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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/3.1.35/2/Elect

Dated: 07/12/17

**Chief Electrical Engineers;**

- Central Railway, HQs Office, 2<sup>nd</sup> floor, Parcel Office Bldg., Mumbai-400 001
- East Central Railway, Hajipur (Bihar)-844 101
- Eastern Railway, Fairlie Place, Kolkata – 700 001
- East Coast Railway, Railway Complex, Bhuvneshwar – 751 023
- Northern Railway, Baroda House, New Delhi-110 001
- North Central Railway, Allahabad – 211 001
- South East Central Railway, Bilaspur-495 004
- South Central Railway, HQs Office, Rail Nilayam, Secunderabad-500 071
- South Eastern Railway, Garden Reach, Kolkata- 700 043
- Southern Railway, Park Town, Chennai – 600 003
- West Central Railway, HQs Office, Opp. Indira Market, Jabalpur-482 001
- Western Railway, Church gate, Mumbai – 4000 020
- Chittaranjan Locomotive Works, Chittaranjan-713 331 (WB)

**Sub:** Reliability improvement in blocking diodes of three phase electric locomotives

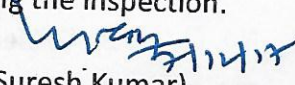
**Ref:** 38th MSG held on 28th and 29th July-2017

- 1 The failures in the Blocking Diodes are observed during service. This is one of the vulnerable components of three phase loco circuit which causes transient /intermittent failure of locomotives. These blocking diodes are fitted with male and female contacts plug-in type arrangement. It is observed that these male and female contacts become loose after some years of service.
- 2 This item was proposed for discussion in 38th MSG held at Secunderabad. Two proposals were discussed as follows:
  - a. To eliminate the plug-in type arrangement of the blocking diode by providing hardwiring.
  - b. Provision of Bakelite strip to secure the blocking diodes against vibrations.
- 3 As per the MoM of the 38<sup>th</sup> MSG, decision was taken to implement proposal -2a above. However practical difficulties faced to implement proposal 2a. Therefore, following has been decided:
  - a. The alternate arrangement of provision of strip (as proposed at para-2b) on front side of the Diblo-5 and Diblo-8 blocking diodes to secure the blocking diodes. The Modification Sheet no. **RDSO/2017/EL/MS/0467, (Rev.0)** has been issued in this regard.
  - b. One time checking of the size of the male-female contact pins in the blocking diode shall be carried out by the sheds in the upcoming schedule and in case of improper

size of the pin the same shall be replaced with the standard size as per the governing specification.

- c. The male - female contacts size shall be checked for slackness and cleaned during every IOH for proper contact.
- d. CLW to ensure proper size of the male-female contact pin during the inspection.

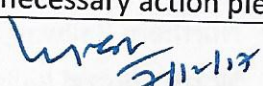
Encl: Modification Sheet

  
(Suresh Kumar)  
for Director General (Elect.)

Copy to:

1. Secretary (Electrical traction), Railway Board, Rail Bhawan New Delhi-110001	For kind inf. please
2. Sr.DEE/TRS/ELSS (As per standard mailing list).	For inf. and necessary action please

Encl: Modification Sheet

  
(Suresh Kumar)  
for Director General (Elect.)

o/c



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**Modification Sheet No. RDSO/2017/EL/MS/0467, Rev.0**

**1.0 Title:**

Modification in blocking Diode to improve reliability in three phase electric locomotives

**2.0 Object:**

The faults in the blocking diodes circuit are observed during loco service which may cause transient /intermittent failures. The existing blocking diode is plug-in type with male and female contact arrangement. These male and female contacts may become loose after some years of service. Therefore, to improve the reliability fixing arrangement of blocking diodes needs to be modified to get rid of failures due to loosening of contacts.

**3.0 Existing Arrangement:**

The existing blocking diodes are mounted with plug-in type male and female contact arrangement in SB-1 and SB-2 panel. At present 05 nos. of Dib10-5 & 01 no. of Dib10-8 Blocking diode sets having male pins are mounted in each 5B Panel on a base having female socket. Diblo-S Blocking Diode Set consists of a pack of 05 diodes and Dib10-8 Blocking Diode Set consists of a pack of 08 diodes. The clips to hold these blocking diodes sets sometimes get loose due to sustained vibrations. The diodes of both Dib10-5 & Dib10-8 blocking Diode Sets are being utilised in circuits like Pantograph, VCB, Un-loader. Head Light, CP Control, Contactor Control Electronics and signal lamp circuit etc.

