

CERTIFICATE OF APPROVAL No 6/14D/10

CANCELLED
0/3

This is to certify that the patterns of the

Toledo Belt Conveyor Weigher Model 8170

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: 4 April 1977

The patterns are described in Technical Schedule No 6/14D/10, and in drawings and specifications lodged with the Commission.

The approval is subject to continuing review.

All instruments conforming to this approval shall be marked with the approval number "NSC No 6/14D/10".

Approval is granted on condition that -

1. The submitter shall provide such facilities, right of entry and test materials necessary to allow the Commission to test or retest any weighing installation which is for trade use.
2. The submitter shall notify the Commission of each instrument to be submitted to State or Territorial Weights and Measures Authorities for verification.
3. The instrument only weighs when the conveyor is moving in the one direction; means shall be provided to ensure that the conveyor cannot move in the reverse direction.
4. Within a flow-rate range of 100% to 20% of full flow rate, the maximum permissible error at initial verification is $\pm 0,5\%$ and the service tolerance is $\pm 1,0\%$ (belt conveyor weigher Class I).
5. When tested at "no load" the totalizer indication shall not, during or at the end of the test, increase or decrease by more than two scale intervals, when the instrument is operated for a period equivalent to the minimum delivery at 20% flow rate, provided the period of operation is not less than the time for one complete circuit of the belt.
6. The minimum delivery (Min) is 2000 totalizer increments ($2000 \times dt_a$).
7. The service period is three months.

Signed





CANCELLED

d3
31-12-90

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/14D/10

Pattern: Toledo Belt Weigher Model 8170

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

Date of Approval: 4 April 1977

Conditions of Approval:

1. The submittor shall provide such facilities, right of entry and test materials necessary to allow the Commission to test or retest any weighing installation which is for trade use.
2. The submittor shall notify the Commission of each instrument to be submitted to State or Territorial Weights and Measures Authorities for verification.*
3. The instrument shall only weigh when the conveyor is moving in the one direction; means shall be provided to ensure that the conveyor cannot move in the reverse direction.
4. Within a flow-rate range of 100% to 20% of full flow rate, the maximum permissible error at initial verification is $\pm 0,5\%$, and the service tolerance is $\pm 1,0\%$ (belt conveyor weigher Class 1).
5. When tested at "no load", the totalizer indication shall not, during or at the end of a test, increase or decrease its indication by more than two scale intervals when operated at no load for a period equivalent to the minimum delivery at 20% flow rate and for not less than the time for one complete circuit of the belt.
6. The minimum delivery (Min) is 2000 totalizer increments ($2000 \times dt_2$).
7. The service period is three months.
8. All instruments conforming to this approval shall be marked "NSC No 6/14D/10".

* Inspectors should not verify any instrument complying with this approval until advised in writing by the Commission.

2/11/77

.../2

Description:

The pattern (see Figures 1 and 2) is a belt conveyor weigher of maximum flow rate (Q_{max}) up to $6000 \text{ t} \cdot \text{h}^{-1}$, maximum belt speed (V) up to $6 \text{ m} \cdot \text{s}^{-1}$, maximum weigh-length (L) up to 2 m, and maximum capacity per metre of the weighing unit (Max) up to 0,31 t. It comprises a basework which supports the conveyor belt on two idler rollers (see Figures 2 and 3), a load cell resistant mechanism (see Figure 4), a computing and totalizing unit (see Figure 1), and a pulse transmitter (see Figure 5).

The two idler rollers are mounted on a frame which is supported on two main levers by knife-edges and bearings (see Figures 2 and 3). The nose-ends of the main levers are connected by a single link to an intermediate lever which applies the load to a Toledo cantilever type load cell resistant mechanism (see Figure 4). The lever ratios and the load cell capacity are selected so that at maximum capacity the force applied to the load cells is:

1. 22-kg load cell — between 90 N and 220 N (9 to 22 kgf);
2. 45-kg load cell — between 175 N and 440 N (18 to 45 kgf);
3. 90-kg load cell — between 360 N and 880 N (37 to 90 kgf).

