

PS 2011/10/2

CANCELLED



NATIONAL STANDARDS COMMISSION

WEIGHTS & MEASURES (PATTERNS OF INSTRUMENTS) REGULATIONS

REGULATION 9

CERTIFICATE OF APPROVAL No 6/9C/27

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

Suprema Weighing Instrument Model BR5-TR

submitted by J.W. Wedderburn & Sons Pty Ltd,
90 Parramatta Road,
Summer Hill, New South Wales, 2130,

are suitable for use for trade.

The approval of the pattern and variants is subject to review on or after 28/2/86.

All instruments purporting to comply with this approval shall be marked NSC No 6/9C/27.

Relevant drawings and specifications are lodged with the Commission.

Signed

Executive Director

Descriptive Advice

Pattern: approved 27/10/72, re-approved 10/4/81

. A self-indicating weighing instrument of 30 kg capacity by 0.02 kg scale intervals with a taring device of 5 kg capacity.

Variants: approved 27/10/72, re-approved 10/4/81

1. Of up to 150 kg capacity, with basework as in the pattern.
2. Of 5 kg to 30 kg capacity with an alternative basework.
3. Without the taring device.
4. With front and rear dials but no taring device.
5. With rotating headwork.
6. With other Commission-approved baseworks.
7. With other Commission-approved headworks.

11/5/81

...../2

Variant: approved 10/4/81

8. With modified housing.

Technical Schedule No 6/9C/27 dated 11/5/81 describes the pattern and Variants 1 to 8.

Filing Advice

This Certificate and its Technical Schedule replace Certificate of Approval No 6/9C/27 dated 8/11/72, the text and Figure 1 of which should be retained for reference.

Figures 2 to 11 are to be incorporated as part of the attached Technical Schedule.

11/5/81

DESCRIPTION OF PATTERN

The pattern (see Figure 2) is of a self-indicating platform weighing instrument of 35-kg capacity and comprises the components tabulated in Column 5 of Figure 1. The capacity of 35 kg includes a dial capacity of 30 kg with the indicator making five revolutions of the dial, which is marked to 6 kg by 20-g graduations. The taring device is equipped with a circular dial graduated to 5 kg by 20-g graduations. The pattern is known as a Suprema Model BR5-TR.

DESCRIPTION OF VARIANTS

The components tabulated in the columns of Figure 1 marked "Variants" make up the variants of the pattern with capacities up to the capacities of the baseworks described in the components.

DESCRIPTION OF COMPONENTS

1. Three-lever system basework (see Figures 3, 4 and 5) — consists of two first-order main levers which support the platform on four suspension units, each consisting of a free-swinging stirrup in which a load knife-edge bearing is fitted.

The main-lever load and nose-end knife-edges are force-dovetail fits into removable sections which are fitted into machined recesses in the levers. The sections are secured by a single screw. The fulcrum knife-edges are force-dovetail fits into the lever.

Each fulcrum bearing is mounted in a semi-circular-shaped brass housing which has a positioning spigot to allow for limited self-alignment. The bearing housing rests in machined grooves in the basework housing.

Each main lever has a counterweight which is adjusted by locating it on a screwed shaft fitted to the lever. The counterweights are secured by locknuts.

The nose-end knife-edge of each main lever is connected to the transfer-lever knife-edges by two stirrups fitted with bearings. The stirrups are connected together by C-shaped links.

The transfer lever has one fulcrum, one nose-end and two load knife-edges, all of which are force-dovetail fits into the lever. The nose-end knife-edge is connected to the headwork pullrod by a stirrup fitted with a bearing. The fulcrum bearing is fitted in a bridge-piece which is screwed and doweled to the basework housing.

Hardened friction plates are fitted to all bearings.

Zero adjustment is accessible through a hole in the front of the basework housing. By inserting a screwdriver a threaded rod can be turned to adjust the position of a spring-loaded weight on a shaft which is fastened to the front main lever.

The basework is fitted with level indicator, levelling screw feet and level notice, and the maximum capacity is 150 kg.

2. Three-lever system basework (see Figure 6) — similar in design to the lever system described in Component No 1, except that all the knife-edges of the main levers are fitted directly into the levers.

Also the fixed and zero balance weights attached to the main levers are replaced by three balance boxes located on the platform support. The centre box, to which the platform is fixed by two screws, is used for zero adjustment.

The capacity ^{does not exceed} varies from 5 kg to 30 kg. *(includes System)*

3. The basework of any State-approved pattern* or Commission-approved pattern.
4. Double-pendulum resistant mechanism (see Figures 7, 8 and 9) — the two pendulums pivot on knife-edges and bearings similar to the fulcrum bearings described in Component No 1, and are operated by two intermediate pullrods connected to the main pullrod. A system of horizontal levers attached to the two pendulums operates the rack and pinion to which the indicator is attached. The flash dial is also attached to the horizontal levers by two vertically suspended members. The flash dial moves in a

* Approved pursuant to regulation 12.

vertical direction and is marked with the different weight values which appear in up to six windows in the principal dial.

Each end of the indicator spindle is supported on a pair of overlapping metal arcs which turn about knife-edge bearings and are so coupled to one of the pendulum levers that they move to assist the indicator rotation.

The indicator makes five revolutions of the dial and with each revolution the flash dial changes the major graduations visible in the principal dial apertures.

The mechanism is suitable for dials with up to 300 graduations per revolution.

5. Taring device (see Figures 2, 10 and 11) — the device consists of a movable poise located on a lever which is connected to the headwork pullrod by an intermediate lever. Both levers pivot on knife-edges and bearings and are linked by a pair of stirrups fitted with bearings similar to those described in Component No 1.

The poise is moved by a pair of steel tapes attached to a drum which is rotated by a knob in conjunction with a graduated dial. One tape is connected directly between the drum and the poise, while the other tape, which wraps about the drum in the opposite direction, passes around two pulleys and is attached to the opposite side of the poise. The knife-edge of the tare poise lever is in line with the intersection of the two tapes and the drum. The travel of the poise is limited by a stop on the drum and a fixed screw. The screw is adjustable to allow for alignment of the tare dial at zero tare load. The graduated dial and fixed indicator are viewed through a magnifying lens.

6. 360-degree rotating headwork — if the taring device is fitted, the dial housing and tare device rotate together on the column. If no taring device is fitted, the dial housing rotates on the column.
7. Two similarly marked dials with flash dials — one on each side of the dial housing, in which case no taring device is fitted.
8. Single circular dial and flash dial (see Figure 2) — in which case the rear dial-face glass is painted on the inside to obscure the dial

and indicator.

