6/4D/323
26 July 2011

Australian Government
National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

Cancellation

Certificate of Approval
No 6/4D/323

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that the approval for use for trade granted in respect of the

Teraoka Model SM-800EV Weighing Instrument

submitted by W W Wedderburn Pty Ltd
now of 101 Williamson Road
Ingleburn NSW 2565

has been cancelled in respect of new instruments as from 1 August 2011.

Signed by a person authorised by the Chief Metrologist to exercise his powers under Regulation 60 of the *National Measurement Regulations 1999*.

Australian Government
National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

No 6/4D/323

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

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

Teraoka Model SM-800EV Weighing Instrument

submitted by W W Wedderburn Pty Ltd
90 Parramatta Road
SUMMER HILL NSW 2130.

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 76, *Non-automatic weighing instruments, Parts 1 and 2*, dated July 2004.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 July 2010, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 6/4D/323' and only by persons authorised by the submittor.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

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The National Measurement Institute reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0/A.

DESCRIPTIVE ADVICE

Pattern: approved 10 June 2005

- A Teraoka model SM-800EV class (III) non-automatic multi-interval self-indicating price-computing weighing instrument with a maximum capacity of 15 kg.

Variants: approved 10 June 2005

1. Model SM-880 with a transparent customer display.
2. Model SM-800P with an integral operator display.
3. Model SM-800B with integral operator and customer displays.
4. As a multi-interval weighing instrument of 6 kg maximum capacity.
5. As single-interval weighing instruments of 6 or 15 kg maximum capacity.
6. In alternative finishes including in stainless steel housings.
7. Without a customer display.
8. Connected in a network.
9. In a self-service arrangement.

Technical Schedule No 6/4D/323 describes the pattern and variants 1 to 9.

Variants: approved 27 May 2009

10. Model SM-880P.
11. Model SM-880B.
12. Model SM-880EV.
13. Models SM-880P EL, SM-880EV EL, SM-880EV Plus, SM-880P Plus, SM-880BS and SM-800 BS.
14. Models SM-880PX Plus and SM-880EVX Plus.
15. Model SM-880BS Plus.
16. With the integral basework either disabled or removed.
17. With a compatible approved (by Supplementary Certificate) indicator.

Technical Schedule No 6/4D/323 Variation No 1 describes variants 10 to 17.

FILING ADVICE

Certificate of Approval No 6/4D/323 dated 28 June 2005 is superseded by this certificate, and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 6/4D/323 dated 27 January 2010
Technical Schedule No 6/4D/323 dated 28 June 2005 (incl. Table 1, and Test Procedure)
Technical Schedule No 6/4D/323 Variation No 1 dated 27 January 2010 (incl. Table 2)
Figures 1 to 5 dated 28 June 2005
Figure 6 dated 27 January 2010

Signed by a person authorised by the Chief Metrologist to exercise his powers under Regulation 60 of the *National Measurement Regulations 1999*.

TECHNICAL SCHEDULE No 6/4D/323

Pattern: Teraoka Model SM-800EV Weighing Instrument

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

1. Description of Pattern

A Teraoka model SM-800EV multi-interval self-indicating price-computing weighing instrument (Figure 1) with a verification scale interval (e_1) of 0.002 kg up to 6 kg and with a verification scale interval (e_2) of 0.005 kg from 6 kg up to the maximum capacity of 15 kg.

The instrument has a liquid crystal display touch screen/display for the operator and another liquid crystal display for the customer mounted on a column attached to the instrument. Both displays are used for the presentation of weight, tare, unit price and price information; an image plus a product description relating to product look up (PLU) items may also be displayed.

Additional information and/or images may also be presented on the displays provided that any information/image does not in any way impede or confuse the primary indications of the instrument.

Instruments are fitted with an integral printer, for printing of labels or tickets (#). An additional integral printer and/or an integral laser scanner for reading bar codes may also be provided.

Instruments have unit price to $9999.99/kg, price to $99999.99, a product look up (PLU) facility, and may be fitted with output sockets (output interfacing capability) for the connection of peripheral and/or auxiliary devices.

(#) Refer to the Special Condition of Approval.

1.1 Zero

Zero is automatically corrected to within $\pm 0.25e_1$ whenever power is applied and whenever the instrument comes to rest within $0.5e_1$ of zero.

