

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RESEARCH DESIGNS & STANDARDS ORGANISATION**

Manak Nagar, Lucknow-226011

No. EL/3.2.182

Dated 31.5.99

SPECIAL MAINTENANCE INSTRUCTION NO. ELRS/SMI/0210-99(REV-0).

1. TITLE:

Modified method of VPI for three phase asynchronous traction motor type 6FRA6068,

2. OBJECT :

Eastern Railway have reported a number of cases of failures of 3 phase traction motors type 6FRA6068 due to the burning of overhang portion of the winding.

During the investigation, it has been observed that the glass chords which are used for binding of the overhang portion of the stator windings, are becoming loose during service, resulting in the relative movement of glass chord with winding insulation and causing damage to the insulation.. One of the reasons of these failures is due to improper vacuum pressure impregnation which has resulted in improper fixing of the glass chords on the overhang portion.

The matter has been discussed in details with M/s BHEL/Bhopal, CGL/Mandideep and CLW/CRJ and it has been decided to modify the existing VPI process for carrying out improvement in the curing of the stator winding.

The revised curing cycle of VPI has been established by BHEL using acetone soluble test method.

The SMI states the modified VPI process which should be followed by all the three phase manufactures of traction motors during the manufacturing of traction motor type 6FRA6068.

3. WORK TO BE CARRIED OUT :

In this existing VPI process only following cycles should be modified and to be followed :

Sl No.	Cycle details	Existing (ABB)	Modified
1.	Vacuum cycle	1 hr at 0.07 mbar	2 hrs at 0.07 mbar
2.	Pressure cycle	3 Hrs. at 4 bar	3 Hrs at 5 bar
3.	Curing cycle	16 hrs at 175°C	Increase the temp. step by step: 0-2 hrs - 110°C 2-4 hrs. - 150°C 4-6 hrs. - 170°C 6-8 hrs. - 190°C 8 hrs - 200°C (ensured) 8-24 hrs - 200°C

4. APPLICATION :

AC Electric Loco type WAG9 fitted with three phase traction motor type 6FRA6068.

5. MATERIAL REQUIRED/INSTRUMENT REQUIRED :

Existing VPI plant.

6. MATERIAL RENDERED SURPLUS : Nil

7. REFERENCE: Discussion with three phase traction motor manufacturers.

8. AGENCY OF IMPLEMENTATION : All three phase 'TM' manufacturers.

9. PERIODICITY OF IMPLEMENTATION : During initial manufacturing/rewinding of TM.

10. DISTRIBUTION : As per enclosed list.

DA: Nil


(R. K. Kalishrestha)
For Director General (Elec)