

CERTIFICATE OF APPROVAL No 6/9C/64  
VARIATION No 1

This is to certify that the following modification of the pattern of the  
Avery Weighing Instrument Model Z6/SB350-3205

approved in Certificate No 6/9C/64 dated 22 November 1978

submitted by Avery Australia Ltd,  
3-5 Birmingham Avenue,  
Villawood, New South Wales, 2163,

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

Date of Approval: 28 August 1978

The approved modification, described in Technical Schedule No 6/9C/64 -  
Variation No 1, and in drawings and specifications lodged with the  
Commission, provides for an Avery weight indicator Model 8650.

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

All instruments conforming to this approval shall be marked with the  
approval number "NSC No 6/9C/64".

Signed

  
Executive Officer



# NATIONAL STANDARDS COMMISSION

## TECHNICAL SCHEDULE No 6/9C/64

Pattern: Avery Weighing Instrument Model Z6/SB350-3205

Submitter: Avery Australia Ltd,  
3-5 Birmingham Avenue,  
Villawood, New South Wales, 2163.

Date of Approval: 9 August 1978, 29 September 1978, 14 November 1978

All instruments conforming to this approval shall be marked "NSC No 6/9C/64".

### Description:

The pattern is a self-indicating platform weighing instrument of maximum capacity 1000 kg (see Figure 1). It comprises a weighing unit with a load cell resistant mechanism and an electronic weight indicator displaying up to 3000 increments (see Figure 2).

The load receptor is supported on two main levers which are coupled by a self-aligning link (see Figures 3 and 4). The long lever applies the load to a Hottinger type Z6H 100 kg cantilever load cell through a pullrod (see Figure 5). The lever ratio is selected so that at maximum capacity the force applied to the load cell is between 390 N and 980 N.

The weight indication Servo Balans Type 350 (see Figure 2) converts the output from the load cell into a digital weight indication of up to 3000 increments. Coarse and fine tool-operated zero adjustments are provided on the front of the weight indicator. A light marked ZERO illuminates when zero is set within 0,25e.

A push-button marked TARE allows automatic taring of a container on the load receptor to within 0,25e. On removal of the container the value of the tare to the nearest whole graduation is indicated on the weight indicator prefixed by a minus sign. The tare is subtractive and of maximum effect equal to the capacity of the instrument. When tare is selected the word TARE will illuminate. The tare is cancelled by pressing the GROSS button; the word GROSS will then be illuminated and the instrument will gross weigh until a tare is selected.

The weight indicator is retained in its cabinet by a lead-and-wire seal (see Figure 2). The serial number of the load cell and the cable from the load cell are sealed to the weight indicator (see Figure 6).

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

(III)

Max	=	1000 kg
Min	=	2,5 kg
$d_1 = e$	=	0,5 kg
T	=	- 1000 kg

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

An output socket may be used to provide weight information 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 a State or Territory, may, for example, print receipts or store and process the data, etc. The output information is inhibited until the signal sampled in successive counting periods is the same, that is, the instrument is in equilibrium. Provision is made to seal the output socket to prevent the use of peripheral devices or to seal such devices to the measuring instrument (see Figure 7).

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

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\* The measuring instrument examined and approved by the Commission is limited to the devices which determine and indicate the value of a physical quantity, the devices which calculate price and in the presence of the purchaser or the vendor indicate price, the devices which print the value of the physical quantity together with the price and the devices which control the measurement or price calculation. A device which receives weight data from the output socket and calculates price, and in the presence of the purchaser or vendor indicates or prints price, is part of the measuring instrument which requires approval by the Commission.

The approval includes:

1. The resistant mechanism being a Hottinger Z6H 10, 20, 50, 200 or 500 kg cantilever load cell. The lever ratios are selected so that at maximum capacity the force applied to the load cell is:
  - (a) 10 kg load cell between 40 N and 100 N;
  - (b) 20 kg load cell between 75 N and 195 N;
  - (c) 50 kg load cell between 195 N and 490 N;
  - (d) 200 kg load cell between 780 N and 1960 N;
  - (e) 500 kg load cell between 1960 N and 4900 N.
  
