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GOVERNMENT OF INDIA / भारत सरकार
MINISTRY OF RAILWAYS / रेल मंत्रालय
(RAILWAY BOARD / रेलवे बोर्ड)

No. 2000/Elect(G)/113/4/Safety Date 14.01.2026

General Manager,
Rail Coach Factory,
Kapurthala.

Sub: CAI for improvement of wiring of LHB coaches.

1. The LHB coaches are being manufactured in RCF. Two coaches were inspected in NDLS depot of Northern Railway by Director, EE(G)/Railway Board, Director, TLAC/RDSO and Dy.CEE/Design/RCF on 13.01.2026.
2. The coaches inspected were coach no. 211678/LWACCN and 153057/LWACCW. It was found that coach manufactured in 2015 had proper arrangement and harness above toilet area and was properly secured. However, in coach manufactured in 2021, it was found that the wiring is haphazard and not properly secured above toilet area. This can lead to cable cut due to sharp edges and resultant failure. Photos of above coaches are enclosed as Annexure.
3. More coaches were also checked and it was observed that post 2015 the wiring has not been properly secured above toilet area.
4. In view of above, it is advised to thoroughly investigate the matter and issue a CAI (Coach Alteration Instruction) for Zonal Railways for proper securing of wiring during POH in the coaches manufactured after 2015. CAI may be issued by 25.01.2026.

Diwakar 14/1/26

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RAIL COACH FACTORY, KAPURTHALA

CAI NO.: ED/CAI/046 dated: 28.01.2026

COACH ALTERATION INSTRUCTION SHEET FOR MODIFICATIONS OF POLYAMIDE CONDUIT ARRANGEMENT IN LAVATORY AREA OF EXISTING LHB EOG AC TYPE COACHES

	रेल कोच फैक्टरी, कपूरथला **RAIL COACH FACTORY, KAPUTHALA**	दस्तावेज़ सं.:ई.डी./सी.ए.आई./046दिनांक28.01.2026 **Doc. No.**:ED/*CAI/046* *Dated 28.01.2026*

1. **Forward:**
   In reference to Railway Board letter no. 2000/Elect(G)/113/4/Safety, dated:14.01.2026, Coach Alteration Instruction (CAI) is being issued for Conduit arrangement in Lavatory area of LHB AC coaches. This covers the modification/additions/deletion to be carried out in the existing LHB AC coaches running in the Zonal Railways.

2. **Reason for modification:**
   Fire incidence in BZA division in coach no SE LWAAC212300 train no. 18045 SHM-CHZ Exp. wherein a minor fire in toilet area occurred and it has been observed that long overhung cables are bunched in ceiling over lavatory module.

3. **Details of Modification:**
   Modification involves three sub-heads:
   - Proper laying and securing of conduits in lavatory area.
   - Provision of edge sleeves in sharp edges of metal parts in lavatory module
   - Provision of polyamide conduit over other cables of flushing system lying uncovered in lavatory module and protection cover over lavatory flush push button.

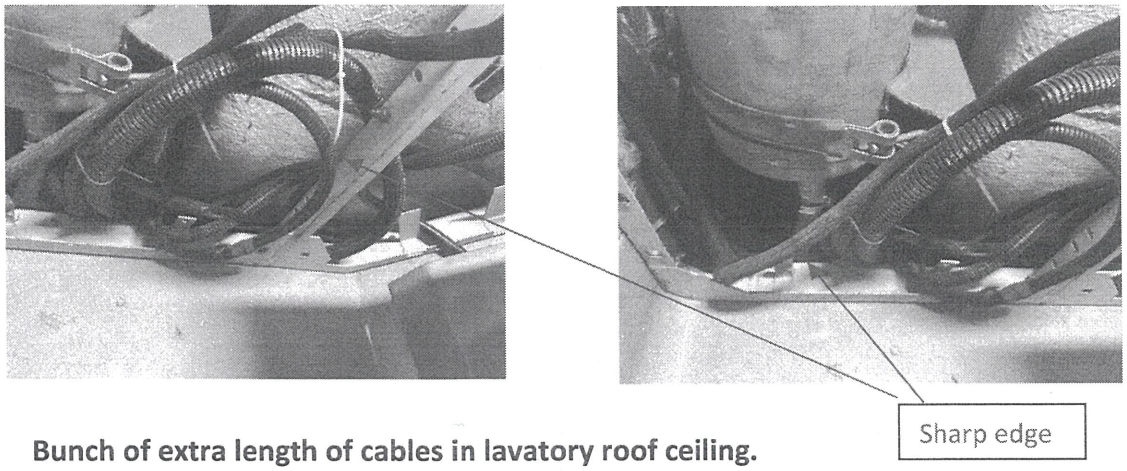
4. **Implementation by:**
   During POHby workshops.

5. **Activity:**
   5.1 Proper laying and securing of conduits in lavatory area.