The initial zero-setting device has a nominal range of not more than 20% of the maximum capacity of the instrument.

The instrument has a semi-automatic zero-setting device with a nominal range of not more than 4% of the maximum capacity of the instrument.

1.2 Tare

A semi-automatic subtractive tare device and/or a keyboard-entered pre-set subtractive taring device, each of up to 5.998 kg maximum capacity, may be fitted.

A separate display for tare values is provided.

Pre-set tare values may be associated with product look up (PLU) items.

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1.3 Display Check

A display check is initiated during the power up sequence.

1.4 Levelling

The instrument is provided with adjustable feet and adjacent to the level indicator is a notice advising that the instrument must be level when in use.

1.5 Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

1.6 Sealing Provision

Provision is made for the calibration adjustments to be sealed by means of a destructible adhesive label placed over the access to the calibration switch which is located beneath the platter (Figure 2).

1.7 Descriptive Markings

Instruments carry the following markings:

Manufacturer's mark, or name written in full	TERAOKA
Name or mark of manufacturer's agent	WEDDERBURN
Indication of accuracy class	(III)
Pattern approval mark for the instrument	NMI 6/4D/323
Maximum capacity	*Max* …./…. kg *
Minimum capacity	*Min* ……... kg *
Verification scale interval	*e* = …../….. kg *
Tare capacity	*T* = …...…… kg
Serial number of the instrument	.....

* These markings shall also be shown near the display of the result if they are not already located there.

2. Description of Variants

2.1 Variant 1

The Teraoka model SM-880 (Figure 3) which is similar to the pattern but has a transparent customer display. The customer display can be mounted separately from the platform.

Note Where the customer display is mounted separately, it shall be located in a clear visual relationship and proximity to the platform (subject to the discretion of the applicable trade measurement authority).

2.2 Variant 2

The Teraoka model SM-800P (Figure 4) which is similar to the pattern but has the operator touch screen/display attached directly to the main instrument housing, rather than mounted on the column with the customer display.

2.3 Variant 3

The Teraoka model SM-800B (Figure 5) which is similar to the pattern but has both the operator touch screen/display and the customer display attached directly to the main instrument housing, rather than mounted on a column.

2.4 Variant 4

As a multi-interval self-indicating price-computing weighing instrument with a verification scale interval (e_1) of 0.001 kg up to 3 kg and with a verification scale interval (e_2) of 0.002 kg from 3 kg up to the maximum capacity of 6 kg.

A semi-automatic subtractive tare device and/or a keyboard-entered pre-set subtractive taring device, each of up to 2.999 kg maximum capacity, may be fitted.

2.5 Variant 5

As single interval self-indicating price-computing weighing instruments as listed below:

TABLE 1

Maximum Capacity *(Max)*	Minimum Capacity *(Min)*	Verification Scale Interval *(e)*	Maximum Tare Capacity *(T)*
6 kg	0.04 kg	0.002 kg	-5.998 kg
15 kg	0.1 kg	0.005 kg	-14.995 kg

2.6 Variant 6

The pattern or any variant in alternative finishes to those shown in Figures 1 to 5, including in stainless steel housings.

2.7 Variant 7

The pattern or any variant without a customer display, i.e. only with a self-service touch screen/display. In this self-service arrangement, stored tare values may be associated with product look up (PLU) keys. However the use of stored tare values associated with PLU keys shall be at the discretion of the applicable trade measurement authority, who may require various operational instructions and notes regarding the appropriate container for each product. Other tare facilities and operator keys (other than the PLU keys) shall be disabled.

Note: This instrument (with single display) if used in other than a self-service situation, is NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, and shall carry markings to that effect.

2.8 Variant 8

The pattern or any variant may be connected in a network with compatible Teraoka instruments, to share common PLU data, for totalisation across instruments ('floating system'), and to accumulate and retrieve management information. In addition, the network may be interfaced with a computer for the collection of management data, or the downloading of PLU data.

Note: The weighing and price-computing functions of each weighing instrument in the network are independent, and the removal, repair or replacement of a particular weighing instrument does not necessitate reverification of any other weighing instrument in the network.

2.9 Variant 9

The pattern or other variants used in a self-service arrangement. An instrument used in a self-service arrangement may be provided without a customer display (i.e. only with a touch screen/display for the operator).

