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CERTIFICATE OF APPROVAL No 6/9C/2

VARIATION No 3

This is to certify that the following modification of the patterns of the

Toledo Weighing Instrument

approved in Certificate No 6/9C/2 dated 20 October 1972 and subsequent variations

submitted by Toledo-Berkel Pty Ltd,
525 Graham Street,
Port Melbourne, Victoria, 3207,

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

Date of Approval: 14 December 1976

The approved modification, described in Technical Schedule No 6/9C/2 - Variation No 3, and in drawings and specifications lodged with the Commission, provides for a tare bar inside the headwork cabinet and a tare-weight reading face.

The approval is subject to review on or after 1 June 1979.

All instruments conforming to this approval shall be marked with the approval number "NSC No 6/9C/2".

Signed

Executive Officer

15/2/77

COMMONWEALTH OF AUSTRALIA

NATIONAL STANDARDS COMMISSION

Weights and Measures (National Standards) Act 1960-1966

Weights and Measures (Patterns of Instruments) Regulations

Certificate of Approval

CERTIFICATE NUMBER 6/9C/2

This Certificate replaces Certificate No 6/9C/2 dated 13 May 1971. *

In respect of the pattern of

Toledo Self-indicating Weighing Instrument of 11 450-lb Capacity and Variants.

Submitted and manufactured by: Toledo-Berkel Pty Ltd,
525 Graham Street,
Port Melbourne,
Victoria. 3207.

This is to certify that the pattern and variants of the instrument illustrated and described in this Certificate have been examined by the National Standards Commission under the provisions of the abovementioned Regulations and have been approved as being suitable for use for trade.

The pattern and variants were approved on 8 December 1966, and further variants on 28 March 1968, 10 May 1971, and 10 October 1972 (see Figure 1).

Approval for other variants was limited to 23 October 1968, on 28 March 1968 (see Figure 1).

Approval for one variant was limited to 31 December 1971, on

* NOTE: Pages 5 to 12 and Figures 6/9C/2 - 2 to 29 of the previous issue form part of the Certificate and must be retained.

Cont'd over

10 May 1971 (see Figure 1).

The pattern and variants:

1. are marked "NSC No 6/9C/2" and, where required by State legislation, with the State approval number also; and

2. comply with the General Specifications for Measuring Instruments to be Used for Trade, in respect of that part of the instrument which was not previously approved by a State.

This Certificate comprises:

Pages 5 to 12 dated 13 May 1971.
Pages 1 to 4 and 13 and 14 dated 20 October 1972.
Figures 6/9C/2 - 2 to 29 dated 13 May 1971.
Figures 6/9C/2 - 1 (Sheets 1 and 2) and 30 to 37 dated 20 October 1972.

Pursuant to regulation 12 of the abovementioned Regulations, this Certificate is applicable in all States in respect of instruments fitted with State-approved components.

Date of issue 20 October 1972.

Signed

A person authorized by the Commission to sign Certificates under the abovementioned Regulations.

DESCRIPTION OF PATTERN

The pattern is of a self-indicating platform weighing machine of 11 450-lb capacity and comprises the components tabulated in Column 5 of Figure 1.

DESCRIPTION OF VARIANTS

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

DESCRIPTION OF COMPONENTS

1. Four-lever system basework (see Figures 2 and 3) — comprises a platform supported on two long and two short second-order main levers (see Figure 2) through four parallel-link suspension units, the levers being carried on four fulcrum stands (see Figure 3).

   All knife-edges are cantilevered out from each side of the levers and the two bearings for each knife-edge are self-aligning. The nose-end knife-edges of the short levers are coupled to knife-edges on the long levers through links and the nose-end knife-edges of the long levers are coupled to the headwork pullrod through the linkage illustrated in Figure 2. The capacity is limited to 10.161 t. *

2. Two-lever system basework (see Figures 17, 18 and 19) — consists of two second-order main levers, the nose-end knife-edge of one being coupled to the nose-end knife-edge of the other, an extension of which is coupled to the headwork pullrod (see Figures 17 and 18). The main lever knife-edges are mounted between two side plates, the platform is supported on the load knife-edges through parallel-link suspension units and the fulcrum knife-edges are supported on four fulcrum stands

* Approval of a capacity increase from 21 250 lb was granted on 10 May 1971.

attached to a frame (see Figure 19). The capacity is limited to 3.2 t.*

3. Two-lever system basework (see Figures 20 and 21) — the basework levers are as described in Component No 2, except that the knife-edges are cantilevered out from one side of the levers (see Figure 20). The frame may be provided with wheels which are locked when the locking device in the headwork cabinet is released. The capacity is limited to 1.3 t.

4. Additional transfer levers — with the headwork located in any reasonable position in relation to the basework, in which case one or more transfer levers, either with or without counterbalance weights fitted, may be used provided they are fully protected.

5. Large headwork cabinet (see Figure 4) — in the cabinet the basework pullrod is coupled through up to three intermediate levers (one only on pattern) to a main headwork lever to which is fitted a zero adjustment accessible through a shutter-covered opening in the side of the cabinet 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.

6. Small headwork cabinet (see Figure 21) — the cabinet is similar to that described in Component No 5.

7. Pendulum-resistant mechanism (see Figure 4) — the cabinet pullrod passes into the dial housing through an oil seal, and is secured to a yoke. From the yoke two steel ribbons 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 ribbons which are attached to the fulcrum sectors of the resistant mechanism. The resulting floating fulcrums are interconnected through a compensating bar and shock-absorbing spring to a rack which engages a pinion fitted to the shaft of the weight indicator. The resistant mechanism is suitable only for weight indicators with up to 3.5 graduations per degree.

* Approval of a capacity increase from 6500 lb was granted on 10 May 1971.

8. Automatically operated unit-weight mechanism (see Figures 8 and 9) — this is a mechanism located in the headwork cabinet, by means of which up to four weights are automatically 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. When the load exceeds 80% of dial capacity the main headwork lever moves down and closes a switch which energises a relay to start an electric motor. This motor rotates a shaft fitted with cams which, through pivoted arms, deposit weights on the main lever. When sufficient weights have been added to counterbalance most of the load, the lever moves up to open the switch. Provided that the mechanism is in such a position that the last unit weight is properly deposited, another cam-actuated switch is opened to de-energise the relay and stop the motor. A second switch actuated by the lever in its upper position, together with a second relay and the cam-actuated switch, controls the removal of unit weights.

   Two limit switches are incorporated in the mechanism to stop rotation of the motor when all unit weights have either been deposited or removed from the lever.

   At the same time as unit weights are being added or removed, another cam actuates a rod which passes into the dial housing and alters the weight indication on the dial to the appropriate value.

   In the event of a power failure to the unit-weight mechanism a cover on the front of the cabinet may be removed and a hand crank fitted to the shaft of the unit-weight mechanism to permit manual operation.

9. Manually operated unit-weight mechanism (see Figure 4) — the mechanism is similar to that described in Component 8 but with the electric motor, drive and control switches replaced by a manually operated disc crank. To add or remove unit weights a handle fitted to the crank is pulled out against a spring which disengages a peg from a hole in

the unit-weight frame; the crank is rotated and the peg is re-engaged in the hole. An arrow is marked on the face of the crank disc and a corresponding arrow and a prominent notice reading "unit weight engaged" is inscribed on the casing of the headwork cabinet (see Figure 4).

10. Tare bars (see Figures 4 and 21) — one or two tare bars are fitted to the main headwork lever by extension pieces which pass through the cabinet.

11. Locking device (see Figure 4) — the locking device is operated by rotating a crank handle located at the front of the cabinet. The device clamps the main headwork lever against a fixed stop when the handle is in the locked position.

12. Semi-automatic motor-driven tare poise (see Figure 22) — the mechanism, which is enclosed in a cabinet, comprises an ungraduated tare bar, fitted to the main headwork lever, with a limit switch at either end and a sliding poise which is moved along the bar in either direction by a screw-threaded shaft driven by a reversible electric motor. The motor is actuated through an electrical control circuit in which are incorporated two push-button switches, two pilot lamps and a photo-electric cell and lamp, the beam from which is interrupted by a blade attached to the moving indicator.

    In operation, after a container has been placed on the weighing platform, causing the indicator to move off zero, one of the two push-buttons which is marked "start tare" is depressed. This lights the pilot lamp marked "taring" and at the same time energises the motor so that the poise is moved along the tare bar to bring the indicator into the blank zone beyond zero, at which time the leaf-shutter cuts the light beam to the photo-electric cell. This causes the motor to reverse and bring the indicator back to zero, at which time the shutter moves out of and restores the light beam to stop the motor and extinguish the "taring" pilot lamp.

    If the weight of a container exceeds the capacity of the tare bar

the poise will be moved along the bar to strike the limit switch at one end. This will stop the motor and at the same time light the pilot lamp marked "tare exceeded". To overcome this condition the container may be replaced with one of less weight or the poise on an external tare bar which is notched and ungraduated may be adjusted, after which the push-button which is marked "reset" is depressed to restore the system to a starting condition and extinguish the "tare exceeded" pilot lamp.

Zero adjustment is by means of a tool-operated spindle, accessible through a shutter-covered opening in the dial housing, which when rotated changes the circumferential location of the photo-electric cell and lamp.

A notice reading "adjust for zero here" is inscribed as close as possible to the opening through which this adjustment is made.

13. Automatic motor-driven tare poise — the mechanism is similar to that described in Component 12, in which the "start-tare" push-button is omitted and the taring of a container is initiated automatically during a repetitive weighing operation.

14. Manually controlled motor-driven tare poise — the mechanism is similar to that described in Component 12 but without push-buttons or photo-electric cell or zero adjustment or zero notice on dial and with one pilot lamp only. The motor is actuated by a two-way and off switch manually operated to move the poise in one direction or the other along the tare bar. If the poise is moved along the bar to strike the limit switch at either end, the motor is stopped and the pilot lamp which is marked "tare exceeded" lights.

15. Verilux 711 optical-projection weight indicator (see Figures 5, 6 and 7) — the indicator comprises a transparent cylindrical graticule (see Figure 5), mounted on the indicator shaft, on which is inscribed up to ten rows of weight indications. Each row has up to 1200 graduations with a space between the initial and the final line, each line in the first row being numbered

from 0 to 1200, in the second row from 1000 to 2200 and so, progressively, to the tenth row, which is numbered from 9000 to 10 200, the final 200 in each of the first nine rows being necessary for over-run required in the automatic unit-weight selector. Each row corresponds to a unit weight and is brought into the optical-projection system by a control rod actuated by the unit-weight mechanism.

Light from a lamp is projected through an optical system and the appropriate row on the graticule (see Figure 6) so that the weight value is displayed on a translucent screen against a fixed indicator (see Figure 7).

*16. Circular dial and revolving indicator with flash chart (see Figure 25) — the weight value of the unit weights added is shown on a flash chart through an aperture at the bottom of the main chart between the zero and full chart capacity graduations. A legend with the word "add" and the denomination of the weight value of the unit weights is provided near the aperture on the main chart. The size of figures on the flash chart is 5/32 inch high.

17. Circular dial and revolving indicator without flash chart (see Figure 29) — the chart has horizontal figures and no flash chart being fitted to instruments without unit weights.

18. Two weight indicators — two similar weight indicators are fitted, one on each side of the dial housing, provided that no locking device or tare bars are fitted.

19. Centre-zero dial (see Figure 26) — a centre-zero dial graduated and marked "under" and "over", provided that no ticket printer or unit weights are fitted.

20. Magnified centre-zero dial (see Figure 27) — a dial and indicator similar to that described in Component 19 mounted behind a magnifying lens and illuminated by a lamp inside the dial housing, provided that no ticket printer or unit weights are fitted.

* Approval expired 23rd October, 1968.

*21. Magnified revolving chart and fixed indicator (see Figure 28) — a revolving dial having graduation lines from zero to full capacity with a fixed indicator, and the value of any unit weight or weights engaged displayed through an aperture above which is inscribed the word "add" and, below it, the denomination of weight, all mounted behind a magnifying lens and illuminated by a lamp inside the dial housing.

22. Ticket printer (see Figures 11 and 22) — this is a mechanism, illustrated diagrammatically in Figure 10, one part of which is located in the dial housing and the other in an enclosure surmounting a print table at the side of the housing (see Figure 11). The weight indication is printed on a continuous paper strip or a roll of tear-off labels (see Figure 12) or on a hand-held ticket with locating marks for printing gross, tare and net weights (see Figure 13). In addition, all weighings may be recorded on a continuous paper roll which is not ejected from the mechanism.

The following is the description of a mechanism intended to print 10 200 increments of value unity (for example, 10 200 lb × 1 lb). It includes a plastic-coated aluminium coding disc numbered 34970 (see Figure 11) which is fitted to the indicator shaft, on one face of which are sixteen bands of radial ridges in four sets of four and, on the outer circumference, a locating band of radial grooves; the other face of the disc is plain; the internal diameter is 8 inches and the external diameter $13\frac{3}{4}$ inches. When the mechanism is actuated by a push-button or bar at the front of the print table an electric motor is started. This causes a locating pawl to seat itself in one of the grooves in the locating band on the coding disc so as to align the radial ridges in proper relation to sixteen selector pins which are moved out, each to contact either a ridge or the face of the disc, the combination depending on the position of the disc and, hence, the weight indication. When the selector pins move out to contact the coding disc, the disc is supported by a radial back-up roller. Each selector pin is connected to a permutation disc (see Figure 14) on one part of

* Approval limited to 31st December, 1971, on 10th May, 1971.

the circumference of which are two binary coding notches and, on the other, a series of decimal coding notches. The contact of a selector pin with either a ridge or the face of the coding disc determines whether the permutation disc becomes locked by a pawl in one or other of the binary notches; the coding operation is then completed.

The sixteen permutation discs are in four groups of four (see Figure 15). Over each group a permutation arm (see Figure 14), fitted with an offset pawl, is swept until common decimal notches are encountered by the pawl when the arm is stopped, the amount of movement being determined through the selector pins from the coding disc.

Five sectors (see Figure 10), which print respectively in decades of units, tens, hundreds, thousands and ten thousands, are located over the print table, each sector being embossed with the letter "E", the symbol :: and the numbers 0, 1 to 9 and 0.

The units, tens and hundreds print sectors are connected by cables to and are operated by the first three permutation arms (see Figure 10).

The thousands print sector is connected by a cable to and operated by a differential arm, movement of which is derived through a cable from the fourth permutation arm and a bell-crank actuated by the automatic unit-weight-selector mechanism.

The ten thousands print sector is connected by a cable to and operated by a differential arm, movement of which is derived through a cable from a lever and a second bell-crank; the lever is actuated by a cam which rotates with movement of the fourth permutation arm and the bell-crank is actuated by the automatic unit-weight-selector mechanism.

The movement of the two bell-cranks (see Figure 15) is controlled by two cams fitted to a shaft which is rotated through a roller-type chain and a push-pull rod which engages a pair

of cams fitted to the camshaft of the automatic unit-weight mechanism.

When a weight indication has been transferred through the mechanism to the print sectors, a roller traverses the underside of the print table to produce a printed weight ticket.

The mechanism also includes a motion detector (see Figure 16), which comprises an assembly, attached to the main headwork lever, of two sets of electrical contacts connected in series, which are normally closed. The piston rod of the oil dashpot is coupled to the lever through the motion detector in such a way that one set of contacts is open when the lever is moving downwards and the other set is open when the lever is moving up. When movement ceases both sets of contacts are closed to complete a circuit across an electrical time delay of approximately 1.5 seconds, which makes power available to the ticket-printer motor drive.

If, with no load on the weighing platform and the tare bar poise(s) so positioned as to give what would be a negative weight indication or, with a load beyond the capacity of the graticule, the selector pins will set the permutation discs so that the permutation arms will position each print sector to print "E" on the ticket to indicate "error".

23. Ticket printer fitted with other coding discs with not more than 3.5 radial ridges per degree.

24. Ticket printer with remote data transmittor and remote ticket printer (see Figures 23 and 24) — in each of the RDT models a double-pronged wire contact brush is attached to the units, tens and hundreds permutation arms and to the thousands and ten thousands differential arms described in Component 22 (ticket printer). Each brush moves with its arm over a commutator (see Figure 24), where it makes contact between a common segment and, finally, one of a number of individual segments. The corresponding individual segments in each commutator are interconnected to a conductor which is

connected to the appropriate solenoid of an Addo-X adding machine, Model No 341E. A rotary switch with readout cam and contact breakers (see Figure 23) is actuated during the last part of the printing cycle to feed power in turn to each of the common segments of the commutators from whence through the contact brushes on the arm it is transmitted as a pulse to the appropriate solenoid of the adding machine so that when, finally, through the rotary switch a pulse is transmitted to the "add" solenoid of the machine, a reading of the same value as the print ticket is recorded. A diagrammatic representation of the electric circuits from the rotary switch through the commutators to the adding machine is shown in Figure 24. In the event that the adding machine fails to receive a pulse (for example, if the cable is disconnected), a warning light marked "RDT Error" is illuminated. If the transmittor in the dial housing cannot transmit a normal signal (for example, if the indicator stops within the ungraduated part of the dial) a warning light marked "data error" is illuminated. The warning lights are located in the vicinity of the printer control button.

The keyboard of the adding machine is completely covered by a metal box secured in position by not less than four tamperproof screws; one margin of the paper roll is printed at frequent intervals with the appropriate weight unit.

25. Remote data transmittor with remote ticket printer — this consists of the remote data transmittor and adding machine without the ticket printer.

26. Ticket-printer keyboard, consecutive number, time and date print (see Figure 22) — the front of the enclosure surmounting the print table is provided with a keyboard by means of which weight tickets are printed with selected numbers or identification symbols (see Figure 22).

    Additional devices may be fitted which automatically print consecutive numbers or time and date on the ticket.

27. Photo-electric switch (see Figure 22) — having a blade

fitted to the indicator shaft and a lamp and photo-electric cell, the position of which is manually adjustable so that the light beam to the cell is interrupted by the blade at a preset indication of weight. The photo-electric cell actuates a switch which is used to provide a signal for the purpose of alarm or control. If used to control the weight of a load, the actual weight is not determined by the indication to which the lamp and cell have been preset.

28. Three-lever system basework (see Figures 30, 31 and 32) — the two first-order main levers are connected separately to a first-order transfer lever which is connected to the headwork pullrod. The fulcrum and load knife-edges of the two main levers are cantilevered, the fulcrum knife-edges being supported in self-aligning bearings mounted on the basework frame. The platform is supported on the load knife-edges of the two main levers through parallel-link suspension units. The nose-end knife-edges of the main levers are mounted between two side plates and are connected through links with self-aligning bearings to two separate load knife-edges of the transfer lever. Each knife-edge is mounted between side plates while the two fulcrum knife-edges are cantilevered. The transfer-lever nose-end knife-edge is mounted between two arms of the lever. The capacity is limited to 150 kg.

29. The baseworks of any State-approved pattern* or Commission-approved pattern may be fitted with the headwork components tabulated in Column 10 of Figure 1.

30. 360°-swivel pendulum resistant mechanism housing (see Figure 33) — the housing foot is machined to form a spigot which is located in a machined hole in the headwork cabinet and is held in place by a circlip. The housing can be located in any of eight equally spaced positions by a spring-loaded pin. This component is suitable only for dials with up to 1.75 graduations per degree and provided no locking device or tare bars are fitted.

