FG

NATIONAL STANDARDS COMMISSION

WEIGHTS & MEASURES (PATTERNS OF INSTRUMENTS) REGULATIONS

REGULATION 9

CERTIFICATE OF APPROVAL No 6/10B/15

This is to certify that an approval has been granted by the Commission that the pattern and variants of the

Philips Model PR1530/6220 Weighing Instrument

submitted by Philips Scientific & Industrial Equipment,
25-27 Paul Street,
North Ryde, New South Wales, 2113, and

Rite-Weigh Scale Service Pty Ltd,
9 Wetherill Street,
Lidcombe, New South Wales, 2141,

are suitable for use for trade.

The approval of the pattern and variants is subject to review on or after 15/7/82.

All instruments purporting to comply with this approval shall be marked NSC No 6/10B/15.

Relevant drawings and specifications are lodged with the Commission.

Condition of Approval

1. The load cells to be used shall be subject to regular certification by the Commission.

Signed

Executive Director

Descriptive Advice

Pattern: approved 15/7/77

. A self-indicating weighbridge of up to 100 t maximum capacity comprising either 4 or 6 Philips model PR6220 load cells, and a Philips model PR1530 indicator.

Variant: approved 15/7/77

1. With up to three load receptors, and a PR1532 basework selector.

Technical Schedule No 6/10B/15 dated 3/2/78 describes the pattern and variant 1.

Variants: approved 4/6/82

2. With a PR1561 indicator in lieu of the PR1530 indicator.

3. With up to three load receptors, and a PR1562 indicator unit.

4. With three load receptors, and a PR1562 indicator unit with summing facility.

Technical Schedule No 6/10B/15 Variation No 1 dated 5/7/82 describes variants 2, 3 and 4.

Filing Advice

Certificate of Approval No 6/10B/15 dated 3/2/78 is superseded by this Certificate and may be destroyed.

The documentation for this approval now comprises:

Certificate of Approval No 6/10B/15 dated 5/7/82
Technical Schedule No 6/10B/15 dated 3/2/78
Technical Schedule No 6/10B/15 Variation No 1 dated 5/7/82
Test Procedure No 6/10B/15 dated 5/7/82.

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/10B/15

Pattern: Philips Weighing Instrument Model PR1530/6220

Submittor: Philips Scientific & Industrial Equipment,
25-27 Paul Street,
North Ryde, New South Wales, 2113.

Date of Approval: 15 July 1977

This Technical Schedule replaces Technical Schedule No 6/10B/15 dated 30 May 1974 and Technical Schedule No 6/10B/15 - Variation No 1 dated 24 October 1975.

All instruments conforming to this approval shall be marked "NSC No 6/10B/15".

Introduction:

The Philips load cell weighbridge has load cell mass transducers which directly support a load receptor. The load cells are a variable reactive component of an oscillator whose change in output frequency is proportional to the load and is used to produce a digital indication of weight.

Description:

The pattern is a weighbridge of capacity up to 100 tonnes, with load cells as the resistant mechanism and with an electronic weight indicator displaying up to 2000 increments (see Figures 1 and 2).

The load receptor is directly supported on hardened loading pads on either four or six type PR 6220 load cells, which are in turn each supported on an integral spherical base which allows for some horizontal movement of the top of the load cell. The loading pads and spherical base reduce the effect of any horizontal forces applied to the load receptor. Stay beams connected between brackets on the load receptor and on the foundation restrict horizontal movement of the load receptor and further isolate the load cells from horizontal forces.

The weight indicator type PR 1530 converts the mass information from the load cells into a digital indication of weight by counting the number of pulses from the oscillator over a preset period. The counting period is repeated continuously. While the counts in successive counting periods are different, that is, the weight signal has not reached equilibrium, the indicator illumination is at half brightness. Upon the instrument reaching a steady state, detected as equal counts in successive periods, the indicator is illuminated at full brightness and the print button lights up.

