

CERTIFICATE OF APPROVAL No 6/4C/15

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This is to certify that the pattern of the  
Mettler PT1200 Weighing Instrument

submitted by Watson Victor Ltd,  
95-99 Epping Road,  
North Ryde, New South Wales, 2113,

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

Date of Approval: 27 June 1975

The pattern is described in Technical Schedule No 6/4C/15, and in drawings  
and specifications lodged with the Commission.

The approval is subject to review on or after 1 June 1980.

All instruments conforming to this approval shall be marked with the approval  
number "NSC No 6/4C/15".

Approval is granted on condition that:

1. The instrument is calibrated at least once each day, such calibration to  
be not less than 30 minutes after switching on.
2. The instrument is operated within an ambient room temperature range of  
 $10^{\circ}\text{C}$  to  $30^{\circ}\text{C}$ .
3. The instrument is recalibrated when the room temperature changes by  
 $2,5^{\circ}\text{C}$ .
4. The instrument is shielded from air movement.
5. The 1-kg  $\pm$  2-mg calibration weight of density between 7000 and 9500  $\text{kg}/\text{m}^3$   
is a certified weight.
6. The instrument is not for retail counter use.

Signed



Acting Executive Officer

5/7/76

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## NATIONAL STANDARDS COMMISSION

### TECHNICAL SCHEDULE No 6/4C/15

Pattern: Mettler PT1200 Weighing Instrument

Submitter: Watson Victor Ltd,  
95-99 Epping Road,  
North Ryde, New South Wales, 2113.

Date of Approval: 27 June 1975

#### Conditions of Approval:

1. The instrument is to be calibrated at least once each day, such calibration to be not less than 30 minutes after switching on.
2. The instrument is to be operated within an ambient room temperature range of  $10^{\circ}\text{C}$  to  $30^{\circ}\text{C}$ .
3. The instrument is to be recalibrated when the room temperature changes by  $2,5^{\circ}\text{C}$ .
4. The instrument is to be shielded from air movement.
5. The 1-kg  $\pm$  2-mg calibration weight of density between 7000 and 9500  $\text{kg}/\text{m}^3$  is a certified weight.
6. The instrument is not for retail counter use.
7. All instruments conforming to this approval shall be marked "NSC No 6/4C/15".

#### Description:

The pattern (see Figures 1 and 2) is an electronically controlled balance of capacity 1200 g. A 1-kg  $\pm$  2-mg mass of density between 7000 and 9500  $\text{kg}/\text{m}^3$  is provided as a calibration weight. The reading face is a digital indicator with 0,01-g increments.

The weighing mechanism consists of the load-receptor support support column, which has a current coil around it, suspended between the poles of a permanent magnet. Two capacitive position detectors control the amount of current in the coil.

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An electromagnetic force, resulting from the reaction between the electric field due to the current in the coil and the magnetic field of the permanent magnet, counterbalances the weight on the load receptor. Displacement of the support column caused by a change in the weight on the load receptor is sensed by the capacitive position detectors which vary the current through the coil and thus the electromagnetic force to rebalance the load.

The drive current through the coil, which is a measure of the load, is monitored and after conversion is presented on the digital weight indicator. Five monitoring periods can be selected.

Zero-setting or taring is accomplished by means of a switch bar on the front of the instrument which sets zero to within  $\pm 0.1$  graduation, and is indicated by alternate indications of + and - signs when within 0,25 graduations of zero. The removal of a tared load from the weighing instrument will result in the value of the tare rounded to the nearest 10 mg being indicated with a - sign. The instrument is provided with a level indicator and three feet, two of which are adjustable. Adjacent to the level indicator is a notice advising that the instrument must be level when in use.

The calibration of the instrument must be checked at least once per day after allowing 30 minutes' warm-up time; the instrument should not be used for accurate measurements during this warm up period. The calibration procedure is as follows:

After zeroing the instrument, and placing the calibration weight ( $1 \text{ kg} \pm 2 \text{ mg}$ ) on the load receptor, together with an extra 5-mg weight, the calibration potentiometer should be adjusted so that the instrument indication alternates between 1000,00 g and 1000,01 g.

As zero is affected by the calibration adjustment, it is necessary to wait 5 minutes, rezero and recheck the 1-kg calibration point; if further adjustment is necessary the process must be repeated until satisfactory results are obtained.

