

Fax : (0522)-2452581
Telephone: (0522)-2465715
Telegram : 'RAILMANAK', Lucknow
Email : dsetpl@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/11.5.5/5

Dated: 12.04.2012

Chief Electrical Engineers,

- East Central Railway, Hazipur - 844 11 (Bihar)
- South East Central Railway, Bilaspur-490.5 004.
- West Central Railway, Jabalpur 482 001.
- Northern Railway, Baroda House, New Delhi-11 001.
- Central Railway, 2nd floor, Parcel Office Bldg., Mumbai CST-400 001
- South Central Railway, Rail Nilyam, Secunderabad - 0.500 071.
- Eastern Railway, Fairlie Place, Kolkata -700 001.
- South Eastern Railway, Garden Reach, Kolkata-700 043
- Southern Railway, Park Town, Chennai-600 003
- Western Railway, Churchgate, Mumbai -400 020

MODIFICATION SHEET NO. RDSO/2010/EL/MS/0393 (Rev.0), Dated 22.11.2010

1.0 Title:

Modification to address failures of Auxiliary converter cards.

2.0 Object:

- 2.1 There have been many failure cases reported in auxiliary converter cards of controller board (PPB471A02), chopper/GG/WRE controller (RDB472A01) and KUC153A01. In most of the cases life sign missing cases from PPB471A02 and KUC153 A01 have been reported. In some cases failures of transistor BCX70 (position V13 on board) on RDB 472A01 has been reported.
- 2.2 It has been reported by TOT partners that some of the failures occurs during functional testing also without any apparent reason.
- 2.3 On analysis of these failures it has been noticed that reversal of connector X305 in the back plane of KUC153 A01 card is leading to the wrong connections and consequently failures are taking place. This connector is no mechanically coded and has only two wire connections. When connector X305 is wrongly connected (connected upside down), the circuit formed is shown in figure 1. In this case +15 Volt supply connects via green LED on KVB993 card to relay RL1 on KUC153 card. The other end of this connects to the collector of transistor V13 on RDB 472. Sometimes transistor V13 gets turned on before relay RL1 is completely opened therefore leading to a short circuit of +15 V supply to ground for a short duration. As a result of this the voltage output of KUC153 may fall and this could lead to an interruption of the life sign from auxiliary converter rack to the VCU. This may also interpreted as a problem of "life sign missing" with KUC 153 card or PPB471 card. In some cases transistor V13 on RDB 472 also fails. The flow of current is shown in figure-2.
- 2.4 When the connector X305 is connected properly, the circuit is different and removes the connection of the relay from the circuit. The circuit in this case is described in figure-3.

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- 2.5 In older cards, a blue colour marking was done on connector X305 to avoid wrong connection which is shown in figure-6.