2. The baseworks of other Commission-approved patterns replacing the Avery 3205 basework described in the pattern, provided that:
  - (i) the basework\* is of an instrument conventionally known as a platform weighing machine, weighbridge or hopper scale, etc.;
  - (ii) the force applied to the load cell is:
    - (a) 10 kg load cell between 40 N and 100 N;
    - (b) 20 kg load cell between 75 N and 195 N;
    - (c) 50 kg load cell between 195 N and 490 N;
    - (d) 100 kg load cell between 390 N and 980 N;
    - (e) 200 kg load cell between 780 N and 1960 N; and
    - (f) 500 kg load cell between 1960 N and 4900 N;
  - (iii) the capacity of the instrument is not more than the capacity approved for the basework;
  - (iv) a levelling device and an 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:

Accuracy Requirements

- (a)  $\pm 0,5e$  for loads between zero and 500e inclusive;
- (b)  $\pm 1e$  for loads between 500e exclusive and 2000e inclusive;
- (c)  $\pm 1,5e$  for loads greater than 2000e.

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\* The basework design may be varied by reducing the lever ratio of the transfer lever or by including an additional transfer lever to match the pullrod force to the load cell.

### Indication Limits

- (a) 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
- (b) 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.
- (v) 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 weighing-accuracy specification, that is,  $\pm \frac{1}{2}$  scale interval for the first 500 scale intervals,  $\pm 1$  scale interval over 500 and up to 2000, and  $\pm 1\frac{1}{2}$  scale intervals over 2000. A notice adjacent to the level indicator shall advise that the instrument must be level when in use.
- (vi) The instrument is marked:

#### "Approval Numbers

Headwork NSC No 6/9C/64  
Basework NSC No .....

#### Special Tests:

1. Zero balance — illumination of the zero light indicates that zero is set within  $0,25e$ ; this may be checked in accord with the Commission's digital zero test (Design Manual No 1, Document 104, Testing Procedures for the Elimination of Rounding Error for Weighing Instruments with Digital Indication).
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.

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4. 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.
  5. Range of indication — the maximum weight indicated should not exceed the maximum capacity (max); above 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
						2998

\* Test Load = Number of scale intervals x scale interval

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



# NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/9C/64

VARIATION No 1

Pattern: Avery Weighing Instrument Model Z6/SB350-3205

Submitter: Avery Australia Ltd,  
3-5 Birmingham Avenue,  
Villawood, New South Wales, 2163.

Date of Approval of Variation: 28 August 1978

The modification described in this Schedule applies to the patterns described in Technical Schedule No 6/9C/64 dated 22 November 1978.

All instruments conforming to this approval shall be marked "NSC No 6/9C/64".

Description:

The approved modification provides for an Avery weight indicator Model 8650 (see Figure 8); the instrument is then known as an Avery Weighing Instrument Model Z6/8650-3205.

The weight indicator, Avery 8650, converts the output from the load cell into a digital weight indication of up to 3000 increments. The instrument will rezero automatically whenever it comes to rest within 0,5e of zero; this is indicated by the word ZERO being illuminated. A tool-operated zero adjustment is provided on the front of the weight indicator for rezeroing the instrument when zero has changed by more than 0,5e.

A push-button with internal indication of the word TARE or GROSS when pressed so that TARE is displayed allows automatic taring of a container on the load receptor to within 0,25e. On removal of the container the value of the tare to the nearest whole graduation is indicated on the weight indicator prefixed by a minus sign. The tare is subtractive and of maximum effect equal to the capacity of the instrument. The tare is cancelled by pressing the tare GROSS button; the word GROSS will then be indicated and the instrument will gross weigh until a tare is selected.



The weight indicator is retained in its cabinet by a lead-and-wire seal. The serial number of the load cell is sealed to the weight indicator by the same seal (see Figure 9).

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

(III)

Max	=	1000 kg
Min	=	2,5 kg
$d_a = e$	=	0,5 kg
T	=	- 1000 kg

An output socket located inside the sealed weight indicator may be used to provide weight information 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 a State or Territory may, for example, print receipts or store and process the data, etc. The output information is inhibited until the signal sampled in successive counting periods is the same, that is, the instrument is in equilibrium.

