National Standards Commission

Certificate of Approval

No 6/10B/32B

Issued under Regulation 9
of the
National Measurement (Patterns of Measuring Instruments) Regulations

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

Ultra-Hawke Model 6000 Weighing Instrument

submitted by Ultra Scales Pty Ltd
35 Judge Street
Sunshine VIC 3020.

This Certificate is issued upon completion of a review of NSC approval No 6/10B/32A.

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.

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CONDITIONS OF APPROVAL

This approval is subject to review on or after 1/10/96.
This approval expires in respect of new instruments on 1/10/97.

Instruments purporting to comply with this approval shall be marked NSC No 6/10B/32B and only by persons authorised by the submittor.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the Commission and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with the Commission's Document 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0.

The values of the performance criteria (maximum number of scale intervals etc.) applicable to an instrument incorporating the pattern approved herein shall be within the limits specified herein and in any approval documentation for the other components.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

The pattern as approved herein or with substitute load cells and/or indicator, and in other capacities and configurations, shall comply with General Certificate No 6B/0.

DESCRIPTIVE ADVICE

Pattern: approved 24/9/91

- An Ultra-Hawke model 6000 self-indicating weighing instrument of 40 000 kg maximum capacity.

Variants: approved 24/9/91

1. With a non-self-indicating headwork.
2. With tare bars.
3. With a load cell and digital indicator.

Technical Schedule No 6/10B/32B describes the pattern and variants 1 to 3.

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FILING ADVICE

The documentation for this approval comprises.

Certificate of Approval No 6/10B/32B dated 3/4/92
Technical Schedule No 6/10B/32B dated 3/4/92 (incl. Test Procedure)
Figures 1 to 7 dated 3/4/92

National Standards Commission

TECHNICAL SCHEDULE No 6/10B/32B

Pattern: Ultra-Hawke Model 6000 Weighing Instrument.

Submittor: Ultra Scales Pty Ltd
35 Judge Street
Sunshine VIC 3020.

1. Description of Pattern

The pattern is an Ultra-Hawke model 6000 self-indicating weighing instrument of 40 t maximum capacity.

1.1 Basework

The pattern may be fixed into the ground or fitted on a steel framework, with the headwork connected by a transfer lever. Additional transfer levers may be required to connect the headwork if remote from the basework.

1.1.1 Lever System

The lever system, approved for use with up to 10 000 verification scale intervals, comprises two or more main levers and a number of transfer levers. The levers are fabricated and of first, second or third order in Y, T or straight form. The various levers are connected by simple or compound vertical links. Figure 1 shows one arrangement.

1.1.2 Platform Support

The platform is supported in either of the following ways:

(a) Directly supported through bearings on the main lever load knife-edges in which case the lever fulcrum knife-edges are located on bearings mounted in links suspended from either floor-mounted pedestals (Figure 2) or from a steel frame surrounding the basework (Figure 3); or

(b) Mounted on the main lever knife-edges through a ball-bearing support assembly in which case the lever fulcrum knife-edges are located on bearings mounted in fixed floor-mounted pedestals (Figure 4).

1.2 Headwork

The instrument is approved for use with up to 6000 verification scale intervals when used with dials of up to 600 scale intervals full scale deflection.

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The headwork consists of a unit-weight cabinet and a dial housing (Figure 5) which may have a double-sided indicator. The headwork may require intermediate levers and may have up to nine unit-weights which are deposited either automatically via a geared motor, or via a cam-driven arrangement using a handle on the front. A tool-operated zero adjustment is provided.

1.3 Markings

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

Manufacturer's name or mark	
Serial number of instrument	
NSC approval number	NSC No 6/10B/32B
Accuracy class	(III)
Maximum capacity	Max ..... *
Minimum capacity	Min ..... *
Verification scale interval	e = d = ... *

* Repeated in the vicinity of each reading face.

2. Description of Variants

2.1 Variant 1

With the self-indicating headwork replaced by a non-self-indicating headwork approved for use with up to 10 000 verification scale intervals. The final transfer lever is connected through a pullrod direct to a full-capacity steelyard, or alternatively through an intermediate lever in the headwork cabinet (Figure 6).

2.2 Variant 2

With graduated or ungraduated tare bars fitted to the self-indicating headwork, in which case only a single dial and indicator may be used and on the same side of the headwork cabinet as the tare bars, locking lever and unit-weight controls.