Additional information and/or images may also be presented on the displays provided that any information/image does not in any way impede or confuse the primary indications of the instrument.

In this self-service arrangement, stored tare values may be associated with product look up (PLU) keys. However the use of stored tare values associated with PLU keys shall be at the discretion of the applicable trade measurement authority, who may require various operational instructions and notes regarding the appropriate container for each product.

Other tare facilities and operator keys shall be disabled, other than the 'REZERO' and 'PRINT' keys (to facilitate operation by untrained operators).

The use of a totalisation across instruments ('floating system') arrangement described in Variant 8 is NOT approved in this self-service arrangement. (The collection of management data and downloading of PLU data may occur.)

TEST PROCEDURE

Instruments should be tested in accordance with any relevant tests specified in the Uniform Test Procedures.

Maximum Permissible Errors at Verification/Certification

For single range instruments, the maximum permissible errors for increasing and decreasing loads on initial verification/certification for loads, m, expressed in verification scale intervals, e, are:

±0.5 e for loads $0 \leq m \leq 500$;
±1.0 e for loads $500 < m \leq 2\,000$; and
±1.5 e for loads $2\,000 < m \leq 10\,000$.

For multi-interval instruments with verification scale intervals of e_1, e_2 …, apply e_1 for zero adjustment, and for maximum permissible errors apply e_1, e_2, …, as applicable for the load.

TECHNICAL SCHEDULE No 6/4D/323

VARIATION No 1

Pattern: Teraoka Model SM-800EV Weighing Instrument

Submittor: W W Wedderburn Pty Ltd
90 Parramatta Road
SUMMER HILL NSW 2130

1. Description of Variants

1.1 Variant 10

The Teraoka model SM-880P which is similar to the model SM-800P (Figure 4) described in variant 2. Internal circuitry differences exist between the SM-880P and the SM-800P.

1.2 Variant 11

The Teraoka model SM-880B which is similar to the model SM-800B (Figure 5) described in variant 3. Internal circuitry differences exist between the SM-880B and the SM-800B.

1.3 Variant 12

The Teraoka model SM-880EV which is similar to the pattern, model SM-800EV (Figure 1). Internal circuitry differences exist between the SM-880EV and the SM-800EV.

1.4 Variant 13

The Teraoka models SM-880P EL, SM-880EV EL, SM-880EV Plus, SM-880P Plus, SM-880BS and SM-800 BS (Figure 6) which are similar to the pattern and previously described variants, but incorporate differing arrangements and sizes of operator and customer displays.

Note: Internal circuitry differences exist between models in the SM-880 series and models in the SM-800 series. Also, the model SM-880EV EL, is an alternative model numbering for the SM-880 described in variant 1 and shown in Figure 3.

1.5 Variant 14

The Teraoka models SM-880PX Plus and SM-880EVX Plus (Figure 6), which are similar to the SM-800P (variant 2, Figure 4) and SM-800EV (the pattern, Figure 1) respectively, but which utilise an additional LCD panel display for promotional/ marketing purposes. The additional LCD panel may be mounted separately from the platform. Internal circuitry differences exist between models in the SM-880 series and models in the SM-800 series.

1.6 Variant 15

The Teraoka model SM-880BS Plus which is similar to the SM-800EV (the pattern), but which does not have a separate customer display nor a separate operator keypad, operation is via the touch screen/display. The instrument is intended for use in a self-service situation (variants 7 or 9).

1.7 Variant 16

The pattern or variants with the integral basework either disabled or removed when an external basework is connected. The approved external baseworks are as shown in Table 2. Instruments may only be configured as single range instruments.

TABLE 2 – Baseworks

Make	Teraoka			
Basework model	S-YA			
Platform size, mm	380 × 380			
Basework max. capacity, kg	30	60	150	300
Minimum e value, e_{min} , kg	0.01	0.02	0.05	0.1
Maximum number of verification intervals	3000			
Load cell make	Teraoka			
Load cell model	P type			
Load cell E_{max}, kg	45	90	225	450
Number of load cells	1			
Load cell sensitivity at E_{max}	1.5 mV/V			
Input impedance	1100 Ω			
Excitation voltage (maximum)	20 V DC			
Cable length (±0.1m) (#)	3 m			
No of leads (plus shield)	4			
Single range configuration				
Max, kg	30	60	150	300
e, kg	0.01	0.02	0.05	0.1
Min, kg	0.2	0.4	1	2
T = - …. kg	14.99	29.98	74.95	149.9

Max = maximum capacity of the basework

e = verification scale interval

T = maximum subtractive tare capacity

(#) The load cell cable length supplied with the basework shall not be shortened.

