NATIONAL STANDARDS COMMISSION

NATIONAL MEASUREMENT (PATTERNS OF INSTRUMENTS) REGULATIONS

REGULATION 9

CERTIFICATE OF APPROVAL No 6/9C/2A

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

Toledo Model 2191 Platform Weighing Instrument

submitted by Toledo Scale Pty Ltd
525 Graham Street
Port Melbourne Vic 3207.

Conditions of Approval

General:

This Certificate is issued upon completion of a review of NSC approval No 6/9C/2 which expired on 28/2/86 with the effect that no new instruments purporting to comply with that approval will be accepted for verification after that date.

This approval is subject to review on or after 1/4/91.

Instruments purporting to comply with this approval shall be marked NSC No 6/9C/2A.

This approval may be withdrawn if instruments are constructed and used other than in accordance with the drawings and specifications lodged with the Commission.

Special:

The number of scale intervals applicable to the weighing instrument shall be no greater than the number of verification scale intervals approved for the mechanical headwork or, for electronic instruments, the load cell or the headwork, whichever is the smallest.

Signed

K Adam

Acting Executive Director

Descriptive Advice

Pattern: approved 12/3/86

. Toledo model 2191 platform weighing instrument of up to 3.2 t capacity.

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Variants: approved 12/3/86

1. With a model 2181 basework of up to 1.3 t capacity.

2. With a model 2081 basework of up to 150 kg capacity.

3. With a Commission-approved load cell and digital indicator.

Technical Schedule No 6/9C/2A describes the pattern and variants.

Filing Advice

The documentation for this approval comprises:

Certificate of Approval No 6/9C/2A dated 17/4/86
Technical Schedule No 6/9C/2A dated 17/4/86
Test Procedure No 6/9C/2A dated 17/4/86
Figures 1 to 6 dated 17/4/86

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/9C/2A

Pattern: Toledo Model 2191 Platform Weighing Instrument

Submittor: Toledo Scale Pty Ltd
525 Graham Street
Port Melbourne Victoria 3207

1. Description of Pattern

1.1 Basework

A model 2191 two-lever system (Figure 1) consisting of two second-order main levers connected to the headwork pullrod and of up to 3.2 t capacity.

Additional transfer levers may be provided.

1.2 Headwork

a) Headwork cabinet (Figure 2) - in the cabinet the basework pullrod is coupled through up to three intermediate levers to a main headwork lever to which is fitted a zero adjustment and an oil dashpot. The main headwork lever is coupled by a pullrod to a small lever from which another pullrod passes into the dial housing.

b) Pendulum resistant mechanism (Figure 2) - the cabinet pullrod passes into the dial housing through an oil seal, and is secured to a yoke. From the yoke two steel tapes are attached to the load-bearing sectors of a double-pendulum resistant mechanism. Each pendulum is suspended from the frame of the instrument by two steel tapes which are attached to the fulcrum sectors of the resistant mechanism. The resistant mechanism is only suitable for mass indicators with up to 3.5 graduations per degree.

c) Optional, automatically or manually-operated unit-weight mechanism (Figure 2) - may be located in the headwork cabinet, by which up to nine weights are deposited on or removed from the main headwork lever, either individually or in various combinations, to provide up to nine steps in increments of approximately 80% of dial capacity.

d) Tare bars (Figure 2) - one or more tare bars may be fitted to the main headwork lever by extension pieces which pass through the cabinet. Instruments must then be marked with the tare capacity.

e) Locking device (Figure 2) - rotating a crank handle located at the front of the cabinet clamps the main headwork lever against a fixed stop.

1.3 Markings

Instruments are marked with the following data, together in one location:

Manufacturer's name or mark	
Serial number of the instrument	
NSC approval number	NSC No 6/9C/2A
Accuracy class	(III)
Maximum capacity in the form	Max .....*
Minimum capacity in the form	Min .....*
Verification scale interval in the form	e = d = ...*
Maximum additive tare in the form	T = +.....§
Maximum subtractive tare in the form	T = -.....§

* These should be repeated adjacent to all reading faces.