2.3 Variant 3

With a Gedge Systems model GS1650 Mk3 digital indicator (as described in the documentation of NSC approval No S193A) and a Yamato model US3-2T-C2 2000 kg load cell (as described in the documentation of NSC approval No S165).

The load cell may be connected to a suitably shortened headwork lever. If the existing headwork is retained, only one method of mass indication may be in use at any time; the other indicator shall be rendered inoperative.

Alternatively, the load cell may be fitted directly in the pullrod from the nose-end knife-edge of the basework transfer lever or installed at the nose-end of each pair of main levers, a typical example of which is illustrated in Figure 7.

TEST PROCEDURE

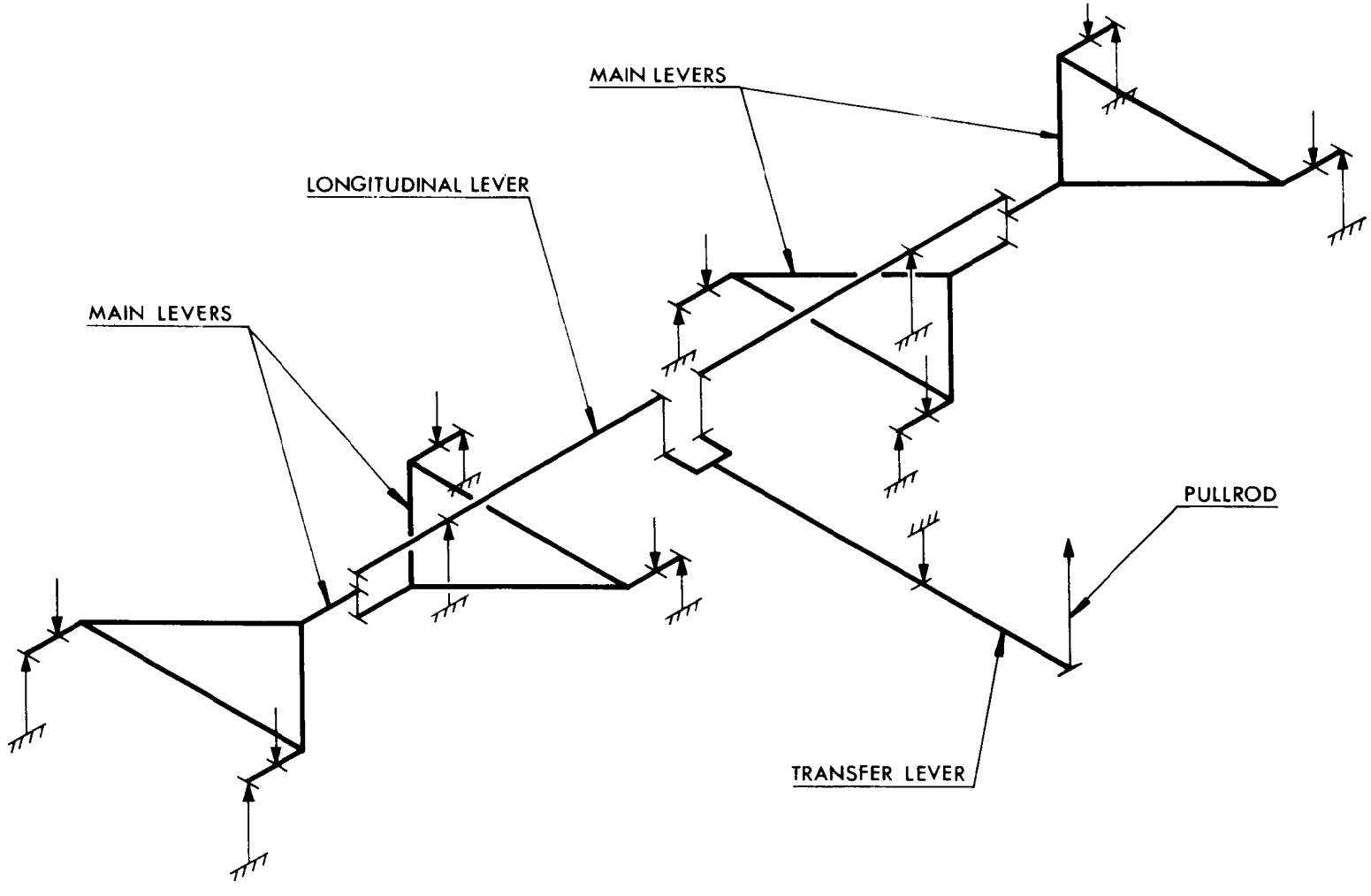
Instruments should be tested in conjunction with any tests specified in the approval documentation for the indicator used, and in accordance with any relevant tests specified in the Inspector's Handbook.

