Fax : (0522)-2452581

Telephone: (0522)-2465715

Telegram : 'RAILMANAK', Lucknow

Email : dell7@rdso.railnet.gov.in

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

No. EL/3.1.35/2Electrical Dated 22.04.09.

Chief Electrical Engineers,

- East Central Railway, Hazipur – 844 101 (Bihar).
- South East Central Railway, Bilaspur-495 004.
- Western Railway, Churchgate, Mumbai-400 020.
- Northern Railway, Baroda House, New Delhi-110 001.
- Central Railway, 2nd floor, Parcel Office Bldg., Mumbai CST-400 001.
- South Central Railway, Rail Nilyam, Secunderabad – 500 071.
- Chittaranjan Locomotive Works, Chittaranjan-713 331 (WB).

MODIFICATION SHEET NO. RDSO/2009/EL/MS/0377 (Rev.0) , Dated 22.04.09.

1.0 **Title**:

Modification to voltage sensing circuit in WAP-5,WAP-7,WAG-9 & WAG-9H Locomotives.

2.0 **Object**:

There have been reports of failure of WAG9 locomotives online due to potential transformer fuse blowing on secondary side (provided on loco roof) causing heavy detention of trains and dislocation of traffic since power block is needed to renew the fuse. This may happen due to failure of wandler module in SR-1&2, minimum voltage relay & meter module in cab-1&2.

To avoid the mid section loco failure due to the blowing of potential transformer fuse on roof , it is proposed that the 2 Amps fuse is relocated to SB-1 in the locomotives which is right now provided in the secondary of potential transformer. In the old locomotive also where no fuse has been provided on the secondary side of potential transformer on roof, a 2 Amps fuse should be provided in SB-1. Two spare fuse of 2 Amps should also be provided.

3.0 **Existing Arrangement with cross-references of respective design document:**

In the old locos no fuse was provided on the secondary side of potential transformer on roof. Due to problem of potential transformer bursting during commissioning at CLW due to wrong wiring and earthing of cable screen during crimping, the specification of potential transformer was revised by CLW to include

a 2 Amps fuse in the potential transformer. Subsequently the locos turned out from CLW have this fuse in potential transformer box.

4.0 **Modified Arrangement to replace existing arrangement as given above in 3.0:**

A 2 Amps fuse is relocated to SB-1 in the locomotives provided with 2 Amps fuse in the secondary of potential transformer. In the old locomotive also where no fuse is provided on the secondary side of potential transformer on roof, one 2 Amps fuse should be provided in SB-1. Two spare fuse of 2 Amps should also be provided near the working fuse. The photograph of arrangement of the 2 Amps fuse in SB-1 cubicle is enclosed.

Trouble Shooting Directory should be changed as:

When driver is encountered with message no. F0104 P1:“ Main power catenary voltage out of limit,” he should take following action.

(i) Bring throttle to ‘0’ position.

(ii) Check 2 Amps fuse at SB-1, if it is blown off change it with the spare fuse. Check for OHE voltage getting restored, then close the VCB and resume traction.

(iii) If 2 Amps fuse is not blown, wait for catenary to rise above 17.5 KV but less than 29.5 KV. After OHE voltage get restored, then recluse the VCB and resume traction.

(iv) Switch OFF the electronics and switch it ON once again. Try to resume traction, if not succeed, then –

(v) Try by changing pantograph.

(vi) Try by changing Cab.

(vii) Try by isolating Traction Converter-1 or Traction Converter-2 one by one.

5.0 **Application to class of locomotives**:

WAP-5,WAP-7,WAG9, WAG9H.

6.0 **Material Required**:

2 Amps, 250 Volts fuse, two number for locos with fuse in the secondary side of potential transformer & three numbers for locos without fuse in the secondary side of potential transformer.

Type of fuse: Glass fuse/ Catridge fuse, Make/Model: E1, Size: 3 cms.

7.0 **Material Rendered Surplus**:

Nil.

8.0 **Reference**:

i) CELE/SCRly.’s letter no. E221/3Phase/Mod/Vol-I/2123 dated 30.08.08.

ii) AML’s inspection note no. 2008/Elect(G)/145/2 dated 13.08.08 (item no.6.3)

9.0 **Modification Drawing**:

Modified circuit diagram is attached .

10.0 **Agency of Implementation**:

CLW and Loco Sheds holding 3-phase locomotives.