#### Special Tests:

The special tests described in Technical Schedule No 6/9C/64 dated 22 November 1978 apply to the variant with the exception of the following:

Zero balance — As the automatic device resets zero when the weighing mechanism is in equilibrium within 0,5 scale interval of zero, zero should be checked as described in the Commission's Test Procedure for the Elimination of Rounding Errors for Weighing Instruments with Digital Indication (Document 104), with, say, a load equivalent to 10 scale intervals on the load receptor. The indications with 0,25e and 0,75e additional weight on the load receptor should then be 10e and 11e respectively.

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\* The measuring instrument examined and approved by the Commission is limited to the devices which determine and indicate the value of a physical quantity, the devices which calculate price and in the presence of the purchaser or the vendor indicate price, the devices which print the value of the physical quantity together with the price, and the devices which control the measurement or price calculation. A device which receives weight data from the output socket and calculates price, and in the presence of the purchaser or vendor indicates or prints price, is a part of the measuring instrument which requires approval by the Commission.



# NATIONAL STANDARDS COMMISSION

NOTIFICATION OF CHANGE

CERTIFICATE OF APPROVAL No 6/9C/64

CHANGE No 1

The following change is made to the description of the Avery Weighing Instrument Model Z6/SB350-3205

given in Technical Schedule No 6/9C/64 dated 22/11/78.

Delete Special Test No 3 (load-cell creep) from page 4. Tests 4 and 5 should be re-numbered accordingly.

