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भारतसरकार-रेलमंत्रालय
अनुसन्धानअभिकल्पऔरमानकसंगठन
लखनऊ- 226011
Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW - 226011

No. EL/3.1.35/2 Electrical

Dated 28.09.2012.

Chief Electrical Engineers,

1. Central Railway, Mumbai CST-400 001.
2. Northern Railway, Baroda House, New Delhi-110 001.
3. Eastern Railway, Fairlie Place, Kolkata -700 001.
4. East Central Railway, Hazipur-844101.
5. Southern Railway, Park Town, Chennai-600 003.
6. South Central Railway, Secunderabad-500 371.
7. South Eastern Railway, Garden Reach, Kolkata -700 043.
8. South East Central Railway, Bilaspur-495004
9. Western Railway, Churchgate, Mumbai-400 020.
10. West Central Railway, Jabalpur-482001.
11. Chittaranjan Locomotive Works, Chittaranjan-713 331.

MODIFICATION SHEET NO. RDSO/2009/EL/MS/0375 (Rev.1) , Dated
28.09.12.

1.0 Title:

Provision of MCB (128.1) in Air Dryer circuit of 3-Phase electric locomotives.

2.0 Object:

2.1 In WAG-9 and WAP-7 locos, air dryers are located below the under frame and terminal box/input connector are exposed to atmosphere which is prone to either water entry or hit by foreign material. This causes either shorting of air dryer PCB or positive & negative supply. Positive supply to air dryer is taken after MCB 127.7. Tripping of this MCB causes failure of brake electronics and in turn causes failure of locomotive with priority 1 message (F1001P1: Fault in Brake Electronics). To avoid such failures and also to protect air dryer PCB against damage due to welding on locos during schedule in shed, RDSO had issued a modification sheet No. RDSO/2009/EL/MS/0375 (Rev.0), dated 27.03.09.

2.2 In this modification sheet, supply to air dryer is extended through an additional MCB 128.1 provided in series with MCB 127.7. If fault current in air dryer is low MCB (128.1) only trips, however, if there is a severe fault, both MCBs 127.7 and 128.1 trip. This leads to confusion in troubleshooting in locomotive by drivers.

2.3 South Central Railway vide their letter under reference has informed that loco No. 30250(WAP7) failed in RajdhaniExp (12494) and driver could not trouble shoot the fault.

- 2.4 In this connection, SCR has proposed that MCB 128.1 provided in series vide above modification sheet may be provided in parallel so that any fault in Air dryer circuit shall results in tripping of MCB 128.1 only.
- 2.5 In view of above Revision-1 to modification sheet No. RDSO/2009/EL/MS/0375 (Rev.0), dated 27.03.09 is being issued.
- 2.6 This Rev. '1' of the Modification Sheet supersedes Rev.'0' of modification sheet No. RDSO/2009/EL/MS/0375
- 3.0 **Existing Arrangement with cross-references of respective design document:**
- 3.1 MCB (128.1) for air dryer is provided in SB-2 panel.
- 3.2 In conk XK77D in SB-2 panel, pin 19 wire no. 3101 is positive and pin no.4 wire no 2050 is negative. Pin no. 4 and pin no. 19 has to be removed from movable conk along with pins. Male counterpart of these pins have to be crimped to outgoing cables from MCB (128.1). Connections to the respective terminals shall be made by inserting male female pins and shall be secured with the help of heat shrink sleeve. A loop from wire no. 3101 and 2050 from WAGO connector on SB-2 in series with MCB 127.7 is connected as input of MCB (128.1).
- 3.3 Instructions pasted in loco after modification are as follows:
- i) When fault in brake electronics is minor, due to low fault current in Air Dryer, only MCB (128.1) will trip. In such case, crew can work the train with MCB (128.1) in tripped condition ie. air dryer in isolated condition, which can be got attended at the first available opportunity.
 - ii) When fault in brake electronics is of severe nature, due to heavy fault current, both the MCB's ie. 127.7 and 128.1 may get trip. In such case, MCB of Air Dryer (128.1) should be kept in tripped condition and reset only MCB 127.7 after switching OFF the electronics.
- 3.4 Trouble shooting directory for driver has been changed as:
- When driver is encountered with message no. F1001P1: "Fault in Brake Electronics", he should take following action:
- i) Check MCB 127.7 and MCB 128.1. If found tripped, reset only 127.7 once.
 - ii) Switch OFF the Electronics and switch it ON once again. Raise panto, close VCB and resume traction, if loco get normal.
 - iii) If the same message repeated bring TE/BE throttle to '0' position.
 - iv) If not successful within 20 minutes, ask for relief loco.
- 4.0 **Modified Arrangement to replace existing arrangement as given above in 3.0:**
- The following steps are to be taken for provision of MCB (128.1) switch in parallel with MCB 127.7 for air dryer:

