NATIONAL STANDARDS COMMISSION

CERTIFICATE OF APPROVAL No 6/4D/92

This is to certify that the pattern and variants of the

Yamato Weighing Instrument Model R400

submitted by Yamato Scale Co. Ltd,
5-22 Chaembe-cho,
Akashi, Hyogo, Japan

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

Pattern: approved 26/2/80

. Of capacity 15.010 kg by 0.005 kg scale intervals, with price computing in 1 c increments to $99.99/kg and price to $999.99.

Variation No 1: approved 21/10/80

1. Model R400 with tare facility.

Variation No 2: approved 14/11/80

2. Model R400 with Printer Model SPS 702.

3. Model R400 with remote indicator.

The pattern and variants are described in Technical Schedule No 6/4D/92 and Variation Nos 1 and 2, dated 12/3/80, 3/11/80 and 5/12/80, and in drawings and specifications lodged with the Commission.

The pattern is subject to review on or after 28/2/85.

All instruments conforming to this approval shall be marked with Approval Number "NSC No 6/4D/92".

This Certificate replaces that issued on 3/11/80 which may be destroyed.

Signed

Executive Director

5/12/80

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/92

Pattern: Yamato Weighing Instrument Model R400

Submittor: Yamato Scale Co. Ltd,
5-22 Chaemba-cho,
Akashi, Hyogo, Japan.

Date of Approval: 26/2/80

Description of Pattern:

General:

The pattern is a self-indicating price-computing weighing instrument of capacity 15,010 kg by 0,005 kg scale intervals with price computing in 1 c increments from 1 c to $99,99 per kg and total price to $999,99 (see Figures 1 and 2). Mass, unit price and total price are digitally indicated on both the vendor's and the purchaser's sides. The unit price is entered sequentially by ten push-buttons and cleared by pressing the button marked "C". The instrument 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 support is attached to the Yamato strain-gauge parallelogram load cell and is fitted with an oil-filled damping device, (Figure 3).

The output voltage from the load cell, which is proportional to the load applied, is digitally encoded to continually indicate mass, and is multiplied by the unit price entered by the push-buttons to continuously indicate total price.

Zero:

The instrument will rezero automatically whenever it comes to rest within 0,5e of zero; this is indicated by a zero light being illuminated when zero is set within ± 0,25e. A tool-operated zero button is provided for rezeroing the instrument when zero has changed by one or more increments.

Check Buttons:

Incorporated in power switch; when power is switched on all segments illuminate and blank six times, and then remain blank until the instrument is zeroed.

Locking Device:

Located underneath the platter. When turned from the unlocked to the locked position the power on the instrument is automatically switched off.

Marking:

The instrument is marked with the following data:

Manufacturer's name	
Serial number of instrument	
NSC approval number in the form	NSC No 6/4D/92
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 = ...*

* These markings are repeated in the vicinity of each reading face.

Sealing:

(a) When the instrument is to be used with peripheral equipment, an output socket is fitted (Figure 5) and the serial number of the peripheral device is sealed to the weighing instrument (Figure 4). When the output socket is not fitted, the opening is covered by a plate fixed internally.

(b) The cover of the instrument is sealed by two stamping plugs over retaining screws (Figures 4 and 5).

Test Procedures:

1. Accuracy requirements:

The maximum permissible errors are:

± 0,5e for loads between 0 and 500e,
± 1,0e for loads between 501e and 2000e, and
± 1,5e for loads above 2000e.

2. 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 Error for Weighing Instruments with Digital Indication (Document 104) with, say, a load equal to 10e on the load receptor. The indication with 0,25e and 0,75e additional mass on the load receptor will then be 10e and 11e respectively.

3. Zero range:

The maximum range of operation of the tool-operated 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, 0,30 kg to the instrument and press tool-operated zero; the instrument should not rezero; and

(b) reduce the load to, say, 0,050 kg and again press the tool-operated zero; 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 indications of mass, unit price and total price as listed in Table 1 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.