31. Circular dial and indicator with multiple-window flash dial (see Figures 34, 35 and 36) — the circular dial has the

* Approved pursuant to regulation 12.

denominations of the major graduations marked on a flash dial which is viewed through apertures in the main dial. The flash dial revolves on four rollers and is rotated through a lever system by the movement of the unit-weight mechanism.

32. Pneumatic switch (see Figure 37) — a blade mounted on the indicator interrupts an air jet at a preset indication of weight; the position of the pneumatic switch is manually adjustable. Interruption of the air jet operates a pneumatic circuit to provide a signal for alarm or control purposes. If used to control the weight of a load, the actual weight is not determined by the indication to which the jet has been set.

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/9C/2

VARIATION No 1

Pattern: Toledo Weighing Instrument

Submittor: Toledo-Berkel Pty Ltd,
525 Graham Street,
Port Melbourne, Victoria, 3207.

Date of Approval of Variants: 28 May 1974

The modifications described in this schedule apply to the pattern and variants described in the following pages and figures of Certificate No 6/9C/2 dated 20 October 1972:

Pages 3, 4, 13 and 14 dated 20 October 1972
Pages 5 to 12 dated 13 May 1971
Figures 6/9C/2 - 1 (sheets 1 and 2) and 30 to 37 dated 20 October 1972
Figures 6/9C/2 - 2 to 29 dated 13 May 1971

All instruments conforming to this approval shall be marked "NSC No 6/9C/2".

Description:

This variation approves:

1. The fitting of a photo-electric motion detector to the ticket-printer mechanism (see Figures 11 and 15). A series of small holes near the circumference of the coding disc, passing between a light source and a photo-electric cell, produces a series of electrical pulses as the light stream is interrupted by the movement of the disc. A time delay working in conjunction with the motion detector prevents printing when the load is not steady. A test switch marked "light" and "dark" and a light which indicates when the motion detector is preventing printing are provided.

2. The conversion of all models to indicate in metric units in accordance with Appendix 8 of the General Specifications for Measuring Instruments to be Used for Trade.

Test Specifications:

Motion-detector Sensitivity — The removal of a load equal to 1,5 graduations from the load receptor should cause the motion-detector light to come on; the ticket printer should then be inoperative.

Motion-detector Time-delay Test Switch — Selection of the "light" and "dark" positions on the time-delay test switch should each cause the motion-detector light to illuminate for not less than 2 seconds.

Note: The initial selection of either "light" or "dark" may have no effect but the switch should operate as above the second time it is selected.

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/9C/2

VARIATION No 2

Pattern: Toledo Weighing Instrument

Submittor: Toledo-Berkel Pty Ltd,
525 Graham Street,
Port Melbourne, Victoria, 3207.

Date of Approval of Variant: 22 July 1974

The modification described in this Schedule applies to the pattern and variants described in the following pages and figures of Certificate No 6/9C/2 dated 20 October 1972 and Technical Schedule No 6/9C/2 - Variation No 1 dated 6 June 1974:

Pages 3 and 4 dated 20 October 1972 (Certificate)
Pages 5 to 12 dated 13 May 1971 (Certificate)
Pages 13 and 14 dated 20 October 1972 (Certificate)
Pages 1 and 2 dated 6 June 1974 (Technical Schedule)
Figure 6/9C/2 - 1 (sheets 1 and 2) dated 20 October 1972
Figures 6/9C/2 - 2 to 29 dated 13 May 1971
Figures 6/9C/2 - 30 to 37 dated 20 October 1972

All instruments conforming to this approval shall be marked "NSC No 6/9C/2".

Description:

This variation approves of a strain-gauge motion detector replacing the contact-type motion detector (see Figure 38). Strain gauges bonded to a cantilever beam sense the forces generated by the dashpot attached to the end of the beam during movement of the main headwork lever.

The printer is prevented from operating when the signal from the strain gauge is above the preset detection level. When the signal falls below the detection level the printer will operate after the expiry of a time delay.

A light indicates when the motion detector has operated. The light may be switched off at times other than testing. The dashpot is sealed.

Special Tests — Strain-gauge Motion Detector:

When the instrument is steady, gently remove a load equal to 1,5 graduations. If the motion-detector light does not come on, increase the load removed until the light does come on. Remove this weight and at the same time press the print button; the printer should print the new weight. Repeat this test with the weight removed reduced by the equivalent of 1 graduation. The motion-detector light should not come on. If the printer prints the new weight, the time delay is correctly adjusted in relation to the motion-detector threshold sensitivity.

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/9C/2

VARIATION No 3

Pattern: Toledo Weighing Instrument,
approved in Certificate No 6/9C/2 dated 20 October 1972
and subsequent variations

Submittor: Toledo-Berkel Pty Ltd,
525 Graham Street,
Port Melbourne, Victoria, 3207.

Date of Approval of Variation: 14 December 1976

The modification described in this Schedule applies to the patterns described in Certificate No 6/9C/2 dated 20 October 1972 and Technical Schedule No 6/9C/2 - Variation Nos 1 and 2 dated 6 June 1974 and 26 May 1975 respectively.

All instruments conforming to this approval shall be marked "NSC No 6/9C/2".

Description:

The approved modification provides for a tare bar inside the headwork cabinet with its poise moved by metal tapes from a drum attached to a tare knob, and tare-weight reading face which is marked with up to 160 scale marks (see Figures 39 and 40). The tare knob and the tare-weight reading face are on the same side of the headwork as the weight reading face.*

The weight reading face is marked,** for example,

(III)

Max	=	600 kg
Min	=	50 kg
d = e	=	1 kg
T	=	+ 160 kg

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* The rules of Document 103 - the Commission's Model Inspection Rules, in relation to reading distance, should be applied if the tare and weight reading faces of the instrument face the load receptor.

** 1. Max (maximum capacity) plus T (additive tare capacity) should not exceed the basework load capacity.

2. Min = 50e for e 50 g to 10 kg and Min = 1000 kg for e above 10 kg.

J B.

6/9C/2
17/4/86

NATIONAL STANDARDS COMMISSION

CANCELLATION CERTIFICATE OF APPROVAL No 6/9C/2

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

Toledo Weighing Instrument (of 11 450 lb Capacity)

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

has been cancelled in respect of new instruments as from 28/2/86.

Instruments which were verified before that date may, with the concurrence of the respective State or Territorial Weights and Measures Authority, be submitted for reverification.

Signed

Acting Executive Director

FIGURE 6/9C/2 - 1 (Sheet 1)

1	2	3	4	5	6	7	8	9	10
	COMPONENT	DATE APPROVED	FOOT-NOTES	PAT-TERN	VARIANTS				
	BASEWORKS								
1	4-lever system (Figures 2 & 3)	8 DEC 1966		*	*				
2	2-lever system — end-supported knife-edges (Figures 17, 18 & 19)	28 MAR 1968				*			
3	2-lever system — cantilevered knife-edges (Figures 20 & 21)	28 MAR 1968					*		
	BASEWORK COMPONENTS								
4	Additional transfer levers	28 MAR 1968	4		‡	‡	‡	‡	‡
	HEADWORK COMPONENTS								
5	Large headwork cabinet (Figure 4)	8 DEC 1966		*	A	A	A	A	A
6	Small headwork cabinet (Figure 21)	8 DEC 1966			A	A	A	A	A
7	Pendulum-resistant mechanism (Figure 4)	8 DEC 1966		*	*	*	*	*	*
8	Automatically operated unit weights (Figures 8 & 9)	8 DEC 1966	4	*	a	a	a	a	a
9	Manually operated unit weights (Figure 4)	8 DEC 1966	4		a	a	a	a	a
10	Tare bars — 2 (1, 2 or none optional on variants) (Figures 4 & 21)	8 DEC 1966		*	‡	‡	‡	‡	‡
11	Locking device (Figure 4)	8 DEC 1966		*	‡	‡	‡	‡	‡
12	Semi-automatic motor-driven tare poise (Figure 22)	10 MAY 1971			b	b	b	b	b
13	Automatic motor-driven tare poise	10 MAY 1971			b	b	b	b	b
14	Manually controlled motor-driven tare poise	10 MAY 1971			b	b	b	b	b
15	Verilux 711 optical-projection weight indicator (Figures 5, 6 & 7)	8 DEC 1966		*	B	B	B	B	B
[16	Circular dial and indicator with flash chart (Figure 25)]	28 MAR 1968	1		[B]	[B]			
17	Circular dial and indicator without flash chart (Figure 29)	10 MAY 1971			B	B	B	B	B
18	Two similar weight indicators	28 MAR 1968	2		B	B	B	B	B
19	Centre-zero dial (Figure 26)	28 MAR 1968	2		B	B	B	B	B
20	Magnified centre-zero dial (Figure 27)	28 MAR 1968	2		B	B	B	B	B
[21	Magnified revolving chart and fixed indicator (Figure 28)]	28 MAR 1968	3		[B]	[B]	[B]		
22	Ticket printer (Figure 22)	8 DEC 1966		*	c	c	c	c	c
23	Ticket printer with other coding discs	8 DEC 1966			c	c	c	c	c
24	Ticket printer with remote data transmitter and remote ticket printer	8 DEC 1966			c	c	c	c	c
25	Remote data transmitter with remote ticket printer	8 DEC 1966			c	c	c	c	c
26	Ticket-printer keyboard and/or consecutive number and/or time and date (Figure 22)	8 DEC 1966			‡	‡	‡	‡	‡
27	Photo-electric switch (Figure 22)	28 MAR 1968			‡	‡	‡	‡	‡

Compatibility Table for Components Described in this Certificate

20/10/72

FIGURE 6/9C/2 - 1 (Sheet 2)

1	2	3	4	5	6	7	8	9	10
	COMPONENT	DATE APPROVED	FOOT-NOTES	PAT-TERN	VARIANTS				
	BASEWORKS								
28	3-lever system — cantilevered knife-edges (Figures 30, 31 & 32)	10 OCT 1972						*	
29	State-approved or Commission-approved baseworks	10 OCT 1972							*
	HEADWORK COMPONENTS								
30	360°-swivel resistant mechanism housing (Figure 33)	10 OCT 1972	2		‡	‡	‡	‡	‡
31	Circular dial and indicator with multiple-window flash dial (Figures 34, 35 & 36)	10 OCT 1972			B	B	B	B	B
32	Pneumatic switch (Figure 37)	10 OCT 1972			‡	‡	‡	‡	‡

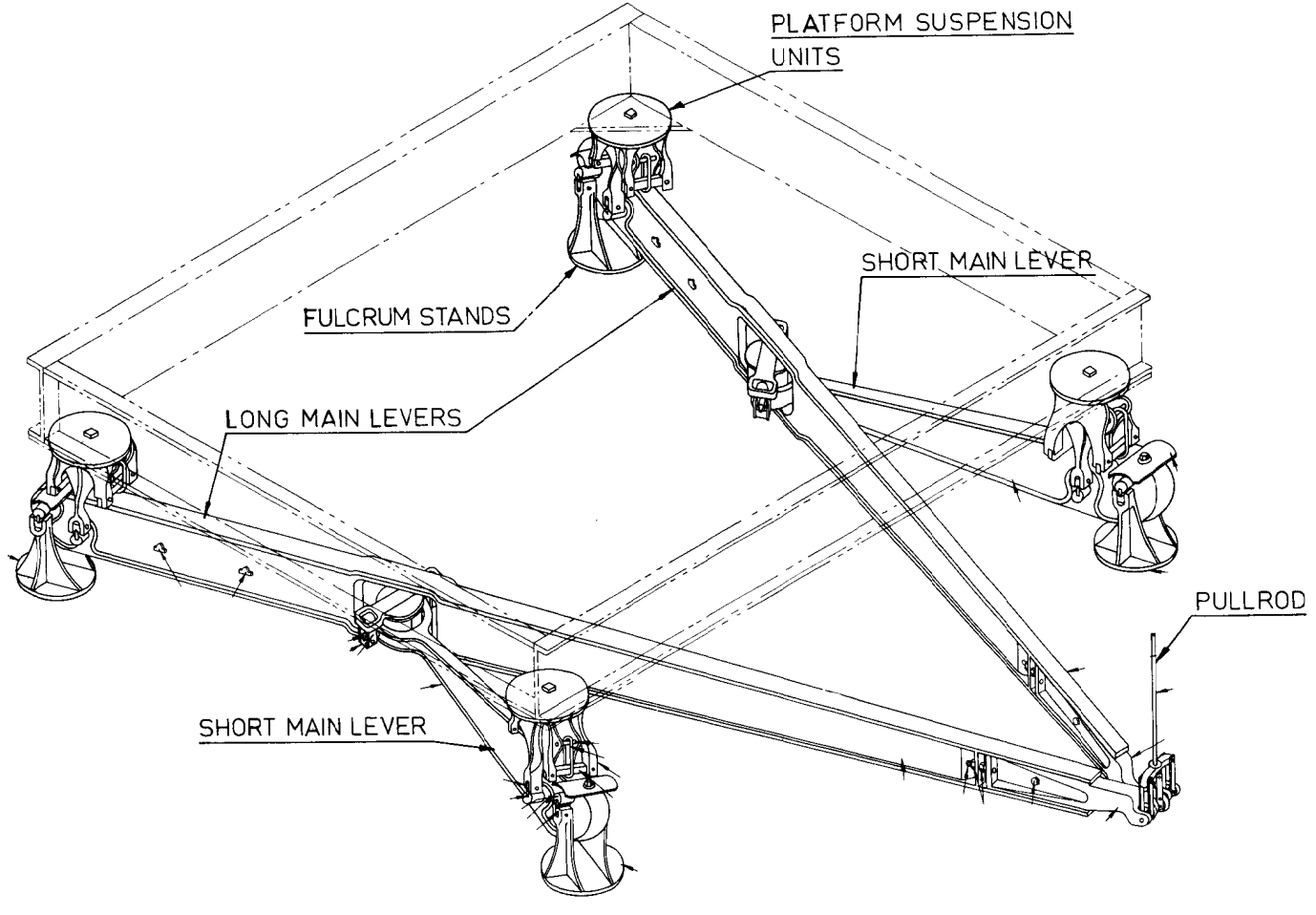
* - indicates required components
A, B - indicates alternative required components (select one only)
‡ - indicates optional components
a, b, c - indicates alternative optional components (select one only)
[ ] - approval expired

FOOTNOTES

1 - approved for a limited duration which expired on 23 October 1968
2 - refer description for special limitations on compatibility
3 - approval limited to 31 December 1971, on 10 May 1971
4 - fitted only to baseworks fixed in place

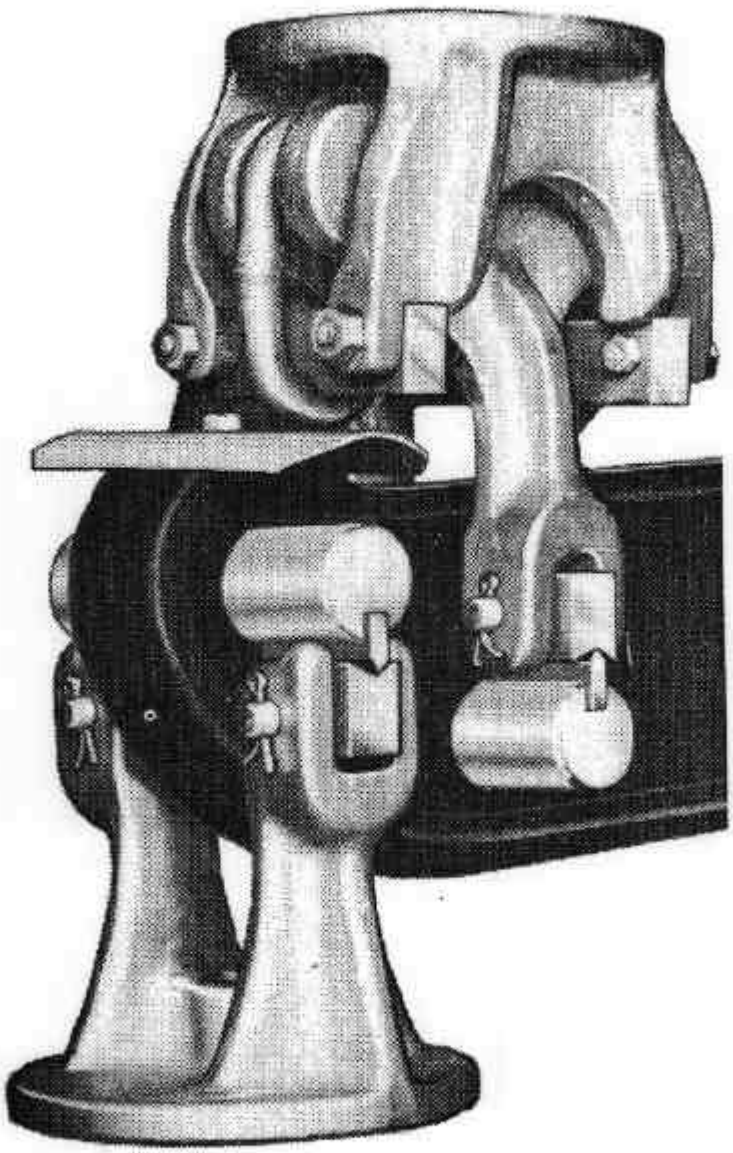
Compatibility Table for Components Described in this Certificate

