Government of India
Ministry of Railways
Research, Designs & Standards Organisation
Manak Nagar, Lucknow - 226 011

No. EL/3.2.5 Dated 3.2.1995.

SPECIAL MAINTENANCE INSTRUCTIONS NO. RDSO/ELRS/SMI/168

1. TITLE :

Copper bus bar used in stator of TAO 659 Traction Motors.

2. APPLICATION :

All electric locomotives fitted with TAO 659 Traction Motors.

3. OBJECT :

To prevent cracking of copper bus bars used on stators of TAO 659 motors.

4. PROCEDURE :

4.1 In Traction Motors(and in other electricals machines), which operate at relatively higher temperatures, the expansion and contraction of copper under alternate heating and cooling can lead to alternating stresses and fatigue when the bars are held under mechanical constraint like clamps etc. resulting in to cracking of copper bars used on the different parts of the stator such failures can be minimised by adopting the various means as described in following paras :

4.1.1 Minimising the temperature cycle range.

4.1.2 Prevent dirt accumulations around bus bars.

4.1.3 Avoid the formation of sharp bends and notches while forming stator bus bars.

4.1.4 Tight all screws and bolts used on stators to minimise vibrations

4.1.5 To the best possible brazing portion of bus bar should not be stressed.

4.1.6 During rehabilitations, new copper bars with new insulation should be used, if any fracture is noticed in the straight portion of the bus-bars.

4.1.7 No attempt should be made to reclaim fatigued copper by annealing.

5.1 Drawing/Sketch No. : -NIL-

6.0 AGENCY FOR IMPLEMENTATION :
All electric loco sheds and shop of Indian Railway.

7.0 PERIODICITY OF IMPLEMENTATION :
Whenever any cracks/fractured are noticed on busbars and stator coils of TAO-659 Traction Motors.

8.0 REFERENCES :
Reliability Engineering Study on electric locomotives Part-10 for TAO 659 stator connection failures prepared by RITES, New Delhi.

9.0 DISTRIBUTION : As per enclosed list.

DA: As Above

(R. K. Kulshrestha).

for Director General/Electrical