1.8 Variant 17

Any S-YA series basework of this approval used with a compatible approved (by Supplementary Certificate) indicator.

In addition to the markings specified in clause **1.7 Descriptive Markings** (in Technical Schedule No 6/4D/323 dated 28 June 2005) instruments are marked with the NMI approval number for the indicator used, together in the same location.

The approved baseworks and their limiting characteristics are given in Table 2. The conditions to be met are given below, and include calculations using the following terms:

Ex = Excitation from indicator (V)

LC_Sens = Load cell sensitivity (mV/V)

Emax = Load cell maximum capacity (kg)

Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (μV)

e = verification scale interval of the instrument (kg).

Max = the maximum capacity of the instrument.

nmax = the maximum number of verification intervals for which the basework is approved.

The conditions are:

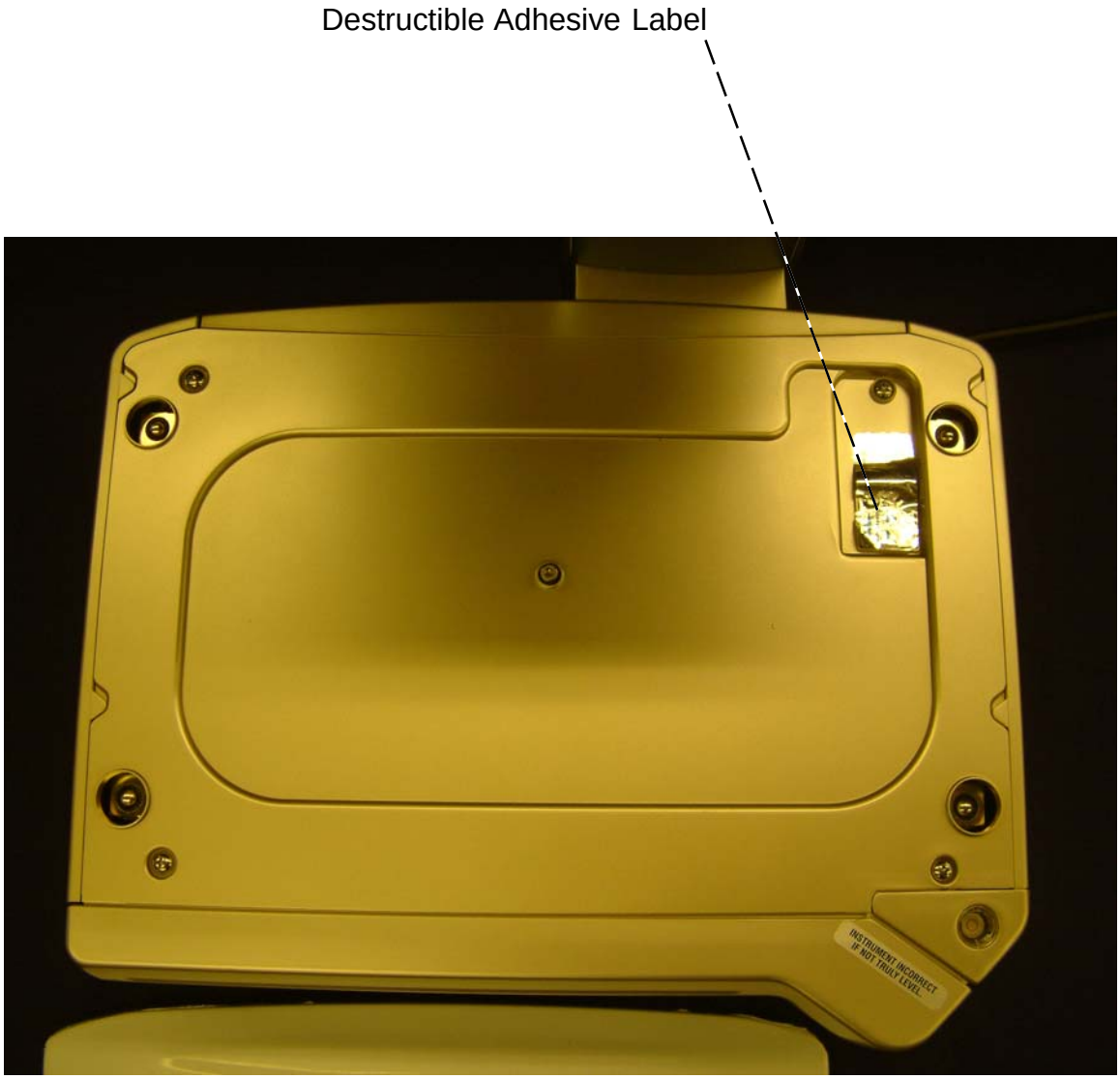
- The excitation voltage used is within the range approved for the baseworks.
- The maximum load applied to the basework (live load plus any dead load) does not exceed the load cell maximum capacity.
- The verification scale interval is not less than the minimum value specified.
- The number of verification scale intervals is less than or equal to the nmax value specified.
- The signal voltage per verification scale interval is not less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval documentation for the indicator), i.e.

