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सत्यमेव जयते

भारत सरकार–रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ–226011
Government of India - Ministry of Railways
Research, Designs & Standards Organization, LUCKNOW – 226011

EL/2.2.21 Date- 07.12.2015

Chief Electrical Engineer,
- Central Railway, Mumbai CST- 400 001.
- Eastern Railway, Fairlie Place, Kolkata- 700 001.
- East Cost Railway, Chandrashekharpur, Bhubaneshwar- 751 016.
- Northern Railway, Baroda House, New Delhi-110 001.
- North Central Railway, Hasting Road, Allahabad-211 001.
- Southern Railway, Park Town, Chennai-600 003.
- South Central Railway, Rail Nilayam, Secunderabad –500 017.
- South Eastern Railway, Garden Reach, Kolkata -700 043.
- Western Railway, Churchgate, Mumbai–400 020.
- West Central Railway, Jabalpur-482001.
- South East Central Railway, Bilaspur-495004.
- East Central Railway, Hazipur-844101 (Bihar).
- North Western Railway, Jaipur-302006.
- Chittaranjan Locomotive Works, Chittaranjan- 713 331.

MODIFICATION SHEET No.RDSO/2015/EL/MS/0446 Rev.'0' dated 07.12.2015.

1.0 TITLE:

Modification in loco roof bars and fittings on conventional locomotives similar to of three phase locomotives.

2.0 OBJECT:

Railways have been reporting cases of flashing/ overheating and melting of roof-bars. In this regard, based on the suggestions received from Railways, RDSO had earlier issued a modification sheet no. ELRS/MS/0272 Rev. '0' dated 24.11.1999 which stipulates provision of brass ferrule with increased collar diameter in place of existing aluminium ferrule. However, due to continued flashing cases of roof-bars in-spite of modifications, in XXXVII MSG meeting, it was decided to implement the three phase loco roof-bars type arrangement in conventional loco also since there are no failures with roof bar arrangement adopted for three phase locos. This type of arrangement of roof bars have been made in two WAP – 4 locos of ELS/ET, same is running successfully for last three years as reported by ELS/ET.

3.0 MODIFIED ARRANGEMENT :

In three phase loco, roof-bars are permanently connected with the help of clamps which eliminate the possibility of flash over and is fit and forget type arrangement. The drawings and photographs are enclosed with this modification sheet for better appreciation of the modification.

4.0 WORKS BE CARRIED OUT AS PER DRAWING:

4.1 For WAP – 4 Locos

i) Two nos. of additional insulators one each on roof no. 1 & 3 are required to be fixed as per attached drawing no. SKEL-5006, Alt. '0'. Insulators to be fixed on roof no. 1 & 3 on modified insulators base. Rest of the insulators to be kept unchanged.

ii) Roof bars between insulator 1 & 2, between 3 & 5 and between 6 & 7 to be fitted on insulator head by U clamp tightly as per drawing no. SKEL-5006, Alt. '0'.

iii) Between the edge of the roof bars i.e. between insulator 2 & 3 and between insulator 5 & 6, roof bars to be connected by 185 sq. mm. copper braided wire clamped with S.S. clamp with bracket on both the ends.

iv) On roof no. 1, the connection between panto insulator and roof insulator no.1 shall be done using 185 sq. mm. copper braided wire. On panto insulators, 185 sq. mm. copper braided wire shall be clamped with copper bracket and on roof bar insulator no.1 with S.S. bracket and S.S. clamp.

v) Same process to be applied for connection of roof bar with panto in roof no. 3 also.

4.2 For WAG – 7 Loco

i) Additional insulator no.1 on roof-1 is required to be fixed as per attached drawing no. SKEL-5005, Alt. '0' on modified insulator base.

ii) Additional insulator no. 4 on roof-2 is required to be fixed as per attached drawing no. SKEL-5005, Alt. '0' on modified insulator base.

iii) Existing insulator no. 7 is required to be shifted towards roof no. 4 approximately 800 mm from its existing location as shown in attached drawing.

iv) Roof bars to be fitted on insulator head between panto insulator (roof-1) and roof insulator no.1, between roof insulator no. 2 & 4, between roof insulator no. 5 & 7 and between roof insulator no. 8 & panto insulator (roof 4) by U clamp tightly as per drawing.

v) Between the edge of the roof bars i.e. between roof insulator 1 & 2, between roof insulator 4 & 5 and between roof insulator 7 & 8, roof bars to be connected by 185 sq. mm. copper braided wire clamped with S.S. clamp with bracket on both the ends.

