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Technical Circular No. RDSO/2011/EL/TC/0111(Rev. 0)

Sub: Technical Circular on Method of Filling of Cardium Compound In The Gearcase of TM3701BY/BX Traction Motor for Kolkata Metro

1. Purpose:

Ingress of cardium compound inside the traction motor may take place if proper care is not taken during filling of cardium compound in the gear case. This causes in mixing of gear case compound with grease of traction motor bearings resulting in failure of TM bearings. Kolkata Metro has reported a number of cases of seizure of TM bearings on account of ingress of cardium compound in bearings , in older rakes . Proper sealing by labyrinths does play a vital role in prevention of cardium compound in traction motors, but the role of proper filling of cardium compound in gears cases can't be ignored. Replacement of defective labyrinths can only be taken during major overhauls of TMs, but a proper method for filling of cardium compound in gears cases can be an immediate measure to prevent ingress of cardium compound in traction motors.

2. Scope of Application:

This technical circular is being issued for maintenance personnel of Kolkata Metro and will be used as a guideline for filling the cardium compound properly in the gear case during various maintenance schedules of rakes. This is to avoid overfilling of cardium compound in the gearcase and subsequent ingress of cardium compound in the motor.

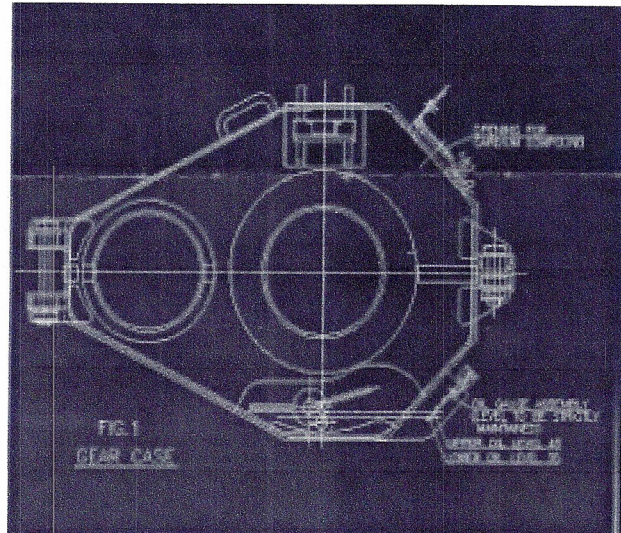
3. Procedure:

Following procedure is to be followed during schedule maintenance of traction motors to fill cardium compound in the gear case:

- 3.1. The gearcase of TM3701BY/BX is provided with an oil gauge assembly in the bottom half of gearcase, with markings of maximum and minimum levels. Filling of gearcase with cardium compound during schedule maintenance should not exceed the maximum mark indicated on oil gauge assembly of gearcase.

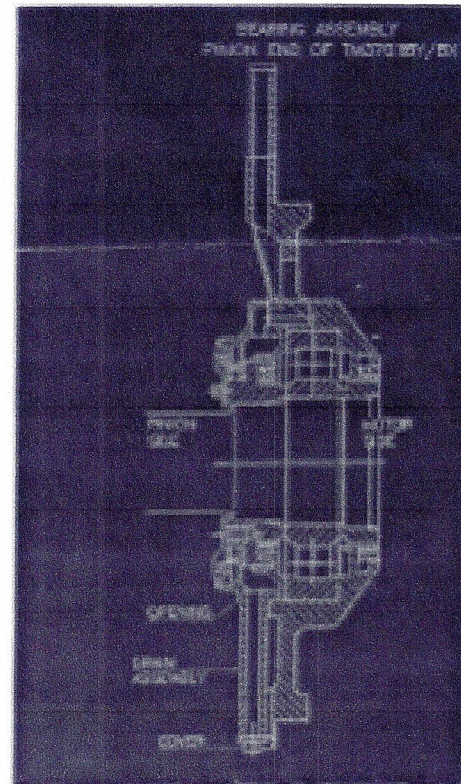
- 3.2. Whenever the level drops below the minimum mark on the oil gauge assembly, the gearcase should be topped up with cardium compound (in molten state). After topping up, level must be checked to ensure that the level does not cross the maximum mark provided on the oil gauge assembly. See the attached fig. 1 :

Fig.1



- 3.3. Damaged / worn out felt seals of gearcase result in inadequate sealing of gearcase and consequent loss of cardium compound from the gearcase. Replace any damaged / worn-out felt seal of gearcase, if observed during maintenance.
- 3.4. A drain assembly is provided in the bottom portion of Bearing Cover on Pinion End(PE) for collection of extra cardium compound, if it seeps in. It should be periodically emptied by opening the cover at the bottom which has been provided for this purpose. The drain assembly is connected to the bearing cover body through an opening. These should be thoroughly cleaned during routine maintenance. Thus extra cardium compound, if any , would flow out & the possibility of its ingress to PE bearing will be eliminated. See the attached fig-2.

Fig. 2:




Steps enumerated above will guide the maintenance personnel regarding proper method to be adopted to fill cardium compound in the gearcase during schedule maintenance of motor to avoid bearing failures of traction motors due to mixing of gear compound with the bearing lubricant.


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