STATUTORY INSTRUMENTS

1983 No. 1653

WEIGHTS AND MEASURES

The Weights and Measures (Local and Working Standard Weights and Testing Equipment) Regulations 1983

Made - - - -	*8th November* 1983
Laid before Parliament	*10th November* 1983
Coming into Operation	*1st December* 1983

The Secretary of State, in exercise of the powers conferred by sections 4(4) and (5), 5(4), 54(1) and 58(1) of the Weights and Measures Act 1963(**a**) (hereinafter referred to as "the Act") and now vested in him(**b**) and of all other powers enabling him in that behalf, hereby makes the following Regulations:—

Citation, commencement and revocation

1.—(1) These Regulations may be cited as the Weights and Measures (Local and Working Standard Weights and Testing Equipment) Regulations 1983 and shall come into operation on 1st December 1983.

(2) The Weights and Measures (Local Standards: Limits of Error) Regulations 1970(**c**), the Working Standards and Testing Equipment (Testing and Adjustment) Regulations 1970(**d**) and the Weights and Measures (Local Standards: Periods of Validity) Regulations 1979(**e**) are hereby revoked insofar as they relate to weights, test weights, beamscales, balances and egg grading machine test poises.

Interpretation

2.—(1) In these Regulations—

"analogue" means capable of assigning any value or position within a continuous range;

"certificate of approval" means a certificate of approval of a pattern of weighing equipment granted or renewed by the Secretary of State under section 12 of the Act;

"Class I" or "Class II" means a class of accuracy within the meaning of the Directive known as Class I or Class II as the case may be;

(**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.
(**c**) S.I. 1970/1710; relevant amending instruments are S.I. 1980/1070, 1742.
(**d**) S.I. 1970/1714; relevant amending instruments are S.I. 1980/1070, 1742.
(**e**) S.I. 1979/1436.

"digital" means capable of assigning only certain discrete values or positions within a continuous range by a series of discontinuous steps;

"the Directive" means Council Directive No. 73/360/EEC(**a**) as amended by Council Directive No. 82/622/EEC(**b**);

"non-automatic weighing machine" means a machine which requires the intervention of an operator during the weighing process, especially to deposit loads on, or remove loads from, the part of the machine on which loads are placed for the purpose of their being weighed and to determine the result of the weighing process;

"scale interval" means the value expressed in units of measurement of mass equal to, in the case of a machine with an analogue indicator, the smallest sub-division of the scale, or, in the case of a machine with a digital indicator, the difference between two consecutive values indicated by the machine;

"the stamp" means the prescribed stamp(**c**); and

"value of verification scale division (e)" has the same meaning as it has in 2.3.2.3 of the Annex to the Directive.

(2) Subject to section 1(4) of the Weights and Measures &c. Act 1976(**d**) the symbols for, and abbreviations of, units of weight used in these Regulations refer to the relevant units set out in Schedule 1 to these Regulations.

Working Standard Weights and Testing Equipment

3. Working standard weights provided pursuant to section 5(1) of the Act for use by inspectors of weights and measures and testing equipment of the following classes so provided, namely, beamscales, balances, test weights and egg grading machine test poises shall be tested in accordance with the relevant provisions of the following Regulations, testing equipment so provided consisting of non-automatic weighing machines bearing the mark of EEC initial verification shall be tested in accordance with the relevant provisions of the Directive, testing equipment so provided consisting of non-automatic weighing machines which are constructed in accordance with a pattern in respect of which a certificate of approval is in force and which bear the stamp shall be tested in accordance with the relevant provisions of the Weights and Measures Regulations 1963(**e**) and testing equipment so provided consisting of non-automatic weighing machines which are authorised by the Secretary of State pursuant to Regulations 4(2)*(c)* and 6(1)*(d)* below shall be tested—

(a) within 12 months before use; and

(b) in the case of any working standard weight or testing equipment which is thought not to be accurate within the relevant limits of error, before use.

(**a**) OJ No. L335, 5.12.1973, p.1.
(**b**) OJ No. L252, 27.8.1982, p.2.
(**c**) See S.I. 1968/1615.
(**d**) 1976 c. 77.
(**e**) S.I. 1963/1710; relevant amending instruments are S.I. 1964/76, 1972/767, 1977/1932, 1978/484, 1980/1070, 1742.