§ Whichever, if either, is appropriate.

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1.4 Verification Provision

Provision is made for a verification mark to be applied.

2. Description of Variants

2.1 Variant 1

A model 2181 two-lever system with cantilevered knife-edges and of up to 1.3 t capacity (Figure 3). This basework may be provided with wheels (which are locked when the locking device in the headwork is released).

2.2 Variant 2

A model 2081 three-lever system (Figure 4) of which the two first-order main levers are connected separately to a first-order transfer lever which is in turn connected to the headwork pullrod. This basework has a capacity of up to 150 kg.

2.3 Variant 3

With a Commission-approved load cell and digital indicator either replacing or in conjunction with the mechanical headwork (Figures 5 and 6). Such instruments may have different model numbers.

TEST PROCEDURE No 6/9C/2A

Instruments incorporating a digital indicator should be tested in conjunction with any test procedure set out in its approval documentation.

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.

1. Zero Range

Check that the range of the zero adjustment is not more than 4% of the maximum capacity (±2% approximately).

2. Test Loads

Test loads are to be applied to the complete weighing instrument increasing in not less than 5 approximately equal steps to maximum capacity, following by decreasing loads in not less than 5 approximately equal steps to zero load.

National Standards Commission

NOTIFICATION OF CHANGE

VARIOUS CERTIFICATES OF APPROVAL

The following changes are made to the approval documentation for various approvals

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

In the Certificates and Technical Schedules listed overleaf, the following changes should be made: (Note: Only current approvals are listed.)

1. The submittor should be changed to read;

   Mettler Toledo Limited

   (the address remains unchanged)

2. All references to 'Toledo' instruments or components should be amended to read 'Toledo (or Mettler or Mettler Toledo)'.

NOTE: Any 'Toledo' instrument or component described in the approval documentation may now also be known as 'Mettler or Mettler Toledo'.

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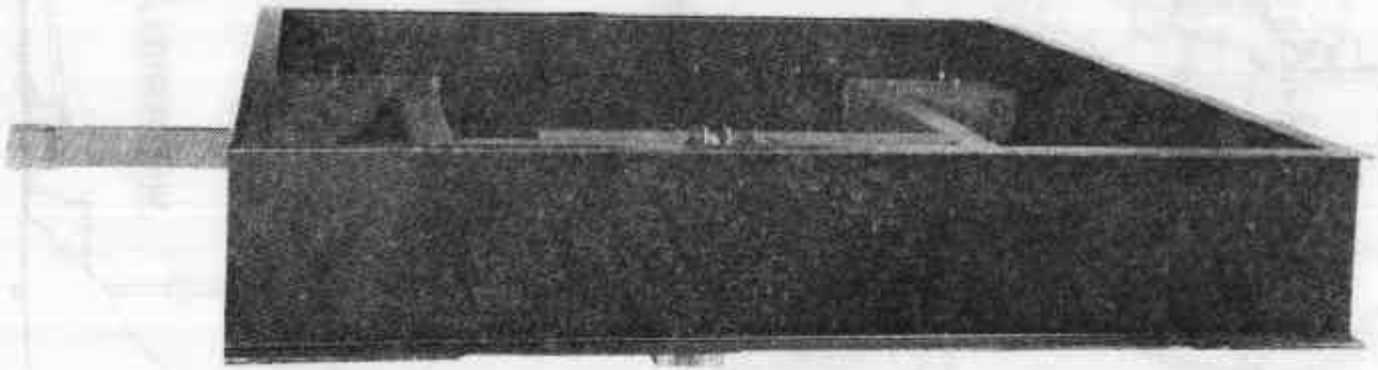
APPROVAL NUMBER	PATTERN
6/4C/65	8214 Weighing Instrument
6/4C/68	8215 Weighing Instrument
6/4D/242	8421 Weighing Instrument
6/9C/2A	2191 Weighing Instrument
6/9C/24A	2503 Weighing Instrument
6/9C/28	2020 Weighing Instrument
6/9C/24A	2985 Weighing Instrument
6/9C/76	2295 Weighing Instrument
6/9C/87	2375 Weighing Instrument
6/9C/97	2155 Weighing Instrument
6/9C/98	9118 Weighing Instrument
6/9C/206	6303 Weighing Instrument
6/9C/231	1938 Weighing Instrument
6/10B/46A	7560 Weighing Instrument
6/14B/9A	2352 Hopper Weighing Instrument
6/18/21	2299 Overhead Weighing Instrument
S253	8530 Digital Indicator
S266	8520 Digital Indicator
S283	8510 Digital Indicator
S111A	0721 Load Cell
S112A	0723 Load Cell
S143	0752 Load Cell
S172	0725 Load Cell
S211	0742 Load Cell
S252	0760 Load Cell
S264	0752 Load Cell
S268	RLC 5000 Load Cell

