

Telex : 0535 - 2424 RDSO -IN
Fax : 91-0522-2452581
Telephone : 2455109 (DOT) & 42221 (Rly)
Telegram : 'RAILMANAK', LKO
e-mail : edse.rdso@gmail.com



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

No.EL/2.2.4

Dated:26.11.2008

Chief Electrical Engineer

1. Northern Railway, Baroda House, New Delhi- 110001.
2. Chittaranjan Locomotive Works, Chittaranjan – 713 331.

MODIFICATION SHEET NO.RDSO/2008/EL/MS/0370 (Rev.'0') dated 26.11.08

1.0 **Title :** Modification in the size of TM circuit Cables of WAP5 Electric Locomotives

2.0 **Object:** To prevent the failures of Traction Motor circuit cables near groumet in cable cleat provided on the underframe of WAP5 locomotives on account of over heating and drawal of high current.

3.0 **Existing arrangement in WAP5 Locomotives:** Presently the Traction Motor cables provided in TM circuit from the underframe to the Traction Motor junction box are of 120 sq.mm size. These cables run from the cleat provided in the underframe to the Traction Motor junction box and each of the 3 phase cables is of approximately 1.5 m length. Northern Railway have reported a number of failures of these cables near the groumet provided in the cable cleat of the underframe after a few years of their service.

4.0 **Investigations :** It is observed from the design document of the cables of these locomotives that the size of the cable is the same i.e. 120 sq.mm. for both WAP5 and WAG9 locomotives although the maximum current drawn by the traction motor for WAP5 locomotives is 370A as compared to 270A of WAG9 locomotives. As a result of this, the current density of this cable on WAP5 locomotives is 3.08 A/mm² against 2.25 A/mm² of WAG9 locomotives. Owing to this, the cables provided in the TM circuit of WAP5 locomotives gets overheated and cut near the groumet of cable cleat provided on the underframe with time and after few years of service.

5.0 **Modified arrangement in WAP5 locomotives** : The Traction Motor Cable provided in the TM Circuit of WAP5 locomotives from the cleat of the underframe to the traction motor junction box should be replaced with the next higher size cable i.e. 150sq.mm cable. The terminal cover hole size of the cable cleat and TM junction box is also to be modified suitably as per requirement of increased size of cable of 150 sqmm.

6.0 **Applicable to Class of Locomotives:** WAP5 locomotives only

7.0 **Material Required:** Three cables of 150 sq.mm. of 1.5 meter length approximately for each phase alongwith the groumets and cable cleat of the underframe as well as new cable lugs for housing 150 sq.mm. cables on both the sides.

8.0 **Material rendered surplus** : Approximately 1.5 meter length each of 120 sq.mm cable for each of the 3 phases with lugs on both the sides alongwith groumet and cable cleat of the cables.

9.0 **Reference** : Minutes of important points discussed during visit of official of RDSO/CLW/Northern Railway at ELS/GZB on 01.9.08 issued vide letter No.230-Elect/ TRS/92/2/5 dated 3.9.08 of Northern Railway.

10.0 **Modification Drawing** : Nil

11.0 **Agency of Implementation:** Electric Loco shed, NR/GZB for existing WAP5 locomotives and CLW for new production of WAP5 Locomotives.

Encl: Nil


26/11/08
for Director General/Elect.