The computing and totalizing unit integrates the load cell weight signal with the conveyor-belt movement signal from the pulse transmitter to provide a voltage proportional to the weight of material passed over the weigher. A voltage to frequency converter changes this voltage to an alternating signal to drive a stepping motor which is coupled with a 1 : 1 ratio, to a non-resettable digital mechanical totalizer.

Flow rate in tonnes per hour is indicated on a seven-bar digital indicator.

Three rotary switches and a series of toggle switches, which are under a cover within the computing and totalizing unit, provide adjustment for the instrument calibration (see Figure 6). A tool-operated zero adjustment is accessible through a small hole in the cover (see Figure 7).

Sealing:

1. The cover over the calibration and mode switches is sealed, as illustrated in Figure 7.
2. The serial number of the load cell is sealed to the computing and totalizing unit, as illustrated in Figure 7.

Marking:

Adjacent to the totalizer and the flow-rate indicator are the following markings, for example:

	(I)	
Q max	=	4000 t.h ⁻¹
Min	=	200 t
dt _a	=	0,1 t
V	=	3,0 m.s ⁻¹
L	=	2 m
Max	=	0,310 t.m ⁻¹

The approval includes the lever system in the form illustrated in Figure 8.

Special Tests:

1. Zero Test — when operated at no load the totalizer indication shall not, during or at the end of the test, increase or decrease by more than two scale intervals when the instrument is operated for a period equivalent to the minimum delivery at 20% flow rate, provided the period of operation is not less than the time for one complete circuit of the belt.

The test should either commence from the moment when the indication changes or alternatively the period of the test should be extended to the period necessary to deliver 1,5 times the minimum delivery at 20% flow rate.

2. Load Test — after the instrument has been adjusted to zero at no load, the maximum error positive or negative, when tested with a "live load"* equal to the minimum delivery, shall not be more than 0,5% at initial verification and 1% in service.

Not less than three tests should be done at each of the following flow rates:

at 100%, 80%, 50% and 20% of Q Max.

