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NATIONAL STANDARDS COMMISSION

WEIGHTS AND MEASURES (PATTERNS OF INTRUMENTS) REGULATIONS

REGULATION 9

CERTIFICATE OF APPROVAL No 6/4D/96

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

Toledo Model 8301 Prepackaging Weighing Instrument

submitted by Toledo Scale (Australia) Ltd
525 Graham Street
Port Melbourne, Victoria, 3207

are suitable for use for trade.

The approval is subject to review on or after 30/4/85.

Instruments purporting to comply with this approval shall be marked NSC No 6/4D/96.

The approval may be withdrawn if instruments are used other than in accordance with the drawings and specifications lodged with the Commission.

Signed
H. Poling
Executive Director

Descriptive Advice

Pattern: approved 28/5/80

- A self-indicating price-computing weighing and printing instrument of 15 kg capacity by 0.005 kg scale intervals.

Variant: approved 28/5/80

1. Of 6 kg capacity by 0.002 kg scale intervals.

Technical Schedule No 6/4D/96 dated 30/6/81 describes the pattern and variant 1.

Variant: approved 28/10/83

2. With a Toledo model 314 thermal printer replacing the printer of the pattern and variant.

Technical Schedule No 6/4D/96 Variation No 1 dated 17/11/83 describes variant 2.

Filing Advice

Certificate of Approval No 6/4D/96 dated 30/6/81 is superseded by this Certificate and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 6/4D/96 dated 17/11/83
Technical Schedule No 6/4D/96 dated 30/6/81
Technical Schedule No 6/4D/96 Variation No 1 dated 17/11/83
Test Procedure No 6/4D/96 dated 30/6/81
Tables 1 and 2 dated 17/6/80
Figures 1 to 4 dated 17/6/80
Figure 5 dated 30/6/81
Figure 6 dated 17/11/83.

17/11/83

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/96

Pattern: Toledo Prepackaging Weighing Instrument Model 8301

Submittor: Toledo-Berkel Pty Ltd,
525 Graham Street,
Port Melbourne, Victoria, 3207.

Description of Pattern

1. General

The pattern is a self-indicating weighing and printing instrument of capacity 15.025 kg by 0.005 kg scale intervals with unit price in 1c increments from 1c to $99.99/kg and price in 1c increments to $999.99 (Figure 1). The instrument comprises two units:

Weighing and Computing Unit
Printing Unit.

2. Weighing and Computing Unit

Mass is digitally indicated in kilograms on the vendor's side only; adjacent to this indicator are notices advising that the unit is not for retail counter use, and that the indicator is not approved for trade use. The indicator also indicates unit price, tare and peripheral information (Figure 2).

Unit prices are entered into the instrument memory by means of either the keyboard or a prerecorded magnetic tape cassette. The keyboard may be used to recall stored information or enter new or additonal information, and to select a code which enables price-computing functions to be tested. A multi-pin plug is provided at the rear of the unit for entering the information from the cassette recorder.

The unit is fitted with four adjustable legs and a level indicator adjacent to which is a notice advising that the instrument must be level when in use.

The load receptor is supported by a Toledo 22 kg cantilever load cell and stayed by five flexure plates (Figure 3).

2.1 Tare

Push buttons marked 0 to 9, TARE, RESET and ENTER allow a preselected tare or semi-automatic tare mode to be selected to a maximum value of 1.995 kg (see Test Procedure para 6).

2.2 Zero

The instrument will re-zero automatically whenever it comes to rest within 0.5e of zero; an indicator marked SCALE ZERO illuminates when zero is set to within ± 0.25e. A button marked Z is provided for re-zeroing the instrument when zero has changed by more than one scale interval.

2.3 Indicator Segment Test

The display is verified by pressing the RESET button followed by the CLEAR button. All lamps will then be illuminated and the display will show all 8's; after approximately one second the lamps and display will go blank. This sequence will repeat until the RESET button is operated.

3. Printing Unit

The unit will print mass, unit price and price on self-adhesive labels (Figure 4).

4. Marking

The instrument is marked on the reading face with the following data:

Manufacturer's name	
Serial number of instrument	
NSC approval number in the form:	NSC No 6/4D/96
Accuracy class in the form:	(III)
Maximum capacity in the form:	Max .....
Minimum capacity in the form:	Min .....
Verification scale interval in the form:	d_d = e = ...
Maximum subtractive tare in the form:	T = - .....

5. Sealing

Refer to Figure 5.