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.

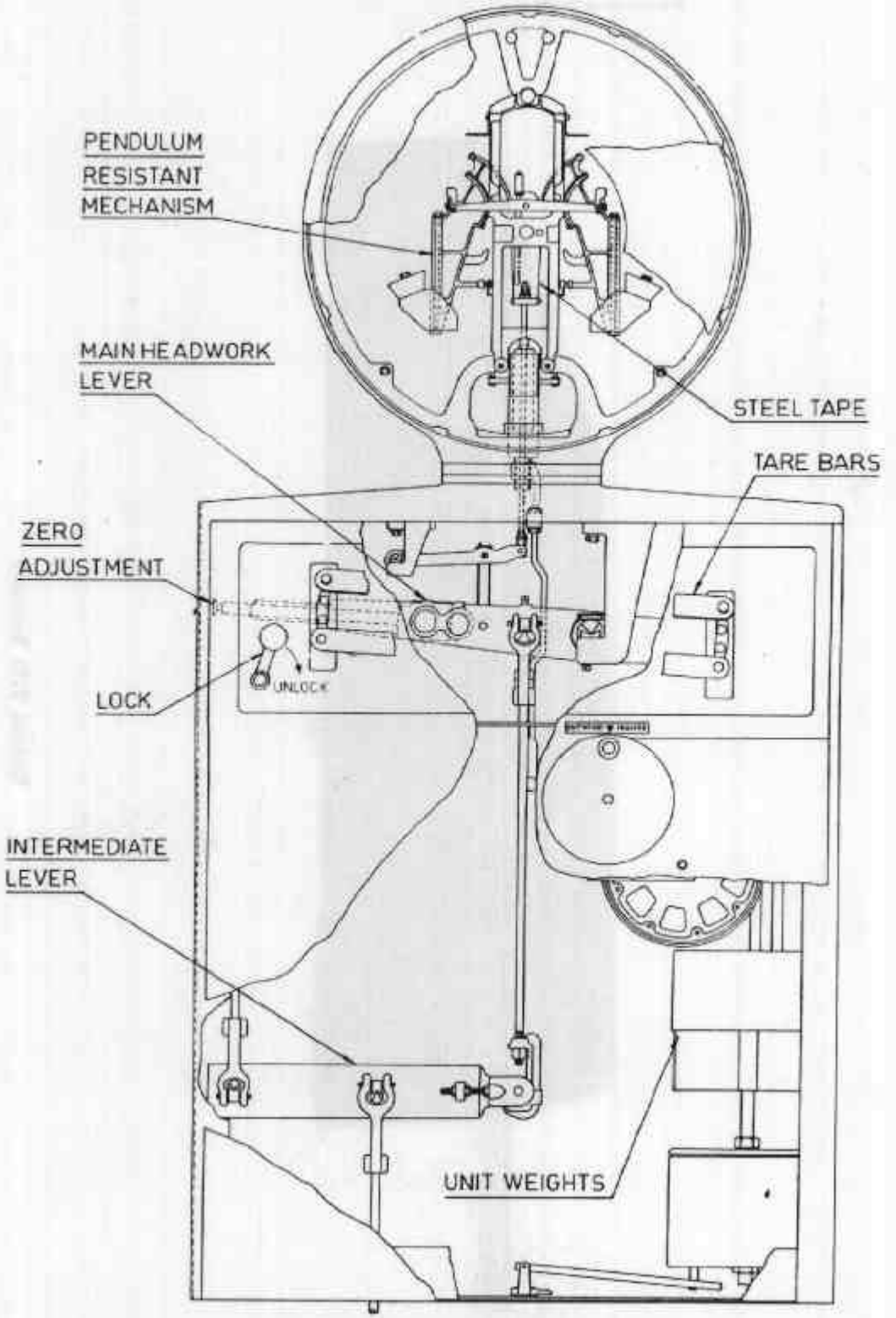
FIGURE 6/9C/2A - 1