9. Dashpot — an oil-filled dashpot is fitted to the pullrod in the column (see Figure 8).
10. The headwork of any State-approved pattern* or Commission-approved pattern.

* Approved pursuant to regulation 12.

8/11/72



NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/9C/27

Pattern: Suprema Weighing Instrument Model BR5-TR

Submitter: J.W. Wedderburn & Sons Pty Ltd,
90 Parramatta Road,
Summer Hill, New South Wales, 2130.

1. Description of Pattern

1.1

A self-indicating platform weighing instrument of 30 kg maximum capacity with 0.02 kg scale intervals and additive tare of 5 kg. Figure 2 illustrates the pattern as approved in 1972, but does not illustrate current requirements for marking the dial, - that is either all in kilograms or all in grams. Figure 12 (Variant 7) shows the dial marked in accordance with current design rules.

1.2 Baseworks

The three-lever basework (Figures 3, 4 and 5) has two main levers and a transfer lever.

The two main levers have adjustable counter weights which are secured in position by lock-nuts.

Zero is adjusted by a tool-operated spring-loaded weight.

A stamping plug is provided on the basework frame.

1.3 Headworks

The resistant mechanism is a double pendulum, rack and pinion type (Figures 7 and 8). The indicator makes 5 revolutions of the dial, which is marked to 6 kg by 0.02 kg scale intervals.

Mass values, which are marked on a vertically moving flash dial (Figure 9), change with each revolution of the indicator and appear in 6 windows in the principal dial.

1.4 Tare

A knob-operated sliding-poise taring device has a dial graduated to 5 kg by 0.02 kg. Travel of the poise is limited by an adjustable stop which allows alignment of the tare dial at zero tare (Figures 10 and 11).

1.5 Levelling

The instrument is provided with a level indicator and four adjustable feet. Adjacent to the level indicator is a notice advising that the instrument must be level when in use.

1.6 Marking

The nameplate is marked with the following data:

Manufacturer's name	
Serial number of instrument	
NSC approval number in the form:	NSC No 6/9C/27
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 = e =*
Maximum additive tare in the form:	T = +*

2. Description of Variants

2.1 Variant 1

Of up to 150 kg capacity, with basework as in the pattern.

2.2 Variant 2

Of 5 kg to 30 kg capacity, with the three lever basework illustrated in Figure 6. Zero adjustment is carried out by adjusting the weight in the centre balance box on the platform support.

Note: As for variant 1, the number of windows in the dial is dependent on the number of revolutions of the dial-indicator mechanism for full-scale deflection of the resistant.

2.3 Variant 3

Without the taring device.

2.4 Variant 4

With front and rear dials but without the taring device.

2.5 Variant 5

With headwork which rotates through 360°.

2.6 Variant 6

The headwork with other Commission-approved baseworks, in which case the instrument is marked with the following approval numbers:

Headwork NSC No 6/9C/27
 Basework NSC No

2.7 Variant 7

The basework of the pattern or variant 2 with other Commission-approved headworks in which case the instrument is marked with the following approval numbers:

Headwork NSC No

Basework NSC No 6/9C/27

2.8 Variant 8

With modified housing, sheet-metal construction (Figure 12).

* These markings are repeated on the dial.

TEST PROCEDURE No 6/9C/27

1. Accuracy Requirement

The maximum permissible errors are

- $\pm 0.5e$ for loads between 0 and 500e;
- $\pm 1e$ for loads between 501e and 2000e; and
- $\pm 1.5e$ for loads above 2000e.

2. Test Loads

Test loads are to be applied in not less than 5 equal steps for each revolution of the indicator, the first step being equal to minimum capacity, increasing to maximum capacity, followed by the same number of decreasing steps.

The instrument should display these loads within the above accuracy requirements.

3. Level Sensitivity

When the instrument is tilted so that the bubble in the level indicator moves 2 mm, zero should not change by more than two graduations, and when zero is reset in the tilted position the instrument should satisfy the weighing-accuracy requirements given above.

FIGURE 6/9C/27 - 1

1	2	3	4	5	6	7
	COMPONENTS	DATE APPROVED	FOOT-NOTES	PATTERN	VARIANTS	
					1	2
	<u>BASEWORKS</u>					
1	3-lever system to 150 kg (Figures 3, 4 and 5)	27 OCT 72		*	A	A
2	3-lever system, 5 kg to 30 kg (Figure 6)	27 OCT 72			A	A
3	Basework of State or Commission-approved pattern	27 OCT 72			A	
	<u>HEADWORK COMPONENTS</u>					
4	Double-pendulum resistant mechanism (Figures 7, 8 and 9)	27 OCT 72		*	*	
5	Taring device (Figures 2, 10 and 11)	27 OCT 72		*	‡	
6	360° rotating headwork	27 OCT 72		*	‡	
7	2 dials	27 OCT 72	1		B	
8	1 dial	27 OCT 72		*	B	
9	Dashpot (Figure 8)	27 OCT 72		*	*	
	<u>HEADWORKS</u>					
10	Headwork of State or Commission-approved pattern	27 OCT 72				*

- * - indicates required components
- A, B - indicates alternative required component (select one only)
- ‡ - indicates optional components

