



Australian Government
**National Measurement
Institute**

Bradfield Road, West Lindfield NSW 2070

Cancellation
Certificate of Approval
No 6/9C/273

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 Digi DS-520 Weighing Instrument

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

has been cancelled in respect of new instruments as from 1 January 2013.

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 stylized cursive letters, positioned to the right of the signature text.



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Certificate of Approval

No 6/9C/273

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 DS-520 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 November 2012, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NSC 6/9C/273' 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.

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 2 October 2002

- A Teraoka model DS-520 non-automatic self-indicating weighing instrument of 150 kg maximum capacity. May also be known as a model Digi DS-520.

Variants: approved 2 October 2002

1. Certain DS-520 series instruments as listed in Tables 1 and 2.

Variants: approved 13 December 2002

2. With the baseworks of this approval as listed in Tables 1 and 2 with a compatible approved indicator.

Technical Schedule No 6/9C/273 describes the pattern and variants 1 & 2.

Variants: approved 13 October 2004

3. Certain DS-530 series instruments as listed in Tables 3 and 4.

4. With the baseworks of this approval as listed in Tables 3 and 4 with a compatible approved indicator.

Technical Schedule No 6/9C/273 Variation No 1 describes variants 3 & 4.

Variants: approved 18 December 2008

5. With a model DS-520 Mk II or model DS-530 Mk II indicator.

Technical Schedule No 6/9C/273 Variation No 2 describes variant 5.

FILING ADVICE

Certificate of Approval No 6/9C/273 dated 15 November 2004 is superseded by this Certificate, and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 6/9C/273 dated 20 January 2009

Technical Schedule No 6/9C/273 dated 17 December 2002 (incl. Tables 1 & 2 and Test Procedure)

Technical Schedule No 6/9C/273 Variation No 1 dated 15 November 2004 (incl. Tables 3 & 4)

Technical Schedule No 6/9C/273 Variation No 2 dated 20 January 2009 (incl. Notification of Change)

Figures 1 to 3 dated 17 December 2002

Figure 4 dated 15 November 2004

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 6/9C/273

Pattern: Teraoka Model DS-520 Weighing Instrument

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

1. Description of Pattern

A Teraoka model DS-520 self-indicating weighing instrument (Figure 1) with maximum capacity of 150 kg and a verification scale interval of 0.05 kg. May also be known as a model Digi DS-520.

Instruments are not approved for trading direct with the public and are so marked.

Instruments are powered by a rechargeable internal battery, by non-rechargeable batteries or by one of the following mains adaptors:

- a Wedderburn model 9VDC500;
- a Tortech model EPA-121DA-9; or
- an Arlec model PS663 6V SLA charger.

Alternatively, the mains adaptor may be fitted internally.

1.1 Basework

The Teraoka model S-YA basework (Figure 1) has the load receptor directly supported by a single load cell. The load receptor has maximum nominal dimensions of 380 x 380 mm.

1.2 Load Cell

A Teraoka model P load cell of 225 kg capacity is used.

1.3 Indicator

A Teraoka model DS-520 digital indicator is used. The indicator may be mounted on a column or attached directly to the base; it may also be located remotely (Figure 1).

1.3.1 Zero

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

The initial zero-setting device of the pattern 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.

1.3.2 Tare

A semi-automatic subtractive tare device of up to 74.95 kg maximum capacity may be fitted.

1.3.3 Display Check

A display check is initiated whenever power is applied.

1.4 Verification/Certification Provision

Provision is made for a verification/certification mark to be applied.

1.5 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.

1.6 Sealing Provision

Provision is made for the calibration adjustments to be sealed by means of destructible adhesive labels sealing the back of the indicator to the main indicator casing (Figure 2).

1.7 Markings and Notices

(a) 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	Ⓜ
Pattern approval mark for the instrument	NSC No 6/9C/273
Maximum capacity	<i>Max</i> kg *
Verification scale interval	<i>e</i> = kg *
Minimum capacity	<i>Min</i> kg *
Maximum subtractive tare	<i>T</i> = - 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.

(b) Instruments carry a notice stating "not for trading direct with the public", or similar wording.

