

CERTIFICATES OF APPROVAL No 6/4D/68

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VARIATION No 1

This is to certify that the following modification of the patterns of the

Berkel ED-L Weighing Instrument

approved in Certificate No 6/4D/68 dated 12 June 1978

submitted by Euroscale Pty Ltd,
19 Evans Street,
Burwood, Victoria, 3125,

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

Date of Approval: 29 September 1978

The approved modification, described in Technical Schedule No 6/4D/68 -
Variation No 1 and in drawings and specifications lodged with the Commission,
provides for a Prepack Weighing Instrument Model ED-L1.

The approval is subject to review on or after 1 March 1981.

All instruments conforming to this approval shall be marked with the
approval number "NSC No 6/4D/68".

Signed


Executive Officer



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NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/68

Pattern: Berkel ED-L Weighing Instrument

Submittor: Euroscale Pty Ltd,
19 Evans Street,
Burwood, Victoria, 3125.

Date of Approval: 12 May 1978.

This Technical Schedule replaces* Technical Schedule No 6/4D/68 dated 25 February 1976.

All instruments conforming to this approval shall be marked "NSC No 6/4D/68".

Description:

The pattern (see Figures 1 and 2) is a self-indicating price-computing weighing instrument of capacity 9,995 kg by 0,005-kg scale intervals with price-computing in 1-c increments to \$99,99 per kg and total price to \$999,40. Weight, unit price and total price are digitally indicated on both the vendor and purchaser sides. The instrument comprises a weighing unit and price-computing console connected by a cable and plug.

The weighing unit contains a vibrating-string weigh cell, which generates a change in frequency proportional to the weight applied. The serial numbers of the weighing unit and the computing console are sealed to the weighing unit by the stamping plug on the side of the weighing unit.

The computing console converts the frequency of the signal from the weigh cell to weight information. The unit price is entered sequentially by means of a keyboard and cleared by depressing the key marked "C" or is automatically cleared when the weight indicator returns to zero. Pressing the "F" key retains the unit price when the weight indicator returns to zero; this is indicated by a "fix" light adjacent to the unit-price indicator.

* Figures 6/4D/68 - 1 to 4 should be retained as they form part of this Technical Schedule.

An automatic and a manual zero balance device are provided. The manual device, comprising a poise on an internal bar within the weighing unit, is adjusted either by a screw and ratchet mechanism, or by a tool located within a slide mechanism. The automatic device, comprising an electrical circuit in the computing console, monitors the weight information and resets zero to within 0,25 scale interval of zero whenever the instrument comes to rest within 1 scale interval of zero.

The indications of weight and total price blank out when the load is below zero or above capacity, and when the load is not steady.

At equilibrium a circuit within the computer electronically adjusts the discrimination of the instrument from less than 0,0025 kg to 0,010 kg. This stabilises the weight indication, minimising the effect of vibration or wind loading, and preventing alternate indications of adjacent values if the load causes the instrument to be at a changeover point between scale intervals. An 0,010-kg change in the load or selection of a different unit price will override the discrimination and cause the instrument to reassess the condition of equilibrium.

An output socket which may be fitted on the weight-and-price console 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 the weight, etc.

Provision is made to seal the output socket (see Figure 5) to prevent the addition of peripheral equipment or to seal peripheral equipment to the output socket (see Figure 6).

The instrument is marked adjacent to each weight reading face:

	(III)	
Max	=	9,995 kg
Min	=	0,1 kg
d _d	=	0,005 kg

* The measuring instrument examined and approved by the Commission is limited to devices which determine and indicate the value of a physical quantity, devices which calculate price and in the presence of the purchaser or vendor indicate or print price, and 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.

The approval includes:

1. The instrument of capacity 2,509 kg by 0,001-kg scale intervals. The discrimination of the instrument is automatically adjusted from less than 0,0005 kg to 0,003 kg when the instrument is in equilibrium. A 0,003-kg change in the load or the selection of a different unit price will override the discrimination and cause the instrument to reassess the conditions of equilibrium.

The instrument is marked adjacent to each weight reading face:

(III)

Max	=	2,509 kg
Min	=	0,010 kg
d_d	=	0,001 kg

2. The weighing unit fitted with two ungraduated incremental tare bars of capacity up to 0,205 kg (see Figures 3 and 4). The automatic zero device balances the tare to within 0,25 scale interval whenever the incremental tare is set within 1 scale interval of balance. Selection of any tare value greater than 0,25 d_d causes lights marked "tare" adjacent to each weight indicator to illuminate.

In addition to the other required markings the instrument is marked adjacent to each weight reading face:

T = + 0,205 kg

and "not to be used in the presence of the purchaser".

Special Tests:

1. Zero Test - 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 40 scale intervals on the load receptor. The indications with 0,25e and 0,75e additional weight on the load receptor should then be 40e and 41e respectively.
2. Discrimination - At equilibrium the discrimination is electronically adjusted to be not less than 0,010 kg (0,003 kg)*. This setting may be checked in the following manner:

With the load on the instrument adjusted so that the weight indicated is at a changeover point, and with the higher of the two readings indicated, gently placing a load of 0,012 kg (0,0034 kg)*, on the load receptor should cause the weight indicated to increase by not less than 0,010 kg (0,003 kg)*.