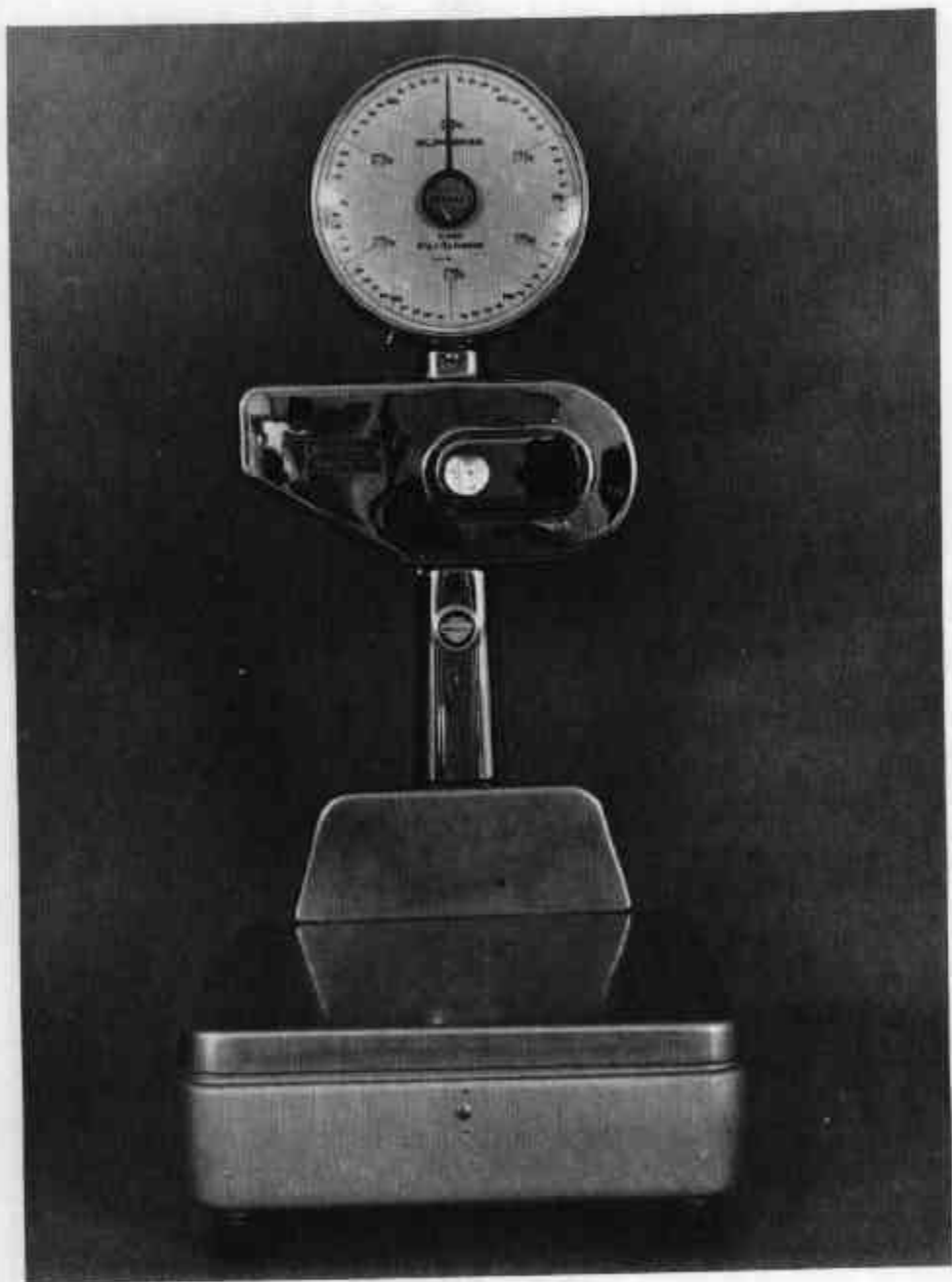
FOOTNOTES

- 1 - refer to description of component for special limitations on compatibility.

Compatibility Table for Components Described
in this Certificate

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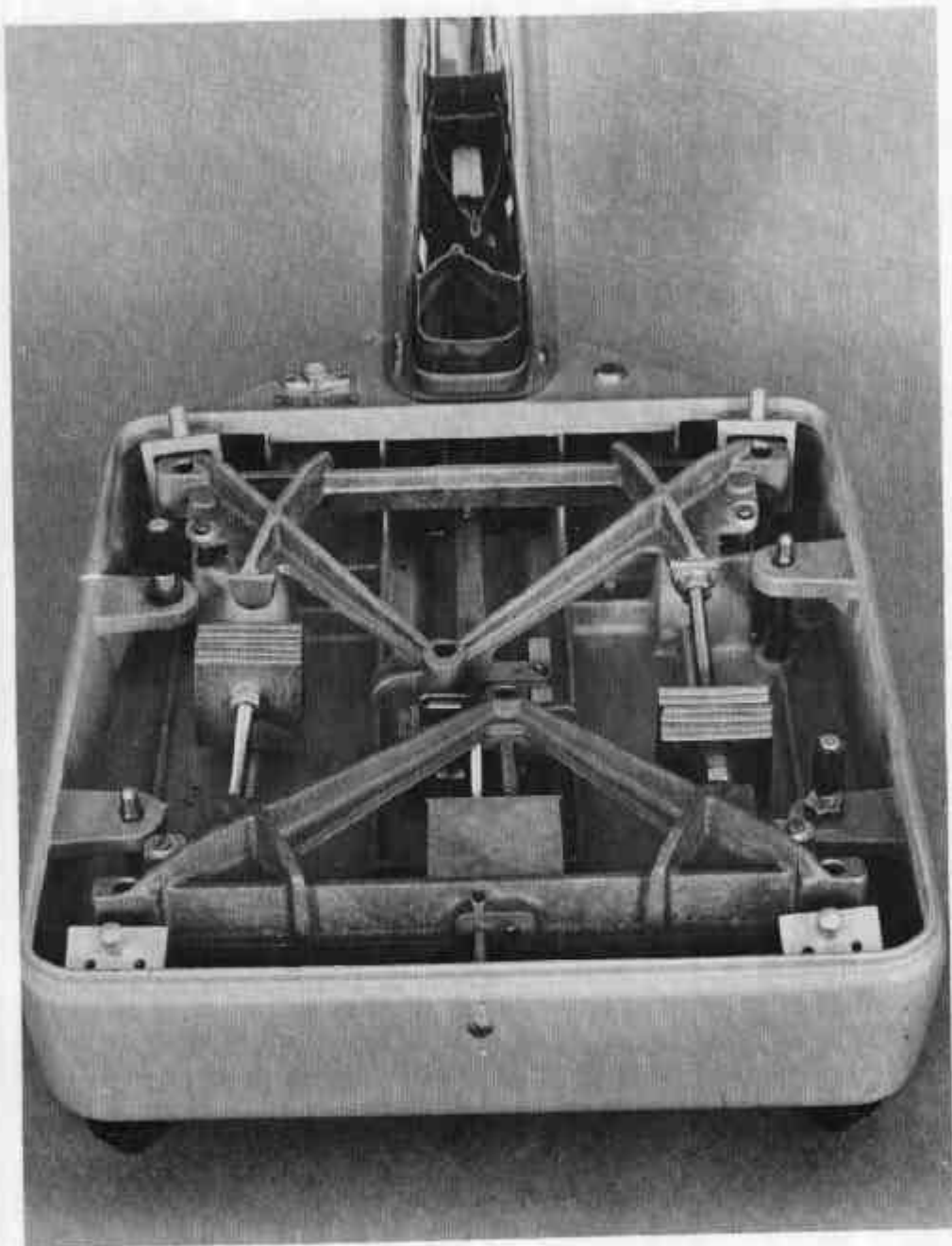
FIGURE 6/9C/27 - 2