Working Standard Weights

4.—(1) Working standard weights shall be tested against an equivalent local standard weight by the method of substitution.

(2) The test shall be made on—

(a) a balance which complies with the requirements of Regulation 5 below;

(b) a non-automatic weighing machine of Class I which complies with the requirements of the Directive; or

(c) a non-automatic weighing machine which is constructed in accordance with a pattern in respect of which a certificate of approval is in force or which is authorised by the Secretary of State:

Provided that—

(i) any value of verification scale division (e) marked on the machine, or,

(ii) if there is no such marking and the machine is a balance, the amount of the weight required to produce a displacement of one division of restpoint, or,

(iii) if there is no such marking and the machine is not a balance, the maximum scale interval—

does not exceed one fifth of the relevant amount specified in Tables 1 to 5 in Schedule 2 to these Regulations as the limit of error for the working standard weight which is being tested or for the local standard weight, if there is no working standard referred to in the Table in question.

(3) Where a test reveals an error exceeding the relevant limit of error, the weight which has been tested shall not be further used until it has been so adjusted that any error is within that limit.

Balances and Beamscales

5.—(1) Balances and beamscales shall be tested in accordance with this Regulation by using local standard or working standard weights.

(2) Testing shall be carried out 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, 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 as aforesaid exceeds the relevant

amount specified in Table 6 or Table 7 in Schedule 2 to these Regulations; or

(b) the said discrepancy exceeds two divisions of the scale in the case of a balance or one division in the case of a beamscale, or

(c) the average of the four ranges determined in accordance with paragraph (2)*(c)* above exceeds two divisions of the scale in the case of a balance or beamscale of a capacity of not less than 56 lb (imperial) or 25 kg (metric) or one division in any other case,

the relevant balance or beamscale shall not be further used as testing equipment until it has been so adjusted as to eliminate the excess.

Test Weights

6.—(1) Test weights exceeding 56 lb (imperial) or 20 kg (metric) shall be tested by the method of substitution on—

(a) a beamscale which complies with the requirements of the Weights and Measures Regulations 1963 for a Class B beamscale of that capacity for use for trade;

(b) a platform machine which has an analogue indicator and which complies with paragraph (4) below;

(c) a non-automatic weighing machine of Class I or II (other than one within sub-paragraph *(b)* above) which complies with the relevant requirements of the Directive and of paragraph (5) below; or

(d) a non-automatic weighing machine (other than one within sub-paragraph *(b)* or *(c)* above) which is constructed in accordance with a pattern in respect of which a certificate of approval is in force and which complies with the relevant provisions of the Weights and Measures Regulations 1963 and of paragraph (5) below or which is authorised by the Secretary of State and which complies with the relevant provisions of paragraph (5) below.

(2) All other test weights shall be tested by the method of substitution as described in Regulation 4(2) above.

(3) Local standard weights or working standard weights or test weights of 56 lb or less (imperial) or 20 kg or less (metric) shall be used for testing test weights described in paragraph (1) of this Regulation.

(4) Any platform machine used for testing test weights pursuant to paragraph (1)*(b)* above shall be such that—

(a) the indicator moves at least 3 millimetres when, with the machine fully loaded, there is added to the load a weight of the amount specified in relation to a machine of that capacity in the second column of Table 8 in Schedule 2 to these Regulations; and

(b) five successive tests 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 that Table.

(5) Any non-automatic weighing machine used for testing test weights shall be such that—

(a) in the case of a machine so used pursuant to paragraph (1)*(c)* above, the value of verification scale division (e) marked on the machine, and

(b) in the case of a machine so used pursuant to paragraph (1)*(d)* above, the maximum scale interval

does not exceed one-fifth of the relevant amount specified in Table 9 in the said Schedule 2 as the limit of error for the test weight which is being tested.

(6) Where a test reveals an error exceeding the relevant limit of error specified in Table 9 in the said Schedule 2, the test weight which has been tested shall not be further used until it has been so adjusted that any error is within that limit.

