

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RESEARCH, DESIGNS & STANDARDS ORGANISATION
MANAK NAGAR, LUCKNOW-226011**

No. EL/3.2.13/1

Dated 31.12.99

MODIFICATION SHEET NO. ELRS/MS/0275/Rev. 'O' 99

1.0 TITLE :

Provision of safety bracket arrangement on WAP1 & WAP4 brake hanger lever of end wheels.

2.0 OBJECT :

Railways are reporting dropping of brake hangers lever (Item No. 11) during run due to breakage of brake hangers from lug portion breakage of brake hanger lever's pins. The load of brake hanger along with trunion assembly is being borne by a single pin. RDSO have revised the material for pins to Manganese steel to IRS-R65 or alternate material as steel to IS:1875 class I and case carburized to achieve surface hardness of 5862 HRC with case depth of minimum 1 mm. RDSO also suggested to reduce the load per unit area of brake hanger by removing the material from centre. The drawing of the modified end brake hanger was also circulated to Railways vide Electrical Engineering report No. EL/RM-201 of February 1997.

After modifying the brake hanger lever and pin's material still there are some cases of dropping of brake hanger during run. There is no other support to brake hanger assembly with trunion other than one pin on the top. To avoid the dropping of brake hanger assembly due to breakage of brake hanger lever or pin, an additional safety bracket is provided.

3.0 WORK TO BE CARRIED OUT :

3.1 The safety bracket for supporting the brake hanger lever assembly is to be fabricated as per RDSO Drg. No. SKEL-4546, Alt. 'O' and is to be tack welded properly on bogie with basic coated low hydrogen type electrodes approved by RDSO under IRS class C2 & D1.

3.1.1. The excessive lateral movement of brake hanger is to be adjusted by providing special washer. The clearance of 2 mm should be maintained between brake hanger lever and bogie lugs.

3.1.2. Before tack welding of safety bracket, it is to be ensured that the brake hanger lever and guide pin between safety bracket and brake hanger lever should not obstruct the movement of brake lever.

3.1.3 Any sharp corners should be grounded.

3.2 Railways have suggested safety brackets also to be provided for inner and outer straps. On investigation, it is found that there is no need for any additional safety brackets over and above the guide already provided for the outer straps. The cases of breakage of outer strap are due to wrong practice being followed by some sheds.

It has been observed that in some cases the outer strap to wheel distance is more than the specified limits, due to misalignment in brake hanger assembly. The shed staff try to bring the outer strap to the specified distance with wheel by pulling the strap through guides. This makes the outer strap rigid with the guide clamps and under the stresses, the outer strap breaks. The guides are not meant for this purpose.

A definite clearance is required on both sides of both guide clamps. Sheds must, therefore, ensure that the wheel to outer strap distance is corrected by suitable attention to brake hanger assembly and adjust the guide in such a way that the minimum clearance of 2 mm between the 'J' bracket wear plate of the guide and the outer strap is maintained.

4 APPLICATION TO THE CLASS OF LOCOMOTIVES :

All WAP1 and WAP4 class of locomotives.

5 MATERIAL REQUIRED :

- (I) M.S. Flat of required size as per details shown in RDSO's Drg. No. SKEL-4546. Alt. 'O'.
- (ii) Hex Bolt M20 x 75 : 8 per loco
- (iii) Hex Slotted Nut M20 : 8 per loco
- (iv) Plain Washer : 16 per loco
- (v) Split pin 5 dia x 50LG : 8 Nos
- (vi) Welding electrode – IRS class C2B

1.0 MATERIAL RENDERED SURPLUS :

None

2.0 REFERENCE :

Complaints received from ELS/BRC, CNB & GZB.

3.0 MODIFICATION DRAWING :

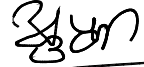
RDSO's Drg. No. SKEL – 4546, Alt. `O' –A3

4.0 AGENCY OF IMPLEMENTATION :

- (i) All Electric Loco Sheds, POH workshop having WAP1 & WAP4 class of locomotives.
- (ii) CLW in all newly manufactured locomotives.