Suprema BR5-TR Platform Weighing Instrument

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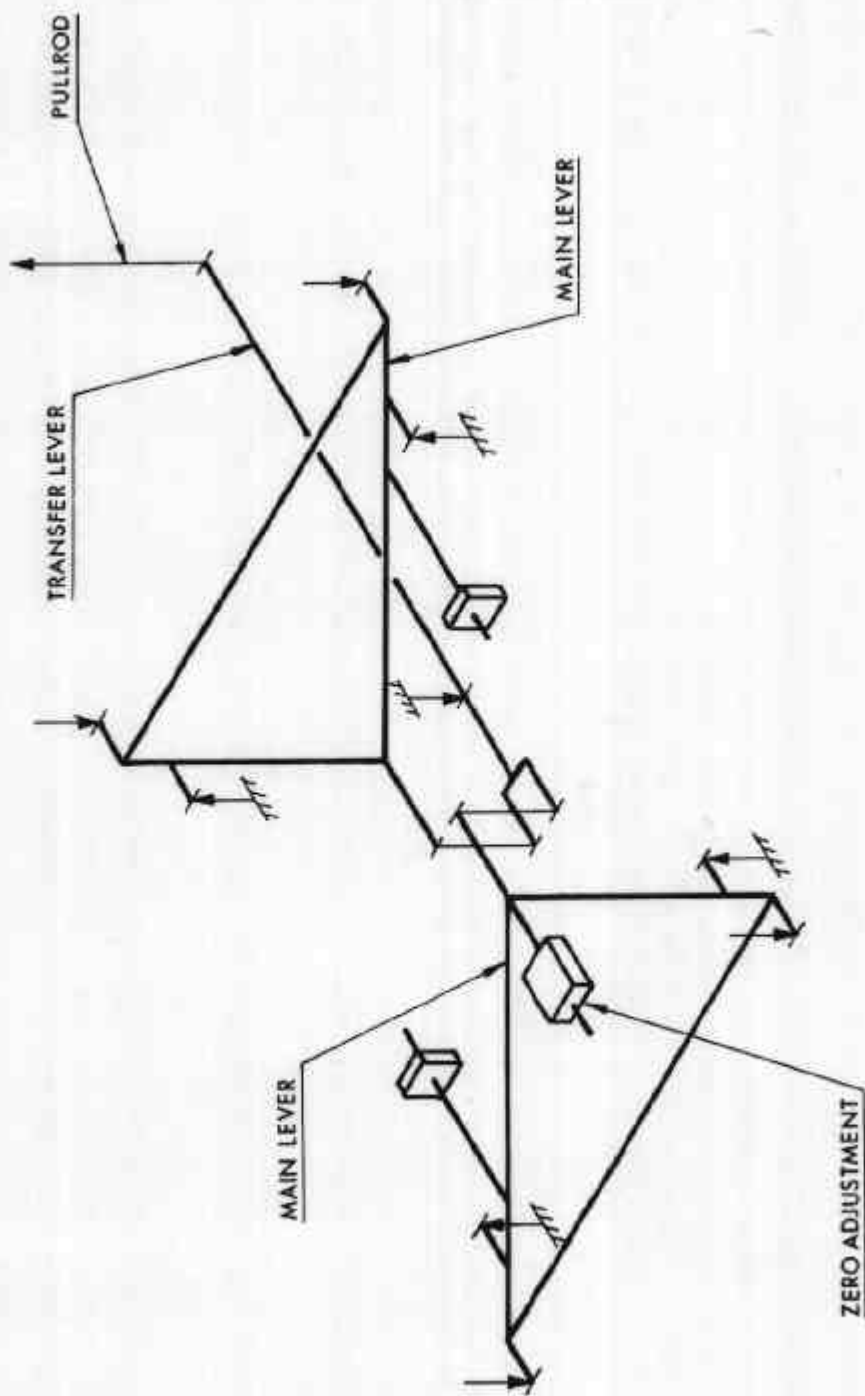
FIGURE 6/9C/27 - 3



