


Doc. No.: SD-8622	Rev. No.: 00	Page: 1 of 7	Product Code: MAE675UV2	
Title: Maintenance Procedure of Electrical Control Cabinet- Electric Train set				
Prepared by	Checked by	Approved by	Initiated date	
Lakshmi Singh	Sushmitha	BOC Reddy	22.08.2022	

Overview of ECC location in the Locomotive:

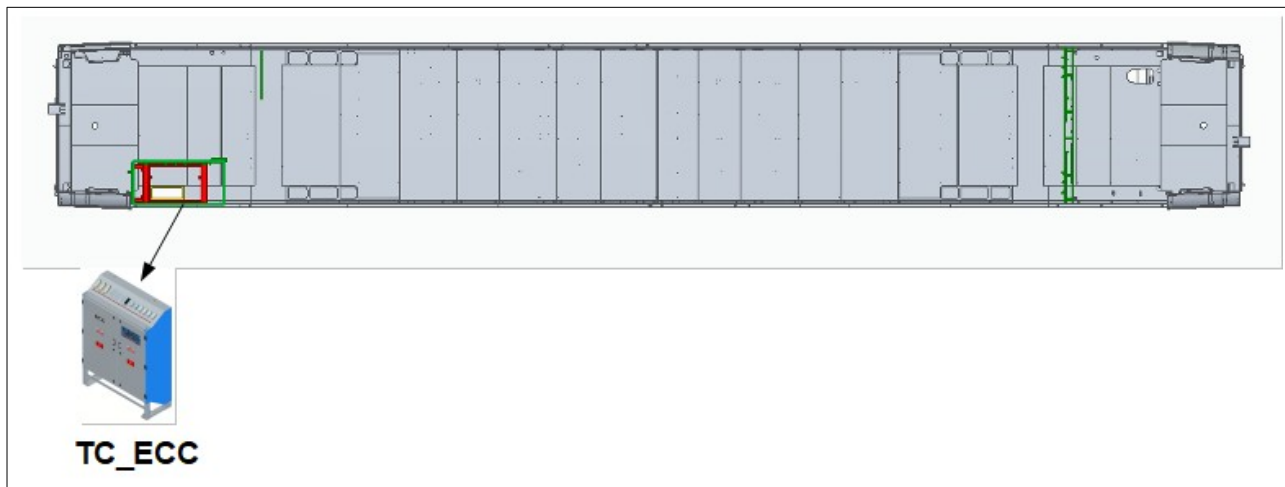
Every coach other than DTC has one Electrical control cabinet (ECC) each. There are three types of Electrical Control Cabinets named according to the coach in which they are located.

- TC ECC
- MC ECC
- NDTC ECC.

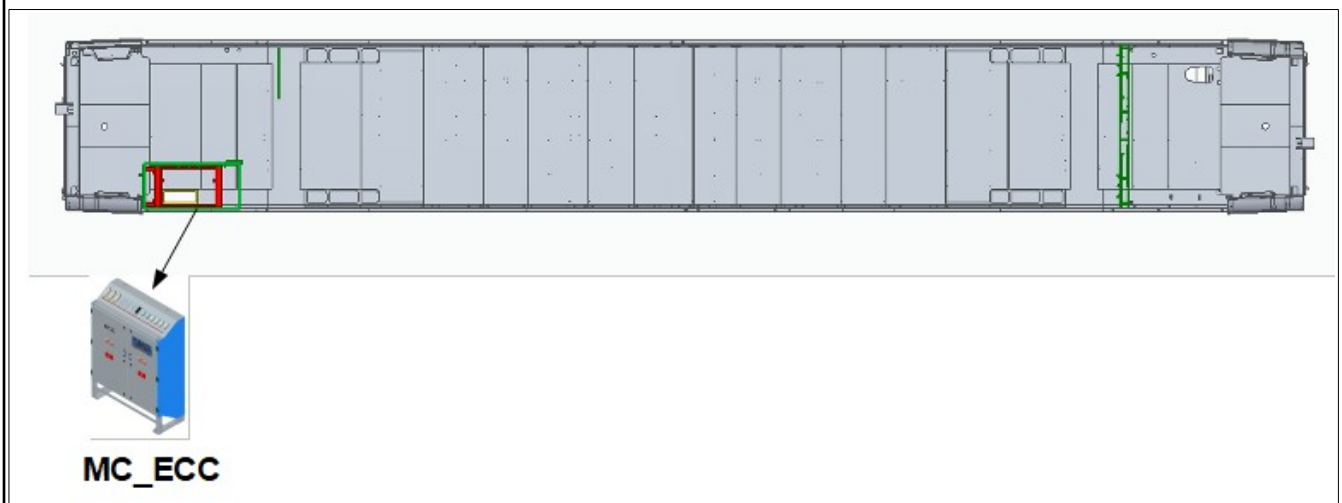
Weights of these three variants of Cabinets are mentioned below.

