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Title: Maintenance instructions for Brake Chopper resistor - MAE675UV2				
Prd By: RAVI G	Chkd By: RAVI G	Appd By: KJSRK	Date	
Sign:RAVI G	Sign:RAVI G	Sign:KJSRK	16.08.22	

Introduction

Brake chopper Resistor is used to limit the DC Link voltage during dynamic conditions leading to over voltages, partial braking load is dissipated during blended braking and full braking load is dissipated during braking operation between stations.

- SA unit is mounted directly to under frame.
- Unit outline dimensions are 824 mm(L) x 563 mm (W) x 435 mm (H).
- Unit Max. weight is 92 Kgs.

Follow the instructions mentioned below for Maintenance of Brake Chopper resistor,

Mounting location of Brake Chopper Resistor

- Mounting location of Brake Chopper Resistor to MC under-frame shell is as shown in Fig. : 1 and 2. And also refer the drawing.no C-A675UV2-132038 for more details.

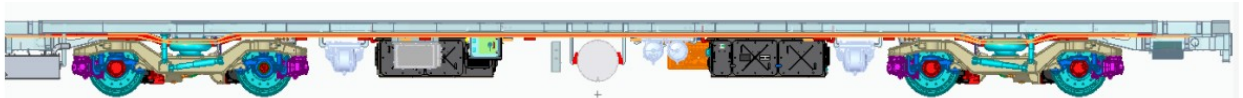


FIG. : 1

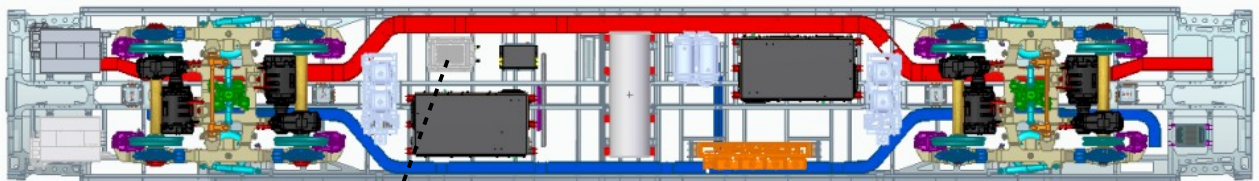



FIG. : 2

Brake chopper resistor

Unit mounting hardware details :

Following is the list of mounting hardware for brake chopper resistor,

S. No.	Description	Qty.	Torque
1	BOLT M16,HEX HEAD,60 LG,SS WITH SPLIT PIN HOLE	4	158 N-m
2	PLAIN WASHER M16,SS	8	---
3	WASHER M16, SPG, SS,	4	---
4	HEX NUT M16,SS	4	158 N-m
5	HEX THIN(LOCK) NUT M16,SS	4	---
6	SPLIT PIN -Ø4x30 LG,ISO 1234,STEEL PLATD	4	---

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I. Following are the tools,material handling equipments and drawings required to dismantle the Brake Chopper resistor

1) Tools required

S. No.	Description	Qty.	Purpose
1	24-27 Double end open Spanner	2	For tightening or holding bolt.
2	24-27 Ring spanners	2	For tightening or holding bolt.
3	Torque wrench 70 - 350 N-m	1	For Torque tightening bolt.

Table : 2

2) Material handling equipments required

S. No.	Description	Capacity	Qty.	Purpose
1	Fork lift	0.5 Ton	1	Shifting the Brake Chopper Resistor from installation premises to maintenance location by using Fork lift.
2	Hydraulic lifter	0.5 Ton	1	Lift and adjust the Brake Chopper Resistor in between mounting brackets by using Hydraulic lifter.

Table : 3

3) Reference drawings

- C-A675UV2-132038 - MC UNDERSLUNG LAYOUT-TRAIN 18 V2
- B-A675UV2-131395 - PROPOSED GA LAYOUT FOR BRAKE CHOPPER RESISTOR - MAE675UV2

II. After dismantling the resistor the following steps are involved for the maintenance of Brake chopper resistor,


- Visual Check
- Safety Operations
- Rate of Maintenance Operations
- Operations
- Measurement of Cold Resistance Value

4) Visual Check :

Check the Brake Chopper resistor visually for damages and welded joints.If any damages/cracks found escalate the issues to responsible person for solution.Also check the insulators.If any cracks are observed then they have to be replaced.

5) Safety Operations :

- Before starting any maintenance operations, make sure that according to local safety rules & regulations. Make sure that Brake chopper resistor is isolated from power supply.