3-lever Basework — 150-kg Capacity

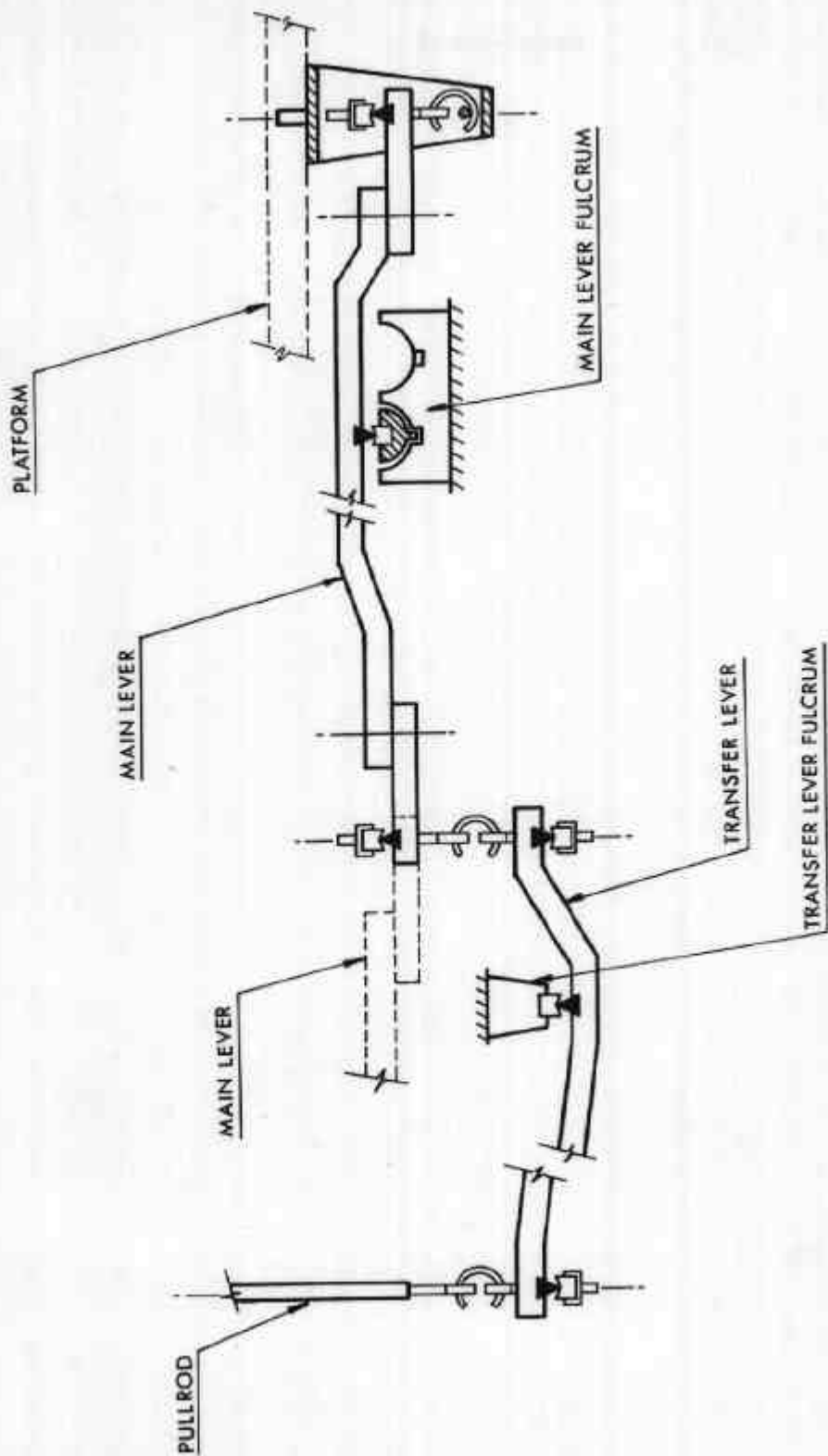
8/11/72

FIGURE 6/9C/27 - 4



Schematic Diagram — 3-lever Basework

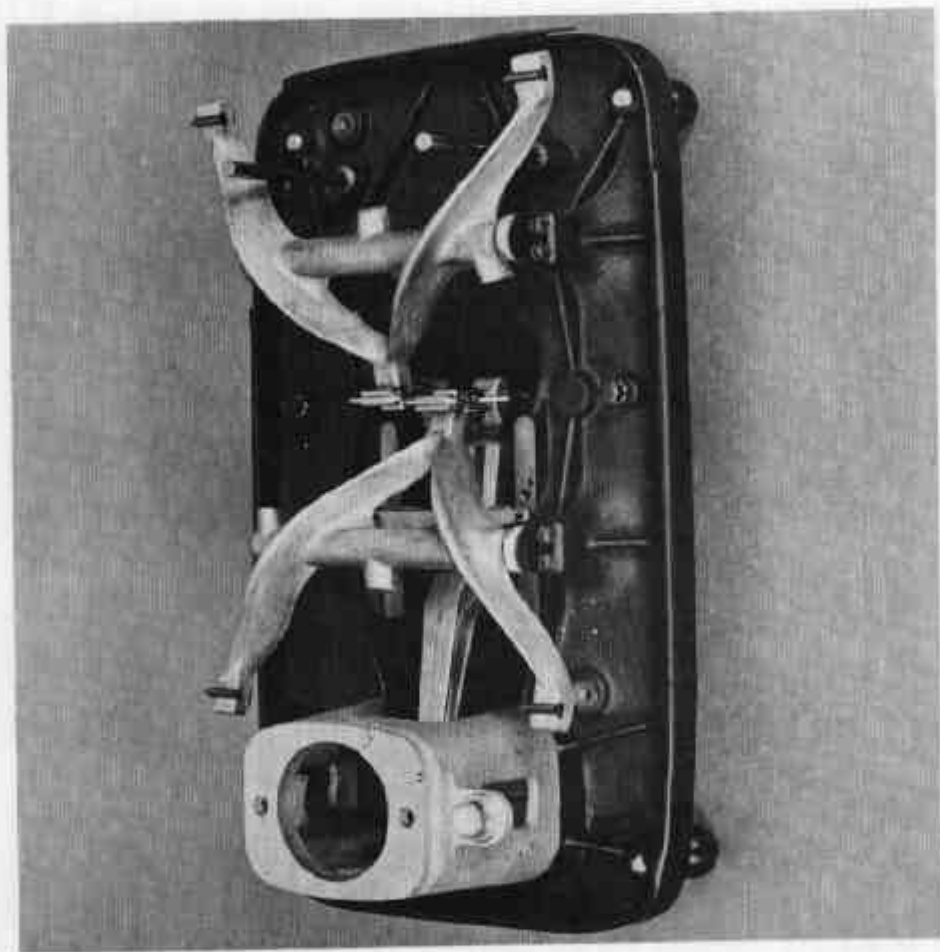
FIGURE 6/9C/27 - 5



Details of Knife-edges and Bearings — 3-lever Basework

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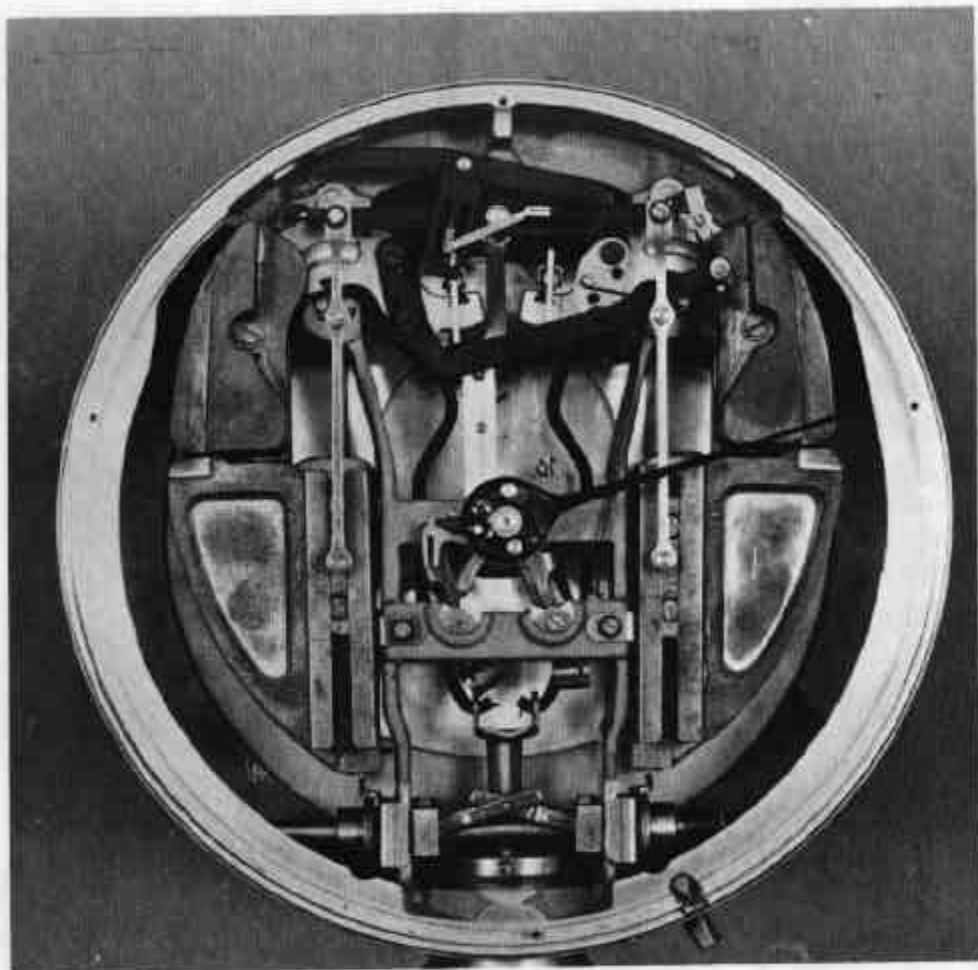
FIGURE 6/9C/27 - 6