* Figures in brackets refer to the instrument with 0,001-kg scale intervals.

Note:

Determination of Changeover Point: Selection of a new unit price overrides the discrimination circuit and causes the instrument to reassess the condition of equilibrium. The changeover point may therefore be found by changing the unit price as the load is varied. This will cause the input from the weigh cell to be rechecked at each unit-price change. A changeover point will be indicated when at two different unit prices the same load indicates adjacent values, say, 1,090 kg and 1,095 kg (0,309 kg and 0,310 kg).*

An alternative to changing the unit price is to remove and replace a weight of say 1-kg each time the load is varied. Again, changeover points will be indicated when the same load indicates adjacent values, say, 1,090 kg and 1,095 kg (1,109 kg and 1,110 kg)*.

3. Level sensitivity - As the automatic zero device may prevent the zero from changing when the instrument is tilted at zero load, the effect of tilt should be initially checked with a small load on the instrument, say, 40e.

When the instrument is tilted to a slope of 1 in 20, the indication (40e) should not change by more than 2 scale intervals, and when the 40e load is removed and zero allowed to 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, ± 1 scale interval over 500 and up to 2000, and $\pm 1\frac{1}{2}$ scale intervals over 2000.

4. Price-computing accuracy - the indications of weight, unit price and total price as listed in Tables 1 or 2 will indicate that the price-computing and weight circuits are functioning correctly. The exact figures should be indicated as rounding is effected within the computer.

Note: This test does not establish correct weight indications; a separate test, which may be carried out in conjunction with this test, in accordance with the Commission's recommended testing procedure for the elimination of rounding errors - Document 104 - is necessary.

5. Taring - At any load within the capacity of the tare mechanism, the tare mechanism in conjunction with the automatic zero device should be able to reset the weight indicator to zero within 0,25e. This may be checked as described for "zero test".

* Figures in brackets refer to the instrument with 0,001-kg scale intervals.



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/68

VARIATION No 1

Pattern: Berkel ED-L Weighing Instrument

Submittor: Euroscale Pty Ltd,
19 Evans Street,
Burwood, Victoria, 3125.

Date of Approval of Variation: 29 September 1978

The modification described in this Schedule applies to the patterns described in Technical Schedule No 6/4D/68 dated 12 June 1978.

All instruments conforming to this approval shall be marked "NSC No 6/4D/68".

Description:

The approved modification provides for a prepack weighing instrument comprising the ED-L weighing instrument with mechanical taring device and a Berkel 3000 label printer (see Figures 7 and 8). The instrument is known as a Berkel ED-L1. A sample ticket is illustrated in Figure 9.

The taring device is on the weighing unit and comprises two ungraduated incremental tare bars with a maximum tare equal to 0,205 kg. The automatic zero balances the tare to within 0,25e whenever the incremental tare is set within 1 scale interval of zero. A tare light adjacent to each weight indicator illuminates when any tare greater than 0,25e is selected. When the container is removed the weight indicator goes blank.

The data cable providing the weight, unit-price and price information to the label printer is sealed to the label printer as illustrated in Figure 10 and to the price-computing console as illustrated in Figure 6, or alternatively the serial numbers of the label printer and of the price-computing console are sealed to the weighing unit by the stamping plug on the side of the weighing unit. A cover within the label printer prevents access to the printer circuit boards; it is sealed by a lead-and-wire seal (see Figure 10).

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

(III)

Max	=	9,995 kg
Min	=	0,1 kg
$d_4 = e$	=	0,005 kg
T	=	$\pm 0,205$ kg

and not to be used in the presence of the purchaser".

Weight and price indications are only provided on the operator's side of the instrument.