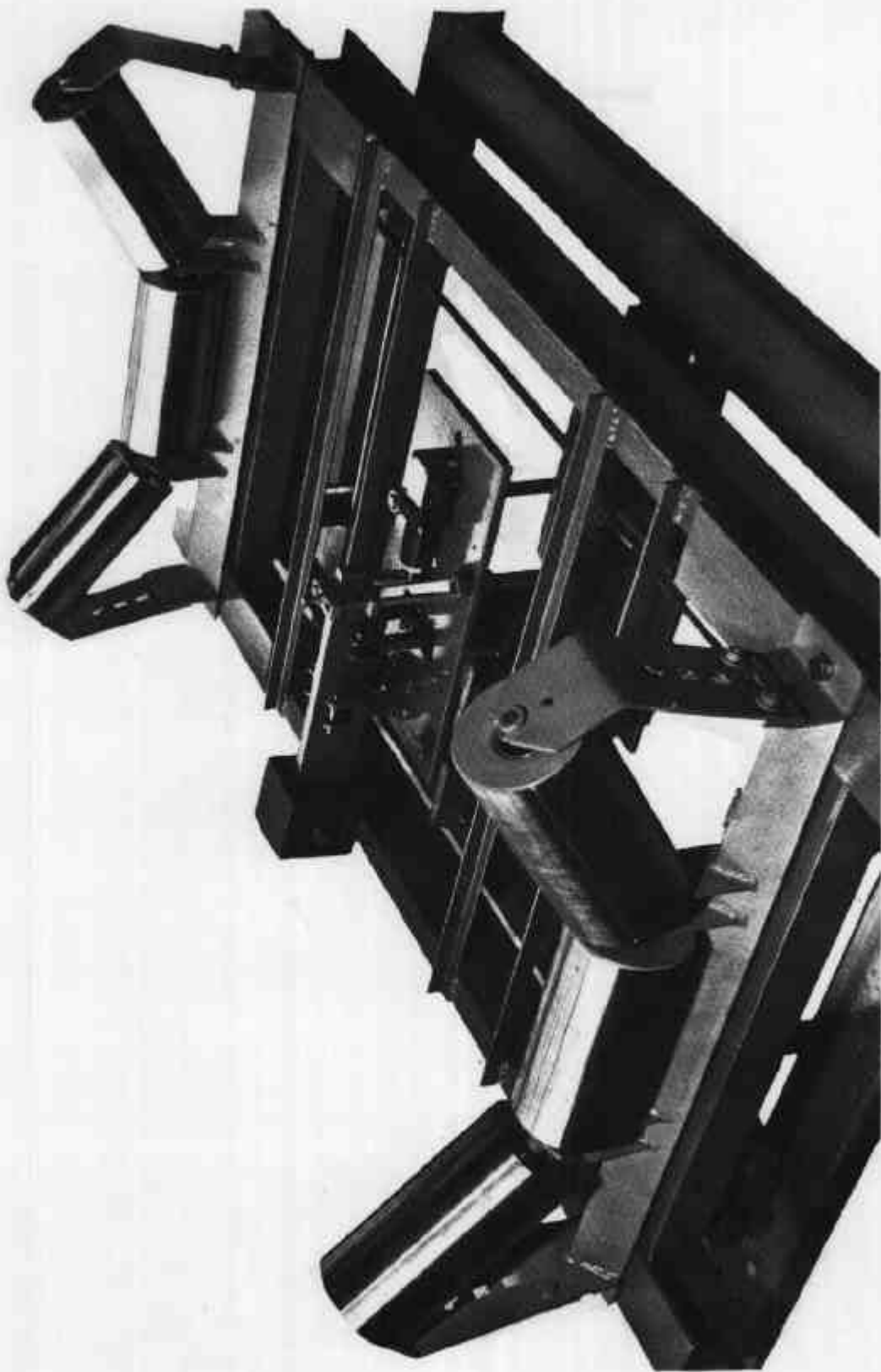
* The checkweigher shall check the test load with an uncertainty of not more than ± 0,1%.

