Your ref:

Our ref:

Correspondence: Executive Officer
P.O. Box 282 NORTH
N.S.W. 2113

Telegrams: NATSTANCOM SYD

Telephone: 888 3922

CERTIFICATE OF APPROVAL No 6/9C/44

CANCELLED

0/2

This is to certify that the patterns of the

Toledo 2154-LCF Weighing Instrument

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

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

Date of Approval: 1 December 1975

The patterns are described in Technical Schedule No 6/9C/44, and in drawings and specifications lodged with the Commission.

The approval is subject to review on or after 1 December 1977.

All instruments conforming to this approval shall be marked with the approval number "NSC No 6/9C/44".

Signed

Executive Officer

10/3/76

CANCELLED

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/9C/44

Pattern: Toledo 2154-LCF Weighing Instrument

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

Date of Approval: 1 December 1975

Condition of Approval:

All instruments conforming to this approval shall be marked "NSC No 6/9C/44".

Description:

The pattern is a self-indicating platform weighing instrument (see Figure 1). It comprises a mechanical basework and a headwork with unit weights, a load cell resistant mechanism and an electronic weight indicator displaying up to 2000 increments on each range (see Figure 2).

The basework (see Figures 3 and 4) consists of two main levers coupled at their nose-ends with an extension of one lever connected to the headwork pullrod. The main lever knife-edges are mounted between two side plates, the platform is supported on parallel-link suspension units (see Figure 5), and four fulcrum stands are attached to the frame. The maximum capacity of the basework is 3 tonnes.

The headwork (see Figures 6 and 7) comprises:

1. Headwork cabinet -- the basework pullrod is coupled through up to three intermediate levers to the main headwork lever.

2. Unit-weight mechanism -- up to four unit weights may be fitted and may be automatically or manually deposited on or removed from the main headwork lever, either individually or in various combinations, to provide up to nine steps in increments of the capacity of the

weight indicator without unit weights engaged. A switch on the unit-weight mechanism provides the weight indicator with electric signals to indicate the weight value of the unit weights selected.

3. Tare bars -- mounted on extension pieces, may be fitted to the main-headwork lever. In this case the weight indicator is located on the same side of the instrument as the tare bars so that the operator can view the tare bars and the weight indicator together.

4. Main headwork lever and resistant mechanism -- a stirrup connects the main headwork lever to a Toledo 90-kg cantilever type load cell resistant mechanism. The lever ratios are selected so that at maximum capacity the force applied to the load cell is between 360 N and 880 N (37 to 90 kgf).

5. Mechanical stops -- located underneath the load cell bearing to limit the overload on the load cell to 150% of capacity and on the ends of the main lever to prevent it being lifted out of its fulcrum bearing.

6. Weight indicator Toledo 8130 (see Figure 2) -- converts the output from the load cell into a digital weight indication of up to 2000 increments for each range to a maximum weight indication of 10 000 increments.* Electric signals from the switch on the unit-weight mechanism change the most significant digit on the weight indicator in accordance with the weight value of the unit weights selected. Monitor circuits blank out the weight indication when the load receptor is overloaded for the range selected or if the range selected is too high for the load on the load receptor. "Over-capacity" and "under-zero" lights indicate whether unit weights have to be added or subtracted. The weight indication is blanked out when the unit weights are not properly deposited on the main lever.

   A motion detector prevents the weight indicator from displaying until the signal sampled in successive counting periods is the same; that is, the instrument is in equilibrium. Zero is set by a screwdriver adjustment. A zero-check push-button displays zero in 0,2-graduation increments.

* For example, the instrument may have five ranges with 2000 increments on each range or ten ranges with 1000 increments on each range.

The 8130 weight indicator is retained in its cabinet by a lead-and-wire seal as it is too fragile for a stamping-plug seal. The serial number of the load cell and the cable from the load cell are sealed to the weight indicator (see Figure 8).

When tare bars are not fitted, an output socket provides digital information to peripheral equipment. The output is inhibited by the motion detector until the instrument is in equilibrium and also when the zero-check push-button is operated. The use of peripheral equipment will not affect the operation of the instrument.

