



Australian Government

National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/4D/302

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 instruments herein described.

Teraoka Model SM-500 DP Weighing Instrument

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

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.

This approval becomes subject to review on **1/03/17**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 16 approved – interim certificate issued	8/02/02
1	Pattern & variants 1 to 16 approved – certificate issued	25/03/08
2	Pattern & variants 1 to 16 reviewed – notification of change issued	5/05/08
3	Pattern & variants 1 to 16 reviewed & updated – certificate issued	6/06/12

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI (or NSC) 6/4D/302' and only by persons authorised by the submitter.

It is the submitter'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.

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

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

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke at the bottom.

TECHNICAL SCHEDULE No 6/4D/302

1. Description of Pattern approved on 8/02/02

A Teraoka model SM-500 DP **[(#) - SM-90N DP]** class **III** 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.

(#) Throughout this Technical Schedule alternative model names are given in ***bold-italics*** (as shown above).

The instrument has a double-sided column-mounted display. For each side, the display consists of one line of seven segment displays for presentation of tare, weight, unit price and price information, and a second line of a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items.

Instruments are fitted with an integral printer, for printing of labels or tickets.

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 for the connection of peripheral and/or auxiliary devices.

Instruments may be provided with a 56 or 100 key, PLU keyboard.

1.1 Zero

Zero is automatically corrected to within $+0.25e_1$ whenever power is applied and whenever the instrument comes to rest within $0.5e$ 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.

1.3 Display Check

A display check is initiated whenever power is applied.

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 Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

Provision is made for the calibration adjustments to be sealed by means of a lead and wire (or similar) seal and sealing screws, or destructible labels placed over the joins of the removable baseplate and the chassis, on the underside of the instrument (Figure 2).

1.7 Descriptive Markings

Instruments carry the following data, together in one location:

Manufacturer's mark, or name written in full	Teraoka
Name or mark of manufacturer's agent	WEDDERBURN
Indication of accuracy class	Ⓜ
Pattern approval mark for the instrument	NMI (or NSC) 6/4D/302
Maximum capacity	Max/..... kg #
Minimum capacity	Min kg #
Verification scale interval	e =/..... kg #
Tare capacity	T = - kg
Serial number of the instrument

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

2. Description of Variant 1 approved on 8/02/02

The pattern or any variant 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.

3. Description of Variant 2 approved on 8/02/02

The model SM-500 NP [**SM-90N NP**] which is similar to the pattern with a double-sided column-mounted display, but each side is provided only with the seven segment display for presentation of tare, weight, unit price and price information.

The instrument may be provided with a 56 or 100 key PLU keyboard.

4. Description of Variant 3 approved on 8/02/02

The model SM-500 NB [**SM-90N NB**] (Figure 3a) which is similar to the pattern but each side of the instrument is provided only with the seven segment display for presentation of tare, weight, unit price and price information, and these are incorporated within the main instrument housing.

5. Description of Variant 4

approved on 8/02/02

The model SM-500 NB [**SM-90N NB**] of variant 3 but provided only with a single integral display on the operator's side of the instrument. In this form the instrument may be either:

- NOT FOR TRADING DIRECT WITH THE PUBLIC in which case it carries a notice to this effect; or
- Used in a self-service arrangement and connected to a touch screen liquid crystal (LCD) display/keyboard which serves as a product look up (PLU) display/ keyboard, as well as providing additional mass, unit price and price displays.

The use of a totalisation across instruments ('floating system') arrangement described in variant 16 is not approved in this self-service arrangement, and neither tare nor stored tare arrangements are functional, though the tare display is retained.

Note: Testing of the self-service arrangement should include checks to ensure that values displayed on the touch screen unit do not differ from those of the instrument.

6. Description of Variant 5

approved on 8/02/02

The model SM-500 EB [**SM-90N EB**] (Figure 3a) which is similar to the pattern but each side of the instrument is provided only with a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items, as well as presentation of tare, weight, unit price and price information, and these are incorporated within the main instrument housing.