The instrument is marked:

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Max = 1200 g  
Min = 0,5 g  
 $e = d_a = 0,01$  g  
T = - 1200 g ,

and "not for retail counter use", and "variation in temperature during weighing should not exceed  $\pm 2,5^{\circ}\text{C}$  without recalibrating instrument".

An output is provided for peripheral equipment. The use of peripheral equipment will not affect the performance of the instrument.

### Special Tests:

The instrument calibration must be set before any other tests are done. This is checked by the test weight provided with the instrument. The instrument should be switched on at least 30 minutes before testing starts. The method of checking the calibration is detailed in the description.

#### 1. Level Sensitivity

When the instrument is tilted to a slope of 1 in 500 the bubble in the level indicator should move at least 2 mm.

#### 2. Test Loads

The application of the test loads specified in Table 1 and the display of these loads within the applicable tolerance in accordance with the Commission's digital testing procedures is one method of checking that the instrument operates in accordance with the approved design. The mass of each weight used for testing must be known to within  $\pm 1$  mg.

### Tolerance:

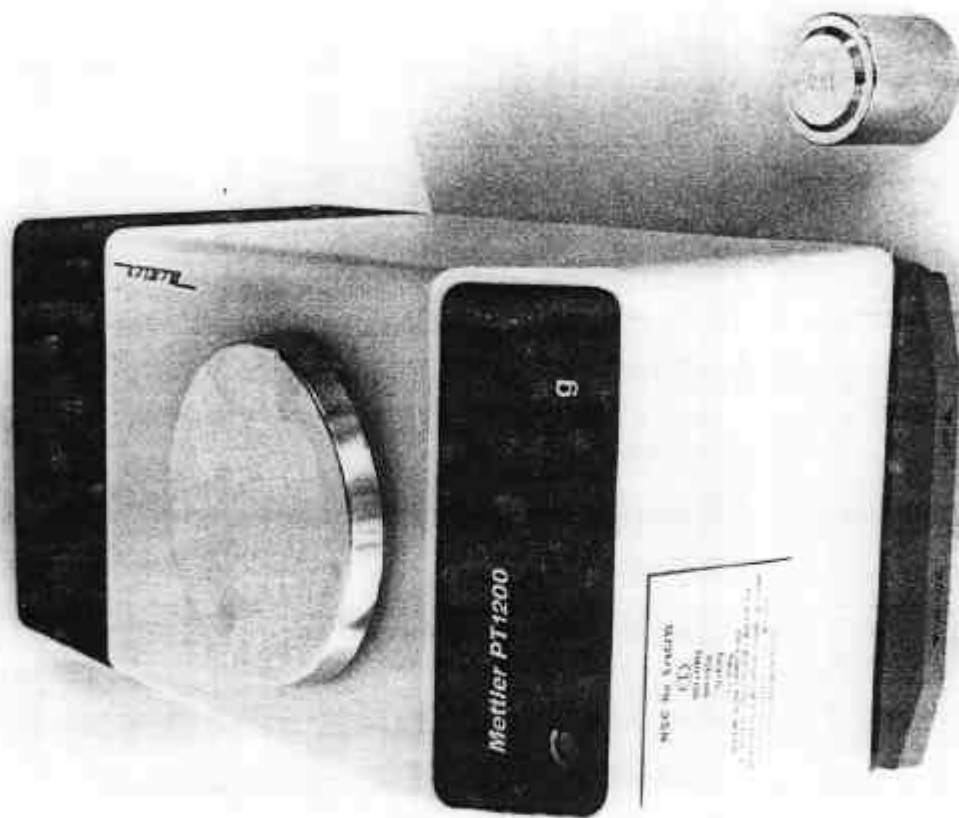
The tolerance applicable to a class I instrument is  $\pm \frac{1}{2}$  graduation for the first 50 000 graduations,  $\pm 1$  graduation for graduations over 50 000 and up to 200 000 graduations, and  $\pm 1\frac{1}{2}$  graduations for over 200 000 graduations.