FIGURE 6/9C/2 - 2



4-Lever Basework

FIGURE 6/9C/2 - 3



Platform Suspension Unit and Fulcrum Stand

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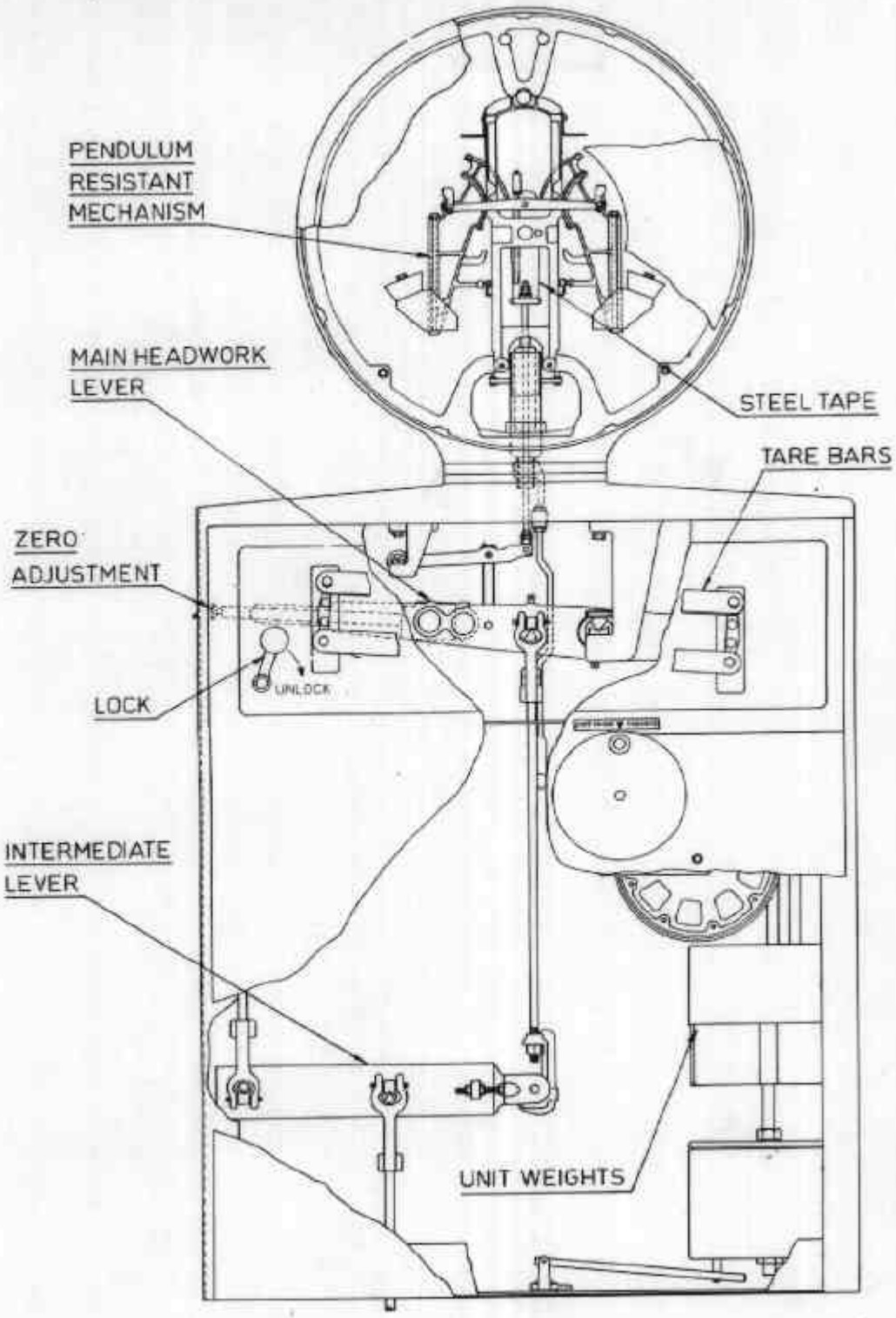
FIGURE 6/9C/2 - 4



Headwork Cabinet and Resistant Mechanism
(Manual Unit Weights)

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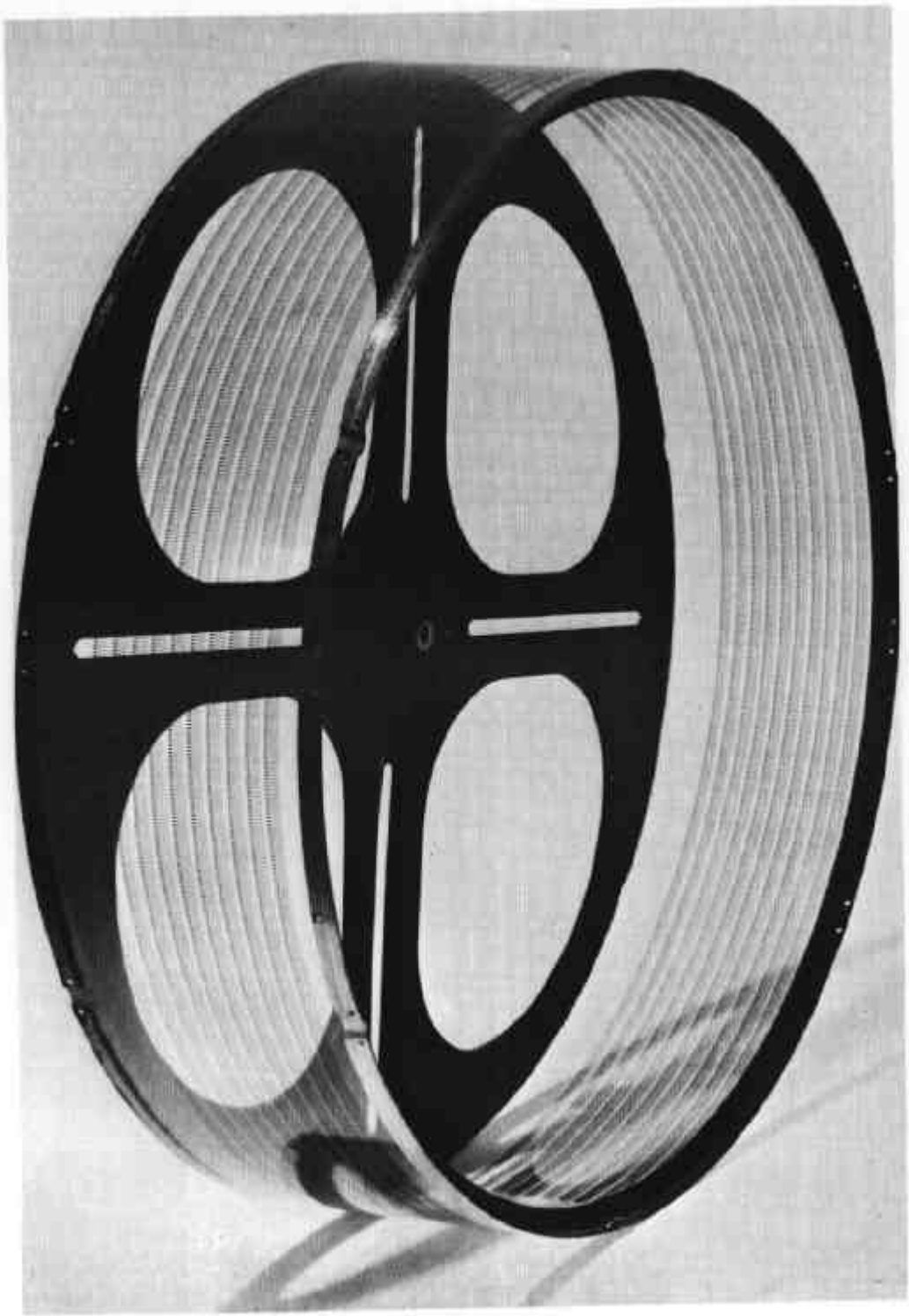
FIGURE 6/9C/2 - 5



Verilux 711 Graticule

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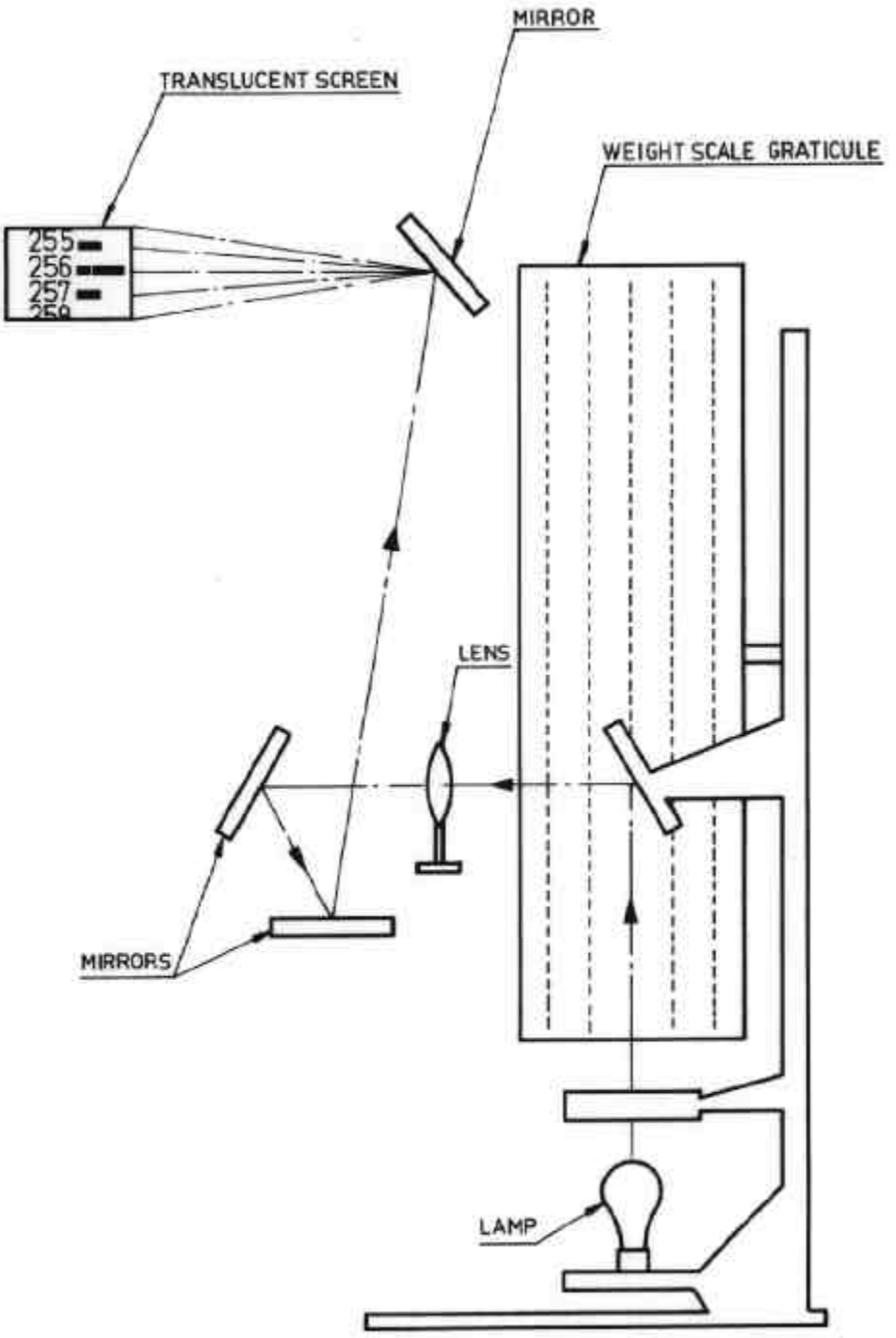
FIGURE 6/9C/2 - 6



Optical Projection System

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FIGURE 6/9C/2 - 7

Verilux 711 Optical Weight Indicator

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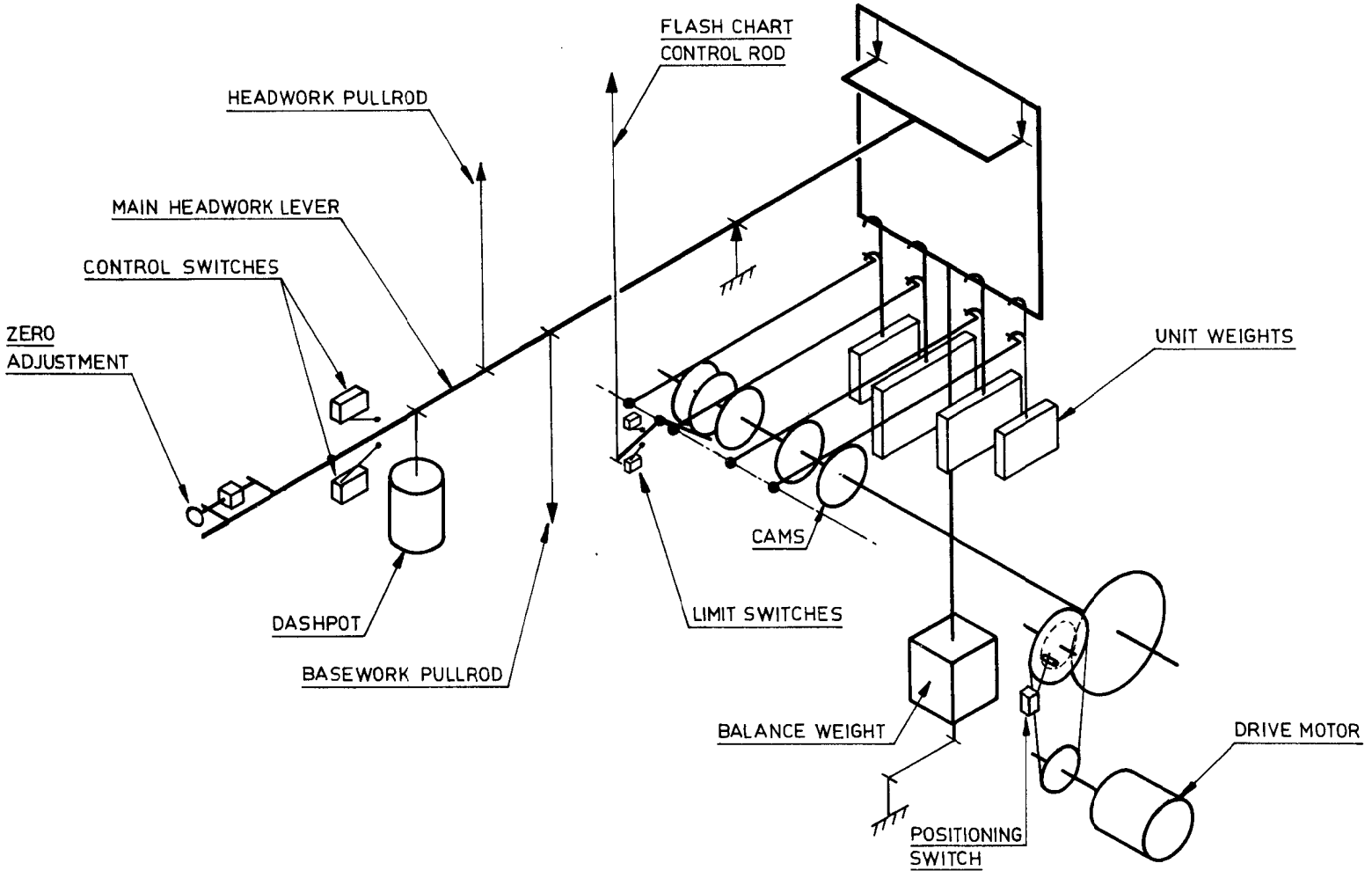
FIGURE 6/9C/2 - 8