Signed

Executive Director

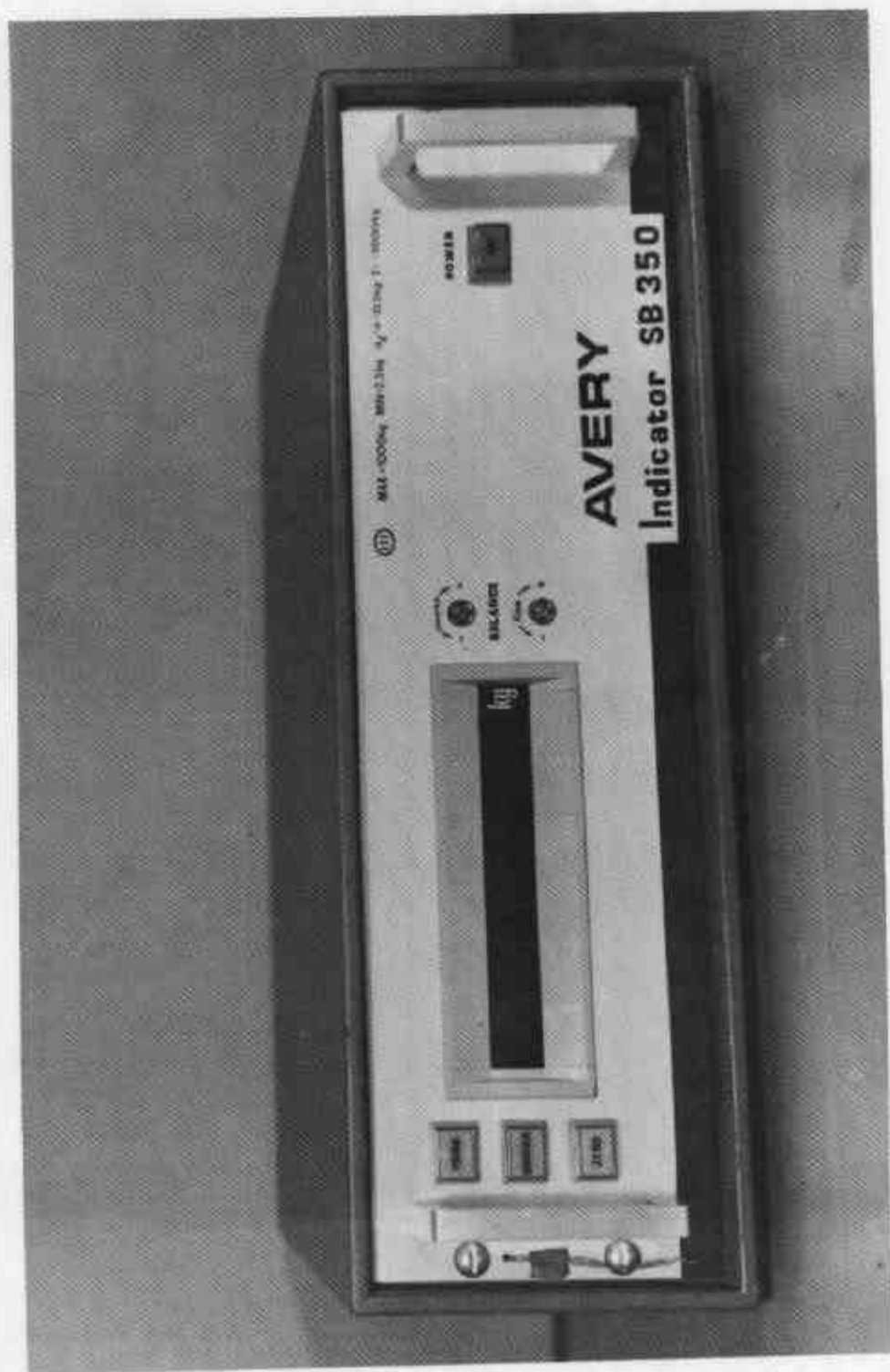
FIGURE 6/9C/64 - 1



Weighing Unit

