भारतसरकार**GOVERNMENT OF INDIA**
रेलमंत्रालय **MINISTRY OF RAILWAYS**
रेलवेबोर्ड**RAILWAY BOARD**

No.2019/M(N)/204/6 (E-3324111) **Dated: 20.12.2024**

PCMEs
All Zonal Railways

Sub: Maintenance of 'E' dimension of Slack adjuster in Freight stock.
Ref: (i) RDSO letter no. MW/ABP dated 17.12.2024 (Copy enclosed).
(ii) Railway Board's letter no 2018/M(N)/951/17 dated 29.11.2024. (Copy enclosed)

In reference to Railway Board's letter, RDSO was advised to examine the issue of maintenance of 'E'-Dimension of Slack adjuster in Freight stock and issue necessary. RDSO has accordingly issued revised guidelines, vide letter under reference (i), for Workshops as well as open line.

It is requested to kindly implement the revised instructions for maintaining E-Dimension in Freight rolling stocks.

20.12.24.

(Happy Walia)
EDME (Freight)
Railway Board
Email: edmef@rb.railnet.gov.in

Copy to:
1. **AM(ME)/RB** - for kind information please.
2. **PCMEs/All Zonal Railways** – For kind information & necessary action please.

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Government of India - Ministry of Railways
Research Designs & Standards Organisation Lucknow – 226011
DID (0522) 2450115
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No. MW.ABP Date: 17.12.2024

EDME Frt,
Railway Board
Rail Bhawan
New Delhi

Sub: - Maintenance of 'e' dimension in wagon.
Ref: - (i) RDSO Letter No. MW/ABP dated 30.10.24
(ii) Railway Board's L. No. 2018/ M(N)/951/17(E-3322675) dated 29.11.24

1. Vide this office letter at Ref (i) above, issue of variation in pull rod length and 'e' dimension was addressed. Further, as per direction from Railway Board, team from Wagon Design Dte. visited JHSW on 25 & 26.11.24 and issue of variation in pull rod length & 'e' dimension were jointly examined. Based on this joint study, a presentation to AM/ME/RB was made on 28.11.24 at RDSO which was also attended by PCME/NER. Important observations of joint study at JHSW/NCR are as under:

- 05 incoming wagons and 01 off POH wagon were jointly inspected.
- **Observation on incoming wagons:**
  - Hole of End pull rod were found to set in correct position.
  - Hole of bogie Push rod found to set in correct position.
  - Brake blocks were found missing in 01 incoming wagon and in rest wagon brake blocks were worn out by more than 50%.
  - Lock nut of SAB control rod was found missing in 02 wagons.
  - On incoming wagons, 'e' dimension was found in the range of 28 mm to 205 mm.
  - No wagon was found with Zero 'e' dimension.
  - On incoming wagons, 'A' dimension was found in the std. range of 70(+2, -0) mm.
  - Brake block force was found within limit for all wagons.
  - Length of long/short pull rod was found more than std. dimension which led to decrease of standard 'e' dimension.
  - Most of the brake gear pins were found in rusted condition and bushes were missing.
- **Observation on 01 Off POH wagon**
  - Old brake gear bushes were found in off POH wagon.
  - All brake gear Pins were found old and dia. found out of specified range, also one non-standard Pin (loaded tie rod live end) was fitted.
  - All Brake blocks were new.
  - Hole of End pull rods were found to be set in correct position corresponding to the wheel diameter.
  - Hole of bogie Push rod found to be set correctly in the inner hole.
  - 'e' dimension was set to 565 mm in one cut of 268 mm in short pull rod.

2. Vide reference ii) above, Railway Board has directed RDSO to remove ambiguity on 'e' dimension and also to convey decision on value of 'e' dimension to be maintained in the Examination yard, Sick line & ROH.
3. In view of above and in supersession to RDSO'S letter at reference i) above, following guidelines are issued for consideration of Railway Board and further directions to Zonal Railway and CAMTECH.

I. **'e' Dimension** – It is capacity of Slack Adjuster (SAB) to compensate the slack caused due to wear of the Brake blocks, Wheels, Brake rigging Pins & Bushes in brake gear of wagon. However, during service, brake block wear is the main contributing factor in creating slack in brake gears. Therefore, slack take-up capacity of SAB is calculated in following manner:

Maximum Brake block wear allowed= (58 mm- 10 mm) = 48mm

Max. slack take-up requirement = Max. wear of one brake block x leverage of bogie x no. of bogies = 48 x 6 x 2 = 576 mm.