2. Description of Variants

2.1 Variant 1

Certain DS-520 series instruments with specifications as listed in Tables 1 and 2.

Note: The model SW-P baseworks listed in Table 2 are water resistant and include a membrane between the load cradle and the top cover (Figure 3).

2.2 Variant 2

With the baseworks as listed in Tables 1 and 2 which are approved for single-interval operation only used with a compatible Commission-approved (by Supplementary Certificate) indicator provided the conditions set out below are met.

Instruments may be known according to their basework or their indicator model number e.g. an instrument comprising a model S-YB 60 kg basework and a model DI-170 indicator, may be known as either a model S-YB 60 kg or as a model DI-170.

The conditions to be met 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 in each range is less than or equal to the n_{max} value specified.
- The signal voltage per verification scale interval is no less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval documentation for the indicator), i.e.

$$\text{Indicator Sensitivity} \leq 1000 \times E_x \times LC_Sens \times e / E_{max}$$

where E_x = Excitation from indicator (V)

LC_Sens = Load cell sensitivity (mV/V)

E_{max} = Load cell maximum capacity (nominal) (kg)

e = verification scale interval of the instrument (kg)

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

2.2.1 Markings

- (a) The indicator is marked and carries notices in accordance with its NSC approval documentation; and
- (b) The basework is marked with the following, in the form shown at right:

Manufacturer's mark, or name written in full	Teraoka
Indication of accuracy class	Ⓜ
Maximum capacity	Max kg
Model number
Serial number of the instrument
Pattern approval mark for the instrument	NSC No 6/9C/273

TABLE 1

Basework: Teraoka

Basework model	S-YA	S-YB	S-YD	S-YE	S-QAS
Basework maximum capacity	30 kg	30 kg	30 kg	30 kg	30 kg
	60 kg	60 kg	60 kg	60 kg	60 kg
	150 kg	150 kg	150 kg	150 kg	150 kg
		300 kg	300 kg	300 kg	300 kg
Maximum number of	3000	3000	3000	3000	3000
verification scale intervals					
Minimum value of	0.01 kg	0.01 kg	0.01 kg	0.01 kg	0.01 kg
verification scale interval	0.02 kg	0.02 kg	0.02 kg	0.02 kg	0.02 kg
(e)	0.05 kg	0.05 kg	0.05 kg	0.05 kg	0.05 kg
		0.1 kg	0.1 kg	0.1 kg	0.1 kg
Maximum platform size (mm)	380×380	480×480	400×400	400×400	350×500
Maximum tare capacity	14.99 kg	14.99 kg	14.99 kg	14.99 kg	14.99 kg
	29.98 kg	29.98 kg	29.98 kg	29.98 kg	29.98 kg
	74.95 kg	74.95 kg	74.95 kg	74.95 kg	74.95 kg
		149.9 kg	149.9 kg	149.9 kg	149.9 kg
Load cells: Teraoka					
Model number	P	PMB	PDP	PDP	PMB
Load cell maximum capacity	45 kg	45 kg	45 kg	45 kg	45 kg
(<i>E_{max}</i>)	90 kg	90 kg	90 kg	90 kg	90 kg
	225 kg	225 kg	225 kg	225 kg	225 kg
		450 kg	450 kg	450 kg	450 kg
Number of load cells	1	1	1	1	1
Load cell sensitivity at <i>E_{max}</i>	1.5 mV/V	1.5 mV/V	1.5 mV/V	1.5 mV/V	1.5 mV/V
Input impedance	1100 Ω	1100 Ω	1100 Ω	1100 Ω	1100 Ω
Excitation voltage (maximum)	20 V	20 V	20 V	20 V	20 V
Cable length (±0.1m) (#)	3 m	3 m	3 m	3 m	3 m
Number of leads (plus shield)	4	4	4	4	4

