface;

(**a**) 1963 c. 31; as amended by the Weights and Measures &c. Act 1976 (c. 77) and the Weights and Measures Act 1979 (c. 45).
(**b**) S.I. 1970/1537.

"compartment" means a single container with which a dipstick is associated to measure quantities of liquid, but does not include associated pipework between the foot valve and the outlet valve unless specifically stated on a conspicuous notice adjacent to the outlet value;

"compartment number" means, in the case of a multi-compartment tank, the position of the compartment relative to the front of the vehicle, numbered sequentially from the front of the vehicle;

"datum face" means the flat surface of the crosspiece of a dipstick at right angles to the axis of the dipstick formed by the lower face of the crosspiece;

"datum point" means a point or area on the road tanker from which the relative height of the datum surface can be readily checked;

"datum surface" means the surface at the top of the dipstick guide tube, on which the datum face of the crosspiece rests when a measurement of liquid fuel is being made;

"dipstick measuring system" means any measuring equipment comprising a compartment with a datum surface and an associated dipstick with a datum face;

"meter measuring system" means any measuring equipment, other than a dipstick measuring system or a capacity measure, comprising all parts and devices from the source from which the liquid is drawn to the point of discharge and all mechanical, optical, electrical or pneumatic equipment associated therewith;

"reference meter" means a meter for use in testing measuring equipment to which these Regulations apply provided pursuant to section 5(1) of the Act for use by inspectors of weights and measures;

"registration mark" in relation to a vehicle means the registration mark assigned to it under the Vehicles (Excise) Act 1971(a);

"replacement dipstick" means a dipstick which is presented for testing to replace a dipstick which has been broken, lost or destroyed or is otherwise unserviceable;

"road tanker" means any vehicle or trailer which carries liquid in a tank forming part of the vehicle or trailer other than that containing the fuel which is used to propel the vehicle, and also includes any tank with a capacity exceeding 3 m^3 carried on a vehicle;

"spare dipstick" means an additional dipstick which is tested and stamped at the same time as an original or replacement dipstick;

"tank" means a single or multiple container comprising one or more compartments with which one or more dipsticks are associated for the measurement of quantities of liquid;

"tank number" means, in the case of a trailer part of a vehicle, the tank manufacturer's serial number and in the case of a rigid vehicle, either the tank manufacturer's serial number or the vehicle registration mark.

(a) 1971 c. 10.

(2) The abbreviations of, and symbols for, units of measurement used in these Regulations refer to the relevant units as follows:—

Cubic Metre	:	m^3
Millimetre	:	mm
Square Centimetre	:	cm^2

Application

3.—(1) These Regulations shall apply to measuring equipment used for trade for the measurement of liquid fuel in quantities in excess of 100 litres dispensed from road tankers.

(2) Nothing in these Regulations shall apply to any of the following measuring equipment—

(*a*) measuring equipment for use only for the delivery of liquefied gas, lubricating oils, or fuels dispensed at other than ambient temperature;

(*b*) measuring equipment for use only for the fuelling of aircraft, ships or hovercraft.

4. Measuring equipment to which these Regulations apply is hereby prescribed for the purposes of section 11(1) of the Act.

Purposes of use for trade

5. Equipment shall be used for trade only for the purpose of measuring delivered quantities of not less than—

(*a*) the minimum delivery marked on the indicator of a meter measuring system, or

(*b*) 30% of the nominal capacity marked on the compartment with which a dipstick is associated:

Provided that this Regulation does not apply where a measurement is only made for the purpose of payments in respect of any customs or excise duty.

PART II

MATERIAL AND PRINCIPLES OF CONSTRUCTION

6. Measuring equipment to which these Regulations apply shall consist of either a meter measuring system or a dipstick measuring system.

Meter measuring systems

7. Regulations 8 to 11 below apply to meter measuring systems.

8.—(1) On and after 1st July 1983 meter measuring systems shall be made only in accordance with a pattern in respect of which a certificate of approval granted under section 12(1) of the Act(**a**) is for the time being in force.

(**a**) Section 12(1) has been amended by section 17 of the Weights and Measures Act 1979.

(2) Notwithstanding paragraph (1) above, a meter measuring system which does not comply with that paragraph at 1st July 1983 may continue to be tested and stamped and used for trade until 1st July 1986 if—

(i) it has before 1st July 1983 been passed as fit for use for trade in accordance with these Regulations; and

(ii) an inspector is of the opinion at the time when the equipment is submitted for testing or re-testing that it is not constructed in a manner which facilitates fraudulent use.

(3) Meter measuring systems made in accordance with a pattern as mentioned in paragraph (1) above shall be marked with the certification number or the number of the notice of examination issued by the Secretary of State in respect of the pattern, preceded by the words "Certification No" or "Notice No" as the case may be.

