

NATIONAL STANDARDS COMMISSION

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CERTIFICATE OF APPROVAL No 6/10B/32

This is to certify that the patterns of the

Ultra Weighing Instrument Model Z3H/Minipond II-H3

submitted by Ultra Scales Pty Ltd,
33-35 Judge Street,
Sunshine, Victoria, 3020,

have been approved under the Weights and Measures (Patterns of Instruments) Regulations as being suitable for use for trade.

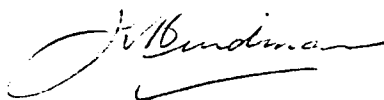
Date of Approval: 3 April 1978

The patterns are described in Technical Schedule No 6/10B/32, and in drawings and specifications lodged with the Commission.

The approval is subject to review on or after 1 April 1983.

All instruments conforming to this approval shall be marked with the approval number "NSC No 6/10B/32".

Signed



Acting Executive Officer



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/10B/32

Pattern: Ultra Weighing Instrument Model Z3H/Minipond II-H3

Submittor: Ultra Scales Pty Ltd,
33-35 Judge Street,
Sunshine, Victoria, 3020.

Date of Approval: 3 April 1978

All instruments conforming to this approval shall be marked "NSC No 6/10B/32".

Description:

The pattern is a mechanical-lever weighbridge of capacity up to 60 tonnes with a load-cell resistant mechanism and an electronic weight-indicator unit displaying up to 3000 increments (see Figures 1 to 3).

The load receptor is supported by an Ultra H3 three-lever basework (see Figure 3) with the transfer lever applying the load through a pullrod to a Hottinger Model Z3H 500-kg tension load cell which is supported from a fixed beam. The lever ratio is selected so that at maximum capacity the force applied to the load cell is between 1900 N and 4900 N (190 to 500 kgf).

The weight-indicator unit, Minipond II, converts the output from the load cell into a digital weight indication of up to 3000 increments, which is displayed on "nixie tube" indicators. Zero balance is set by a knob on the front of the weight indicator; it is indicated by the word "zero" being illuminated when zero is set within 0,25e.

The weight-indicator unit is retained in its cabinet by a lead-and-wire seal; the sealing wire passes through the drilled heads of two set screws. The serial number of the load cell is sealed to the weight indicator by a weight-indicator seal (see Figure 4).

The instrument is marked adjacent to the weight reading face, for

example:

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Max	=	60 t
Min	=	1 t
$d_4 = e$	=	0,02 t

Output sockets may be used to provide weight information and high and low cut-off signals to peripheral devices which are not a part of the measuring instrument.* These supplementary devices, which may only be provided with the authorisation of the Weights and Measures Authorities of the State or Territory, may, for example, print receipts or store and process the data, etc. The output weight information is inhibited until the instrument is in equilibrium. Provision is made to seal the output sockets (see Figure 4) to prevent the addition of peripheral equipment or to seal peripheral equipment to the output sockets (see Figure 5).

The use of such peripheral equipment will not affect the operation of the weighing instrument.

The approval includes:

1. The weight-indicator unit in the housing illustrated in Figure 6. A lead-and-wire seal retains the unit in its housing; the sealing wire passes through the drilled heads of two set screws as illustrated. The sealing of the output socket and the load cell serial number are as illustrated in Figures 4 and 5.
2. The baseworks of other Commission-approved patterns replacing the Ultra basework described above, provided that:
 - (a) the basework** is of an instrument conventionally known as a platform weighing machine, weighbridge or hopper scale, etc., where the headwork and basework are separate assemblies connected by a mechanical linkage;

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- * 1. 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 nixie-tube indicator or a seven-segment indicator.
 2. The high and low cut-off signals are adjusted by screws accessible through the front panel.
- ** The basework design may be varied by reducing the lever ratio of the transfer lever, or by including an additional force breakdown or transfer lever to match the pullrod force to the load cell.