3-lever Basework — 5-kg to 30-kg Capacity

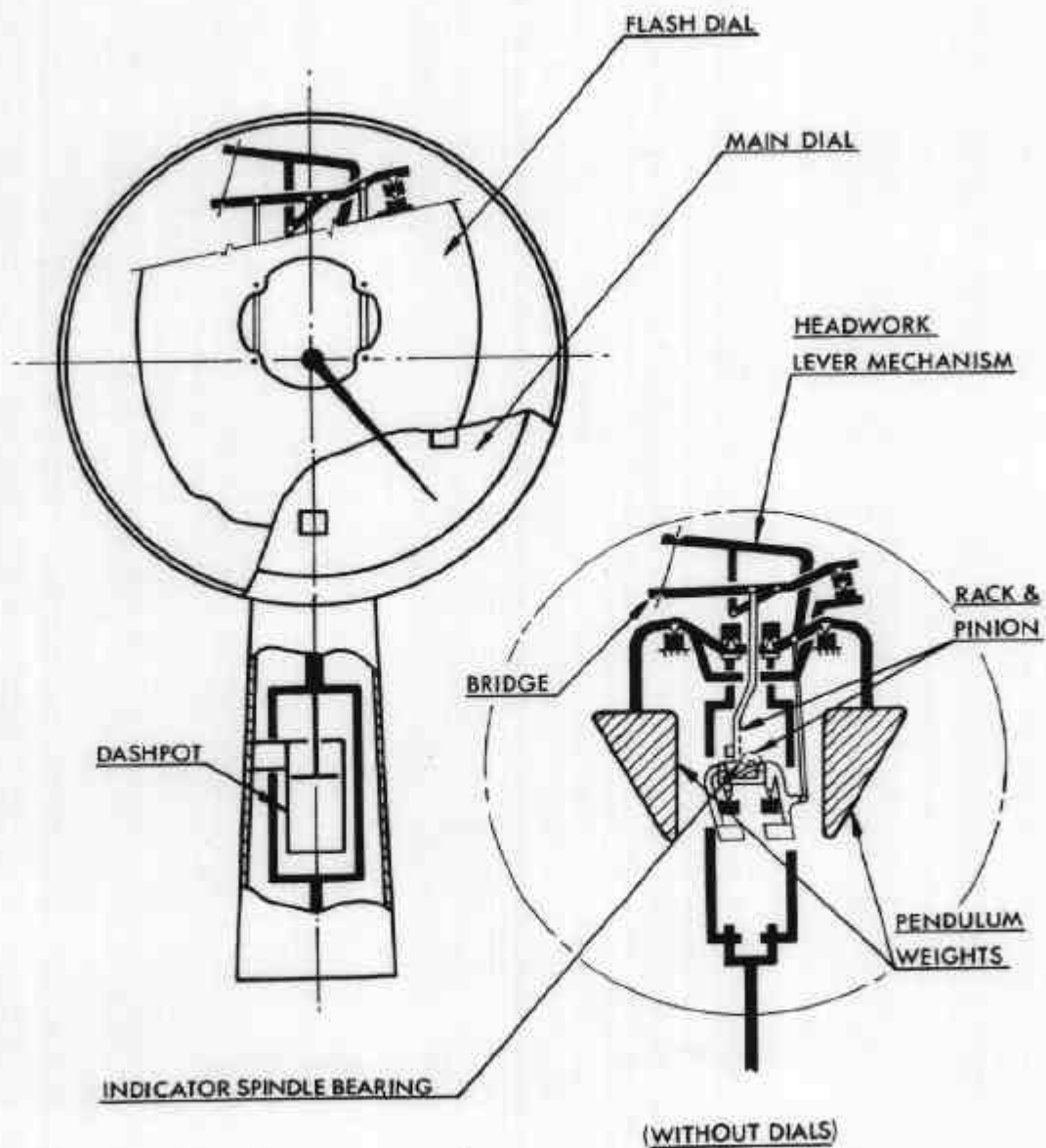
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FIGURE 6/9C/27 - 7