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. Range of indication:

(a) The maximum mass indicated should not exceed the maximum capacity (Max); above this indicated mass the indicator should be blank.

(b) The minimum mass indicated should be zero; below this indicated mass the indicator should be blank.

7. Load-cell creep:

On removal of a maximum-capacity load from the load receptor after a period of 30 minutes, zero should not have drifted by more than 0,5e.

8. Locking device:

Check that operation of the locking device turns the power off.

TABLE 1

Indicated Mass kg	Unit price $/kg	Total 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

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

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/92

VARIATION No 1

Pattern: Yamato Weighing Instrument Model R400

Submittor: Yamato Scale Co. Ltd,
5-22 Chaemba-cho,
Akashi, Hyogo, Japan.

1. Description of Variant

1. Yamato weighing instrument model R400 with semi-automatic subtractive tare having a maximum value equal to 0,995 kg (Figure 6).

   The word TARE illuminates when a tare is entered.

   The instrument is marked adjacent to the mass indicator:

   (III)

Max	=	15,010 kg
Min	=	0,100 kg
d_d=e	=	0,005 kg
T	=	-0,995 kg

2. Test Procedures

As per Technical Schedule including 9. below.

9. Place 0,020 kg on the load receptor and press the tare. On pressing the zeroing device the indication should remain zero within ±0,25e.

3/11/80

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/92

VARIATION No 2

Pattern: Yamato Weighing Instrument Model R400

Submittor: Yamato Scale Co. Ltd,
5-22 Chaemba-cho,
Akashi, Hyogo, Japan.

Description of Variants

Variant 2

Yamato Printer model SPS 702 (Figure 7) with the Yamato weighing instrument model R400.

Tickets are illustrated in Figure 8.

Tickets may also be printed displaying mass only or price only.

Variant 3

Remote indicator (Figure 9) with interconnecting cable internally connected. The remote indicator is marked adjacent to the reading face as described in the pattern, and is installed so that there is a self-evident association between it and the weighing unit.

) e

6/4D/92
14/11/86

NATIONAL STANDARDS COMMISSION

CANCELLATION CERTIFICATE OF APPROVAL No 6/4D/92

This is to certify that the approval for use for trade granted in respect of the pattern and variants of the

Yamato Weighing Instrument Model R400

submitted by Yamato Scale Co Ltd
5-22 Chaembe-cho
Akashi Hyogo Japan

has been cancelled in respect of new instruments as from 1 October 1986.

Instruments which were verified before that date may, with the concurrence of the relevant verifying authority, be submitted for reverification.