5.0 APPLICATION TO CLASS OF LOCOMOTIVES:

WAP-4/WAG-7 class of electric locomotives.

6.0 MATERIAL REQUIRED:

		WAP-4/ WAG-7
i)	Copper clamp for panto insulator	- 02 Nos./00 nos.
ii)	185 sq. mm. copper braided wire	- 06 Sets./05 sets
iii)	Insulator base	- 04 Nos./03 nos.
iv)	SS clamp	- 08 Nos/08 nos.
v)	SS bracket	- 08 Nos/08 nos.
vi)	U clamp with nut and washers	- 14 Nos./22 nos.
vii)	Roof Bars- 2600 mm, 3540 mm & 2600 mm (approx.)/ 900 mm, 3125 mm, 3450 mm & 3050 mm (approx.) roof bars.	
viii)	Roof insulators	- 02 Nos./02 nos.
ix)	Lugs for copper braided wire	- 06 Sets/05 sets

7.0 MATERIAL RENDERED SURPLUS:

The material released from conventional locomotives may be utilised as spares for non modified roof of conventional locomotives.

8.0 REFERENCE:

Decision of 37th MSG meeting circulated vide Railway Board letter No. 2015/Elect/TRS/138/5 dated 20-08-2015.

9.0 MODIFICATION DRAWING:

Work to be carried out as per drawing nos. SKEL-5005 & SKEL-5006 attached.

10.0 AGENCY OF IMPLEMENTATION:

All the Electric Loco Sheds & POH workshops during major schedule.

07/12/15

Encl: Drawing nos. SKEL-5005 & SKEL-5006

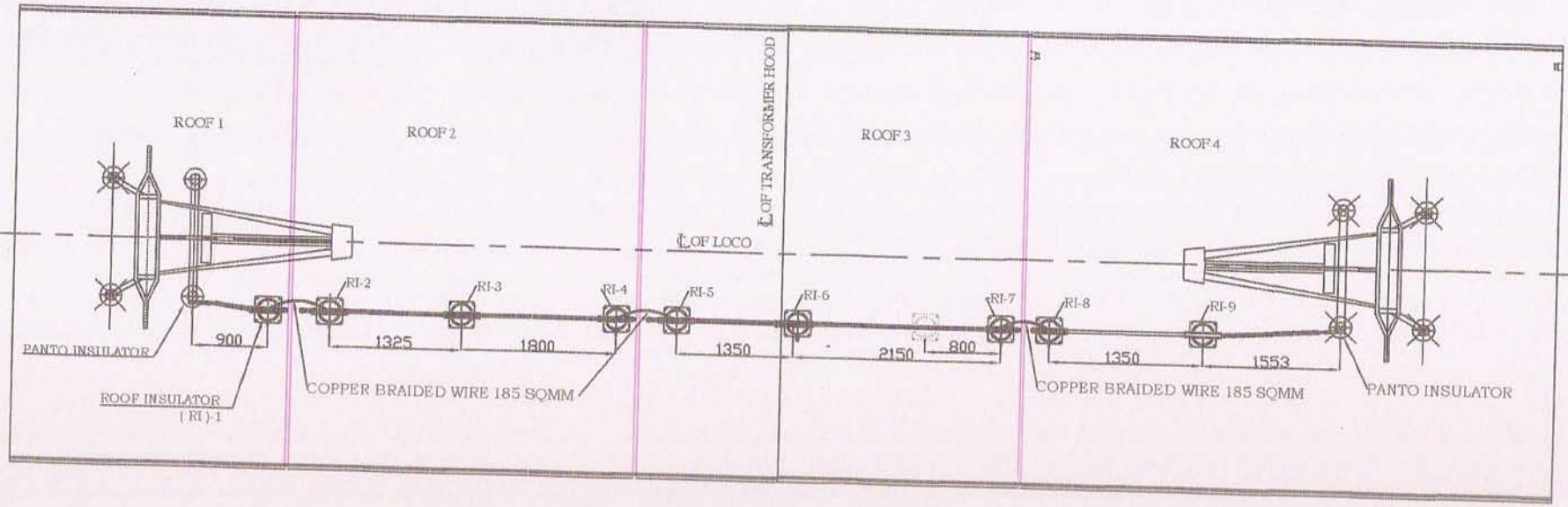
(A.K. Shukla)
for Director General/Elect.

