FG

6/10B/48
18/9/84

NATIONAL STANDARDS COMMISSION

WEIGHTS & MEASURES (PATTERNS OF INSTRUMENTS) REGULATIONS

REGULATION 9

CERTIFICATE OF APPROVAL No 6/10B/48

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

Avery Model 5454 Weighing-in-motion Weighing Instrument

submitted by Avery Australia Ltd
3-5 Birmingham Avenue
Villawood, New South Wales, 2163

is suitable for use for trade.

This approval is subject to review on or after 1/8/89.

Instruments purporting to comply with this approval shall be marked NSC No 6/10B/48.

This approval may be withdrawn if instruments are constructed and used other than as described in the drawings and specifications lodged with the Commission.

Condition of Approval

The number of scale intervals applicable to the weighing instrument shall be no greater than the number of verification scale intervals approved for the load cells or the headwork whichever is the smallest.

Signed

Executive Director

Descriptive Advice

Pattern: approved 16/7/84

. Avery model 5454 weighing-in-motion weighing instrument.

Technical Schedule No 6/10B/48 describes the pattern.

Filing Advice

The documentation for this approval comprises:

Certificate of Approval No 6/10B/48 dated 18/9/84
Technical Schedule No 6/10B/48 dated 18/9/84
Test Procedure No 6/10B/48 dated 18/9/84
Figures 1 to 4 dated 18/9/84.

NATIONAL STANDARDS COMMISSION

TECHNICAL SCHEDULE No 6/108/48

Pattern: Avery Model 5454 Weighing-in-motion Weighing Instrument

Submittor: Avery Australia Ltd
3-5 Birmingham Avenue
Villawood, New South Wales, 2163

1. Description of Pattern

An Avery model 5454 weighing instrument for the determination of individual wagon masses and the indication of total train masses, when weighed-in-motion.

1.1 Weighing Platform (Figure 1)

This supports a short section of rail track on four HBM C3H2 10 t load cells. The platform is a fabricated steel frame which is stayed longitudinally and transversely.

1.2 Load Cells (Figure 2)

The load cells are described in the documentation of NSC approval No S136.

1.3 Headwork

The headwork (Figure 3) consists of a cabinet containing:

(a) A modified version of the Avery 8652 indicator described in the documentation of NSC approval No S106 as being suitable for use with up to 3000 scale intervals. A zero adjustment and zero light are provided but some other functions are disabled.

In normal operation the indicator will display each axle mass when computed by the instrument. In the static test mode, the display will continuously indicate the mass on the weighing platform.

(b) An electronic equipment rack containing the electronics to perform the weighing calculations and instrument control functions.

A relay panel may be included if required for the operation of track-side speed signals.

A facility shall be included to check that the system is set to zero prior to commencement of weighing. At the completion of weighing, the instrument shall cause the total train mass to be printed and the system to re-set to zero.

A keyswitch shall be provided to switch between in-motion and static weighing. Output sockets may be provided for the connection of auxiliary and/or peripheral devices.

1.4 Printer

An Avery model 8663 printer is located adjacent to, or remote from, the headwork. The printer will provide a printed record (the system having been automatically set to zero) including the time and date, the location, the wagon sequence number, the individual bogie and wagon masses, and the total train mass. "Overspeed", "locomotive" and "memory cleared" will be printed without indicating masses.

...../2

1.5 Track Switches (Figure 4)

These are operated by the wheel flanges of the rail vehicles. The sequence of operation provides signals which initiate and zero the system, prevent the locomotive mass from being printed, enable the instrument to determine the type and position of the wagon being weighed, detect any reversal of train movement, and monitor the speed of the wagons during weighing.

1.6 Markings

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

Manufacturer's name or mark	
Serial number	
Accuracy class	(III)
NSC approval number	NSC No 6/10B/48
Maximum capacity	Max .....
Minimum capacity	Min .....
Verification scale interval	e = ...
Scale interval	d = ...
	(or e = d = ... if of the same value)
Maximum axle load	
Speed range	0 to 5 km/h
Maximum number of wagons in train	160 wagons

TEST PROCEDURE No 6/10B/48

Tests should be conducted in accordance with Document 113 for testing of weighing-in-motion systems.

In addition to the dynamic tests specified, carry out an additional 3 test runs at mid-speed.

The maximum permissible errors are specified in Document 117, design rules for weighing-in-motion systems.