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

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

(*a*) the indicator reading is capable of being set to zero indication 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.

11. 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

12. Regulations 13 to 30 below apply to dipstick measuring systems.

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

14. The dipstick shall consist of a blade and a crosspiece. The blade shall be made of hard wood treated to reduce absorption, glass-reinforced plastic or other material approved by the Secretary of State. The blade shall be free from flaws, sufficiently straight to be satisfactory for measurement and shall extend to within 12 mm of the bottom of the compartment beneath the dipstick guide tube, but not so as to touch the bottom: Provided that for compartments in use before 1st July 1980 this regulation shall have effect as if for "12 mm" there were substituted "25 mm".

15. The cross-sectional area of a dipstick shall not exceed 5 cm^2.

16. Dipstick blades made from glass-reinforced plastic or other materials which it is not practicable to stamp shall have a metal rivet suitable for

receiving the prescribed stamp rivetted into the blade adjacent to the line 50 mm below the datum face of the crosspiece referred to in Regulation 21 below.

17. The crosspiece 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. If the crosspiece is made in two parts they shall be spigotted together. The datum face shall be flat and at right angles to the axis of the blade of the dipstick.

18. The unit of measurement shall be either the litre or the gallon. The unit shall be marked on the dipstick at each end of the scale referred to in Regulation 22, below the crosspiece on the graduated face of the blade of the dipstick in letters and figures not less than 6 mm high, except that if the number of digits on any marking would exceed four (9999) the marking may read "litres x 10" or "litres x 100".

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

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

21. Each 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.

22. Each dipstick used to measure deliveries of less than full compartment shall be graduated in accordance with the following provisions of this regulation:—

(i) the distance between major scale marks shall be not less than 25 mm and not more than 150 mm;

(ii) the value of the major divisions in gallons or litres shall be equal, except that the bottom one and top three major scale divisions may be sub-divided so that the value of each sub-division is $\frac{1}{2}$, $\frac{1}{4}$, 1/5 or 1/10 of a major scale division, providing that the distance between adjacent scale marks is not less than 10 mm;

(iii) the graduation shall be in a reasonable and convenient scale;

(iv) all scale marks, letters and figures shall be legible and permanently marked.

23.—(1) 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, with the lower edge of the mark further from the datum face indicating the quantity.

(2) Each scale mark shall be not less than 1 mm deep and not less than 1 mm nor more than 1.5 mm wide.

(3) Major scale marks 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. The figures shall be placed immediately above the scale marks to which they relate.

24. Each compartment shall be fitted with a fixed vertical dipstick guide tube positioned so that the dipstick shall (without prejudice to Regulation 14 above) pass as nearly as practicable through the centre of volume of the compartment.

25.—(1) In the case of compartments used for petroleum spirit the dipstick guide tube shall, throughout its depth of immersion, be of not less than 50 mm internal diameter or equivalent cross-sectional area. The tube shall 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 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 errors specified in Regulation 43 below.

26. At the top of the 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.

27. The design of the dipstick guide tube shall be such as to permit the height of the datum surface to be easily and accurately measured from an identified datum point. The height in mm, the tank number and the compartment number shall be marked permanently on the dipstick guide tube, adjacent to the datum surface.

28.—(1) The compartment number shall be marked 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.

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

(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.

29. 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.

30.—(1) Tanks and compartments shall be so constructed that:—

(*a*) the linear dimensions of a compartment when empty, partly filled or full shall not vary by more than 1 part in 1,000;

(*b*) the prescribed limits of error at any scale mark shall not be exceeded whether the adjacent compartments are empty or contain liquid;

(*c*) the tank shall be made of any metal, alloy or synthetic material that is suitable for the type of liquid contained. These materials must possess sufficient strength, durability, and stability and a coefficient of linear expansion not exceeding 25×10^{-6} °C.

(2) Each compartment shall be so shaped and constructed that, when the vehicle is standing on a level surface, no air pockets form on filling and no liquid is retained on discharge. Any baffles or stiffeners inside a compartment shall be so shaped and perforated that they do not interfere with its filling or emptying. The emptiness of a compartment and its associated discharge pipes shall be easily verifiable.

PART III

MANNER OF USE FOR TRADE

31.—(1) Liquid fuel shall not be transferred from one compartment into another compartment during a delivery.

(2) A meter measuring system shall be used as follows—

(*a*) the individual sales indicator shall be reset to zero before a delivery commences; and

(*b*) the ticket printing mechanism shall be used to provide an individual printed ticket in accordance with Regulation 11 above.

PART IV

TESTING

Meter measuring systems

32. Regulations 33 to 37 below apply to meter measuring systems.

33.—(1) No system shall be tested unless it is complete with all parts and ancillary equipment concerned in the operations of measurement and delivery.

