

**GOVERNMENT OF INDIA MINISTRY OF RAILWAYS
RESEARCH DESIGNS AND STANDARDS ORGANISATION
MANAK NAGAR LUCKNOW - 226 011**

No.EL/3.2.165

Dated: 14.1.98

**SPECIAL MAINTENENCE INSTRUCTION OF CO CO TRIMOUNT
BOGIE NO. RDSO/ELRS/SMI/194**

1. REASON

Recently a number of cases of derailments of WAM4 loco while hauling passenger/Express trains have been reported by South Eastern Railway, Central and South Central Railway. WAM4 locomotives are fitted with CO-CO trimount bogies and derailments are basically due to the failure of following bogie components.

- (a) Equaliser tie pin (RDSO Drg. No. SKDL 3273 Alt. 8)
- (b) Equaliser spring Seat yoke pin and spring Seat face (RDSO Deg. No. SKDL 3867)
- (c) Safety bracket (RDSO) Drg. No. SKDL 3867 Item No. 7)

2. OBJECT

To arrest CO-CO trimount bogie failures.

3. INSTRUCTIONS

- (a) Equaliser tie pin:
 - (i) It is to be ensured in all the bogies that the equaliser tie pin head thickness is 15 mm and provision of stress relieving groove on the pin at the rear face of the head as shown in Drg. No. SKDL 3273 Alt. 8 (copy enclosed).
 - (ii) Ensure that the pin is subjected to ZYGLO testing for detecting service cracks during AOH/IOH/POH Inspection.
 - (iii) Ensure inspection schedule as per details given in Annexure-2.
- (b) Equaliser Spring Seat, Yoke pin and Spring Seat Face:
 - (i) Replace all the spring seats when service is more than 18 years as it is expected that it may fail due to fatigue if used after this service. Also life of loco is 36 years therefore it is an item of mid-term rehabilitation. However, the item can be replaced earlier also on condition basis.
 - (ii) Check that there should be clear gap between the spring seat face and the equaliser beams
(first and rear) as per inspection schedule given in Annexure-2.
 - (iii) Check the condition of yoke pin bush, yoke pin and ensure that these are within the service limit as per details in Annexure-2.
 - (iv) R.D.P.T. testing of spring seat as per the frequency given in Annexure-2.
- (c) Safety Bracket :
 - (i) Ensure that the holding screws of safety bracket are sealed with wire and are of size M 16.

- (ii) Check the clearance between safety bracket and equaliser as per details given in Annexure-2.

4. APPLICATION :

All electric locomotives provided with Co-Co trimount bogies such as WAM4, WAG5, WCG2 and WCAM 1.

5. AGENCY OF IMPLEMENTATION

All electric loco sheds and POH Shops.

6. DISTRIBUTION

As per enclosed list .

Encl : Distribution List



(V.K. Aggarwal)

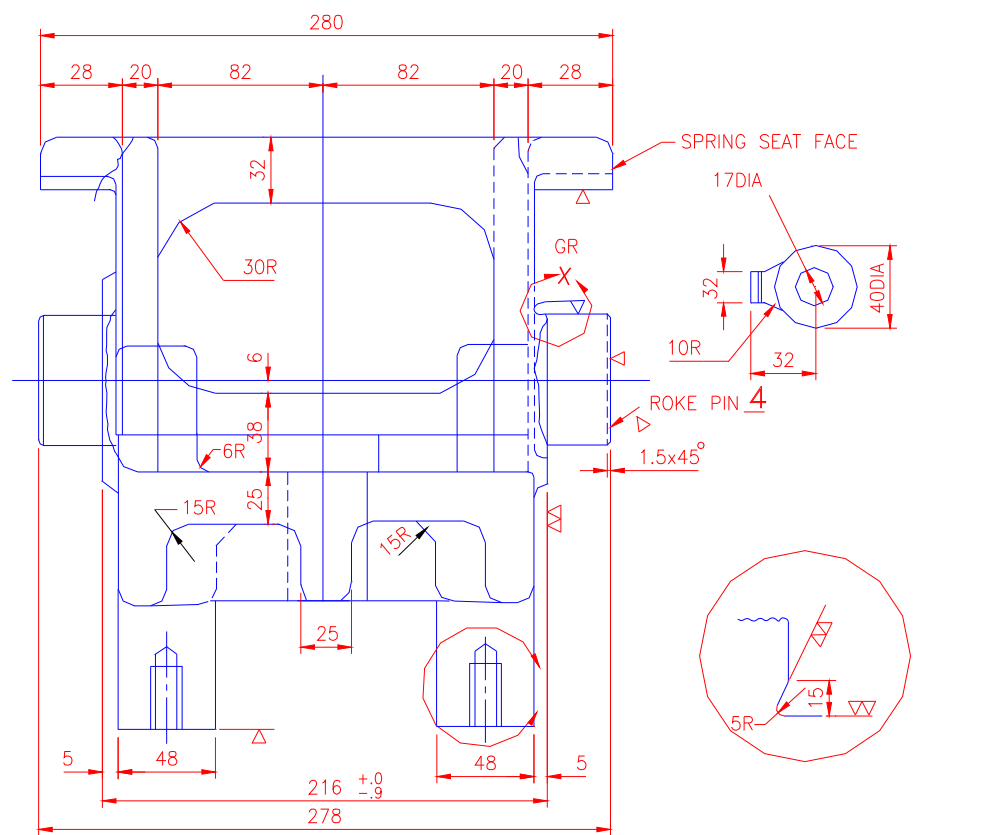
SMI/194 For Director General / Elect.