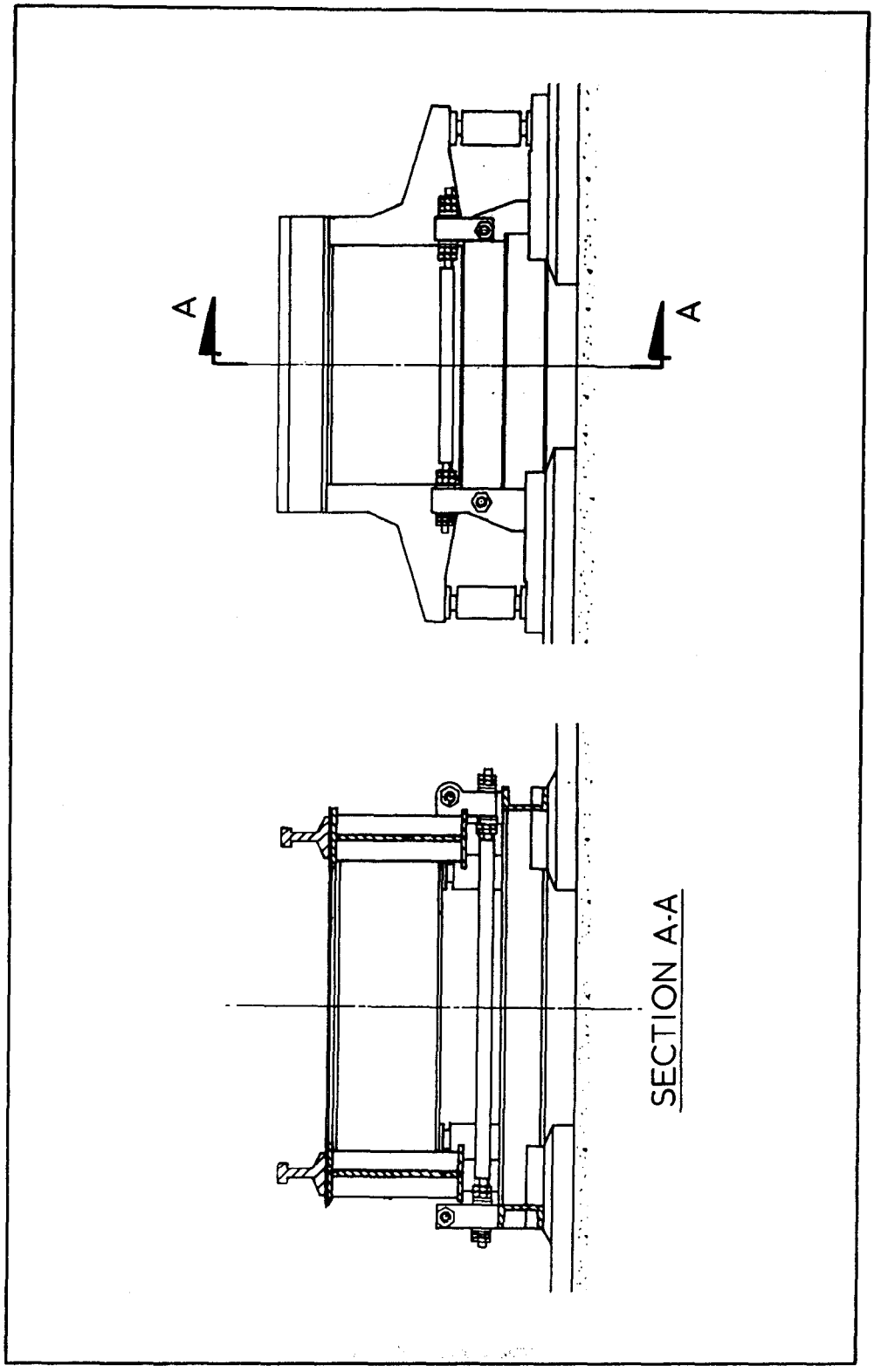
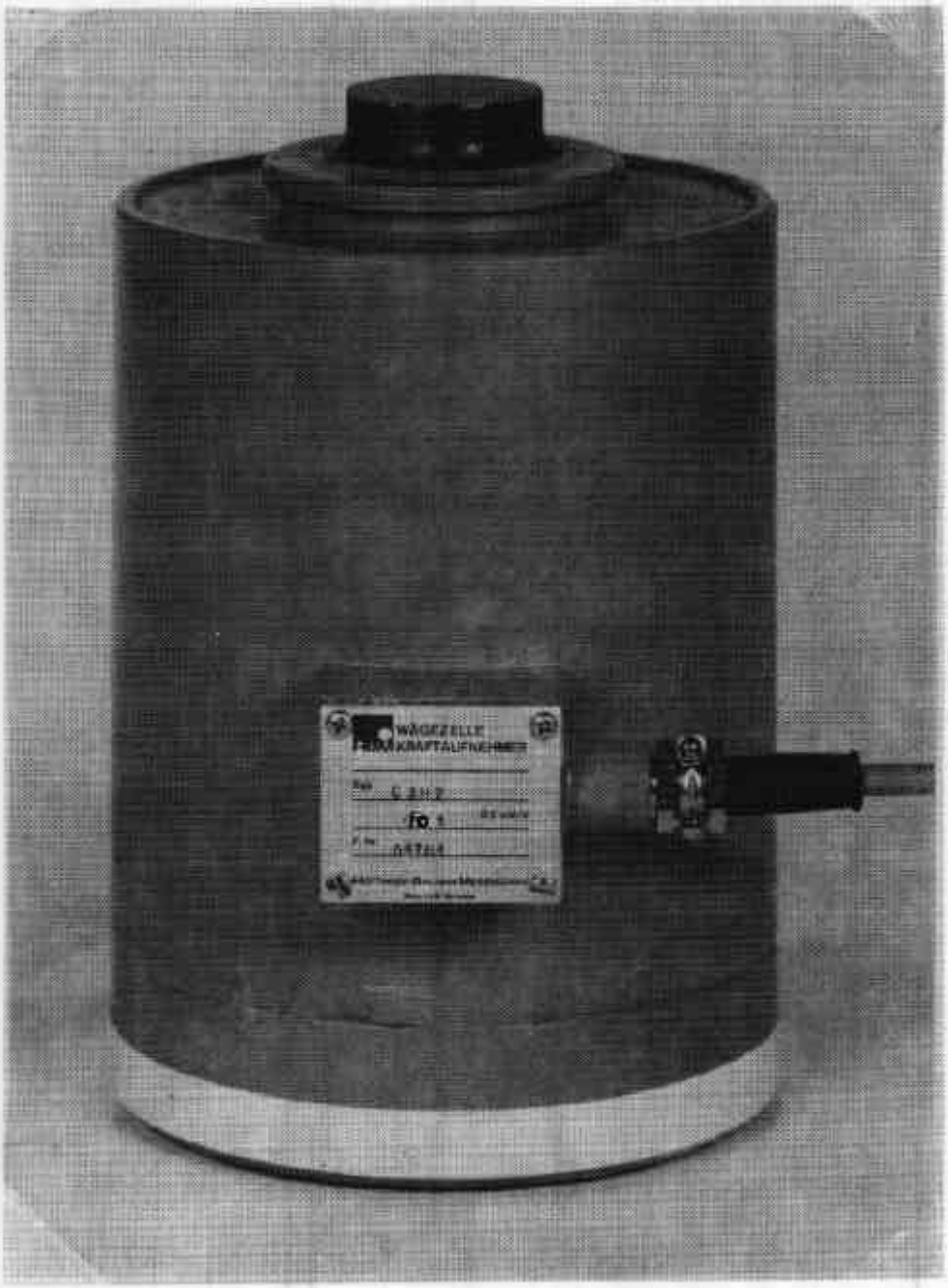