The Toledo 8130 weight indicator is marked adjacent to the weight-reading face, for example:

(III)

Max = 2000 kg
Min = 10 kg
d_d = 0,2 kg

The approval includes the resistant mechanism being a Toledo 45-kg cantilever load cell. The lever ratios are selected so that at maximum capacity the force applied to the load cell is between 175 N and 440 N (18 to 45 kgf).

Special Tests:

1. Zero Balance -- when the indicator is adjusted to zero with the zero-check push-button depressed, it should indicate zero when the zero-check push-button is released.

2. Load-cell Creep -- Leaving a maximum-capacity load on the load receptor for a period of 30 minutes should not cause the weight indicated to be incorrect, and on removal of the load the weight indicated should be zero ± 0,25 d_d.

3. Motion-detector Sensitivity -- Removal from the load receptor at any load of a load equal to 1,5 increments should cause the weight indicator to go blank for a perceptible period before indicating the new load.

4. Test Loads -- The application of the test loads specified in Table 1 and the display of these loads within the applicable tolerance is one method of checking that the instrument operates in accordance with the approved design.

TABLE 1

Test Load in Graduations* for first 2000 graduations

0	10	25	60	120	250	698,5
1	12	30	70	140	300	798,5
2	14	35	80	160	350	898,5
3	16	40	90	180	400	998,5
4	18	45	100	200	450	1198,5
5	20	50			500	1398,5
6						1598,5
7						1798,5
8						1998,5
9						

* Test Load = Number of graduations x graduation value

Note:

The test load should include an appropriate test near the minimum and maximum load for each range. For example, if the instrument has 1000 increments per range, test loads of 998,5 graduations and 1001,5 graduations would test the top of the first range and the bottom of the second range.

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'.

..../2

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~~ 44A	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.

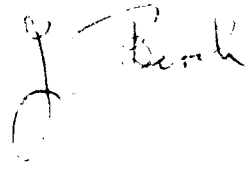
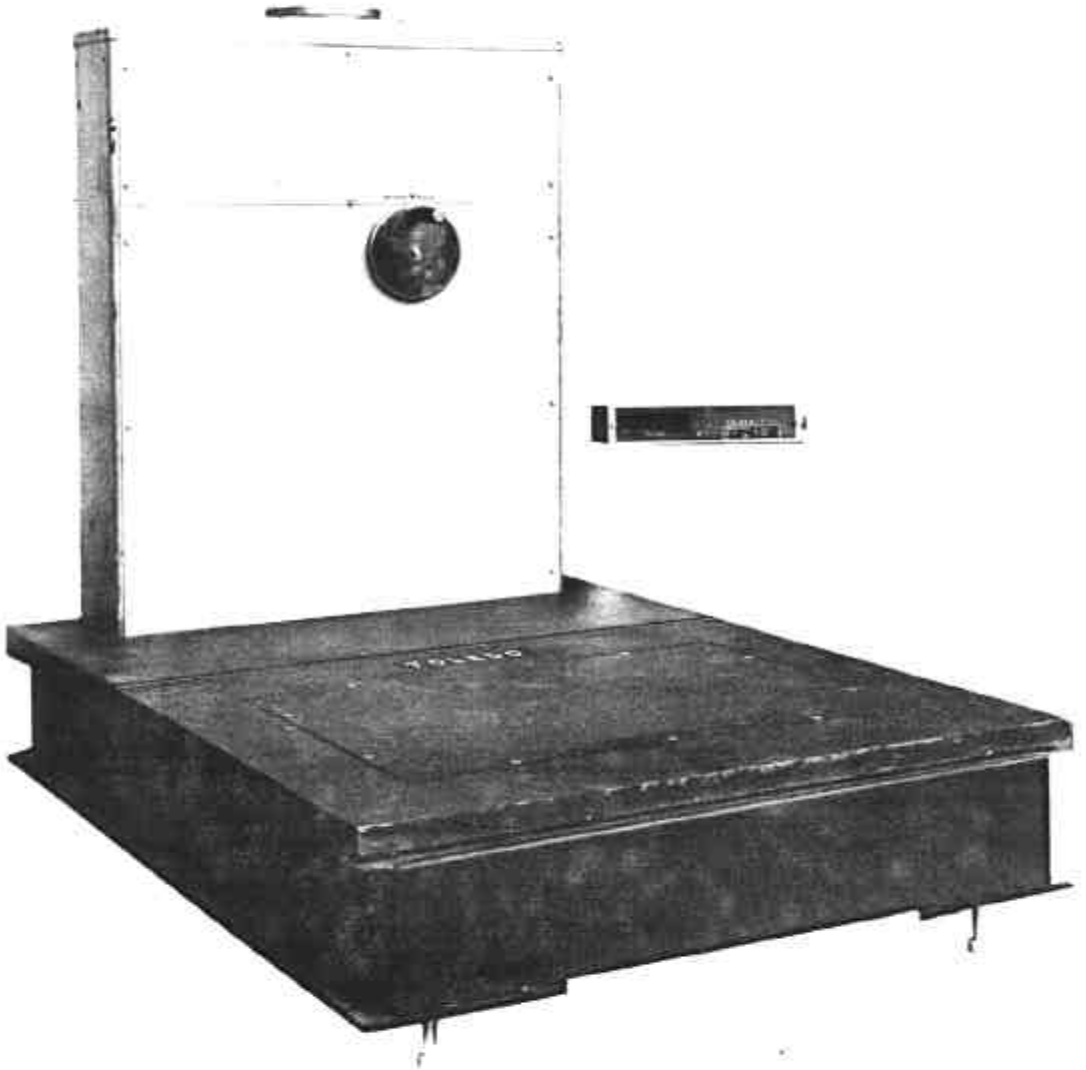