(2) A system shall be tested at rates of flow which are not more than the approved maximum and not less than the approved minimum and under the approved working conditions, installed ready for use, with the liquid which it is intended to deliver, or with liquids of similar viscosity, the rate of flow being maintained as uniform as practicable.

34. An inspector shall test a meter measuring system using:—

(*a*) local standards of capacity; or

(*b*) a reference meter; or

(*c*) other equipment, being measures of capacity forming part of a fixed installation or being mounted on a vehicle or trailer, which has been tested in a manner which the inspector considers suitable, and adjusted so as not to have any apparent error, within the last twelve months.

35. The inspector, in the case of liquid withdrawn from any tank or compartment for the purpose of the inspector's test of measuring equipment, shall return the liquid to the tank or compartment from which it was withdrawn if the inspector is of the opinion that it is practicable and desirable so to do; otherwise, it shall be placed in another suitable receptacle reasonably convenient for the purpose nominated and provided by the trader or person in charge of the equipment.

36. The inspector, if requested, shall give to the trader or person in charge of the said equipment a signed and dated statement of the quantity of liquid withdrawn from the tank or compartment and returned or placed as aforesaid.

37. An inspector may open any locked or sealed tank or compartment for the purpose of carrying out his tests or for the return of liquid withdrawn during testing, and immediately thereafter he shall securely refasten the said tank or compartment, and for this purpose he shall replace any seal or link broken by him in opening the said tank or compartment with a seal upon which he shall affix his stamp.

Dipstick measuring systems

38. Regulations 39 to 41 below apply to dipstick measuring systems.

39.—(1) (*a*) Except in the case of a replacement dipstick tested by reference to a calibration chart certified as mentioned in paragraph (2) below, a dipstick relating to a compartment shall be tested by inserting into the compartment known volumes of liquid and determining the position of the scale mark on the dipstick when the road tanker is on a level surface.

(*b*) The known volumes in paragraph (*a*) above shall be determined using: —

(i) local standards of capacity; or

(ii) a reference meter; or

(iii) other equipment, being measures of capacity forming part of a fixed installation or being mounted on a vehicle or trailer, which has been tested in a manner which the inspector considers suitable, and adjusted so as not to have any apparent error, within the last twelve months.

(2) A replacement dipstick shall be tested by comparing the distance of every scale mark from the datum surface with that given on a calibration chart certified by an inspector as accurate at the time of a testing in accordance with paragraph (1) above, unless any alteration, addition, damage or repair has been effected to the compartment which in the opinion of the inspector has invalidated the calibration chart, in which case the dipstick measuring system shall be retested in accordance with paragraph (1) above.

(3) Not more than two dipsticks relating to a compartment may be passed as fit for use for trade on any one occasion.

40. An inspector shall use, in testing any dimensional measurement in a dipstick measuring system—

(*a*) a rigid local standard of length; or

(*b*) a material measure of length to which Council Directive No. 73/362/EEC(**a**) applies bearing the mark of EEC initial verification and an indication that it is of class of accuracy class I

which—

(i) is divided into 1 mm or $\frac{1}{2}$ mm intervals throughout, and

(ii) has been tested in a manner which the inspector considers suitable within the previous 10 years and found not to have errors exceeding those permitted by item 7.4 of the Annex to the said Directive; or

(**a**) O.J. No. L335, 5.12.1973, p. 56, as amended by Council Directive No. 78/629/EEC (O.J. No. L206, 29.7.78, p. 8).

(*c*) a rigid linear measure of appropriate length which—
(i) is divided into 1 mm or $\frac{1}{2}$ mm intervals throughout, and
(ii) has been tested in a manner which the inspector considers suitable within the previous 10 years and found not to have errors in excess or in deficiency of 0.25 mm per whole metre or part of a metre; or

(*d*) other equipment for measuring length of suitable form and durability which has been tested in a manner which the inspector considers suitable and found not to have any error in excess or in deficiency of 0.25 mm per whole metre or part of a metre.

41. Tanks submitted for testing shall be clean.

PART V

SUPPLEMENTARY PROVISIONS

Prescribed limits of error

42. The prescribed limits of error relating to a meter measuring system shall be 0.5% of the indicated quantity:
Provided that

(a) for quantities delivered equivalent to the marked minimum delivery and up to twice that amount the error shall not exceed 1% of the marked minimum delivery; and

(*b*) if, on testing with a view to passing as fit for use for trade, the errors on all the quantities delivered during the tests are all errors in excess or all errors in deficiency then, notwithstanding that they are all within the prescribed limits set out above, at least one error in five shall not exceed 0.3% of the quantity delivered.

43. The prescribed limits of error relating to a dipstick measuring system shall be that:—

(*a*) the lower edge of each scale mark on the dipstick is within 4 mm of the true position for the quantity indicated;

(*b*) the lower edge of the line referred to in Regulation 21 above is within 1 mm of the distance specified; and

(*c*) the height of the datum surface is within 1 mm of the height marked permanently in accordance with Regulation 27 above.