5.1

The weighing unit is sealed with screws and NYLOC nuts and with a sealing plug on the side of the unit.

5.2

The serial number of the printing unit is sealed to the weighing unit by means of the stamping plug on the front of the unit.

6. Variant 1

The instrument with capacity 6.010 kg by 0.002 kg scale intervals, with unit price in 1c increments from 1c to $99.99/kg and price in 1c increments to $600.94.

TABLE 1

Indicated mass kg	Unit price $/kg	Price $
0,000	0,00	0,00
0,100	99,99	10,00
0,105	98,98	10,39
0,110	97,97	10,78
0,120	96,95	11,63
0,130	95,95	12,47
0,140	94,94	13,29
0,150	83,84	12,58
0,160	72,73	11,64
0,170	61,61	10,47
0,180	50,51	9,09
0,190	49,49	9,40
0,200	39,39	7,88
0,300	29,29	8,79
0,400	19,29	7,72
0,500	9,00	4,50
0,600	55,16	33,10
0,700	39,02	27,31
0,800	58,99	47,19
0,900	70,99	63,89
1,000	75,99	75,99
2,000	80,99	161,98
3,000	85,39	256,17
4,000	96,99	387,96
5,000	97,99	489,95
6,000	98,99	593,94
7,000	99,99	699,93
8,000	99,99	799,92
9,000	99,99	899,91
10,000	99,99	999,90
11,000	50,00	550,00
12,000	50,00	600,00
13,000	50,00	650,00
14,000	50,00	700,00
15,000	50,00	750,00
15,025	50,00	751,25

Test Procedure - 15,025 kg Instrument with Unit Price to $99,99/kg and Total Price to $999,99

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TABLE 2

Indicated mass kg	Unit price $/kg	Price $
0,000	0,00	0,00
0,040	88,88	3,56
0,052	88,79	4,62
0,064	88,66	5,67
0,076	88,55	6,73
0,088	88,44	7,78
0,090	18,33	1,65
0,100	28,22	2,82
0,210	38,11	8,00
0,320	77,20	24,70
0,430	66,03	28,39
0,500	55,28	27,64
0,600	44,21	26,53
0,700	63,98	44,79
0,800	68,32	54,66
0,900	99,99	89,99
1,000	91,11	91,11
2,000	66,22	132,44
3,000	71,76	215,28
4,000	90,76	363,04
5,000	94,44	472,20
6,000	92,67	556,02
6,010	99,99	600,94

Test Procedure - 6,01 kg Instrument with Unit Price to $99,99/kg and Price to $600,94

1. Accuracy requirements

The maximum permissible errors are:

± 0.5e for loads between 0 and 500e;
± 1e for loads between 501e and 2000e; and
± 1.5e for loads above 2000e.

The indications of mass for this test are printed on the labels.

2. Zero test

As the automatic device resets zero when the weighing mechanism is in equilibrium within 0.5e of zero, zero should be checked as described in the Commission's Test Procedure for the Elimination of Rounding Error for Weighing Instruments with Digital Indication (Document 104), with, say, a load equal to 10e on the load receptor. The indications with 0.25e and 0.75e additional weight on the load receptor will then be 10e and 11e respecitively.

3. Zero range

The maximum range of operation of the push-button zero device should not exceed 4% of the capacity of the instrument (± 2% approximately). Satisfactory setting may be checked by the following method:

(a) with zero balance indicated, apply a load of, say, 0.36 kg (0.144 kg)* to the instrument and press the zero button; the instrument should not re-zero;

(b) reduce the load to, say, 0.24 kg (0.096 kg)* and again press the zero button; the instrument should indicate zero balance.

4. 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, 10e.

When the instrument is tilted so that the bubble in the level indicator moves 2 mm, the indication 10e should not change by more than 2e, and when the 10e load is removed and zero allowed to automatically reset, or is manually reset, in the tilted position, the instrument should satisfy the accuracy requirements given above.

5. Price-computing accuracy

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

The indications for this test are printed on the self-adhesive labels.

The instrument may be operated in either of two modes:

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* Figures in brackets refer to the 6.010 kg instrument.

(A) Item Entry, or (B) Commodity Entry

The mode is set by internal switching and is indicated by illumination of either the COMMODITY or the ITEM NO status light when the RESET button is depressed. The price computing accuracy test need only be carried out in the mode in which the instrument is set for use.