FIGURE 6/14D/10 - 1



Computing and Totalizing Unit

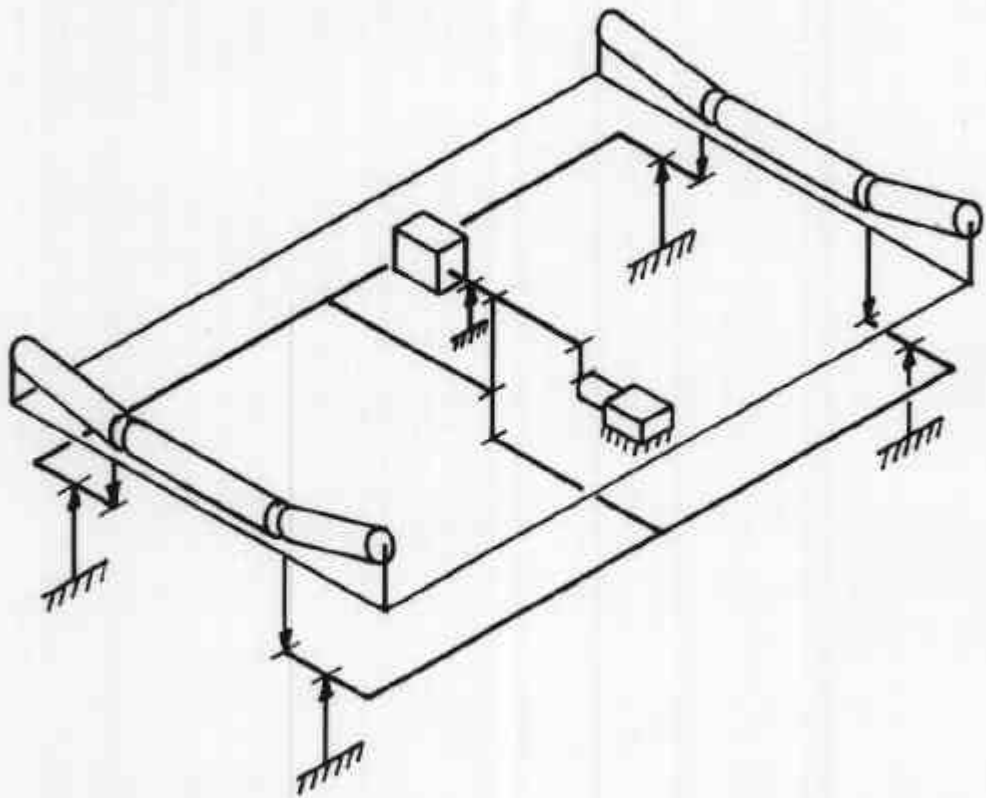
2/11/77



Basework and Resistant Mechanism

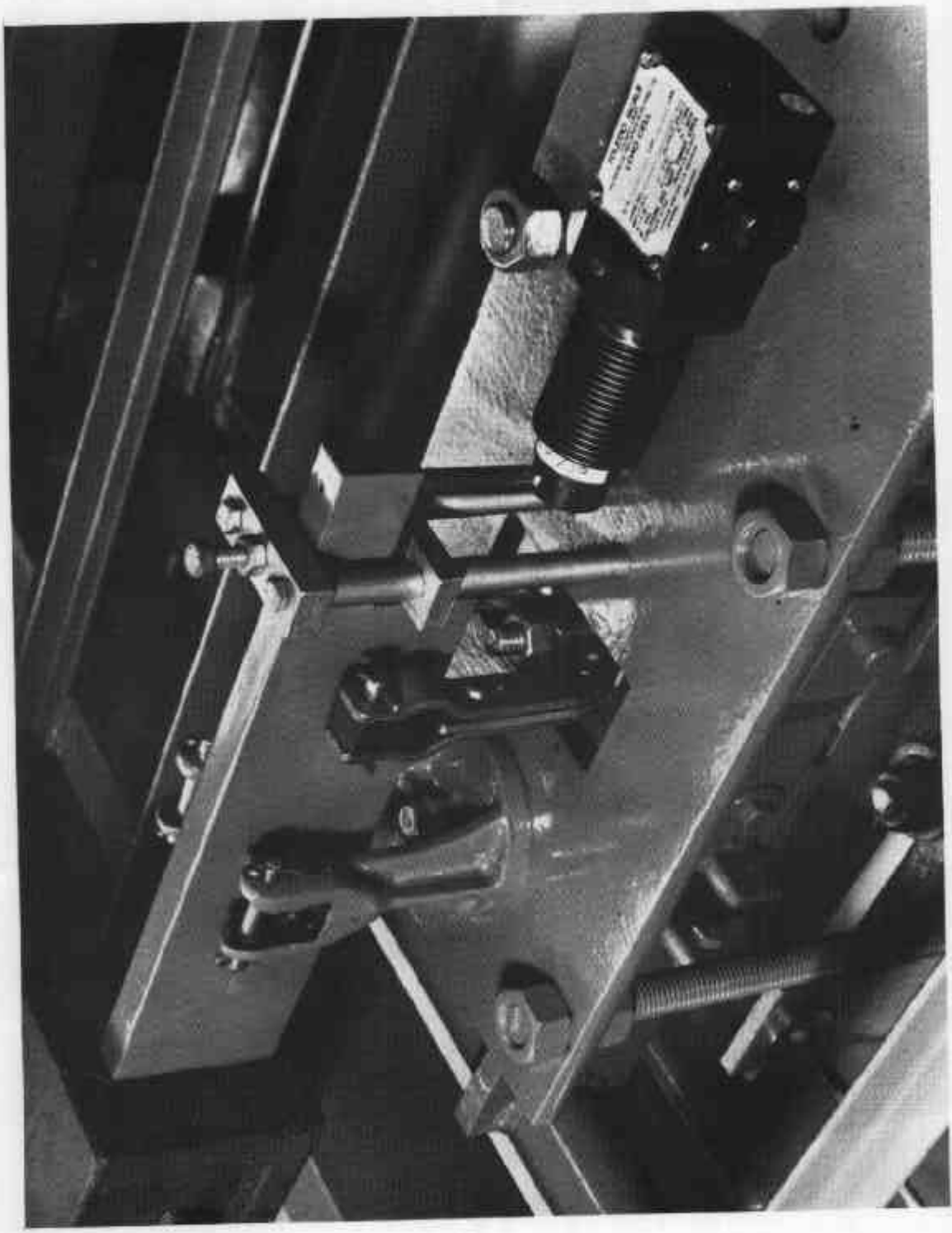
NOTE: The basework illustrated does not show the lightweight inverted angle which is fitted after installation to prevent accumulation of product on the framework and resistant mechanism