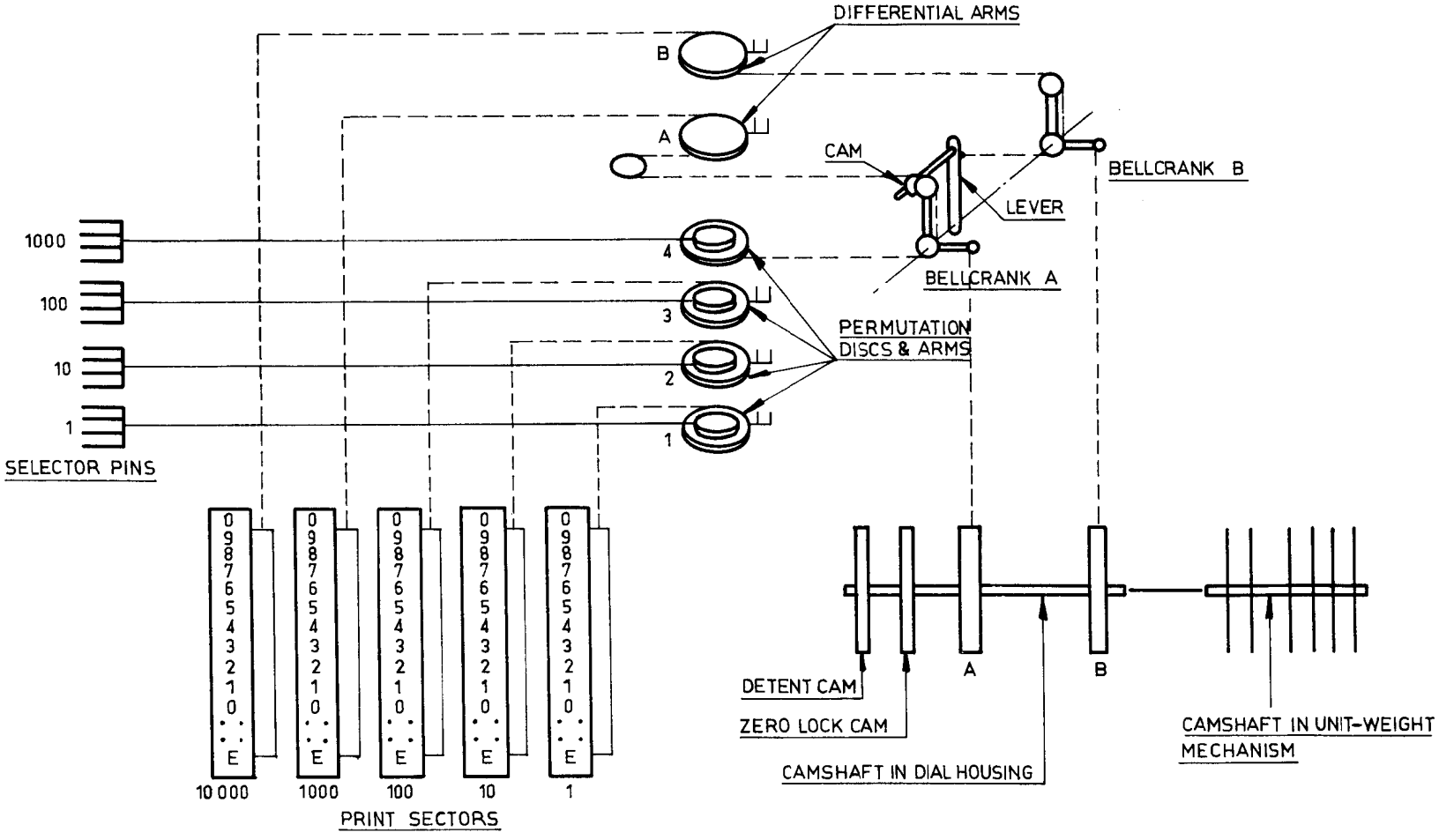
Automatic Unit Weights

FIGURE 6/9C/2 - 9



Schematic Diagram — Automatic Unit Weights

FIGURE 6/9C/2 - 10



Schematic Diagram — Ticket-printing Mechanism

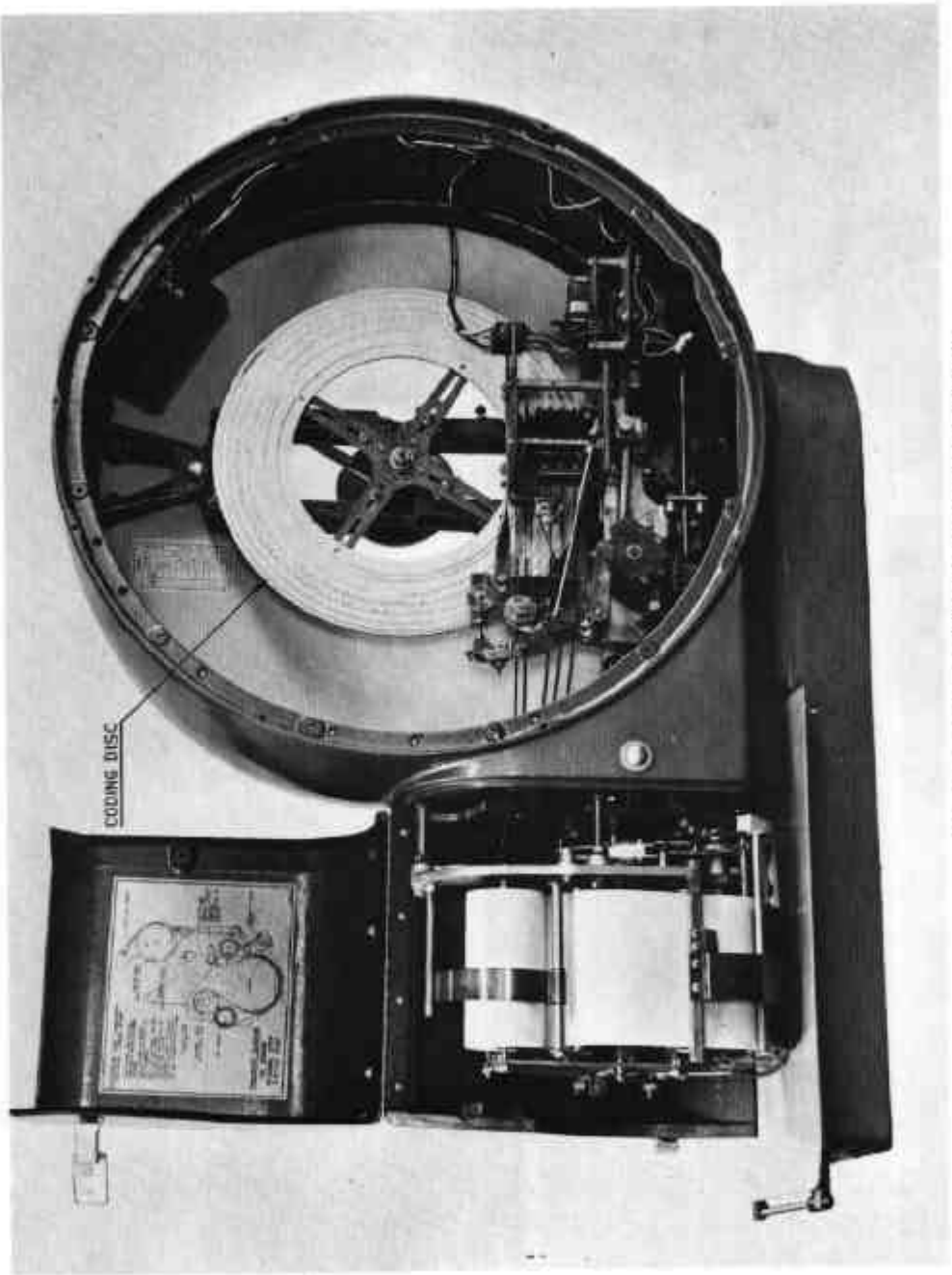
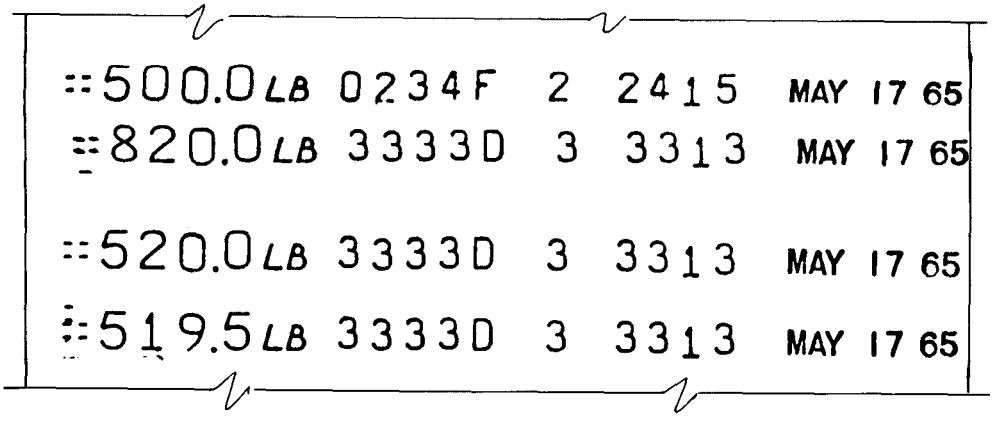


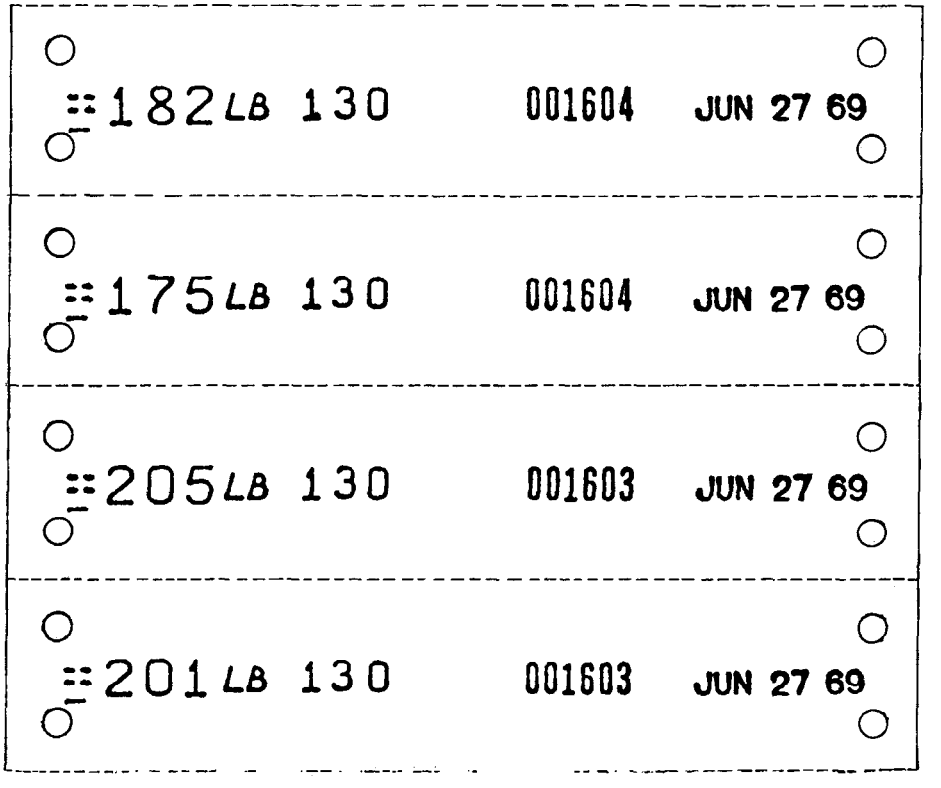
FIGURE 6/9C/2 - 11

Ticket-printer Mechanism (rear view)

FIGURE 6/9C/2 - 12



EJECTED STRIP



TEAR-OFF LABELS

NOTE: DECIMAL POINT AND UNIT DENOMINATION ARE PRINTED BY THE MECHANISM

Sample Strip-tickets (actual size)

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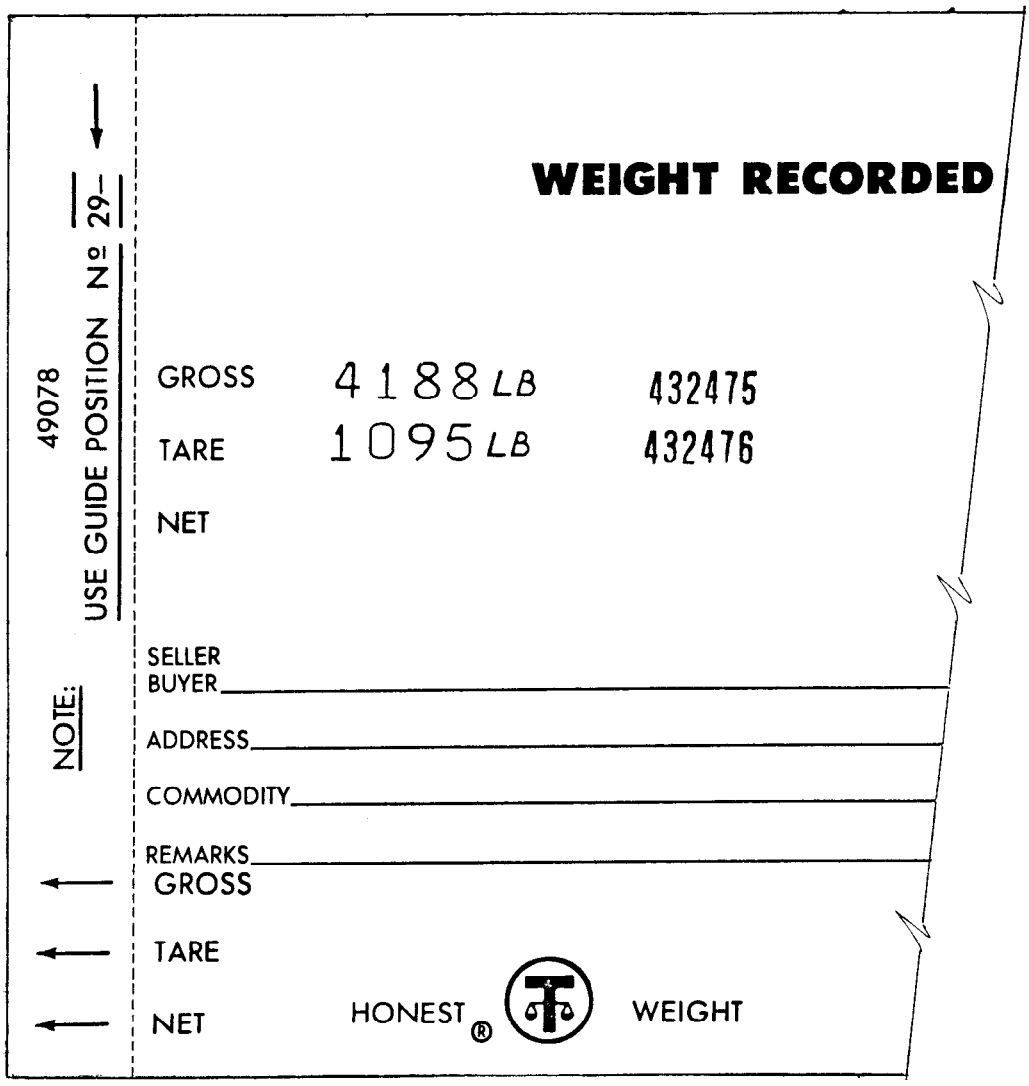
FIGURE 6/9C/2 - 13



Hand-held Ticket (actual size)

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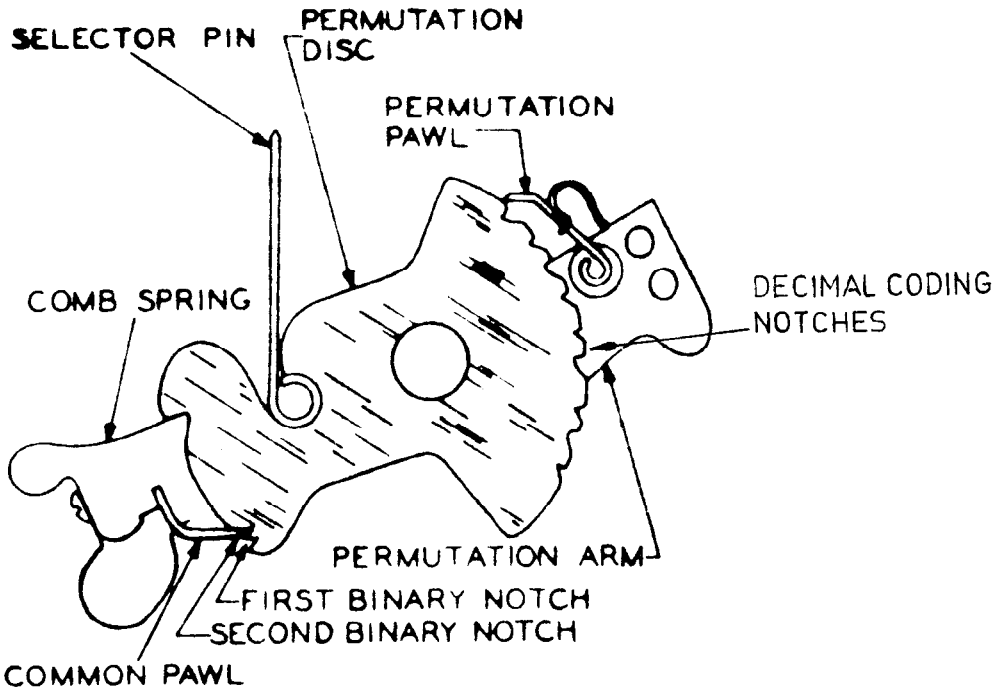
FIGURE 6/9C/2 - 14



Permutation Disc and Arm

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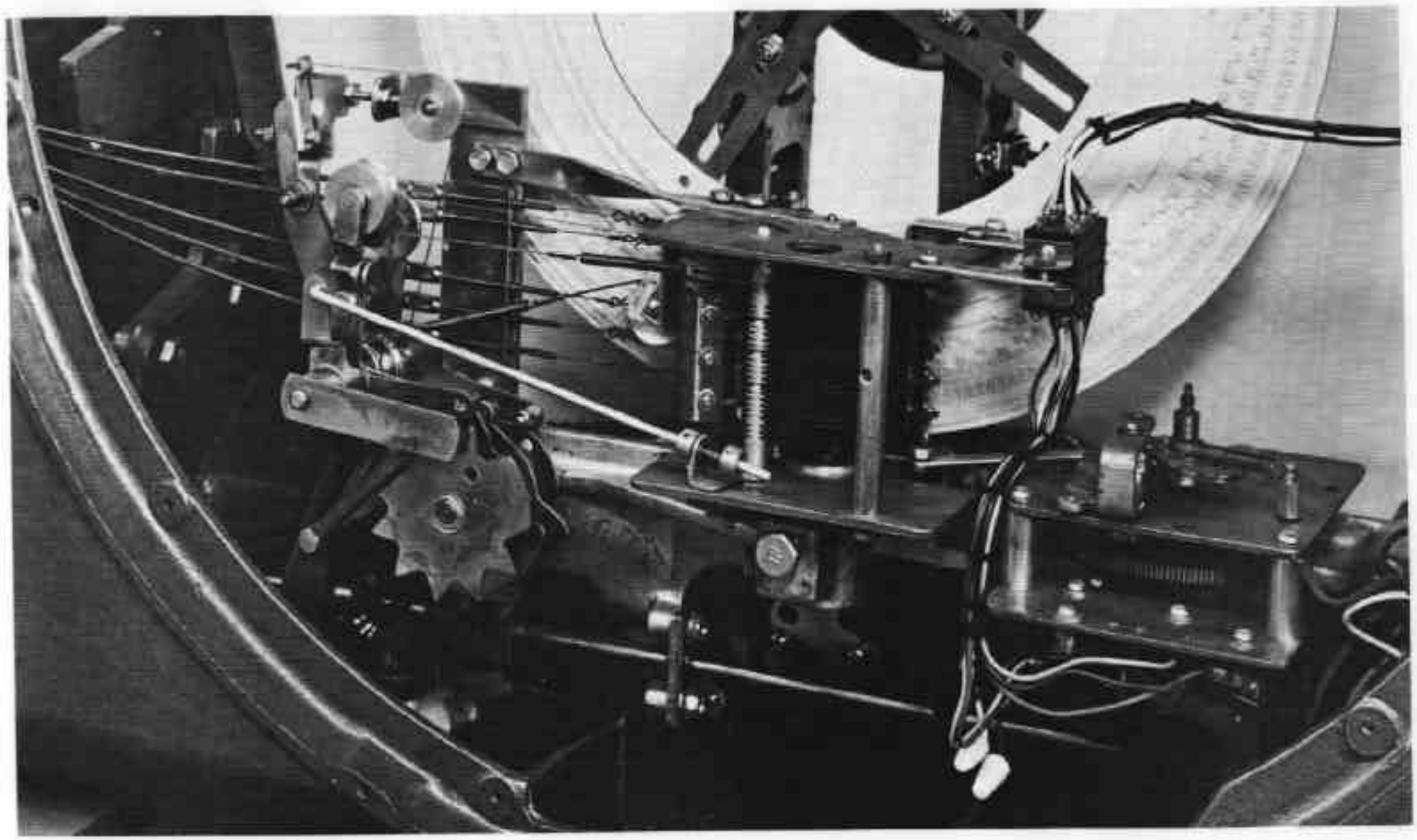
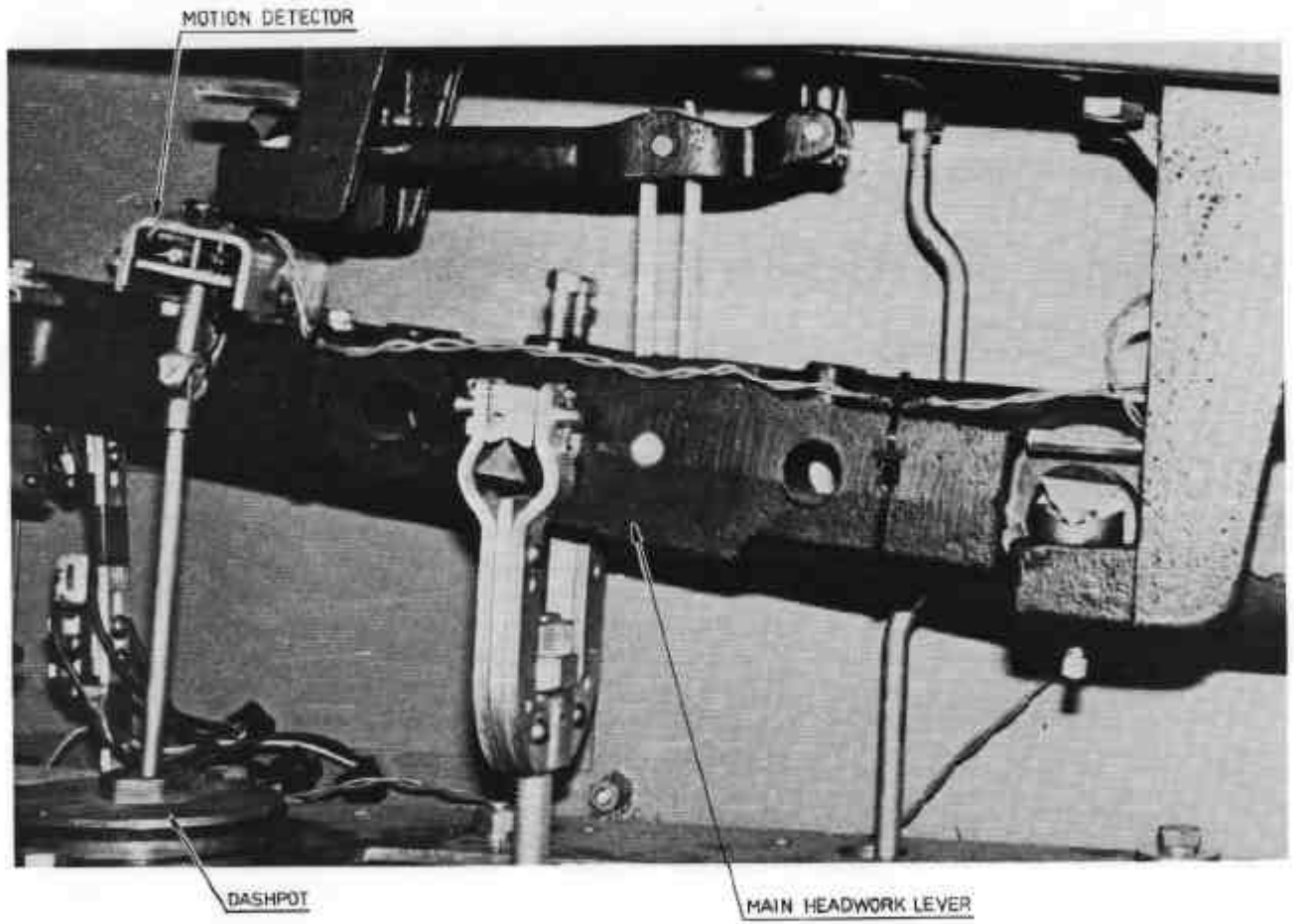
FIGURE 6/9C/2 - 15



