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भारत सरकार - रेल मंत्रालय  
अनुसंधान अभिकल्प और मानक संगठन  
लखनऊ - 226011  
Government of India-Ministry of Railways  
Research Design & Standards Organisation  
Lucknow - 226011



No.EL/3.2.13/1

Dated 08.08.2000

Chief Electrical Engineer,  
-Central Railway, Mumbai CST- 400 001.  
-Eastern Railway, Fairlie Place, Calcutta- 700 001  
-East Central Railway, Chandrashekharpur, Bhubaneswar- 751 001.  
-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 -500 371  
-South Eastern Railway, Garden Reach, Calcutta-700 043  
-South Western Railway, Bangalore - 560 046  
-Western Railway, Churchgate, Mumbai -400 020  
-West Central Railway, Jabalpur  
-New Zone Railway, Bilaspur  
-Chittaranjan Locomotive Works, Chittaranjan- 713 331

**MODIFICATION SHEET NO. ELRS/MS/0286, Rev. '1' -2000**

**1.0 TITLE :**

Provision of modified brake hanger, inner as well as outer on flexi-coil mark - I bogies used in WAP1/4 class of Electric Locomotives.

**2.0 OBJECT :**

- 2.1 Railways have reported cases of faster wear on the pin as well as bush used for mounting end brake hanger on flexi-coil mark-I bogies in the past. RDSO in their report no. EL/RM-201 of Feb. '97 had suggested reduction in the weight of end brake hanger to reduce the wear on its mounting pin as well as bush. Same has been adopted by the Railways as well as CLW in part i.e. weight of the lever has been reduced by removing the material as per drawing but weight of the fork has not been reduced by reducing the thickness as suggested in RDSO's Report No. EL/RM-201 of Feb. '97.
- 2.2 In the co-ordination meeting held at Electric Loco Shed/Kanpur with CLW & Railways on 27.04.2000, it was concluded that correct perpendicularity between fork and lever on the end brake hanger as well as sleeve and lever on the inner brake hanger are mainly responsible for misaligned connection straps which often results into breakage of connection straps.

Based on the suggestions of Kanpur Shed, revised drawings of end brake hanger and inner brake hanger ( CLW's original Drg. No. 03/3/19/28, Alt. '4', Drg. No. 03/3/19/29, Alt. '5', Drg. No. 03/3/19/40, Alt. '4', Drg. No. 03/2/19/64, Alt. '5' & 03/2/19/66, Alt. '5' ) have been prepared by RDSO for immediate adoption on flexi-coil mark-I bogie used on WAP1/4 class of Electric Locomotives.

**3.0 WORK TO BE CARRIED OUT :**

- 3.1 The fresh purchase of inner brake hanger as well as outer brake hanger to be made as per RDSO's Drg. No. SKEL 4550, Alt. '1' SKEL 4551, Alt. '1', SKEL 4552, Alt. '1', SKEL, 4553, Alt. '1' & SKEL 4554, Alt. '1'.
- 3.2 Existing end brake hangers as well as inner brake hangers are to be modified to the extent possible to match with RDSO Drgs. and perpendicularity of lever & fork on the end brake hanger and sleeve & lever on the inner brake hangers is to be checked before mounting them on the bogie. A rough sketch of the jig being used by Kanpur Shed for checking the trueness of perpendicularity of fork and lever of end brake hanger is enclosed herewith for guidance of the Railways. ( Drg. No. SKEL 4555, Alt. '1'
- 3.3 While using modified end brake hanger as per RDSO's Drg. No. SKEL-4550, Alt. '1' and SKEL 4551, Alt. '1' with existing trunnion, two nos. suitable washers of 8mm thickness should be used by Railways.

( Modification of modified trunnion to be used with modified end brake hanger as per RDSO's Drg. No. 4551, Alt. '1' and SKEL-4551, Alt. '1' is under issue ).

**4.0 APPLICATION TO THE CLASS OF LOCOMOTIVES :**

WAP1/WAP4 class of Electric Locomotives.

**5.0 MATERIAL REQUIRED :**

- 5.1 End brake hanger as well as inner brake hanger as per RDSO's Drg. No. SKEL.4550, Alt. '1' SKEL 4551, Alt. '1', SKEL 4552, Alt. '1', SKEL, 4553, Alt. '1' & SKEL 4554, Alt. '1'

5.2 Modified sleeve as per RDSO's Drg. No. SKEL 4549, Alt. '1' for modification of brake hanger.

5.3 Jig as per RDSO's Drg. No. SKEL 4555, Alt. '1' for checking the trueness of end brake hanger.

6.0 MATERIAL RENDERED SURPLUS :

Existing unmodified inner brake hanger and outer brake hanger wherever they can not be modified..

7.0 REFERENCE :

Presentation given by Kanpur Shed in the co-ordination meeting held with CLW & Railways at Electric Loco Shed Kanpur on 27.04.2000.