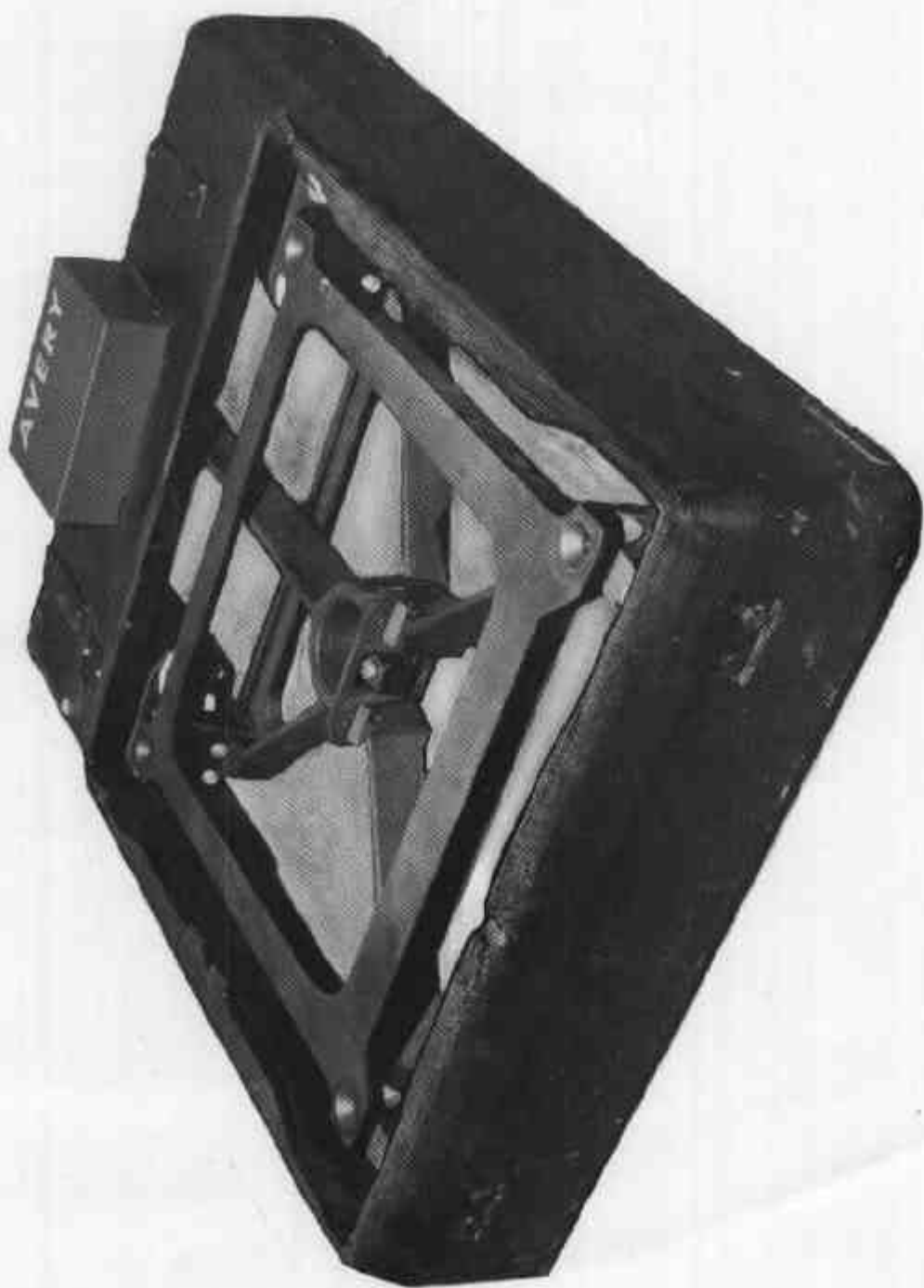
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FIGURE 6/9C/64 - 2