Maximum Permissible Errors at Verification/Certification

The maximum permissible errors for increasing and decreasing loads, expressed in terms of verification scale interval (e), with the instrument adjusted to zero within ±0.25e at no load, are:

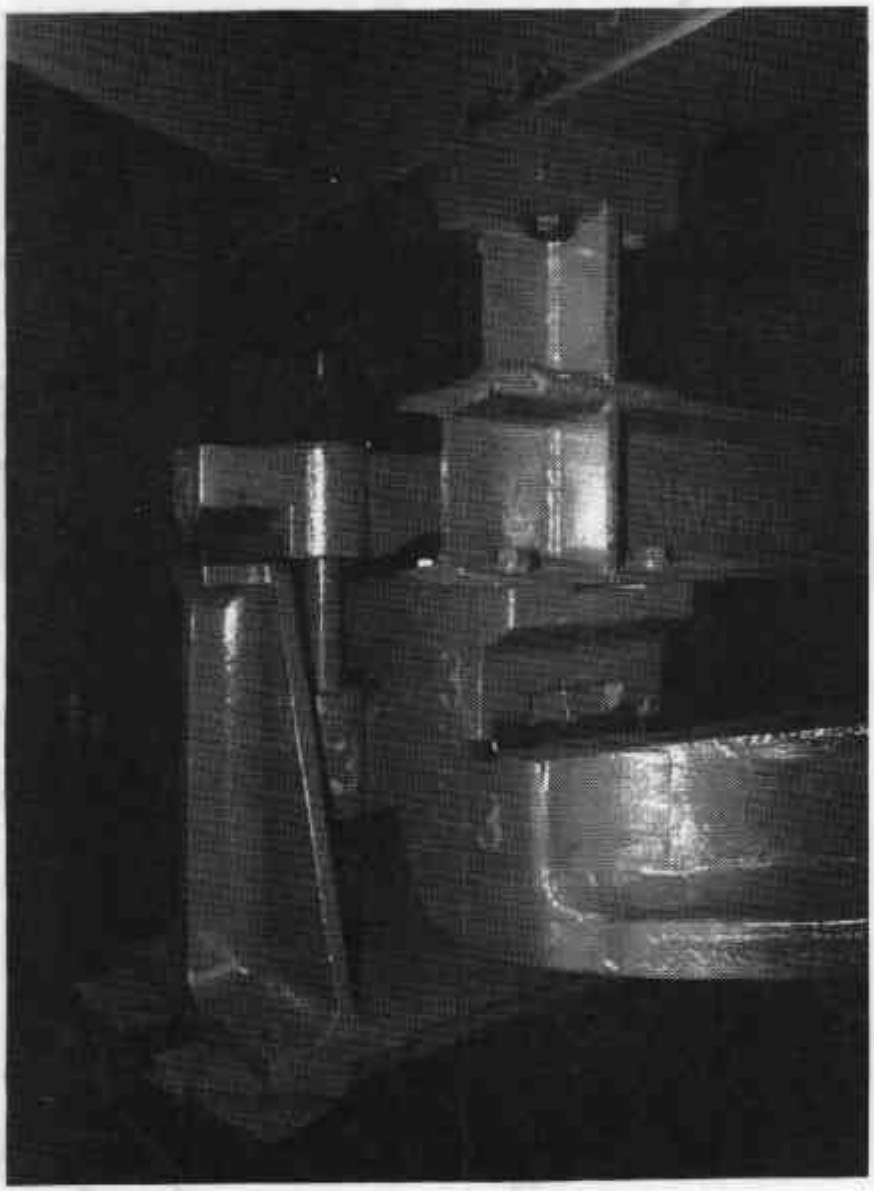
±0.5e for loads from 0 to 500e;
±1.0e for loads over 500e up to 2000e; and
±1.5e for loads over 2000e.