8.0 MODIFICATION DRAWING :

RDSO's Drg. No. RDSO's Drg. No. SKEL.4550, Alt. '1' SKEL 4551, Alt. '1', SKEL 4552, Alt. '1', SKEL, 4553, Alt. '1', SKEL 4554, Alt. '1' & SKEL 4555, Alt. '1'.

9.0 AGENCY FOR IMPLEMENTATION :

1. All Electric Loco Sheds.
2. All POH Workshops.
3. CLW/CRJ

NOTE : This modification sheet superseeds earlier modification sheet no. ELRS/MS/0286, Rev. '0'-2000.

Encl: As above

  
( O.H.Pande )  
for Director General Elect.

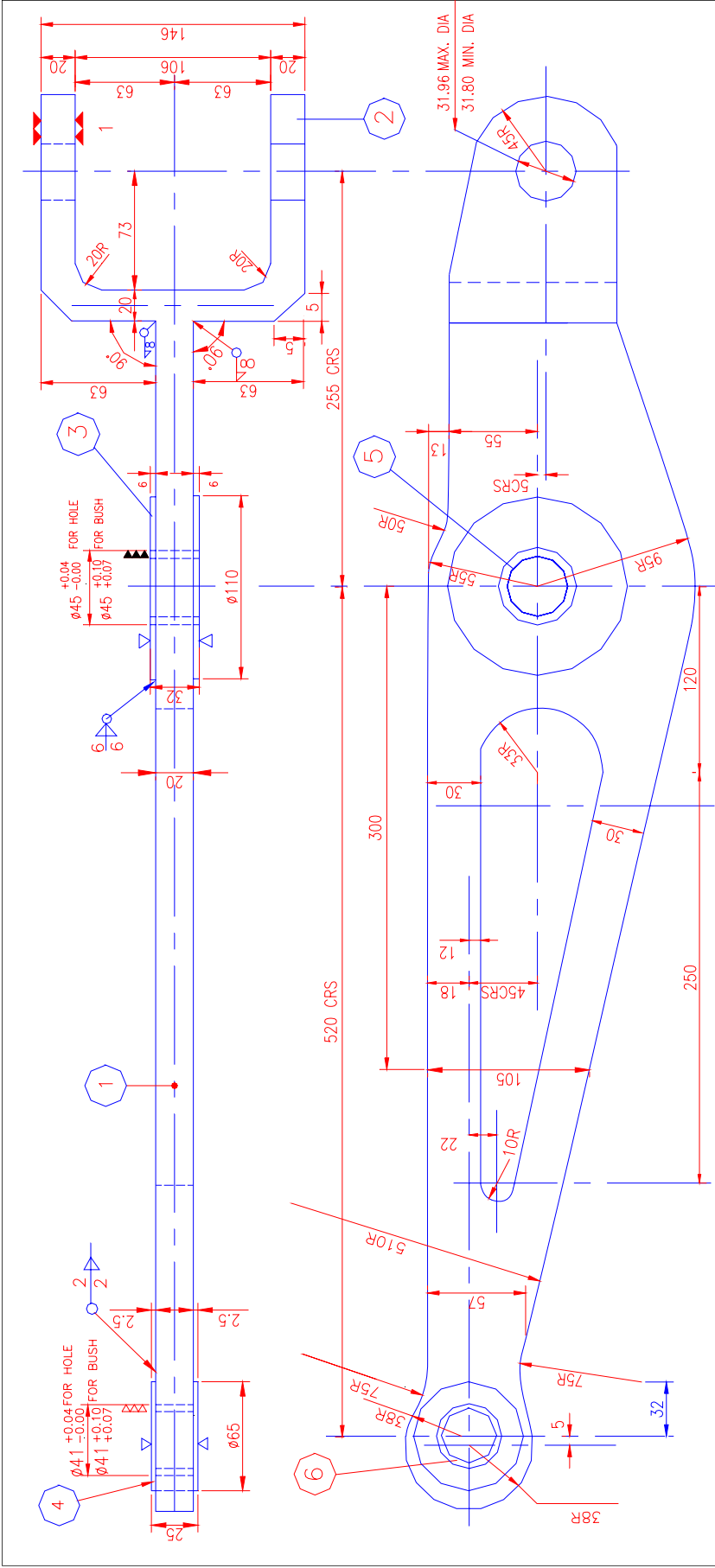
Copy to : As per Standard Mailing List No.EL/M/0028, Ver. '0'.

