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WORK INSTRUCTION FOR VOLTAGE DROP TESTS FOR LHB EOG COACHES			

WORK INSTRUCTIONS

(ISO 9001 – 2015)

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Amendment Record Sheet

S. No.	Date of amendment	Page Number	Current Version	Summary of Amendment
1.	05.08.2025	ALL	1.0	Initial issue

1.0 FORWARD

This work instruction is issued for voltage drop tests for LHB EOG AC 2T and 3T Coaches as per Clause no. 8.6.1, 8.6.2 and 12.5.5 of ELPS/SPEC/EOG/01.

2.0 TYPES OF COACHES APPLICABLE:

2.1 All LHB EOG Coaches.

3.0 ESSENTIAL MEASURING INSTRUMENTS FOR TESTING

1. A set of calibrated voltmeter with a least count of 0.1V **(For Rake)**
2. A set of Calibrated Voltmeter with a least count of 10 Milli Volt. **(For individual Coach)**

4.0 REFERENCE:

Clause No 8.6.1, 8.6.2 and 12.5.5 of ELPS/SPEC/EOG/01

5.0 FREQUENCY OF TEST:

For Rake:

The test shall be conducted whenever coaches are turned out in rake formation on a 100% basis but not less than once every year. However, it is not always possible to turn out Coaches in rake formation. In such cases Voltage drop test, coach wise is suggested on every 10th Coach which is offered for Final Testing.

6.0 Permissible Voltage drop: -

For Rake :

6.1 **Total permissible Drop for 750/415/230 V (Ref Clause 8.6.1 of RDSO spec)**

The permissible voltage drop at any point on the 750/415/230 V circuit at the tail end of a 19 coaches rake with one coupler "on" shall be not more than 5% of the rated voltage. Following limiting values shall be specified for difference between first Coach and Last Coach. Since 415/230V circuits have to be measured Coach wise, values for variation within a coach are indicated in bracket-

- 750 V circuit-37.5 V (1.97 V)
- 415 V circuit-20.75 V (1.1 V)
- 230 V circuit-11.5 V (600 Milli Volt)

6.2 **Total permissible Drop for 110 V circuit for each Coach (Ref Clause 8.6.2 of RDSO Spec)**

Voltage drop in the branch circuit at the farthest or any light and fan point shall not be more than 3 volts below the voltage at the 110 V bus bar at the distribution board in the coach.

For Individual Coach

6.3 **Total permissible Drop for 750/415/230 V Circuit**

The permissible voltage drop at any point on the 750/415/230 V circuit at NPP end of a coach on each feeder shall be not more than 5% of the rated voltage. Measurement shall be done by applying source Voltage of 750 V at PP end. Following values shall be observed -

- 750 V circuit-1.97 V
- 415 V circuit-1.1 V
- 230 V circuit - 600 milli volts

6.4 **Total permissible Drop for 110 V Circuit**

Voltage drop in the branch circuit at the farthest or any light and fan point shall not be more than 3 volts below the voltage at the 110 V bus bar at the distribution board in the coach.

7.0 **TEST PROCEDURE (Ref Clause 12.5.5 of ELPS/SPEC/EOG/01):**

7.1 Voltage drop tests shall be carried out on individual coaches for 415V/230V/110V circuit and for the entire rake in the last coach for the 750V circuits after keeping the full load on for a period of 1 hour. The voltage drop shall be within the prescribed limits as laid down in Para 6.1 above. Values of Voltage at Source Coach and Rear coach will be measured with calibrated Voltmeters applied simultaneously to eliminate chances of variation in reading due to Time dependent, source voltage variations.

7.2 Values of Voltage shall be measured with calibrated Voltmeters applied simultaneously to eliminate chances of variation in reading due to Time dependent, source voltage variations.

NOTE: **Suggested Methodology for Voltage drop Measurement Individual Coach is based on Values given in RDSO specification apportioned to each Coach equally through division. However, it is recommended that before adoption of the Test scheme, readings on various variants of AC and Non-AC Coaches may be taken to ascertain reliability of applicable values suggested in clause B-4.1.4.**