- (b) the force applied to the load cell is between 1900 N and 4900 N;
- (c) the capacity of the instrument is not more than the capacity approved for the basework;
- (d) a levelling device and a level indicator are fitted, except for instruments installed in a fixed position, or instruments which satisfy the following accuracy requirements and indication limits when tilted to a slope of 1 in 20 in any direction:
 - (A) Accuracy requirements:
 - (i) $\pm 0,5e$ for loads between zero and 500e inclusive;
 - (ii) $\pm 1e$ for loads between 500e exclusive and 2000e inclusive;
 - (iii) $\pm 1,5e$ for loads greater than 2000e.
 - (B) Indication limits:
 - (i) Tilting at no-load — the zero indication does not vary more than $2e$ when tilted to a slope of 1 in 20, the zero being first adjusted in the reference (level) position; and
 - (ii) Tilting when loaded — the indication does not vary more than e , when tilted to a slope of 1 in 20, the indication at zero being adjusted in the reference position before tilting and in the tilted position before reloading.
- (e) If a level indicator is required, its sensitivity shall be such that, when the instrument is tilted so that the bubble in the level indicator moves 2 mm, the zero should not change by more than two scale intervals, and when zero is reset in the tilted position the instrument should satisfy the above weighing-accuracy specification. A notice adjacent to the level indicator shall advise that the instrument must be level when in use.
- (f) The instrument is marked:

"Approval Numbers

Headwork NSC No 6/10B/32
 Basework NSC No

Special Tests:

1. Zero balance — check by means of the Commission's digital zero^d test (Design Manual No 1, Document 104, Testing Procedure for the Elimination of Rounding Error for Weighing Instruments with Digital Indication) that, when the "zero" light is illuminated, zero is set within 0,25e of zero.
2. Zero range — the maximum range of operation of the zero device should not exceed 4% of the capacity of the instrument ($\pm 2\%$ approximately).
3. Load-cell creep — leaving a maximum-capacity load on the load receptor for a period of 30 minutes should not cause the weight indicated to be incorrect, and on removal of the load the weight indicated should be zero $\pm 0,25e$.
4. Test loads — the application of the test loads specified in Table 1 and the display of these loads within the applicable tolerance will check that the instrument operates in accordance with the approved design.
5. Range of indication —
 - (a) the maximum weight indicated should not exceed the maximum capacity (max); above this indicated weight the indicator should be blank.
 - (b) The minimum weight indicated should be zero; below this indicated weight the indicator should be blank.

TABLE 1

Test load in scale intervals*

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						2498
						2997

* Test load = Number of scale intervals X scale interval

Note: The test load should include a test at maximum capacity,
less the tolerance and less 0,5 scale interval.

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NATIONAL STANDARDS COMMISSION

CANCELLATION CERTIFICATE OF APPROVAL No 6/10B/32

This is to certify that Approval No 6/10B/32 for the
Ultra Model Z3H/Minipond II-H3 Weighing Instrument