The display of the commodity name appears for a short period following its selection (i.e. after a PLU is selected) and the weighing and pricing information is always displayed whilst a label is printing.

7. Description of Variant 6

approved on 8/02/02

The model SM-500 EP [**SM-90N EP**] which is similar to the pattern with a double-sided column-mounted display, but each side of the instrument is provided only with a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items, as well as presentation of tare, weight, unit price and price information.

The display of the commodity name appears for a short period following its selection (i.e. after a PLU is selected) and the weighing and pricing information is always displayed whilst a label is printing.

The instrument may be provided with a 56 or 100 key PLU keyboard.

8. Description of Variant 7

approved on 8/02/02

The model SM-500 TNB [**SM-90N TNB**] (Figure 3b) which is similar to the pattern but is provided only with the seven segment display (incorporated within the main instrument housing) for presentation of tare, weight, unit price and price information to the customer. For the operator a touch screen liquid crystal display (LCD) is used both to provide PLU keys and for presentation of tare, weight, unit price and price information. The touch screen LCD and operator keypad are provided in a unit hinged from the main instrument housing.

9. Description of Variant 8 **approved on 8/02/02**

The model SM-500 TEB [**SM-90N TEB**] (Figure 3b) which is similar to the pattern but is provided only with a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items, as well as presentation of tare, weight, unit price and price information (incorporated within the main instrument housing). For the operator a touchscreen liquid crystal display (LCD) is used both to provide PLU keys, and for presentation of tare, weight, unit price and price information. The touchscreen LCD and operator keypad are provided in a unit hinged from the main instrument housing.

The display of the commodity name appears on the dot matrix display for a short period following its selection (i.e. after a PLU is selected) and the weighing and pricing information is always displayed whilst a label is printing.

10. Description of Variant 9 **approved on 8/02/02**

The model SM-500 TNP [**SM-90N TNP**] (Figure 3c) which is similar to the pattern with a double-sided column-mounted display, but with each side provided only with the seven segment display for presentation of tare, weight, unit price and price information.

For the operator an additional touch screen liquid crystal display (LCD) is used both to provide PLU keys, and to present PLU item information. The touch screen LCD and operator keypad are provided in a unit hinged from the main instrument housing.

11. Description of Variant 10 **approved on 8/02/02**

The model SM-500 TEP [**SM-90N TEP**] which is similar to the pattern with a double-sided column-mounted display, but each side is provided only with a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items, as well as presentation of tare, weight, unit price and price information.

For the operator an additional touch screen liquid crystal display (LCD) is used both to provide PLU keys, and to present PLU item information to the operator. The touchscreen LCD and operator keypad are provided in a unit hinged from the main instrument housing.

The display of the commodity name appears on the dot matrix display for a short period following its selection (i.e. after a PLU is selected) and the weighing and pricing information is always displayed whilst a label is printing.

12. Description of Variant 11 **approved on 8/02/02**

The model SM-500 TDP [**SM-90N TDP**] (Figure 3d) which is similar to the pattern with a double-sided column-mounted display, and for each side the display consists of one line of seven segment displays for presentation of tare, weight, unit price and price information, and a second line of a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items.

For the operator an additional touch screen liquid crystal display (LCD) is used both to provide PLU keys and to present PLU item information to the operator. The touchscreen LCD and operator keypad are provided in a unit hinged from the main instrument housing.

13. Description of Variant 12

approved on 8/02/02

The model SM-500 BS **[SM-90N BS]** (Figure 4) which is similar to the pattern but approved for self-service operation only and with only a single-sided column-mounted display with one line of seven segment displays for presentation of tare, weight, unit price and price information, and a second line of a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items.

The instrument may be provided with 48, 60, 96, 108 or 120 PLU keys, some of which may be located on keyboards mounted on the display column.

When used in a self-service arrangement all keys on the integral keyboard, other than the REZERO key, may be disabled.

