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



No. EL/3.2.119 (SS)

Dated: 24.01.2022

Principal Chief Electrical Engineer,

1. Central Railway, Mumbai, CST-400 001.
2. East Central Railway, Hazipur-844101.
3. East Coast Railway, Chandrashekharapur, Bhubaneswar-751016.
4. Eastern Railway, Fairlie Place, Calcutta-700001.
5. North Central Railway, Block-A, Subedarganj, Allahabad- 211033.
6. Northern Railway, Baroda House, New Delhi-110001.
7. North Eastern Railway, Gorakhpur-273001.
8. South Central Railway, Secunderabad-500 071.
9. South East Central Railway, Bilaspur-495004.
10. South Eastern Railway, Garden Reach, Calcutta-700 043.
11. Southern Railway, Park Town, Chennai-600 003.
12. West Central Railway, Jabalpur-482001.
13. Western Railway, Churchgate, Mumbai-400 020
14. North East Frontier Railway, Maligaon, Guwahati-781011
15. North Western Railway, Jaipur- 302 006
16. Chittaranjan Locomotive Works, Chittaranjan – 713 331
17. Diesel Locomotive Works, Varanasi- 221004
18. Diesel Loco Modernization Works, Patiyala- 147 003

Modification Sheet No. RDSO/2022/EL/MS/0484, Rev. '0' Dated 24.01.2022

1. TITLE:

Modification in underslung compressor mounting legs at Electric locomotives.

2. Object:

Railways have reported deviation in thickness of compressor mounting legs (Compressor side and motor side) from standard value in various make shell units in Electric Locomotives. Due to this compressor is in danger of falling on track.

3. Existing Arrangement:

Details of compressor side mounting leg and motor side mounting leg used in Electric Locomotives at present are as under:

Compressor side mounting leg	CLW drawing No. 1209-02.327-056 Alt-1
Motor side mounting leg	CLW drawing No. 1209-02.327-063 Alt-1

4. Modified Arrangement:

To resolve this issue replacement / modification of less thickness compressor mounting leg has been decided. Details of modification work are given as under:

To reinforce the leg brackets, which are found with lesser thickness than 5.4 mm and 6 mm should be welded with extra plates, ribs & gussets according Dark Line in Drawing no. SKEL-5056 Alt-0 for long leg and Drawing no. SKEL-

5057 Alt-0 for short leg. Which have done over existing drawing no. 1209-02.327-056 Alt-2 and 1209-02.327-063 Alt-1 respectively.

Step-1

- a. Dismantle under slung compressor from under slung leg brackets.
- b. Hold the support assemblies, bracket assemblies and base plate overlong leg & short leg one by one mark the welding zones. If any deviation or mismatch observed due to unevenness, it should be grinded, oxy-cut & flattened according suitability.
- c. Existing paints over long leg and short leg at marked zones to be scratched and surface should be cleaned by emery paper to be ready for welding.

Step-2

- The holding fixture as per drawing no. SKEL-5058 to be kept over the feet on the three legs and to be fitted tightly by Hex. Head Bolt.

Step-3

- A. Welding of supports and brackets i.e. item no. 1, 2, 3 & 4 over long leg to be done by 5mm fillet welding as shown by Dark Line in Drawing no.-5056 Alt-0.

Sequence of welding:-

1. Item No. 1- According Drawing No. SKEL-5055 Alt-0.
2. Item No. 2- According Drawing No. SKEL-5055 Alt-0.
3. Item No. 4- According Drawing No. SKEL- 5055 Alt-0.
4. Item No. 3- According Drawing No. SKEL- 5055 Alt-0.

The bottom edge of rib may be adjusted when welding over Item No- 4.

- B. Welding of supports and brackets over short legs by 5 mm fillet welding to be done as shown by Dark Line in Drawing no.-5057 Alt-0.

Sequence of welding:-

Short leg at side-wall side

1. Item No. 5- According Drawing No. SKEL-5055 Alt-0.
2. Item No. 6- According Drawing No. SKEL-5055 Alt-0.
3. Item No.7- According Drawing No. SKEL-5055 Alt-0. (On both side of leg)
4. Item No. 8 - According Drawing No. SKEL- 5055 Alt-0.
5. Item No. 9- According Drawing No. SKEL- 5055 Alt-0. (2 Nos. at each leg).
6. Item No.10- According Drawing No. SKEL- 5055 Alt-0. (2 Nos. at each leg.
Each at both side)

Bottom edge of Item No. 9 & 10 may be trimmed if undulation found during welding with Item No.-8.

Note: Base plate hole Centre Dia. 50 to be concentric with existing hole Centre of Dia. 17 of existing leg. Do not weld inside hole around.

Short leg at Long Centre line side

Sequence of welding of items will be same as short leg at side wall side.

Instruction / precaution to be taken during welding and after welding

- All welding should be done as per IS: 812. Selection of electrodes as per IS: 814. Welding should be MIG welded.
- During welding care should be taken about other under slung equipment's viz. transformer. CO₂ – Cylinder may keep ready to avoid any hazard.
- Overhead welding to be done carefully step after step.
- After completion of welding, it should be left for at least 2 hours for cooling.
- Clean all weld spatters, extra weld materials by chipping or grinding as per requirement.
- All welding joints to be inspected visually, weld sizes by weld gauges, length of weld by measuring tape. Weld cracks, blow holes if any to be checked by red dye penetration test as per IS: 822. If any deviation found in welding, rebuilt further after cleaning of dye. Check further.
- Remove 'Fixture for Holding' by loosening the M16 nuts by Box Spanner holding the bolt head by Ring Spanner.
- After cleaning the surfaces of the items by emery paper, primer paint to be done. Finally two coats by P.U. paints of colour Green Gray (RAL-7009) for WAG9HC loco / Black Grey (RAL-7021) for WAP-7 loco to be done. Take schedule time to dry the paints.
- Finally install further the under slung main compressor at its position.
- After adopting all the above mentioned procedure for End-1, it should be done for End-2.
- The loco should be marked for trial fitment at least 5000 km of Run.