FIGURE 6/14D/10 - 3

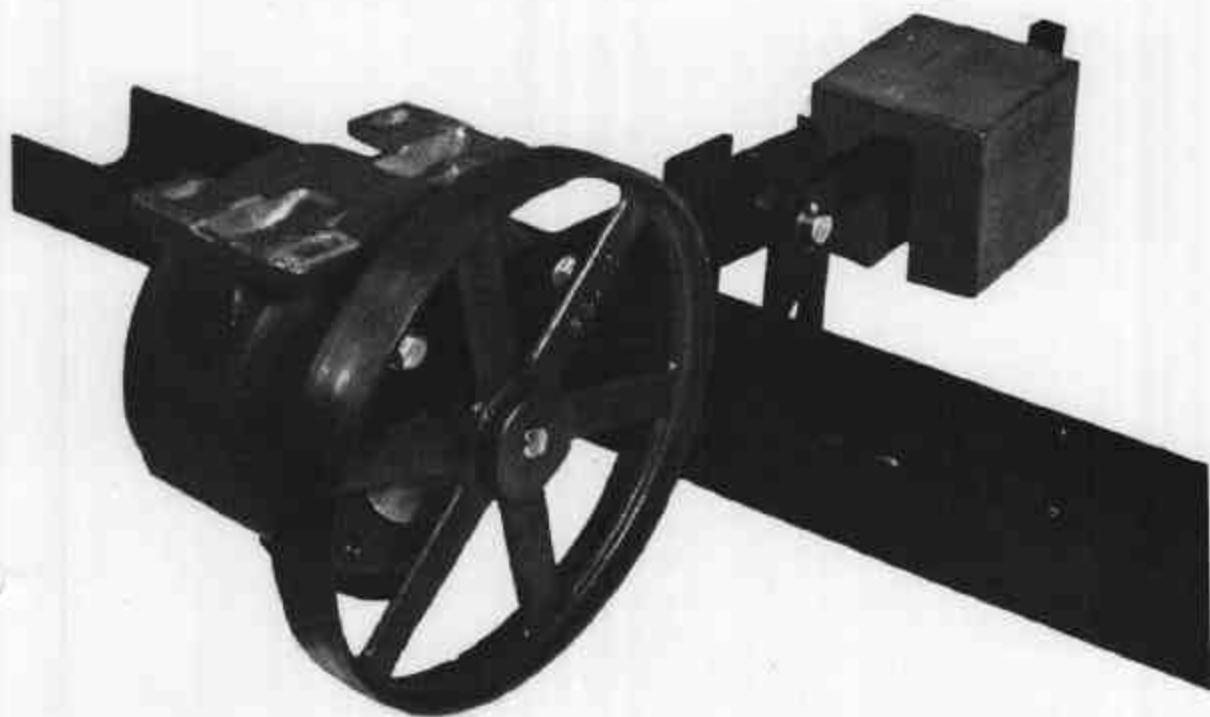


Basework and Resistant Mechanism — Schematic Drawing

2/11/77



Intermediate Lever and Load Cell Resistant Mechanism



Pulse Transmitter Unit

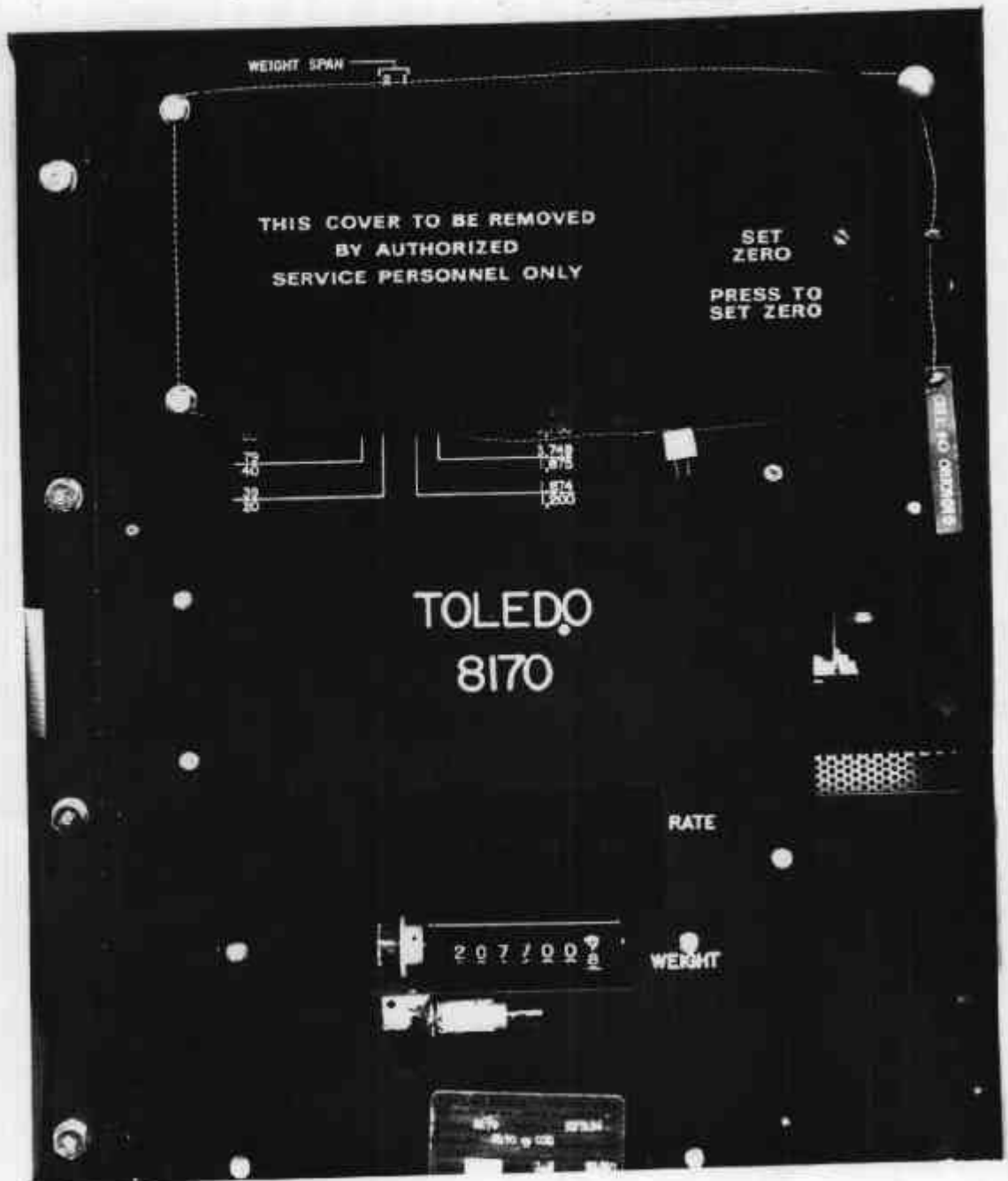
2/11/77