  Indicator Sensitivity ≤ 1000 × Ex × LC_Sens × e / Emax

FIGURE 6/4D/323 – 1

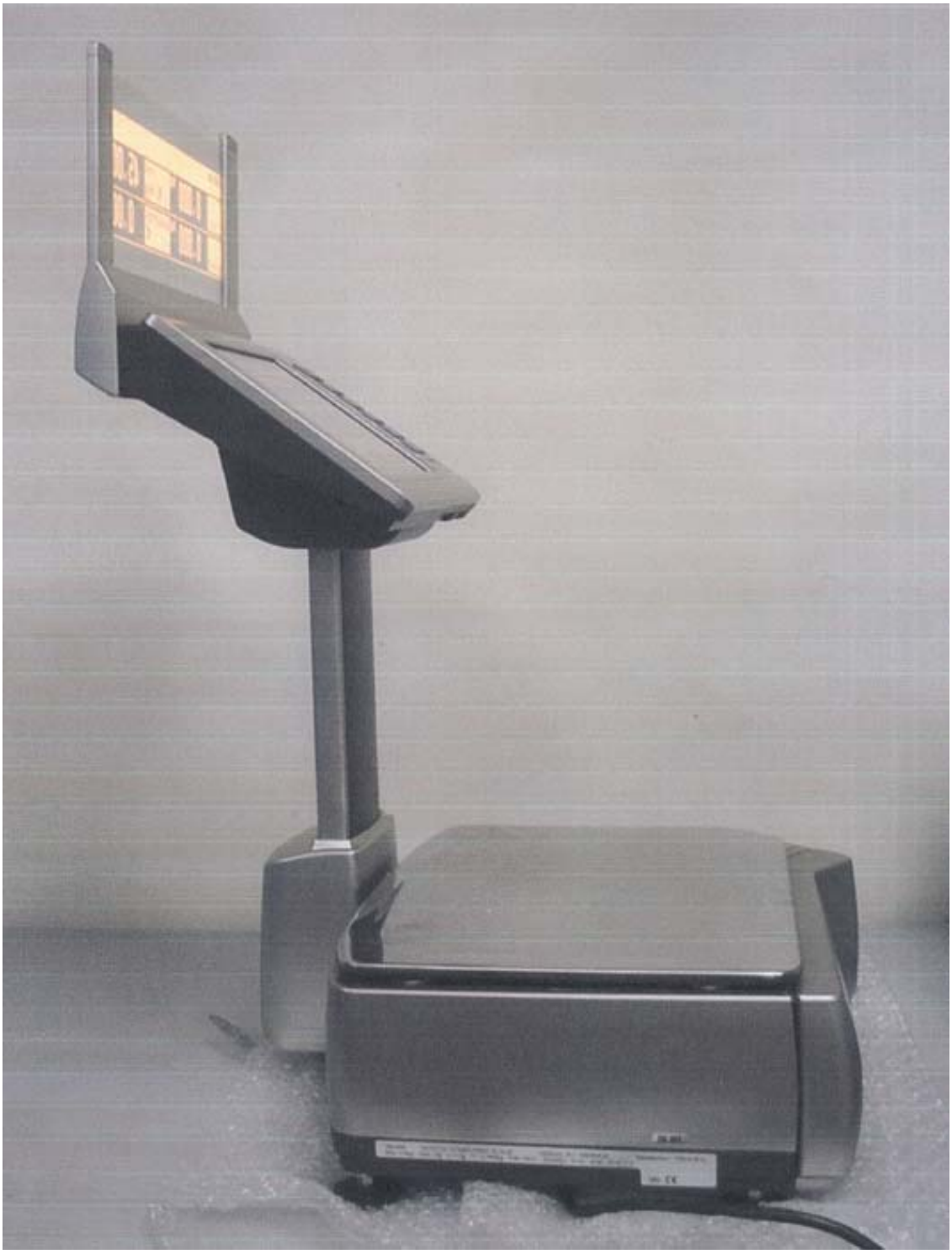
Teraoka Model SM-800EV Weighing Instrument