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

Approved DS-520 Series Instruments With S-Y Series Baseworks

TABLE 2

Basework: Teraoka				
Basework model	S-WP	S-WP	S-WP	S-WP
Basework maximum capacity	3 kg	6 kg	15 kg	30 kg
Maximum number of verification scale intervals	3000	3000	3000	3000
Minimum value of verification scale interval (e)	0.001 kg	0.002 kg	0.005 kg	0.01 kg
Maximum platform size (mm)	336x246	336x246	336x246	336x246
Maximum tare capacity	1.499 kg	2.998 kg	7.495 kg	14.99 kg
Load cells: Teraoka				
Model number	P	P	P	P
Load cell maximum capacity (<i>E_{max}</i>)	4.5 kg	9 kg	22.5 kg	45 kg
Number of load cells	1	1	1	1
Load cell sensitivity at <i>E_{max}</i>	1.5 mV/V	1.5 mV/V	1.5 mV/V	1.5 mV/V
Input impedance	1100 Ω	1100 Ω	1100 Ω	1100 Ω
Excitation voltage (maximum)	20 V	20 V	20 V	20 V
Cable length (±0.1m) (#)	1 m	1 m	1 m	1 m
Number of leads (plus shield)	4	4	4	4

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

Note: The model SW-P baseworks listed in Table 2 are water resistant and include a membrane between the load cradle and the top cover (Figure 3).

Approved DS-520 Series Instruments With S-WP Series Baseworks

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 the weighing range in use, 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 $2\,000 < m \leq 10\,000$.

TECHNICAL SCHEDULE No 6/9C/273
VARIATION No 1

Pattern: Teraoka Model DS-520 Weighing Instrument
Submittor: W W Wedderburn Pty Ltd
90 Parramatta Road
Summer Hill NSW 2130

1. Description of Variants

1.1 Variant 3

Certain DS-530 series instruments with specifications as listed in Tables 3 and 4. Instruments are similar to the pattern (DS-520) as described in Technical Schedule 6/9C/273 dated 17 December 2002.

Instruments use a Teraoka model DS-530 indicator (Figure 4) which is similar to the model DS-520 indicator described for the pattern except that it has a plastic housing.

Any of the power supply options described for the pattern may also be used with the model DS-530.

Teraoka model DS-530 indicators are sealed either by destructible adhesive labels (similar to Figure 2) or by sealing the special screw provided on the rear of the indicator housing.

Note: The model SW-P baseworks listed in Table 3 are water resistant and include a membrane between the load cradle and the top cover (Figure 3).

1.2 Variant 4

With the baseworks of this approval as listed in Tables 3 and 4 with a compatible approved indicator.

Instruments shall comply with the conditions set out in clause **2.2 Variant 2** in Technical Schedule 6/9C/273 dated 17 December 2002.

TABLE 3

Instrument: Teraoka Model	DS-530	DS-530GA	DS-530A	DS-530AP	DS-530B	DS-530BP
Basework: Teraoka Model	S-WP	S-GA	S-YA	S-YAP	S-YB	S-YBP
Basework maximum capacity, kg	3	60	30	30	30	30
	6	150	60	60	60	60
	15	300	150	150	150	150
	30				300	300
Maximum number of verification scale intervals	3000	3000	3000	3000	3000	3000
Minimum value of verification scale interval (e), kg	0.001	0.02	0.01	0.01	0.01	0.01
	0.002	0.05	0.02	0.02	0.02	0.02
	0.005	0.1	0.05	0.05	0.05	0.05
	0.01				0.1	0.1
Maximum platform size (mm)	336x246	360x480	380x380	380x380	480x480	480x480
Maximum tare capacity, kg	1.499	29.98	14.99	14.99	14.99	14.99
	2.998	74.95	29.98	29.98	29.98	29.98
	7.495	149.9	74.95	74.95	74.95	74.95
	14.99				149.9	149.9
Load cells: Teraoka Model	PN	PS	P	P	PM	PM
Load cell maximum capacity, kg	4.5	90	45	45	45	45
	9	225	90	90	90	90
	22.5	450	225	225	225	225
	45				450	450
Number of load cells	1	1	1	1	1	1
Load cell sensitivity at <i>E_{max}</i>	1.5 mV/V	1.5 mV/V	1.5 mV/V	1.5 mV/V	1.5 mV/V	1.5 mV/V
Input impedance	1100 ohm	1100 ohm	1100 ohm	1100 ohm	1100 ohm	1100 ohm
Excitation voltage (maximum)	20 V	20 V	20 V	20 V	20 V	20 V
Cable length (±0.1m) (#)	1 m	3 m	3 m	3 m	3 m	3 m
Number of leads (plus shield)	4	4	4	4	4	4