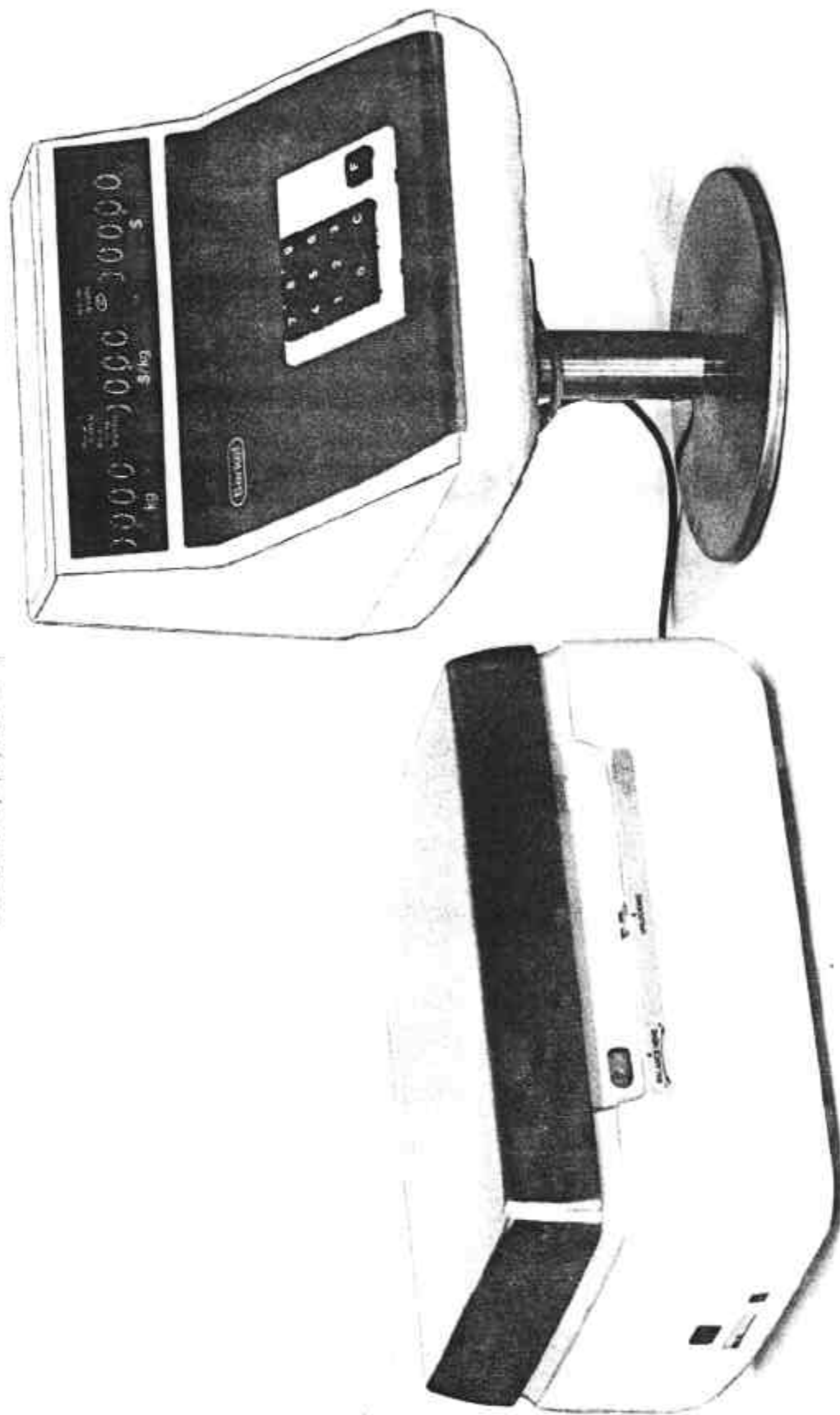
Variant:

The approval includes a Berkel 3001 label printer which is similar to the 3000 label printer except that it prints ~~two~~ dates.

Special Tests:

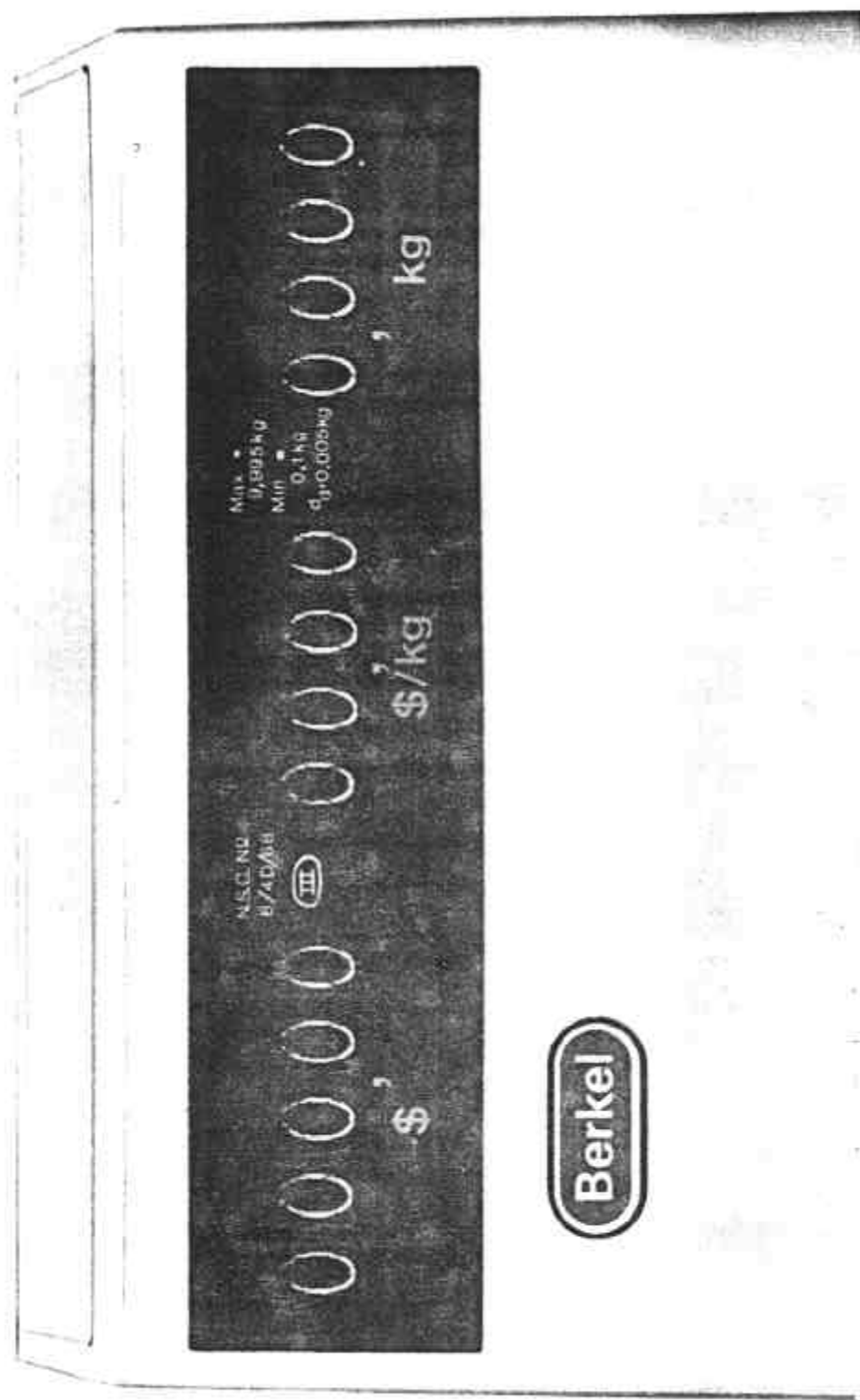
The special tests described in Technical Schedule No 6/4D/68 dated 12 June 1978 apply to this variation.