Zero is set by a thumbwheel on the front panel of the weight indicator. A zero-check push-button adjacent to the thumbwheel suppresses the printer and normal weight indication, and displays zero in increments one-quarter of the normal weight increments. An indication of 000 indicates that zero is set within ± 1/8 of a weight increment. Below zero a negative (-) sign is displayed before the weight indication.

The weight indicator is sealed by passing a sealing wire, whose ends terminate in a lead seal, through two studs on the cabinet lock.

The serial number of each load cell is marked on a tag which is sealed to the weight indicator by a lead-and-wire seal (see Figure 3).

An output socket on the weight indicator may provide data to peripheral devices which are not a part of the measuring instrument*. These devices, which may only be provided with the authorisation of the Weights and Measures Authority of the State, may, for example, store and process the data, or print receipts, etc. Provision is made to seal the output socket (see Figure 3).

The weight indicator is marked adjacent to the weight reading face, for example:

(III)

Max	=	100 t
Min	=	1 t
$d_d = e$	=	0,05 t

* The measuring instrument examined and approved by the Commission is limited to the devices which determine the value of a physical quantity, control the measurement and indicate the result of the measurement on a visual display, for example, a seven-segment indicator.

The approval includes a PR 1532 basework-selector unit allowing the output of the load cells of up to three load receptors to be displayed on the one PR 1530 weight indicator (see Figure 4). Each load receptor has the same maximum capacity. In the PR 1532 basework-selector unit, a calibration circuit and a zero adjuster for each basework replaces the calibration circuit and zero adjuster of the PR 1530 weight indicator. The zero-adjustment thumbwheel is removed from the PR 1530 weight indicator.

The PR 1532 basework-selector unit is retained in its cabinet by passing a sealing wire, the ends of which terminate in a lead seal, through two studs on the cabinet lock. The PR 1532 basework-selector unit is located adjacent to the weight indicator. Separate tags sealed to the PR 1530 weight indicator identify by serial number the load cells used with each load receptor.

Special Tests:

Zero Balance — when the indicator is adjusted by the thumbwheel to indicate 000 with the zero-check button depressed, it should indicate 00000 when the zero-check button is released.

Load-cell Creep — leaving a maximum-capacity load on the load receptor for a period of up to 30 minutes should not cause the weight indicated to be incorrect and on removal of the load the weight indicated by the main indicator should be zero.

Motion-detector Sensitivity — removal from the load receptor at any load of a load equal to 1,5 increments should cause the weight indicator to reduce its brightness and the print-button illumination to be extinguished for a perceptible period before the indication of a new load.

Test Loads — the application of the test loads specified in Table 1 and the display of these loads within the applicable tolerance is one method of checking that the instrument operates in accordance with the approved design.

TABLE 1

Test Load in Graduations*

0	10	25	60	120	250	698,5
1	12	30	70	140	300	798,5
2	14	35	80	160	350	898,5
3	16	40	90	180	400	998,5
4	18	45	100	200	450	1198,5
5	20	50			500	1398,5
6						1598,5
7						1798,5
8						1998,5
9						

* Test Load = Number of graduations X graduation value

Note: The test load should include a test at capacity, less the tolerance and less 0,5 graduation

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/10B/15

VARIATION No 1

Pattern: Philips Model PR1530/6220 Weighing Instrument

Submittor: Philips Scientific & Industrial Equipment,
25-27 Paul Street,
North Ryde, New South Wales, 2113.

Submittor (variants 2, 3 and 4):

Rite-Weigh Scale Service Pty Ltd,
9 Wetherill Street,
Lidcombe, New South Wales, 2141.

1. Description of Variants

1.1. Variant 2

1.1.1

With a Philips model PR1561 indicator (Figure 5) in lieu of the PR1530 weight indicator, displaying up to 2000 scale intervals. While the instrument is not in equilibrium, the indicator illumination is at half brightness.

1.1.2 Zero

Zero balance is set by the appropriate knob; a light adjacent to the word ZERO illuminates when zero is set within 0.25e.

1.1.3 Tare

Use of the push-button marked TARE allows automatic taring of the load on the load receptor, to within 0.25e. On removal of the load, the value of the tare to the nearest whole graduation is indicated on the indicator, prefixed by a minus sign. The tare is subtractive and of a maximum capacity equal to the capacity of the instrument. When a tare is selected the push-button marked TARE will illuminate.