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

Approved DS-530 Series Instruments With S-WP, S-GA, S-YA, S-YAP, S-YB and S-YBP Baseworks

TABLE 4

Instrument: Teraoka Model	DS-530D	DS-530DP	DS-530E	DS-530EP	DS-530QAS
Basework: Teraoka Model	S-YD	S-YDP	S-YE	S-YEP	S-QAS
Basework maximum capacity, kg	30	30	30	30	30
	60	60	60	60	60
	150	150	150	150	150
	300	300	300	300	300
Maximum number of verification scale intervals	3000	3000	3000	3000	3000
Minimum value of verification scale interval (e), kg	0.01	0.01	0.01	0.01	0.01
	0.02	0.02	0.02	0.02	0.02
	0.05	0.05	0.05	0.05	0.05
	0.1	0.1	0.1	0.1	0.1
Maximum platform size (mm)	400x400	400x400	400x400	400x400	350x500
Maximum tare capacity, kg	14.99	14.99	14.99	14.99	14.99
	29.98	29.98	29.98	29.98	29.98
	74.95	74.95	74.95	74.95	74.95
	149.9	149.9	149.9	149.9	149.9
Load cells: Teraoka Model	PD	PD	PD	PD	PM
Load cell maximum capacity, kg	45	45	45	45	45
	90	90	90	90	90
	225	225	225	225	225
	450	450	450	450	450
Number of load cells	1	1	1	1	1
Load cell sensitivity at <i>E_{max}</i>	1.5 mV/V	1.5 mV/V	1.5 mV/V	1.5 mV/V	1.5 mV/V
Input impedance	1100 ohm	1100 ohm	1100 ohm	1100 ohm	1100 ohm
Excitation voltage (maximum)	20 V	20 V	20 V	20 V	20 V
Cable length (±0.1m) (#)	3 m	3 m	3 m	3 m	3 m
Number of leads (plus shield)	4	4	4	4	4

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

TECHNICAL SCHEDULE No 6/9C/273

VARIATION No 2

Pattern: Teraoka Model DS-520 Weighing Instrument

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

1. Description of Variant 5

The pattern or variants using model DS-520 Mk II or DS-530 Mk II indicators (in which case the instruments may be known either as models DS-520 or DS-520 Mk II, or models DS-530 or DS-530 Mk II respectively).

The model DS-520 Mk II or DS-530 Mk II indicators are in most respects the same in appearance and functionality as the models DS-520 or DS- 530 (as described elsewhere in this approval).

However, the model DS-520 Mk II and DS-530 Mk II indicators incorporate differing circuit boards, and the semi-automatic tare device, if fitted, may have a maximum capacity up to the maximum capacity of the instrument – the maximum tare capacity values shown in Tables 1, 2 and 3 may therefore be ignored for instruments using these indicators. Note that the maximum subtractive tare capacity markings are not required where the tare capacity is the same as the maximum capacity of the instrument.

NOTIFICATION OF CHANGE

In Technical Schedule No 6/9C/273 dated 17 December 2002, clause **1. Description of Pattern** should be amended by adding the following after the last paragraph:

“Note: The submittor should be consulted regarding the acceptability of alternative power supply/charger units.”



Australian Government
National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Notification of Change
Certificate of Approval No 6/9C/273
Change No 1