TABLE 1

Test Load in grams

0					
0,0025					
0,0075					
0,01	0,10	1,00	10,00	100,00	600,015
0,02	0,20	2,00	20,00	200,00	700,015
0,03	0,30	3,00	30,00	300,00	800,015
0,04	0,40	4,00	40,00	400,00	900,015
0,05	0,50	5,00	50,00	500,00	1000,015
0,06	0,60	6,00	60,00		1199,985
0,07	0,70	7,00	70,00		1199,995
0,08	0,80	8,00	80,00		
0,09	0,90	9,00	90,00		

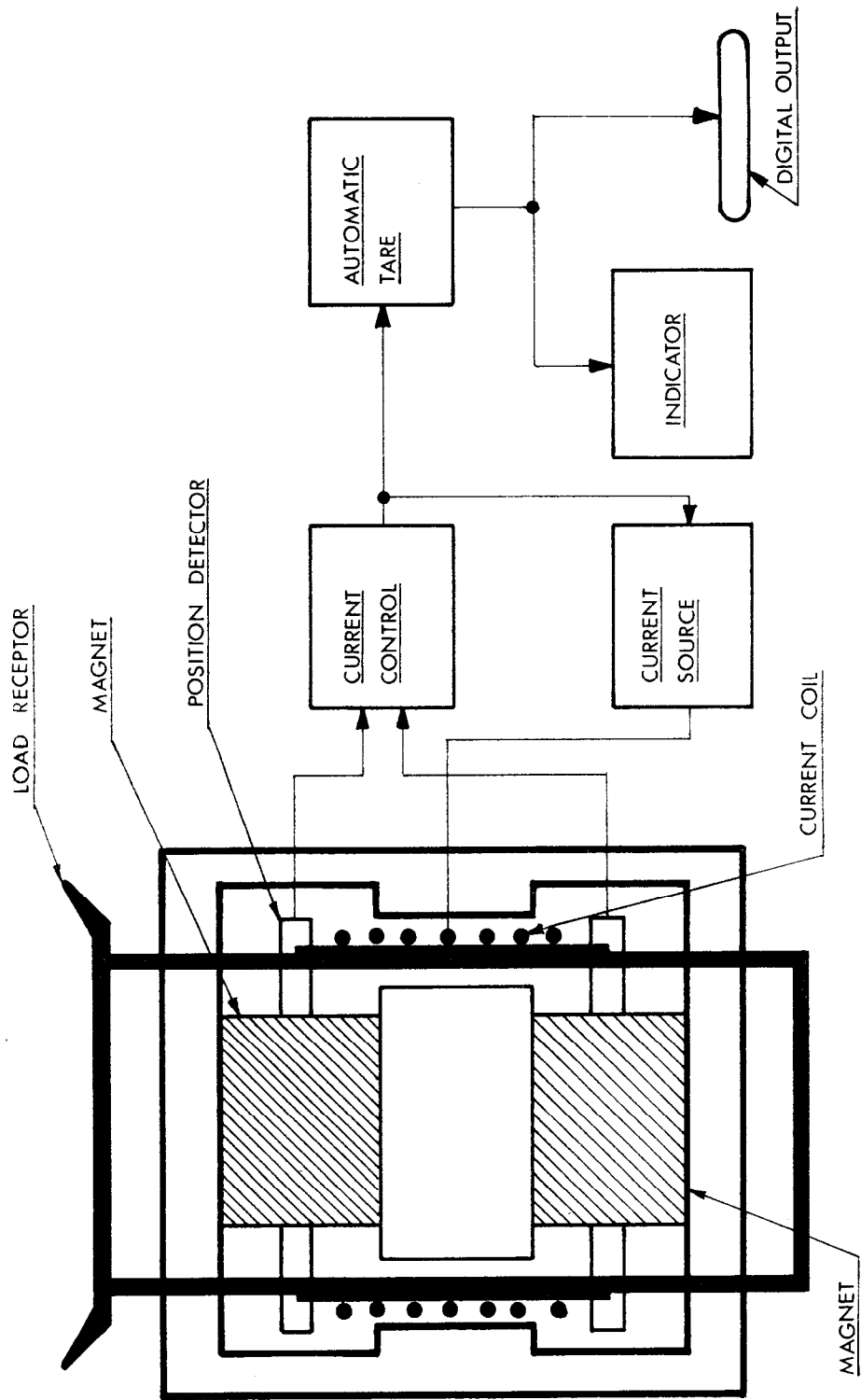
FIGURE 6/4C/15-1



Mettler PT 1200

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FIGURE 6/4C/15-2



Mettler PT 1200 --- Schematic Diagram

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