submitted by Ultra Scales Pty Ltd
33-35 Judge Street
Sunshine VIC 3020

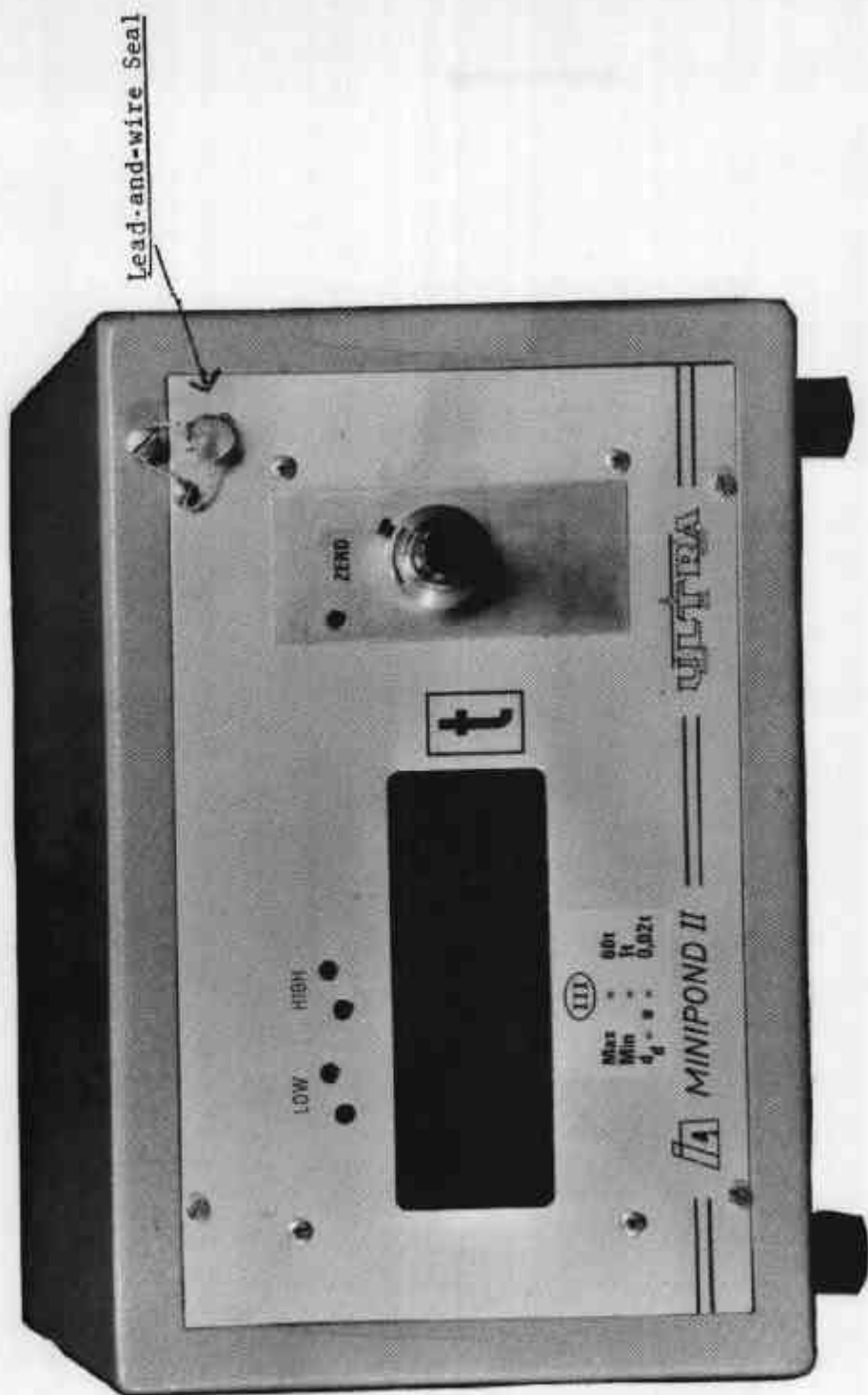
expired in respect of new instruments on 1 May 1985.

Instruments which were verified before that date may, with the concurrence of the State or Territorial verifying authorities, be submitted for reverification.

