Estt. Srl. No. 07/2025
RBE No- Nil

EAST COAST RAILWAY

प्रधान मुख्य कार्मिक अधिकारी का कार्यालय/
Office of the Principal Chief Personnel Officer
रेल सदन, द्वितीय तल, भुवनेश्वर - 751017
Rail Sadan, IInd Floor, Bhubaneswar-751017

पूतरे/कार्मिक/आर ECoR/Pers/R/Guidelines Date:08.01.2025

ALL PHODs/CHODs,
DRMs/CWM/CAO&CPM,
East Coast Railway, Bhubaneswar.

Sub: Guidelines for Thermal Imaging of Vande Bharat Coaches.

उपर्युक्त विषय पर रेलवे बोर्ड पत्र सं. 2017(M)/137/4TrainSet-Part(1), दिनांक 01.01.2025 की प्रतिलिपि सूचना, मार्गदर्शन एवं आवश्यक कार्रवाई हेतु अग्रेषित है।

A copy of Railway Board's Letter No. 2017(M)/137/4TrainSet-Part(1), dated 01.01.2025 on the above quoted subject is forwarded herewith for information, guidance and necessary action.

Encl: As above,

(Subash Chandra Hota)
Assistant Personnel Officer - I
For Principal Chief Personnel Officer.

Copy to:-

1. Secy. to GM & AGM,
2. Chairman-RRB&RRC-BBS,
3. Dy.CPOs /Sr.DPOs, DPOs/SPOs, WPO/APOs of Personnel Department,
4. General Secretary's- ECoRSC & ECoRSU.

RB-745
03/01/25

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
रेलवे बोर्ड Railway Board

E-File No. - 3410163
New Delhi, Date: 01.01.2025

No. 2017/M(C)/137/4TrainSet-Part(1)

Director General
RDSO, Lucknow

General Managers
All Zonal Railways and ICF

Sub: Guidelines for Thermal Imaging of Vande Bharat Coaches.
Ref: (i) RB Letter No. 2017/M(C)/137/4TrainSet dated 28.11.2024.
(ii) RDSO Letter No. 1.3.17.1/Train Set dated 16.12.2024.

For implementation of Thermal Imaging in Vande Bharat coaches, vide letter under reference (i) above, RDSO was advised to issue detailed instructions and guidelines covering various electrical equipments and electrical panels to be checked during various maintenance schedules.

Accordingly, vide letter under reference (ii) above, RDSO has issued guidelines for Thermal Imaging for Onboard Electrical Cabinets, RMPU Panel, Pantry Switch Gear, Battery and Battery Box Equipment and Power Cable Connections etc.

In this regard, Zonal Railways are advised to carry out thermal scanning for monitoring of temperature of different electrical equipments in Vande Bharat Coaches during maintenance as per guidelines issued by RDSO. Zonal Railways to procure suitable T&Ps/M&Ps as prescribed by RDSO for efficient and accurate measurement of temperature variations.

Also, in this context, ICF & RDSO are advised to conduct training session for Zonal Railways regarding procedure for thermal scanning activities in Vande Bharat coaches.

Further, CAMTECH is advised to incorporate the above RDSO guidelines regarding thermal imaging into Vande Bharat maintenance manual. CRIS is advised to make the provision in CMM for uploading the scanned photos and Zonal Railways to ensure entry of data in CMM.

For further necessary action please.

01/01/25
(ऐश्वर्य सचान)
निदेशक/यांत्रिक इंजी./कोचिंग
रेलवे बोर्ड

Copy to:
- PCMEs/All Zonal Railways and ICF for kind information and necessary action please.
- PED/PS&EMU/RDSO for kind information and necessary action please.
- MD/CRIS for kind information and necessary action please.
- Dir./Mech./CAMTECH for kind information and necessary action please.

Telegram : 'RAILMANAK', Lucknow
E-mail : edomurdso.trainset@gmail.com

Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW – 226011

No. 1.3.17.1/Train Set **Dated As signed**

PCMEs/PCEE
All Zonal Railways, RCF, ICF & MCF

Sub: Guidelines for Thermal imaging of Vande Bharat coaches.

Ref:
i) Railway Board letter no. 2017/M(C)/137/4TrainSet dated 28.11.2024.
ii) RDSO letter No. EL/4.6.1/3 Phase dated 06.07.2024
iii) RDSO letter No. EL/7.1.108/SBC/Main dated 26.11.2024

1. Railway Board vide letter referred above, has advised to issue detailed instruction and guidelines regarding thermal imaging/scanning of various electrical equipment and panels in Vande Bharat rakes to be followed during maintenance schedules.

2. The same has been examined in continuation to earlier guidelines issued by RDSO for LHB AC coaches and Final Committee Report on maintenance schedule activities of Conventional & 3 Phase EMU/MEMUs, referred at (ii) & (iii) above.

