



NATIONAL STANDARDS COMMISSION

WEIGHTS AND MEASURES (PATTERNS OF INSTRUMENTS) REGULATIONS

REGULATION 9

CERTIFICATE OF APPROVAL No 6/4D/202

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

Yamato Model Datacell R 1000 Weighing Instrument

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

Variant 5 submitted by Yamato Weighing Systems Pty Ltd,
16 Gertrude Street,
Arncliffe, New South Wales, 2205,

are suitable for use for trade.

The approval of the pattern and variants is subject to review on or after 30/11/85.

All instruments purporting to comply with this approval shall be marked NSC No 6/4D/202.

Relevant drawings and specifications are lodged with the Commission.

Condition of Approval

The pattern and variants are not to be used in a checkout situation unless as a "stand-alone" instrument which is not connected to remote computer facilities.

Signed

Executive Director

Descriptive Advice

Pattern: approved 3/12/80

- Of capacity 15 kg by 0.005 kg scale intervals, with price-computing in 1c increments to \$999.99/kg, price to \$9999.99 and tare to 995 g.

Variants: approved 3/12/80

1. Of capacity 6 kg by 0.002 kg scale intervals, with price-computing in 1c increments to \$999.99/kg, price to \$6003.94 and tare to 998 g.
2. The weighing unit with two computing units.
3. Without the printer.
4. With a cash drawer under the computing unit.

Technical Schedule No 6/4D/202 dated 19/1/81 describes the pattern and variants 1 to 4.

Variant: approved 16/7/82

5. With the customer display rehoused in an indicator mast.

Technical Schedule No 6/4D/202 Variation No 1 dated 4/8/82 describes Variant 5.

Filing Advice

Certificate of Approval No 6/4D/202 dated 19/1/81 is superseded by this Certificate, and may be destroyed.

The documentation for this approval now comprises:

Certificate of Approval No 6/4D/202 dated 4/8/82
Technical Schedule No 6/4D/202 dated 19/1/81 (including Tables 1 and 2)
Test Schedule (Procedure) No 6/4D/202 dated 19/1/81
Technical Schedule No 6/4D/202 Variation No 1 dated 4/8/82
Figures 1 to 8 dated 19/1/81
Figure 9 dated 4/8/82.

4/8/82



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/202

Pattern: Yamato Weighing Instrument Datacell R 1000

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

1. Description of Pattern

The pattern is a self-indicating price computing weighing instrument (Figures 1, 2 and 3).

Range:	Capacity:	15.010 kg
	Scale interval:	0.005 kg
	Unit price:	\$999.99/kg in 1 c increments
	Price:	\$9999.99 in 1 c increments
	Tare:	-0.995 kg

1.1 Tare

- (a) A semi-automatic subtractive taring device allows a mass on the load receptor of up to 0.995 kg to be tared within 0.25 e.
- (b) A tare mass indicator displays the tare mass entered.

1.2 Zero

The instrument is automatically corrected to zero within $\pm 0.25 e$, and the word ZERO illuminates on the computing unit, when the tool operated push button marked ZERO NULL is pressed on the weighing unit (see Figure 4).

1.3 Automatic Zero Correction Device

This device re-zeroes the instrument to within $\pm 0.25 e$ whenever the mass indicator indicates zero.

1.4 Indicator Test

When power is applied to the instrument an all "8's" test is executed.

1.5 Markings

All instruments shall be marked with the following data:

Manufacturer's name	
Serial number	
NSC approval number	NSC No 6/4D/202
Accuracy Class	III
Maximum capacity	Max*
Minimum capacity	Min*
Verification scale interval	$d_d=e=$*
Tare	T = -.....

* These markings are repeated in the vicinity of each mass indicator.

1.6 Sealing

Calibration adjustments in the weighing unit are sealed with two lead and wire seals (Figure 4).

The computing unit cover and output sockets are sealed with lead and wire seals (Figure 5).

- Note:
1. The Serial number of the weighing unit is stamped on the nameplate of the computing unit. If a second computing unit is not connected the output socket is sealed as shown in figure 5.
 2. In the case of a duplex system, the serial number of the second computing unit is also stamped on the nameplate of the first computing unit.