Signed

Executive Director

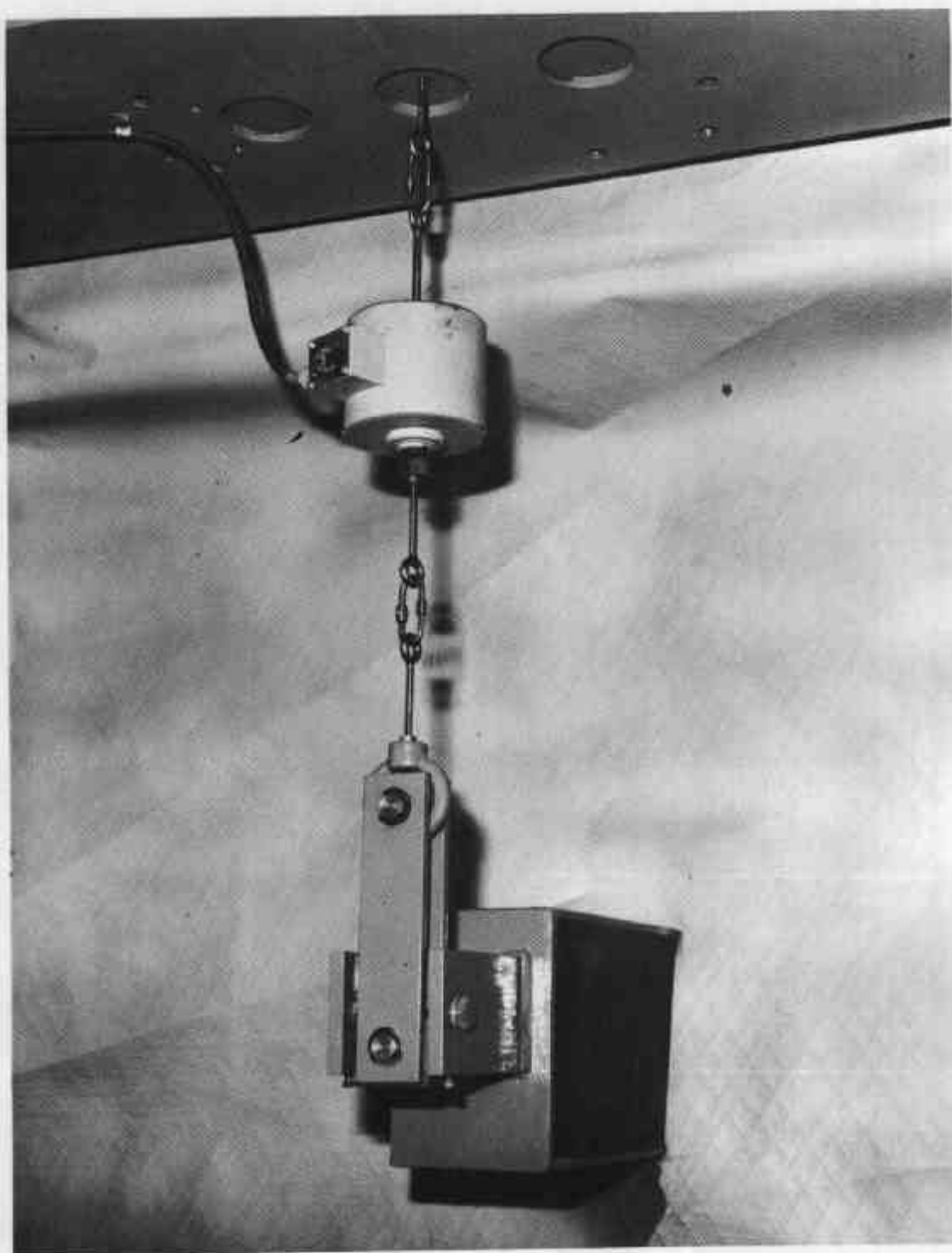
FIGURE 6/10B/32 - 1



Lead-and-wire Seal

Minipond II weight-indicator Unit