Weight Indicator

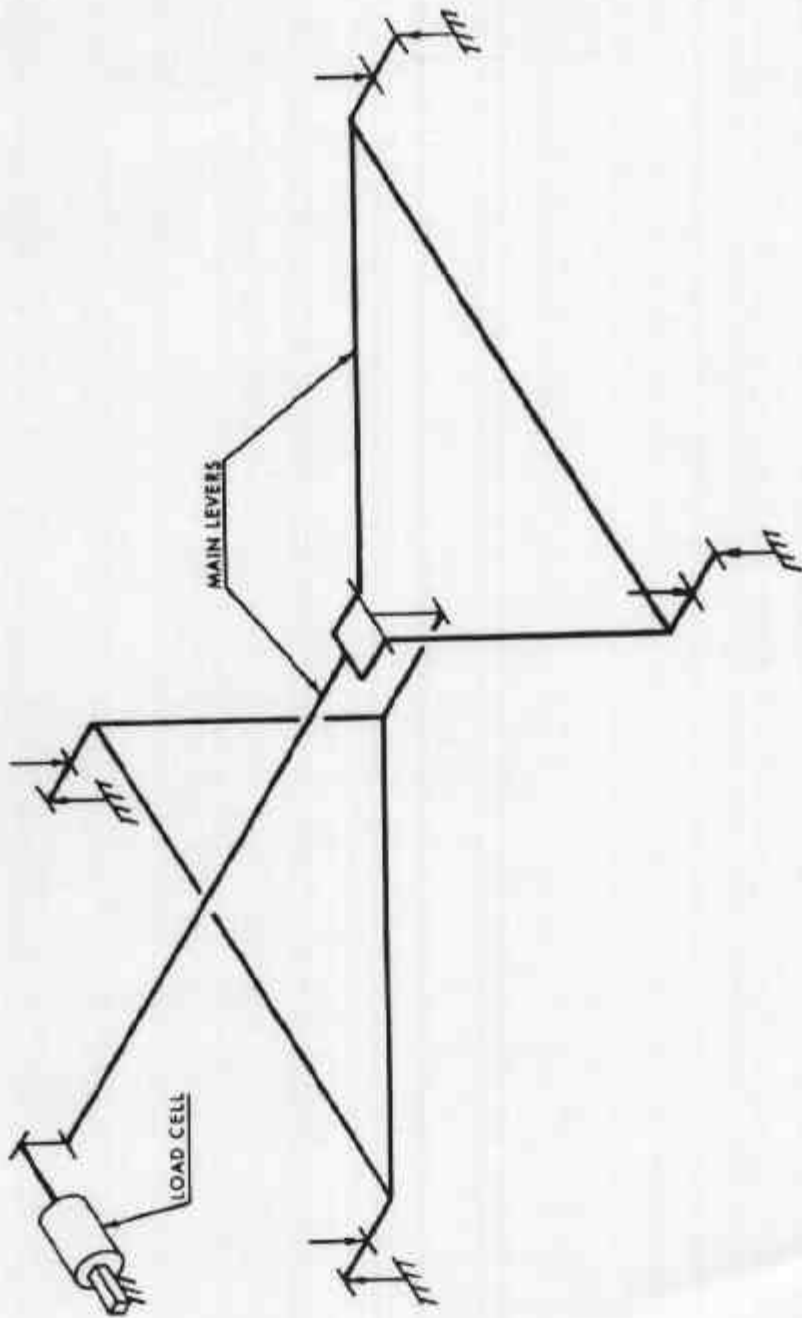
FIGURE 6/9C/64 - 3



Weighing Unit without Load Receptor

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FIGURE 6/9C/64 - 4



Lever System — Schematic Diagram

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FIGURE 6/9C/64 - 5



