



NATIONAL STANDARDS COMMISSION

6/4D/217
10/3/87

NATIONAL MEASUREMENT (PATTERNS OF INSTRUMENTS) REGULATIONS

REGULATION 9

CERTIFICATE OF APPROVAL No 6/4D/217

This is to certify that an approval for use for trade has been granted in respect of the pattern and variants of the

Teraoka Seiko Model DS-230 Weighing Instrument

submitted by J W Wedderburn & Sons Pty Ltd
90 Parramatta Road
Summer Hill NSW 2130.

Conditions of Approval

This approval is subject to review on or after 1/2/88.

This approval expires in respect of new instruments on or after 1/2/89.

Instruments purporting to comply with this approval shall be marked NSC No 6/4D/217.

This approval may be withdrawn if instruments are constructed other than in accordance with the drawings and specifications lodged with the Commission.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates Nos S1/0 and/or S2/0, as appropriate.

Signed

Executive Director

Descriptive Advice

Pattern: approved 27/1/83

- Teraoka Seiko model DS-230 price-computing weighing instrument of 15 kg capacity with a verification scale interval of 0.005 kg.

Variant: approved 27/1/83

1. With an output socket for peripheral and/or auxiliary equipment.

Technical Schedule No 6/4D/217 describes the pattern and variant 1.

...../2

Variants: approved 6/2/84

2. Of 6 kg capacity with a verification scale interval of 0.002 kg.
3. Of 3 kg capacity with a verification scale interval of 0.001 kg.
4. Displaying mass only.

Technical Schedule No 6/4D/217 Variation No 1 describes variants 2 to 4.

Variants: approved 11/3/85

5. With semi-automatic tare of up to maximum capacity.
6. With non-automatic (digital) tare.
7. Displaying mass below zero.

Technical Schedule No 6/4D/217 Variation No 2 describes variants 5 to 7.

Variant: approved 9/8/85

8. Of 30 kg capacity with a verification scale interval of 0.010 kg and either with or without price-computing.

Technical Schedule No 6/4D/217 Variation No 3 describes variant 8.

Variants: approved 8/12/86

9. With a 24-key price-look-up (PLU) facility and known as a model DS-430.
10. Model DS-430 as a dual-interval instrument with a verification scale interval of 0.002 kg up to 6 kg and with a verification scale interval of 0.005 kg from 6 kg up to the maximum capacity of 15 kg.
11. Model DS-430 as a dual-interval instrument with a verification scale interval of 0.005 kg up to 15 kg and with a verification scale interval of 0.010 kg from 15 kg up to the maximum capacity of 30 kg.

Technical Schedule No 6/4D/217 Variation No 4 describes variants 9 to 11.

Filing Advice

Certificate of Approval No 6/4D/217 dated 20/1/86 is superseded by this Certificate and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 6/4D/217 dated 10/3/87
Technical Schedule No 6/4D/217 dated 28/2/83
Technical Schedule No 6/4D/217 Variation No 1 dated 27/2/84
Technical Schedule No 6/4D/217 Variation No 2 dated 21/6/85
Technical Schedule No 6/4D/217 Variation No 3 dated 20/1/86
Technical Schedule No 6/4D/217 Variation No 4 dated 10/3/87 (including Test Procedure)
Test Procedure No 6/4D/217 dated 28/2/83 (including Table 1)
Figure 1 dated 28/2/83
Figure 2 dated 10/3/87



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/217

Pattern: Teraoka Seiko Model DS-230 Price-computing Weighing Instrument.

Submitter: J.W. Wedderburn & Sons Pty Ltd
90 Parramatta Road
Summer Hill, NSW, 2130.

1. Description of Pattern

The pattern is a self-indicating price-computing weighing instrument (Figure 1), with semi-automatic subtractive tare.

Maximum capacity	15 kg
Scale interval	0.005 kg
Unit price	\$999.99/kg in 1c increments
Price	\$9999.99 in 1c increments
Tare	0.745 kg

1.1 Zero

Zero is automatically corrected to within 0.25e, as indicated by the ZERO light illuminating, whenever the instrument comes to rest within 0.5e of zero. Zero may be reset by pressing the button marked Z.