Ticket-printer Mechanism

FIGURE 6/9C/2 - 16



Motion Detector — Main Headwork Lever

FIGURE 6/9C/2 - 17

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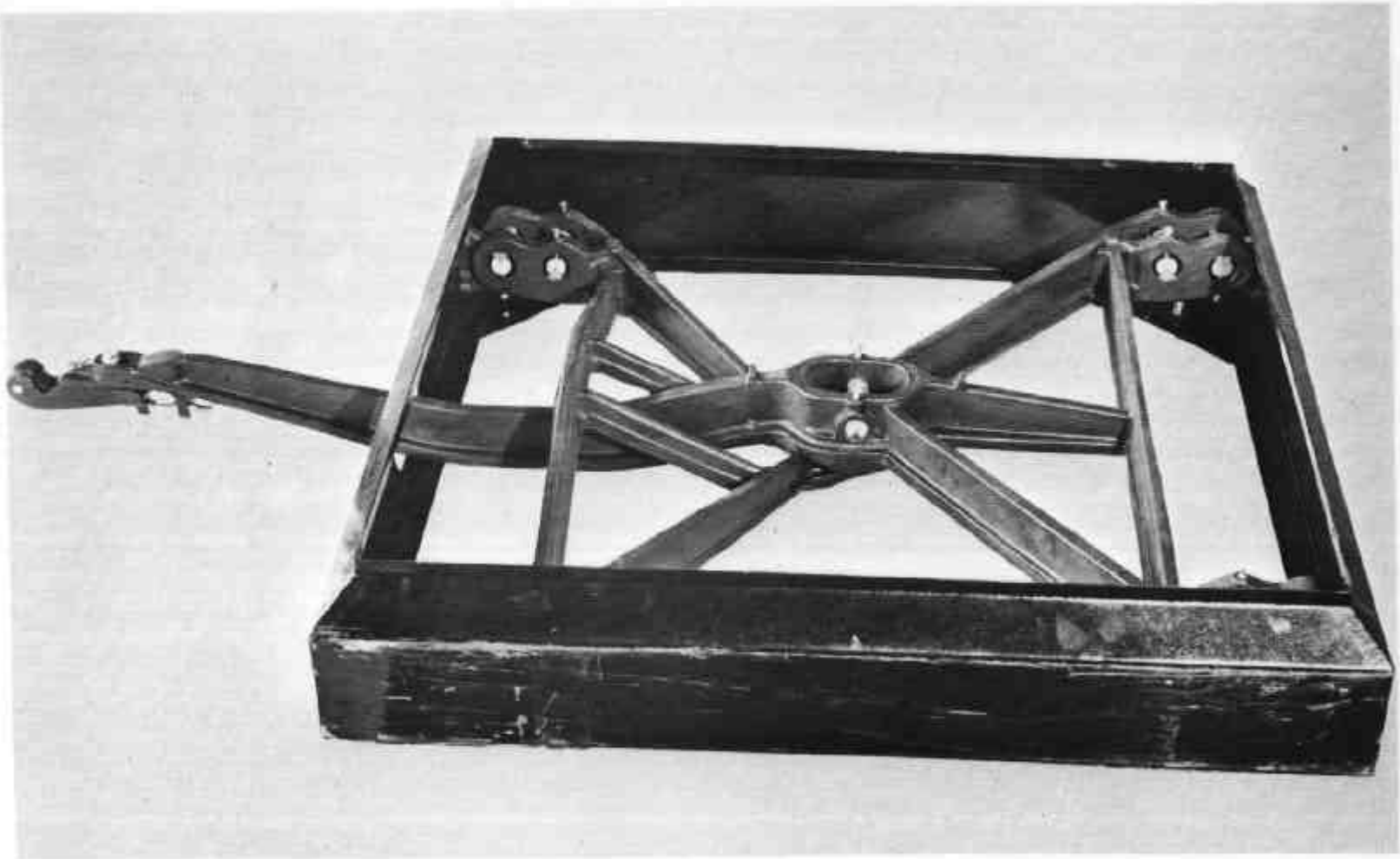
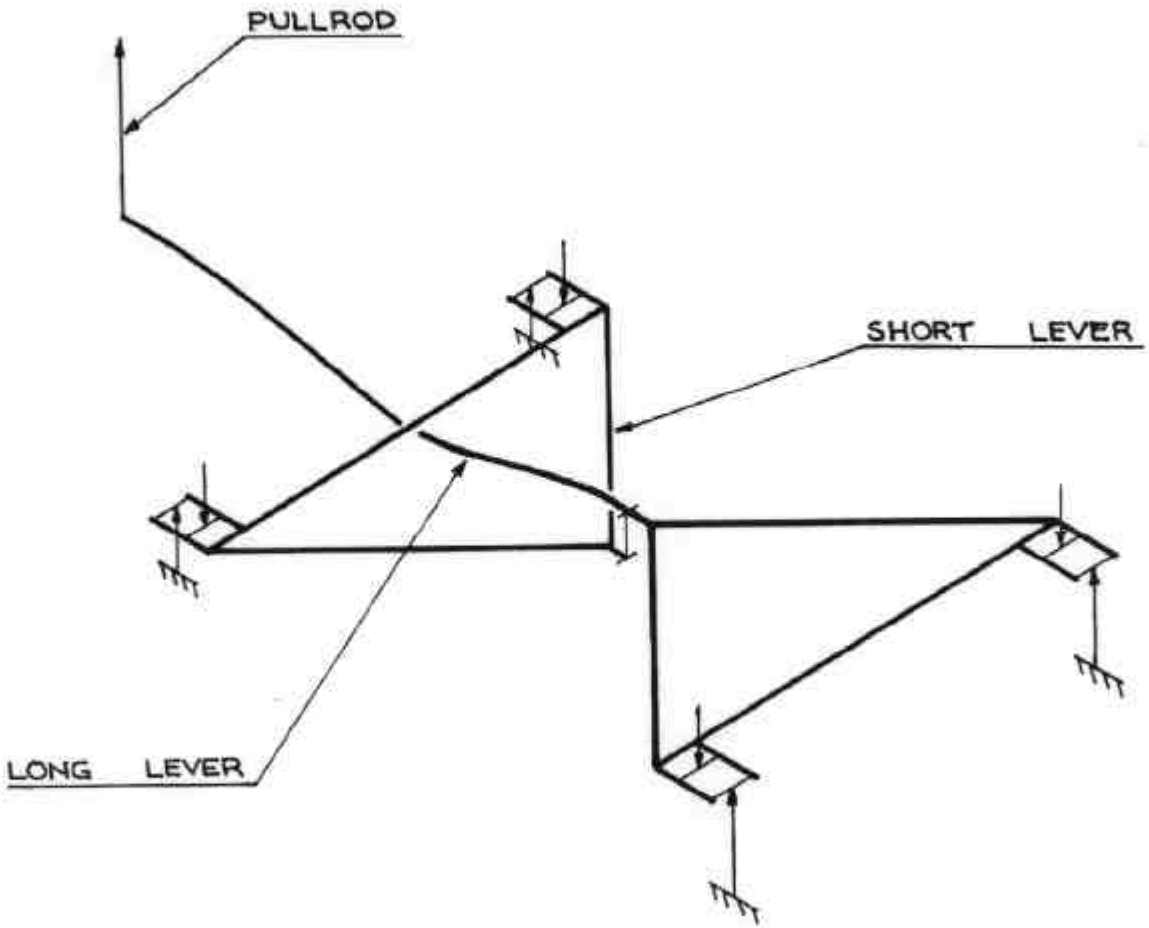


2-Lever Basework

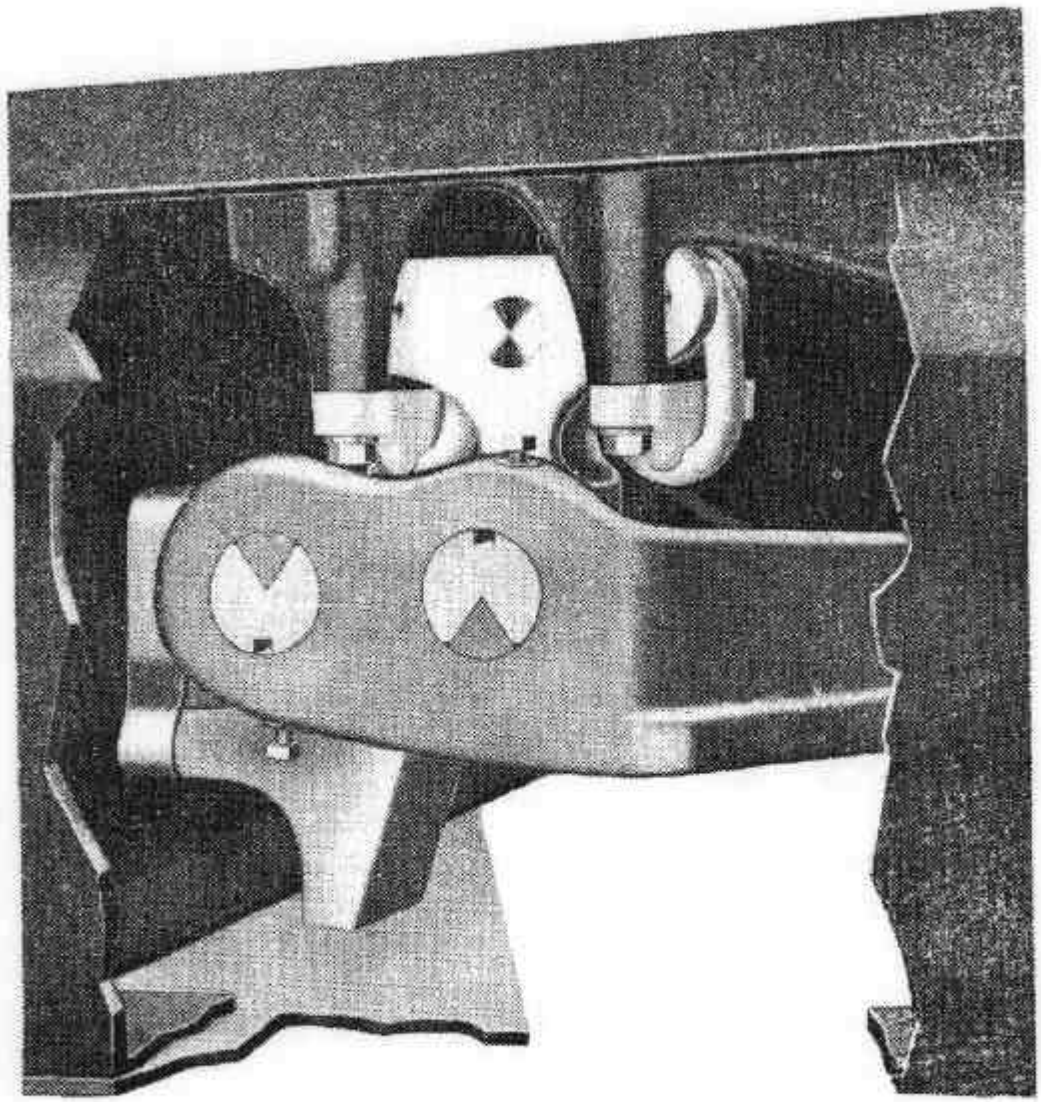
FIGURE 6/9C/2 - 18

13/5/71



Schematic Diagram — 2-Lever Basework

FIGURE 6/9C/2 - 19



Platform Suspension and Fulcrum Support

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FIGURE 6/9C/2 - 20

Basework Lever with Cantilevered Knife-edges

FIGURE 6/9C/2 - 21

Toledo Portable Platform Weighing Machine

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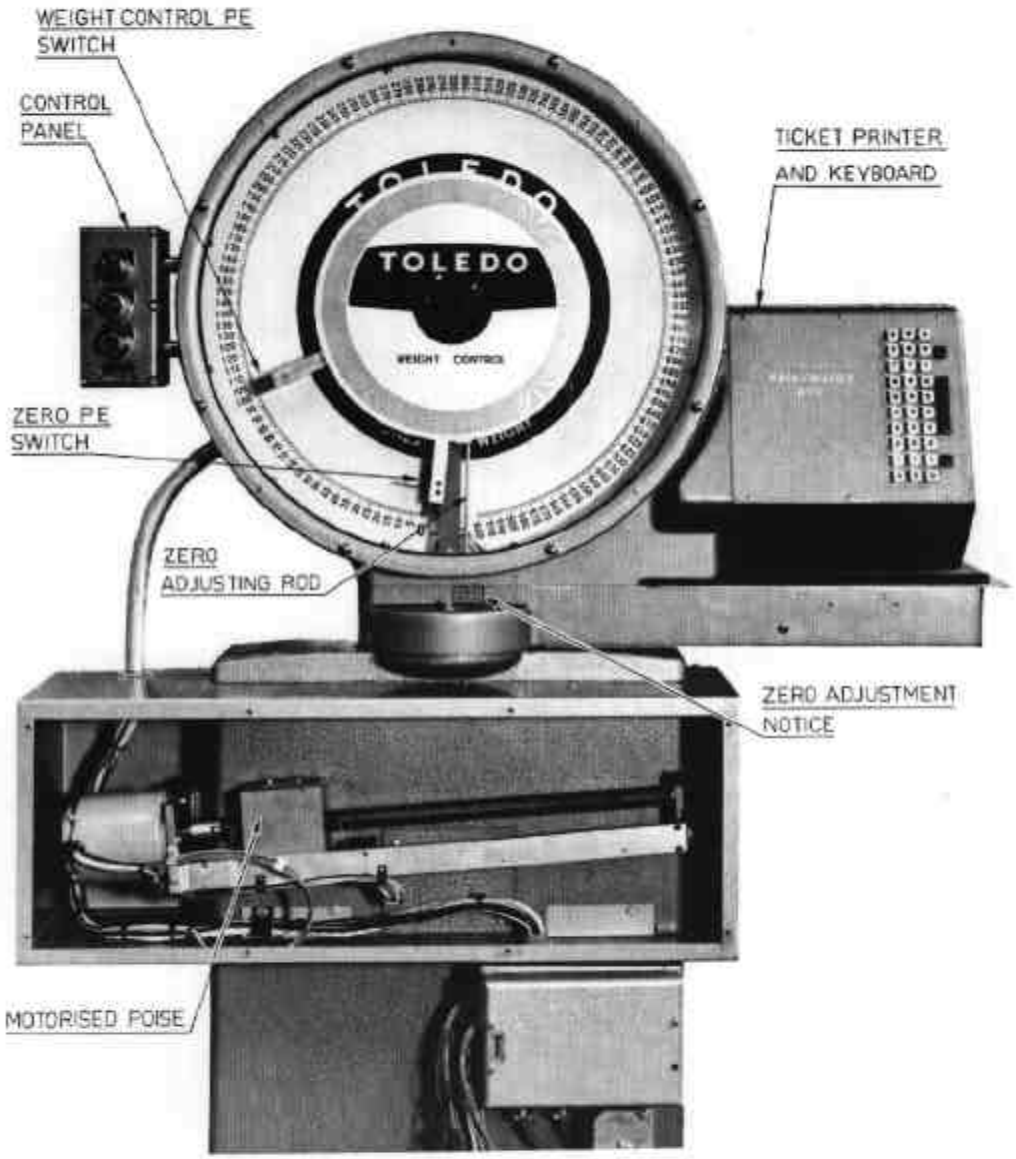
FIGURE 6/9C/2 - 22



Motor-driven Tare Poise

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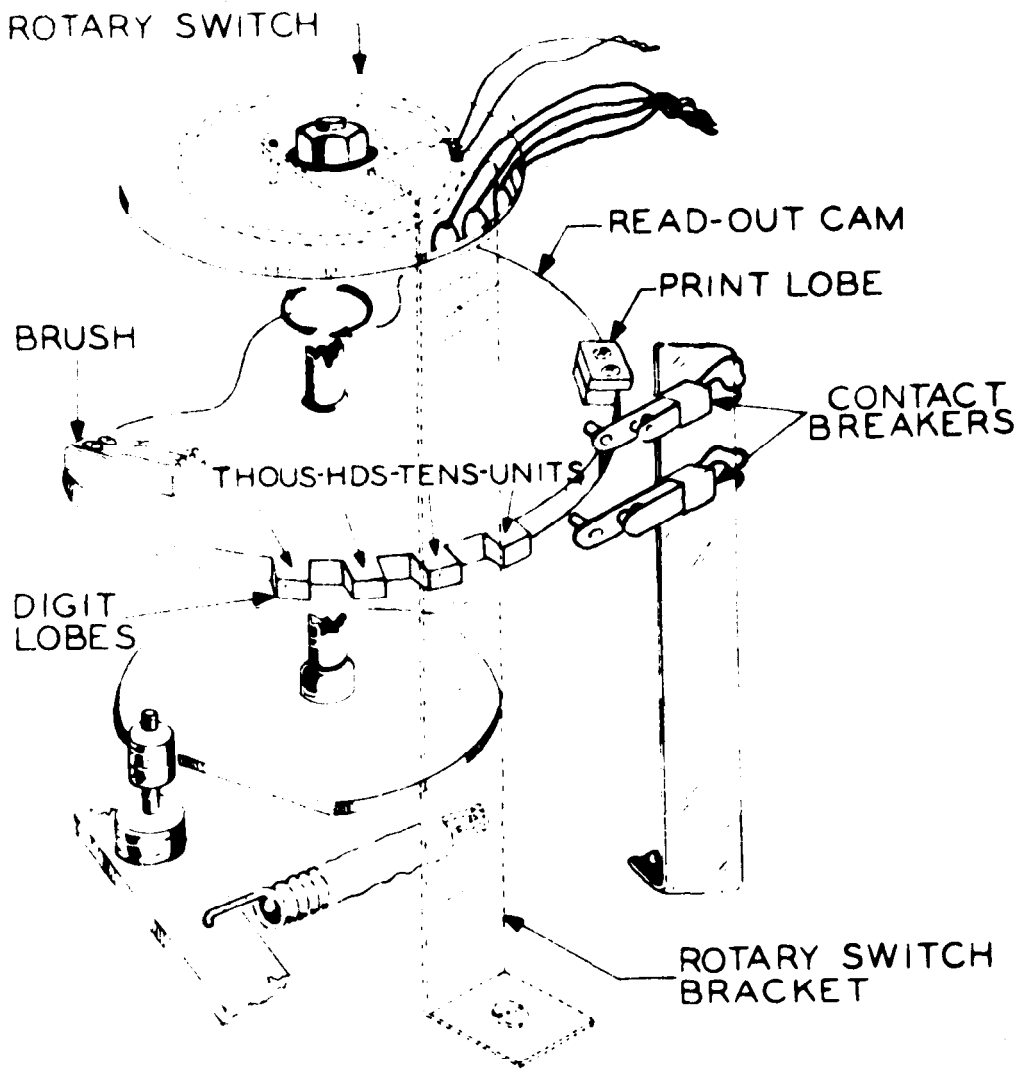
FIGURE 6/9C/2 - 23



