



भारत सरकार – रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ – 226011

e-mail : dsetplgroup@gmail.com.

Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW – 226011
Fax: 91 - 0522 - 2452581
Tel: 2465714/ 2450374



No. EL/11.5.5/21

Dated: As signed

Principal Chief Electrical Engineers;

- Central Railway, HQs Office, 2nd floor, Parcel Office Bldg., Mumbai – 400 001.
- East Central Railway, Hajipur (Bihar) – 844 101.
- East Coast Railway, Railway Complex, Bhubaneswar – 751 023.
- Eastern Railway, Fairlie Place, Kolkata – 700 001.
- North Central Railway, Prayagraj – 211 001.
- North Eastern Railway, Gorakhpur – 273 001.
- North Western Railway, near Jawahar Circle, Jaipur – 302 017.
- Northeast Frontier Railways, Maligaon, Guwahati – 781 011
- Northern Railway, Baroda House, New Delhi – 110 001.
- Southern Railway, Park Town, Chennai – 600 003.
- South Central Railway, HQs Office, Rail Nilayam, Secunderabad – 500 071.
- South Eastern Railway, Garden Reach, Kolkata – 700 043.
- South East Central Railway, Bilaspur – 495 004.
- South Western Railway, Hubli – 580020.
- West Central Railway, HQs Office, Opp. Indira Market, Jabalpur – 482 001.
- Western Railway, Church gate, Mumbai – 400 020.
- Banaras Locomotive Works, Varanasi – 221 004.
- Chittaranjan Locomotive Works, Chittaranjan – 713 331 (WB).
- Patiala Locomotive Works, Patiala – 147 003.

Modification Sheet No. RDSO/2023/EL/MS/0495 (Rev. '0')

1.0 Title:

Provision of additional BLDJ switch by utilization of BLHO/ZBAN switch as additional BLDJ in three-phase electric locomotives (WAG9/WAP7/WAP5).

2.0 Brief History:

- 2.1** Zonal Railway reported that there are several cases in three-phase electric locomotives, wherein due to failure of BLDJ Switch (134) loco failed on line and Loco Pilot has to drive the Loco from rear cab with restricted speed to clear the block section.
- 2.2** To overcome the aforesaid problem, modification has been adopted in Eastern Railways by utilization of push button switch 161 (illuminated Push Button Configuration) provided in SB-1 panel as unused and in isolated condition. Modification has been done by using this switch (161) as BP2DJ to close VCB to avoid locomotive failure on line due to failure of BLDJ in any driving cab like conventional locomotives.

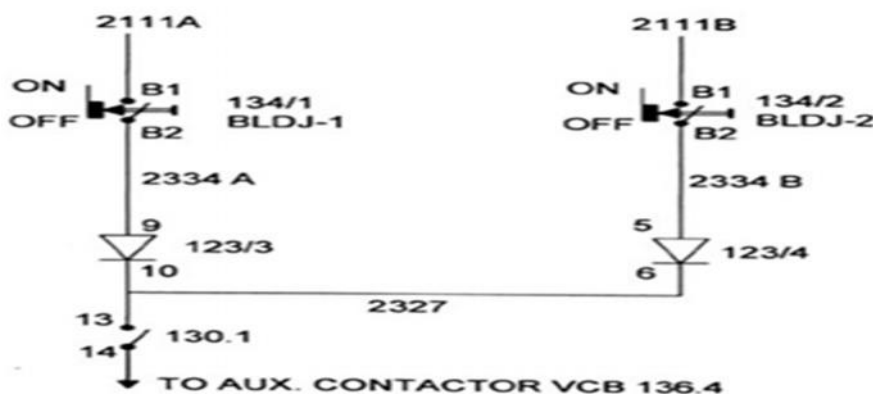
- 2.3** The main problem is in this modification for using switch No. 161 that it is located in SB-1 panel causing LP/ALP to go to SB-1 panel every time for operation. Also with this modification for opening of VCB, LP will have to lower the pantograph.
- 2.4** To overcome the aforesaid problem, another modification scheme has been adopted in Central Railways in which BLHO switch which is not in use in WAG-9 locomotives is used as additional BLDJ (BLHO switch to be renamed as additional BLDJ). However in WAP-5/WAP-7 locomotives ZBAN switch is not in use but it is also not spring loaded. Hence this switch is replaced with spring loaded switch and used as additional BLDJ (ZBAN switch to be renamed as additional BLDJ).
- 2.5** Central Railway informed that the aforesaid modification has already been implemented in 35 nos. of three-phase electric locomotives and after that no line failures have been observed on account of BLDJ switch.
- 2.6** The item has been discussed in 40th MSG meeting held at Churchgate, Mumbai/WR on 22nd & 23rd Feb'2023 and decision has been taken vide Railway Board letter no. 2022/Elect(TRS)/138/3 dated 25.05.2023 that RDSO may re-examine and issue modification sheet . Further, a draft modification sheet was issued vide this office letter no. EL/11.5.5/21 dtd. 21.08.2023 for comments/suggestions.
- 2.7** ELS CNB opined that, in case of defect in NC interlock of additional BLDJ of any cab, VCB is unable to close and loco will fail. ELS BRC also raised the same issue but ELS/BRC opined that since add. BLDJ will be operated sometimes only in case of failure of BLDJ, probability of simultaneous failure of NC contacts of both the switches is less. Hence this modification is accepted. Other loco sheds are agreed with the scheme.

3.0 Objective:

To provide additional BLDJ switch for VCB closing and opening to enhance the reliability of three-phase electric locomotives on account of online failure of BLDJ switch.

4.0 Existing Scheme and its limitation:

In conventional locomotives, it is possible to operate VCB with the help of BP1DJ & BP2DJ on failure of BLDJ switch. However, three-phase electric locomotives have only one BLDJ switch in each Cab. In case of failure of BLDJ switch of any Cab, Loco Pilot has no another option to operate VCB.



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6.0 Material required:

- i. 1.5 sq. mm control cable – 1 meter.
- ii. BLDJ Switch – 02 nos. for WAP7/WAP5 locos in place of ZBAN switch.

7.0 Application to the class of locomotive:

WAG-9/WAP-7/WAP-5 all types of three-phase electric locomotives.

8.0 Agency of Implementation:

All PUs, POH Shops, Electric Loco Sheds Holding 3-Phase Electric Locomotives.

9.0 Periodicity of Implementation:

Commissioning, POH, all major and minor schedule.

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Encl: Nil.

For Director General (Elect.)

Copy to:

- Secretary (Electrical Engg./RS), Railway Board, Rail Bhawan, New Delhi-110 001:
(Kind attn.: Shri Kishore Vaibhav, ED EE/RS): For kind information.

Encl: Nil.

For Director General (Elect.)