1.1.4 Sealing

(a) The output sockets on the indicator unit (which may provide data to peripheral devices) and the load-cell connectors, are located beneath a sealed cover on the rear of the indicator unit (Figure 6). The cover of the indicator unit is only removable after the sealed rear cover is removed.

(b) The serial numbers of the load cells are identified by a tag or tags sealed to the instrument by the seal securing the rear cover (Figure 6).

1.1.5 Marking

As for the pattern.

1.2 Variant 3

1.2.1

With up to three load receptors connected to a PR1562 indicator unit, which is similar to a PR1561 with the addition of a basework selector (Figure 7). The output of each receptor may be displayed individually up to 2000 scale intervals, by selecting one of three push buttons. Each receptor has the same maximum capacity.

1.2.2 Zero

As for indicator PR1561.

1.2.3 Tare

As for indicator PR1561.

1.2.4 Sealing

As for indicator PR1561 (Figure 6), and in addition, a tag showing the serial number of each basework is sealed to the instrument.

1.2.5 Marking

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

Manufacturer's name or mark	
Serial number	
NSC approval number	NSC No 6/10B/15
Accuracy class in the form:	(III)
Platform:	A B C
Maximum capacity in the form:	Max ...*, Max ...*, Max ...*
Minimum capacity in the form:	Min ...*, Min ...*, Min ...*
Scale interval in the form:	d = e..*, d = e..*, d = e ..*
Maximum tare capacity in the form:	T =- ..., T =- ..., T =- ...

Note: Scale interval may be marked d or d_d.

1.3 Variant 4

1.3.1

The Philips PR1562 indicator unit with a combined mass indicator, basework-selector, and summing facility, allowing the output of three load receptors to be displayed either individually or in summation up to 2000 scale intervals. Each load receptor, and the summation of the three load receptors, has the same maximum capacity. Each load receptor, or the summation, is selected by one of four push-buttons.

1.3.2 Marking

The instrument is marked as for Variant 3 (see 1.2.5), and in addition:

Platform	A + B + C
	Max .....*
	Min .....*
	d(or d_d) = e ...*
	T =- .....

* These markings are repeated on the reading face of the instrument if not already there.

TEST PROCEDURE No 6/10B/15

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:

± 0.5e for loads between 0 and 500e;
± 1e for loads between 501e and 2000e.

1. Zero Range

Check that the range of the zero adjustment is not more than 4% of the maximum capacity (± 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, and press the ZERO button; the instrument should not re-zero; and

(b) reduce the load to say 1.5%, and again press the ZERO button; the instrument should indicate zero balance.

2. Zero Test

Check by means of Document 104, that when the ZERO light is illuminated, zero is set within 0.25e.

3. Range of Indication

The maximum mass indicated should not exceed the maximum capacity (Max) by more than 10 scale intervals; above this indicated mass the indicator should be blank.

4. Taring

Attempt to tare a mass above maximum capacity. On removal of the mass no tare should have been entered, and the indicator should display all zeroes.

5. Test Loads

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

The instrument should display these loads within the applicable tolerance as set out above.

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NATIONAL STANDARDS COMMISSION

CANCELLATION OF CERTIFICATE OF APPROVAL No 6/10B/15

This is to certify that Certificate of Approval No 6/10B/15 for the pattern and variants of the

Philips Model PR1530/6220 Weighing Instrument

submitted by Philips Scientific & Industrial Equipment
25-27 Paul Street
North Ryde, New South Wales, 2113, and

Rite-Weigh Scale Service Pty Ltd
9 Wetherill Street
Lidcombe, New South Wales, 2141

will expire in respect of new instruments on 1 March 1983.

Instruments which were verified on or before 30 April 1983 (see Note) may, with the concurrence of the State or Territorial verifying authorities, be submitted for reverification.

Signed

Executive Director

Note: The following four instruments may not have been verified before 30 April 1983 but are considered by the Commission to be suitable for verification after the cancellation date of this Certificate.