Signed

Executive Director

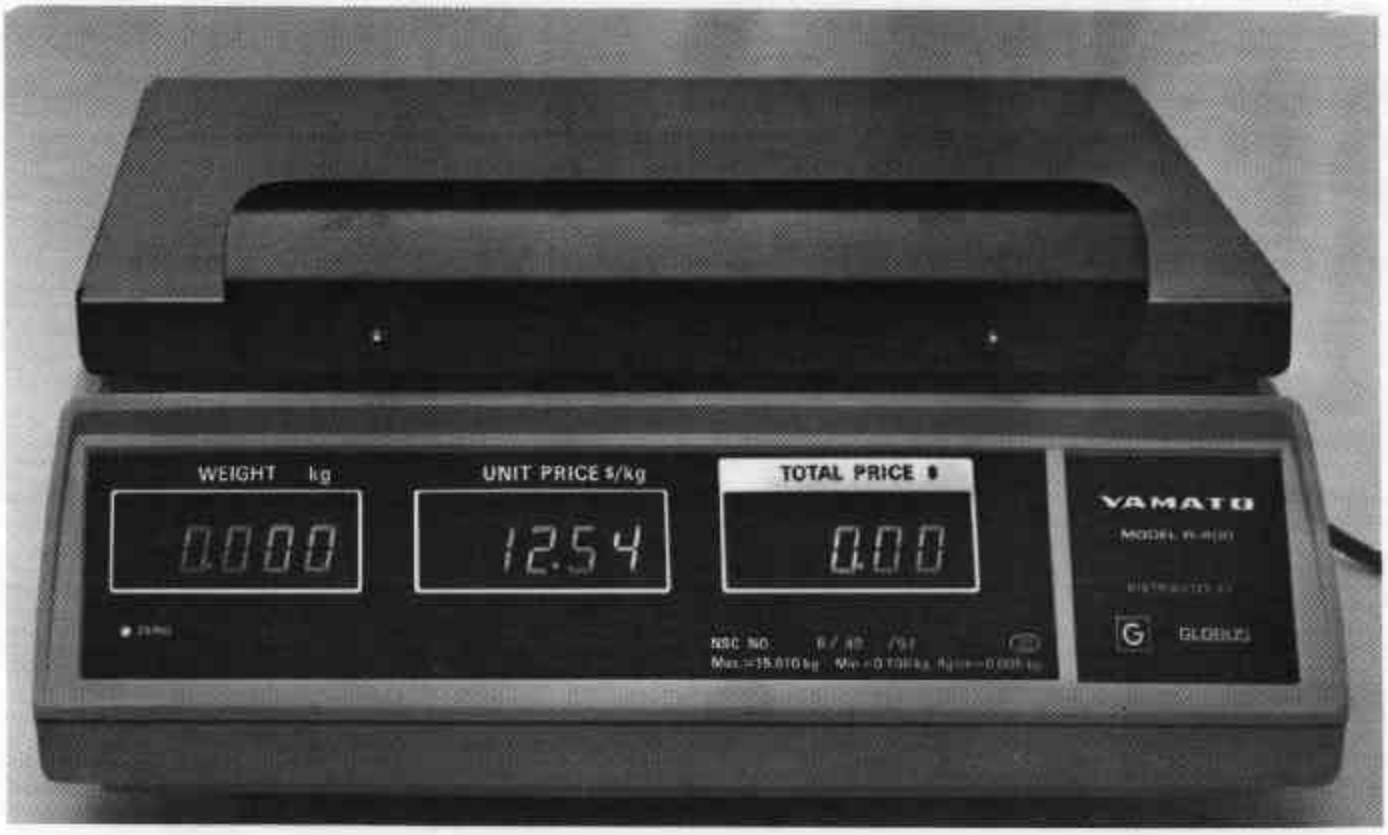
FIGURE 6/4D/92 - 1

12/3/80

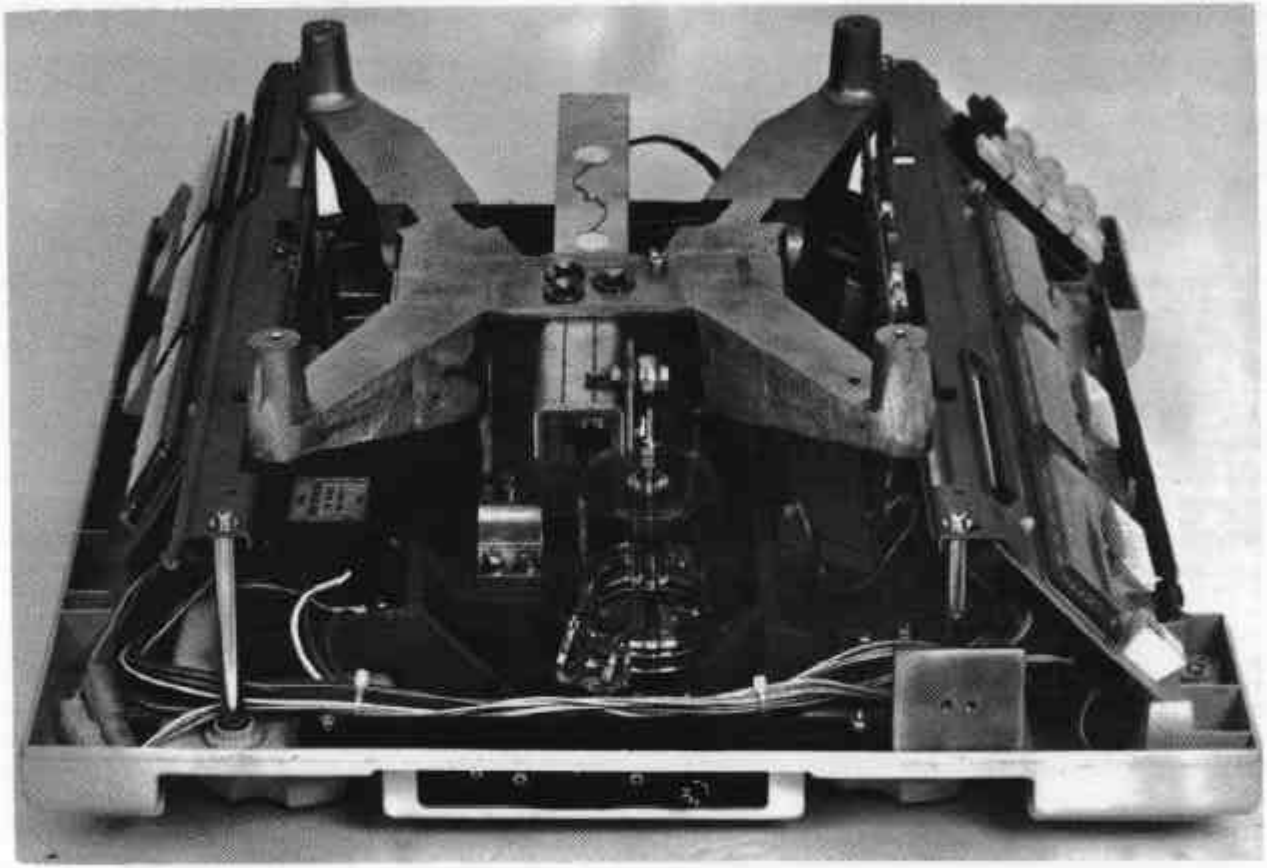