FIGURE 6/4D/323 – 2



Typical Sealing

FIGURE 6/4D/323 – 3



Teraoka Model SM-880 Weighing Instrument

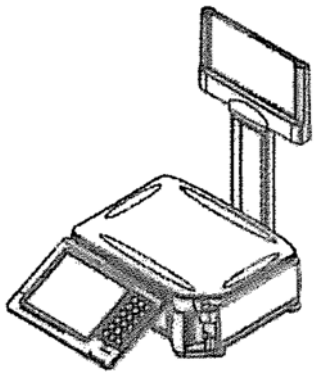
FIGURE 6/4D/323 – 4

Teraoka Model SM-800P Weighing Instrument

FIGURE 6/4D/323 – 5

Teraoka Model SM-800B Weighing Instrument

FIGURE 6/4D/323 – 6

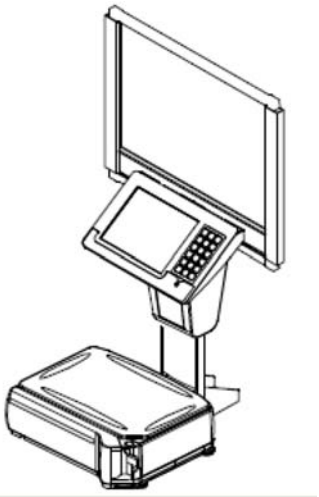


SM-880P EL

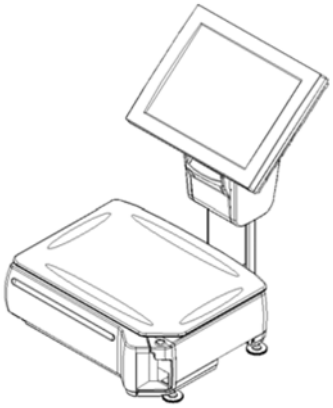
SM-880EV EL

SM-880EV Plus

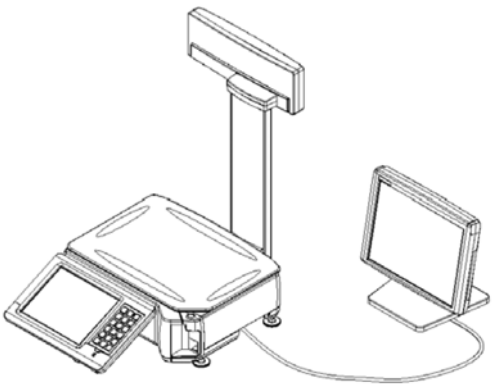
SM-880P Plus



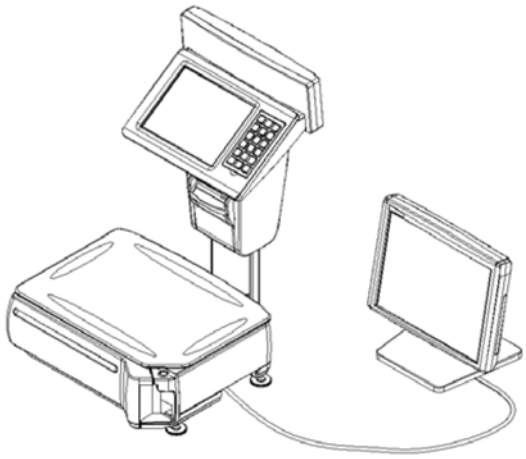
SM-800BS / SM-880BS



SM-880BS Plus



SM-880PX Plus



SM-880EVX

Teraoka SM-880 Series Instruments
(Variants 13, 14 and 15)