Computing and Totalizing Unit —
Calibration of Zero Adjustments

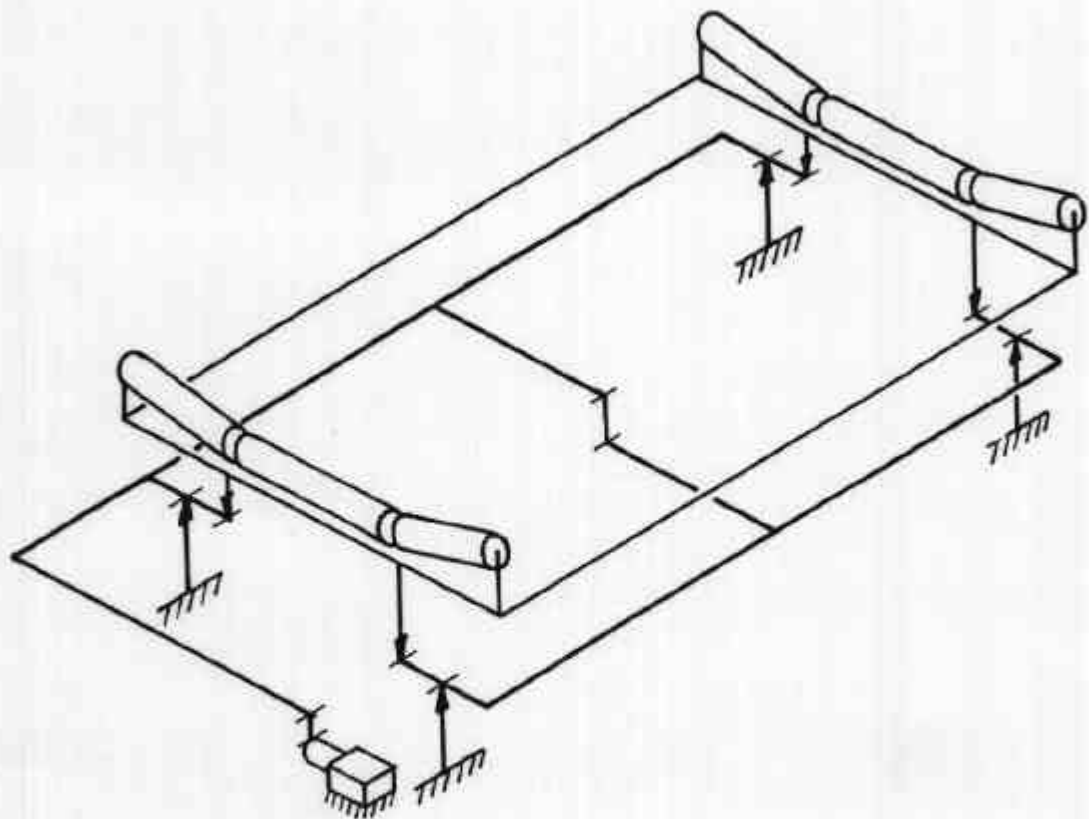
2/11/77

FIGURE 6/14D/10 - 7



Sealing — Calibration Adjustments of
Load Cell Serial Number

2/11/77



Basework and Resistant Mechanism — Schematic Drawing

2/11/77