FIGURE 6/9C/44 - 1



Toledo 2154-LCF Weighing Instrument

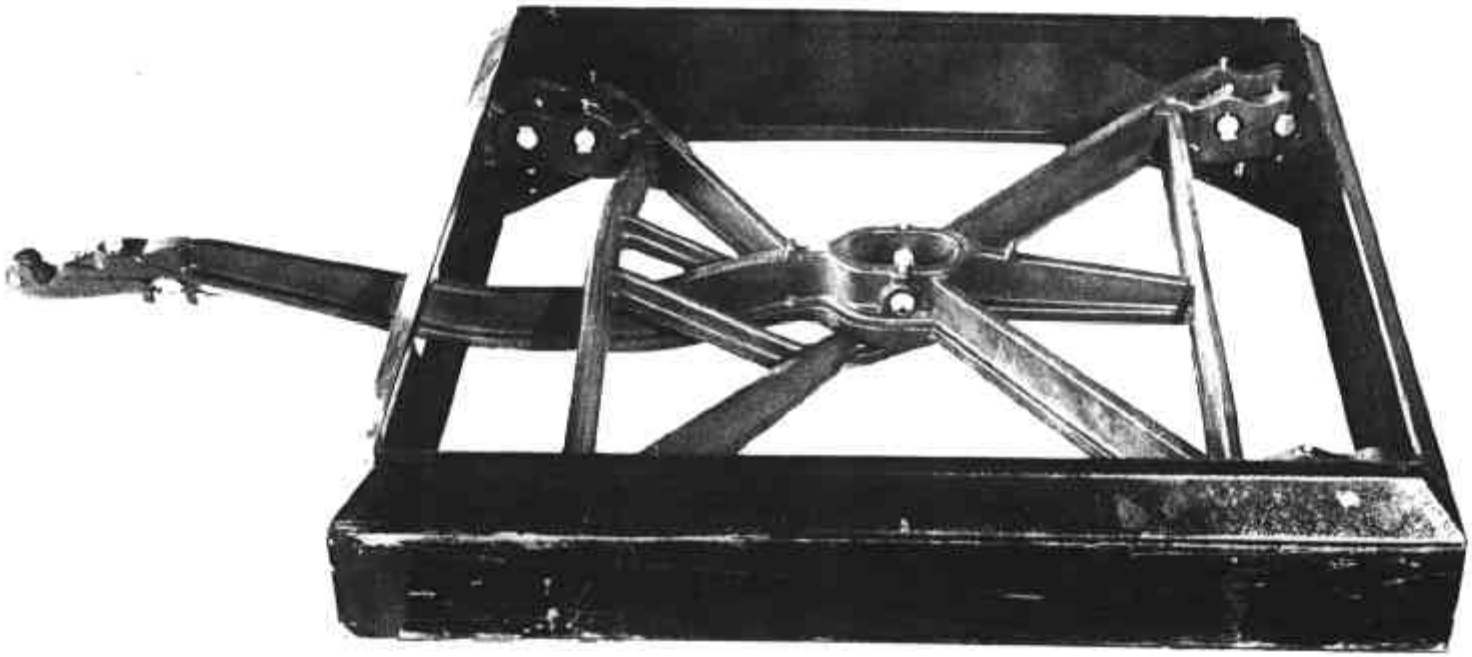
10/3/76

FIGURE 6/9C/44 - 2