Model R400 — Vendor's Side

FIGURE 6/4D/92 - 2

12/3/80

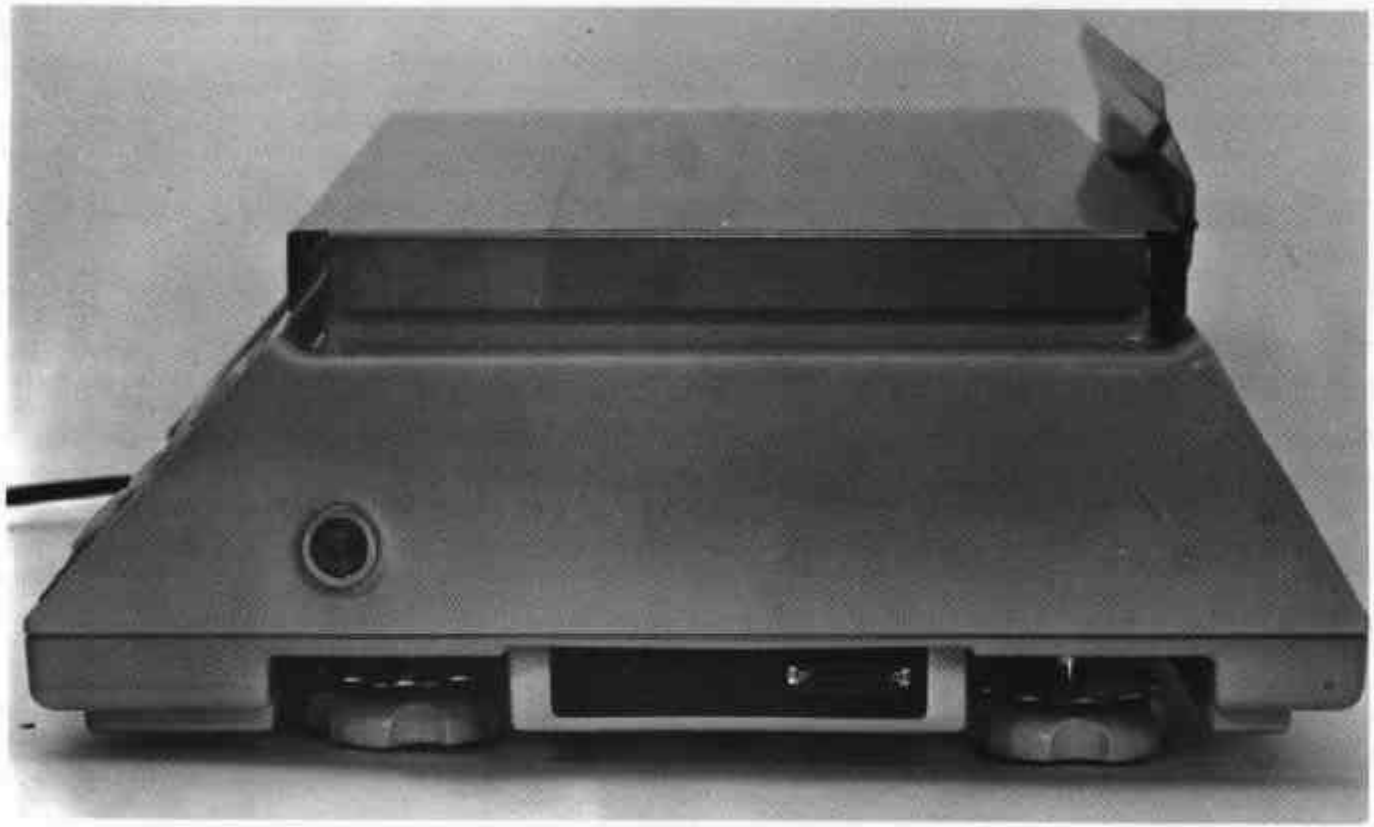


Model R400 — Purchaser's Side