FIGURE 6/10B/32B - 1



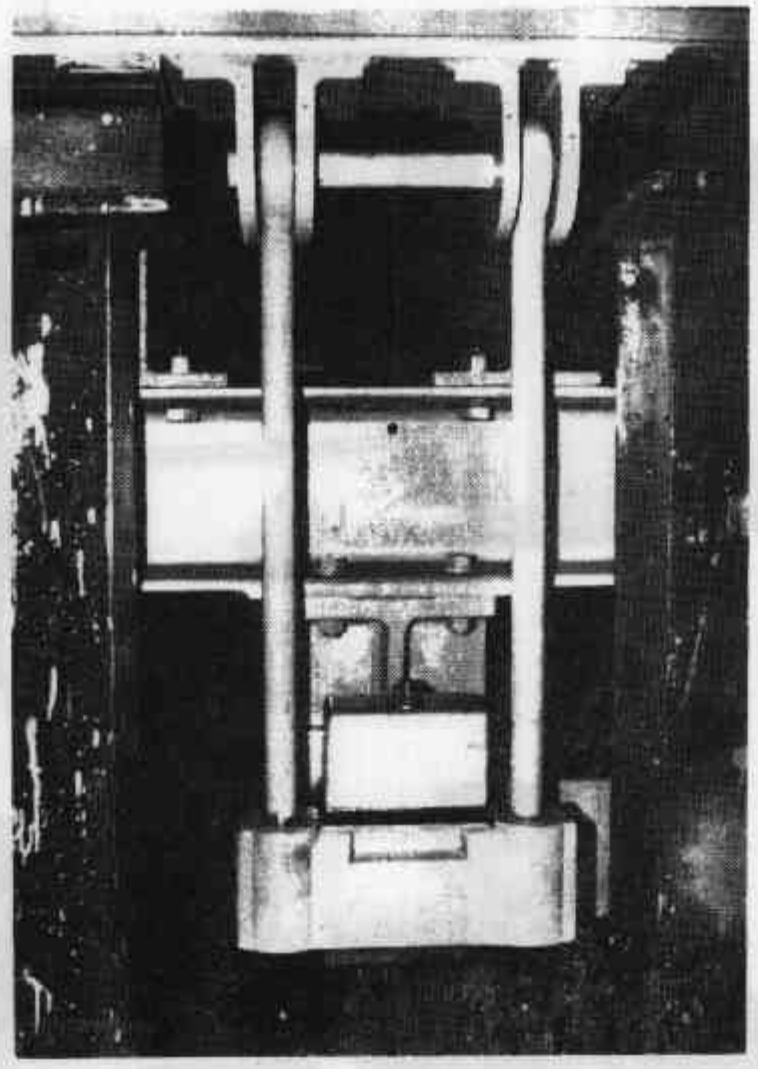
Ultra-Hawke Model 6000 Seven-lever Weighing Instrument