Rotary Switch — Remote Data Transmitter

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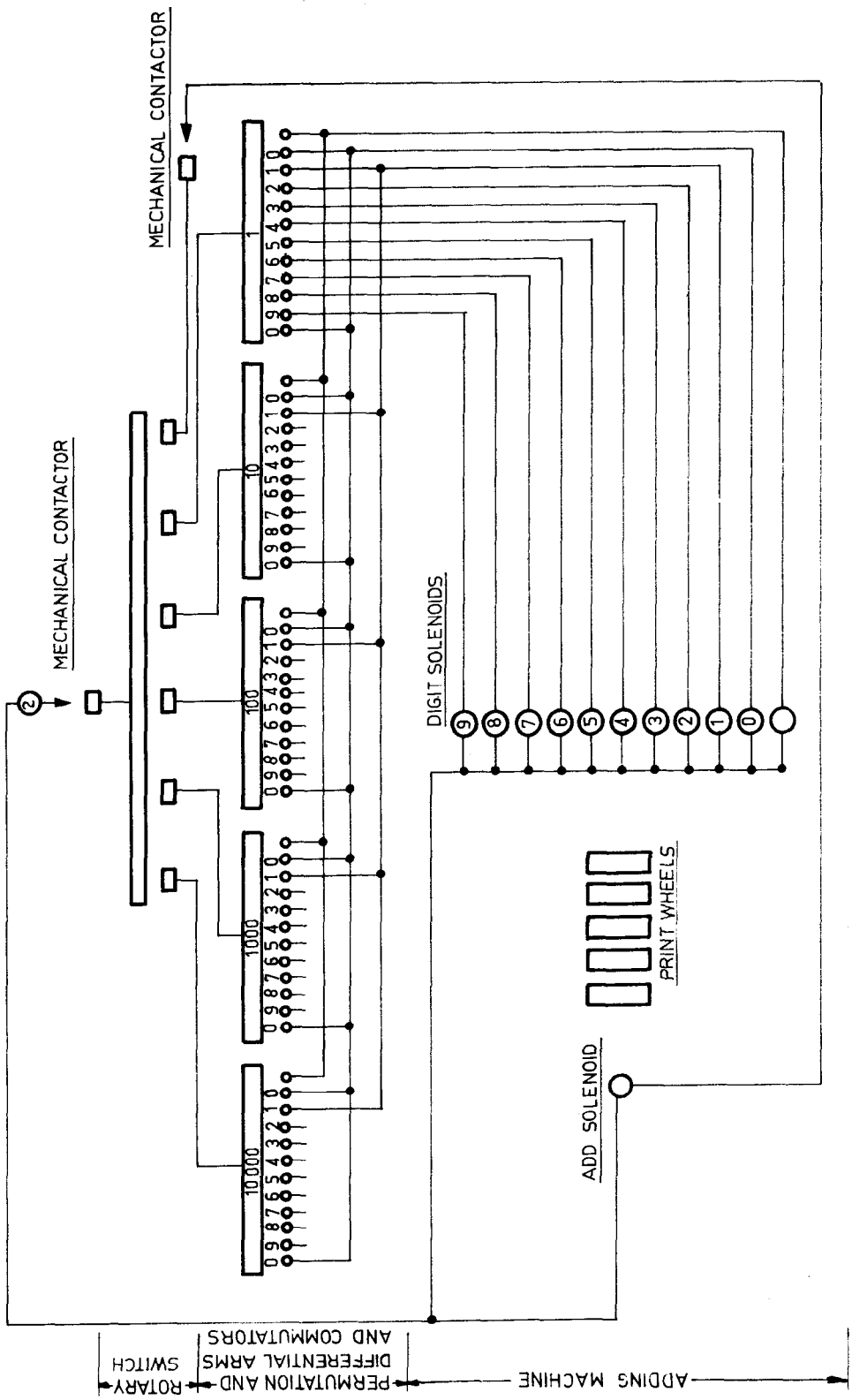

FIGURE 6/9C/2 - 24

Schematic Diagram — Remote Data Transmitter

FIGURE 6/9C/2 - 25

Circular Dial and Indicator with Single-window Flash Chart

FIGURE 6/9C/2 - 26

Centre-zero Dial and Indicator

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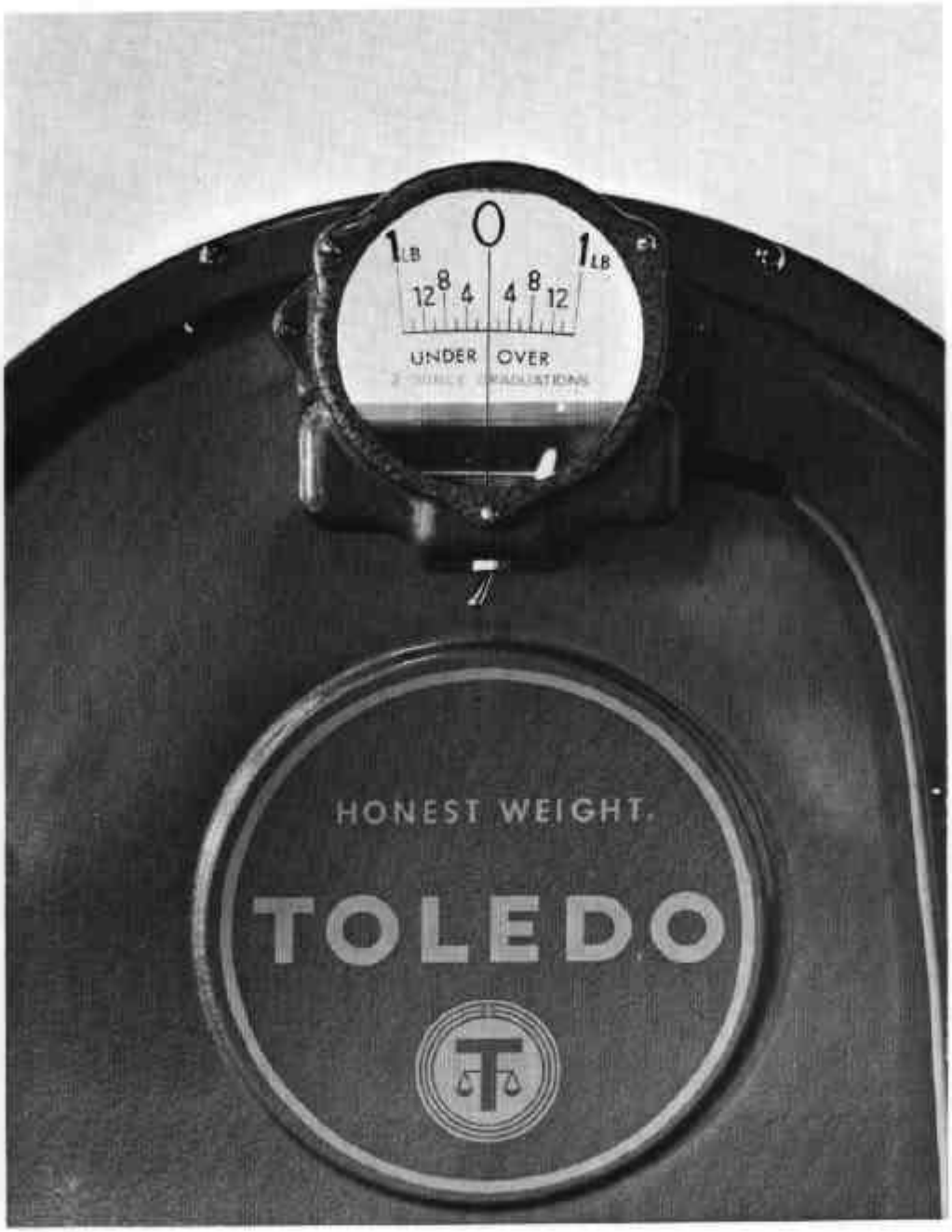
FIGURE 6/9C/2 - 27



Centre-zero Magnified Dial and Indicator

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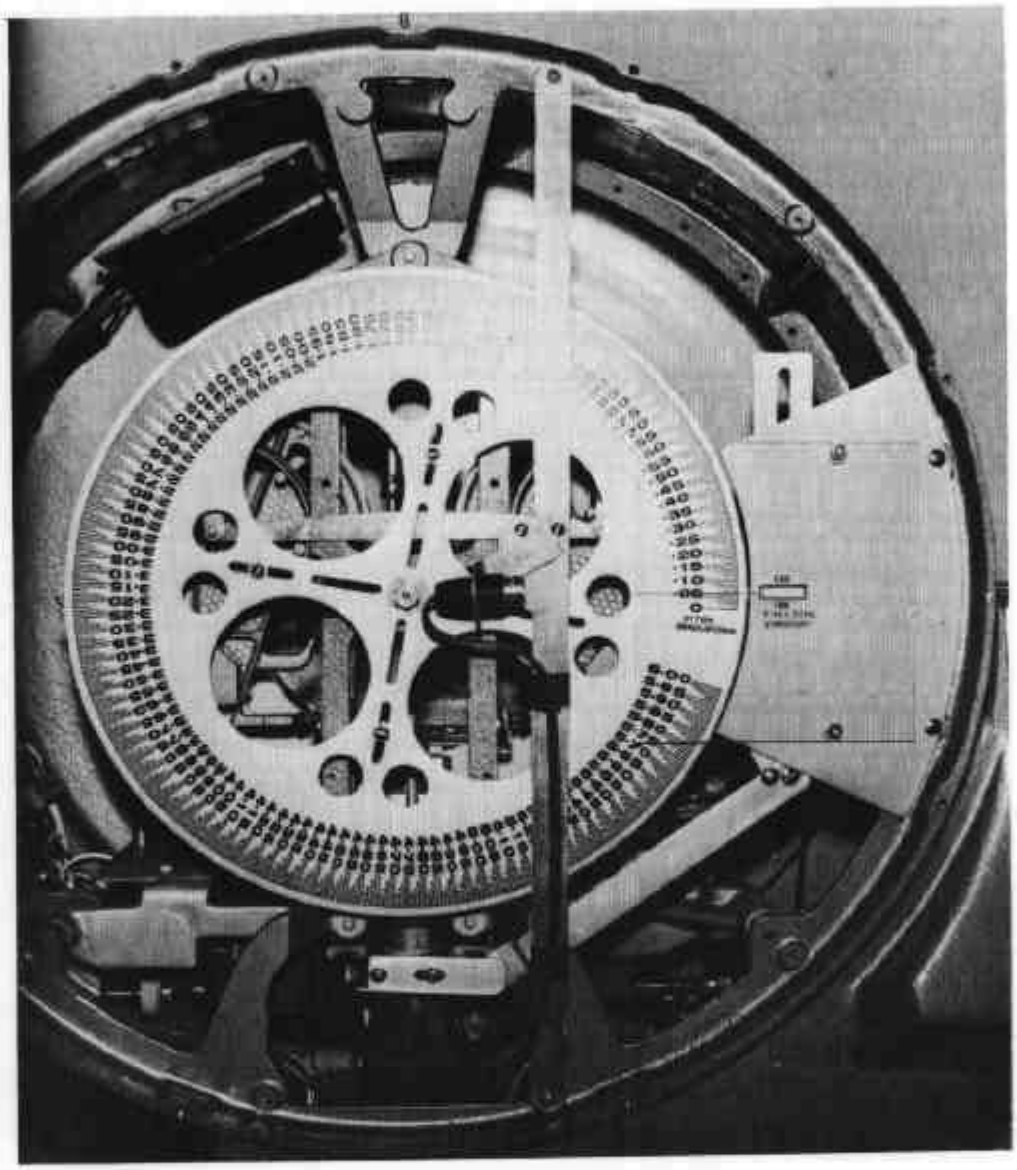
FIGURE 6/9C/2 - 28



Revolving Dial and Fixed Indicator
(with Cover and Magnifying Lens Removed)

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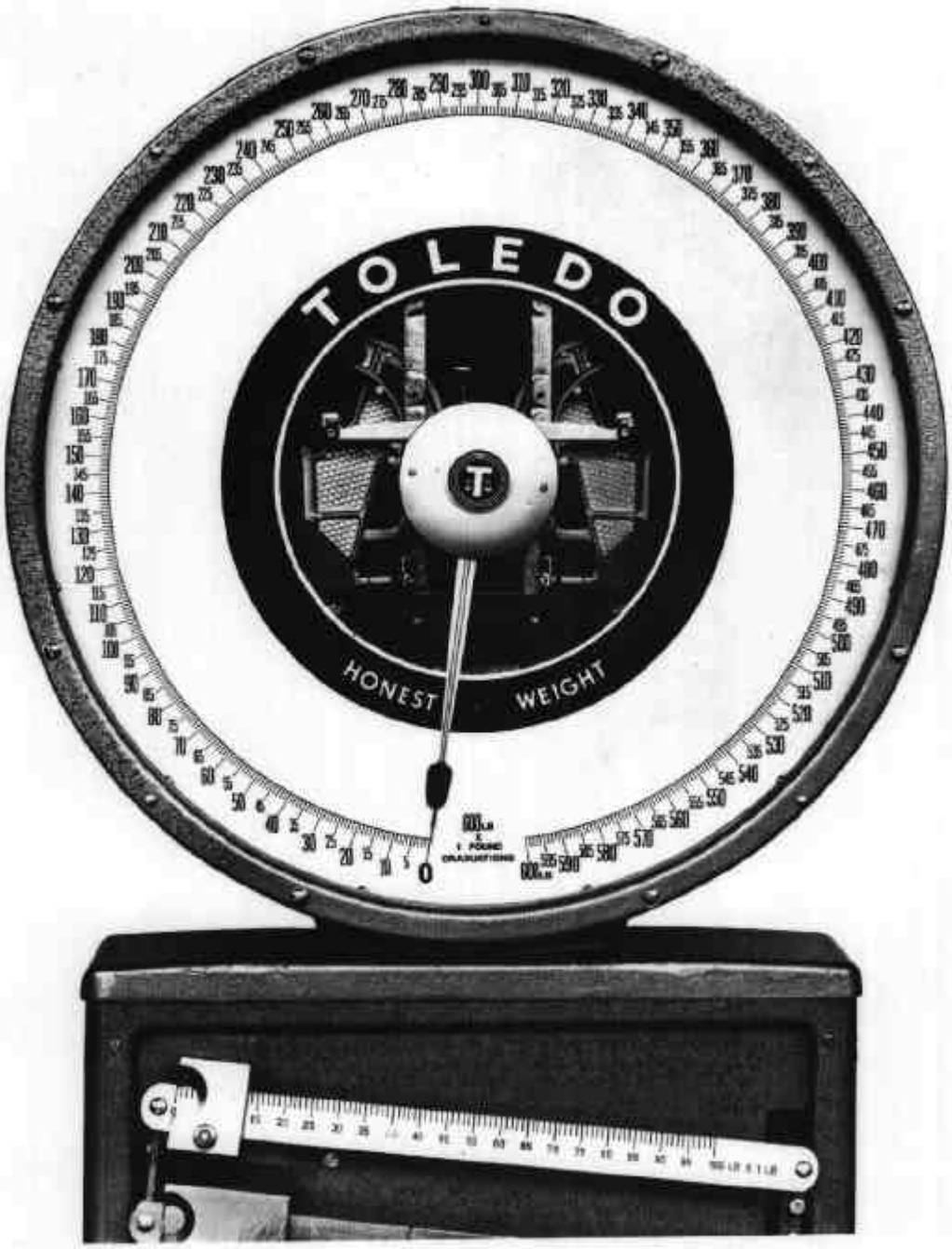
FIGURE 6/9C/2 - 29



Circular Dial and Indicator

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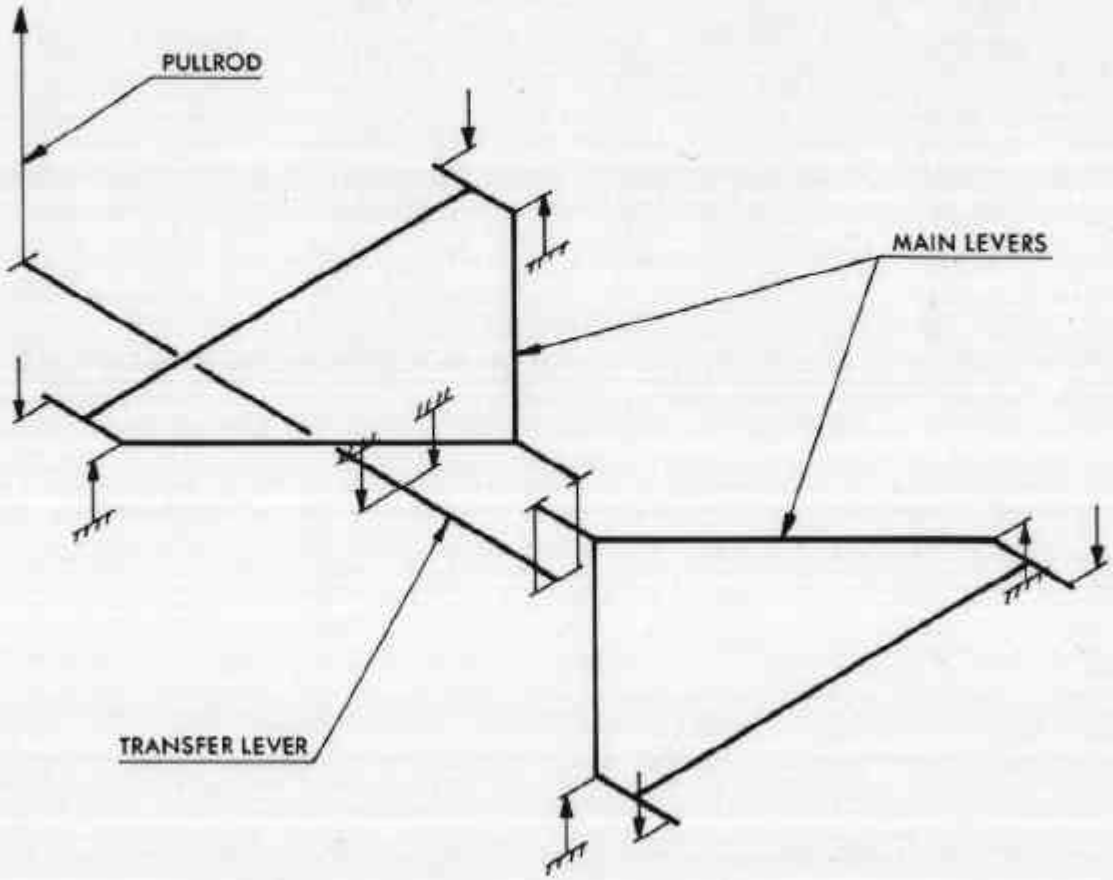
FIGURE 6/9C/2 - 30