Toledo 8130 Weight Indicator

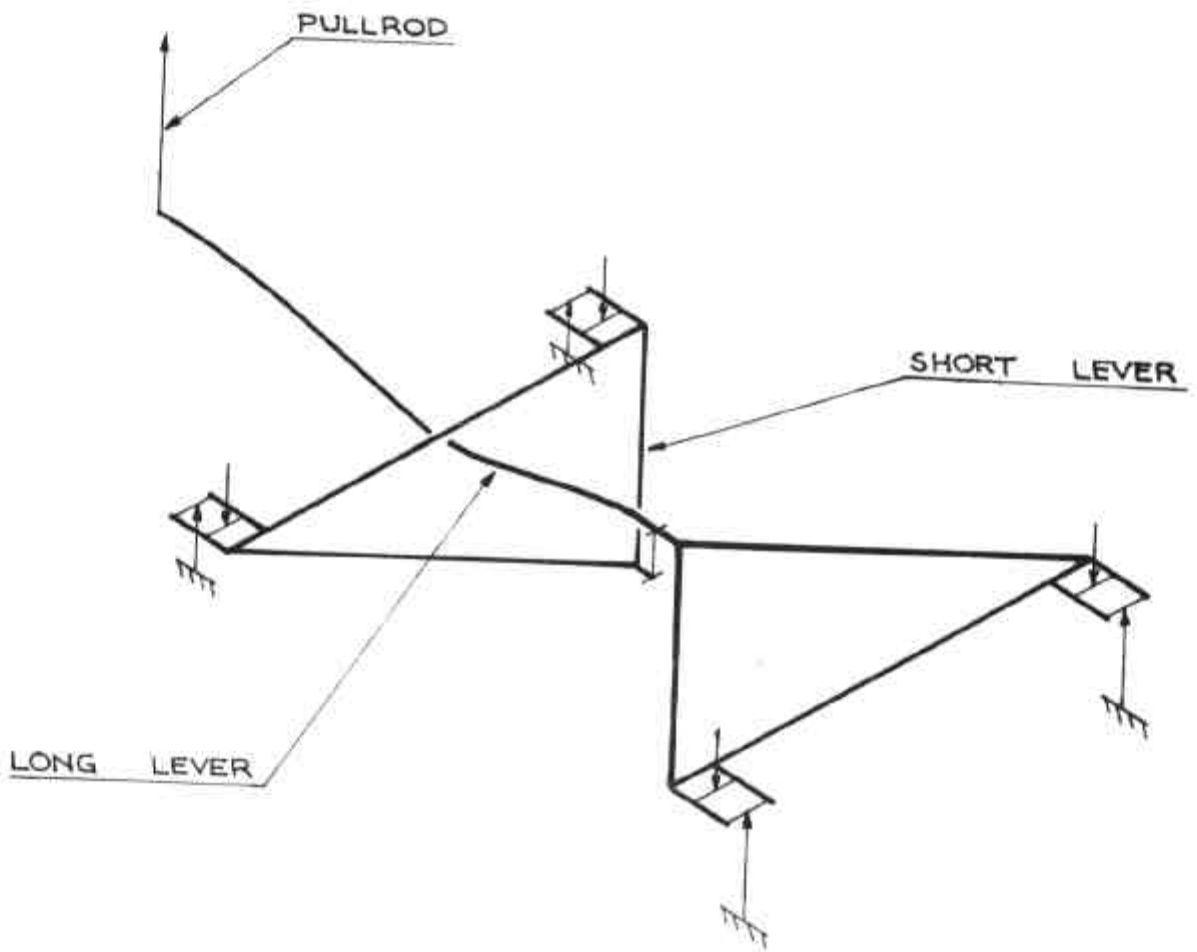
10/3/76

FIGURE 6/90/44 - 3