1.7 Levelling

The weighing unit is fitted with a level indicator and four adjustable feet.

A level notice is located near the level indicator.

1.8 Locking Device

In the weigh position the instrument operates normally and in the lock position displays an error code (Figure 4).

1.9 Ticket

Sample tickets are illustrated in Figure 8.

2. Description of Variants

2.1 Variant 1

A self-indicating price-computing weighing instrument with the following range:

Range:	Capacity:	6.004 kg
	Scale interval:	0.002 kg
	Unit price:	\$999.99/kg in 1 c increments
	Price:	\$6003.94 in 1 c increments
	Tare:	-0.995 kg

2.2 Variant 2

The weighing unit with two computing units (Figure 6).

2.3 Variant 3

The pattern without the printer (Figure 7).

2.4 Variant 4

The pattern with a cash drawer under the computing unit.

3. Test Procedures

Testing is in accordance with the attached Test Schedule No 6/4D/202.

TABLE 1

<u>Indicated Mass</u>	<u>Unit Price</u>	<u>Total Price</u>
kg	\$/kg	\$
0.000	0	0
0.100	999.99	100.00
0.105	498.99	52.39
0.110	997.99	109.78
0.120	696.99	83.64
0.130	595.99	77.48
0.140	764.50	107.03
0.150	993.99	149.10
0.160	882.31	141.17
0.170	991.99	168.64
0.180	990.96	178.37
0.190	389.88	74.08
0.200	179.77	35.95
0.300	269.66	80.90
0.400	959.55	383.82
0.500	949.44	474.72
0.600	939.33	563.60
0.700	929.22	650.45
0.800	919.11	735.29
0.900	9.14	8.23
1.000	910.57	910.57
2.000	870.03	1740.06
3.000	784.67	2354.01
4.000	950.52	3802.08
5.000	884.96	4424.80
6.000	906.99	5441.94
7.000	899.64	6297.48
8.000	949.53	7596.24
9.000	988.72	8898.48
10.000	999.99	9999.90
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
15.010	50.00	750.50

Test Procedure - 15.010 kg by 0.005 kg instrument

TABLE 2

<u>Indicated Mass</u>	<u>Unit Price</u>	<u>Total Price</u>
kg	\$/kg	\$
0.000	000.00	00.00
0.002	919.99	1.84
0.004	829.99	3.32
0.006	739.99	4.44
0.008	649.99	5.20
0.010	558.70	5.59
0.020	469.00	9.38
0.030	379.99	11.40
0.040	289.99	11.60
0.050	191.99	9.60
0.060	92.99	5.58
0.070	93.99	6.58
0.080	94.99	7.60
0.090	95.92	8.63
0.100	96.54	9.65
0.200	97.93	19.59
0.300	98.94	29.68
0.400	99.15	39.66
0.500	99.26	49.63
0.600	99.37	59.62
0.700	99.48	69.64
0.800	99.59	79.67
0.900	99.69	89.72
1.000	92.11	92.11
2.000	49.89	99.78
3.000	3.33	9.99
4.000	5.00	20.00
5.000	5.00	25.00
6.000	5.00	30.00

Test Procedure - 6.004 kg by 0.002 kg instrument.

TEST SCHEDULE No 6/4D/202

1. Accuracy Requirements

The maximum permissible errors are:

- +0.5 e for loads between zero and 500 e inclusive;
- +1.0 e for loads between 501 e and 2000 e inclusive, and
- ±1.5 e for loads above 2000 e.

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 a load equal to, say, 10 scale intervals on the load receptor. The indications with 0.25 e and 0.75 e additional mass on the load receptor will then be 10 e and 11 e 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, 2.5% of the instrument capacity and press the zero contactor; the instrument should not rezero.
- (b) Reduce the load to, say 1.5%, and again press the zero contactor; 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 10 e.

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

5. Price-computing Accuracy

The indications of mass, unit price and price as listed in Tables 1 or 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.