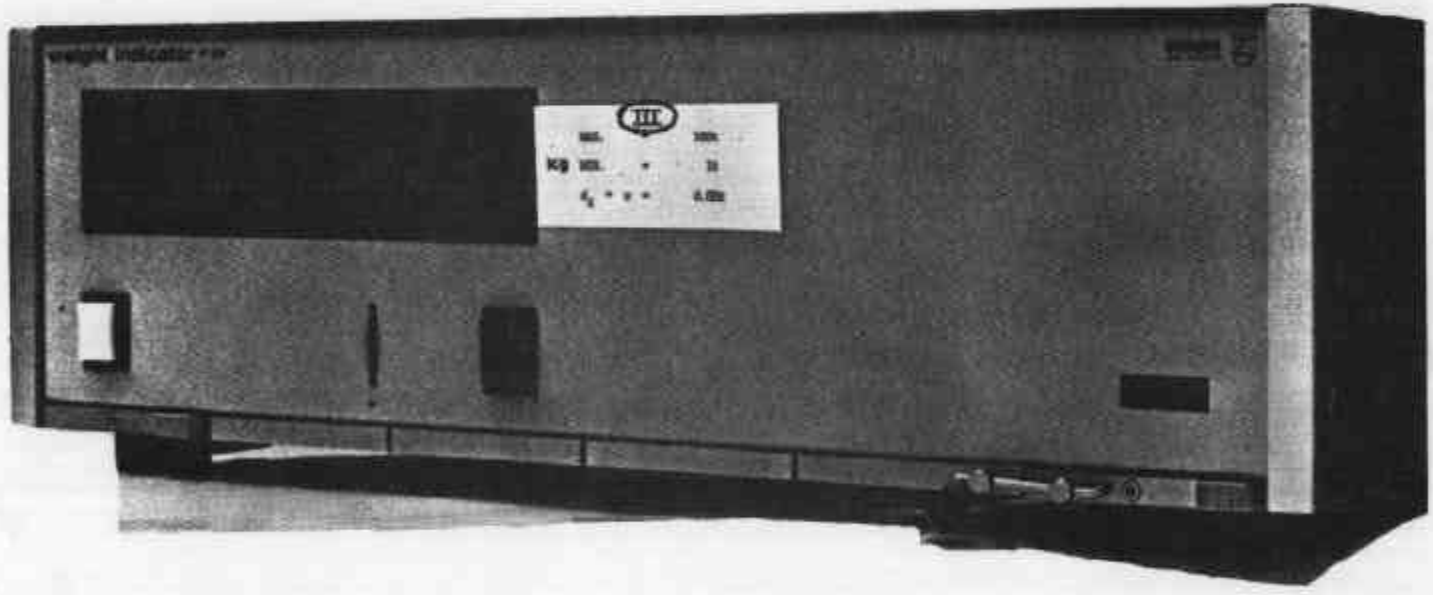
Four instruments located at Tomago Aluminium Smelter Ltd, Tomago Road, Tomago, New South Wales, using the following load cells:

Model Number	Capacity	Serial Numbers
PR6220/53	5 t	L01354, L01371, L01391, L01393.
PR6220/23	2 t	L01308, L01309, L01310, L01311, L01312, L01313, L01314, L01319, L01320, L01323, L01351, L01352.