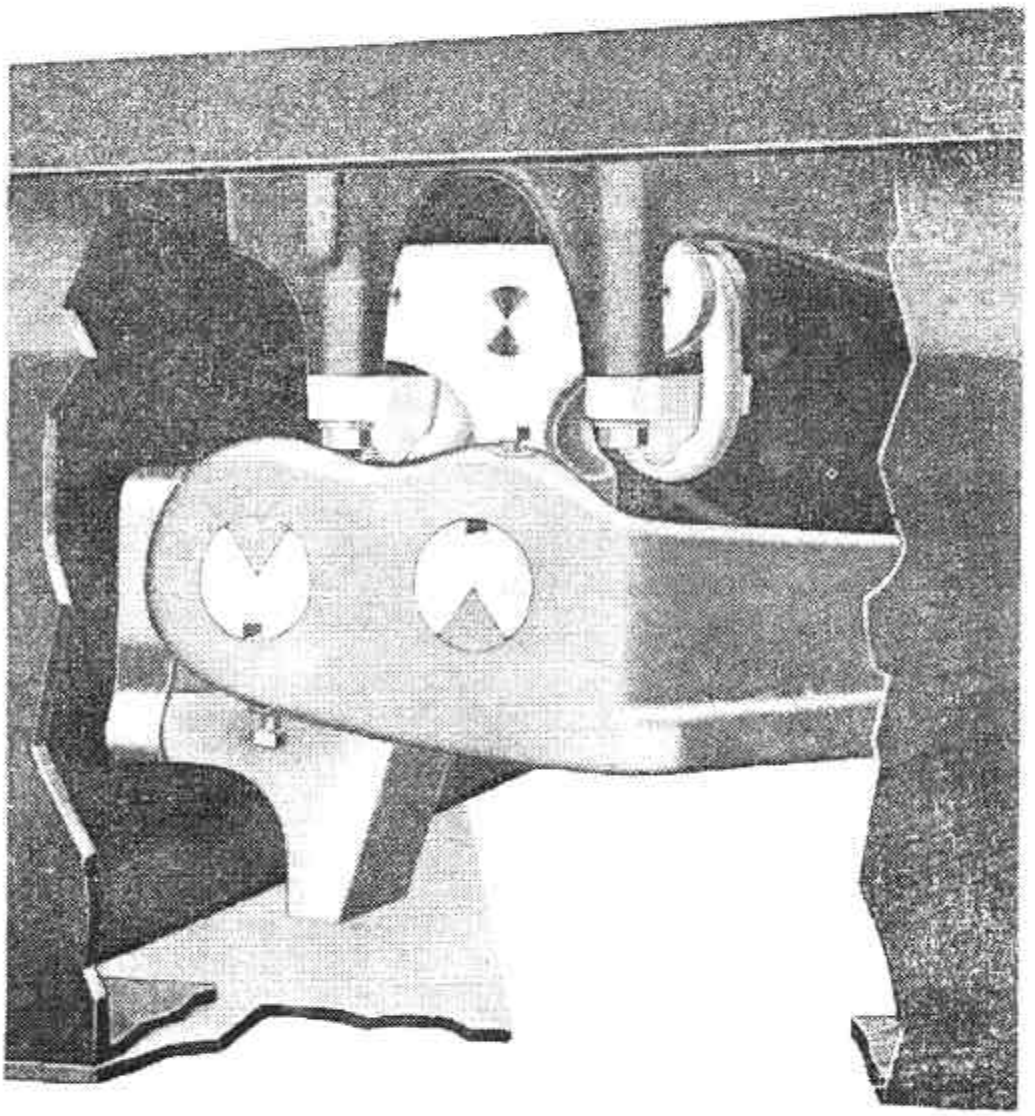
2-lever Busework

FIGURE 6/9C/44 - 4



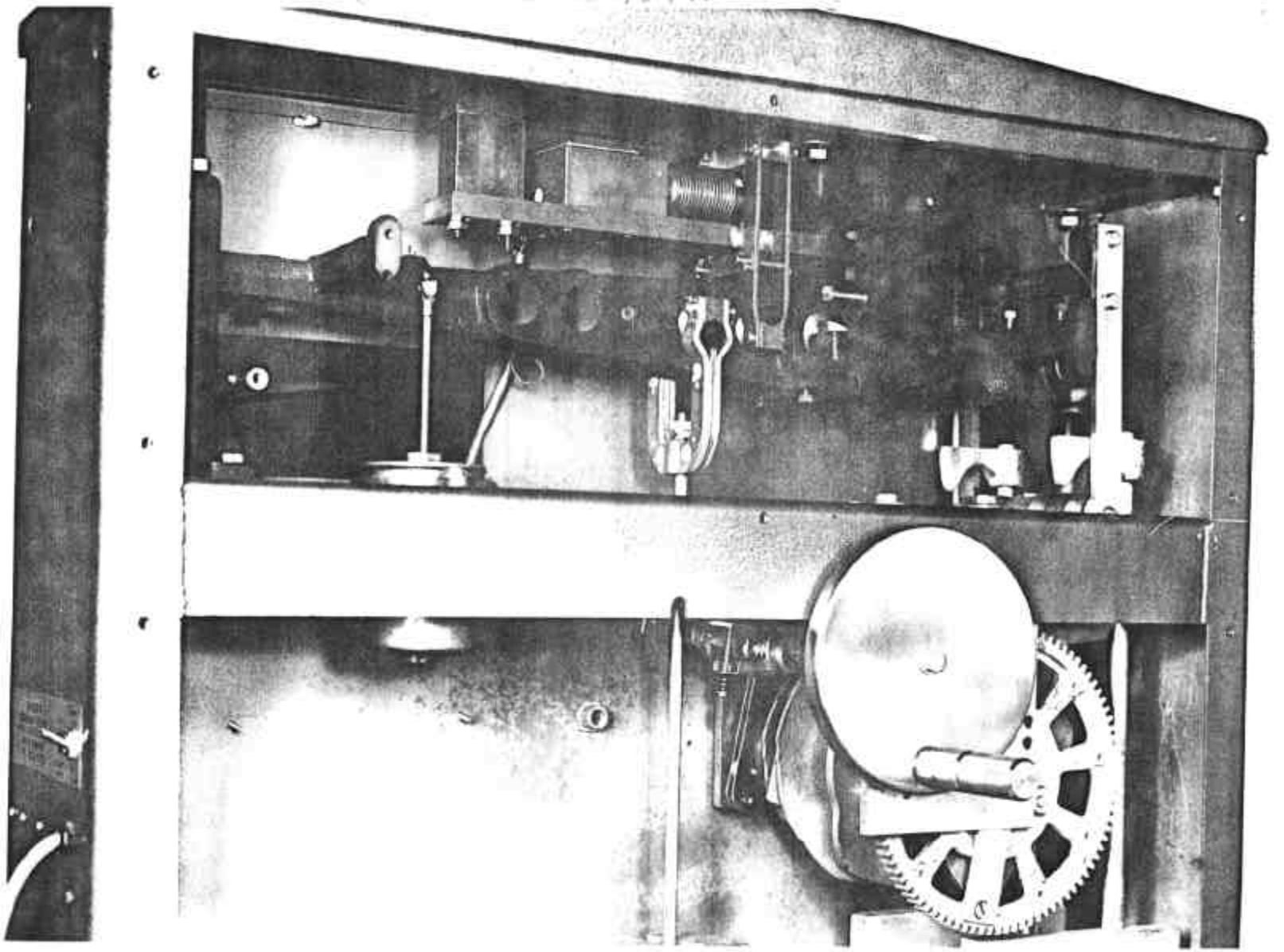