Note: This test does not establish correct mass indications; a separate test in accordance with the Commission's Recommended Testing Procedure for the Elimination of Rounding Errors, as in Document 104, is necessary. This may be carried out in conjunction with the above test.

6. Range of Indication

- (a) The maximum mass indicated should not exceed the maximum capacity (max); above this, the indicator should be blank.
- (b) The minimum mass indicated should be zero; below this the indicator should be blank.

7. Locking Device

Check that the locking device functions as described in the Technical Schedule.

8. Test for instruments with two computing units

- (a) Enter three 10 kg weighings on one of the computing units.
- (b) Enter three 5 kg weighings on the other computing unit.

Totalise both units and compare the individual weighings and totals for any interaction between the computing units.



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/4D/202

VARIATION No 1

Pattern: Yamato Model Datacell R 1000 Weighing Instrument

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

Submittor: (Variant 5)
Yamato Weighing Systems Pty Ltd,
16 Gertrude Street,
Arncliffe, New South Wales, 2205.

1. Description of Variant 5

With the customer display rehoused in an indicator mast as shown in Figure 9. When in use, this display must be positioned to face the customer.

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NATIONAL STANDARDS COMMISSION

NOTIFICATION OF CHANGE

CERTIFICATE OF APPROVAL No 6/4D/202

CHANGE No 1

The following changes are made to the description of the Yamato Model Datacell R1000 Weighing Instrument given in Technical Schedule No 6/4D/202 dated 19/1/81.