Typical 2191 Basework

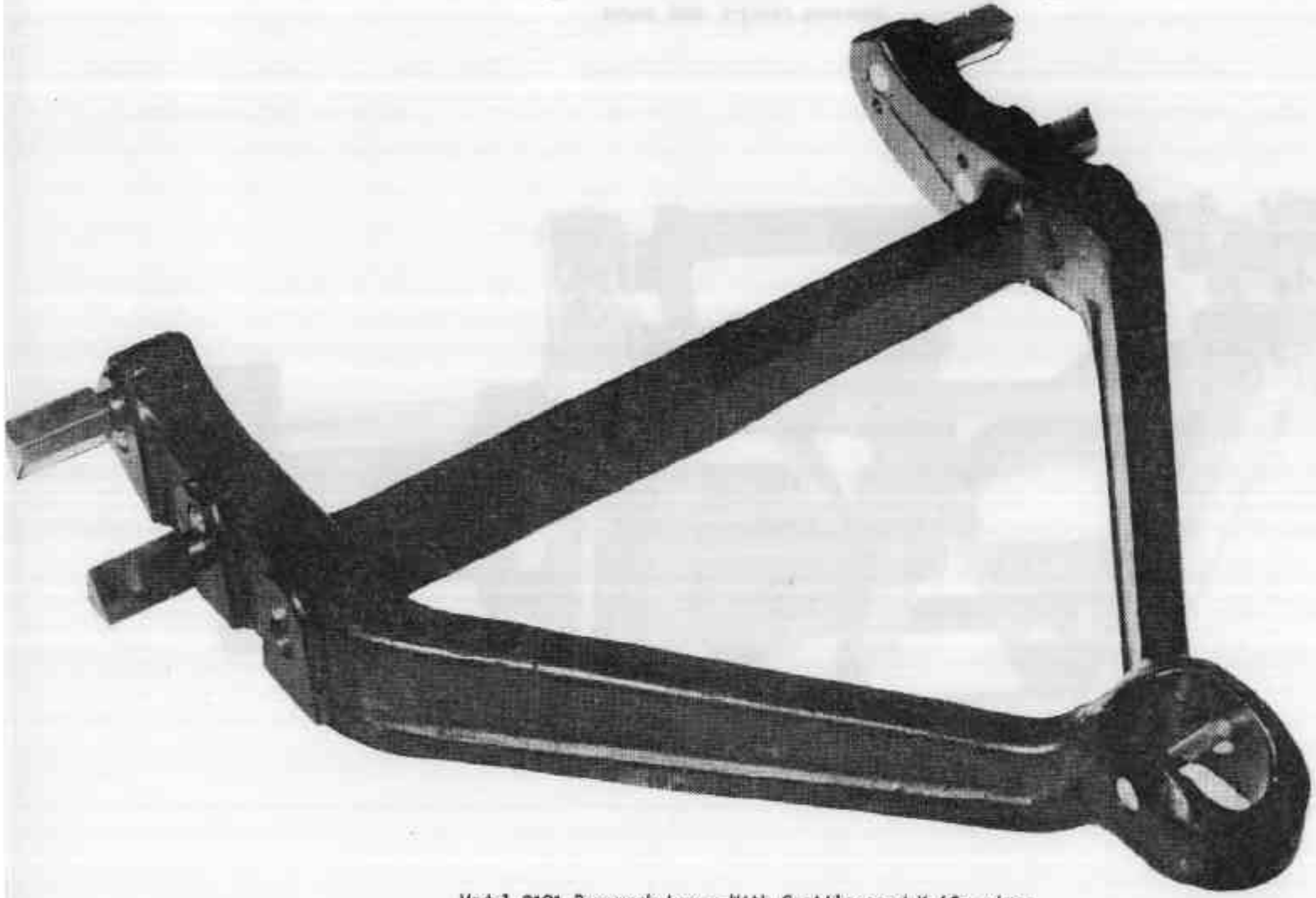
6/9C/2A
17/4/86

FIGURE 6/9C/2A - 2