The present arrangement is shown in fig-1 as given below:

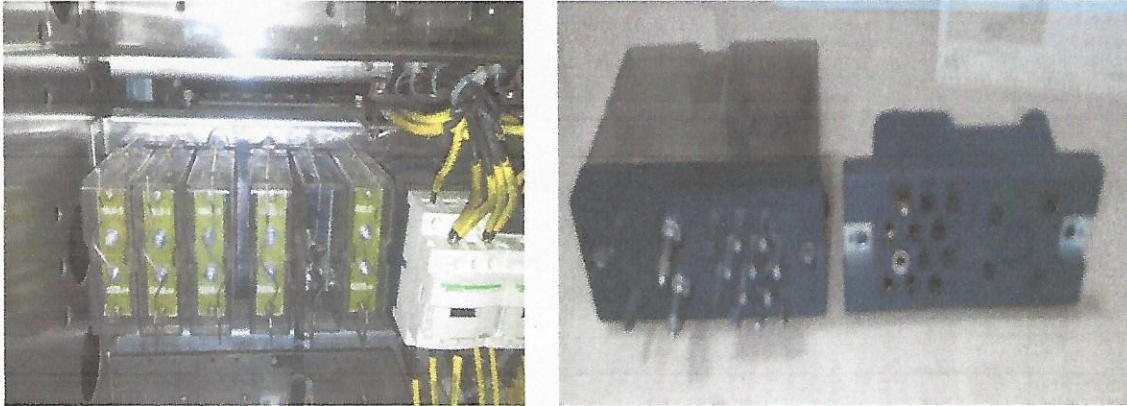


Fig-1

#### 4.0 Modified Arrangement::

The Blocking Diodes (Dibloo) shall be tightened with Bakelite strip from front side with the help of proper hardware. The modified arrangement is shown in the figure as given below. This modification is required to be done to strengthen the holding of male-female type plug in arrangement of the blocking diode assembly.

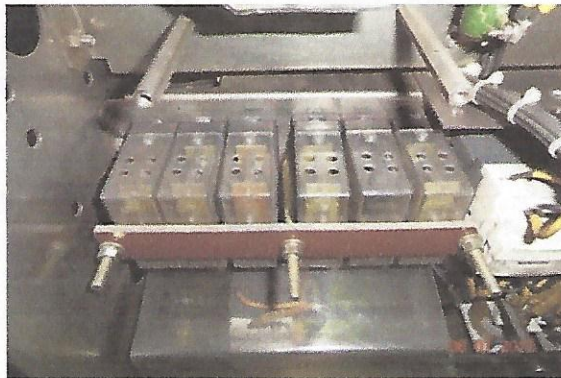
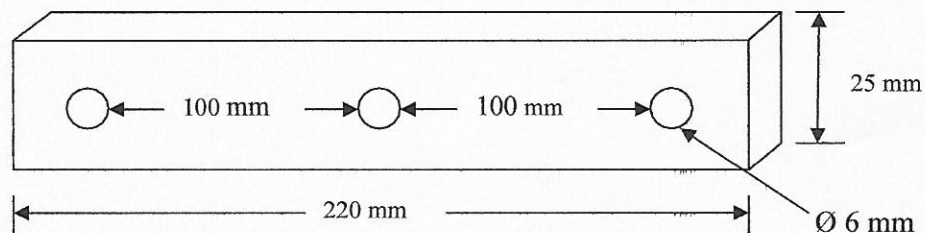


FIG-2

#### 5.0 Material required:

- I. Hylam Sheet (7 mm thick X 220mm long X 25mm wide) - 2 Pcs
- II. M6 nut bolt (125 mm long)- 06 nos



Hylam Sheet dimensions

*Wing*

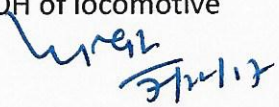
**6.0 Material Rendered Surplus:**  
Nil

**7.0 Application to class of locomotives:**  
All 3-phase electric locomotives


**8.0 Reference:** Decision subsequent to the MOM of 38<sup>th</sup> MSG

**9.0 Agency of Implementation:**

- I. CLW/All Zonal railways holding 3-phase electric locomotive.
- II. POH workshop to ensure modified arrangement during POH of locomotive

  
(Suresh Kumar)  
for Director General/Elect.

**Copy to:**  
Secretary (Electrical),  
Railway Board, Rail Bhawan,  
New Delhi – 110 001

  
(Suresh Kumar)  
for Director General (Elect.)

Encl: Nil