FIGURE 6/108/48 - 1

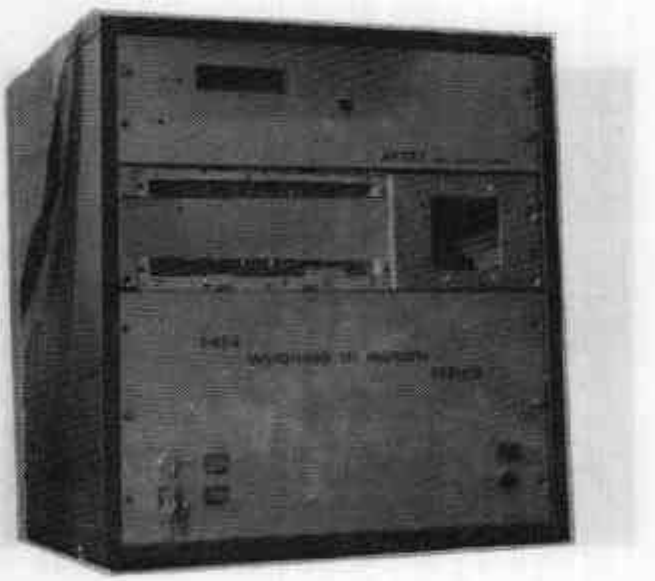
Weighing Platform

FIGURE 6/108/48 - 2



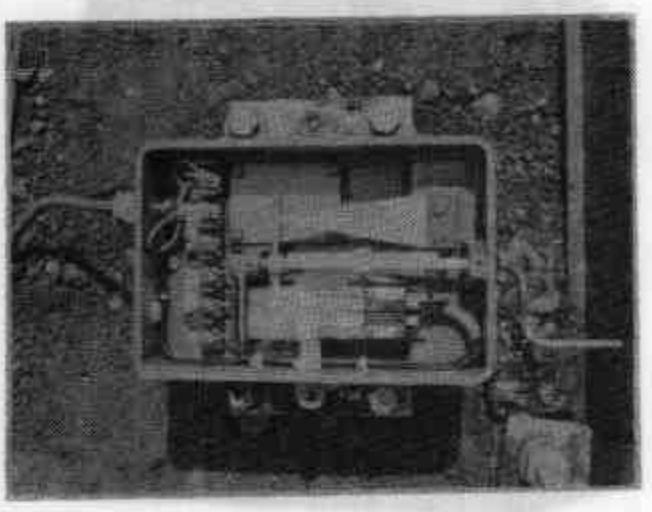
HBM Model C3H2 Load Cell

FIGURE 6/108/48 - 3



Typical Avery Model 5454 Headwork

FIGURE 6/108/48 - 4



Track Switch (Cover Removed)