Schematic Diagram — 3-lever Basework

FIGURE 6/9C/2 - 31

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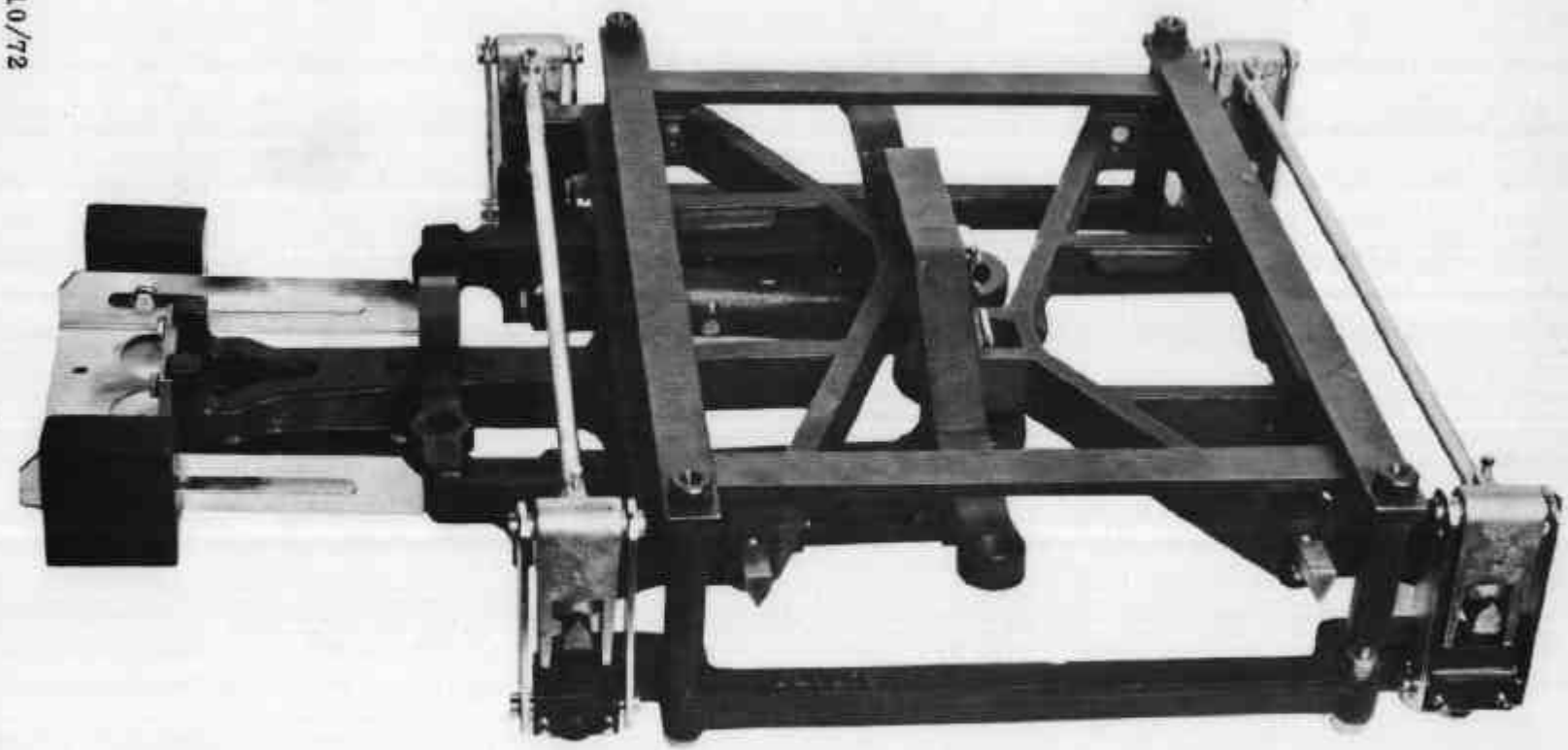
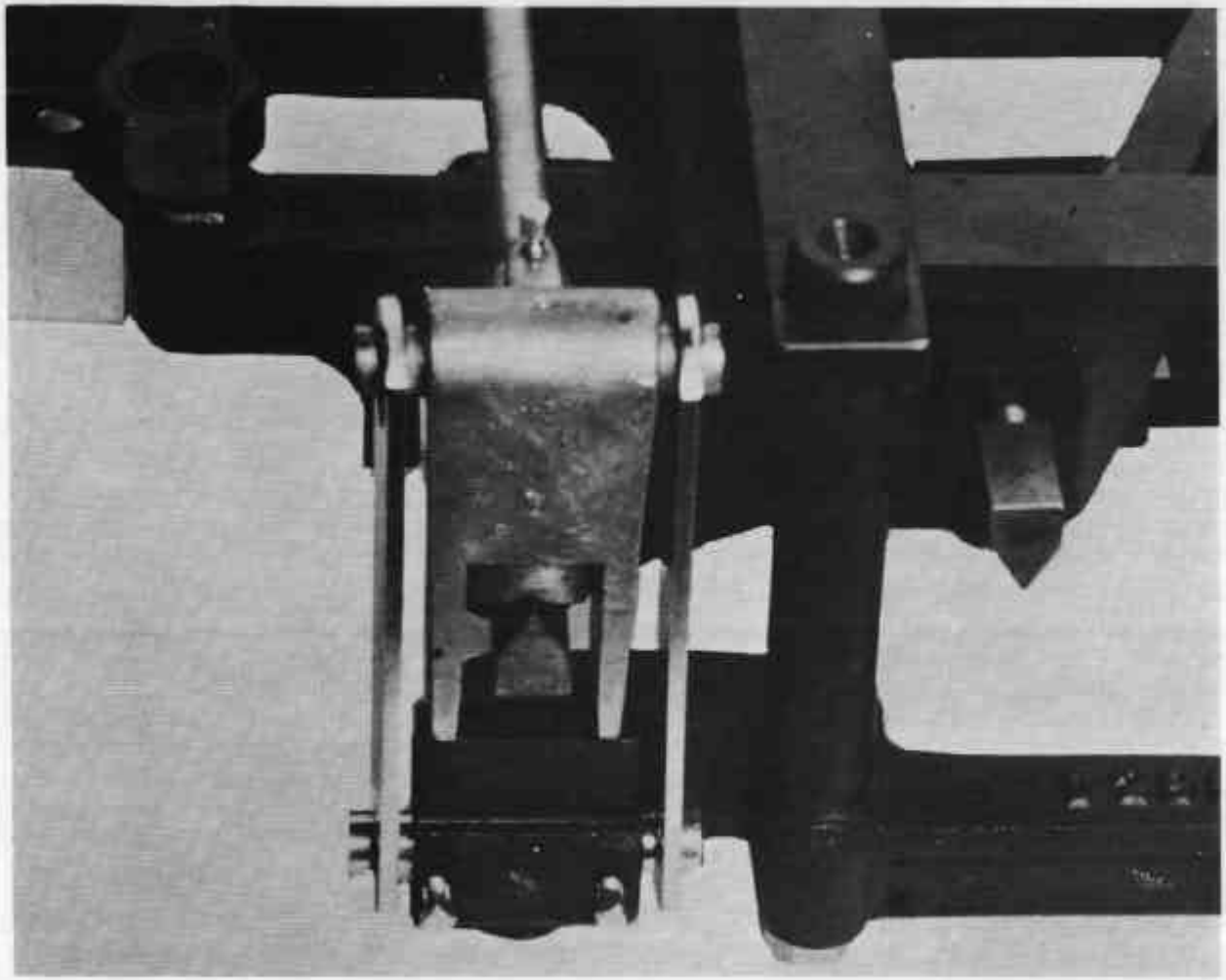


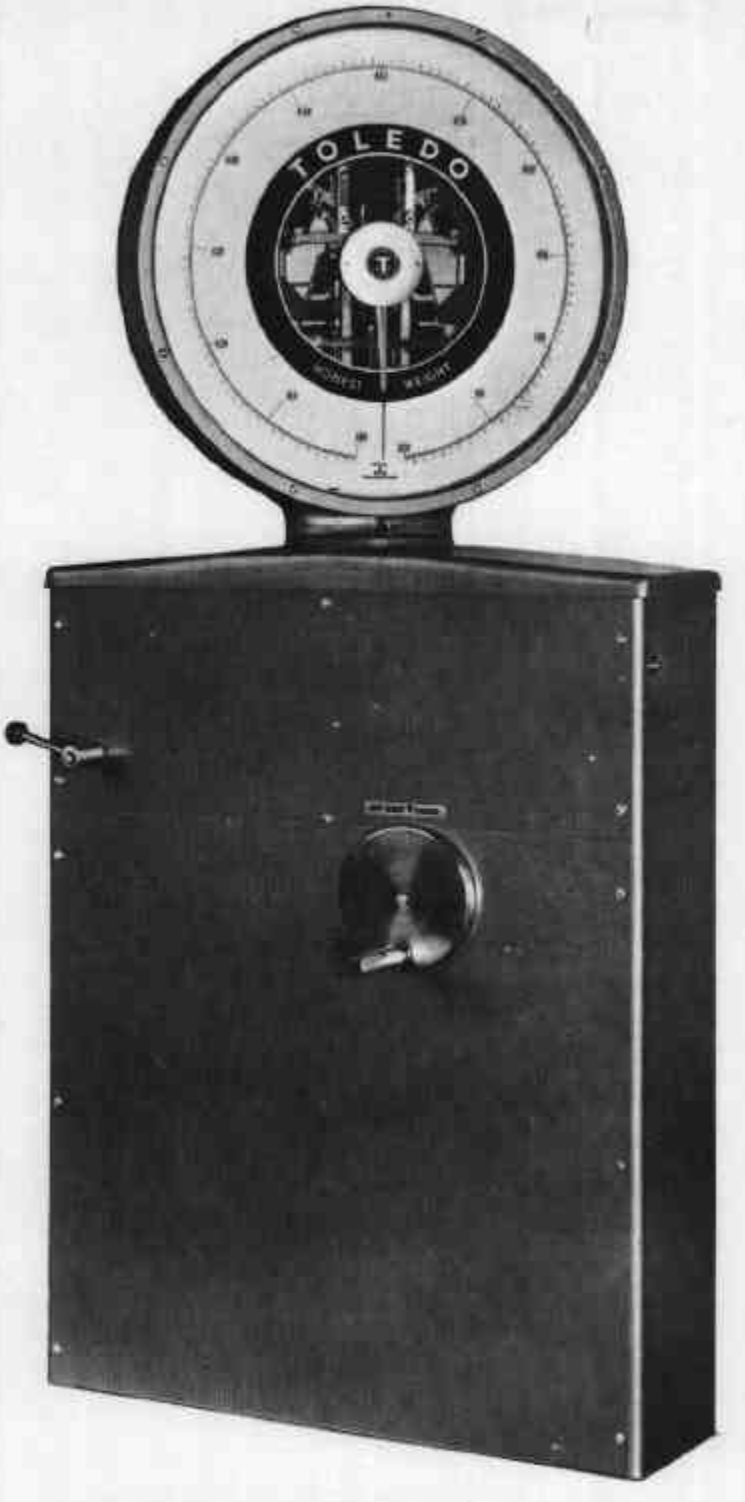
3-lever Basework

FIGURE 6/9C/2 - 32



Load and Fulcrum Knife-edges and Bearings — 3-lever Basework

FIGURE 6/9C/2 - 33



360° -swivel Resistant Mechanism Housing

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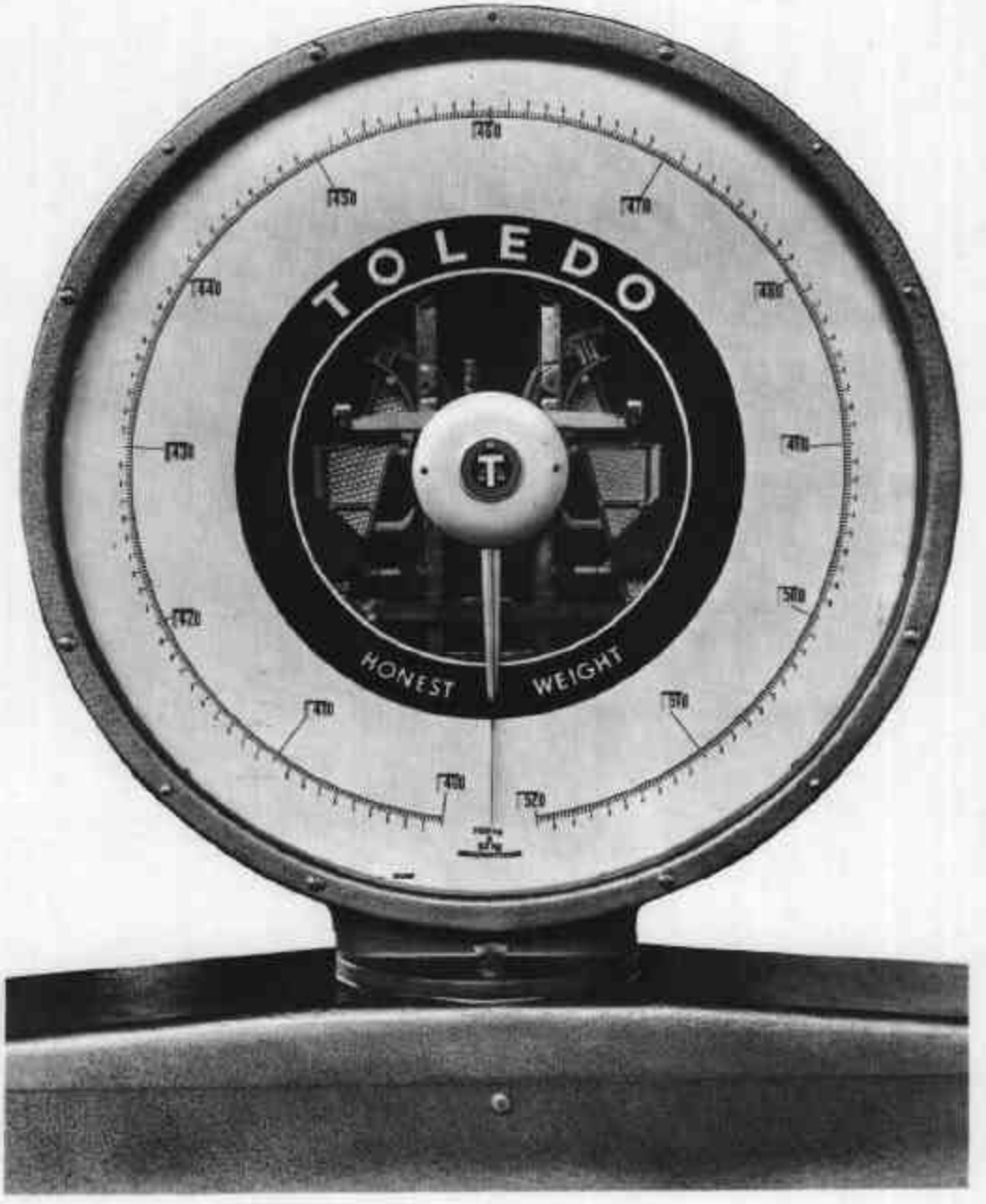
FIGURE 6/9C/2 - 34



Multiple-window Flash Dial

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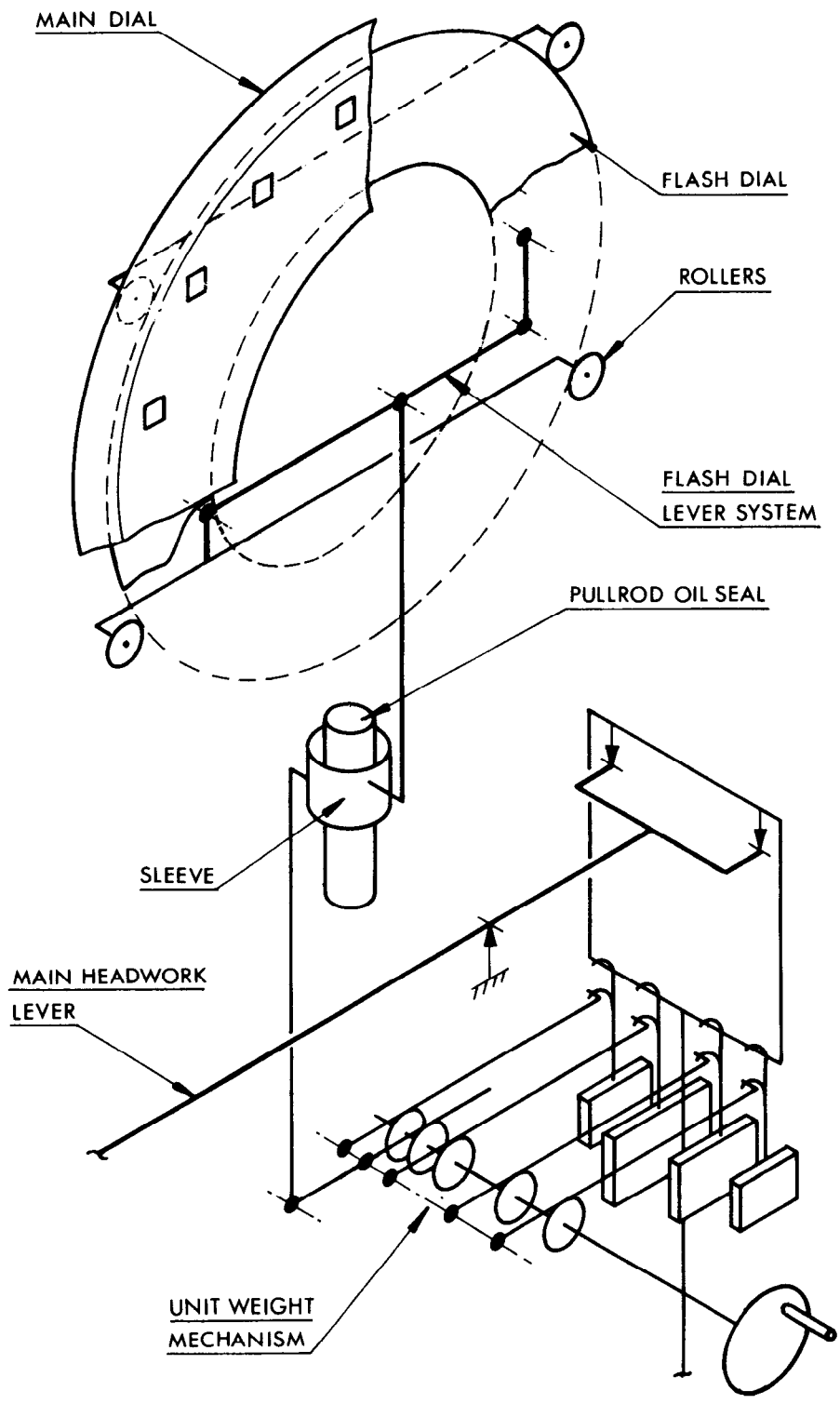
FIGURE 6/9C/2 - 35