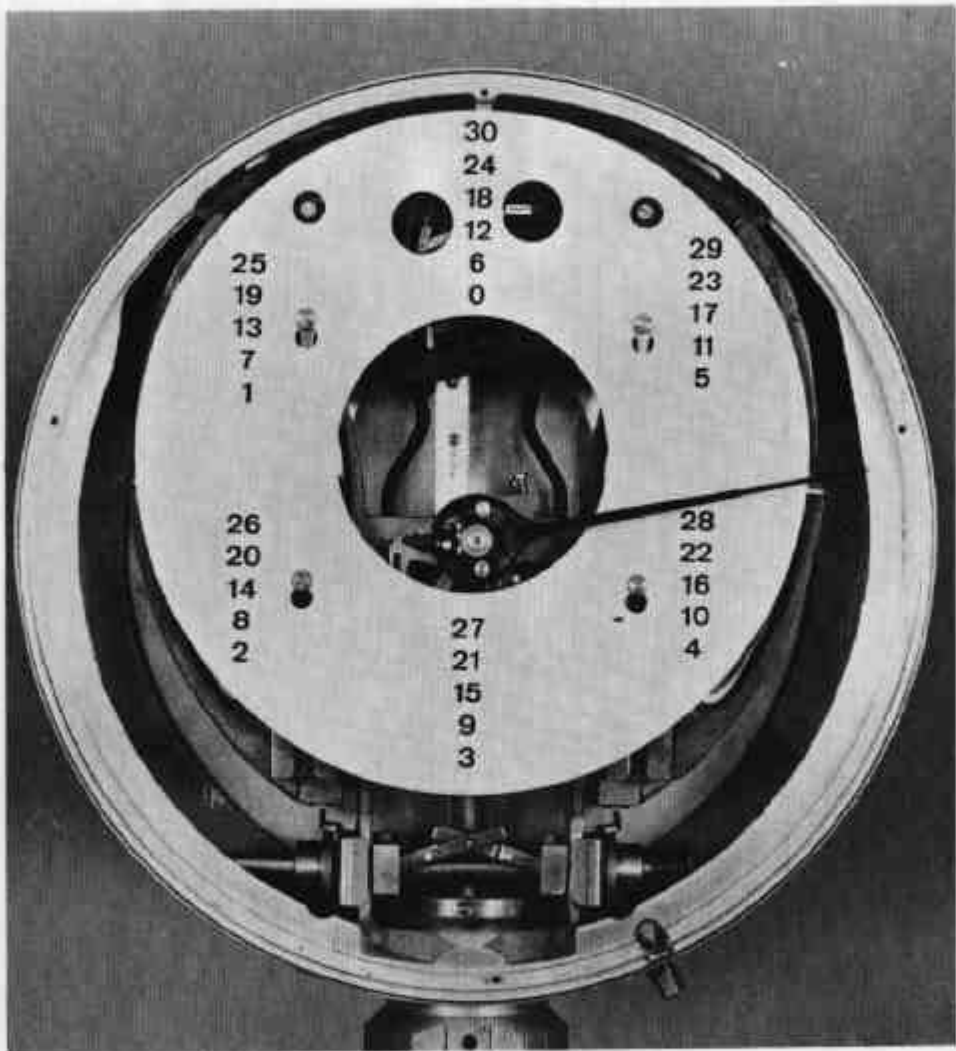
Double-pendulum Resistant Mechanism

8/11/72



Schematic Diagram — Double-pendulum Resistant Mechanism
8/11/72

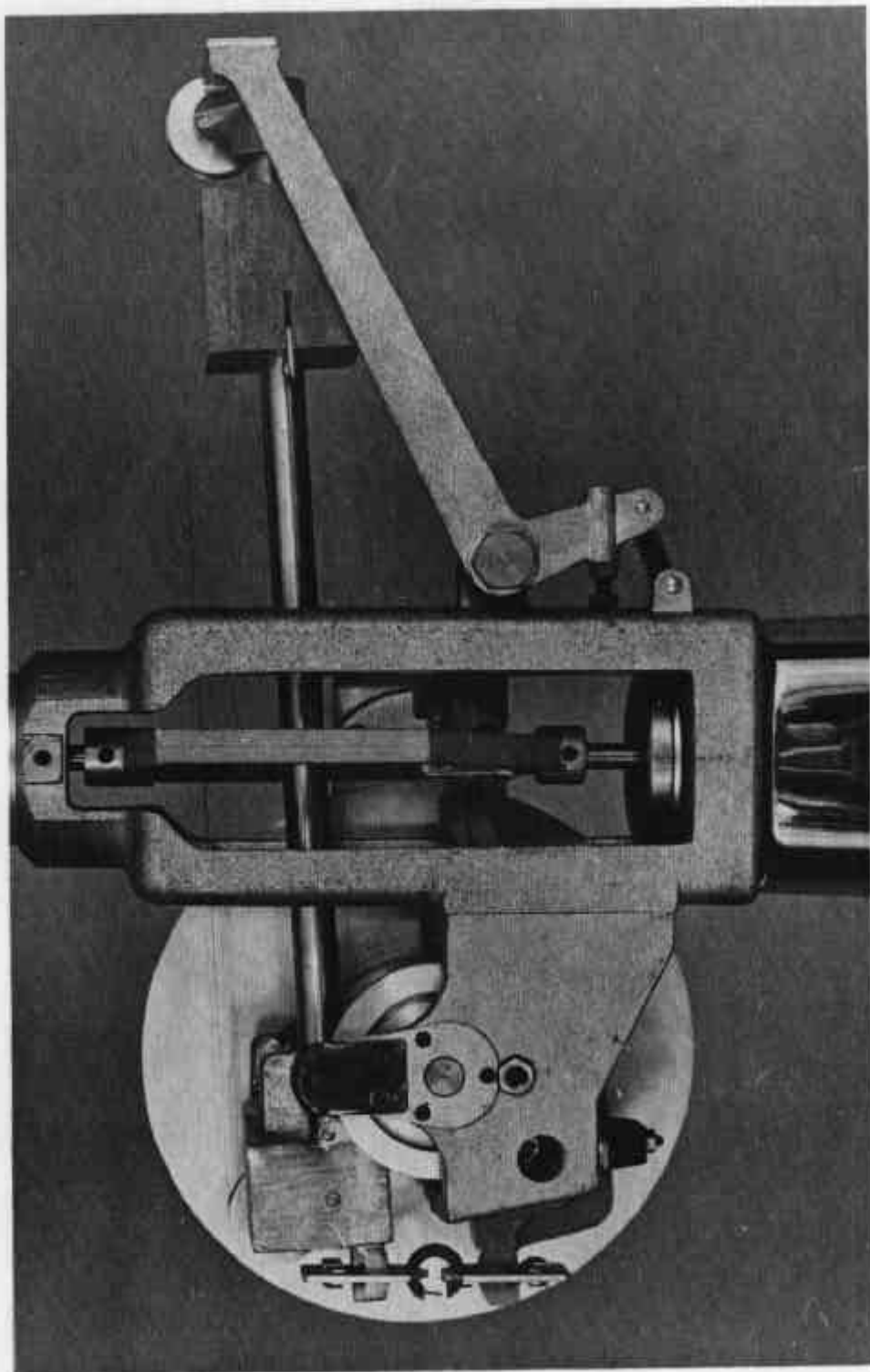
FIGURE 6/9C/27 - 9



Flash Dial

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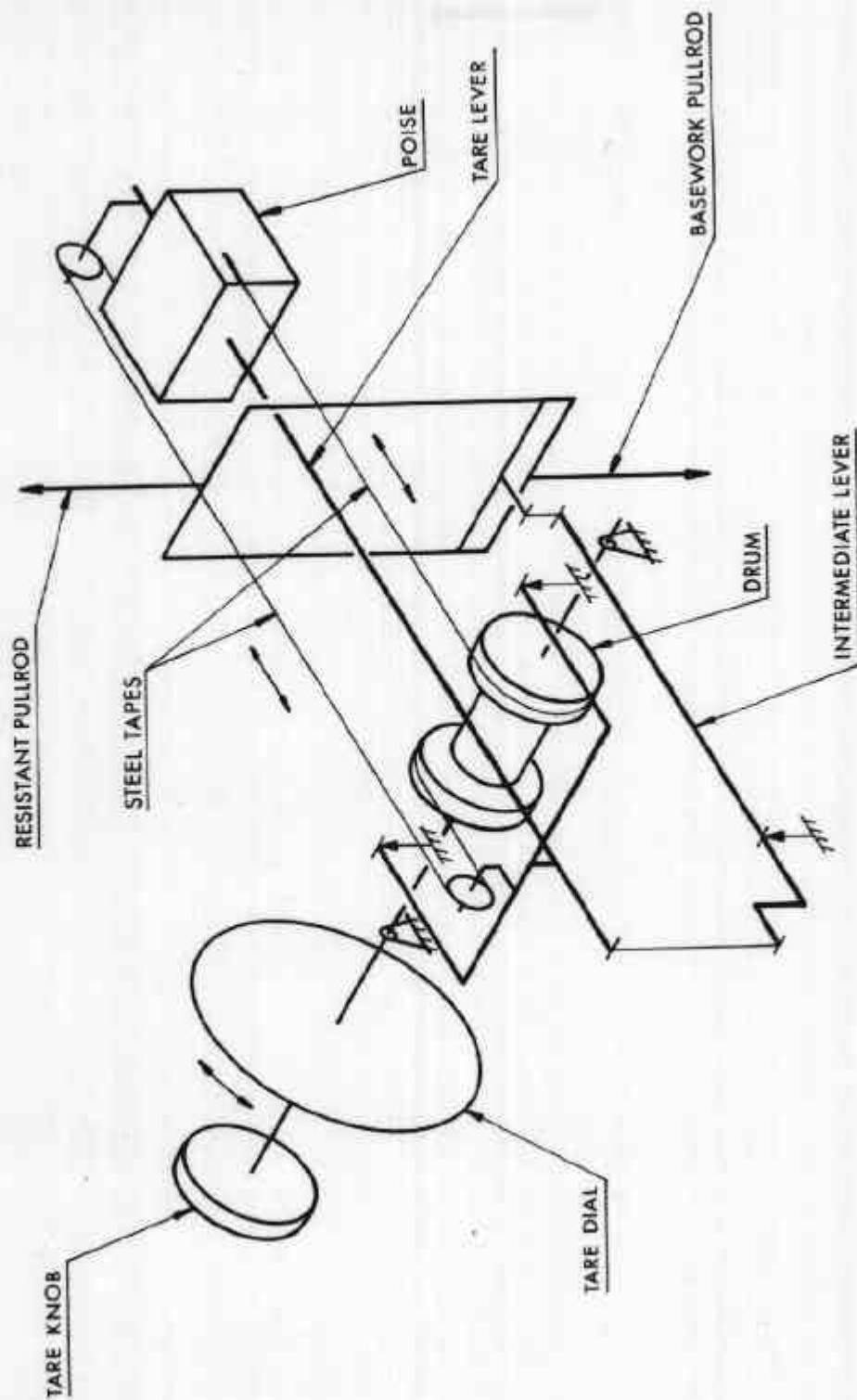