FIGURE 6/4D/68 - 1



Berkel ED-L Weighing Instrument

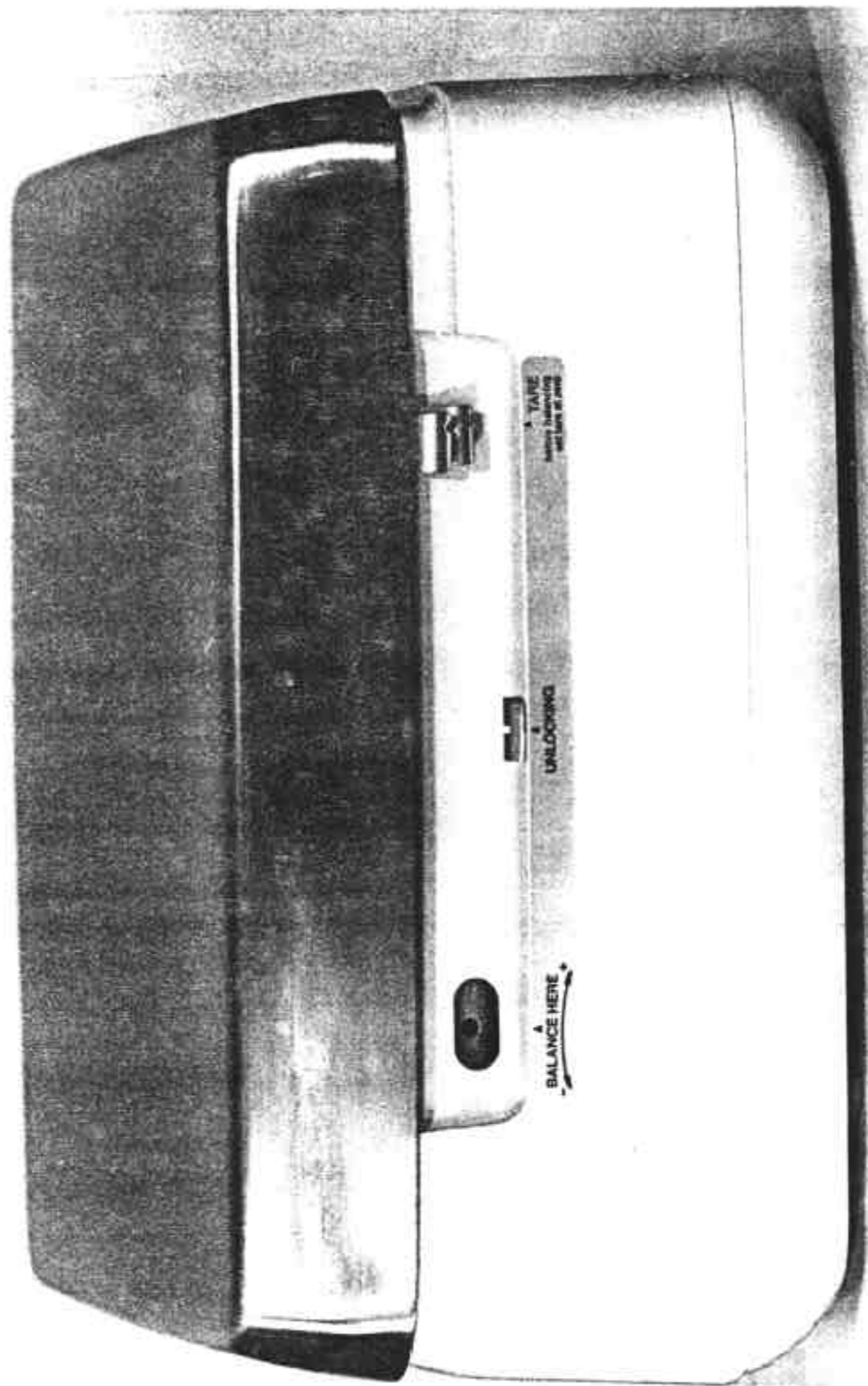
FIGURE 6/4D/68 - 2



Berkel ED-L Weight and Price-computing