To enter a price/kg, the following sequence should be used during which status-light illumination will occur as follows:

A Item Entry Mode

1. The RESET button having been depressed and the ITEM status light illuminated, the SCALE ZERO light will also be illuminated.

2. Depress the ENTER button. The ITEM light will extinguish and the COMMODITY light will illuminate.

3. Enter Commodity Code No. 9999 on the keyboard and depress the ENTER button. The COMMODITY light will extinguish and the PRICE light will illuminate.

4. Enter the prescribed price/kg on the keyboard and depress the ENTER button. The PRICE light will extinguish and the TARE light will illuminate.

5. Depress the ENTER button. The TARE light will extinguish and the SHELF LIFE light will illuminate.

6. Depress the ENTER button. The SHELF LIFE light will extinguish and the READY light will illuminate.

OR

B Commodity Entry Mode

1. The RESET button having been depressed and the COMMODITY status light illuminated, the SCALE ZERO light will also be illuminated.

2. Proceed as far A3 to A6 above.

The instrument is now ready for operation.

The whole of either of the above sequences must be repeated each time a new unit price is entered.

Note: This test does not establish correct mass 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.

6. 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 mass indicator to zero within 0.25e. This may be checked as described for ZERO test.

To enter a tare, follow steps (1) to (4) above, then proceed as follows:

(4) Enter the tare mass by one of the following methods:

(a) Place a weight (or a container) on the load receptor and press TARE button, or

(b) Enter a known tare mass using the keyboard and press the ENTER button.

In both cases the TARE lamp will extinguish and the SHELF LIFE lamp will illuminate.

(5) Depress the ENTER button. The SHELF LIGHT will extinguish and the READY lamp will illuminate.

The instrument is now ready for operation. The whole of the above sequence must be repeated for a new tare value to be entered.

7. Range of indication

(a) The maximum mass indicated should not exceed the maximum capacity (Max); above this indicated mass the indicator should be blank and the OUT OF RANGE lamp illuminated.

(b) Below zero the indicated mass is preceeded by a minus sign and the OUT OF RANGE lamp is illuminated.

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/96

VARIATION No 1

Pattern: Toledo Model 8301 Prepackaging Weighing Instrument

Submittor: Toledo Scale (Australia) Ltd
525 Graham Street
Port Melbourne, Victoria, 3207.

1. Description of Variant 2

With a Toledo model 314 thermal printer replacing the printer of the pattern and variant. A typical label format is shown in Figure 6.

RG
RS

NATIONAL STANDARDS COMMISSION

NOTIFICATION OF CHANGE

CERTIFICATE OF APPROVAL No 6/4D/96

CHANGE No 1

The following changes are made to the description of the

Toledo Prepackaging Weighing Instrument Model 8301

given in Technical Schedule No 6/4D/96 dated 17/6/80:

1. The Certificate dated 17/6/80 is replaced by the attached Certificate, which makes editorial changes only. The Certificate dated 17/6/80 may be destroyed.

2. Pages 1 to 5 of the Technical Schedule are replaced by the attached Technical Schedule and Test Procedure in which paragraphs 2 and 7.4 have been re-written to incorporate an alternate mode of operation, and paragraph 5.3 has been deleted. (Paragraph 7.4 has become paragraph 5 of the Test Procedure).

   Pages 1 to 5 dated 17/6/80 may be destroyed.

3. The first lines of both Tables 1 and 2 are deleted. (The zero indicator light illuminates when the instrument is within $\pm$ 0.25e of zero; printing of zero is not required.)

4. Figure 5 dated 17/6/80 is replaced by the attached Figure 5 dated 30/6/81 in which references to sealing the printer have been deleted.

Signed

Executive Director

30/6/81

RK

6/4D/96
23/10/89

National Standards Commission

NOTIFICATION OF CHANGE

CERTIFICATE OF APPROVAL No 6/4D/96

CHANGE No 2

The following change is made to the approval documentation for the

Toledo Model 8301 Prepackaging Weighing Instrument

submitted by Toledo Scale (Australia) Ltd
525 Graham Street
Port Melbourne VIC 3207.

In Certificate of Approval No 6/4D/96 and its Technical Schedule Variation No 1 both dated 17/11/83, amend the references to the thermal printer which may be used, to now read "model 314 or 315".