Note-1: The clearance of compressor end mounting leg with bogie frame should be 106 mm (116-10=106mm) available with this modified leg arrangement. Therefore JIG and fixture should be used to maintain the geometry of the compressor mounting hole distance. This clearance should be followed strictly.

Note-2: This modification applicable only for which is thickness less than standard value.

5. Material required:

- Brackets, Gusset, Ribs and Base Plates of compressor mounting leg (Long leg & Short leg) as per RDSO drawing no. SKEL-5055 Alt-0.
- Fixture according drawing no. SKEL-5058 Alt-0 for keeping hole locations in position during welding
- During manufacturing dimensions of plates, gusset & ribs to be maintained within tolerance according IS: 2102, where are tolerances is not mentioned. Sharp edges to be round off.


6. Reference: CLW letter no. ELDD/3608/Superstructure dated 23.04.2021.

7. Applicable to class of Locomotives: WAP-7 and WAG-9.

8. Modification Drawing:

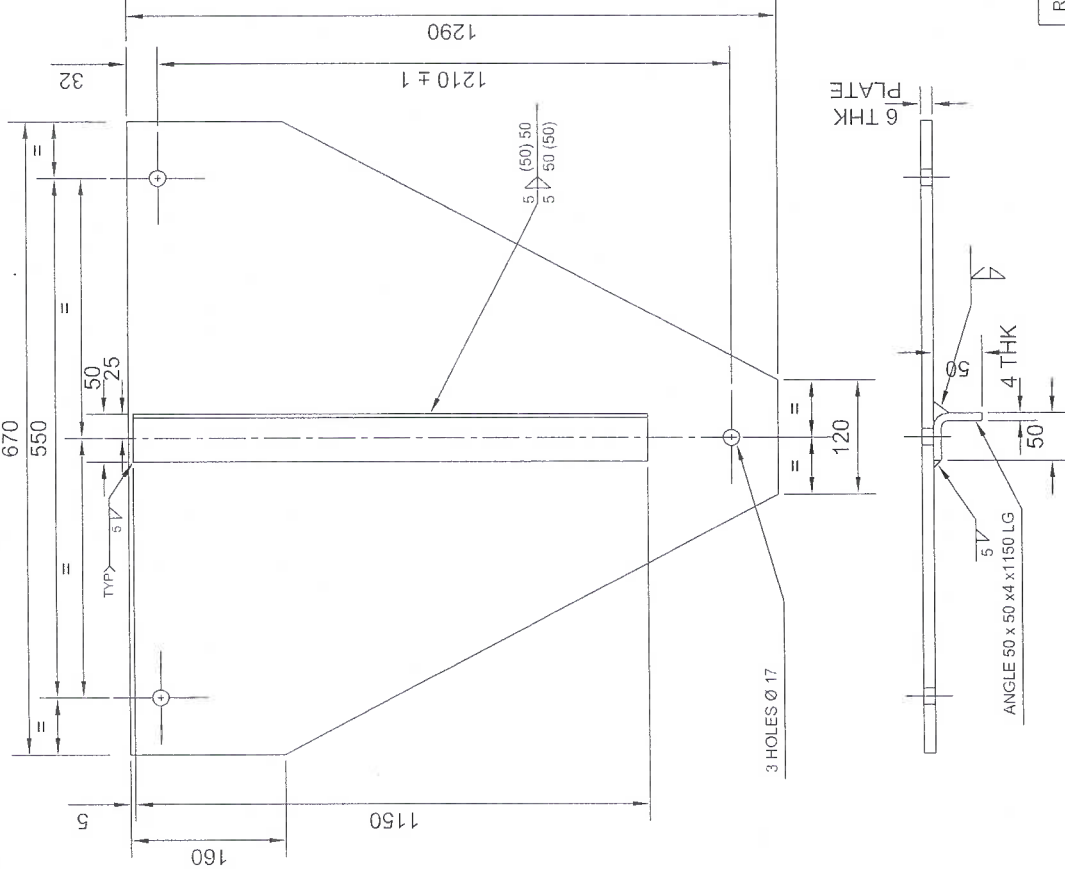
- i. Drawing No. - SKEL-5055 Alt-0
- ii. Drawing No.- SKEL-5056 Alt-0
- iii. Drawing No.- SKEL-5057 Alt-0
- iv. Drawing No.- SKEL-5058 Alt-0

9. Agency of Implementation: All POH workshop/Electric Loco Sheds/PUs.


24.01.2022
(Pratibha Gupta)
for Director General/Electrical

						RDSO ELECT. DTE.	SKEL - 5055 All-O	SUPERSEDED BY
STATUS	ALT.	REF.NO.	DESCRIPTION	APPD.BY	DATE			

DT.	24-01-2022
D	<i>Raj</i>
C	<i>301</i>
T	



REF:-	CLW / Sketch No.12/04/2021		SCALE :- N.T.S	APPD. BY. <i>Raj</i>	(FOR DG)
FIXTURE FOR HOLDING HOLE LOCATIONS OF LEG BRACKETS FOR UNDER SLUNG COMPRESSOR FOR WAG - 9HC / WAP-7 LOCO MOTIVES					FIRST ISSUED
					SUPERSEDES
RDSO ELECT. DTE. SKEL - 5058 Alt-0					SUPERSEDED BY

STATUS	ALT.	REF.NO.	DESCRIPTION	APPD.BY	DATE