FIGURE 6/10B/32B - 2



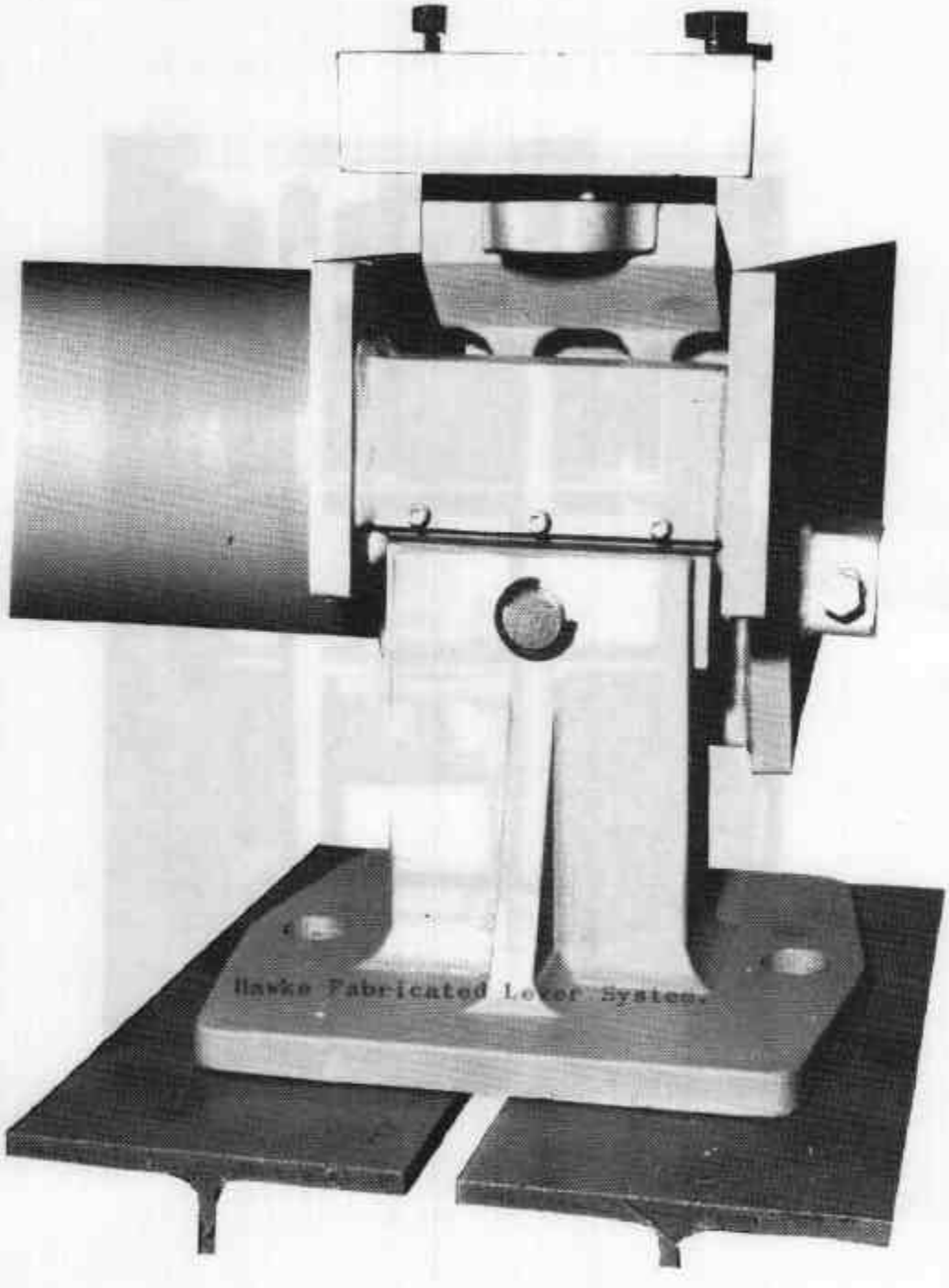
Main Lever Load Knife-edge Pedestal Support