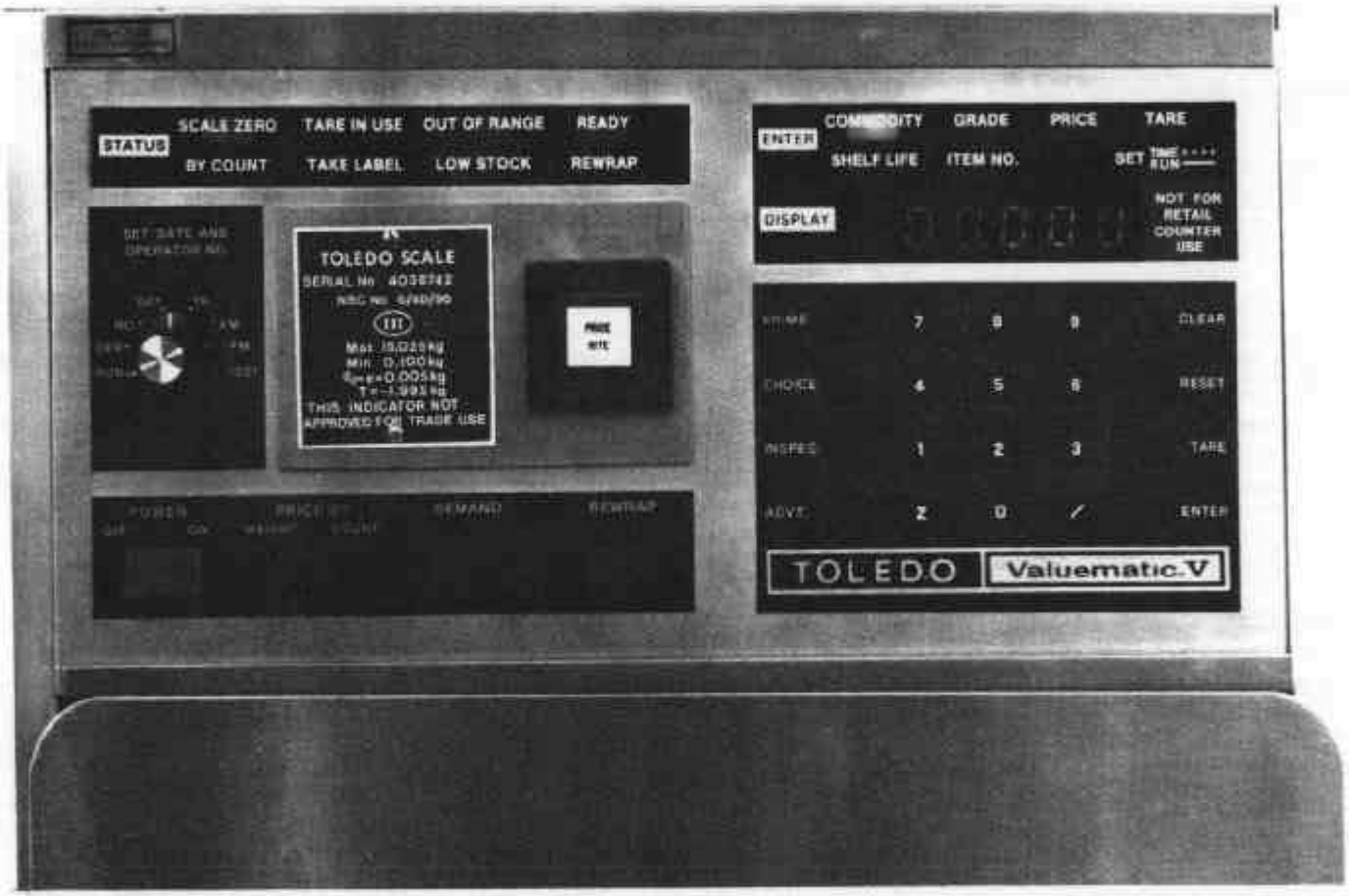
Signed

Acting Executive Director

FIGURE 6/4D/96 - 1

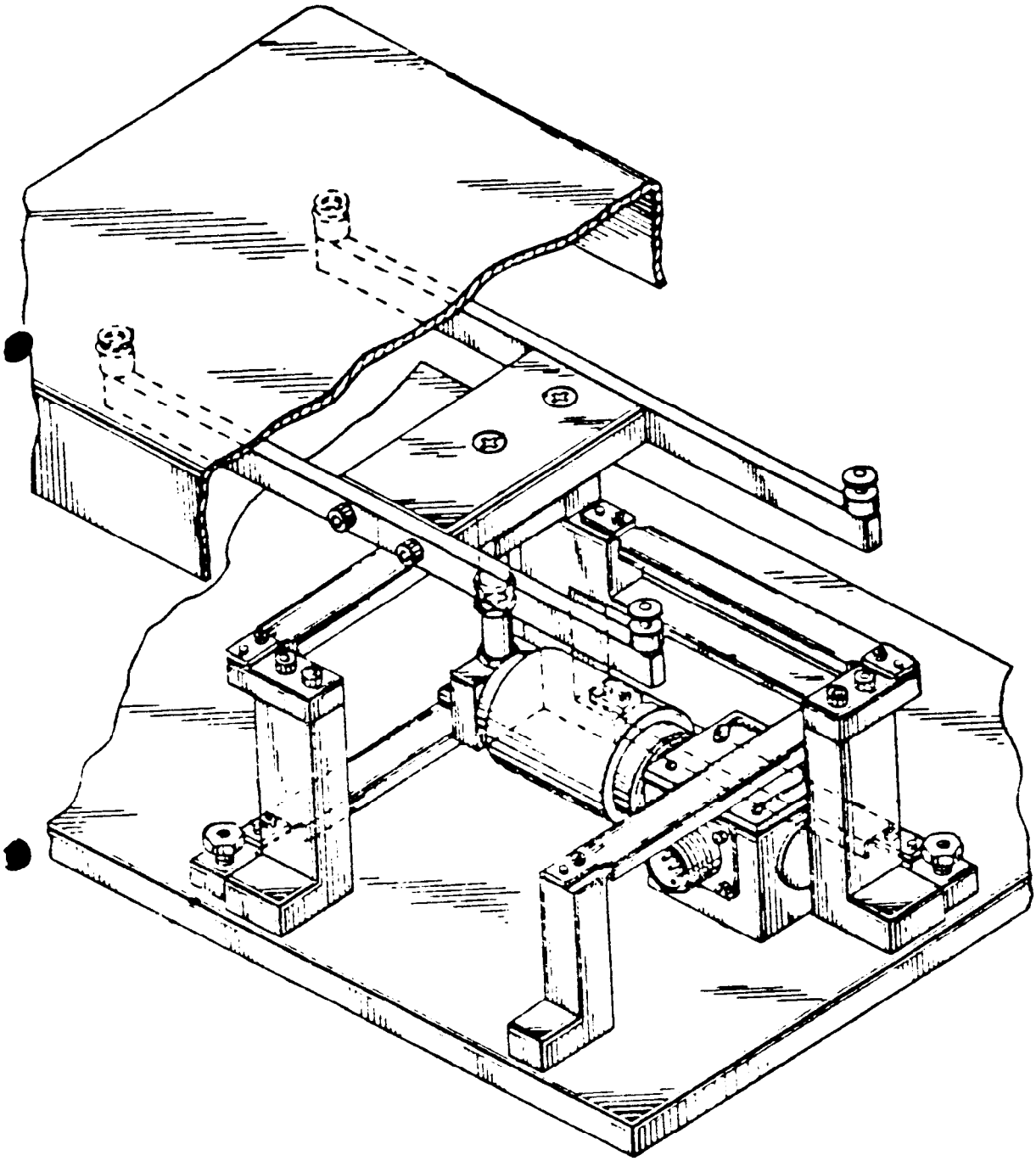
Toledo Model 8301

FIGURE 6/4D/96 - 2



Model 8301 Indicator