3. Considering the above, the guidelines for Thermal imaging/scanning of the electrical equipment and panels in Vande Bharat rakes to be followed during maintenance schedules:
   - Thermal vision camera with Thermal sensitivity (Noise Equivalent Temperature Difference) of 80mK (maximum) for accurate measurement of variation in temperature across the terminals, should be used.
   - The Measurement of Thermal vision to be carried out at an approx. distance of 30 cm from the switch gears

A. Guidelines for Onboard Electrical Cabinets, RMPU panel, Pantry switchgear;

- The power supply of the train is Switched ON for 30 mins on full operating (Auxiliary) load, with all electrical equipment's/fittings like lights, water pump, both Roof Mounted AC Package Units (RMPU), pantry etc. in working condition.
- Thermal images of all the MPCBs, MCBs, Contactors, fuses, rotary switches, relays etc. to be captured properly by scanning the terminals & body temperature.
- Thermal Scanning of end wall panels/electrical cabinets (CRW, ECC), RMPU Panels, Pantry switchgear to be carried out during commissioning, Monthly, Quarterly, Nine Monthly, Shop Schedule (SS1, SS2 & SS3) of maintenance by Production Units /Zonal Railways.
- Acceptance criteria for temperature rise from ambient is as given below:

SN	Temperature Rise	Acceptance Criteria
1	>25 °C	The specific switchgears need to be properly investigated and attended. Thereafter, Thermal imaging to be repeated. In case, value is still in this range, then same is to be replaced.
2	≤25 °C	Acceptable value

B. Guidelines for Battery and Battery Box equipment:

- The VCB of the train is Switched OFF for 30 mins on full operating (Auxiliary) battery load, with all electrical equipment's/fittings like lights, water pump, etc. in working condition.
- Battery box door to be opened and cradle to be pulled out after isolation (Battery selector off).
- Thermal images of all the terminals, Contactors, fuses, rotary switches, relays etc. to be captured properly by scanning the terminals & body temperature.

- Thermal Scanning of battery and battery box equipment to be done during commissioning, Quarterly, Nine Monthly, Shop Schedule (SS1, SS2 & SS3) of maintenance by Production Units /Zonal Railways.

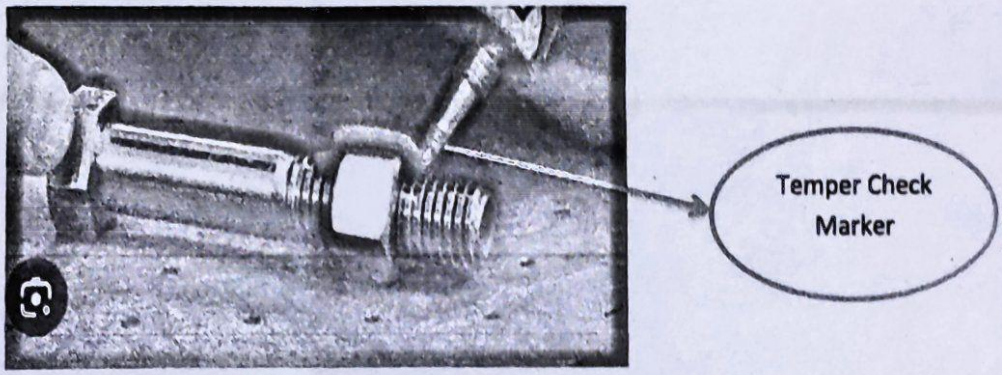
- Acceptance criteria for temperature rise from ambient is as given below:

SN	Temperature Rise	Acceptance Criteria
1	>25 °C	The specific terminal/switchgears need to be properly investigated and attended. Thereafter, Thermal imaging to be repeated. In case, value is still in this range, then same is to be replaced.
2	≤25 °C	Acceptable value

C. Power cable connections using Temper Check Marker:

Since the train would be standing in the shed and hence not be loaded from Traction point of view, Thermal scanning of High power Traction circuit will not be able to detect heat generation due to loose connections.

Hence use of temper check markers for power cables to be adopted. For this Power cables should be properly tightened during commissioning and Shop Schedules (SS1, SS2 & SS3). After tightening of these cables, it should always be provided with temper check marker provided with special paste as indicated below. Only breakage of these markings indicates loosening of nut bolts at terminal. And so, tightness of cable to be checked only in case of overheating and condition of temper check marker provided with special paste. In case if re-tightening is required, these terminals shall invariably be re-provided with temper check marker.



16/12/24

(गौरव माथुर)
(Gaurav Mathur)
कार्यकारी निदेशक/ईएमयू
Executive Director/EMU
कृते महानिदेशक/पीएस एण्ड ईएमयू
For Director General/PS & EMU

Copy to:

ई.डी.एम.ई. (कोचिंग), EDME (Coaching), रेलवे बोर्ड, रेल भवन, रेल मंत्रालय,
Railway Board, Rail Bhawan, Ministry of Railways,
नयी दिल्ली–110001, New Delhi – 110001

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