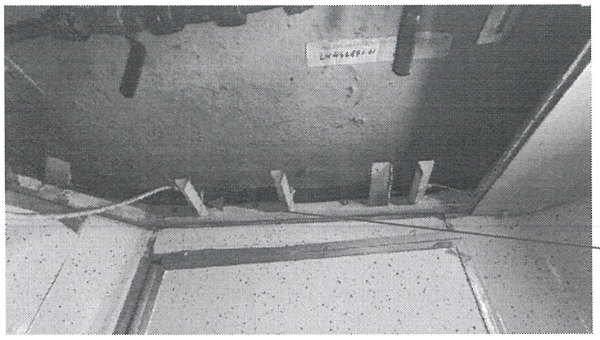
   - Open the flat ceiling in doorway area to access the conduits.
   - Open the attachment door of lavatory module to access the lavatory terminal strip.
   - Open the connections from Lavatory Wago terminals and note down the wago terminal nos. and corresponding ferrule nos. for reconnection purpose.
   - Measure the required length of cable just sufficient to be re-terminated to lavatoryWago terminals with 200mm length extra for future use in terminal connections. Any extra length of wires and conduits shall be cut and examine the condition of remaining coach cables for any insulation damage/scratches.
   - The flexible conduit with cables shall be routed as near to the cable duct on the outside of lavatory module; however cables emanating from the polyamide

conduits shall be covered with cable jacket to EDTS 138, item-5 & 11 upto the cable duct. The cable jacket shall be secured on both ends by cable binder to drg. no. CC76129, item-2 so that the cablesjacket remains at place during train run/vibrations.

- Re connect the cables on respective terminals as mentioned above using proper tool for insulation removal of cables. No strand shall be outside the wago terminal and the condition of wago terminal shall be examined for any defect and replaced if required.
- Examine the condition of cables/conduits for wiring of lavatory light and door limit switch running over the lavatory module for insulation damage/scratches and replace with same size of cable if required.
- Refresh the connections at lavatory wago terminals by removing the cables from terminals and reconnecting again after stripping of cables ends.
- Arrange the conduits in lavatory area as indicated in drawing no.LW76433 for lavatory light and door switch. The conduits presently secured with cable ties/binders shall be secured with tube clamps of PG 17 size to RDSO spec. no RDSO/PE/SPEC/AC/ 0138(latest). For fixing of tube clamps dia. 5mm hole shall be drilled at site and securing with the following hardware :
  - Hex. Hd. screw : size M4x20 (SS)
  - Hex. Nut : size - M4
  - Spring washer - M4
  - Plain washer - Ø 4.3 mm
- Check the condition of cable jackets/sleeves provided for terminating cables and replace if required. No cables shall be bare upto the lavatory light/Door limit switch connections. The cable jackets shall be invariably secured with cable ties at both ends.



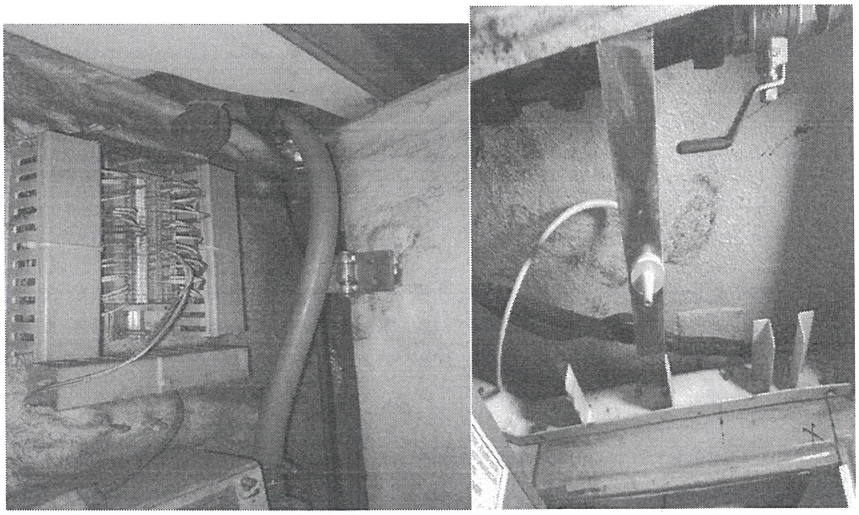
Bunch of extra length of cables in lavatory roof ceiling.



