STATUTORY INSTRUMENTS

1967 No. 1088

WEIGHTS AND MEASURES

The Working Standards and Testing Equipment (Testing and Adjustment) Regulations 1967

Made - - - -	19*th July* 1967
Laid before Parliament	26*th July* 1967
Coming into Operation	1*st September* 1967

The Board of Trade, in pursuance of the powers conferred upon them by section 5(4) of the Weights and Measures Act 1963(a) hereby make the following Regulations:—

Application

1. These Regulations apply to the following working standards provided by local weights and measures authorities pursuant to section 5(1) of the said Act for use by inspectors of weights and measures, namely, linear measures, capacity measures and weights and to the following testing equipment so provided, namely, beamscales, balances, test weights of 1 cwt. or more, egg grading machine test poises and displacement plungers.

Intervals between testing

2.—(1) Working standards and testing equipment to which these Regulations apply shall be tested—

(i) within six months of the commencement of these Regulations and subsequently at intervals of not more than six months; and

(ii) if an inspector has reasonable cause to believe that they are not accurate to within the relevant limits of error specified in the Schedule hereto, prior to use.

(2) Tests shall be conducted in accordance with the following provisions of these Regulations.

Linear Measures

3.—(1) Working standard linear measures of 1 yard or 1 metre shall be tested by comparison with a separate local standard of equivalent length.

(2) All other working standard linear measures shall be tested by a comparison with a local standard of equivalent length being either a separate standard or a standard marked by divisions on a larger local standard, being a standard which the Board of Trade have certified as being so marked.

(3) Where such a comparison reveals an error which exceeds the relevant limits specified in Table 1 in the Schedule hereto the working standard shall, if it is to be further used, be adjusted so that any error is within those limits.

(a) 1963 c. 31.

Weights other than of iron

4.—(1) Working standard weights to which these Regulations apply, if not of iron, shall be tested by comparison with an equivalent local standard weight.

(2) The comparison shall be made by the method of substitution on a balance of a capacity not exceeding that specified in the second column of Table 2 or of Table 3 in the Schedule hereto in relation to a weight of that mass and having a scale marked with the appropriate number of divisions specified in the third column of the relevant Table.

(3) Where such a comparison reveals a difference which exceeds that specified in the fourth column of the relevant Table in relation to a weight of that mass the working standard weight shall before it is further used be so adjusted that any difference does not exceed that so specified.

Iron Weights

5.—(1) Working standard weights to which these Regulations apply, if of iron, shall be tested on a balance or beamscale by comparison with an equivalent standard, not of iron, being a working standard which has been more recently tested or a local standard.

(2) Where a comparison reveals an error which exceeds that specified in Table 4 in the Schedule hereto in relation to a weight of that mass the weight which has been tested shall before it is further used, be so adjusted that any error does not exceed that so specified.

Capacity Measures

6.—(1) Working standard capacity measures (including in the case of a multifiller measuring instrument every measure incorporated in that instrument) shall be tested—

(*a*) in the case of an imperial measure not exceeding one gallon or a metric measure not exceeding ten litres by comparison with an equivalent local standard;

(*b*) in the case of a larger measure by comparison with not more than two local standards of an equivalent total capacity or by comparison with a local standard of one gallon or ten litres capacity (used the requisite number of times).

(2) Any such measure marked with other graduations beside the graduation marking the capacity shall be tested not only as a measure of its capacity but also

(i) as a measure of the amount indicated by at least one of such other graduations, and

(ii) as a measure of any amount indicated by tolerance graduations adjacent to the graduation marking the capacity.

(3) Water shall be used to carry out such tests.

(4) Where a test made pursuant to paragraph (1) or (2) of this Regulation reveals an error which exceeds the relevant limits the working standard which is the subject of the test shall before it is further used be so adjusted that any error is within those limits.

In this paragraph "relevant limits" means—

(i) in relation to any test of a measure pursuant to paragraph (1) of this Regulation, the limits of error specified in relation to a measure of that capacity in Table 5 in the Schedule hereto; and

(ii) in relation to any test pursuant to paragraph (2) the same limits of error as apply in relation to a test of that measure pursuant to paragraph (1).