22/04/05
(Sandeep Srivastava)
for Director General/Elect.

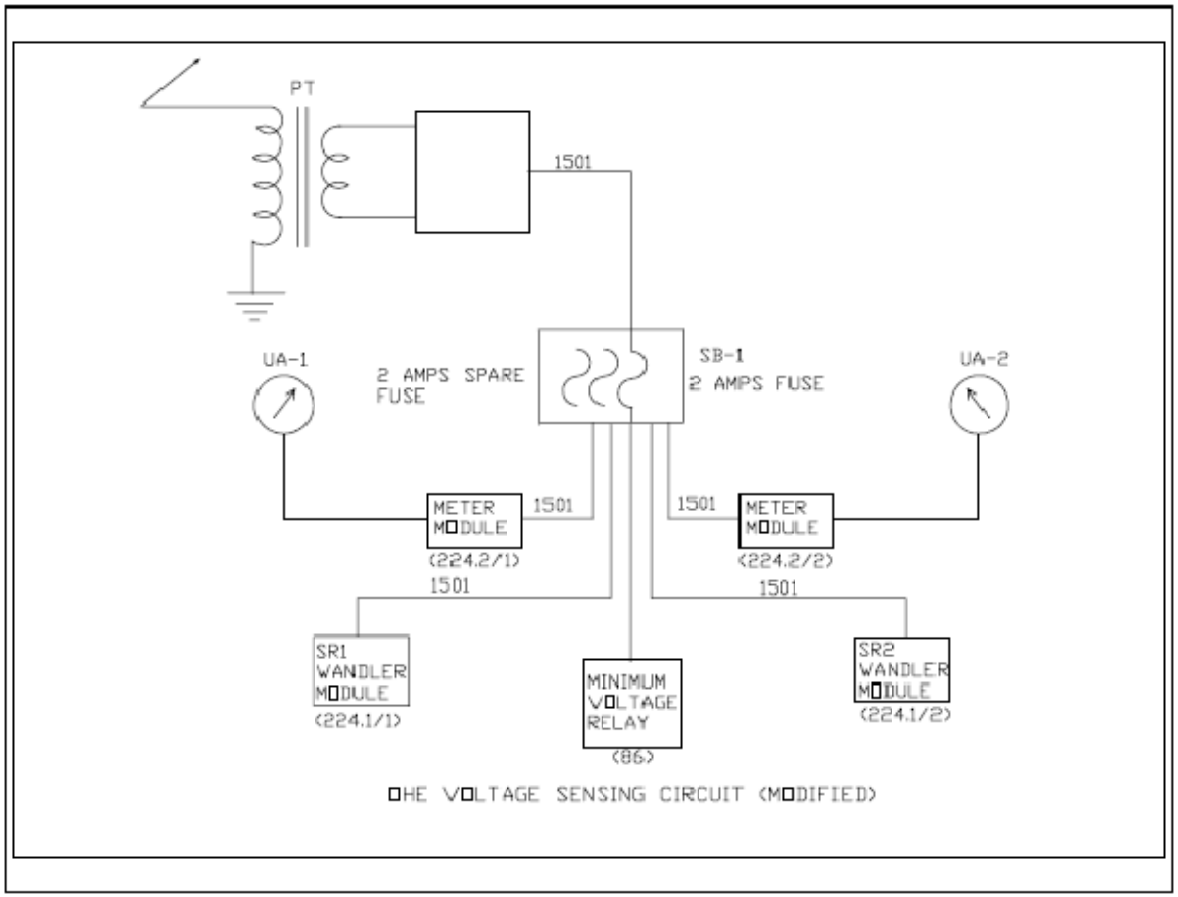
Encl: As above.

Copy to:-

1. **Secretary (Electric Traction),** Railway Board, Rail Bhavan, New Delhi-110 001
2. **Sr. DEE (TRS), Electric Loco Sheds,**
   - Central Railway, Ajni (Nagpur)-440 008.
   - South East Central Railway, BMY Complex, Bhilai, Durg-490 025.
   - West Central Railway, Tughlakabad, New Delhi-110 044.
   - Northern Railway, Ghaziabad (UP)-201 001.
   - East Central Railway, Gomoh-828 401.
   - South Central Railway, Lalaguda, Secunderabad – 500 017.

22/04/05
(Sandeep Srivastava)
for Director General/Elect.

Encl: As above



THE VOLTAGE SENSING CIRCUIT (MODIFIED)