28/2/83

FIGURE 6/10B/15 - 1

3/2/78



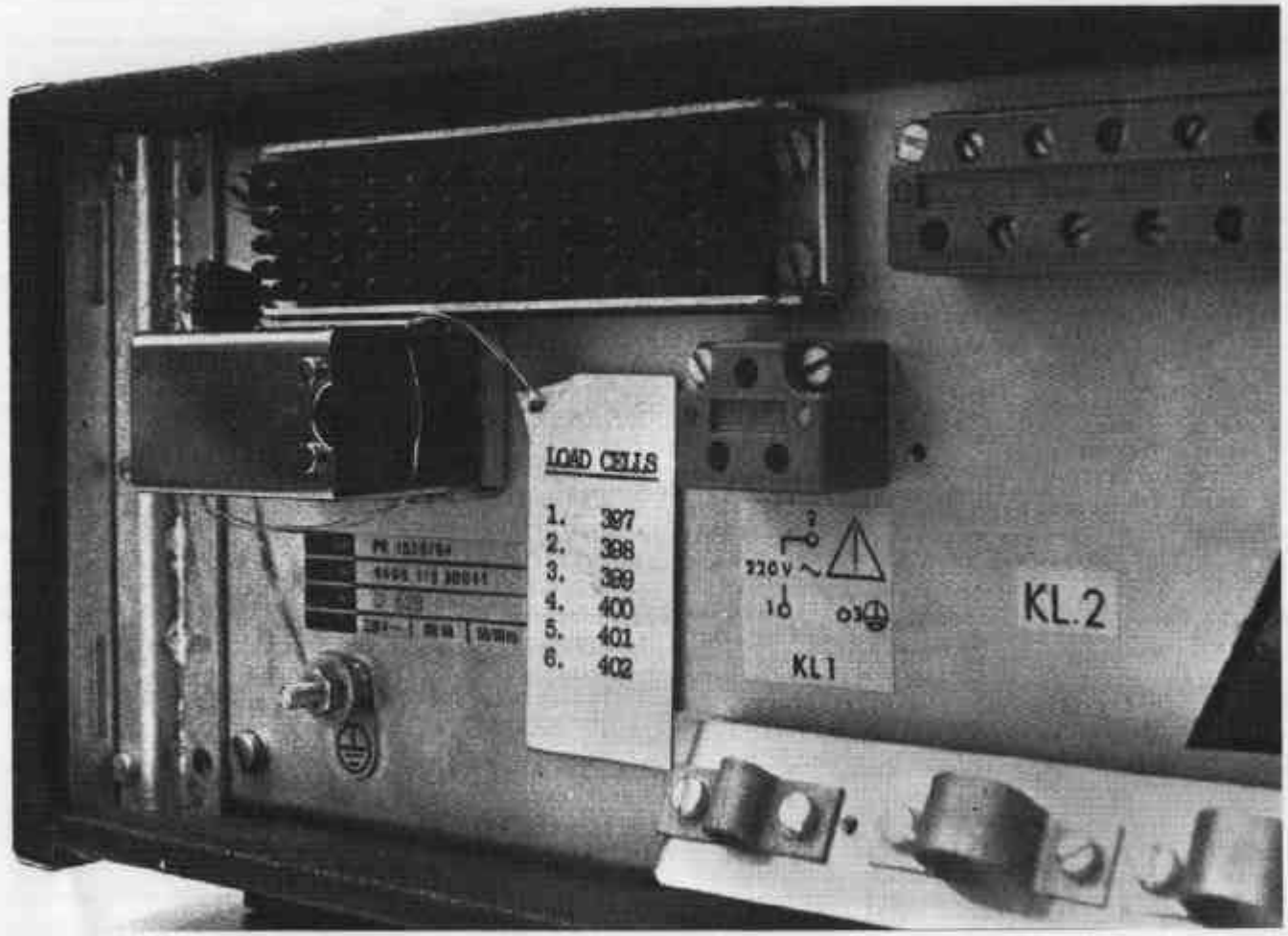
Philips PR 1530 Weight Indicator

FIGURE 6/10B/15 - 2

Philips Load Cell Type PR 6220