Passing as fit for use for trade

44. No measuring equipment shall be passed as fit for use for trade unless—

(*a*) it complies with the appropriate requirements of these Regulations; and

(*b*) on testing it falls within the prescribed limits of error.

Stamping

45.—(1) Every meter measuring system shall be provided with one or more plugs, seals or sealing devices of suitable form and material to protect all stops and other adjustable parts affecting the quantity delivered, or with such alternative sealing arrangements as may be authorised in relation to a

particular pattern in respect of which a certificate of approval granted under section 12 of the Act is for the time being in force.

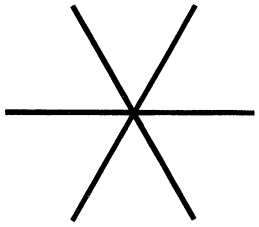
(2) The prescribed stamp shall be placed on all such plugs, seals or sealing devices.

46. The prescribed stamp shall be placed on the graduated face of the dipstick blade or, where applicable, on the metal rivet referred to in Regulation 16 above, and on the compartment adjacent to the datum surface.

47. Subject to Regulation 8 above, no measuring equipment shall be stamped if it bears any mark which, in the opinion of the inspector, might reasonably be mistaken for the prescribed stamp, or any statement or mark (other than an inspector's stamp) which purports to be or, in the opinion of the inspector, might reasonably be mistaken for an expression of approval or guarantee of accuracy by any body or person.

Obliteration of stamps

48. Stamps shall be obliterated by an inspector, in accordance with the requirements of these Regulations, by means of punches or pincers of suitable sizes of a six-pointed star design as shown in the following illustration:



49. An inspector shall obliterate the stamp on any measuring system which—

(*a*) fails upon testing

(i) in the case of a meter measuring system, to fall within the limits in deficiency or twice the limits in excess specified in Regulation 42; or

(ii) in the case of a dipstick measuring system, to fall within the limits of error specified in Regulation 43; or

(*b*) fails to comply with any other relevant requirement of these Regulations:

Provided that where a measuring system does not fully comply with the requirements of these Regulations, but the nature or degree of the cause is not in the inspector's opinion such as to require the immediate obliteration of the stamp, he shall give to the trader a notice calling on him to have the measuring system corrected within a stated period not exceeding 28 days, and shall obliterate the stamp if the correction has not been made within such period.

50. An inspector shall obliterate the stamp on any measuring equipment which, since it was last stamped, has had any alteration or addition made to it such that it could not be passed as fit for use for trade.

51. For the purposes of these Regulations, the obliteration of a stamp on a measuring system shall be deemed to be the obliteration of all other stamps on that system: Provided that where a stamp is obliterated on a dipstick this Regulation shall not apply so as to prevent the use of a spare or replacement dipstick for measuring the quantity of fuel in the compartment to which the first-mentioned dipstick relates.

Sally Oppenheim,

Minister of State,
Department of Trade.

19th December 1979.

EXPLANATORY NOTE

(This Note is not part of the Regulations.)

These Regulations prescribe measuring equipment used for trade for measuring bulk supplies of liquid fuel dispensed from road tankers in quantities in excess of 100 litres (mainly petrol to filling stations and central heating fuel oil to houses and other premises).

The Regulations do not apply to equipment for use only for measuring liquefied petroleum gas and heated oil, or for refuelling ships and aircraft (Reg. 3(2)).

The Regulations provide that: —

(*a*) equipment may only be used for the purpose of measuring deliveries of at least the minimum delivery marked on meter measuring systems, or 30% of the nominal capacity marked on the compartment with which a dipstick is used (Reg. 5);

(*b*) the equipment shall either consist of a meter measuring system or a dipstick measuring system (Reg. 6);

(*c*) meter measuring systems will require pattern approval under section 12 of the Weights and Measures Act 1963 (Reg. 8);

(*d*) the materials and principles of construction of dipsticks and the compartments with which they are associated are laid down (Regs. 13–30);

(*e*) requirements are laid down as to the manner of use for trade (Reg. 31);

(*f*) provision is made as to the testing of meter measuring systems and dipstick measuring systems, including replacement dipsticks, which may be tested by reference to a calibration chart (Regs. 32–41);

(*g*) limits of error of an accuracy of plus or minus 0.5% for meter measuring systems and an equivalent accuracy for dipstick measuring systems are specified (Regs. 42 and 43);

(*h*) provision is made for passing as fit for use for trade, stamping and obliteration of stamps (Regs. 44–51).

The Regulations come into force on 1st July 1980, but a three year introductory period is allowed before testing and stamping become obligatory, with a further three year period before pattern approval (for meter measuring systems) becomes obligatory.

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