1.2 Display Check

When power is applied to the instrument via the ON/OFF switch .

1.3 Levelling

Four adjustable feet are provided and a notice adjacent to the level indicator aperture advises that the instrument must be level when in use.

1.4 Marking

The instrument is marked with the following data, together in one location:

Manufacturer's name or mark	
Serial number	
NSC approval number	NSC No 6/4D/217
Accuracy class	III
Maximum capacity	Max 15 kg*
Minimum capacity	Min 0.1 kg*
Verification scale interval	e = d = 0.005 kg*
Maximum subtractive tare	T = -0.745 kg

1.5 Sealing

- (a) The calibration adjustments are covered internally by a plate which is sealed by a paper seal. Access may be gained to the paper seal for Weights and Measures purposes via an access cover on the top of the instrument, under the receptor.
- (b) A destructible paper verification seal is provided.

2. Description of Variant 1

The instrument fitted with an output socket for the connection of peripheral equipment.

*These markings are repeated in the vicinity of each reading face if not already there.

TEST PROCEDURE No 6/4D/217

All load applications to the instrument should be in accordance with the Commission's recommended testing procedure for the elimination of rounding error as set out in Document 104.

The maximum permissible errors are:

- $\pm 0.5e$ for loads between 0 and 500e;
- $\pm 1e$ for loads between 501e and 2000e; and
- $\pm 1.5e$ for loads above 2000e.

1. Zero Range

The maximum range of the zero setting device should not exceed 4% of the maximum capacity ($\pm 2\%$ approximately). Satisfactory setting may be checked by the following method:

- (a) With zero balance indicated, apply a load of, say, 2.5% of maximum capacity to the instrument; it should not be possible to obtain zero by means of the zero adjustment.
- (b) Reduce the load to, say, 1.5%; it should then be possible to obtain zero by means of the zero adjustment.

2. Zero Test

- (a) Check by means of Document 104 that when the ZERO light illuminates, zero is set within 0.25e.
- (b) As the automatic device resets zero when the weighing mechanism is in equilibrium within 0.5e of zero, zero should be checked as described in Document 104, with a load equal to, say, 10e on the load receptor. The indications with 0.25e and 0.75e additional mass on the load receptor will then be 10e and 11e respectively.

3. Range of Indication

- (a) The maximum mass indicated should not exceed the maximum capacity (Max) by more than 10 scale intervals; above this indicated mass the indication should be blank.
- (b) The minimum mass indicated should be zero; below this the indication should be blank.

4. Tare

- (a) Attempt to tare a mass greater than the tare capacity; this should not be possible.
- (b) The tare function should be able to reset the mass indicator to zero within 0.25e at any load within its tare capacity. This may be checked as described for Zero Test - 2(a).

5. Load Test

Test loads are to be applied to the weighing instrument increasing in not less than 5 approximately equal steps to maximum capacity, followed by decreasing loads in not less than 5 approximately equal steps to zero load.

6. Price-computing Accuracy

The indications of mass, unit price and price listed in Table 1 will indicate that the price-computing and mass circuits are functioning correctly. The figures should be indicated exactly as in the table, as rounding is effected within the computer.

Note: This test does not establish correct mass indication; a separate load test in accordance with Document 104 is necessary. This may be carried out in conjunction with the above test.

Table 1

<u>Indicated Mass</u>	<u>Unit Price</u>	<u>Price</u>
kg	\$/kg	\$
0.100	99.99	10.00
0.190	898.82	170.78
15.000	666.66	9999.90
11.000	99.99	1099.89
10.000	999.99	9999.90
11.965	835.77	9999.99

Price-computing Table - 15 kg Instrument With 0.005 kg Scale Intervals
And With Unit Price To \$999.99/kg And Total Price To \$9999.99



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TECHNICAL SCHEDULE No 6/4D/217

VARIATION No 1

Pattern: Teraoka Seiko Model DS-230 Price-computing Weighing Instrument.

Submittor: J.W. Wedderburn & Sons Pty Ltd
90 Parramatta Road
Summer Hill, NSW, 2130.

