

**Government of India**  
**Ministry of Railways**  
**Research, Designs & Standards Organisation**  
**Manak Nagar, Lucknow - 226 011**

No. EL/3.2.5/J3

Dated 24.1.1992

**Modification sheet No. RDSO/WAM4/162**

- 1. Title :** Modification to "L" clamp of commutation pole of TAO 659 Traction Motor.
- 2. Application :** WAM4, WAP1, WCAM1 & WAG5 electric locomotives fitted with TAO - 659 traction motors.
- 3. Object :**
- 3.1 :** Railways have reported No. of cases of interpole coils getting earthed due to breakage/fracture of 'L' clamp stainless steel supporting angle ( Ref. Item No.2 of CLW's drawing No.4 TWD. 092. 092) The stainless steel angles are reported to be breaking at bend portion or through plug weld.
- 3.2 :** This modification is being Issued to modify these 'L' clamp being purchased from trade as well as improved welding technique.
- 4. Details of modification**
- 4.1 :** Adopt the revised radius at bend portion of 'L' clamp from R4 to R5. The thickness of the angle is also increased to 4 mm
- 4.2 :** The angle should be bent on a special bending tool to ensure that bend radius is not more than R5
- 4.3 :** The plug weld should be eliminated as being done at present. Butt welding of angle with intermediate support block should be adopted as shown in the drawing attached.
- 4.4 :** Welding electrode of size 3.15 mm dia should be used. It is recommended to adopt grade 107, welding electrode of M/s Advani Oerlikon.
- 4.5 :** The welding current shall be limited to 100-130 Amp.
- 4.6 :** Each assembly after welding shall be checked for proof load test to ensure proper quality of welding.

**4.7 :** Each motor during over-haul/repair should be thoroughly checked for "L" clamp bend and quality of plug weld for any cracks with dye-penetrant. If any cracks are observed the complete core assembly should be replaced with provision of modified 'L' clamps.

**4.8 :** If no abnormality is observed during schedule check of 'L' clamps at the time of over-haul/repair, butt welding of 'L' clamp with the intermediate support may be carried out without changing the clamp itself.

**5. Material Required**

- i) Modified "L" clamp as per RDSO's drawing No. SKEL - 4070.
- ii) Modified intermediate support block as per RDSO's drawing No. SKEL.-4069.

**6. Source of supply :** The modified "L" clamp and intermediate support may continue to purchase from existing suppliers of Railways/ Production Units.

**7. Agency for Implementation :**

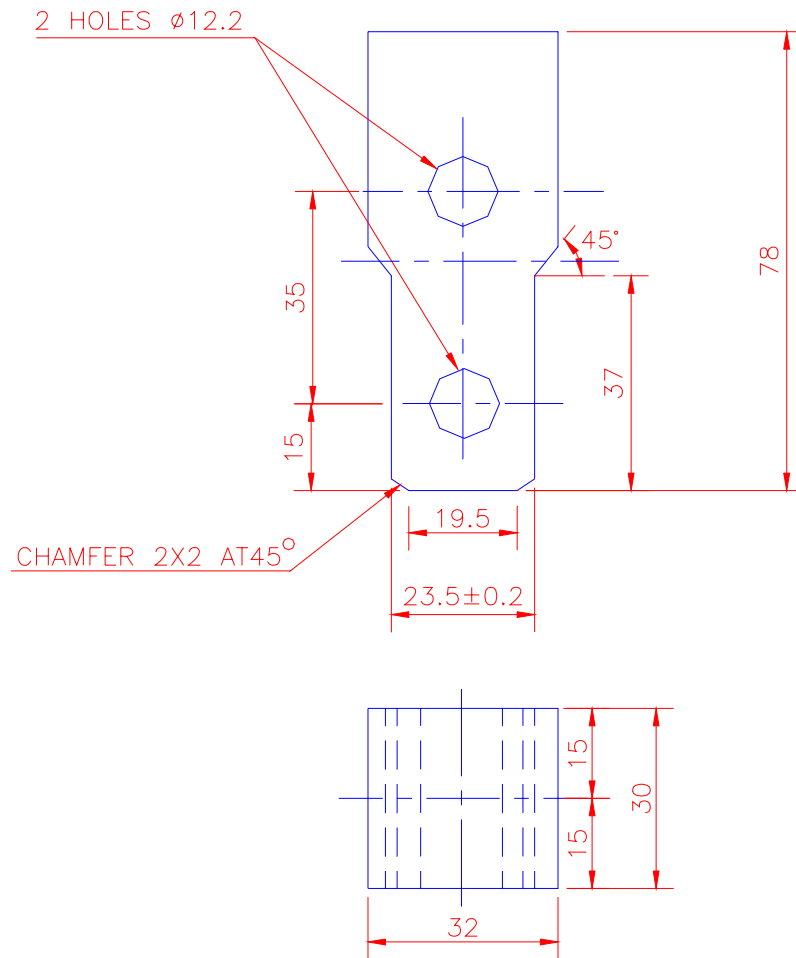
- i) All Traction Motor/POH shops.
- ii) All electric loco sheds.
- iii) All Loco POH shops.
- iv) All production units