Balances and beamscales

7.—(1) Balances and beamscales shall be tested by the use of local standards or working standards.

(2) Testing shall be effected by determining—

(*a*) the weight required to be added to the balance or beamscale when fully loaded in order to produce one division change of restpoint;

(*b*) the discrepancy between the restpoint with the balance or beamscale unloaded and the mean value of the restpoints obtained before and after the interchange of loads equivalent to the full capacity of the balance or beamscale, that is to say, the length of arm error; and

(*c*) twelve successive restpoints with the balance or beamscale fully loaded (the load being removed or replaced between the determination of each restpoint) and calculating the range of each three successive determinations.

(3) Where—

(*a*) the weight required to be added in the test mentioned in head (*a*) of paragraph (2) of this Regulation exceeds the relevant amount specified in Table 6 or Table 7 in the Schedule hereto as the case may be; or

(*b*) the discrepancy referred to in head (*b*) of that paragraph exceeds 2 divisions of the scale in the case of a balance or 1 division in the case of a beamscale; or

(*c*) the average of the four ranges determined in accordance with head (*c*) of that paragraph exceeds two divisions of the scale in the case of a balance or beamscale of a capacity of not less than 56 lbs. or 25 kgs. or one division in the case of balance or beamscale of a smaller capacity,

the relevant balance or beamscale shall, before it is further used as testing equipment, be so adjusted as to eliminate the excess.

Test Weights

8.—(1) Test weights of 1 cwt. or more shall be tested by comparison on a beamscale which complies with the requirements specified in the Weights and Measures Regulations 1963(a) for a Class B beamscale of equivalent capacity for use for trade or by the method of substitution on a platform machine which satisfies the requirements specified in paragraph (4) of this Regulation.

(2) Working standard weights shall be used for such a test.

(3) Where such a test reveals an error which exceeds the relevant permitted error specified in Table 8 in the Schedule hereto the weight the subject of the test shall before it is further used be so adjusted that any error does not exceed that permitted.

(4) A platform machine employed for making a test in accordance with paragraph (1) above shall be one—

(i) the indicator of which moves at least $\frac{1}{8}$ in. when, with the machine fully loaded, there is added to the load a weight of the amount

(a) S.I. 1963/1710 (1963 III, p. 3286).

specified in relation to a machine of that capacity in the second column of Table 9 in the Schedule hereto; and

(ii) five successive tests of which with a load equivalent to its full capacity (the load being removed between tests) do not produce a variation in result in excess of the amount so specified in the third column of the said Table 9.

Egg grading machine test poises

9.—(1) Egg grading machine test poises shall be tested by the use of a balance of a capacity not exceeding 1 lb. or 200 g.

(2) Where a test of any such poise reveals that it is too heavy by more than 0·75 grains or too light by more than 0·25 grains the poise shall not be further used until it has been so adjusted that any error does not exceed those amounts.

Displacement plungers

10.—(1) Displacement plungers shall be tested by weighing the amount of water displaced from a displacement vessel.

(2) Where the amount of water displaced in such a test falls outside the relevant limits specified in Table 10 in the Schedule hereto the plunger shall not further be used until it has been so adjusted that the amount of water which it displaces on testing falls within those limits.

Citation and Commencement

11. These Regulations may be cited as the Working Standards and Testing Equipment (Testing and Adjustment) Regulations 1967 and shall come into operation on 1st September 1967.

George Darling,
Minister of State,
Board of Trade.

19th July 1967.

SCHEDULE

TABLE 1

(Limits of error for linear measures)

Working Standard	Limits of error in excess or deficiency
(*a*) Any measure (not intended to be used solely for testing cubic measures) of—	
1 yard	0·010 inch
4 feet to 10 feet	0·040 inch
20 feet or more	0·2 inch
1 metre	0·25 millimetre
2 metres	1 millimetre
3 metres or more	5 millimetres
(*b*) Any linear measure intended to be used only for testing cubic measures... ...	0·01 foot

TABLE 2

(Testing of working standard weights other than iron weights on balances with a capacity expressed in imperial units)