DISTRIBUTION
Copy to: As per Standard Mailing List No. EL/M/0019, Ver. '2'

07/12/15

Encl: Drawing nos. SKEL-5005 & SKEL-5006

(A.K. Shukla)
for Director General/Elect.



NOTE:
1. ROOF INSULATORS no. 1 & no. 4 ARE PROPOSED NEW INSULATORS.
2. ALL DIMENSIONS ARE IN MM. TOLERANCE TO BE ±10MM.

Sl.No.	PART NO.	DESCRIPTION	QUANTITY	MATERIAL SPECIFICATION

REF :

SCALE: NTS

APPD.BY 24/11/15 (HOR DG)

MODIFIED ROOF BAR ARRANGEMENT OF WAG-7 CLASS LOCOMOTIVES

FIRST ISSUED

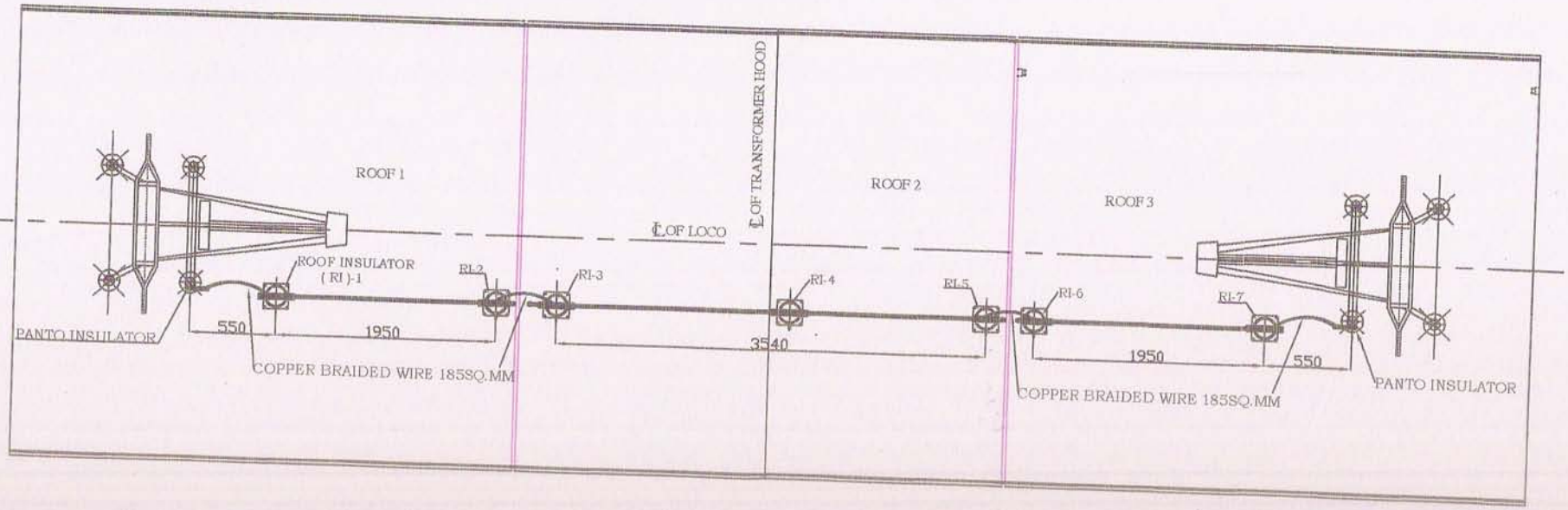
SUPERSEDES

SUPERSEDED BY

RDSO ELECT. DTE

SKEL 5005, Alt.'0'

REVISION	DATE	DESCRIPTION
DT	24.11.2015	
D	YOGESH KUMAR	
C	V K SINGH	



NOTE:
1. ROOF INSULATORS no. 1 & no. 7 ARE PROPOSED NEW INSULATORS.
2. ALL DIMENSIONS ARE IN MM. TOLERANCE TO BE ±10MM.

Sl.No	PART NO	DESCRIPTION	QUANTITY	MATERIAL SPECIFICATION
REF :			SCALE: NTS	APPD.BY

MODIFIED ROOF BAR ARRANGEMENT OF WAP-4 CLASS LOCOMOTIVES

RDSO ELECT. DTE

SKEL 5006, Alt.'0'

FIRST ISSUED

SUPERSEDES

SUPERSEDED BY

REVISION	DATE	DESCRIPTION
DT	24.11.2015	
D	YOGESH KUMAR	
C	V K SINGH	