2-lever Basework — Schematic Diagram

FIGURE 6/90/44 - 5



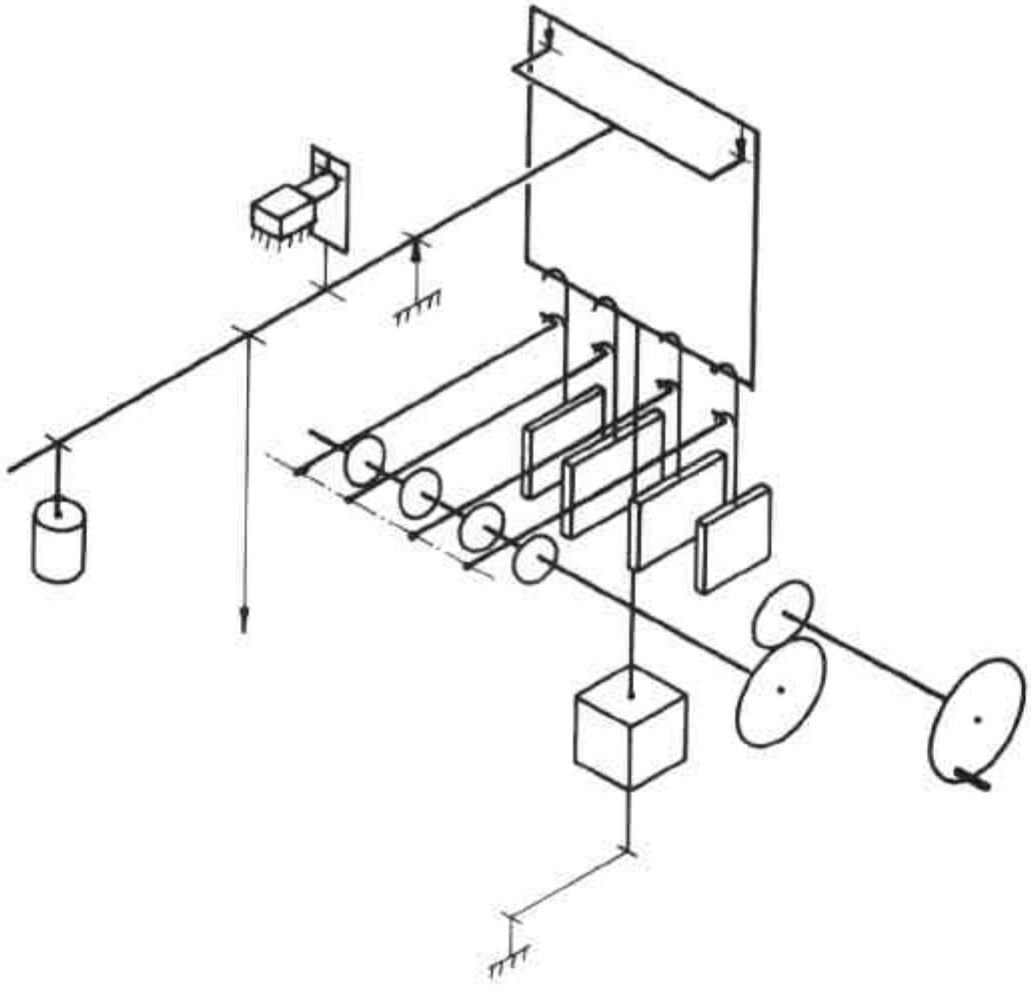
Platform Suspension and Fulcrum Support