	Working standard weight to be tested	Maximum capacity of balance	No. of division on scale	Maximum difference between the working standard weight and the local standard weight
1.	An imperial weight of not less than 10 lb. or a metric weight of not less than 5 kg.	56 lb.	10, 20 or 40	2 divisions
2.	A troy weight of not less than 200 oz. troy.	56 lb.	40	2 divisions
3.	An imperial weight of not more than 7 lb. or less than 2 lb. or a metric weight of 2 kg. or 1 kg.	7 lb.	10, 20 or 40	1 division
4.	A troy weight of not more than 100 oz. tr. or less than 20 oz. tr.	7 lb.	40	1 division
5.	An imperial weight of not more than 1 lb. or less than 2 oz. or a metric weight of not more than 500 g. or less than 50 g.	1 lb.	10, 20 or 40	1 division
6.	A troy weight of not more than 10 oz. tr. or less than 1 oz. tr. or apothecaries weight of not more than 10 oz. apoth. or less than 1 oz. apoth. or a carat metric weight of not more than 500 C.M. or less than 200 C.M.	1 lb.	40	1 division
7.	An imperial weight of not more than 1 oz. or less than ½ dram.	1 oz.	10, 20 or 40	1 division
8.	A metric weight of not more than 20 g. or less than 1 g., a troy weight of not more than 0·5 oz. troy or less than 0·025 oz. tr.; a weight of 10, 5, 3, 2 or 1 pennyweights; an apothecaries weight of not more than 4 drachms or less than 1 scruple; a weight of 100, 50, 30 or 20 gr. or a weight of 100, 50, 20 or 10 C.M.	1 oz.	40	1 division
9.	A metric weight of not more than 0·5 g. a troy weight of not more than 0·02 oz. tr.; a weight of not more than 10 gr.; a weight of not more than 2 C.M.; a weight of ½ scruple.	10 gr.	40	1 division

TABLE 3

(Testing of working standard weights other than iron weights on balances with a capacity expressed in metric units)

Working standard weight to be tested	Maximum capacity of balance	No. of division on scale	Maximum difference between the working standard weight and the local standard weight
1. An imperial weight of not less than 14 lb.; a metric weight of not less than 10 kg. or a troy weight of not less than 200 oz. tr.	25 kg.	40	2 divisions
2. An imperial weight of not more than 10 lb. or less than 8 oz.; a metric weight of not more than 5 kg. or less than 500 g.; a troy weight of not more than 100 oz. tr. or less than 10 oz. tr.; an apothecaries weight of 10 oz. or 8 oz.	5 kg.	40	1 division
3. An imperial weight of not more than 4 oz. or less than ½ dram; a metric weight of not more than 200 g. or less than 50 g. a troy weight of not more than 5 oz. tr. or less than 1 oz. tr.; an apothecaries weight of not more than 6 oz. apoth. or less than 1 oz. apoth.; a carat metric weight of not more than 500 C.M. or less than 200 C.M.	200 g.	40	1 division
4. An imperial weight of not more than 100 gr.; a metric weight of not more than 20 g.; a troy weight of not more than 0·5 oz. tr.; a weight of 10, 5, 3, 2 or 1 pennyweights; an apothecaries weight of not more than 4 drachms; a carat metric weight of not more than 100 C.M.	20 g.	40	1 division

TABLE 4

(Limits of error on working standard weights of iron)

Avoirdupois weight	Limits of error in excess or deficiency
4 ounces	2 grains
8 „	2 „
1 pound	2 „
2 pounds	3 „
4 „	5 „
5 „	5 „
7 „	5 „
10 „	8 „
14 „	10 „
20 „	10 „
28 „	15 „
50 „	20 „
56 „	25 „
Metric weight	
100 grammes	20 milligrammes
200 „	50 „
500 „	100 „
1 kilogramme	200 „
2 kilogrammes	300 „
5 „	500 „
10 „	1,000 „
20 „	1,500 „

TABLE 5

(Error allowances on capacity measures)

(i) Imperial system, other than apothecaries measures.