PIN

Encl: As above

  
( O.H.Pande )  
for Director General Elect.





|                                     |          |             |                                   |          |                    |                                |
|-------------------------------------|----------|-------------|-----------------------------------|----------|--------------------|--------------------------------|
| 6                                   | —        | BUSH        | CLW DRG.NO.03/4/19/33 ALT.3,REF.1 | 8        | STEEL OR Mn. STEEL | IS : 1875 Q1.1, 1992 RS : R-65 |
| 5                                   | —        | BUSH        | CLW DRG.NO.03/4/19/34 ALT.3,REF.1 | 8        | STEEL OR Mn. STEEL | IS : 1875 Q1.1, 1992 RS : R-65 |
| 4                                   | —        | BOSS        | —                                 | 16       | STEEL              | IS:2062 1992                   |
| 3                                   | —        | BOSS        | —                                 | 16       | STEEL              | IS:2062 CR-B 1992              |
| 2                                   | —        | FORK        | —                                 | 8        | STEEL              | IS:2062 1992                   |
| 1                                   | —        | LEVER       | —                                 | 8        | STEEL              | IS:2062 1992                   |
| REF. NO.                            | PART NO. | DISCRIPTION | DETAIL DRG.NO.                    | NO. LOCO | MATL.              | SPEC.                          |
| REF:- CLW.DRG NO.- 03/3/19/29 ALT.5 |          |             |                                   |          |                    |                                |
| APPROVED BY:                        |          |             | FOR D.G.                          |          |                    |                                |

NOTE:-

- ALL DIMENSION ARE IN mm.
- HOLE  $\phi 45$  AND  $\phi 41$  TO BE DONE AFTER WELDING OF REF.3 AND REF.4 WITH REF.1.
- UNMACHINED PLATE EDGES TO BE ACCURATELY FLAME CUT AND DRESSED SMOOTH BY GRINDING.
- SURFACE ROUGHNESS VALUE TO IS:3073, 1991.
- WELDING SYMBOLS TO IS:813, 1991.
- A SAMPLE TO BE INSPECTED BY CONSIGNEE BEFORE BULK SUPPLY. IF THE MATERIAL IS INSPECTED BY RITES. THEN THE SAMPLE SHULD COME THROUGH RITES FOR APPROVAL.
- WITH MODIFIED FORK 2 NOS 8mm THICK SUITABLE SIZE SPACER ARE TO BE PROVIDED FOR FITMENT WITHEXISTING TRUNNION.

MODIFIED BRAKE HANGER LEVER

FIRST ISSUED  
MAY.2000



1. ALL DIMENSIONS ARE IN mm.
2. UNMACHINED PLATE EDGES TO BE ACCURATELY FLAME CUT AND DRESSED SMOOTH BY GRINDING.
3. SURFACE ROUGHNESS VALUE TO IS:3073,1991.
4. WELDING SYMBOLS TO IS:813,1991.
5. A SAMPLE TO BE INSPECTED BY CONSIGNEE BEFORE BULK SUPPLY. IF THE MATERIAL IS INSPECTED BY RITES THEN THE SAMPLE SHOULD COME THROUGH RITES FOR APPROVAL.
6. MAINTAINING DIMENSION 96 AND 122 WHILE FITTING OF REF.4 WITH REF.1 WILL MAKE THE ASSEMBLY LH AND RH PROPER.
7. SLEEVE TO BE FIXED AS PER RDSO.DRG.No.SKEL-4549,Rev. 0'. HARDENED ZONE SURFACES SHALL BE CASE HARDENED TO THE DEPTH OF MINIMUM 1mm. TO ACHIEVE HARDNESS 58±2HRC.

|          |                                  |                                                                                     |                                       |             |                                                                                                 |                              |
|----------|----------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|-------------|-------------------------------------------------------------------------------------------------|------------------------------|
| 4.       | —                                | SLEEVE                                                                              | RDSO.DRG.No.<br>SKEL-4549, REV.'0'    | 4           | STEEL                                                                                           | IS:2062<br>1992              |
| 3.       | —                                | BUSH                                                                                | CLW DRG.NO.03/4/19/34<br>ALT-3, REF-3 | 4           | STEEL OR<br>Mn-STEEL                                                                            | IS:1875<br>1992<br>GR-C-1992 |
| 2.       | —                                | BUSH                                                                                | CLW DRG.NO.03/4/19/35<br>ALT-3, REF-1 | 4           | STEEL OR<br>Mn-STEEL                                                                            | IS:1875<br>1992<br>GR-C-1992 |
| 1.       | —                                | LEVER                                                                               | —                                     | 4           | STEEL                                                                                           | IS:2062<br>GR-C-1992         |
| REF. NO. | DRG. PART No.                    | DESCRIPTION                                                                         | DETAILED DRG. No.                     | NO/LOCO     | MATL                                                                                            | SPEC.                        |
| REF.     | CLW DRG. NO.<br>03/3/19/40/ALT.4 |  | SCALE: NTS                            | APPROVED BY | <br>(For DG) |                              |

## MODIFIED BRAKE HANGER LEVER ASSEMBLY (INBOARD)

REF: 5 AND 6 OF CLW DRG.No.03/1/19/36

FIRST ISSUED  
MAY-2000

SUPERSEDES