Page 1: 1. Description of Pattern

Tare: -0.995
Change to ... - 995 g

Page 2: 2.1 Variant 1

Tare: -0.995 kg
Change to ... - 998 g

Signed

Executive Director

FIGURE 6/4D/202 - 1

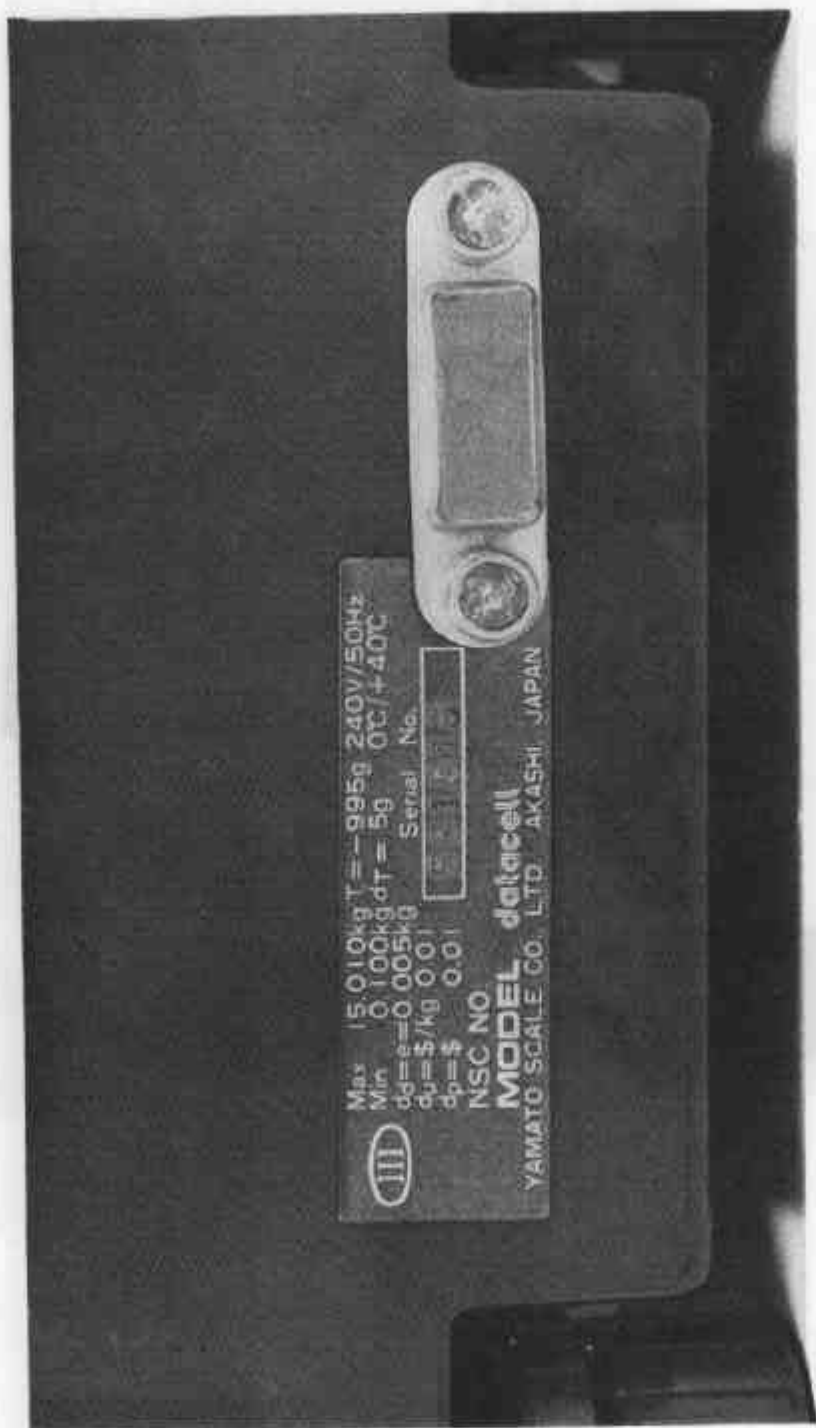


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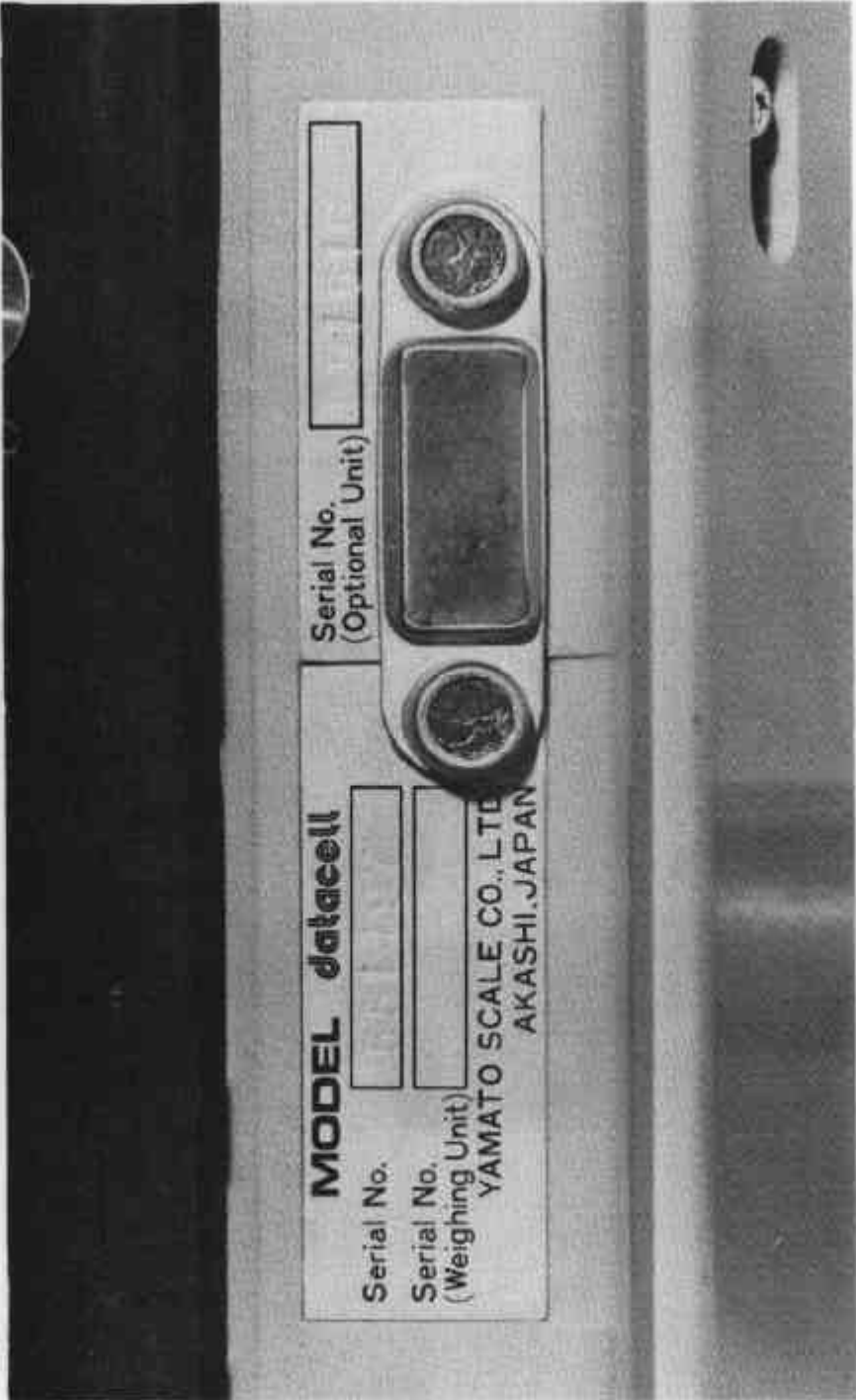
19/1/81