Console --- Purchaser Side

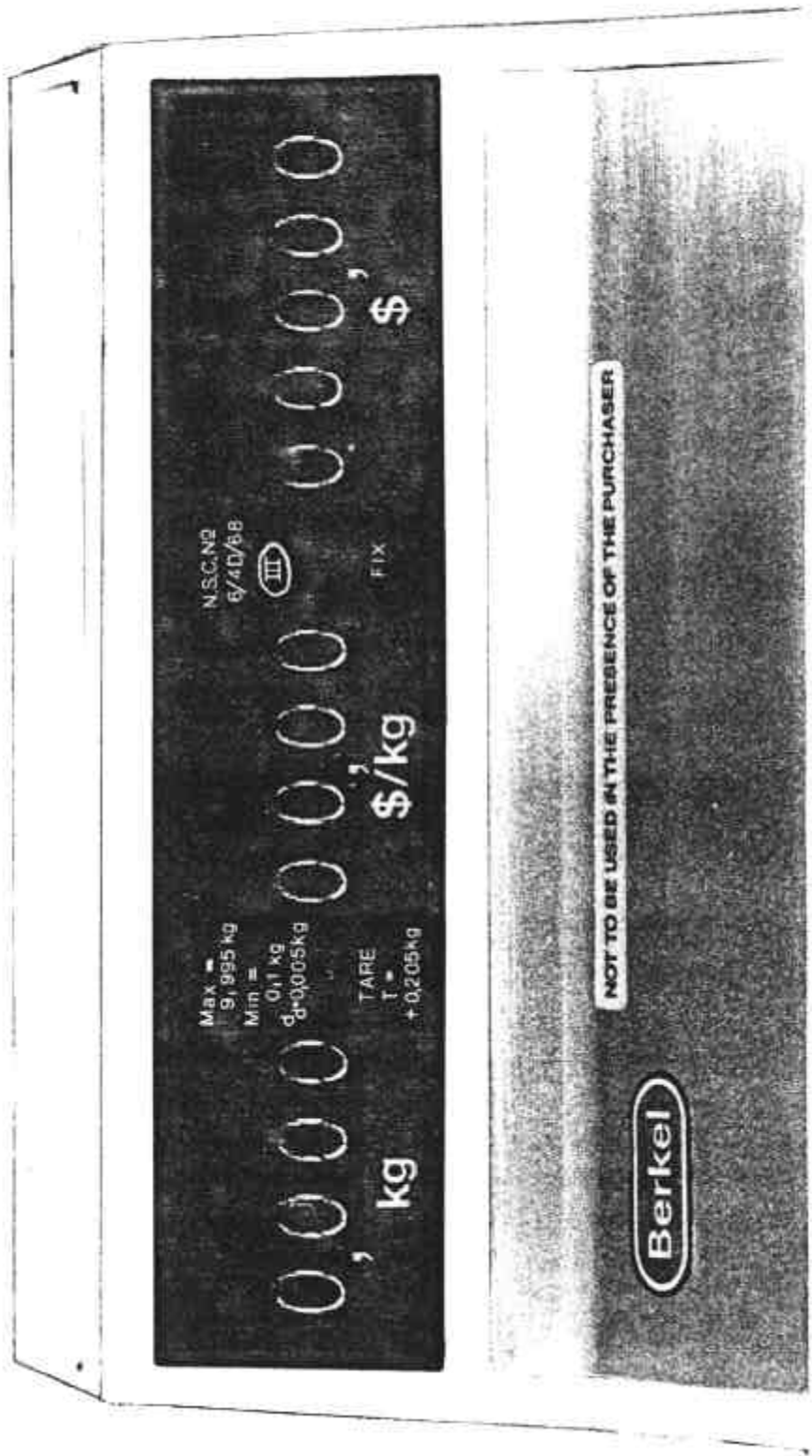
2

FIGURE 6/4D/68 - 3

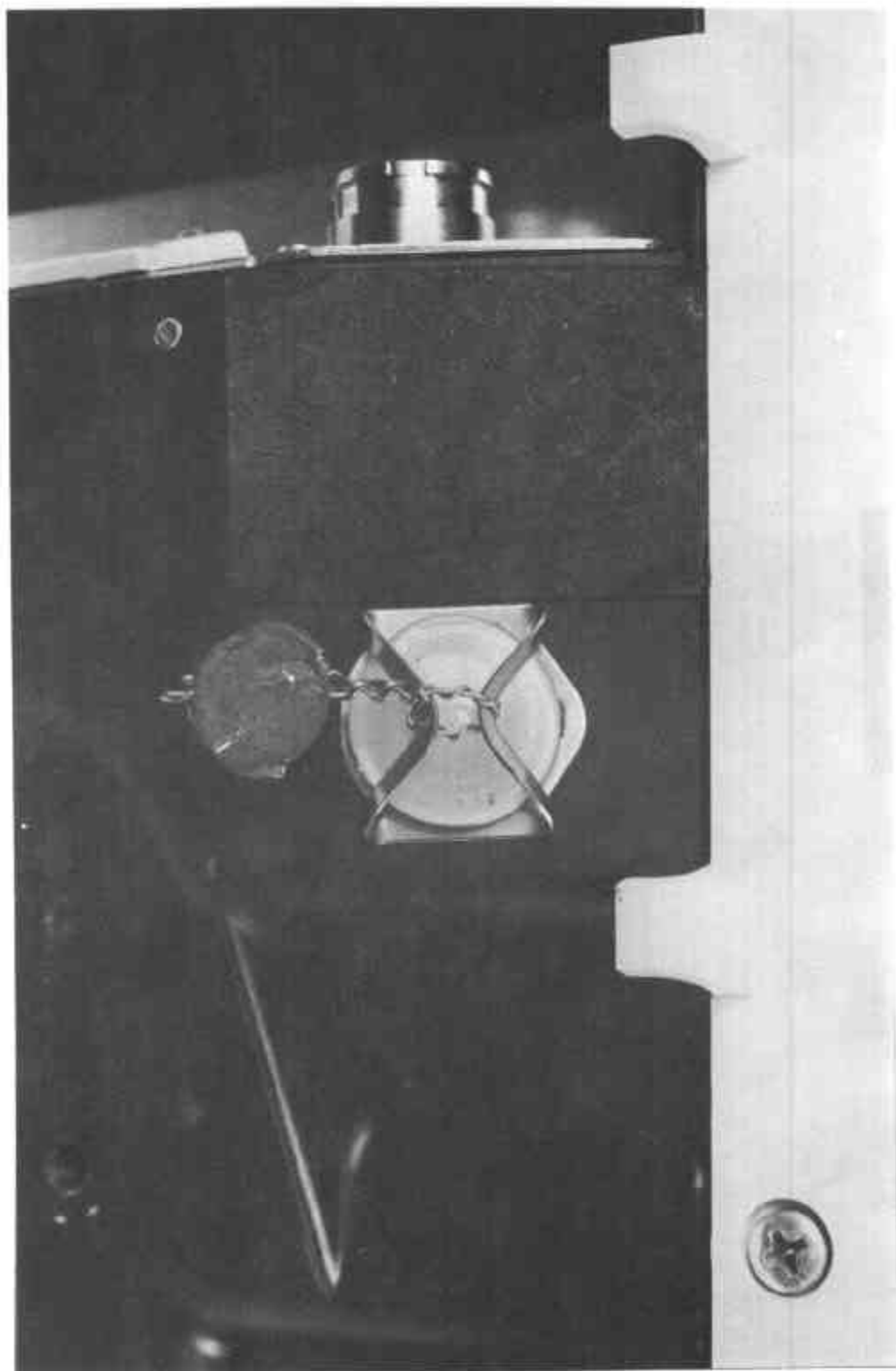