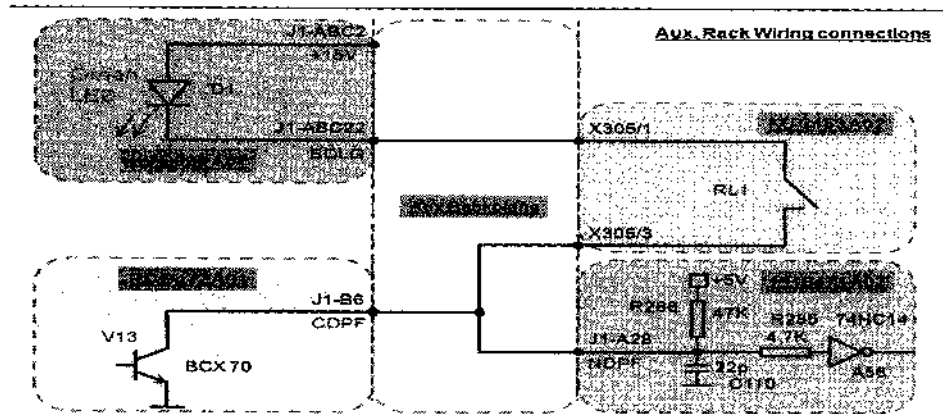


Figure-1

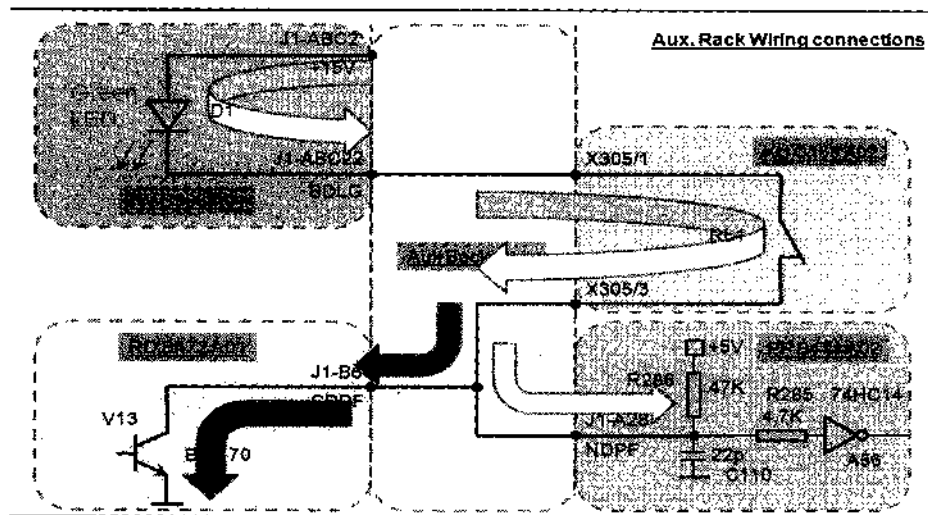


Figure-2

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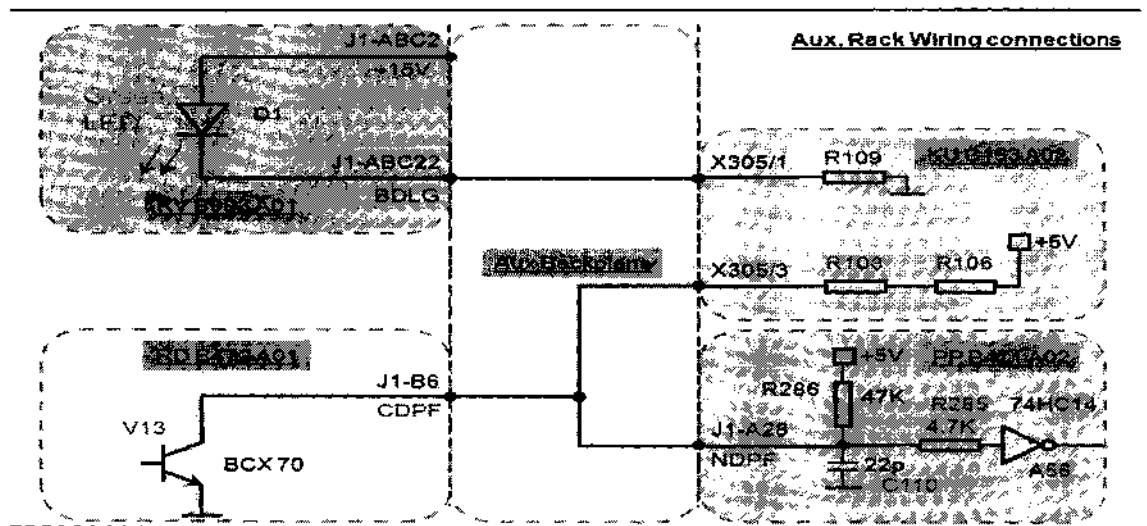


Figure-3

3.0 Modification details:

Step-1: Dismantle the Auxiliary Electronic rack as shown in figure-4 below.

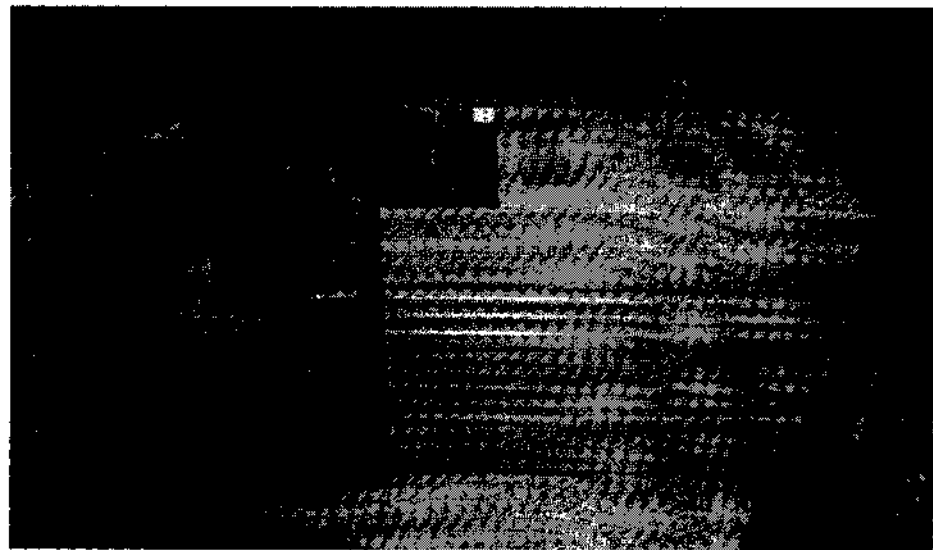


Figure-4

- Step-2:** (i) Observe the connector shown in picture-2 w.r.t. black and green cable.
- (ii) If the position of connector (j3) matches with the position as shown in picture-2 (observe connector cables black and green are close to relay) then the connector has to reverse.
- (iii) Also in Old type PCB cards, a colour coding was done which is shown in picture-6 below. The correctness of connector can be checked with colour code also.