FIGURE 6/4D/96 - 3



Model 8301 Basework - Schematic Drawing

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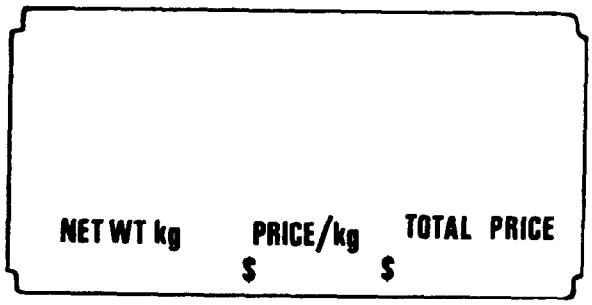
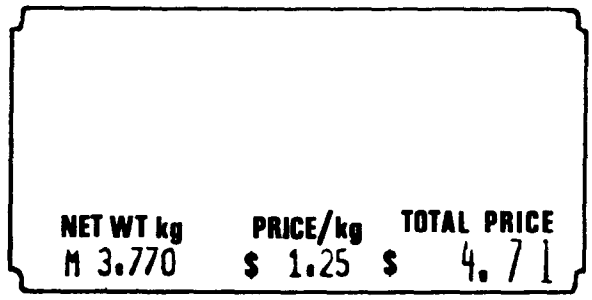
FIGURE 6/4D/96 - 4