Existing Routing of cables with cable ties to be provided with tube clamps

5.2 Provision of edge sleeves in sharp edges of metal parts in lavatory module

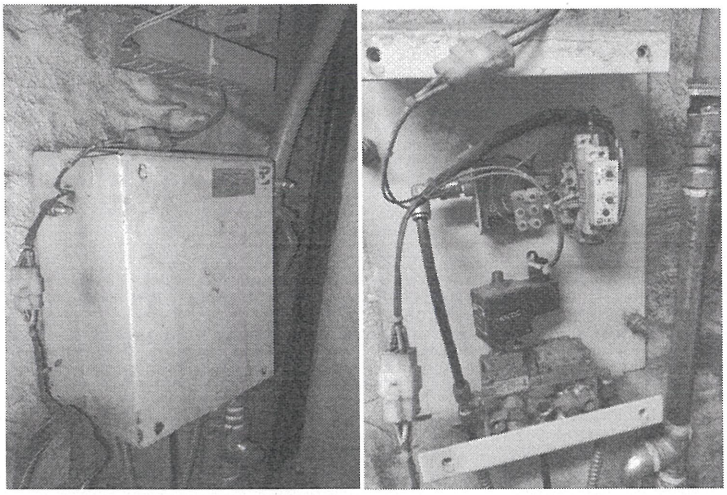
- While routing the conduits / cables from lavatory wago terminals to inside the lavatory, the conduit shall be passing over the metal edges of the lavatory module which may damage the conduits/cables due to vibrations during train run. Hence conduits shall be routed such that to avoid any contact with sharp edge metal parts of lavatory module.
- Any sharp edges in metal parts over the lavatory module shall be provided with edge sleeve topart no.209-0290.BS-00000 of Ms DIRAK to avoid damage to the conduits, cable jacket and wires.
- Examine the lavatory module in general and any sharp edges found in FRP or metal parts likely to come in contact with electrical conduit shall be smoothened by grinding the surface/corners.

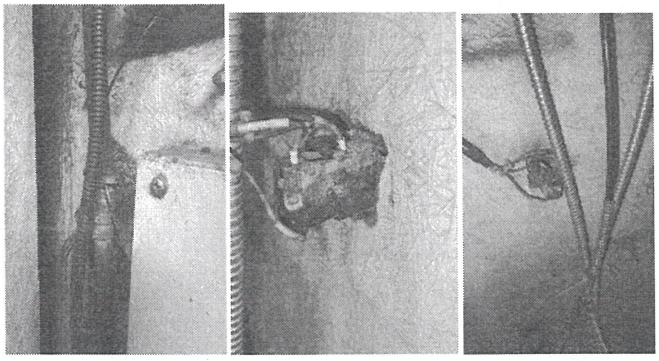


Sharp edges in lavatory module structure to be provided with edge sleeves

5.3 Provision of polyamide conduit over other cables of flushing system lying uncovered in lavatory module and protection cover over lavatory flush push button.

- It is observed that the lavatory flush systems cables are lying in lavatory outside wall without any standard routing. The condition of cables and conduits to be checked for any damage to the cables and replace if required.
- The cables to be secured with cable ties to suit at site and no cables shall be bare or in hanging condition. Any cable not in use for flushing system due to modifications done by User Railways shall be removed and in no case the cable be connected to power supply.
- The control box of toilet systems shall not be in open condition or without cover. The missing screws shall be provided to properly lock the front cover.
- The flush push button shall be examined for presence of moisture/rusting of terminals and duly covered from the rear side of toilet.





Flush system cables

6.0 Testing:

- After conducting the wiring modifications, the Insulation Resistance test shall be done as clause 12.5.1 of document no. ELPS/SPEC/EOG/01.

- 110V DC circuit of the coach shall be checked for any leakage by pressing the Insulation test +VE and Insulation test –VE Push button on the switch board cabinet. The DC voltmeter shall show zero voltage when push button are in pressed condition.

- Check the functionality of all the 110V circuits.

7.0 Bill of material per coach (for 4 lavatories):

Sr. No.	Item Description	Drg. /Spec.	Quantity
1	Tube clamp	Item-3,Table-A8 to RDSO/PE/SPEC/AC/0138-2009, Rev-1	28 nos.
2	Hex. Head Screw (M4x20mm)	IS:1364-92 (Part-1)	28 nos.
3	Hex. Head Nut (M4)	IS:1364-92 (Part-1)	28 nos.
4	Spring washer (M4)	IS:3063-94, T-1, TYPE-A	28 nos.
5	Plain washer	IS:2016-67, T-2, TYPE-A	28 nos.
6	Cable tie	Item-2, to drg. no. CC75129 Alt-'a'	As per requirement
7	Cable Jacket	Item-5 & 11 EDTS-138, CORR-2	As per requirement
8	Edge protection sleeve	370-0576.05-B1666 of M/s DIRAK	As per requirement

7.0 Cross references:

i. LHB drg. no. 1 10113.0.76.100.002, 1 10113.0.76.100.003, 1 10113.0.76.100.004
ii. Spec. no. MDTS-214, Rev-4.
iii. Spec. no. RDSO/PE/SPEC/AC/0138-2009, Rev-1
iv. Spec. no. EDTS-138, Rev-Nil, Corr-2
v. Drg. no. LW76433
vi. Check List

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Checklist: to be checked after modificationby concerned SSE at shop

Sr.No.	Description	Check
1	Securing of the conduits with cable ties	Ok/Not Ok
2	Clamping of conduits running over the lavatory module	Ok/Not Ok
3	Covering of exposed cable with cable jackets	Ok/Not Ok
4	Termination of cables in Lavatory terminal/ Lavatory light/ Flush push system. No strands damaged/outside the terminal	Ok/Not Ok
5	Insulation of wires of lavatory area	Ok/Not Ok
6	Check of 110V DC insulation (+VE & -VE) circuit on Switch Board Panel	Ok/Not Ok
7	Checking of functionality of all 110V DC circuits after restoration	Ok/Not Ok