1. Description of Variants

1.1 Variant 2

Of 6 kg capacity by 0.002 kg scale intervals with price-computing.

1.2 Variant 3

Of 3 kg capacity by 0.001 kg scale intervals with price-computing.

1.3 Variant 4

Displaying mass only in any capacity approved herein.



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TECHNICAL SCHEDULE No 6/40/217

VARIATION No 2

Pattern: Teraoka Seiko Model DS-230 Price-computing Weighing Instrument

Submittor: J W Wedderburn & Sons Pty Ltd
90 Parramatta Road
Summer Hill NSW 2130

1. Description of Variants

1.1 Variant 5

With semi-automatic tare of up to maximum capacity.

1.2 Variant 6

With digital tare, in which case the instrument is not approved for retail counter use and must be so marked.

1.3 Variant 7

Displaying mass below zero, in which case the instrument is not approved for retail counter use and must be so marked.



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/40/217

VARIATION No 3

Pattern: Teraoka Seiko Model DS-230 Weighing Instrument

Submitter: J W Wedderburn & Sons Pty Ltd
90 Parramatta Road
Summer Hill NSW 2130

1. Description of Variant 8

Of 30 kg capacity with 0.010 kg scale intervals and either with or without price-computing.



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VARIATION No 4

Pattern: Teraoka Seiko Model DS-230 Weighing Instrument

Submittor: J W Wedderburn & Sons Pty Ltd
90 Parramatta Road
Summer Hill NSW 2130

1. Description of Variants

1.1 Variant 9

With a 24-key price-look-up (PLU) facility and known as a model DS-430.

1.2 Variant 10

Model DS-430 as a dual-interval instrument (Figure 2) with a verification scale interval of 0.002 kg up to 6 kg and with a verification scale interval of 0.005 kg from 6 kg up to the maximum capacity of 15 kg. A semi-automatic subtractive taring device and/or a non-automatic (digital) taring device, each of up to 5.998 kg capacity, may be fitted.

The instrument may also have the PLU facility removed.

Note: Variants 2, 3, and 5 shall not be used in conjunction with this variant.

1.3 Variant 11

Model DS-430 as a dual-interval instrument with a verification scale interval of 0.005 kg up to 15 kg and with a verification scale interval of 0.010 kg from 15 kg up to the maximum capacity of 30 kg. A semi-automatic subtractive taring device and/or a non-automatic (digital) taring device, each of up to 14.995 kg capacity, may be fitted.

The instrument may also have the PLU facility removed.

Note: Variants 2, 3, and 5 shall not be used in conjunction with this variant.

TEST PROCEDURE

Load Test for Dual-interval Instruments

Test loads are to be applied in not less than 6 steps increasing to maximum capacity, followed by decreasing loads in not less than 6 steps to zero load. The loads should be selected such that there are three approximately equal steps in each range, but avoiding the changeover point of the ranges.

The maximum permissible error applicable is that for the range in which the measurement is made (using the verification scale interval of that range).

Requirements concerning the ranges of a multi-interval weighing instrument apply to the net load, for every possible value of tare. That is, with tare selected, weighing of the net load shall be carried out with the same scale intervals and ranges used with no tare selected.



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28/12/87

NATIONAL STANDARDS COMMISSION

NOTIFICATION OF CHANGE

CERTIFICATE OF APPROVAL No 6/4D/217

CHANGE No 1

The following change is made to the approval documentation for the

Teraoka Seiko Model DS-230 Weighing Instrument

submitted by J W Wedderburn & Sons Pty Ltd
90 Parramatta Road
Summer Hill NSW 2130.

In Technical Schedule No 6/4D/217 Variation No 4 dated 10/3/87, add the following footnote:

"Note: Model DS-430 instruments may be fitted with a "hold" switch, located on the underside. With this switch in the ON position, the display of the last weighing/price-computing operation will be retained for approximately 10 seconds after the mass has been removed.