- Weight of TC ECC is around 400 Kgs approximately.
- Weight of MC ECC is around 350 Kgs approximately.
- Weight of NDTC ECC is around 360 Kgs approximately.


The below picture shows the layout of TC ECC in Trailer Coach.



The below picture shows the layout of MC ECC in Motor Coach.



The below picture shows the layout of NDTC ECC in Non Driving Trailer Coach.

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NDTC_ECC

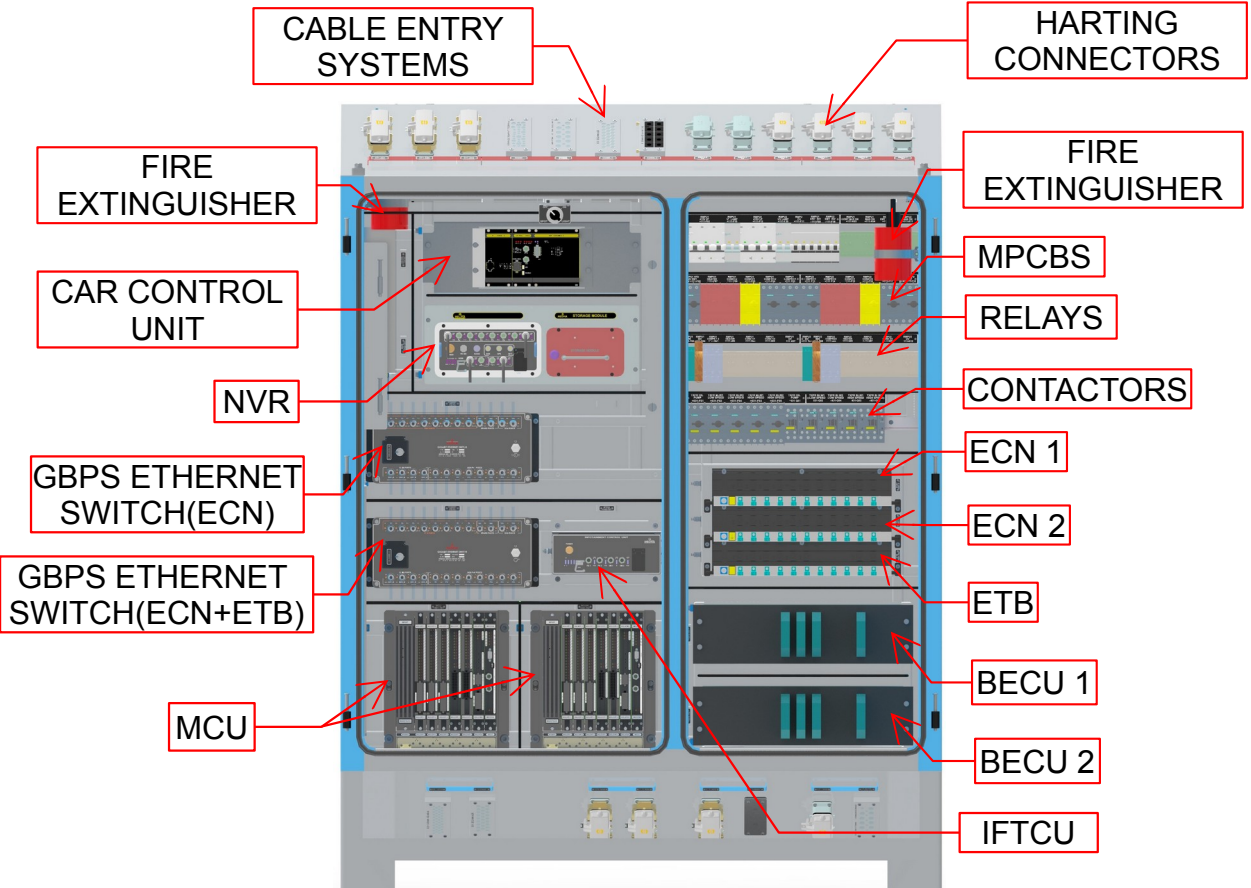
These Electrical Cabinets consist of Control Units , Ethernet Train Bus, Ethernet Consist Switch, Passenger Information System , Car Control Unit, Brake Electronics, Contactors, Relays, Breakers, Battery disconnecter, Terminal blocks, Harting connectors, Power TBs etc.