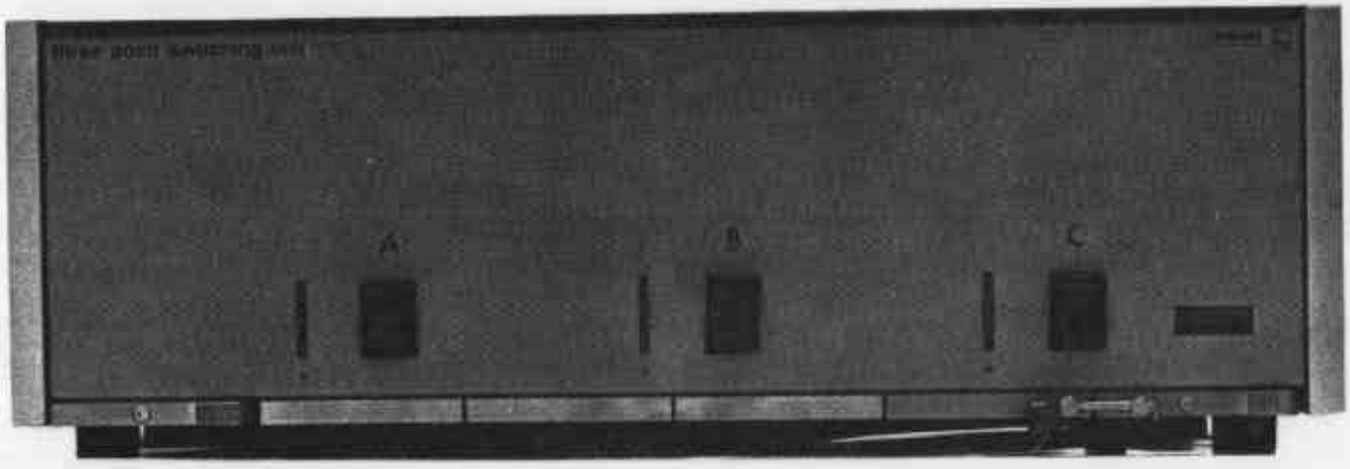
3/2/78

FIGURE 6/10B/15 - 3



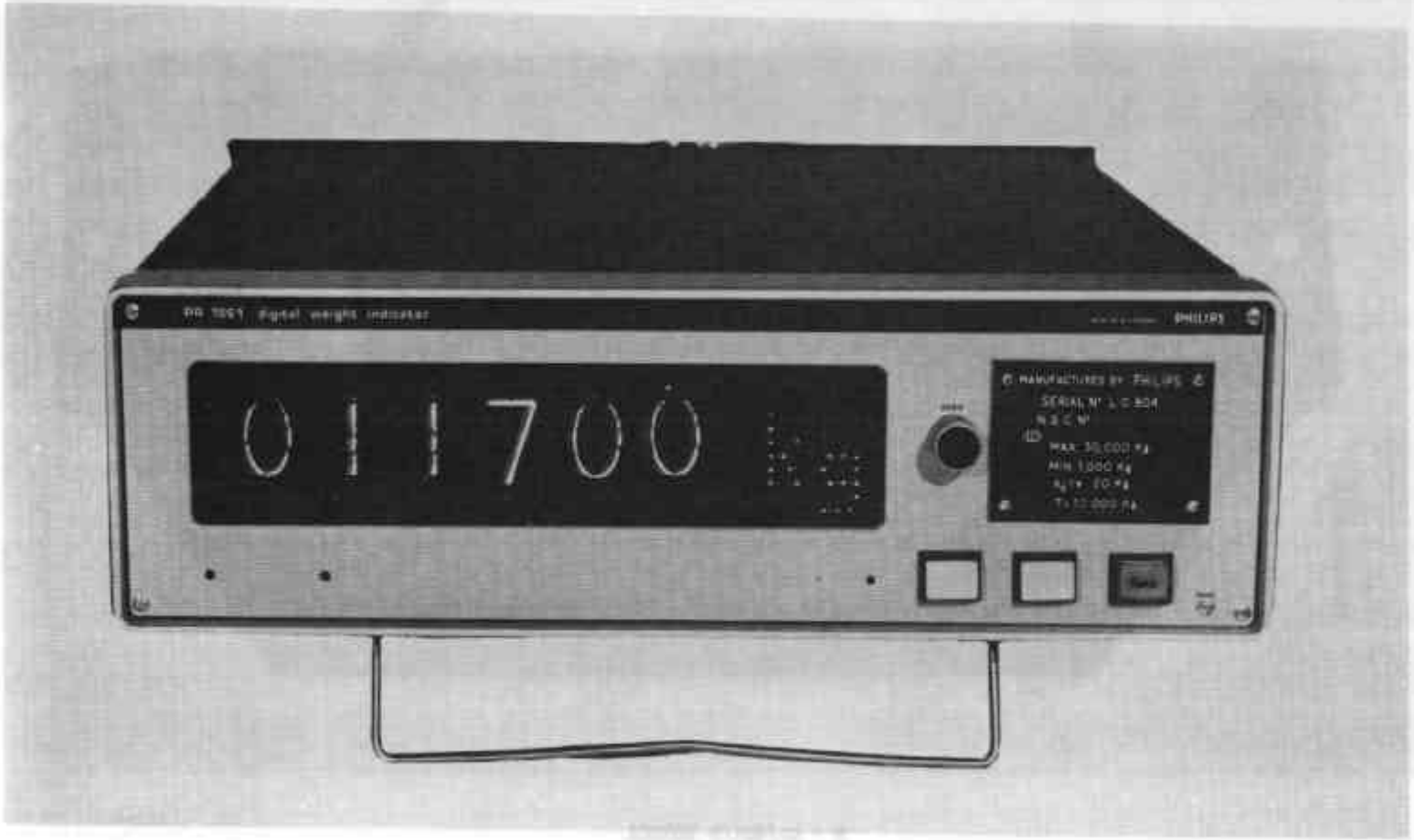
Philips PR 1530 Weight Indicator — Sealing
of Output Socket and Load Cell Serial Number