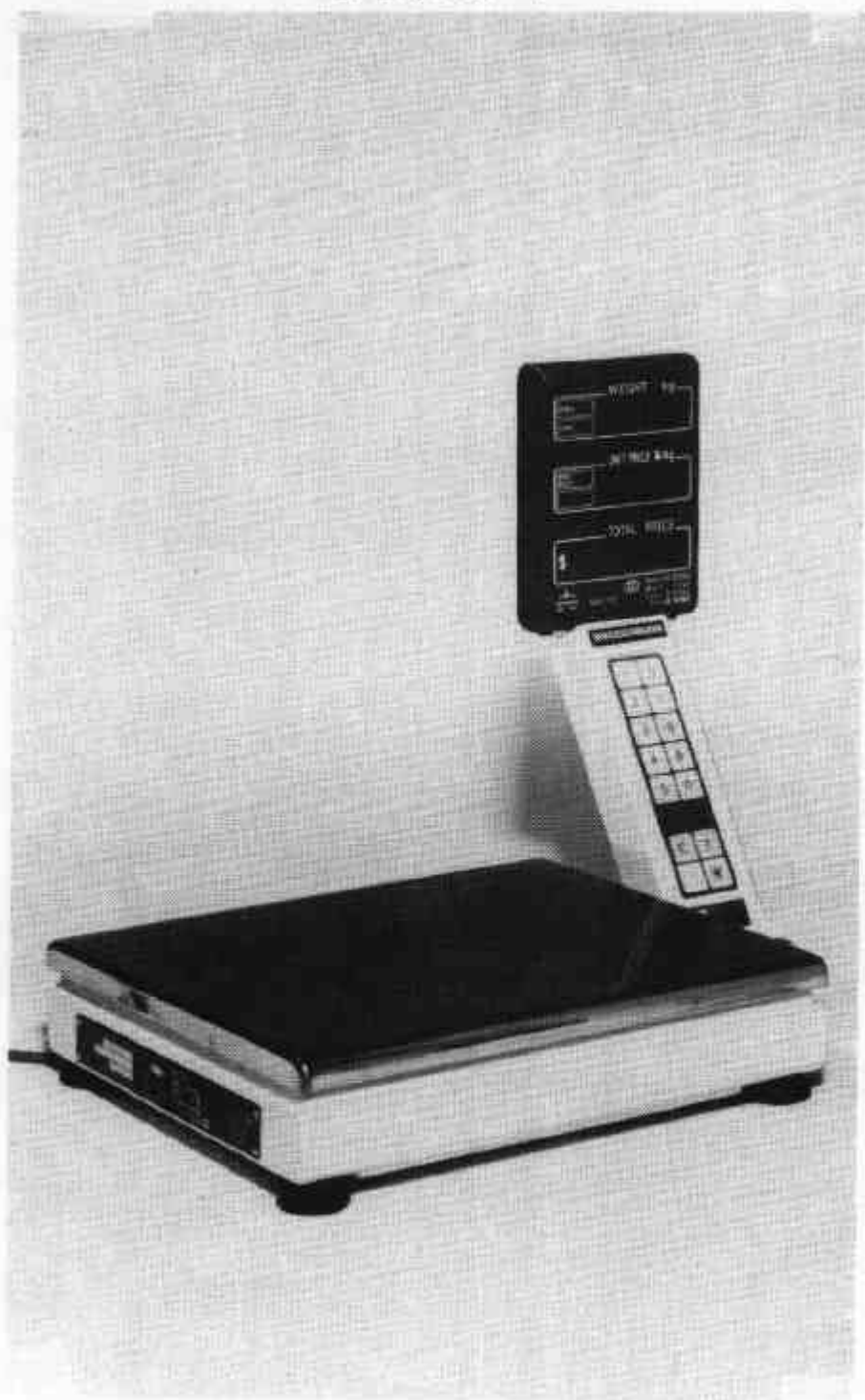
This switch should be in the OFF position whenever verification tests are performed."

Signed

A handwritten signature in cursive script, appearing to read 'J. Birch'.

Executive Director

FIGURE 6/40/217 - 1



Teraoka Seiko Model DS-230

28/2/83

FIGURE 6/40/217 - 2



Typical DG-430 Instrument