Position of Electronics inside ECC:

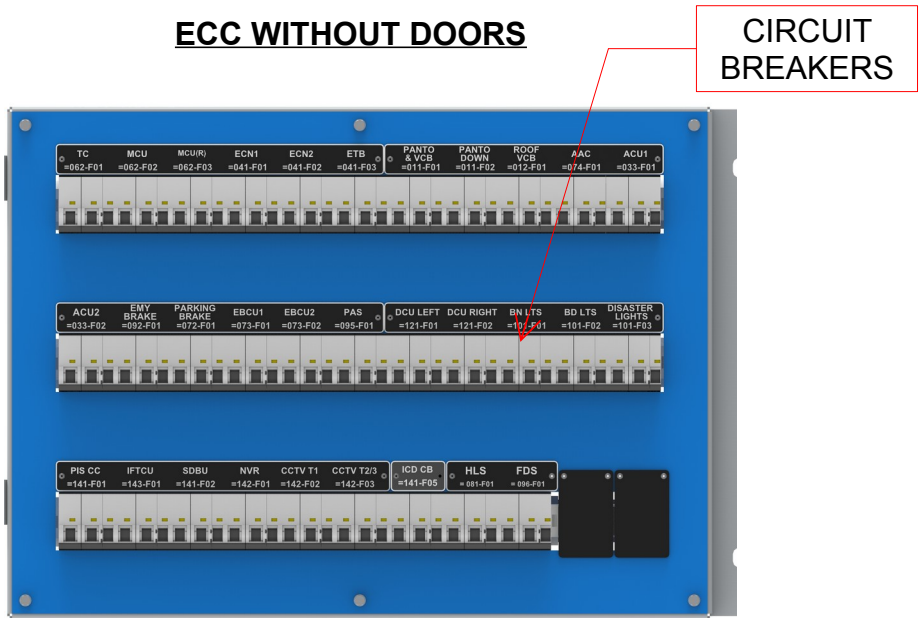
Equipment layouts are shown in below section.



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ECC WITHOUT DOORS



MCCB DOOR

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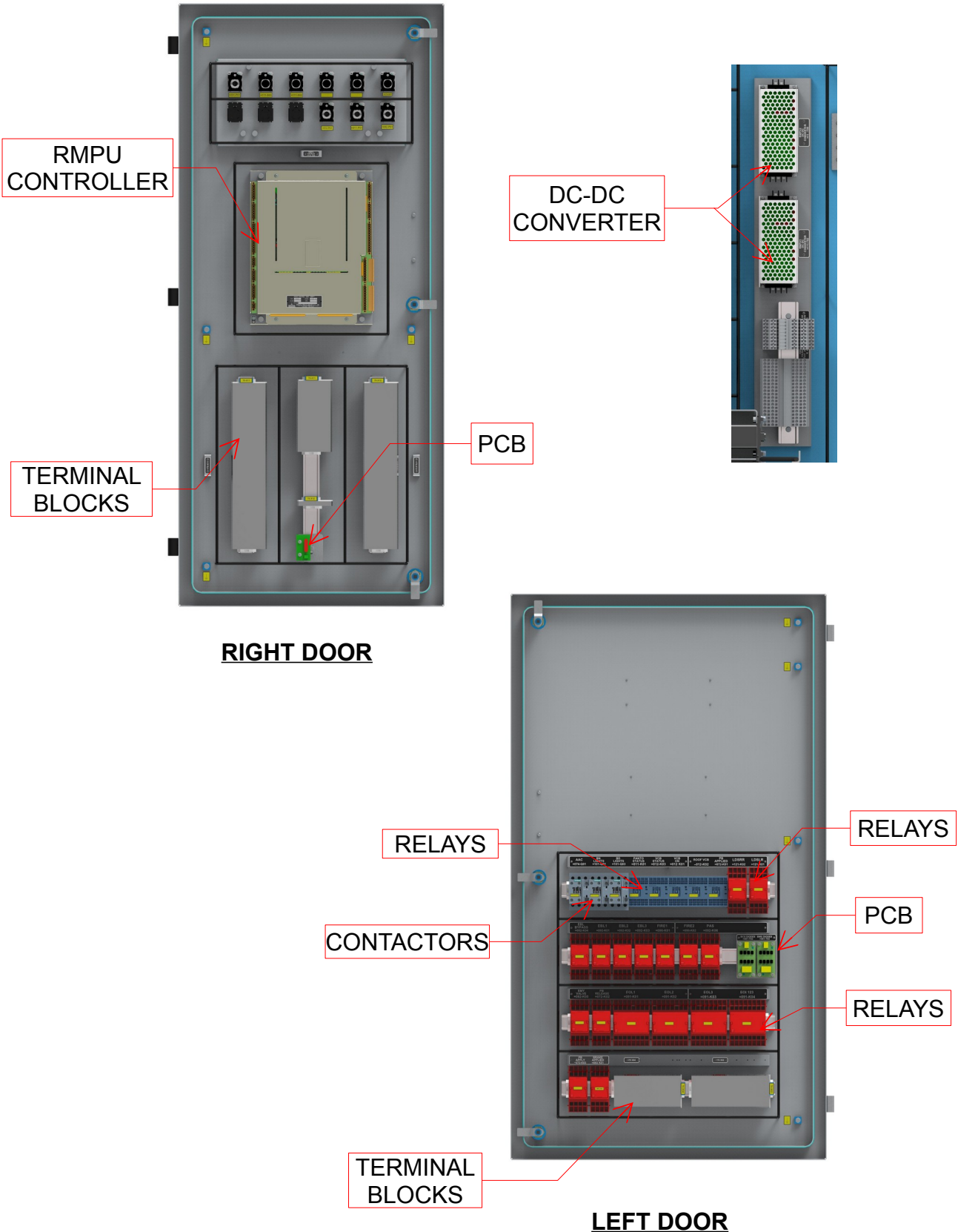
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Mounting Hardware of ECC :