10/3/76



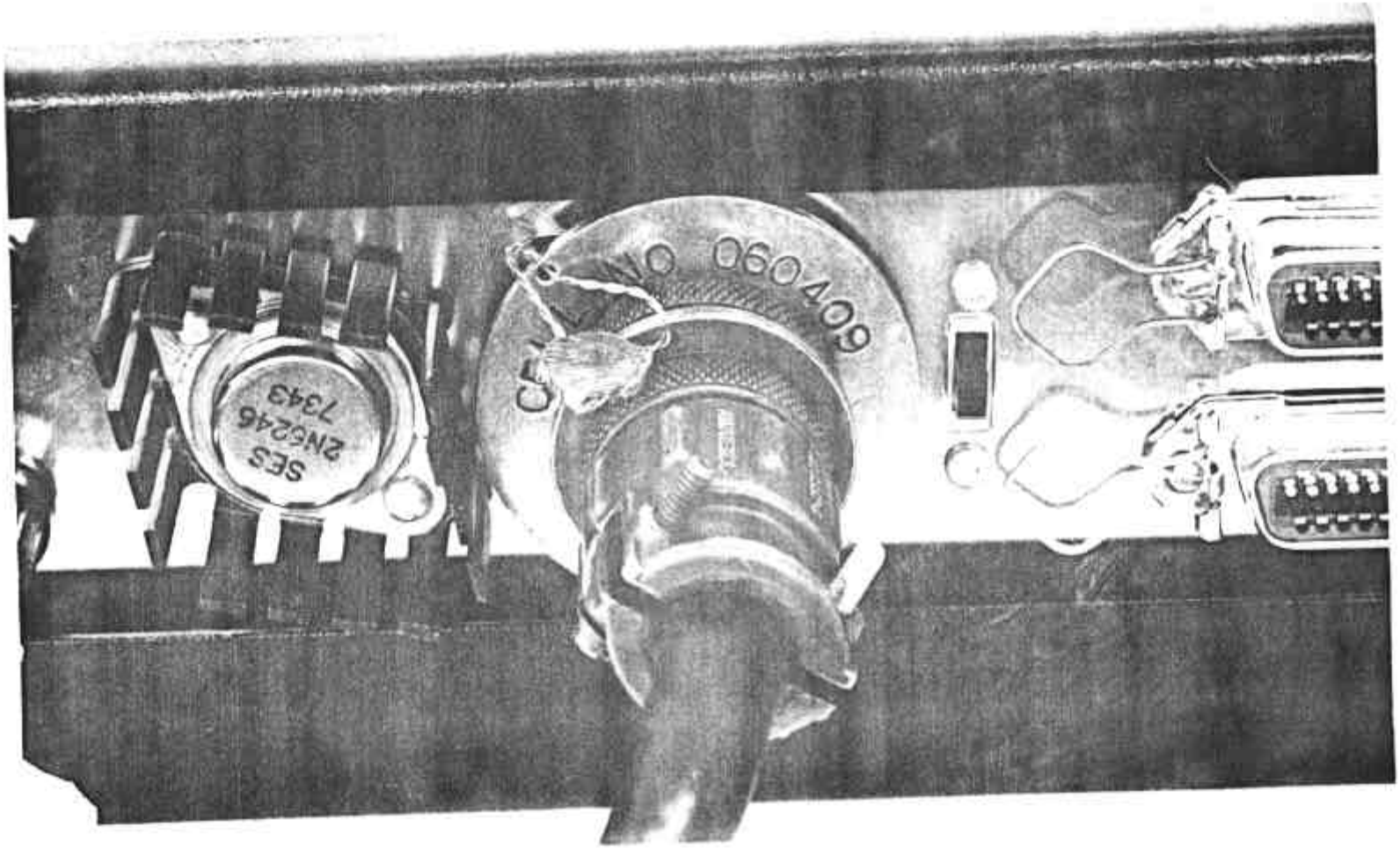
Load Cell Resistant Mechanism

FIGURE 6/9C/44 - 7



Resistant Mechanism — Schematic Diagram

FIGURE 6/9C/44 - 8



Toledo 8130 -- Load Cell Serial Number and
Sealing of Load Cell Cable