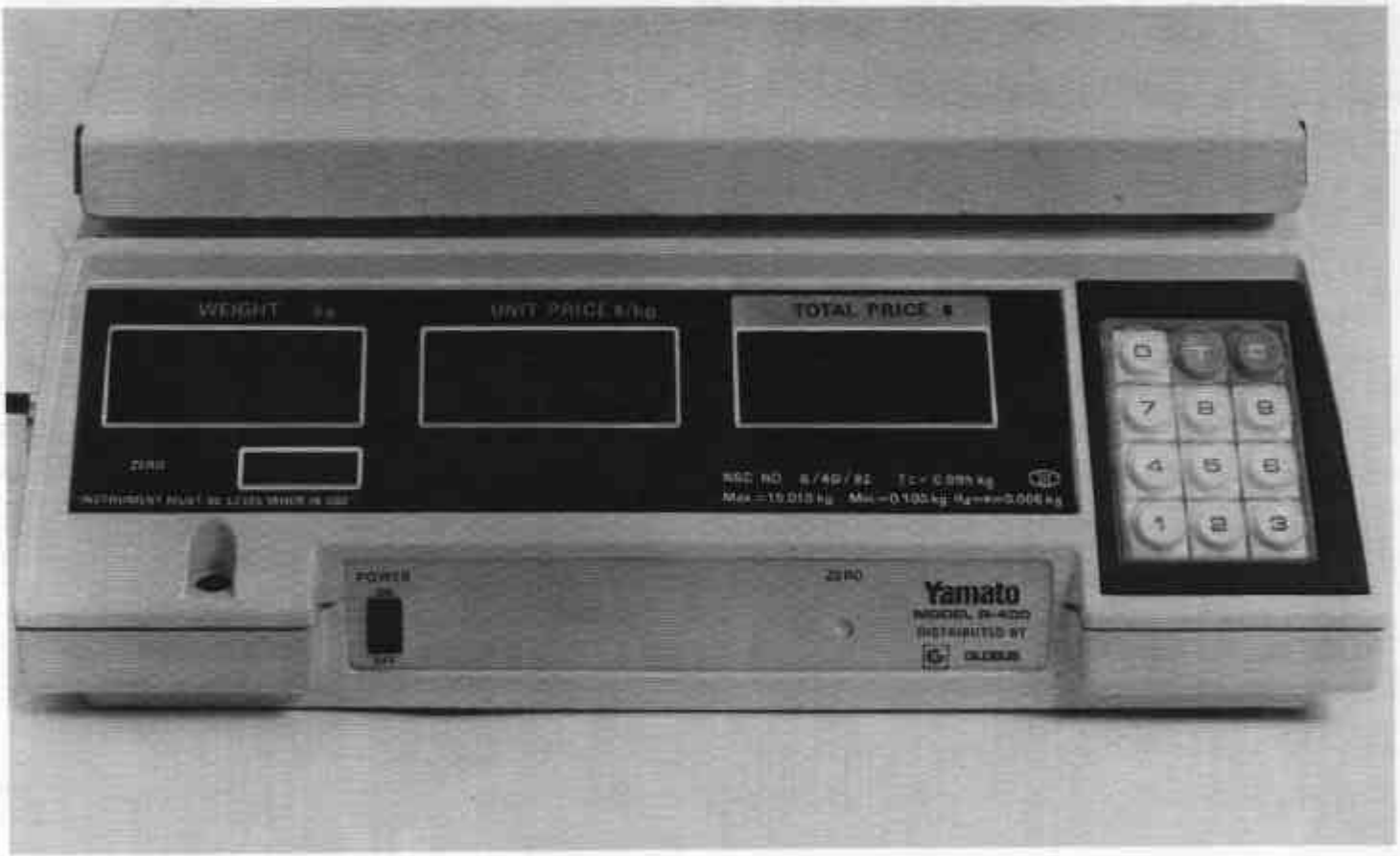
Model R400 with Covers Removed

Model R400 — Side View

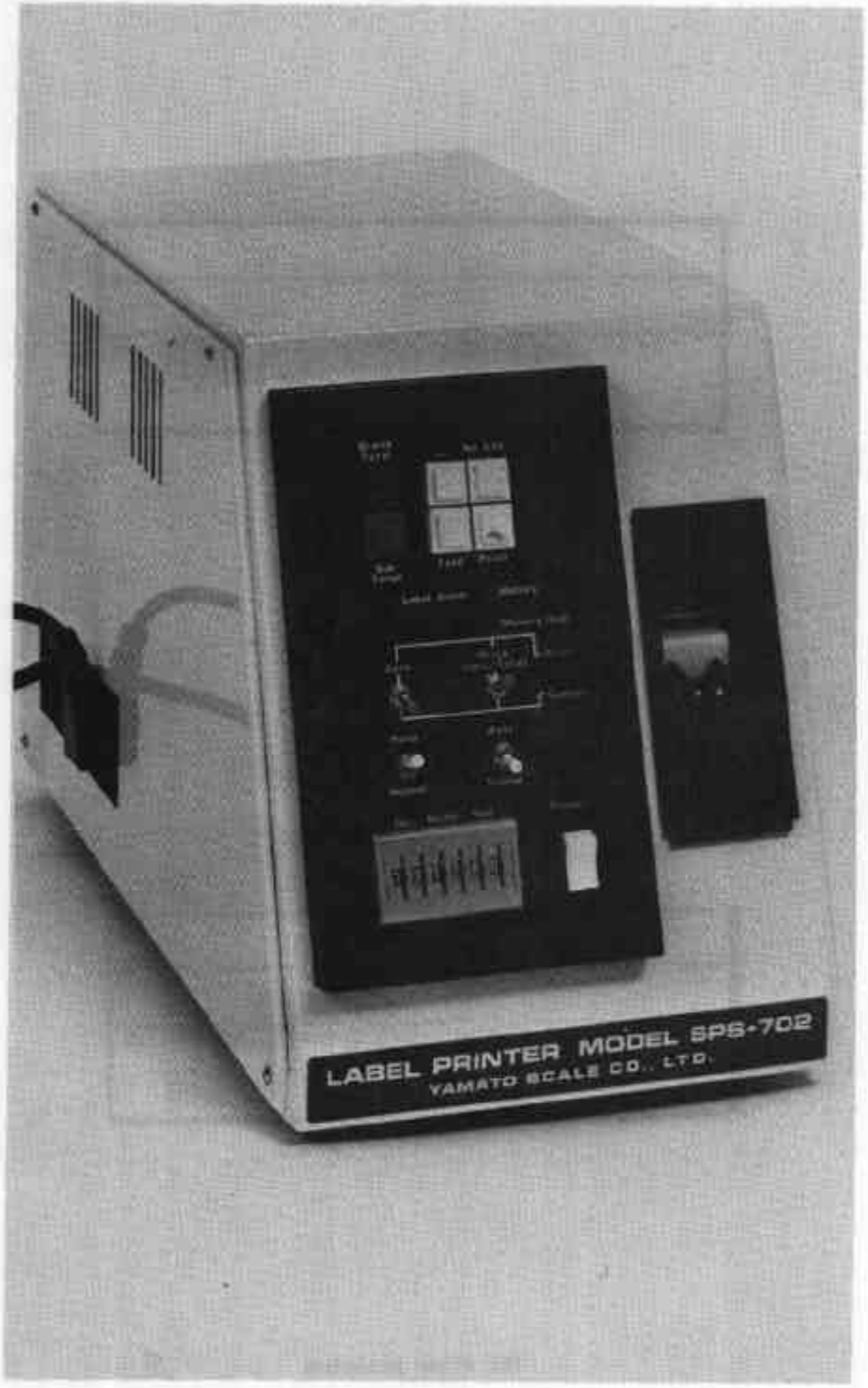