FIGURE 6/9C/27 - 10



Taring Device

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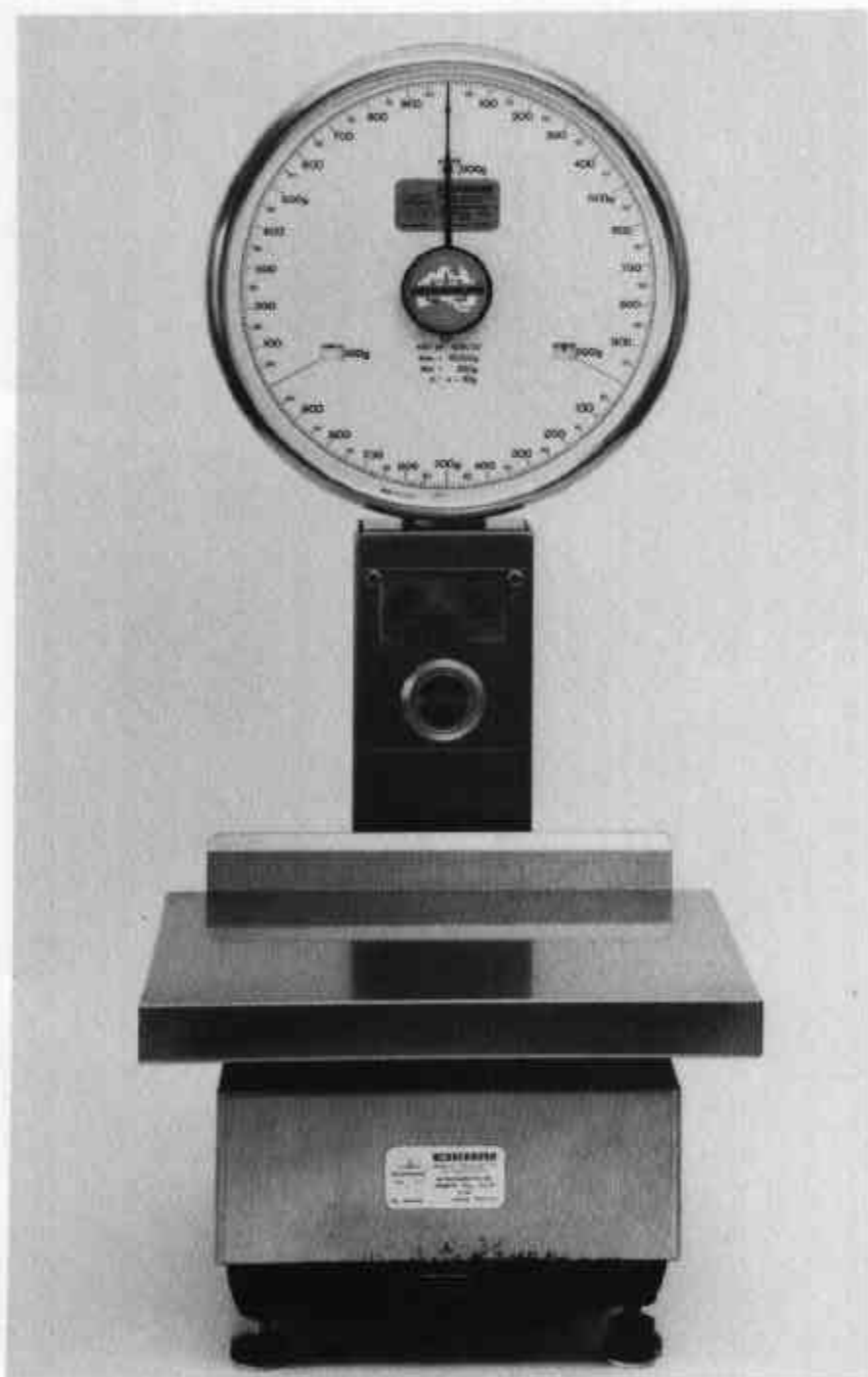
FIGURE 6/9C/27 - 11



Schematic Diagram - Taring Device

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FIGURE 6/9C/27 - 12



Modified Housing (Variant B)

11/5/81