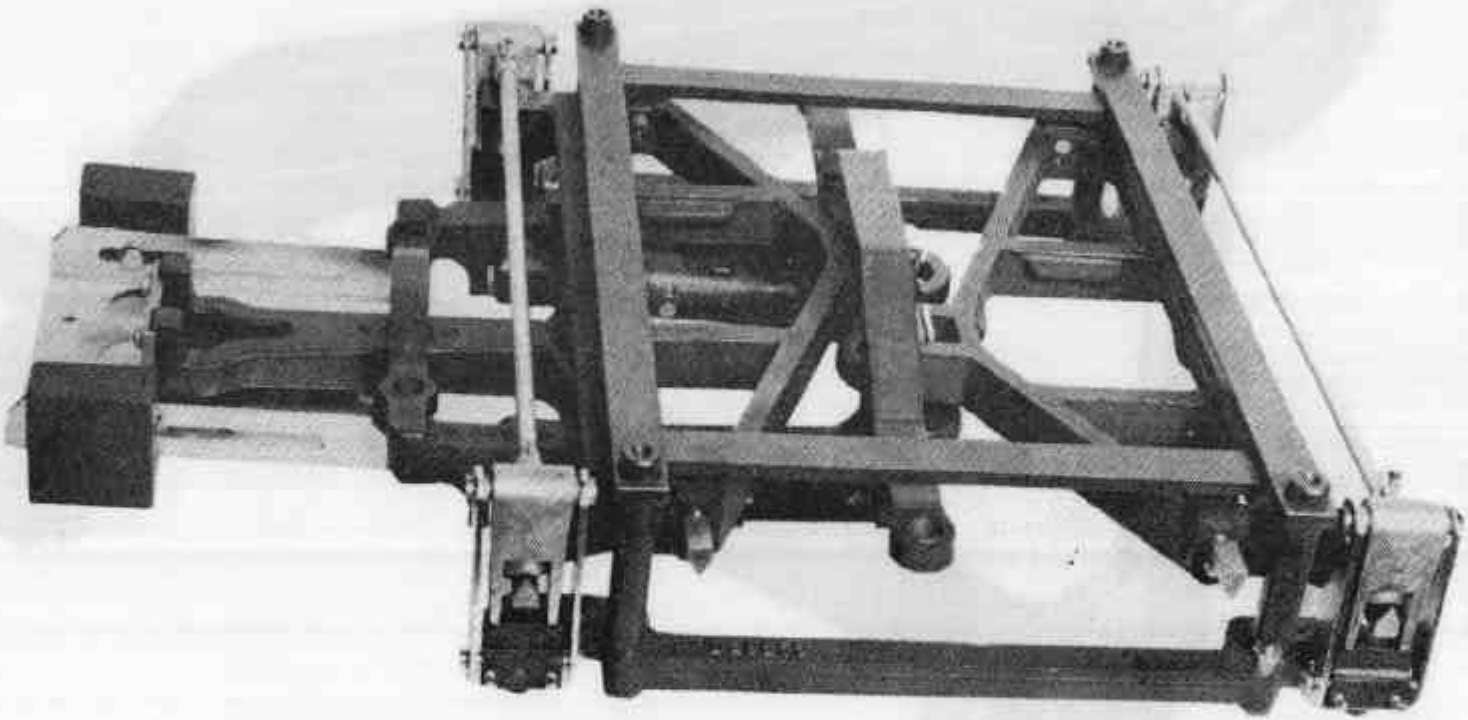
Headwork Cabinet And Resistant Mechanism
(Manual Unit Weights)