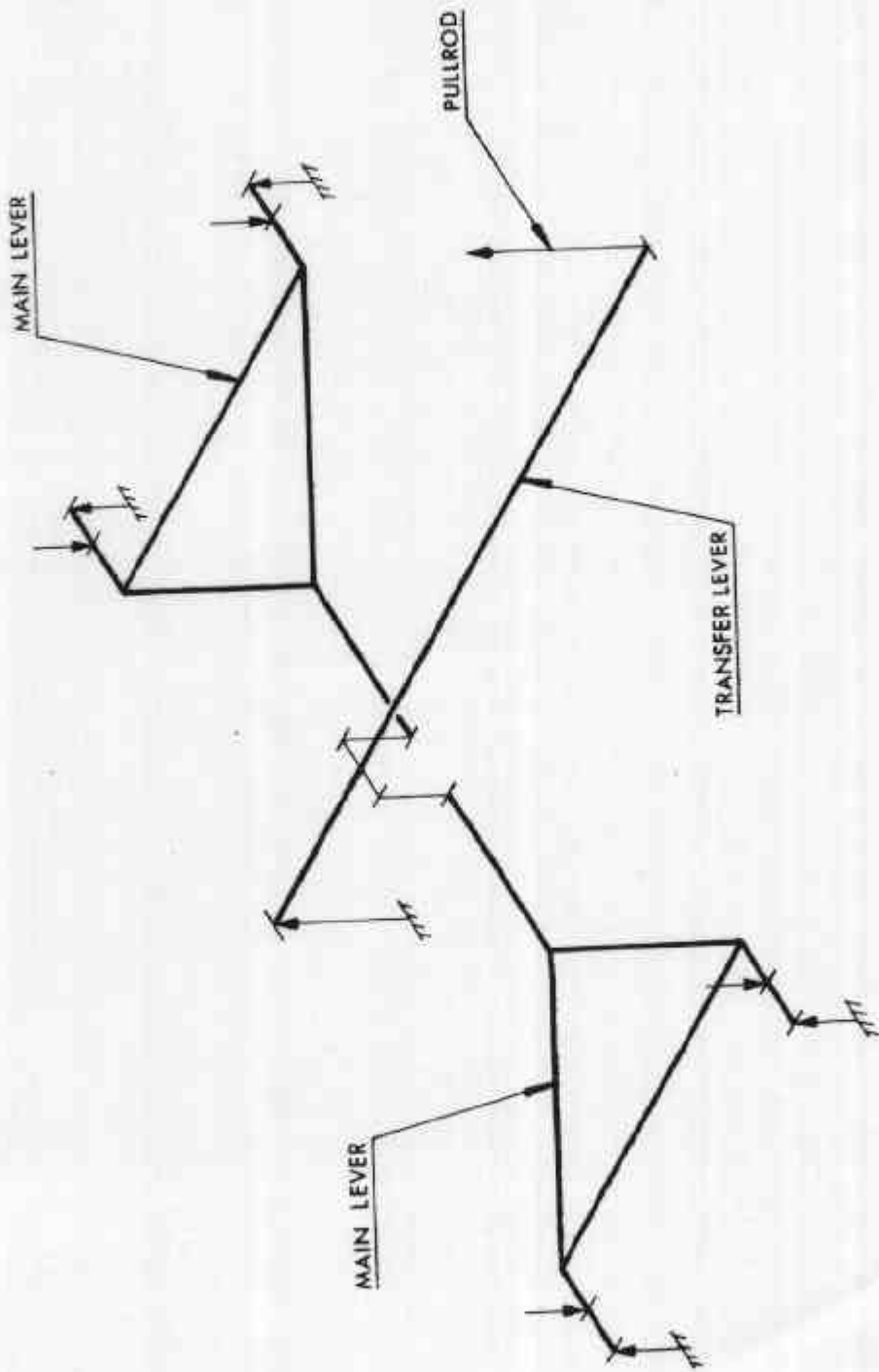
FIGURE 6/10B/32 - 2



Hottinger Z3H Load Cell — Connection to