FIGURE 6/40/202 - 2



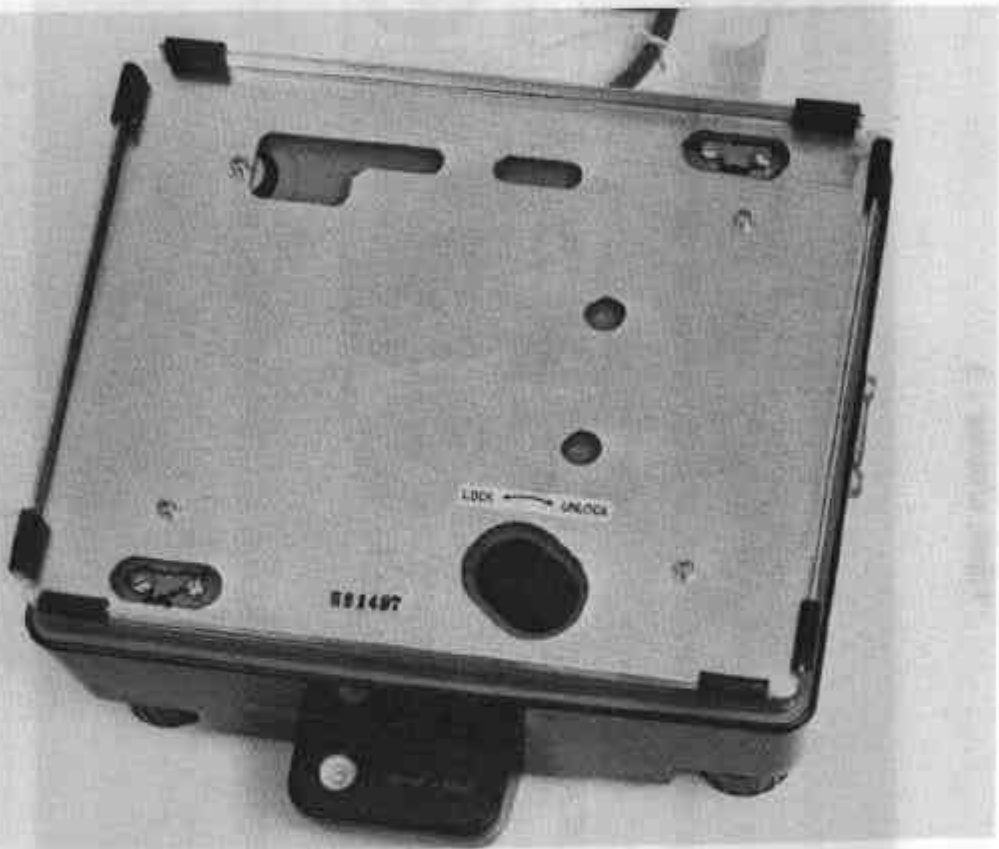
Weighing Unit showing Markings and Stamping Plug