The use of a totalisation across instruments ('floating system') arrangement described in Variant 16 is not approved in this self-service arrangement. (The collection of management data and downloading of PLU data may occur.)

This instrument may be used for other than self-service operation, however in this case the instrument is NOT FOR TRADING DIRECT WITH THE PUBLIC and carries a notice to this effect.

14. Description of Variant 13

approved on 8/02/02

The model SM-500 EV **[SM-90N EV]** (Figure 5) which is similar to the pattern with a double-sided column-mounted display, and for each side the display consists of one line of seven segment displays for presentation of tare, weight, unit price and price information, and a second line of a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items.

However, the PLU and operator keypads are mounted on the display column rather than attached to the main instrument housing.

The instrument may be provided with a 56 or 100 key PLU keyboard.

13. Description of Variant 14

approved on 8/02/02

The model SM-500 TEV **[SM-90N TEV]** (Figure 6) which is similar to the pattern with a double-sided column-mounted display. For the customer, the display consists of one line of seven segment displays for presentation of tare, weight, unit price and price information, and a second line of a dot matrix display capable of displaying alpha-numeric information relating to product look up (PLU) items.

For the operator, a one line of seven segment display for presentation of tare, weight, unit price and price information is provided. In addition, a touch screen liquid crystal display (LCD), is used both to provide PLU keys and to present PLU item information to the operator. The touch screen LCD and operator keypad are mounted on the display column rather than attached to the main instrument housing.

16. Description of Variant 15

approved on 8/02/02

The model SM-500 H [**SM-90N H**] (Figure 7) which is similar to the pattern but with a hanging load receptor. For each side of the instrument, the display consists of one line of seven segment displays for presentation of tare, weight, unit price and price information, and a second line of a dot matrix display capable of displaying alphanumeric information relating to product look up (PLU) items.

The instrument is firmly mounted to a mounting rod and is provided with a level indicator; adjacent to the level indicator is a notice advising that the instrument must be level when in use.

Provision is made for the calibration adjustments to be sealed by means of destructible labels placed as shown in Figure 8.

17. Description of Variant 16

approved on 8/02/02

The models of the SM-500 series [**SM-90N series**] 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

TEST PROCEDURE No 6/4D/302

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

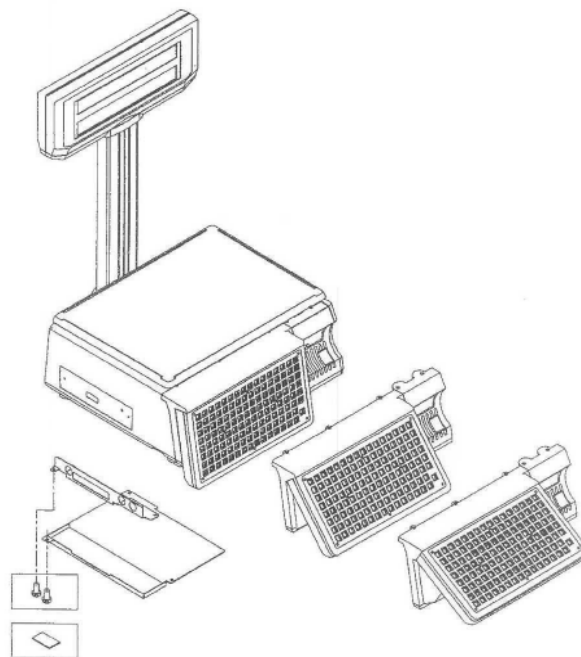
For multi-interval instruments with verification scale intervals of $e_1, e_2 \dots$, apply e_1 for zero adjustment, and maximum permissible errors apply $e_1, e_2 \dots$, as applicable for the load.