Transfer Lever and Fixed Beam

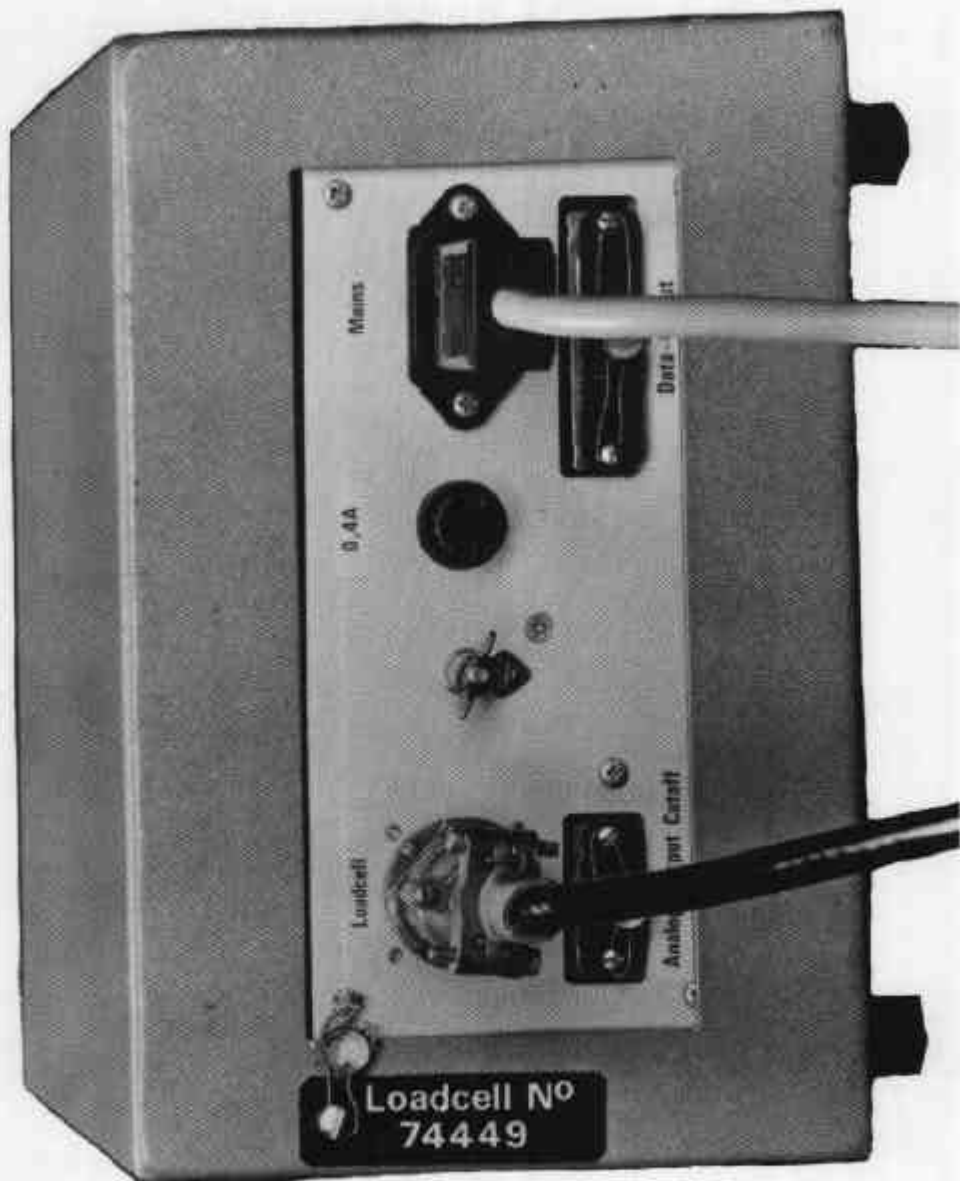
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FIGURE 6/10B/32 - 3