FIGURE 6/4D/202 - 3



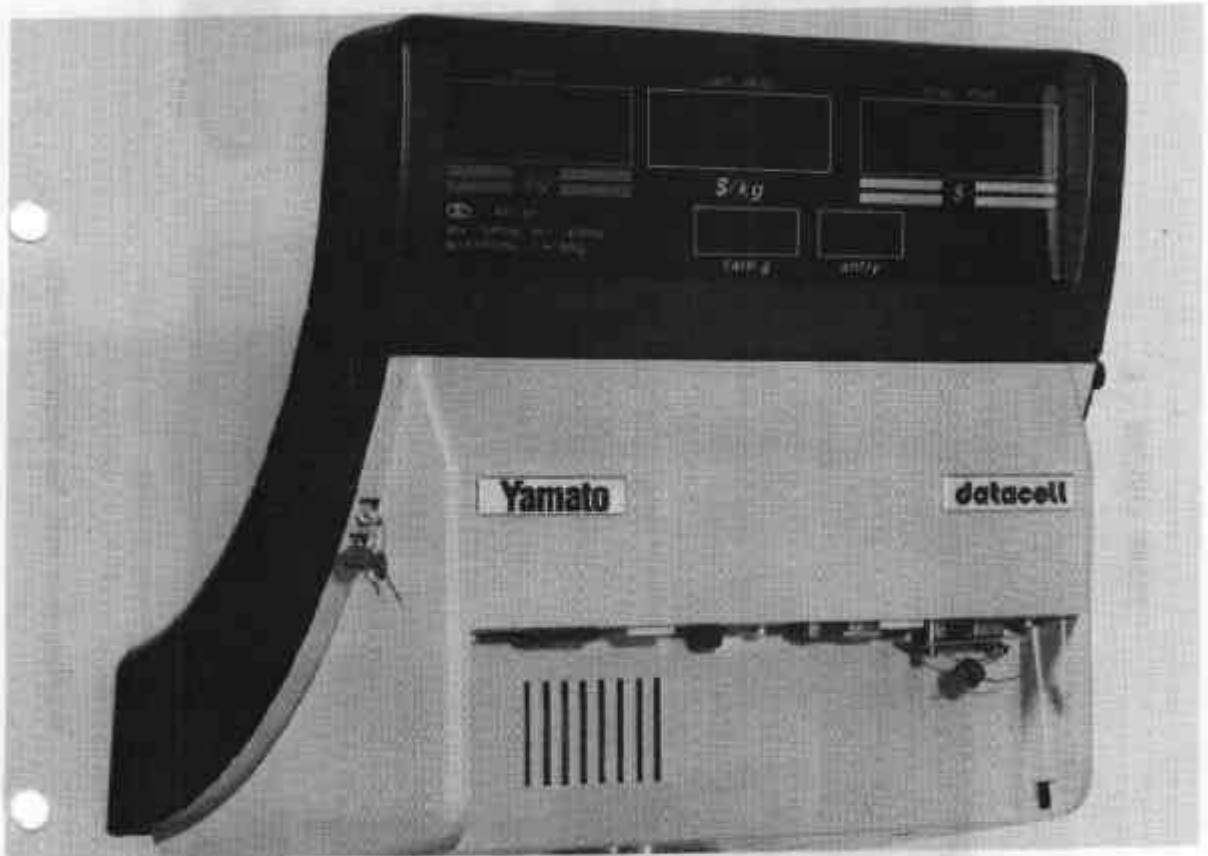
Computing Unit showing Stamping Plug and Serial Numbers