Load Cell, Pullrod, and Attachment of Load Cell to Weighing Unit

FIGURE 6/9C/64 - 6

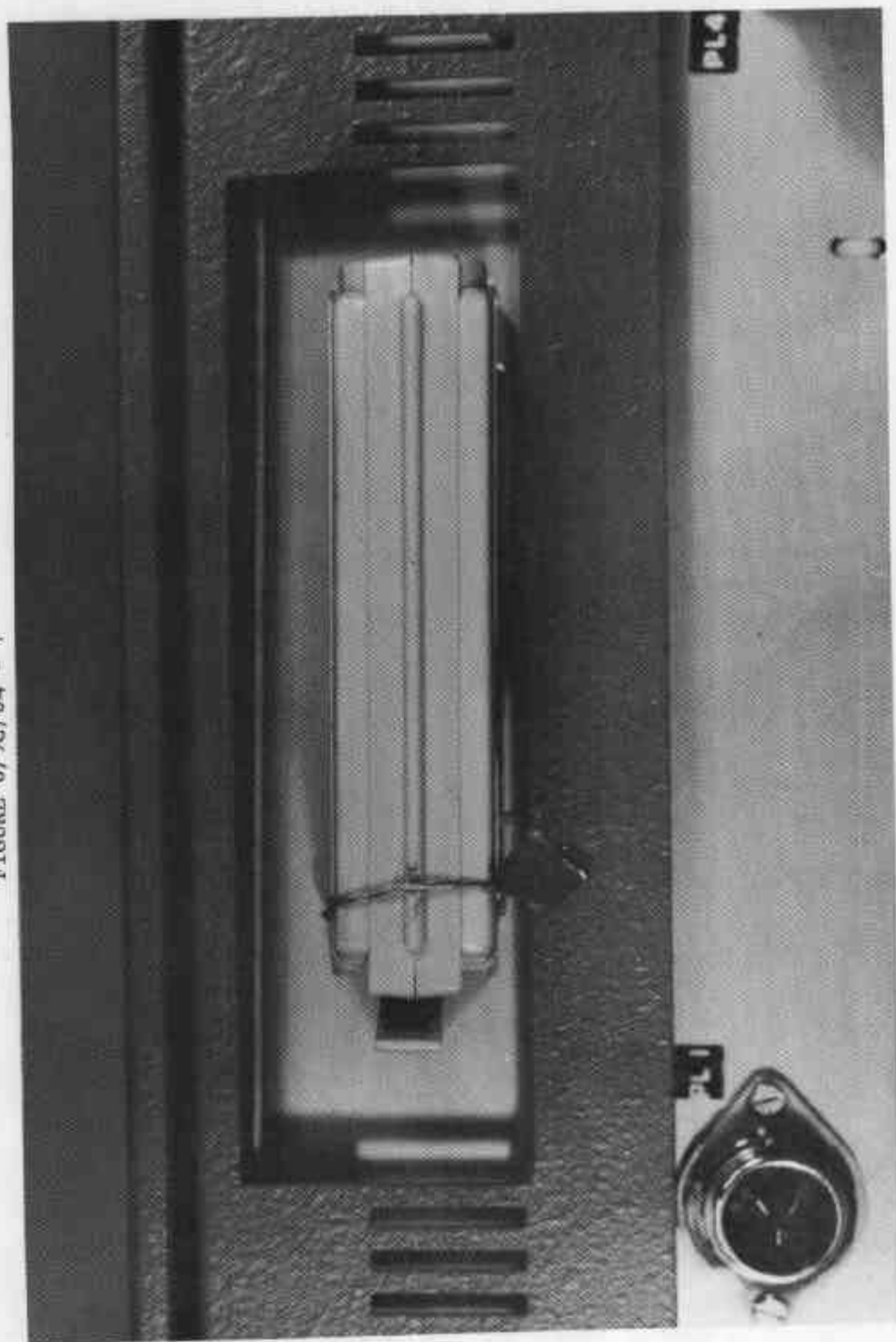


Sealing of Load-cell Cable and Load-cell Serial Number to the Weight Indicator

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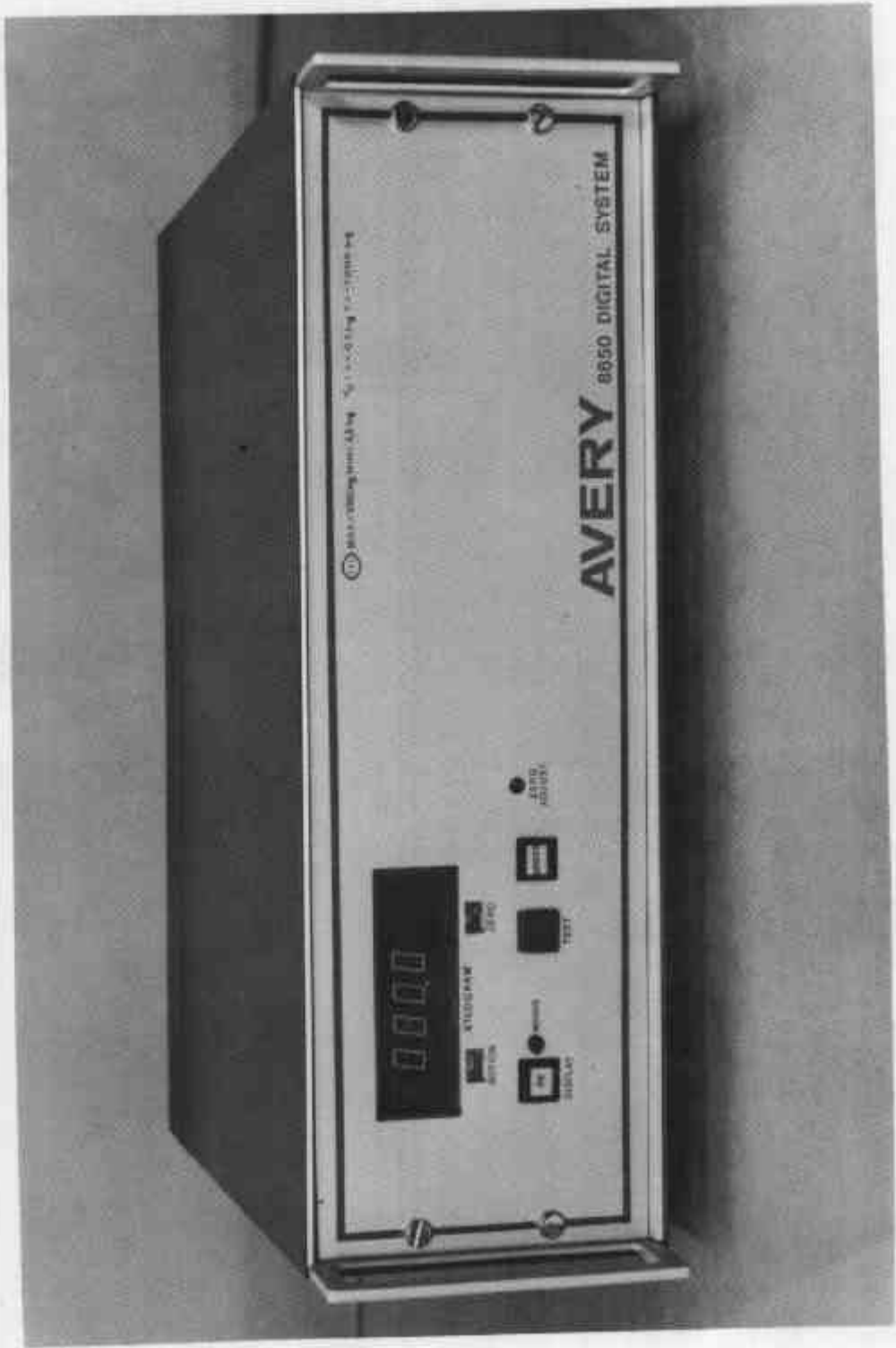
FIGURE 6/9C/64 - 7