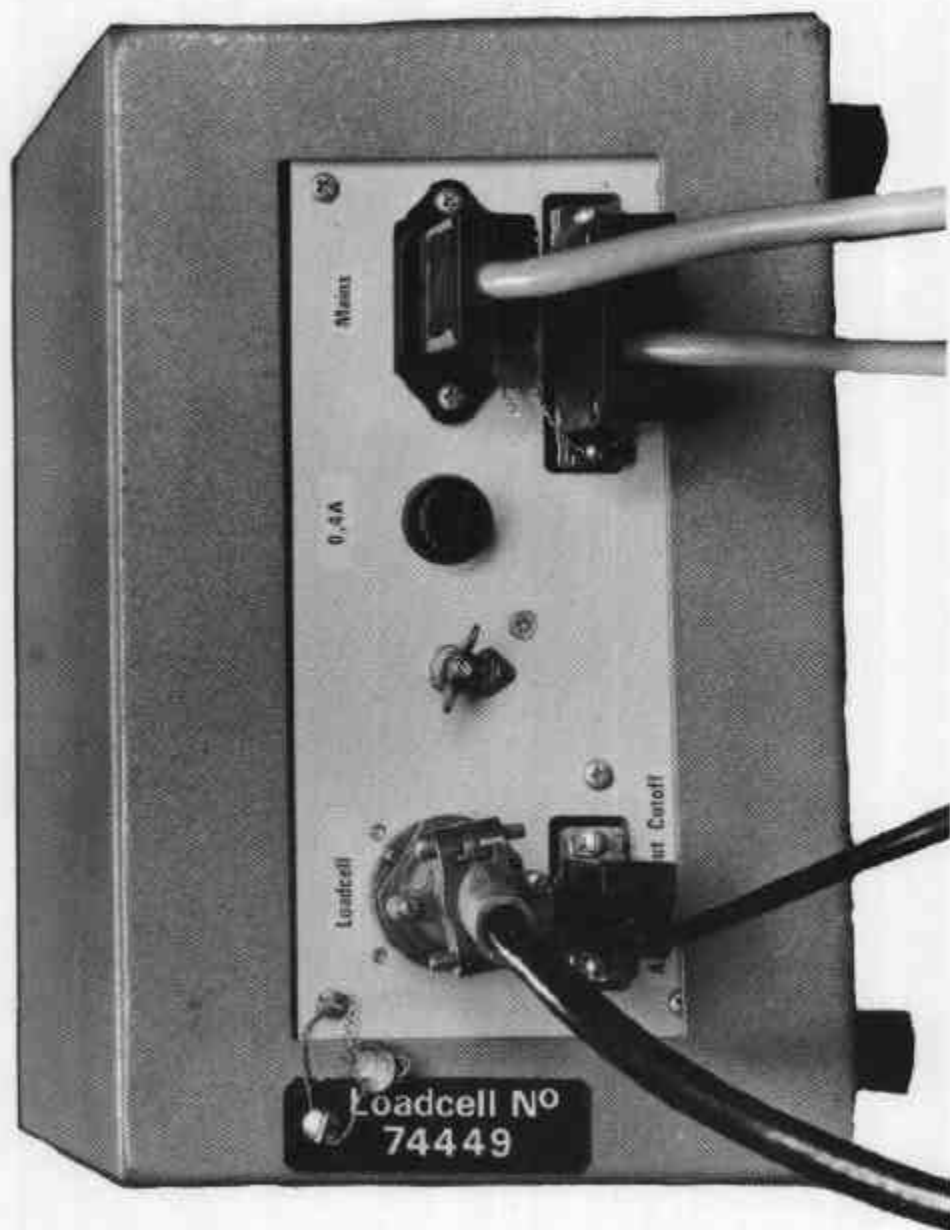
Ultra H3 Three-level Basework

FIGURE 6/10B/32 - 4



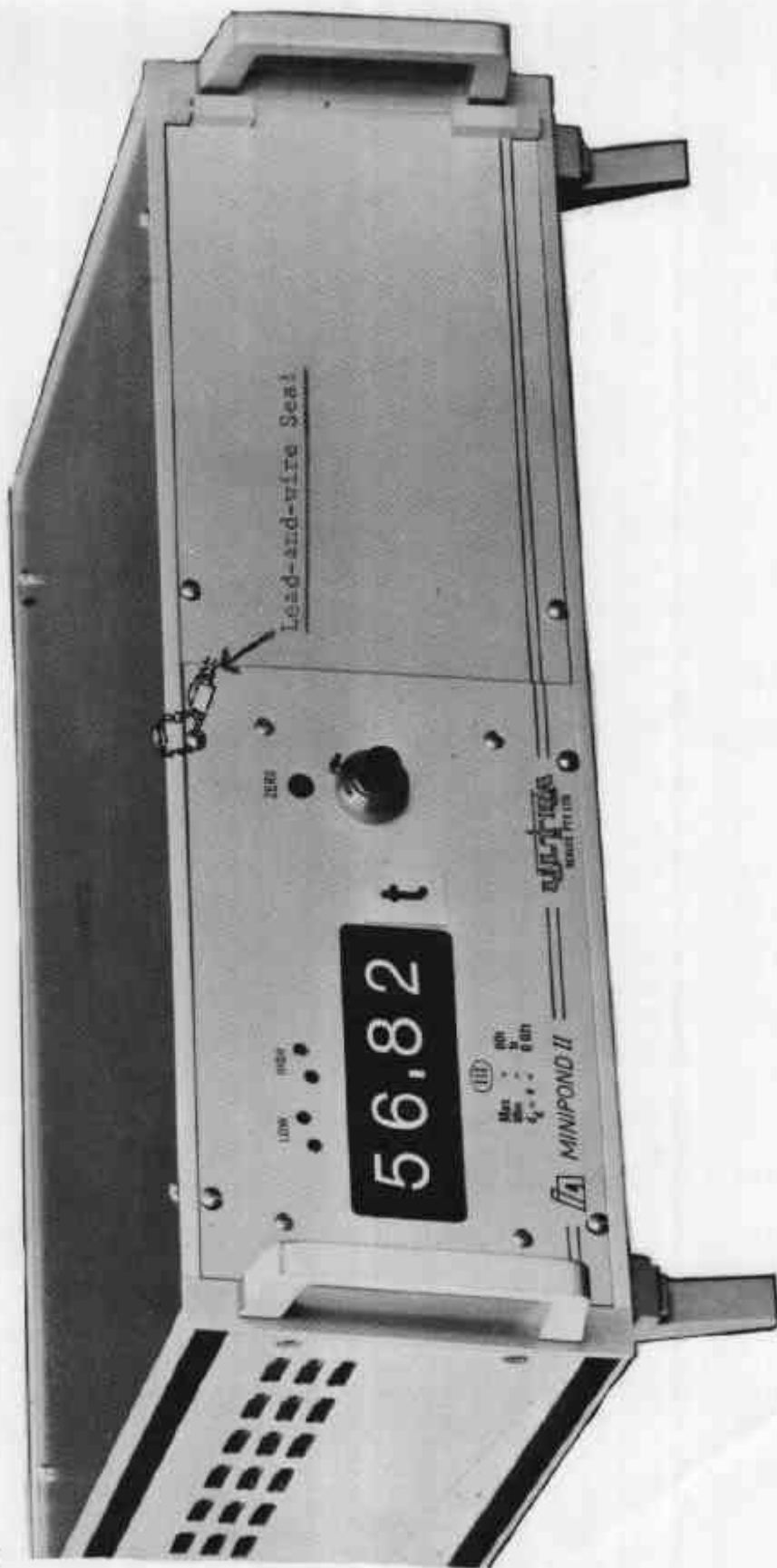
Sealing of Load Cell Serial Number and Output Sockets
(Note: A single seal may be used to seal the three sealing points)

FIGURE 6/10B/32 - 5



Sealing of Load Cell Serial Number and Output Plugs to Output Sockets
(Note: A single seal may be used to seal the three sealing points)

FIGURE 6/LOB/32 - 6



Minipond II Weight-Indicator Unit