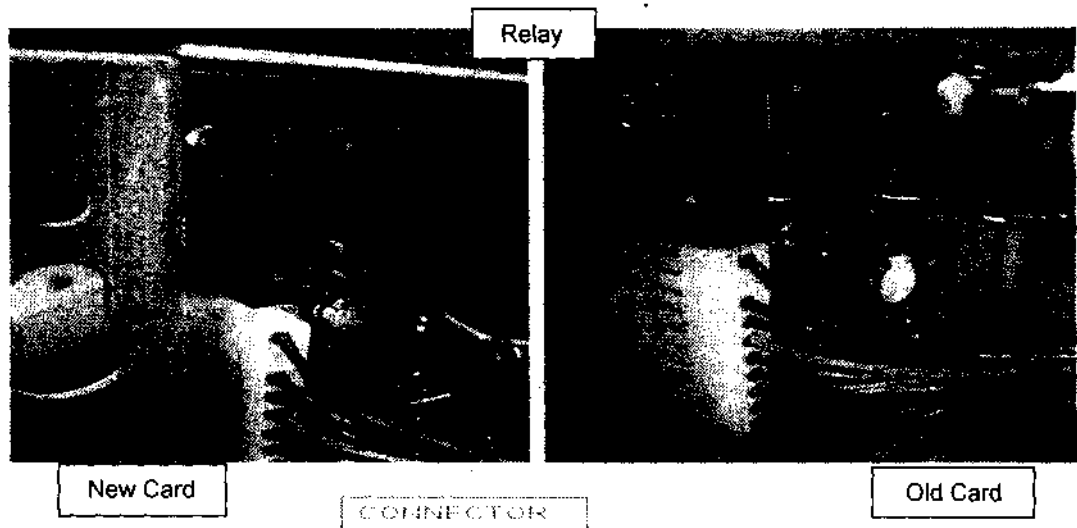


Figure-5

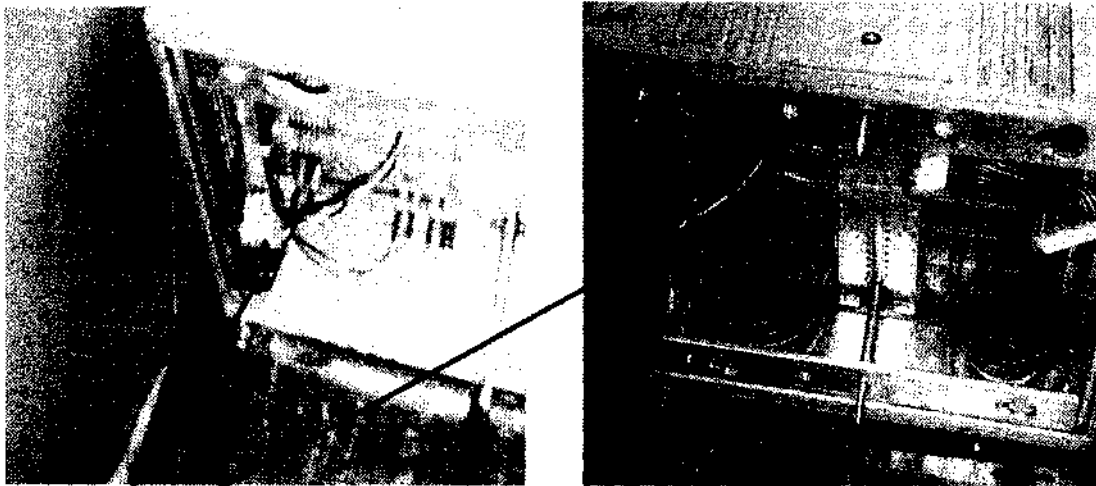


Figure-6

Color coding

Step-3: Gently remove the adhesive material (silastic 732/RTV) applied to the connector.

Step-4: Reverse the position of connector as shown in figure-7. (observe connector cables black and green are far from the relay).



CONNECTOR

Figure-7

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Step-5: Apply the adhesive material (silastic 732/RTV). Assemble the card KUC153A02 to the rack when it is dry.

4.0 Application to class of locomotives:

WAP-5, WAP-7, WAG-9, WAG-9H.

5.0 Material Required:

Nil.

6.0 Material Rendered Surplus:

Nil.

7.0 Reference:

Nil

8.0 Modification Drawing:

Nil

9.0 Agency of Implementation:

CLW and Loco Sheds holding WAP-5, WAP-7, Wag-9 & WAG-9H locomotives.


Encl: Nil.


(Sandeep Srivastava)
for Director General/Elect.

Copy to:-

1.	Secretary (Electric Traction), Railway Board, Rail Bhavan, New Delhi-11 001
2.	Sr. DEE (TRS), Electric Loco Sheds, <ul style="list-style-type: none">• Central Railway, Ajni (Nagpur)-440008.• South East Central Railway, BMY Complex, Bhilai, Durg-490 020.5.• West Central Railway, Tughlakabad, New Delhi-11 044.• Northern Railway, Ghaziabad (UP)-201 001.• East Central Railway, Gomoh-828 401• South Central Railway, Lallaguda, Secunderabad – 0.500 017.• Eastern Railway, Howrah.• South Eastern Railway, Tatanagar-831 002.• Western Railway, Vadodara-390 002.• Southern Railway, Royapuram, Chennai-600 013.

Encl: Nil


(Sandeep Srivastava)
for Director General/Elect.

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