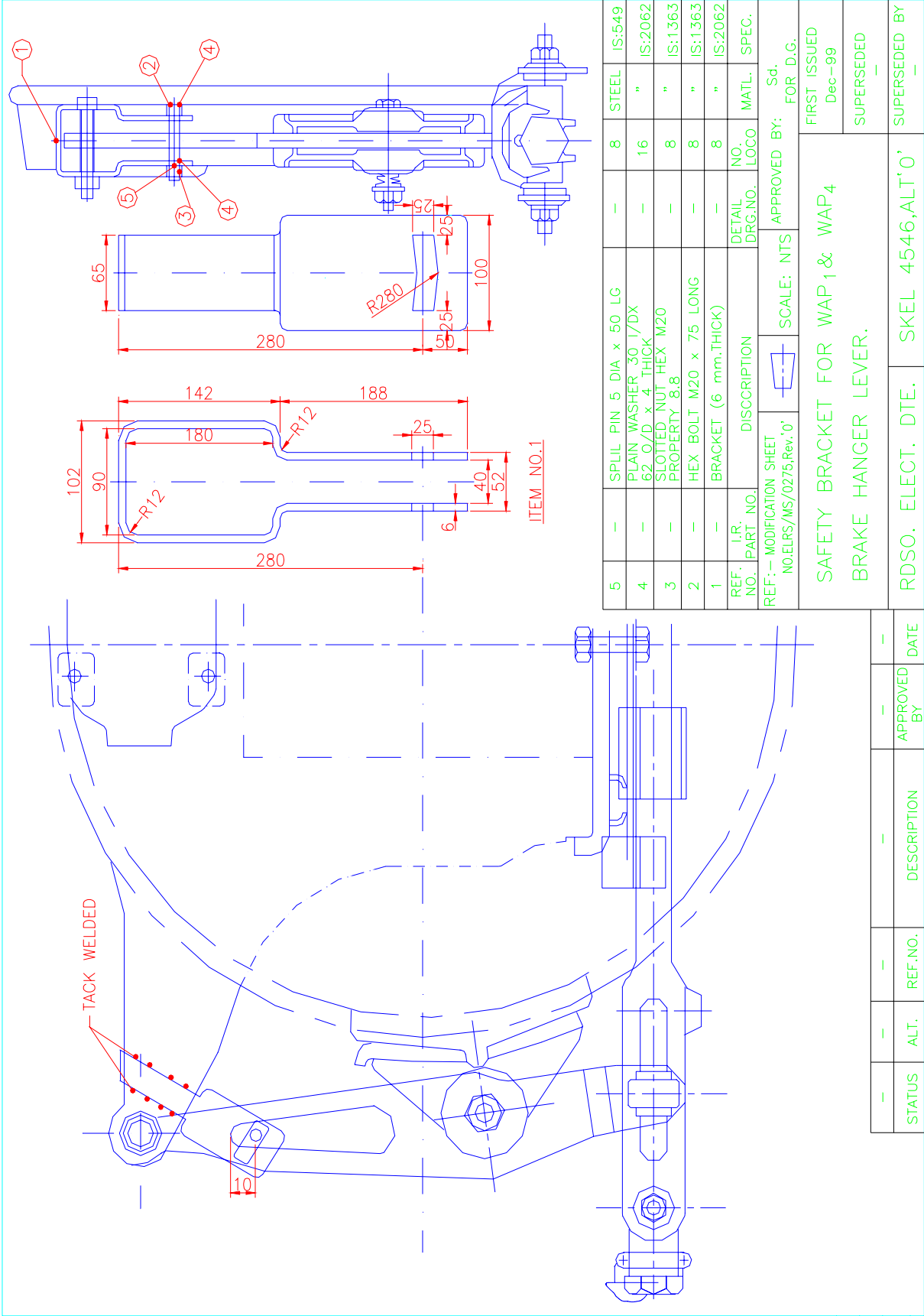
5.0 As per mailing list no. EL/M/0028/Rev. `O'.

Encl: As above



(A.K. Gupta)
for Director General/Elect

To.



5	—	SPLIL PIN 5 DIA x 50 LG	—	8	STEEL	IS:549
4	—	PLAIN WASHER 30 I/DX 62 O/D x 4 THICK	—	16	"	IS:2062
3	—	SLOTTED NUT HEX M20 PROPERTY 8.8	—	8	"	IS:1363
2	—	HEX BOLT M20 x 75 LONG	—	8	"	IS:1363
1	—	BRACKET (6 mm THICK)	—	8	"	IS:2062
REF. NO.	I.R. PART NO.	DISCRIPTION	DETAIL DRG. NO.	NO. LOCO	MATL.	SPEC.
REF: — MODIFICATION SHEET NO.ELRS/MS/0275,Rev. 0'			APPROVED BY:		Sd. FOR D.G.	
			SCALE: NTS		FIRST ISSUED Dec-99	
					SUPERSEDED BY —	

SAFETY BRACKET FOR WAP ₁ & WAP ₄ BRAKE HANGER LEVER.			RDSO. ELECT. DTE. SKEL 4546,ALT'O'		
			SUPERSEDED BY —		

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STATUS	ALT.	REF.NO.	DESCRIPTION	APPROVED BY	DATE