Model R400 — Side View

FIGURE 6/4D/92 - 6

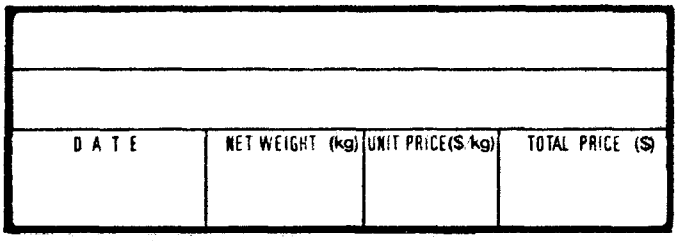


Yamato Model R400 with Tare

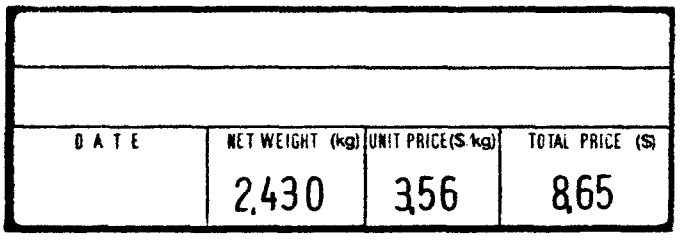


Yamato Printer Model SPS 702

FIGURE 6/4D/92 - 8



(a) Before printing

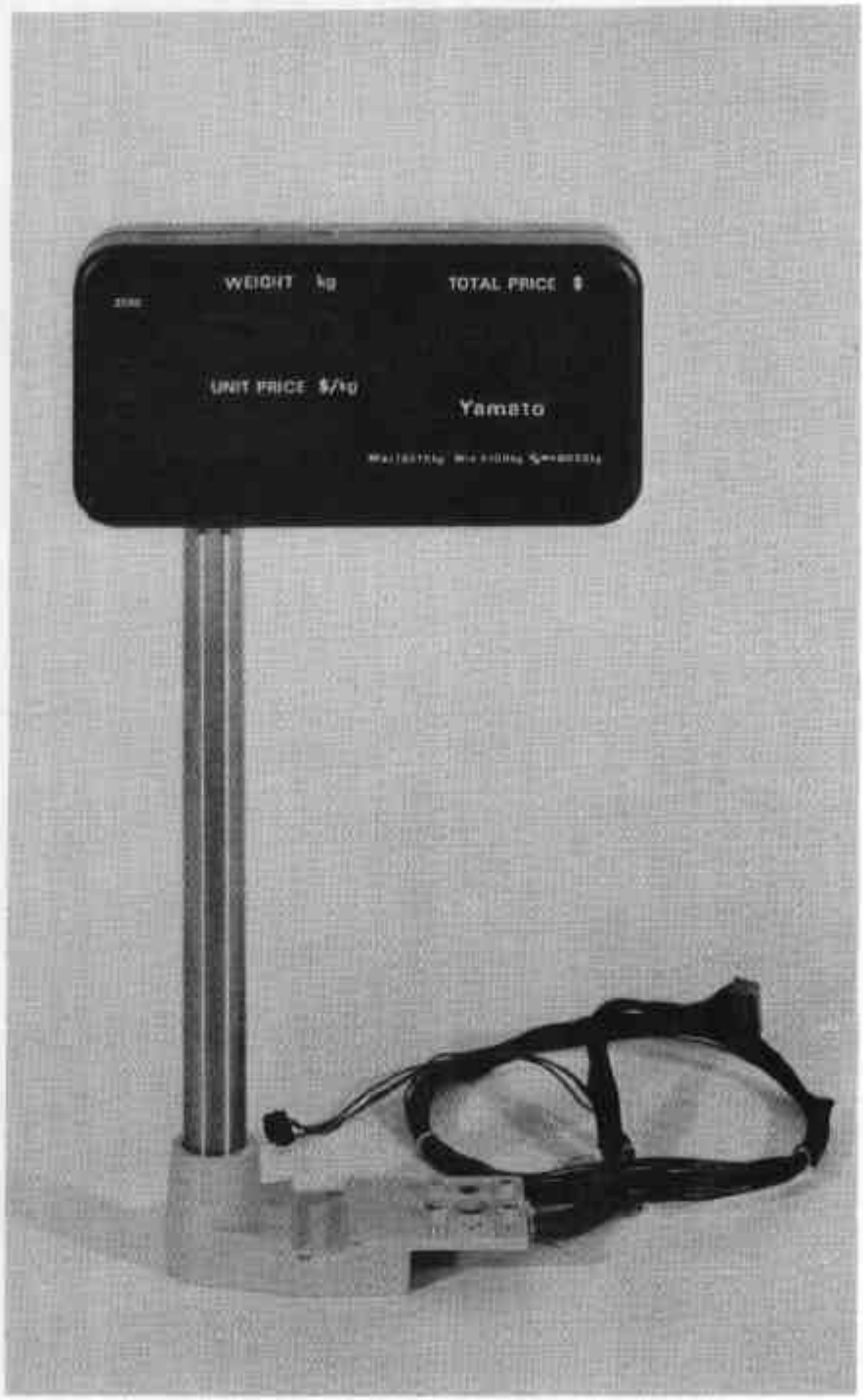


(b) After printing

Sample Tickets, SPS 702 Printer (actual size)

5/12/80

FIGURE 6/4D/92 - 9



Model R400 Remote Indicator

5/12/80