FIGURE 6/10B/15 - 4



Philips PR 1532 Basework Selector

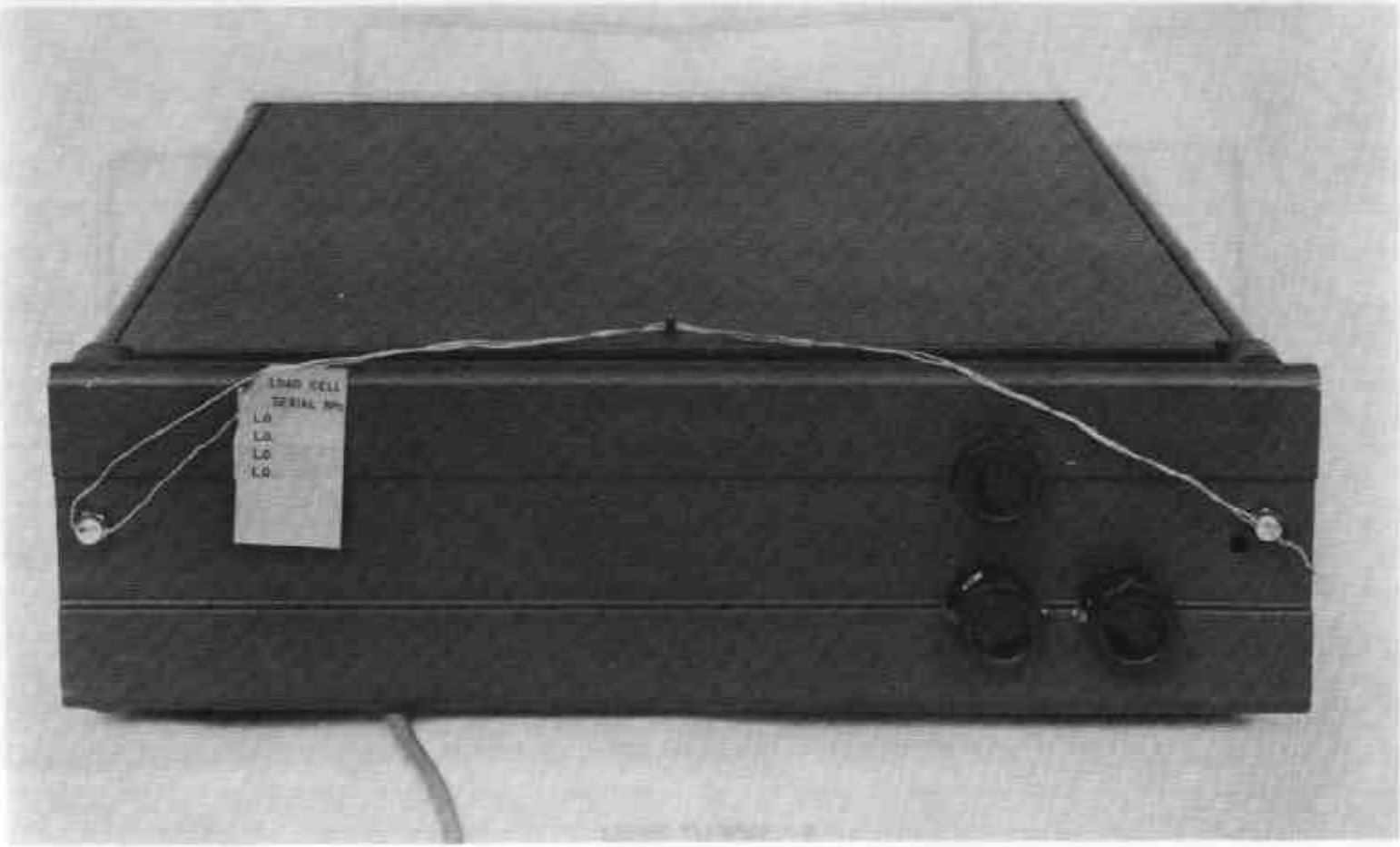
FIGURE 6/100/15 - 5



Philips Indicator Model PR1561 - Variant 2