Schematic Diagram — Flash-dial Mechanism

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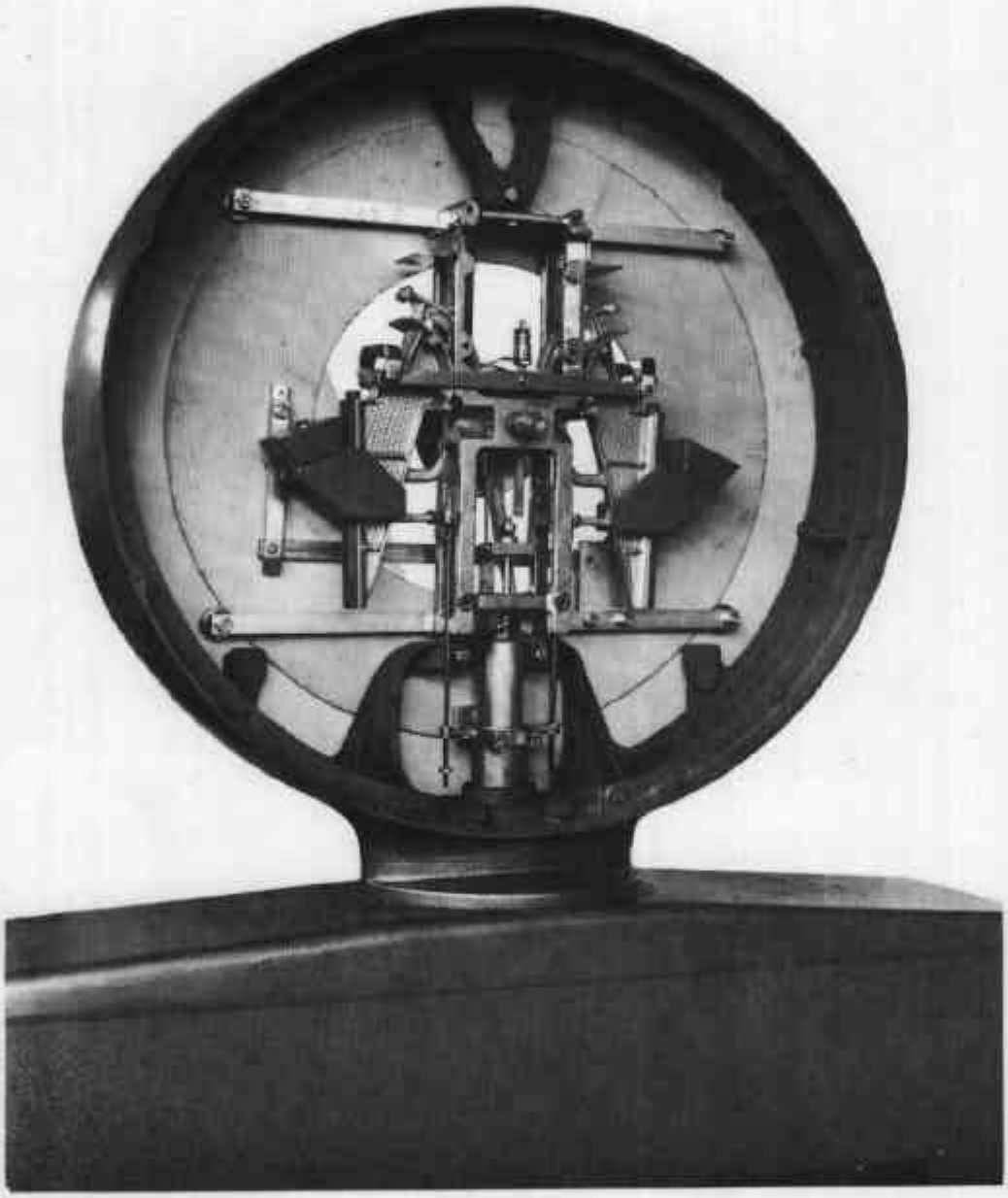
FIGURE 6/9C/2 - 36



Flash-dial Mechanism

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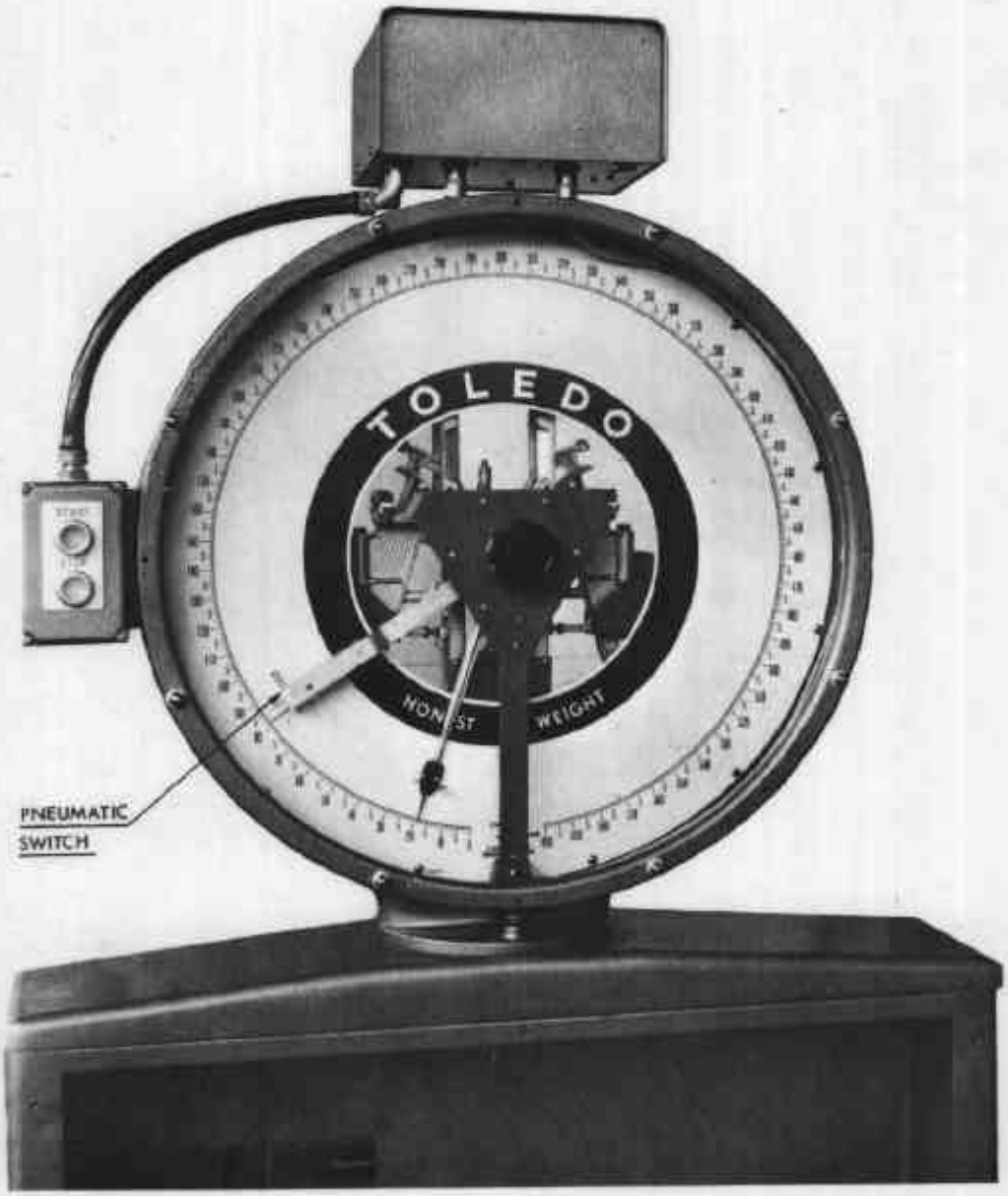
FIGURE 6/9C/2 - 37



Headwork fitted with Pneumatic Switch

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FIGURE 6/9C/2 - 38

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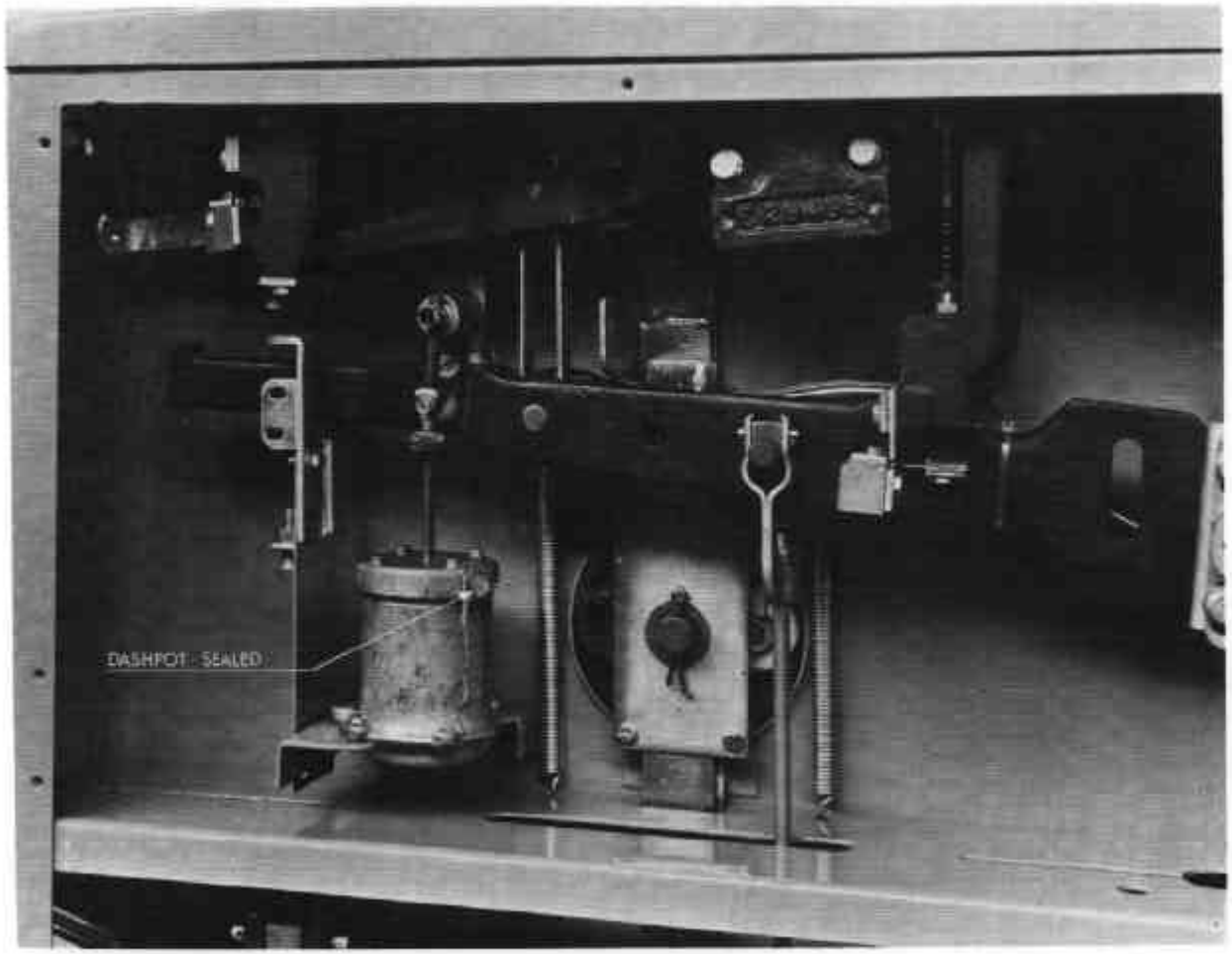
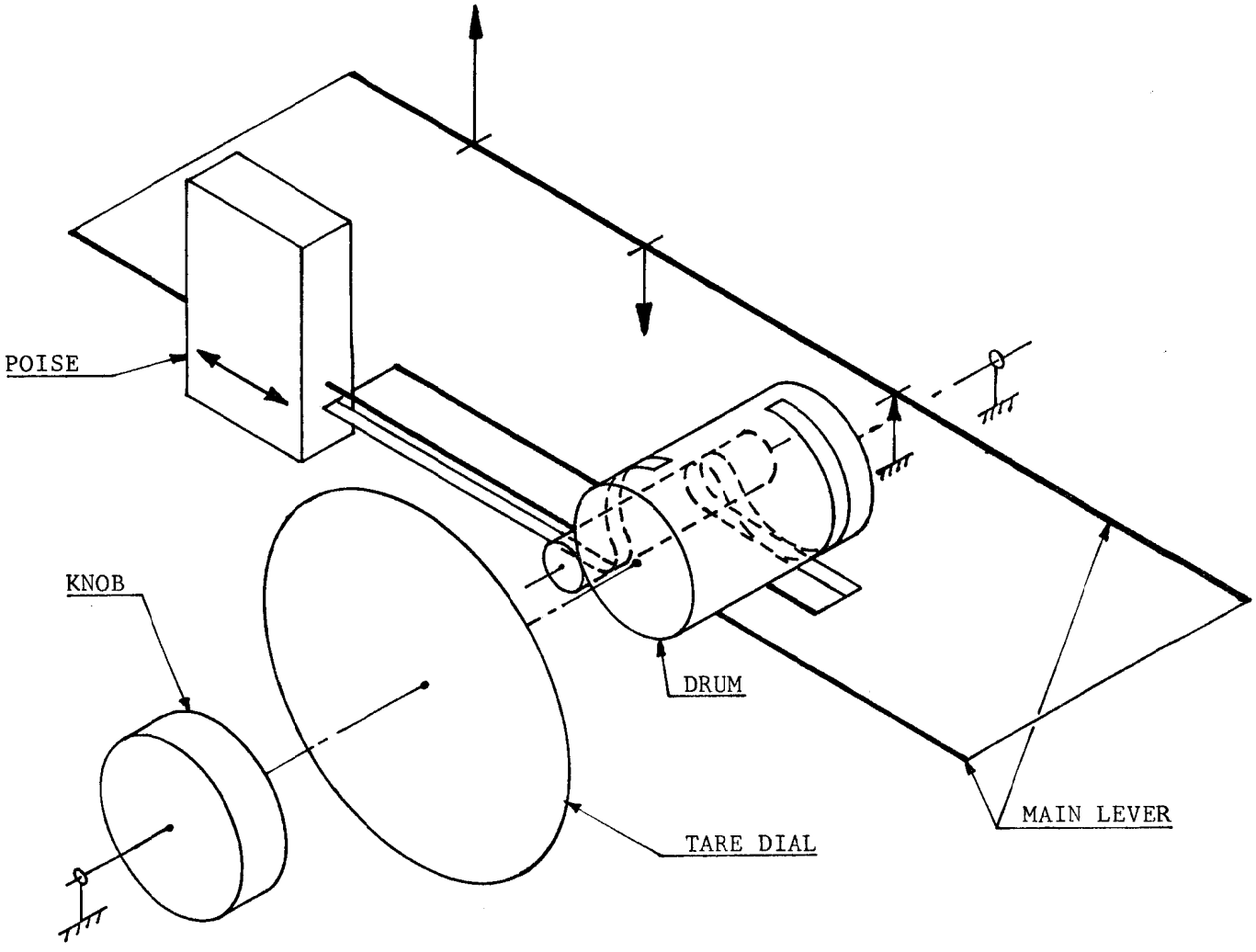


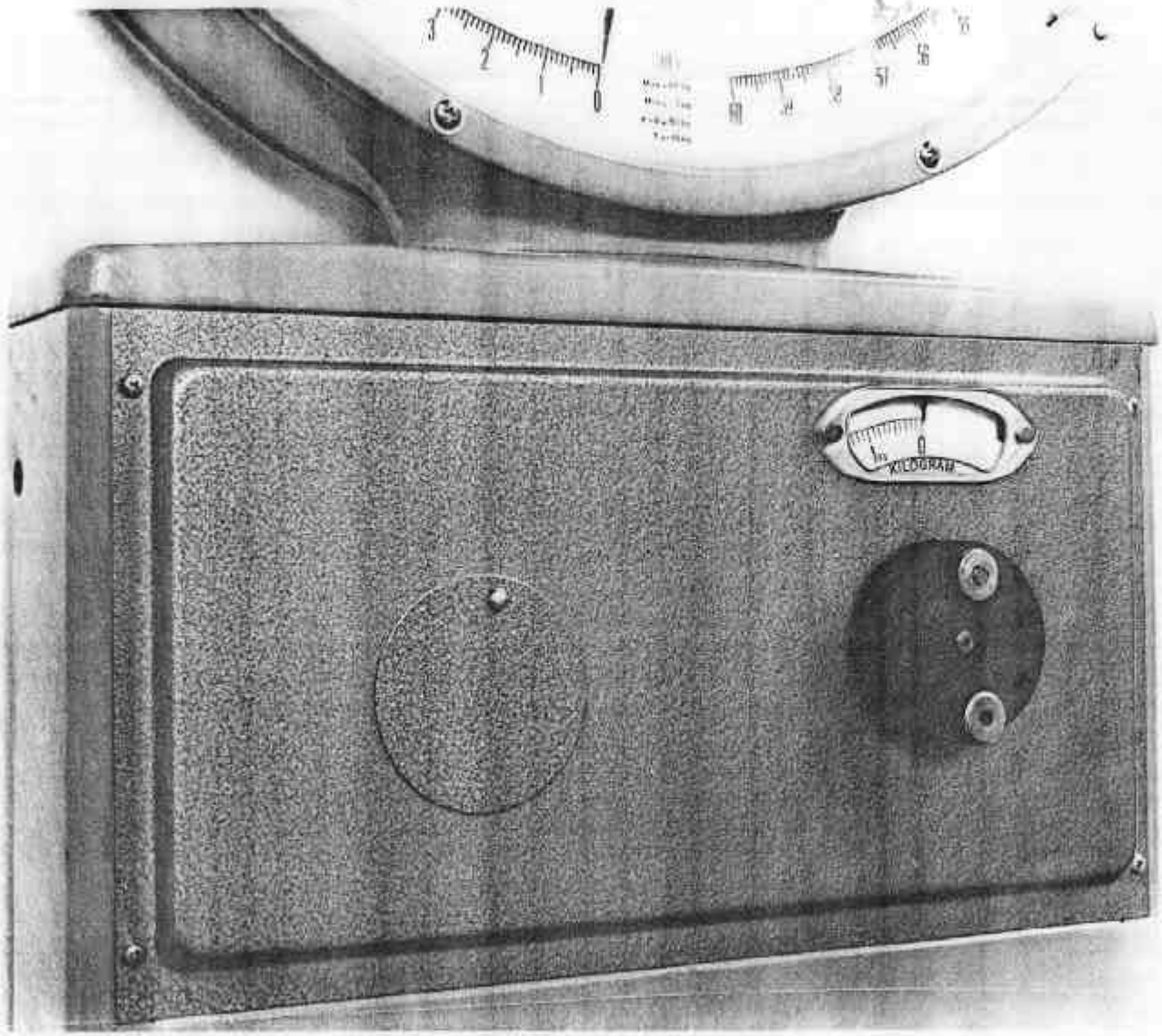
Strain-gauge Motion Detector

FIGURE 6/9C/2 - 39



Tare Mechanism — Schematic Diagram

FIGURE 6/9C/2 - 40



Tare Mechanism