Sealing of the Weight-indicator Output Socket

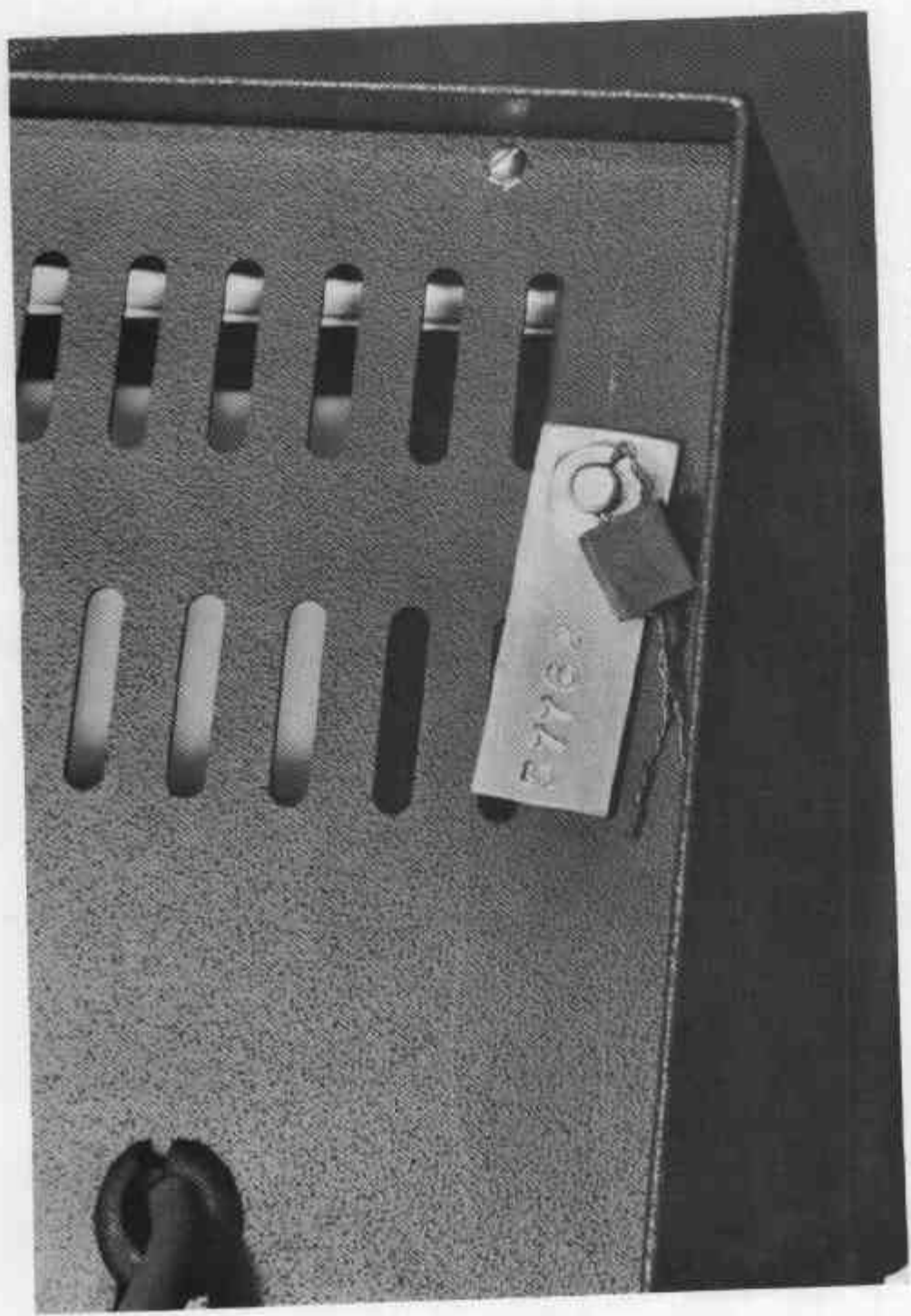
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FIGURE 6/9C/64 - 8



Avery Weight Indicator Model 8650

FIGURE 6/9C/64 - 9



Sealing of Weight-indicator Cabinet and Load-cell Serial Number

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