FIGURE 6/9C/2A - 3



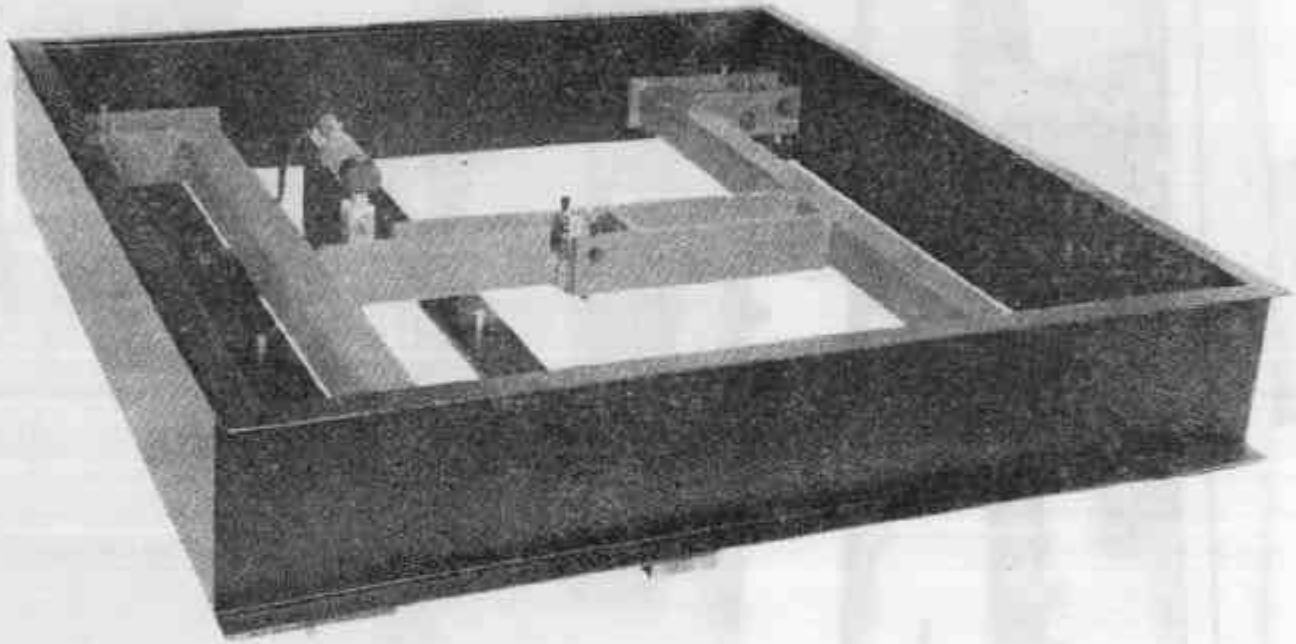
Model 2181 Basework Lever With Contilevered Knife-edges