FIGURE 6/10B/32B - 3



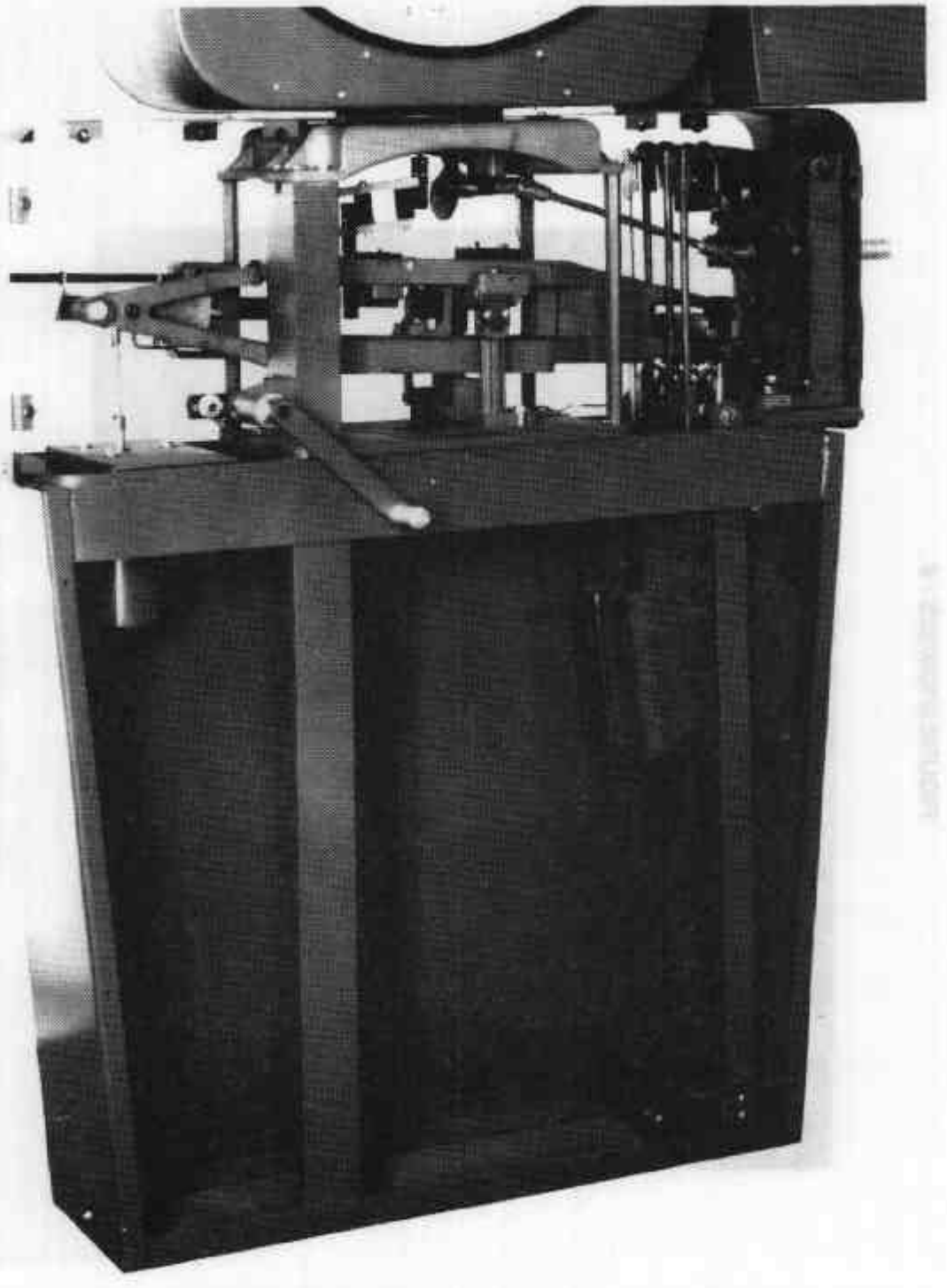
Main Lever Fulcrum Knife-edge Suspension Support