FIGURE 6/40/202 - 4



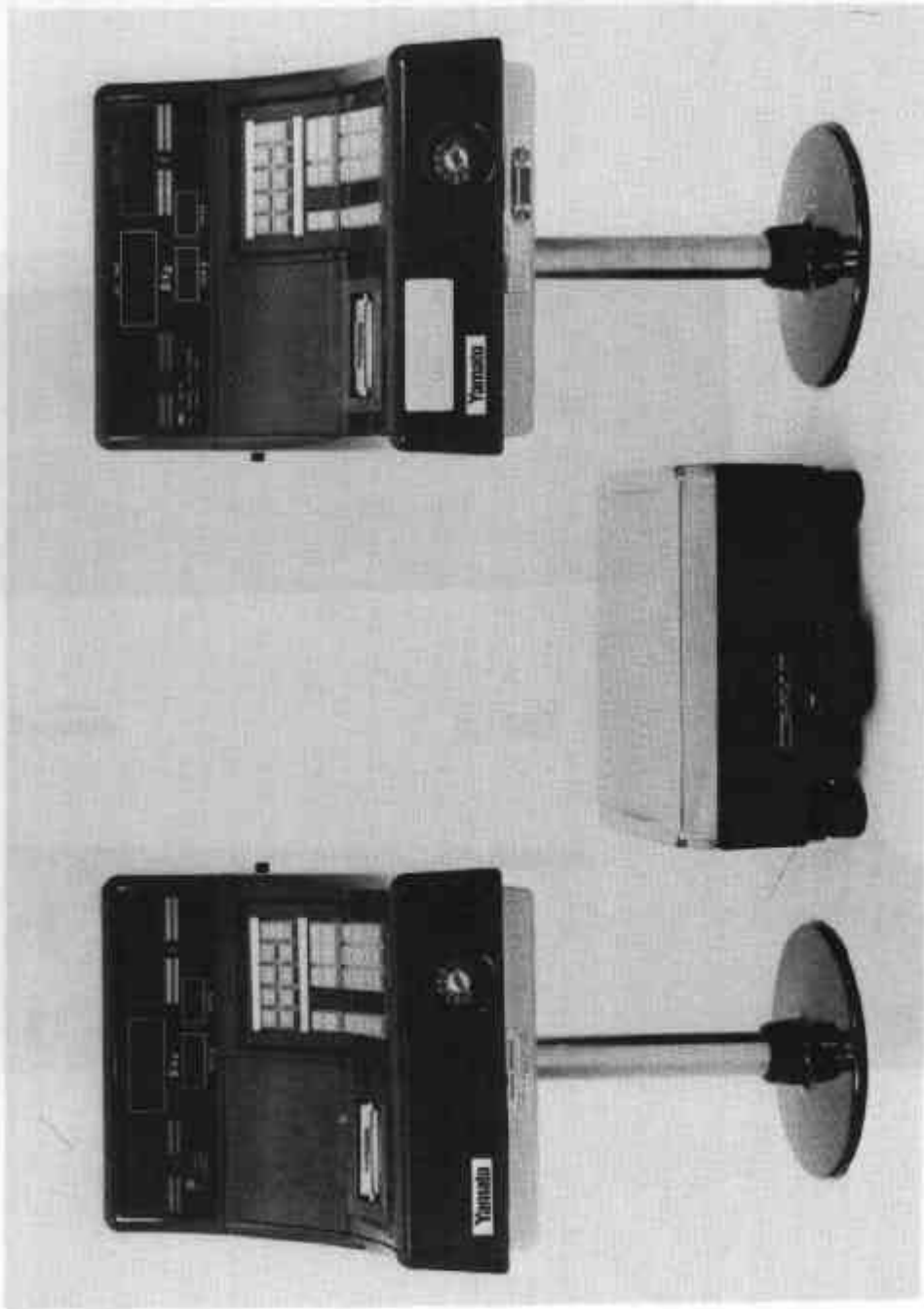
Weighing Unit without Load
Receptor showing Sealing