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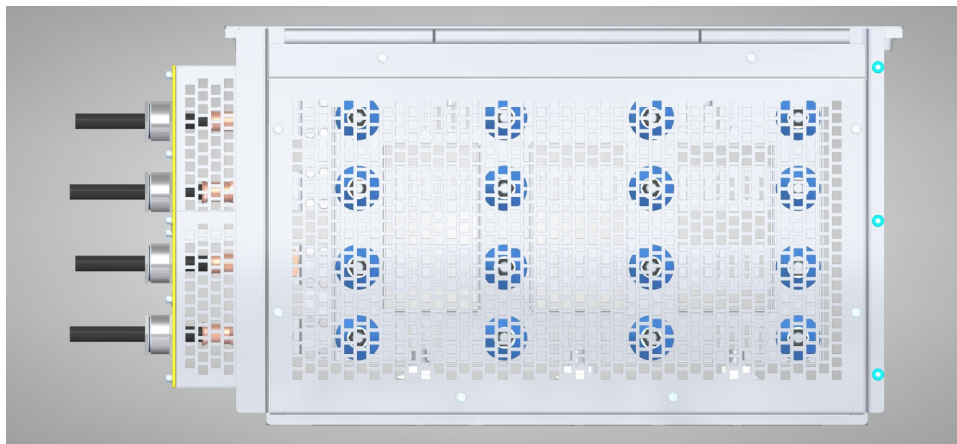
- It is necessary to wait for 30 minutes after power cut off to allow the resistor active parts and the frame to cool.

6) Rate of Maintenance Operations :

- The resistor can operate with little maintenance, approximately for every six months under normal environment, but with a higher frequency under severe pollution conditions or vibrations.
- In order to determine the normal rate of maintenance operations, they should be carried on a more frequent basis during the first six months, approximately every month.

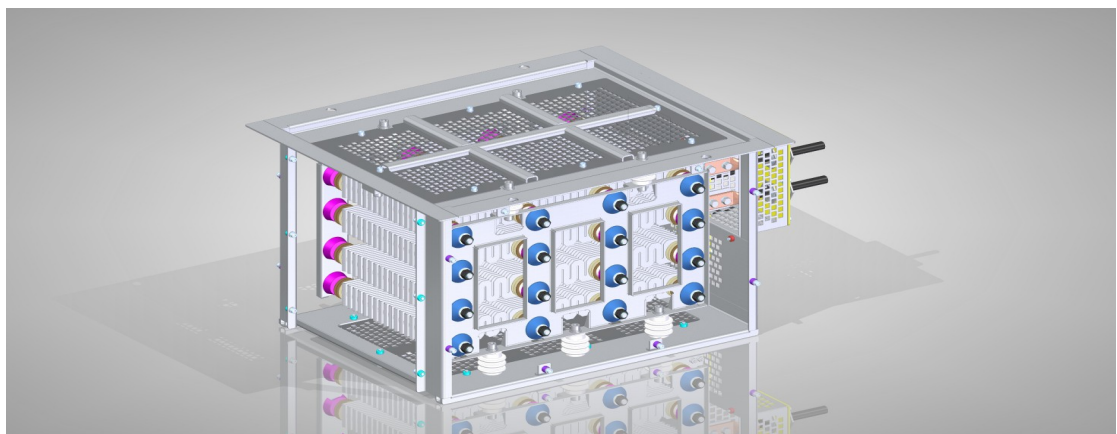
7) Operations :

a. Cleaning




Unit with covers

- Remove the covers (mesh) and check the cleanness of the internal insulators. They must be wiped off using a duster and brush for greasy or sticky contamination.
- It is recommended to blow compressed air on active parts of the resistor and their own insulation washers.
- Check that if any foreign bodies are trapped on covers and elements. And they should be removed.



Unit after removing covers

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b. Tightening

- Check the tightening torque of all bolts and electrical connections. Refer to the below table.

c. Tightening torque table

S.No.	Bolt size	Torque (N.m) (Stainless steel class A2-70)
1	M6	8.8
2	M8	12
3	M10	48
4	M12	73
5	M16	158

8) Measurement of Cold Resistance Value :

- The cold resistance value, measured corresponds to 20°C ambient temperature shall be in between 3.33Ω to 3.75Ω. The resistance can be measured by an LCR meter or with a digital multimeter. Usually if the resistor is failed and open then reading will show infinite resistance (OL on the display) and in case if the resistor is short, then it shows almost zero or very low value. If the resistance is measured by digital multimeter, then the measurement cable resistance shall be subtracted from the measured value.

-: End :-

REV NO	DATE	DESCRIPTION OF REVISION
ECR No:	ISSUED TO:	