FIGURE 6/10B/32B - 4



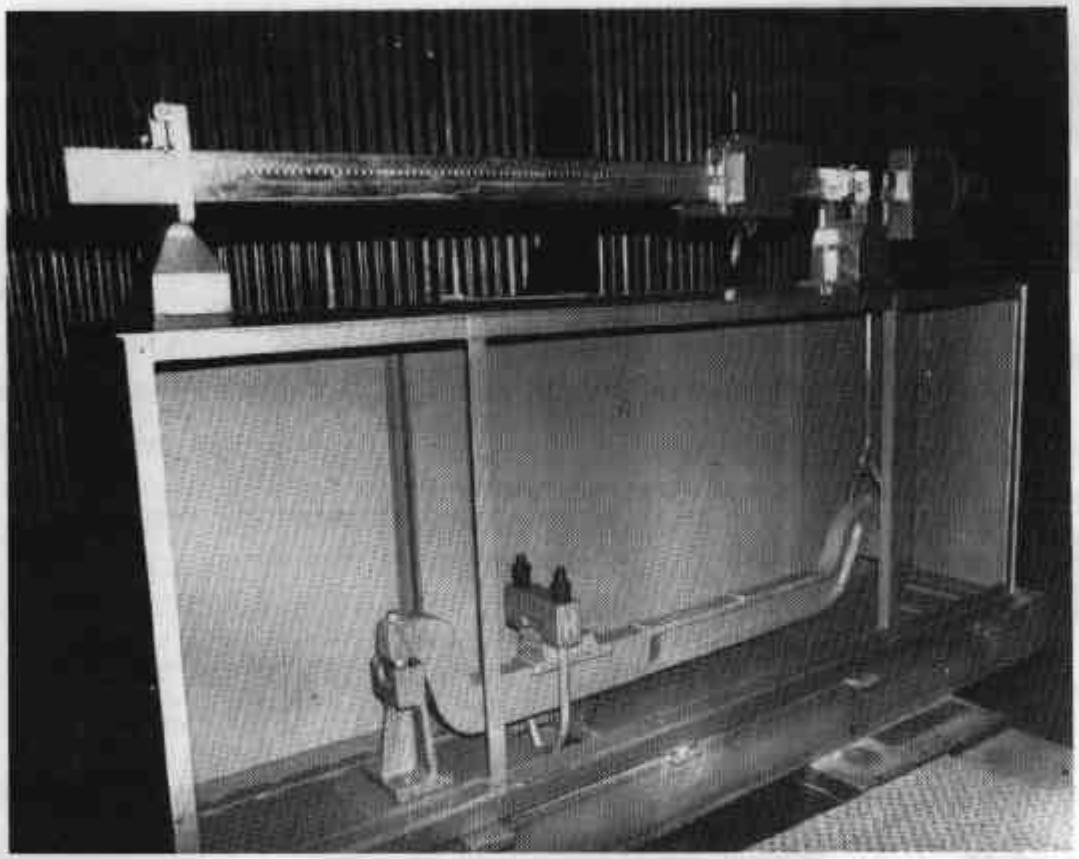
Ball-bearing Support Unit and Pedestal

FIGURE 6/10B/32B - 5



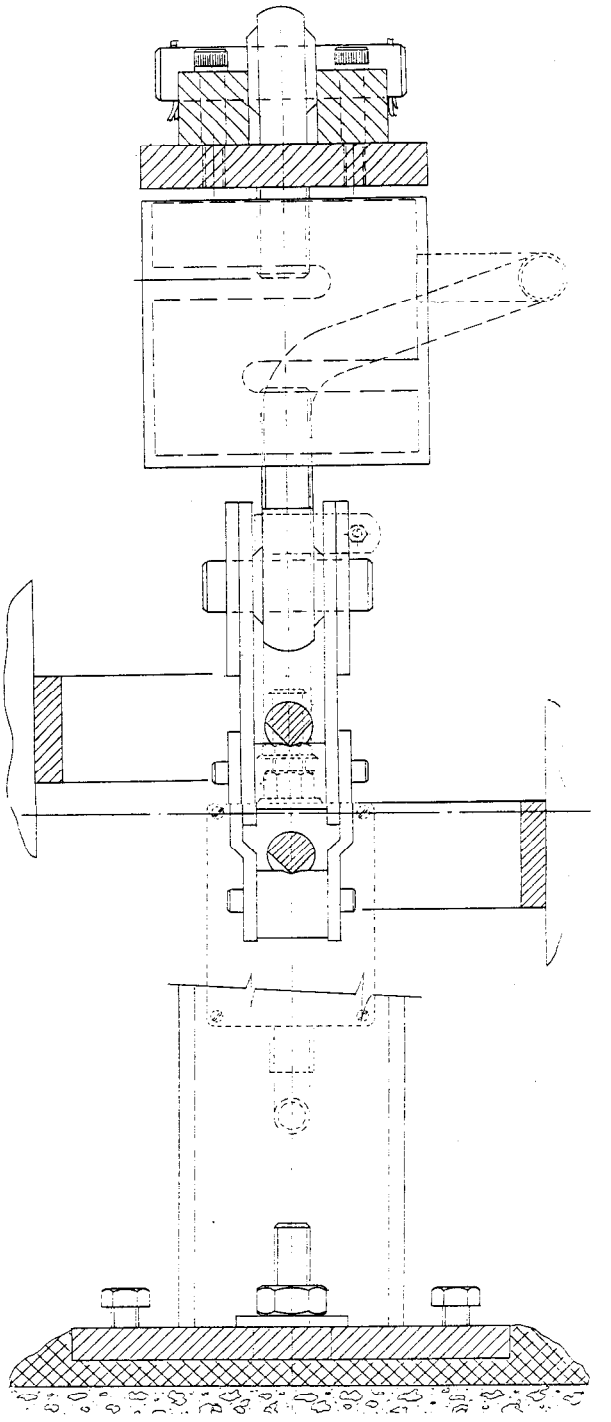
Lower Headwork With Manual Unit-weight Mechanism

FIGURE 6/10B/32B - 6



Non-self-indicating Headwork

FIGURE 6/10B/32B - 7



Typical Load Cell Mounting - Variant 3