**8. Distributions :** as per enclosed list




DA : as above

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



NOTE:-

1. MATERIAL AS PER IS: 226, STEEL 42 S.
2. THE HOLES  $\phi 12.2$  SHALL BE DRILLED BY A JIG.
3.  ALL OVER.
4. TOLERANCES  $\pm 0.5$  WHERE NOT SPECIFIED.

REF :-

SCALE:- 1:1

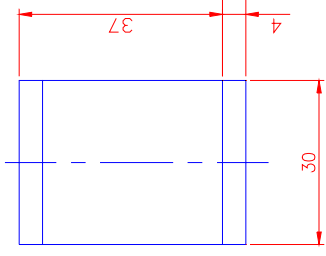
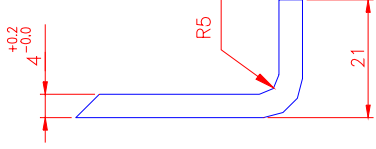
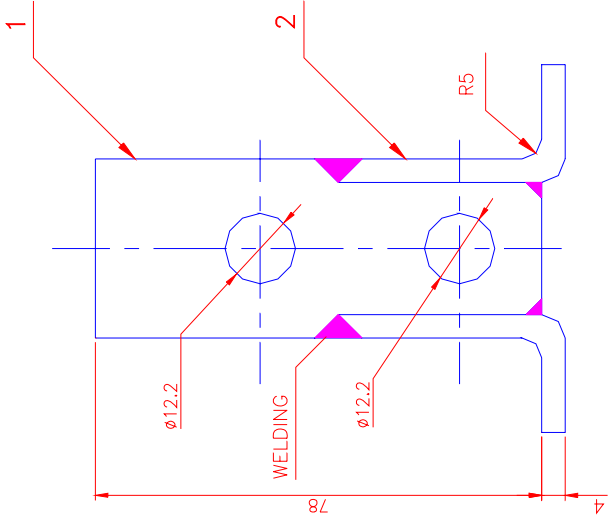
APPROVED: FOR DG.

INTERMEDIATE SUPPORT BLOCK FOR  
THE COMM. POLE OF TAO-659 T.M.

RDSO ELEC. DTE

SKEL-4069

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**NOTE:-**

1. PLATE SHOULD BE BENT IN HOT CONDITION AT 900°C.
2. AFTER BENDING OF 'L' CLAMP, IT SHOULD BE QUENCHED AT 1110°C
3. REMOVE ALL SHARP CORNERS.
4. CHECK PROPER ANNEALING BY VICKERS MICRO HARDNESS AT BOTH INNER & OUTER APEX.
5. TO DETECT ANY INCIPIENT/CRACK 10% OF ANGLE SHALL BE SUBJECTED TO ETCHING TEST AT THE CORNER.
6. (FINE FINISH MACHINED 16 MICROS) ALL OVER.
7. WELDING ELECTRODE SHOULD BE SUITABLE FOR WELDING OF STAINLESS STEEL ANGLE TO MILD STEEL INTERMEDIATE SUPPORT. THE RECOMMENDED SIZE OF ELECTRODE IS 3.15mm, GRADE 107 OF M/S. ADVANI OERLIKON, WELDING CURRENT = 100 to 130 Amp.
8. EACH COMPONENT SHOULD BEAR A PUNCH MARK OF MONTH & YEAR OF MANUFACTURE AS WELL AS IDENTIFICATION/MARKS/NAME OF THE FIRM.
9. TOLERANCES OF  $\pm 0.5$  WHERE NOT SPECIFIED.
10. ALL DIMENSIONS ARE IN mm.

2	L-CLAMP	6	BSS:970 En.58E	—
1	INTERMEDIATE SUPPORT BLOCK	3	STEEL IS:226, ST-425	—
ITEM	DESCRIPTION	No.OFF.	MATL.&SPEC.	REMARKS
REF:	SCALE:-	1:1	APPROVED:-	FOR DG.
INTERMEDIATE SUPPORTING BLOCK ASSY. FOR THE COMM. POLE OF TAO-659 T.M.				
R.D.S.O.ELEC.DTE.			SKEL - 4070	

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