Egg grading machine test poises

7.—(1) Egg grading machine test poises shall be tested by the use of—

(a) a balance of a capacity not exceeding 1 lb (imperial) or 200 g (metric) which complies with the requirements of Regulation 5 above;

(b) a non-automatic weighing machine of Class I which complies with the requirements of the Directive provided that the value of verification scale division (e) marked on the machine does not exceed 10 mg; or

(c) a non-automatic weighing machine constructed in accordance with a pattern in respect of which a certificate of approval is in force and which bears the stamp provided that the maximum scale interval does not exceed 10 mg.

(2) Where a test reveals that a poise is too heavy or too light by more than 1/7000 lb (imperial) or 35 mg (metric) it shall not be further used until it has been so adjusted that any error is within that limit.

Prescribed limits of error

8. The prescribed limits of error relating to local and working standard weights and testing equipment in accordance with these Regulations shall be those set out in Regulation 7(2) above and in Tables 1 to 5 and 9 in Schedule 2 to these Regulations.

Periods of validity of certificates of fitness of local standards

9. The period of five years is hereby prescribed in the case of a weight for the purposes of section 4(5) of the Act (which relates to periods of validity of certificates of fitness of local standards) running from the date of issue of the certificate.

Alexander Fletcher,
Parliamentary Under-Secretary of State,
Department of Trade and Industry.

8th November 1983.

SCHEDULE 1 Regulation 2(2)

Symbols and abbreviations of units of weight

Imperial		*Metric*	
pound	lb	kilogramme	kg
ounce	oz	gramme	g
		milligramme	mg
		carat (metric)	C.M.

SCHEDULE 2 Regulations 4, 5, 6 and 8

TABLE 1

IMPERIAL SYSTEM
Avoirdupois weights

Local or working standards of—	Limit of error in milligrammes	
	Local standard	Working standard
56 lb	400	1250
28 lb	200	650
14 lb	100	320
7 lb	50	160
4 lb	30	90
2 lb	15	45
1 lb	7	20
8 oz	3	10
4 oz	2	6
2 oz	1	3
1 oz	0.8	2.5
$^1/_2$ oz	0.7	2
$^1/_4$ oz	0.5	1.5
$^1/_8$ oz	0.5	1.5
$^1/_{16}$ oz	0.4	1.2
$^1/_{32}$ oz	0.3	1
50 lb	350	1100
20 lb	150	450
10 lb	70	220
5 lb	35	110

TABLE 2

Weights expressed as multiples or fractions of 1/7000 lb

Local standard of—	Limit of error in milligrammes
100	0.53
50	0.44
30	0.40
20	0.33
10	0.27
5	0.22
3	0.20
2	0.17
1	0.13
0.5	0.11
0.3	0.10
0.2	0.09
0.1	0.06
0.05	0.06
0.03	0.06
0.02	0.06
0.01	0.06

TABLE 3

Troy weights

Local standard of ounces troy–	Limit of error in milligrammes
500	250
400	200
300	150
200	100
100	50
50	25
40	20
30	15
20	10
10	5
5	2.5
4	2.0
3	1.5
2	1.0
1	1.0
0.5	0.7
0.4	0.6
0.3	0.6
0.2	0.5
0.1	0.4
0.05	0.4
0.04	0.3
0.03	0.3
0.025	0.3
0.02	0.25
0.01	0.22
0.005	0.18
0.004	0.16
0.003	0.15
0.002	0.13
0.001	0.11

TABLE 4

METRIC SYSTEM
Metric weights other than carat (metric) weights

Local or working standards of—	Limit of error in milligrammes	
	Local standard	Working standard
20 kg	300	1000
10 kg	150	500
5 kg	75	250
2 kg	30	100
1 kg	15	50
500 g	7.5	25
200 g	3.0	10
100 g	1.5	5
50 g	1.0	3
20 g	0.8	2.5
15 g	0.7	2.2
10 g	0.6	2.0
5 g	0.5	1.5
4 g	0.5	1.5
3 g	0.4	1.2
2 g	0.4	1.2
1 g	0.3	1.0
500 mg	0.25	0.8
400 mg	0.25	0.8
300 mg	0.25	0.8
200 mg	0.20	0.6
150 mg	0.20	0.6
100 mg	0.15	0.5
50 mg	0.12	0.4
20 mg	0.10	0.3
10 mg	0.08	0.25
5 mg	0.06	0.20
2 mg	0.06	0.20
1 mg	0.06	0.20