S. no.	Code	Description	Qty /panel	Torque
1	69001204082	Plain washer M12 SS	8	---
2	69001214076	Spring washer M12 SS	8	---
3	65124404001	Bolt M12 Hex head 40 LG SS	4	62 N-m
4	65124254001	Bolt M12 Hex head 25 LG SS	2	62 N-m
5	56550210001	M12 bolt with rail nut	2	---
6	68012214089	Hex nut M12 SS	2	62 N-m
7	513355220001	Top anchoring bracket -TC-675UV2	2	---
8	62060000003	MC ECC floor cable EPDM plate-A675UV2	1	---
9	69000804035	Plain washer M8 SS	8	---
10	69000814029	Spring washer M8 SS	8	---
11	65084304074	Bolt M8 Hex head 30 LG SS	8	20 N-m
12	69001004010	Plain washer M10 SS	4	---
13	69001014004	Spring washer M10 SS	4	---
14	65104204074	Bolt M10 Hex head 20 LG SS	4	50 N-m

Safety instructions:

- ECC contains electrical equipments which use / carry high voltage. This can be highly dangerous .
- Any maintenance/ installation work is to be carried out by trained staff with appropriate precaution only.
- Always use protective clothing and protective equipment.
- Set the placard “Work in progress” or follow the employer instructions.
- Before commencing work on the vehicle, ensure that all voltage is disconnected.
- Lock the switches, Isolators, fuses etc. where possible.

Visual Inspection & Cleaning:

- Open the doors of the unit by unlocking with a square key.
- Clean the entire internal housing and the equipment with the vacuum cleaner.
- Visually inspect the entire box, enclosure walls, covers & welds for any damage or cracks.
- Visually inspect all internal and external cable connections for damage.
- Ensure that all Cable entry frames and connectors are in good condition.
- Visually inspect the bolts used for mounting the unit to bottom and top mounting

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frames Ensure that all bolts are present and tightened.

- Ensure that the door gasket is in good condition without holes, cracks. If the gasket is damaged, replace it with new gasket.
- Check the condition of hinges
- Close the doors of the unit after compressing the gasket properly.
- Lock the doors with the square key.
- Ensure all the doors of the unit are tightly closed during cleaning/water wash of coach.

Maintenance of electronics inside the unit:

No specific maintenance is required for electronics in the unit. If there is any faulty component , then there are to be replaced by taking proper precautions.

Replacement of Contactors :

- Refer circuit diagram to understand wiring before disconnecting the wires.
- Untie the cables of the contactor from the adjacent tie rod.
- Remove the screws of the contactor and remove the cables.
- Remove the contactor from dinrail & replace the contactor.
- Refit the cables and tighten the screws.
- Tie the hanging cables to the adjacent tie rod.

Replacement of Relays :


- Refer circuit diagram to understand wiring before disconnecting the wires.
- Untie the cables of the relay from the adjacent tie rod.
- Remove the relay from din rail & replace the relay.
- Refit the cables to the relay.
- Tie the hanging cables to the adjacent tie rod.

Replacement of Circuit Breakers :

- Refer circuit diagram to understand wiring before disconnecting the wires.
- Untie the cables of the circuit breaker from the adjacent tie rod.
- Remove the screws of the circuit breaker and remove the cables.
- Untie the Auxiliary contact block if fixed
- Remove the circuit breaker from din rail & replace the circuit breaker.
- Refit the Auxiliary contact block
- Refit the cables and tighten the screws.
- Tie the hanging cables to the adjacent tie rod.

Replacement of Terminal Blocks :

- Refer circuit diagram to understand wiring before disconnecting the wires.
- Untie the cables of the terminal block from the adjacent tie rod.
- Remove the cables and replace the terminal block on the dinrail.
- For weidmuller TBs with bus bars, untighten the screws of the bus bars first.

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- After the replacement of TB, refit the busbar and tighten the screws.
- Refit the cables of the TB.
- Tie the hanging cables to the adjacent tie rod.

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