19/1/81



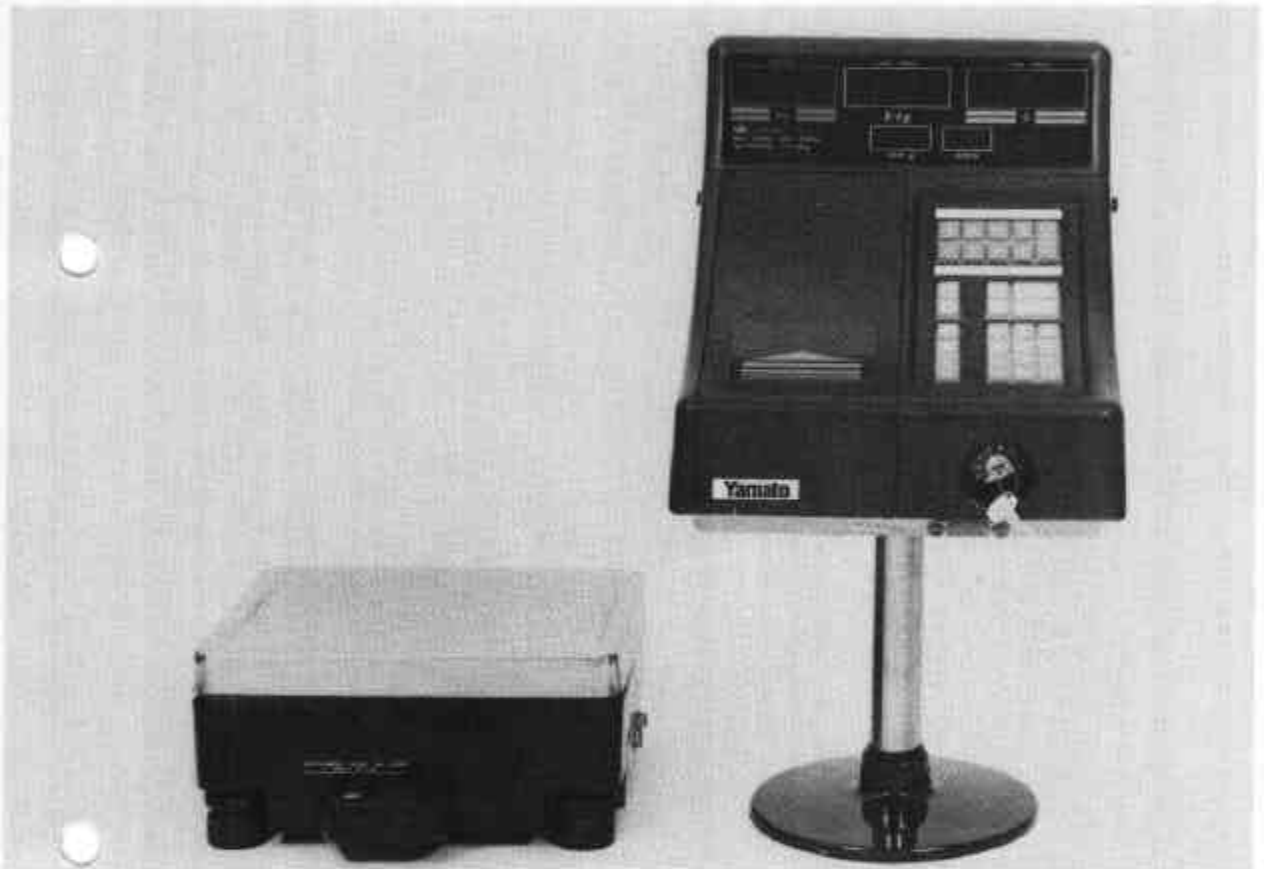
Computing Unit showing Sealing

FIGURE 6/140/202 - 6



Weighing Unit with Two Computing Units

FIGURE 6/40/202 - 7



Without Printer

19/1/81

kg	\$/kg	\$	
02,000	001,00	0002,00	G.
03,000	002,00	0006,00	G.
01,000	004,00	0004,00	G.
	HAND+	0001,00	
	HAND+	0005,00	
02,000	004,50	0009,00	G.
03,000	004,50	0013,50	G.

TOTAL		000040,50	

Sample Ticket - actual size

19/1/81

FIGURE 6/40/202 - 9



With Indicator Mast - Variant 5

4/8/82