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

The following changes are made to the approval documentation for the

Teraoka Model DS-520 Weighing Instrument

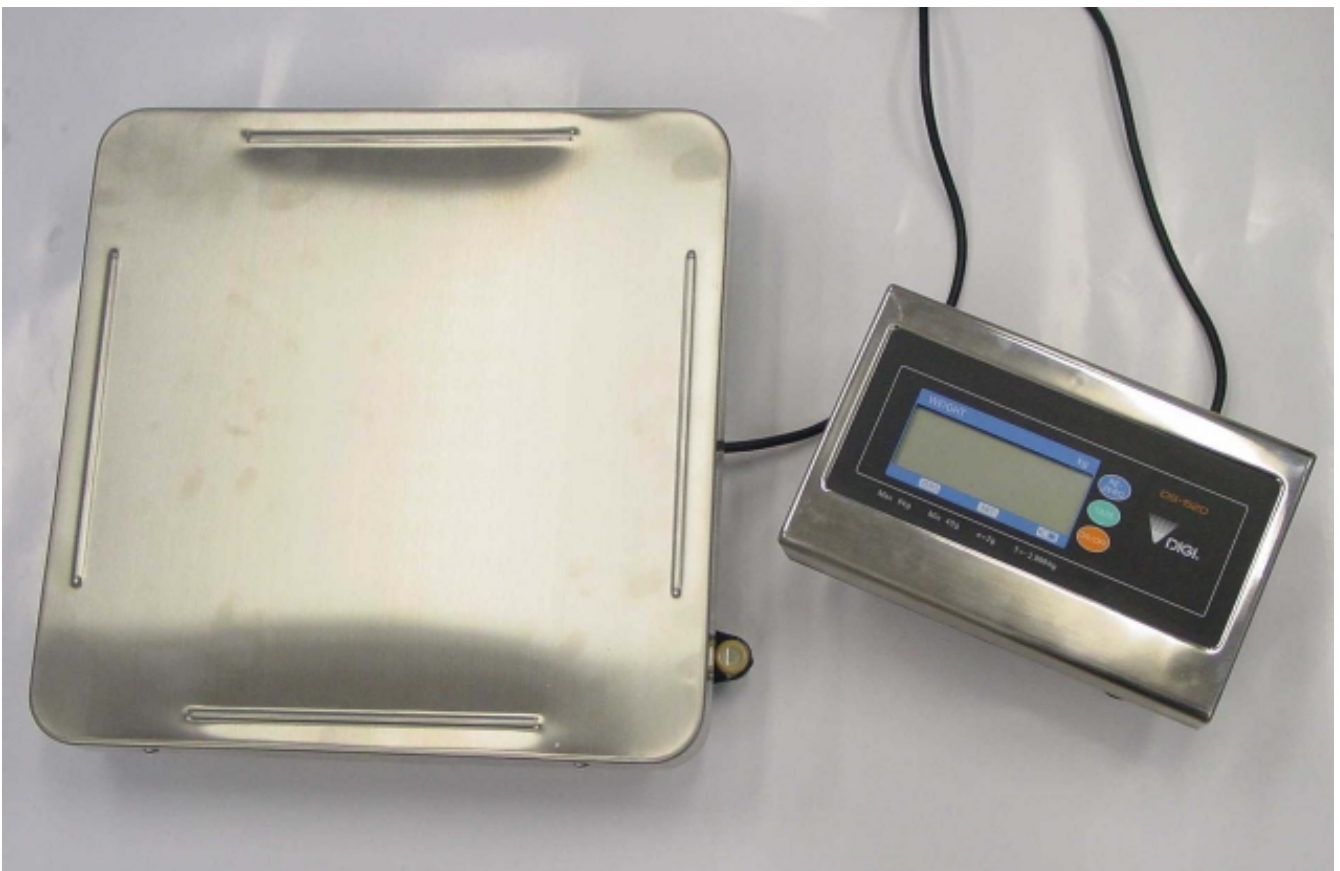
submitted by W W Wedderburn Pty Ltd
90 Parramatta Road
Summer Hill NSW 2130.

- A. In Certificate of Approval No 6/9C/273 dated 15 November 2004;
1. The Condition of Approval referring to the review of the approval should be amended to read:
"This approval becomes subject to review on 1 November **2012**, and then every 5 years thereafter."
 2. The FILING ADVICE should be amended by adding the following:
"Notification of Change No 1 dated 15 February 2008"
- B. In Technical Schedule No 6/9C/273 dated 17 December 2002 and in Technical Schedule No 6/9C/273 Variation No 1 dated 15 November 2004, the references to the Maximum Platform Size for the model S-QAS basework (in Tables 1 and 4, respectively) should be amended to read:
"370 x 500 mm"

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, appearing to be 'J. H. T.', is written over the signature line.

