ELECTRO-MOTIVE DIVISION • GENERAL MOTORS CORPORATION
SERVICE DEPARTMENT MAINTENANCE INSTRUCTION

TESTING OF LOAD INDICATING AMMETERS

DESCRIPTION

The load indicating ammeter is connected into the locomotive electrical circuit to read the amperage of one of the traction motors indicating the electrical load on the locomotive. On locomotives equipped with dynamic brakes, this same meter indicates the braking current being generated.

The accuracy and performance of this meter is quite important to the proper and efficient operation of the locomotive. It is therefore necessary that it be inspected and tested at regular intervals.

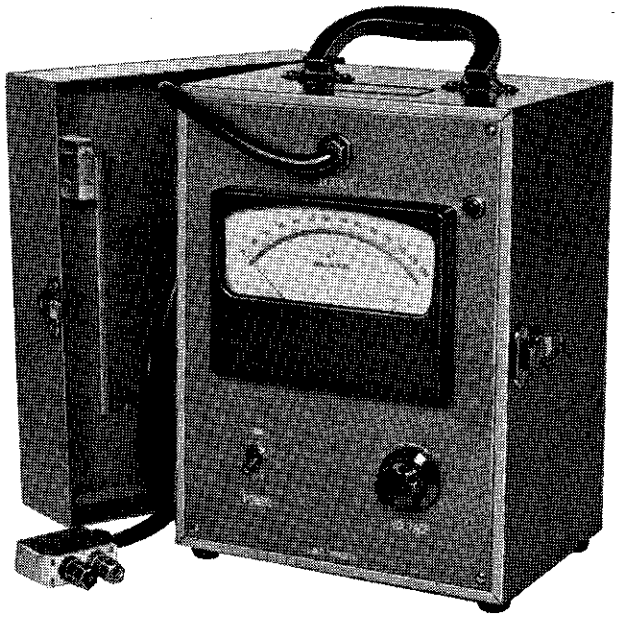

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Fig. 1 — Millivolt Tester - 8193976

INSPECTION

Meters to be tested should first be checked for the following discrepancies:

1. Cracks in case or glass, or defective material.
2. Loose screws in meter case.
3. Loose glass on meter.
4. Visual defects of scale or pointer.

TESTING EQUIPMENT

The test equipment referred to in this bulletin is the millivolt tester 8193976, Fig. 1. This instrument is self-contained, needing no external power supply, and has a 130 millivolt mirror scale with an accuracy of one percent at full scale deflection. However, it is recommended that this test set be checked periodically against a master meter to ensure that it is functioning properly.

The meter, battery leads and terminal block, toggle switch, and control knob are contained in a sturdy metal case with hinged cover. The cover is so designed to automatically move the toggle switch to off position when cover is closed.

TESTING PROCEDURE

To properly check the calibration of load indicating ammeters the following steps should be taken:

1. Disconnect shunt leads of meter to be tested from indicating meter shunt in electrical control cabinet.

NOTE: Information contained herein is applicable to equipment being produced as of the date of publication.

NOTE: If the meter being checked is removed from the locomotive to a work bench, the meter should be tested in the same position as mounted in the locomotive.

2. Connect shunt leads, removed in Step 1, to the two binding posts on the end of the cord attached to the test meter. (Observe polarity marks.)

3. While holding down the push button on the panel of the test meter, rotate the control knob until the meter being tested indicates the reading to be checked. When the pointer of the meter being tested nears the reading, the meter should be tapped lightly with the fingers. This will allow the blunt pivot to overcome friction and rotate to its true position. The resultant accuracy is comparable with road operation. Compare this reading with the reading of the test set meter.

4. Check the meter under test for all the points listed in the Maintenance Data.

5. If the error read on the test meter exceeds the allowable error, carefully adjust pointer of meter under test to agree with test meter. After setting meter pointer, release push button to allow the needle to return to zero, after which recheck to make sure needle comes back to the calibration readings. If after several trials it is found that the meter fails to return to the calibration reading within the allowable error, the meter should be replaced. Meters may be returned to Electro-Motive on a Repair and Return basis.

SERVICE DEPARTMENT

MAINTENANCE DATA

8375577

Ammeter 0-750 Amperes

Single Range Millivoltmeter 0-75 MV

Insulate for 1000 Volt to ground (2400 Volts Hi Pot)

Calibrated for .051 ohms total lead resistance

For use with 500 Amp. - 50 MV shunt

Upper Band

Green Zone - 450 Amps.

Orange Zone - 450 to 750 Amps.

60 - 485 Amps.
15 - 545 Amps.
8 - 580 Amps.

Lower Band

Green Zone - 370 Amps.

Red Zone - 370 to 750 Amps.

Accuracy to be $\pm$ 7.5 Amps. from 450 through 550 Amps. and within $\pm$ 2% of full scale at other scale deflections.

8392129

Ammeter 0-1500 Amperes - over damped

Single Range Millivoltmeter, full scale 1500 Amperes at 75 MV

Insulate for 1000 Volt to ground (2400 Volts Hi Pot)

Calibrated for .051 ohms total lead resistance

Meter to be overdamped with response time of 2-1/2 seconds minimum. Response time is the time for the pointer to come to its final position after a change in current value has been made.

Accuracy to be $\pm$ 15 Amps. from 900-1100 Amps. and within $\pm$ 2% of full scale at other scale deflections.