Berkel ED-L Weighing Unit with Tare Bar

FIGURE 6/4D/68 - 4

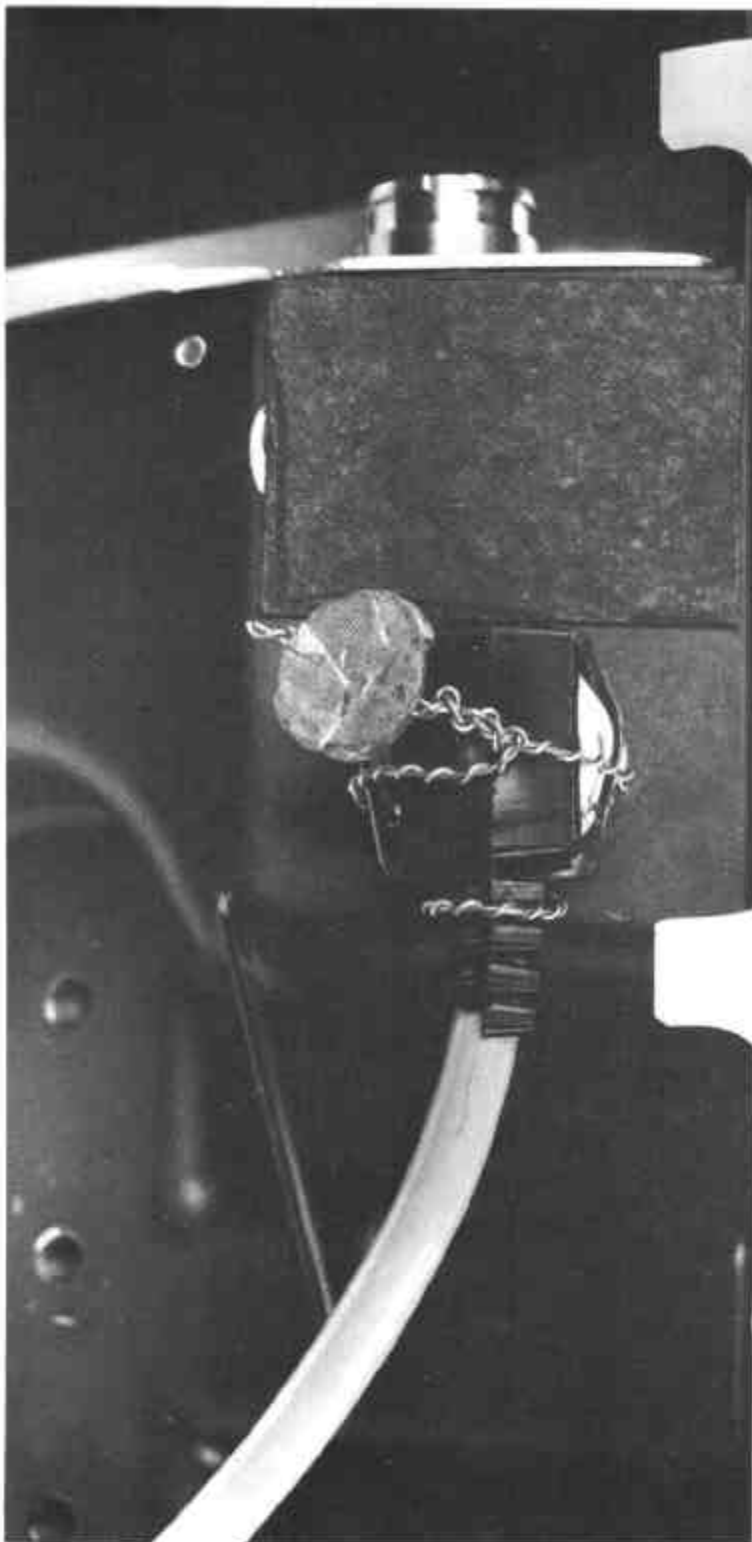


Berkel ED-L Weight and Price-computing Console with Tare



