

Government of India
(Ministry of Railways)
Research Designs & Standards Organisation
Manak Nagar, Lucknow-226011

No. RL/3.2.5/136-1992

Dated 30.1.1992

MODIFICATION SHEET NO. RDSO/WAM/169

1. Title : Improved insulation scheme for Inter connectors of TAO 659 Traction Motor.
2. Application : On all electric locomotives viz WAM, WAP1, WCAM1 & WAG5 fitted with TAO 659 traction motors.
3. Object : Railways have reported failure of inter connectors of TAO 659 traction motor as under :-
 - 3.1 : Failure of inter connectors to negative terminal junction.
 - 3.2 : Failure of bus bar to positive terminal junction.
 - 3.3 : Earth fault on inter connectors between coils below fixing clamps.
 - 3.4 : Cracking of leads going to terminal box.
 - 3.5 : The modification intends to improve the insulation on inter connectors so as to reduce the earth fault cases and minimise failure of bus bar inter connections.
4. Details of Modification :
 - 4.1 : Inter connectors No. 1 to 14 as shown in ALSTHOM'S Drg.No. TR 9016427 may be removed after debrazing.
 - 4.2 : Strip off the insulation covering of inter connectors and clean the surface suitably.
 - 4.3 : Carry out the annealing of bare copper inter connectors at temp. 550°C in bright annealing furnace i.e. in the presence of non oxidising atmosphere for four hours.

4.4

Carry out the insulation of the inter connectors as :-
One layer half lap of Kapton self adhesive tape of size .065 x 20mm.

Three layers half lap as HTV-HBT H5-0.5 of M/s. Hitachi or Conniflex EM
Tape size of 0.15 x 20mm. of M/s. Johnson & Johnson (India)

Stopping final taping by teflon adhesive tape.

Brazed the inter connectors with respective coils with the help of electric resistance heating using carbon blocks in specially designed brazing tonge.

Brazing of connectors with coils etc. shall be done with silver brazing material LYON - Alemand 400 C 80 flux CDA 523 powder or equivalent silver brazing rod, Rupattam foil with suitable flux as presently used.

- Brazing time one minute maximum under 1200 Amp.

- Clean the brazed portion properly.

- Carry out the insulation of brazed portion similar to inter connectors as described above.

- Final varnishes as usual.

- Tighten the inter connecting clamp as usual backing position.

- Baking the complete stator as per existing procedure.

5. Schedule of :
Implementat-
tion

- Check the inter connectors during annual overhaul/repair for any cracks. In case some cracks are observed replace the inter connectors with new one having improved insulation scheme as above. Alternatively improved insulation scheme may be adopted with existing copper connections.

...3/-

6. Material Required : As stated in Clause 4.4
7. Source of Supply : MEV-RT H5-0.5 Tape
M/s. Hitachi Works of Hitachi Ltd.,
3-1-1 Saiwai-Cho,
Hitachi-Shi. Ibrakai-Ken,
JAPAN
- Conniflex EM Tape
M/s. Johnson & Johnson
9/43, Kirti Nagar,
New Delhi- 110015
- M/s. Johnson & Johnson,
30, Forjett Street,
Bombay- 400 036
- Rest material of Clause 4.4 may continue to purchase from the existing supplier of Railways/ Production Units.
8. Agency for Implementation : i) All Traction Motor/POH Shops.
ii) All Electric Loco Sheds.
iii) All loco POH Shops.
iv) All Production Units.
9. Distributions: As per enclosed list.

DA: As above

(P.K.Jain)
for Director General/Elect.