FIGURE 6/9C/273 - 1



Teraoka Model DS-520 Weighing Instrument
Including Model S-YA Basework

6/9C/273
17 December 2002

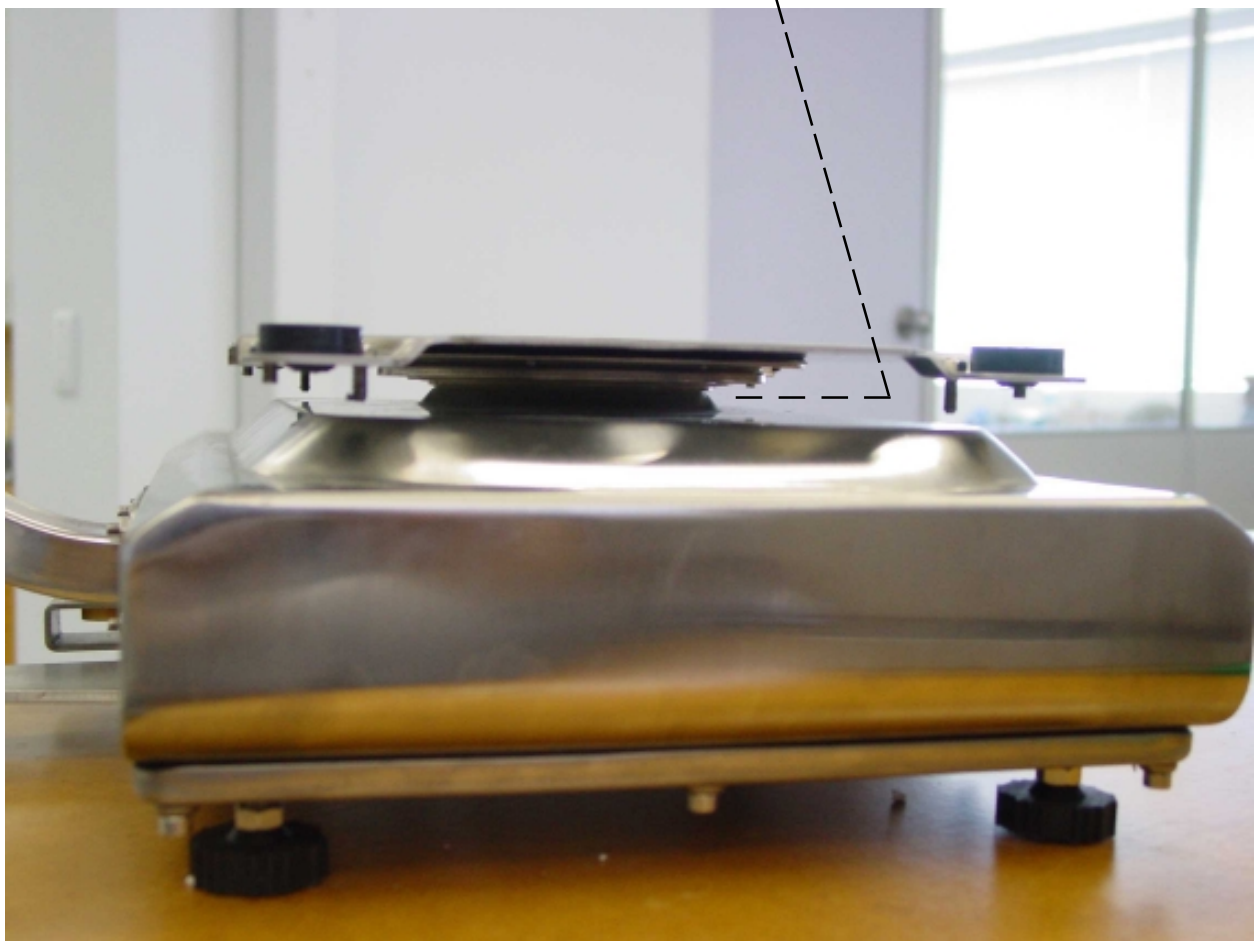
FIGURE 6/9C/273 - 2



Typical Sealing

FIGURE 6/9C/273 - 3

Membrane



Typical S-WP Series Water-resistant Basework

FIGURE 6/9C/273 – 4



Teraoka Model DS-530 Digital Indicator