OUTPUT: SECURITY, WEIGHT AND PRICE CENTER

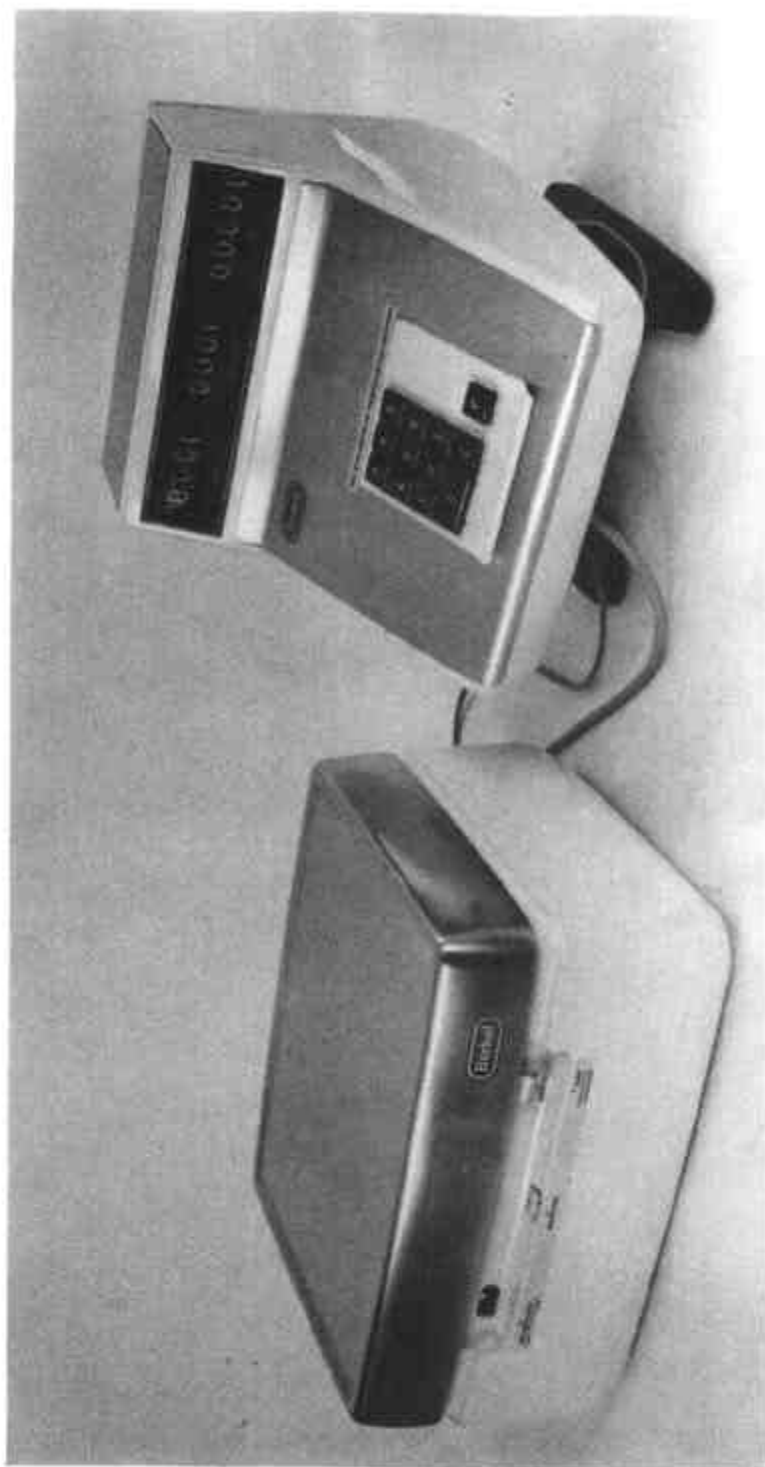
12/6/78



Sealing of the Output Plug to the
Output Socket.