TABLE 5

Carat (metric) weights

Local standard of— C.M.	Limit of error in milligrammes
500	1.5
200	0.93
100	0.80
50	0.60
20	0.47
10	0.40
5	0.30
2	0.23
1	0.20
0.5	0.15
0.25	0.12
0.20	0.11
0.10	0.10
0.05	0.08
0.02	0.06
0.01	0.06

TABLE 6

MINIMUM SENSITIVENESS OF BALANCES

Capacity of balance	Maximum weight value per division change of restpoint
(a) Imperial	
56 lb	52 mg
Less than 56 lb but not less than 7 lb	16 mg
Less than 7 lb but not less than 1 lb	2.6 mg
Less than 1 lb but not less than 1 oz	0.26 mg
Less than 1 oz	0.026 mg
(b) Metric	
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
(a) Imperial	
56 lb to 14 lb inclusive	400 mg
Less than 14 lb but not less than 8 oz	100 mg
Less than 8 oz but not less than 1 oz	10 mg
Less than 1 oz	2 mg
(b) Metric	
25 kg	400 mg
5 kg	100 mg
200 g	10 mg
20 g	2 mg

TABLE 8

PLATFORM MACHINES FOR TESTING TEST WEIGHTS

Capacity	Sensitiveness	Maximum variation
(a) Imperial		
2240 lb	28 g	28 g
1120 lb	14 g	14 g
560 lb	7 g	7 g
(b) Metric		
1000 kg	28 g	28 g
500 kg	14 g	14 g
250 kg	7 g	7 g

TABLE 9

TEST WEIGHTS

Imperial weight	Limit of error	Metric weight	Limit of error
11200 lb	250 g		
4480 lb	100 g	5000 kg	250 g
2240 lb	50 g	2000 kg	100 g
1120 lb	25 g	1000 kg	50 g
1008 lb	25 g	500 kg	25 g
560 lb	10 g	250 kg	10 g
448 lb	10 g	200 kg	10 g
224 lb	5 g	100 kg	5 g
112 lb	2.5 g	50 kg	2.5 g
56 lb	1.25 g	20 kg	1 g
50 lb	1.1 g	10 kg	500 mg
28 lb	650 mg	5 kg	250 mg
20 lb	450 mg	2 kg	100 mg
14 lb	320 mg	1 kg	50 mg
10 lb	220 mg	500 g	25 mg
7 lb	160 mg	200 g	10 mg
5 lb	110 mg	100 g	5 mg
4 lb	90 mg		
2 lb	45 mg		
1 lb	20 mg		
8 oz	10 mg		
4 oz	6 mg		

EXPLANATORY NOTE

(This Note is not part of the Regulations.)

These Regulations prescribe the methods of testing and adjusting, and the limits of error for, working standard weights and certain testing equipment used for weighing by inspectors of weights and measures. They also make provision for limits of error for local standard weights and for the periods of validity of certificates of fitness of those local standards. The Regulations replace the Weights and Measures (Local Standards: Limits of Error) Regulations 1970, the Working Standards and Testing Equipment (Testing and Adjustment) Regulations 1970 and the Weights and Measures (Local Standards: Periods of Validity) Regulations 1979 insofar as they relate to the items in question.

The Regulations make the following changes of substance:

(a) working standard weights and testing equipment used for weighing need only be tested within 12 months before use (previously at intervals of not more than six months) (Regulation 3);

(b) working standard weights and test weights are to be tested by the method of substitution (previously by the method of comparison) (Regulations 4 and 6);

(c) other weighing equipment—non-automatic weighing machines of various types—may be used and provision is included for the testing of these machines (Regulations 3, 4, 6 and 7); and

(d) new limits of error are prescribed, but limits for working standard weights in the following series are omitted:—

(i) ounces troy;

(ii) carats (metric); and

(iii) multiples or fractions of 1/7000 pound
(Regulation 8).

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