FIGURE 6/9C/2A - 4



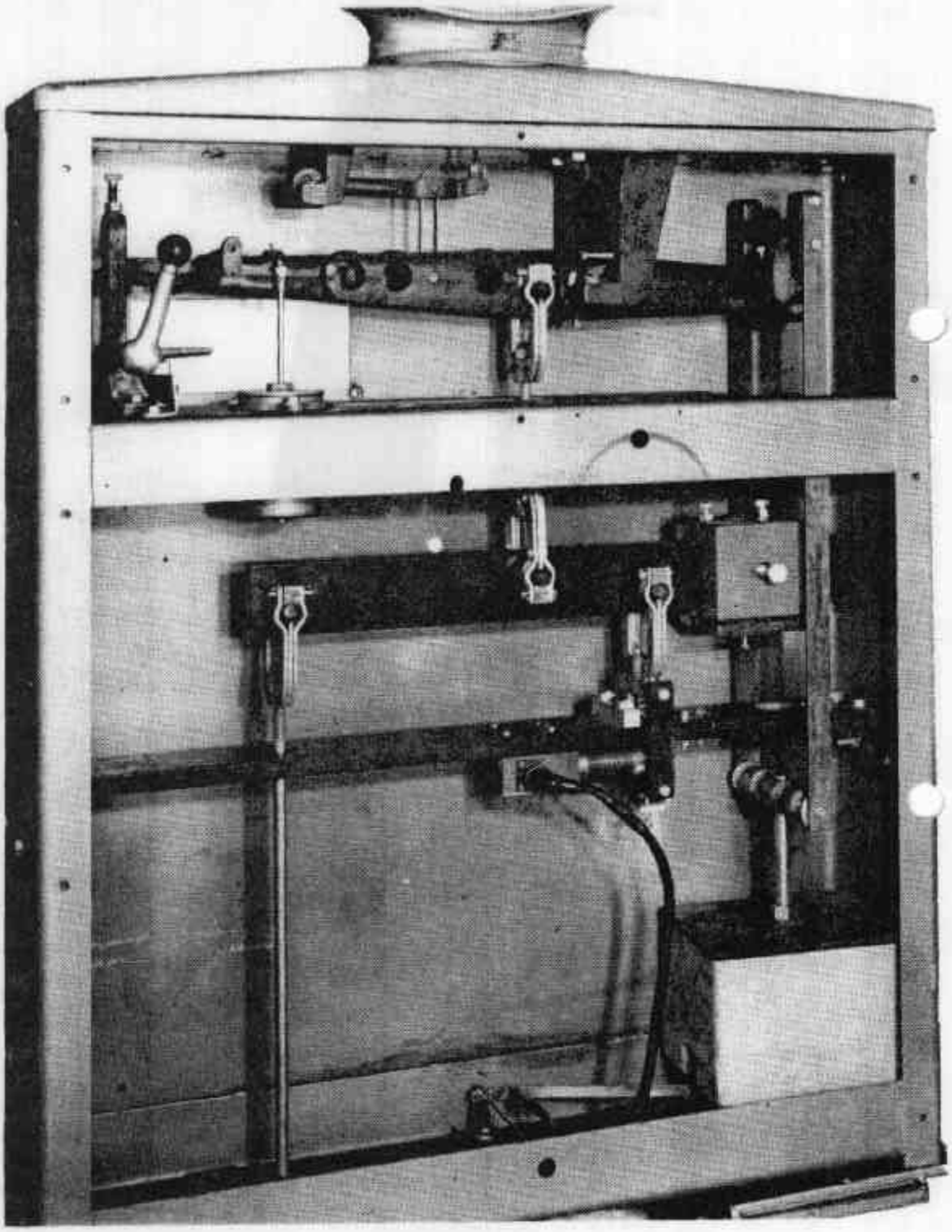
Model 2081 3-lever Basework

6/9C/2A
17/4/86



Typical Basework With Load Cell

FIGURE 6/9C/2A - 6



Headwork With Load Cell Added