FIGURE 6/4D/302 – 1



Teraoka Model SM-500 DP Weighing Instrument

FIGURE 6/4D/302 – 2



Sealing Screws or
Destructible Labels

Showing Typical Sealing

FIGURE 6/4D/302 – 3



(a) Teraoka Models SM-500 NB/EB



(b) Teraoka Models SM-500 TNB/TEB



(c) Teraoka Model SM-500 TNP



(d) Teraoka Model SM-500 TDP

FIGURE 6/4D/302 – 4



Teraoka Model SM-500 BS Weighing Instrument – Variant 12

FIGURE 6/4D/302 – 5



Teraoka Model SM-500 EV Weighing Instrument – Variant 13

FIGURE 6/4D/302 – 6



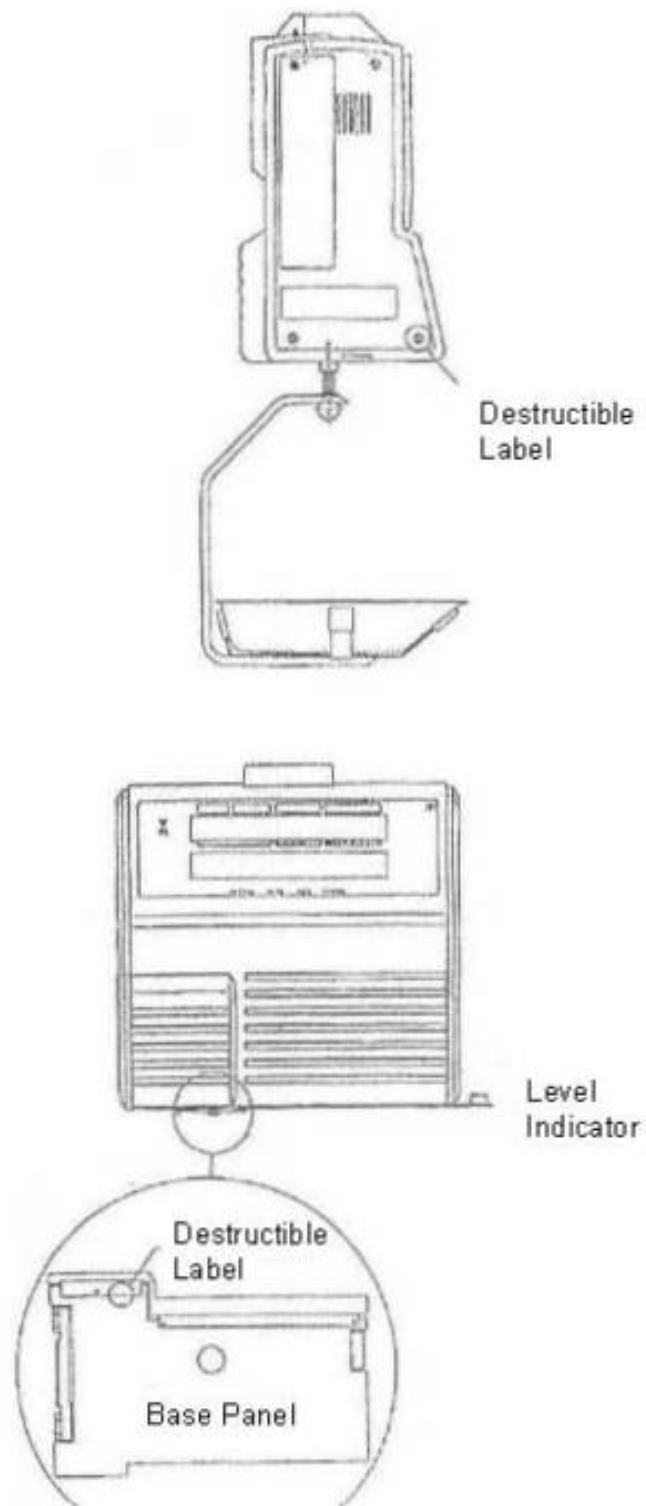
Teraoka Model SM-500 TEV Weighing Instrument – Variant 14

FIGURE 6/4D/302 – 7



Teraoka Model SM-500 H Weighing Instrument – Variant 15

FIGURE 6/4D/302 – 8



Sealing of Model SM-500 H Weighing Instrument – Variant 15