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सत्यमेव जयते

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Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW - 226011

No. EL/3.2.9 **Dated 24/04/2008**

All Chief Electrical Engineers, As per Mailing list

MODIFICATION SHEET No. RDSO/ 2008 /EL/MS/0362 Rev.' 0 ', Dated 24/4/08

1.0 **Title** : Modification in unmodified 1000Amps reverser/CTF servo motor to avoid breakage of fork, roller bush and shaft

2.0 **Object** : To reduce the impact of hitting of piston to the end plates of servo motor and avoid breakage of shaft, U-fork, roller bush and dowel pins in 1000Amps reversers, by damping.

3.0 **Existing arrangement with existing references and instructions of design**: Presently reverser/CTF operate at 9.5 kg/cm^2 without any damping. Since the operation is very swift/fast , the piston hits both the end plates of the servomotor , resulting in heavy jerk which causes breakage of shaft, U-fork , roller bush and dowel pins. Railways were facing problem of reverser since long. RDSO had issued SMI no. 0234 dt. 16/8/05 for upgradation of reverser to 1500Amps. The use of key inside fork is eliminated & amalgate shaft is used. In the SMI, Shaft dia increased from 20 to 22mm and stiffness of spring ,contact pressure and area have been increased. Hence, the breakage of shaft & fork should not take place in 1500Amps reversers. However, jerk during operation in existing 1000A reversers needs to be damped.

4.0 **Modified arrangement to replace existing arrangement in 1000 Amps reversers :** To reduce the cases of such breakages damping is provided by replacing existing 2 Nos. of 4mm hole outlet tubes by 2mm holes outlet tubes in servomotor. There is no change in inlet tubes. The existing inlet tubes will be retained.This modification will apply only to unmodified 1000Amps reversers till there is 100% switchover to 1500 Amps reverser/CTF as per RDSO SMI No.0234 dt. 16.8.05.

The procedure of carrying out this modification is as follows:

i) For changing the tube , the two sides of the projected portion of the tube is required to be filed such that it can be gripped by pliers.

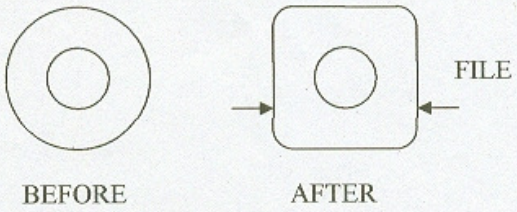

FIG. 1

ii) ~~iii)~~ Then the existing tube is to be pulled out by twisting with plier.

iii) ~~iv)~~ The following press tool should be used for pressing in outlet tube of 2mm dia in the servomotor.

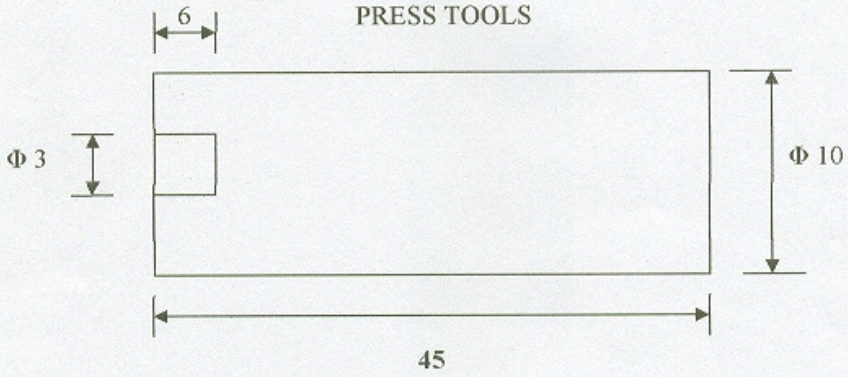

FIG. 2

5.0 **Application to Class of Locomotives** : All AC conventional locomotives except BHEL make reverser.

6.0 **Material Required** : Two numbers of outlet tubes with 2 mm holes instead of 4 mm for each reverser/CTF of 1000 Amps.

7.0 **Material Rendered Surplus** : NIL

8.0 **Reference** : SCR's PCDO for month of March 2006 sent to Railway Board vide letter no. E.162/2/1/PCDO and proposed in 31st MSG vide letter no. E.218/MSG/loco/31 dt. 17/5/06.

9.0 **Modification Drawing** : Nil

10.0 ***Agency of Implementation*** : All Electric Loco sheds/POH workshops

Encl: Nil

for Director General/Elect.