Before Printing



After Printing

M (and R or RM) are special codes
not relevant to pattern approval

Sample Label (actual size)

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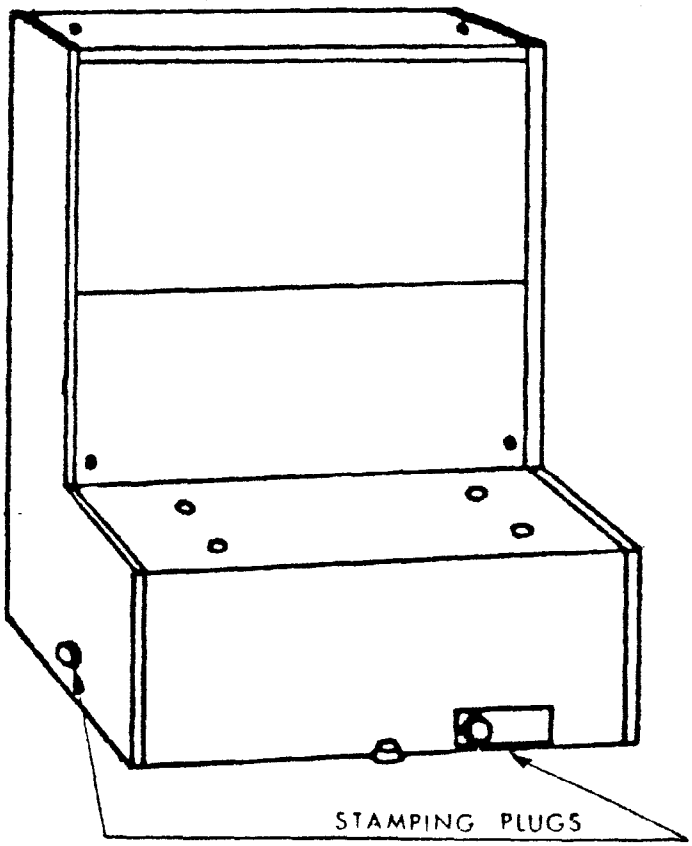
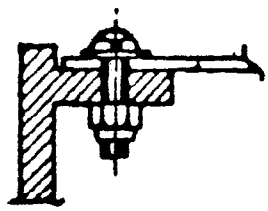
FIGURE 6/4D/96 - 5



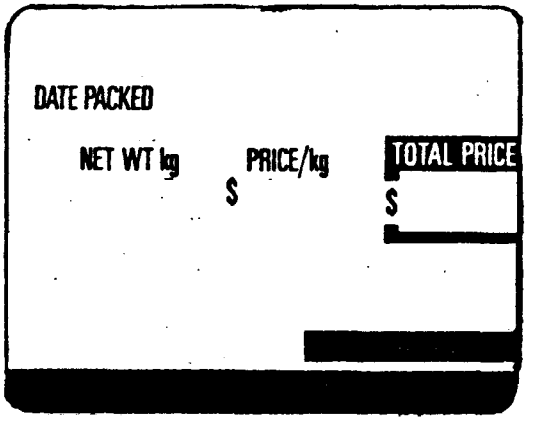


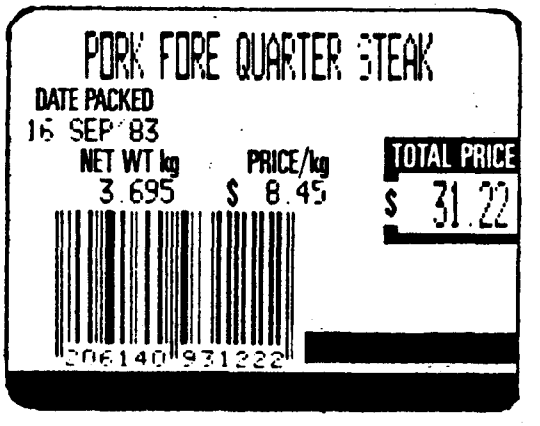
Details of NYLOC Nuts (Shown •)

Weighing Unit - Schematic Diagram showing Sealing

30/6/81

FIGURE 6/4D/96 - 6





Typical Labels From Model 314 Printer

17/11/83