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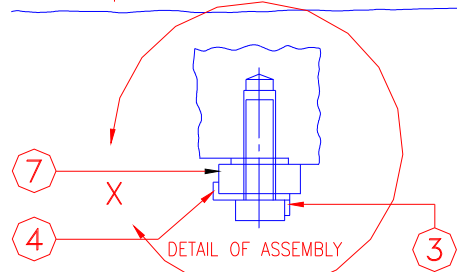
1. FOR EQUALIZER DETAIL REFER DRG.No. SK.DL-3368&3847 FOR B.G.
AND SK.DL-3383 FOR M.G. LOCOS.
2. THIS DRAWING SUPERSEDES DRG.No. SK.DL-3130&1444

THE MATERIAL SHALL BE NORMALISED
CONDITION WITH A FINE GRAIN SIZE
HARDNESS - 188-223-HB.

[illegible]



SECTION A-A



AREAS OF CRACK

6	BUSH	12	
5	EQUAUSER	8	
4	COMPENSATING BEAM	4	
3	GREASE NIPPLE	28	ST TO IS:554
2	PIN	16	
1	EQUAUSER PIN	12	
REF: No.	L.R. PART No.	DESCRIPTION	No./ LOCO REF DRW. No.
APPLICABLE FOR VAC7,VAC78,VDC2		EQUALISER SPRING SEAT	
SCALE		REF: SKDL.-4156 & 4187	
INDIAN RLYS RDS0.(YD,n)		DRG. SK.EL-3867 No. (SHEET 1)	

Dt.	16.2.79
D	
T	
C	

ANNEXURE-2

Inspection schedule of Maintenance for WAM4/WAG5/WCG2/WCAM1 locos provided with Co-Co trimount Bogies.

S.No.	Part to be inspected	Work to be carried out	Schedule of Inspection					
			IA	IB	IC	AOH	IOH	POH
1.	Equiliser Tie Pin	(i) Check for breakage/cracks of pin head	*	*	*	*	*	*
		(ii) Check for cotter pin condition	*	*	*	*	*	*
		(iii) Remove the tie pin Check for visual cracks and get it Zyglo tested for invisible surface cracks	-	-	-	*	*	*
2.	Equaliser Spring Seat	(i) Visually check for cracks/ breakage of spring seat face	*	*	*	*	*	*
		(ii) Check for the gap between spring seat face and equaliser beam (1.19mm min. 3.75mm max.) If the gap is less than minimum check for (a) Bush wear of the yoke pin. (b) Wear of yoke pin itself (c) Breakage/cracks of yoke pin.	*	*	*	*	*	*
		(iii) Red Dye penetration test /Ultrasonic testing of spring seat specially on the yoke pin and spring seat face positions. If crack/breakage is found replace the same by new one.	-	-	-	*	*	*

		(iv) Check the wear of yoke pin bush. allowed dia is 63.19 mm to 65.19 mm)	-	-	-	*	*	*
		(v) Check wear of yoke pin dia (63 +0.0) -0.4	-	-	-	*	*	*
3.	Safety bracket	(i) Visually check the condition of safety bracket especially for cracks/breakage at the end projections. If so, it means spreading of equaliser beams has started and the spring seat assembly/equaliser tie pin needs urgent attention.	*	*	*	*	*	*
		(ii) Holding screws of safety bracket (size M 16) to be sealed with sealing wire.	*	*	*	*	*	*
		(iii) check the clearance between safety bracket and equaliser (3.18 mm min 6.35 mm max)	*	*	*	*	*	*