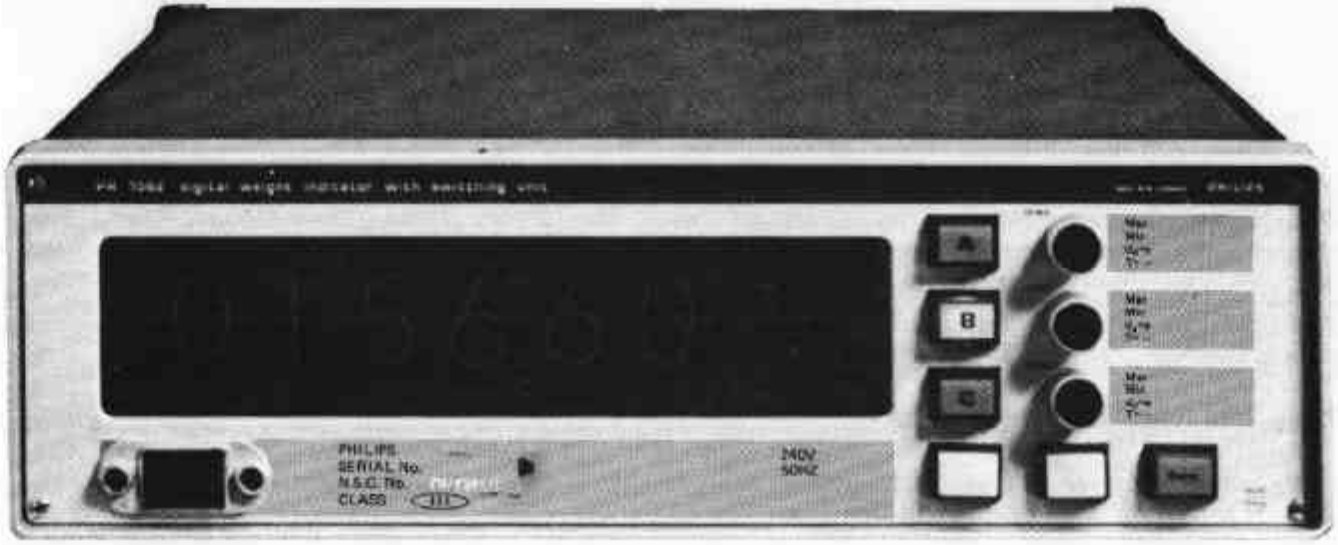
28/7/82

FIGURE 6/108/15 - 6



(tilips Indicators Models PR1561/2 - Rear View (wing Sealing

FIGURE 6/108/15 - 7



Philips Indicator Model PR1562 - Variant 3