Capacity of the measure	Limits of error in excess or deficiency
	millilitres
5 gallons	18·0
4 „	15·0
3 „	12·0
2 „	8·0
1 gallon	5·0
½ „	4·0
Quart (40 fl. oz.)	3·0
Pint (20 fl. oz.)	2·0
½ pint (10 fl. oz.)	1·0
8 fl. oz.	1·0
¼ pint	1·0
6 fl. oz.	1·0
Gill (5 fl. oz.)	0·5
4 fl. oz.	0·4
½ gill	0·4
⅜ „ (2 fl. oz.)	0·35
⅓ „	0·35
¼ „	0·30
⅛ „ (1 fl. oz.)	0·20
⅛ „	0·20

(ii) Apothecaries measures

Capacity of the measure	Limits of error in excess or deficiency
	millilitres
4 fl. dr.	0·20
2 „	0·15
1 „	0·15
30 minims	0·10
10 „	0·10

(iii) Metric measures

Capacity of the measure	Limits of error in excess or deficiency
	millilitres
20 litres	20·0
10 „	12·0
5 „	6·0
2½ „	5·0
2 „	4·0
1 litre	2·5
500 millilitres	1·5
250 „	1·0
200 „	0·7
100 „	0·4
50 „	0·3
25 „	0·25
20 „	0·20
10 „	0·20
5 „	0·15
2 „	0·10
1 „	0·10

TABLE 6

(Minimum sensitiveness of balances—(a) imperial and (b) metric capacity)

	Capacity of Balance	Maximum weight required to be added to produce one division change of restpoint when the balance is fully loaded		
		40 division Scale	20 division Scale	10 division Scale
(a)	56 lb.	0·2 gr.	0·4 gr.	0·8 gr.
	Less than 56 lb. but not less than 7 lb.	0·06 gr.	0·12 gr.	0·24 gr.
	Less than 7 lb. but not less than 1 lb.	0·04 gr.	0·04 gr.	0·04 gr.
	Less than 1 lb. but not less than 1 oz.	0·004 gr.	0·004 gr.	0·004 gr.
	Less than 1 oz.	0·0004 gr.	—	—
(b)	25 kg.	15 mg.		
	5 kg.	4 mg.	—	—
	200 g.	0·5 mg.		
	20 g.	0·025 mg.		

TABLE 7

(Minimum sensitiveness of beamscales)

Capacity of beamscale	Maximum weight value per division change of restpoint
56 lb.	8 grains
Less than 56 lb. but not less than 20 lb.	4 „
„ „ 20 lb. „ „ „ „ 14 lb.	3 „
„ „ 14 lb. „ „ „ „ 7 lb.	2·5 „
„ „ 7lb. „ „ „ „ 4 lb.	1·6 „
„ „ 4 lb. „ „ „ „ 2 lb.	0·8 grain
„ „ 2 lb. „ „ „ „ 1 lb.	0·4 „
„ „ 1 lb. „ „ „ „ 8 oz.	0·3 „
„ „ 8 oz. „ „ „ „ 4 oz.	0·2 „
„ „ 4 oz. „ „ „ „ 2 oz.	0·12 „
„ „ 2 oz. „ „ „ „ 1 oz.	0·08 „
„ „ 1 oz.	0·04 „

TABLE 8

(Test weights of 1 cwt. or more)

Weight	Limit of error in excess only
20 cwt.	3 oz.
9 cwt. or 10 cwt.	2 oz.
5 cwt. or 4 cwt.	1 oz.
1 cwt. or 2 cwt.	½ oz.

TABLE 9

(Platform machines used for testing test weights of 1 cwt. or more)

Capacity	Sensitiveness	Maximum Variation
5 cwt.	½ oz.	½ oz.
10 cwt.	½ oz.	½ oz.
1 ton	1 oz.	1 oz.

TABLE 10

(Displacement Plungers)

Size of plunger	Limits of weight of water displaced (grammes weight of water at or near 20°C.)		
1 fluid ounce	28·10	to	28·50
½ „ „	13·95	to	14·35

EXPLANATORY NOTE

(This Note is not part of the Regulations.)

These Regulations relate to the testing and adjustment by inspectors of weights and measures of the working standards and testing equipment they use in the performance of their duties.

Regulation 1 describes the standards and equipment to which the Regulations apply. Regulation 2 requires that the standards and equipment in question be tested every six months, or where a standard or equipment which is about to be used is thought to be incorrect. Regulations 3–10 provide how such testing be carried out and prescribe limits of error.