

Chief Electrical Engineer,

- Central Railway, Mumbai CST- 400 001.
- Eastern Railway, Fairlie Place, Kolkata- 700 001
- East Cost Railway, Chandrashekharapur, Bhubaneswar- 751 016.
- Northern Railway, Baroda House, New Delhi-110 001
- North Central Railway, Hasting Road, Allahabad-211 001.
- Southern Railway, Park Town, Chennai-600 003
- South Central Railway, Rail Nilayam, Secunderabad –500 071
- South Eastern Railway, Garden Reach, Kolkata -700 043
- South Western Railway, Hubli.
- Western Railway, Churchgate, Mumbai–400 020
- West Central Railway, Jabalpur-482001
- South East Central Railway, Bilaspur-495004
- East Central Railway, Hazipur-844101 (Bihar)
- North Western Railway, Jaipur-302006.
- Chittaranjan Locomotive Works, Chittaranjan- 713 331

SPECIAL MAINTENANCE INSTRUCTION NO. RDSO/ELRS/SMI/0229, REV. '0'

1. Title :

Tightness of Enclosure of Motor Suspension unit of Hitachi T.M. Wheel Set .

2. Brief History :

Reference New Item No. 2 of XXIV MSG Meeting held at Nagpur, Central Railway on 7th & 8th April – 2003.

Cases of looseness of enclosure of Hitachi T.M. suspension unit have been experienced by Sheds. In such cases of wheel set can not be attended in position and it has to be replaced and sent for dismantle to Shops. The position has been examined by RDSO after inspection of failed wheel sets in Bhusawal Shop.

The Enclosure is fitted with main gear wheel by using 6 nos. of 10 x 30 mm socket HD-CAP screw. This enclosure is supposed to rotate along with main gear wheel. In wheel sets with loose enclosures, it is noted that all the 6 fixing screws are sheared with signs of head rubbing against adjoining end cover. Obviously, the screws have become loose which resulted in its fouling with end cover and eventual shearing of screws.

3. Object :

To ensure proper tightness of enclosure ring fixing screw by adopting proper torque value.

4. Procedure :

Procedure for assembly and tightness of enclosure fixing screws is already given in Hitachi Maintenance Manual (EL1). Apparently, this is not being adhered to by CLW/POH Shops during assembly of MSU. The procedure is being reiterated below :-

- i) Fit the gear wheel in the correct position on the axle.
- ii) Check that the face of gear wheel is square to the axle within 0.05 mm on the face adjacent to the gear wheel end bearing by dial indicator.
- iii) If the squareness of gear wheel face is out of limit, machine the same and check with dial gauge, it should be within 0.05 mm.
- iv) After correcting the face of the gear wheel, the axle should be placed in vertical position with the gear wheel at the bottom.
- v) Thoroughly cleaned the tapped hole of gear wheel and HD CAP screws by thinner to remove oily surface.
- vi) Thoroughly checked the tapped hole of gear wheel, it should be free from dirt and swarf.
- vii) Place the Enclosure in position ensuring that the enclosure groove are free from dirt and swarf.
- viii) Check the Enclosure hole and the tapped hole on gear wheel are properly matched.
- ix) The Enclosure hole are should not be over sized, it may cause looseness of bolt.

- x) Apply “**THREE BOND Screw lock super No. 1303**” or **ANABOND 112**” or **LOCTITE Screw lock 222e**” to HD CAP screws and tighten the screws to the gear wheel using torque wrench.
The specified torque value for M10 size is 245 kg-cm standard and 295 kg-cm max.

5. **Application to :**

MSU of Hitachi T.M. wheel set of Electric Locomotives.

6. **Agency of Implementation :**

CLW, All POH Shops & Electric Loco Sheds having facility of assembly and disassembly for motor suspension unit.

7. **Periodicity of Implementation :**

Whenever MSU tube is assembled after maintenance or new fitment during manufacturing.

8. **Reference :**

Investigation of sheared HD-CAP Screws of MSU tubes of Loco Nos. 27151 & 27204 jointly with Central Railway at Bhusawal Workshop on 7.8.2003.

Encl: Nil

(S.K.Sinha)
for Director General/Elect.

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PIN

Encl: Nil

(S.K.Sinha)
for Director General/Elect.