12/6/78

FIGURE 6/4D/68 - 7



Berkel ED-L Prepæck Weighing Instrument
(Label printer illustrated in Figure 8)

FIGURE 6/4D/68 - 8



Berkel 300 Label Printer

30/1/79

FIGURE 6/4D/68 - 9

NET kg	PRICE /kg \$	TOTAL PRICE \$

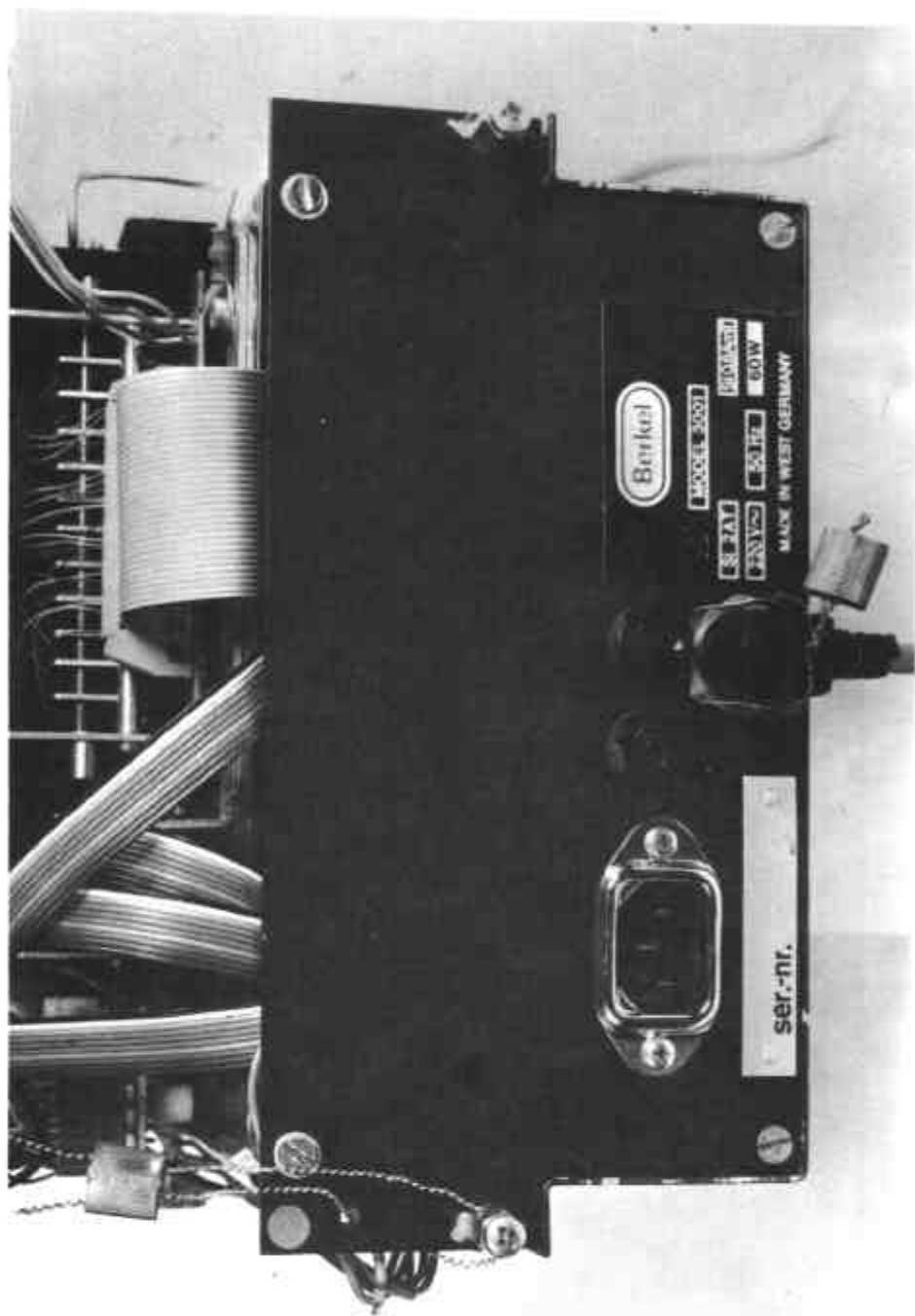
(a) Before printing

NET kg	PRICE /kg \$	TOTAL PRICE \$
0,505	04,99	002,52

(b) After printing

Sample Ticket (actual size)

FIGURE 6/4D/68 - 10



Berkel 3000 Label Printer with cover removed —
Sealing of Data Cable and Sealing of Cover over Circuit Boards