- 4.1. MCB (128.1) for air dryer is to be provided in SB-2 panel.
- 4.2. In SB-2 panel, there is a copper strip for wire no.2095(positive)and negative SB-2 for wire no. 2050 which is to be connected to input of MCB 128.1. In movable conk XK77D pin no. 4 wire no. 2050 is(negative) and pin no. 19 wire no.3101 is positive . Pin no. 4 and pin no.19 have to be removed from movable conk along with pin. Male counterpart of this pin have to be crimped to out going cable from MCB (128.1). Connections to the respective terminals shall be made by inserting male female pins and shall be secured with the help of heat shrink sleeve.

All the loop wires should be numbered properly.

The modified circuit is enclosed as Annexure.

- 4.3 Instructions for MCB to be pasted in loco is mentioned in clause no.4.4.
- 4.4 Trouble shooting Directory for driver is required to be changed and is as follows:

When driver is encountered with message no. F1001P1: "Fault in Brake Electronics", he should take following action:

- (i) Check MCB No. 127.7. If found tripped reset 127.7 once.
- (ii) Switch OFF the electronics and switch ON the electronics once again.
- (iii) If message repeats bring TE/BE throttle to "0" position.
- (iv) With CCB equipped locomotive, use the instructions to make PTDC mode of CCB active to clear the line.
- (v) If not successful within 20 minutes, ask for relief loco.

Following should be added at the end of subsystem 10.

"If driver experiences that air dryer is not working: Check MCB 128.1, if found tripped, reset the MCB once. If the MCB trips again, resume normal operation with air dryer in isolated condition".

This instruction should also be pasted in the loco cabs.

5.0 **Application to class of locomotives:**

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

6.0 **Material Required:**

NIL

7.0 **Material Rendered Surplus:**

Nil.

8.0 **Reference:**

- i) CELE/SCR letter no. E-221/SMI/MD/TC/3Phase/Vol-II dated 30.07.12.

9.0 **Modification Drawing:**

Attached as annexure.

10.0 **Agency of Implementation:**

CLW and Loco Sheds holding, 3-phase locomotives.

Encl: As Above .

404/20/09/12
(Sandeep Srivastava)
for Director General/Elect.

Copy to:-

Secretary (Electric Traction),
Railway Board,

Rail Bhavan, New Delhi-110 001

Sr. DEE (TRS), Electric Loco Sheds,

1. Central Railway, Ajni (Nagpur)-440008.
2. South East Central Railway,
BMY Complex, Bhilai, Durg-490 025.
3. West Central Railway, Tughlakabad, New
Delhi-110 044.
4. Northern Railway, Ghaziabad (UP)-201 001.
5. East Central Railway, Gomoh-828 401
6. South Central Railway, Lallaguda,
Secunderabad – 500 017.
7. Eastern Railway, Howrah.
8. South Eastern Railway, Tatanagar-831 002.
9. Western Railway, Vadodara-390 002.
10. Southern Railway, Royapuram, Chennai-600
013

Encl: As above

: For information please

: For information and necessary
action please.

404/20/09/12
(Sandeep Srivastava)
for Director General/Elect

Annexure

Amendment-1 of circuit diagram for 3A MCB for Air Dryer