II. **<u>Standard values of SAB 'e' dimensions for different wagons:</u>**

a. Standard values of SAB 'e' dimension for different wagons is specified in **Annexure-I.**
b. Standard value of 'e' dimension is achieved only when all the brake blocks, pins & bushes are new and bogie end pull rod & bogie push rod have been correctly adjusted as per the wheel diameter.
c. Adjustment of bogie end pull rod and push rod is governed from the following:
   1) With new wheel i.e. full diameter, bogie end pull rod shall be on outer most hole and bogie push rod shall be on inner hole.
   2) With wheel wear, first adjustment shall be done on bogie end pull rod towards inner holes. When entire adjustment capacity of end pull rod is exhausted then bogie push rod shall be adjusted to outer holes. With shifting the push rod to outer holes, the angularity of vertical equalising lever will be corrected.
   3) Schematic diagrams for clarity are attached as **Annexure-II A & II B**.

III. **Value of SAB 'e' dimension for in-service wagons:**

a. During service, 'e' dimension may vary within the range given in **Annexure-I**, and it can also be less than the specified value.

b. Reasons for less than the specified value of 'e' dimension can be any of the following:
   1) Brake block wear
   2) Wheel wear
   3) Wear of Pins, Bushes and brake gear holes.

IV. **Must change items of brake gear during ROH and POH:** As brought out in para II above, standard value of 'e' dimension is achieved only when brake blocks, brake gear bushes and pins etc. are renewed and timely replacement of these items is crucial for proper functioning of brake system. Therefore, following recommendations are made w.r.t. must change of brake gear items during ROH and POH of wagons:

SN	Item	Recommendation for renewal	
		ROH	POH
1.	Brake block (Ensure Std. Key & Spilt pin)	Must change	Must Change
2.	Pin & bushes of Bogie brake gear (Change if clearance is more than 1.5 mm)	Condition Basis	Must Change
3.	Pin & bushes of Under gear brake rigging.	Condition Basis	Must Change

V. **Maintenance of 'e' dimension:** From the above discussion it can be seen that, there is no requirement of maintaining standard value of 'e' dimension **(Annexure-I)** for in-service wagon. However, as explained in para I above, 'e' dimension is primarily governed as per brake block thickness. Accordingly, in compliance to Railway Board's instructions following are recommended:

a. During POH of wagon 'e' dimension shall be maintained strictly as per **Annexure-I** as per following procedure:

1) Bogie and its brake gear components (length of end pull rod, vertical equalising lever, push rod etc.) are as per bogie brake gear arrangement drawing of respective wagon.
2) Correct setting of Bogie end pull rod and Bogie push rod according to wheel diameter have been done as explained in para II above.
3) New Brake blocks of correct type and size are fitted.
4) Brake block keys are in proper position.
5) All brake gear pins & bushes are renewed.
6) Correct type of slack adjuster is fitted on the wagon as per **Annexure-I**. It shall be ensured that overhauled/new slack adjuster is tested on test rack for proper functioning (specified pay in & pay out) as per Para 4.5 of Maintenance Manual No. G-92 for Slack Adjuster. All ROH depots/POH workshops should have SAB test rack facilities in proper working condition as per maintenance Manual No. G-92 for Slack Adjuster. Wherever facility exists (longer test rack), SAB can be tested with pull rod in welded condition.
7) If after ensuring and maintaining the above parameters of bogie as well as underframe brake gear arrangement, standard 'e' dimension as prescribed in **Annexure-I** is still not achieved, the same shall be maintained by adjusting the length of main pull rod assemblies - short & long on **"TO SUIT"** basis. ROH depots/POH shops should ensure availability of welding facilities, preparation of edge and welding of pull rod with spindle of SAB as per **Annexure-III**.

b. As regard to ROH it is recommended that value of ‘e’ dimension should be corresponding to thickness of the brake block. For example, after renewal of brake blocks in ROH, corresponding ‘e’ dimension should be 48 x 6 x 2 = 576 mm approx. For any abnormal variation in ‘e’ dimension, steps mentioned in POH for correction of ‘e’ dimension shall be followed.

c. For sick line, if wagon is sick marked for any defect in brake gear and/or wheel set(s) is changed, value of ‘e’ dimension should be corresponding to thickness of the brake block. For example, if brake block thickness (allowed to wear) is 25 mm, corresponding ‘e’ dimension should be 25 x 6 x 2 = 300 mm approx. For any abnormal variation in ‘e’ dimension, steps mentioned in POH for correction of ‘e’ dimension shall be followed.

d. For other sick repair and maintenance of wagons in yard, measurement of ‘e’ dimension is not required, however, it shall be ensured that SAB is functional and ‘e’ dimension is not abnormally low even though brake blocks are not reaching condemning limit. For any abnormal observation, step (c) above shall be followed.

e. If above recommendations are accepted, Railway Board may also advise CAMTECH to revise the Wagon Maintenance Manual Rev-2 (Point 5 of table 2.3, Chapter-2) accordingly.

DA: As above

Digitally Signed by Ajit Kumar Singh
Date: 17-12-2024 13:07:04
Reason: Approved

(Ajit Kumar Singh)
Executive Director Std./Wagon
RDSO

Annexure-I

LIST OF WAGONS WITH CONVENTIONAL BRAKE SYSTEM

List of wagons (with twin pipe)

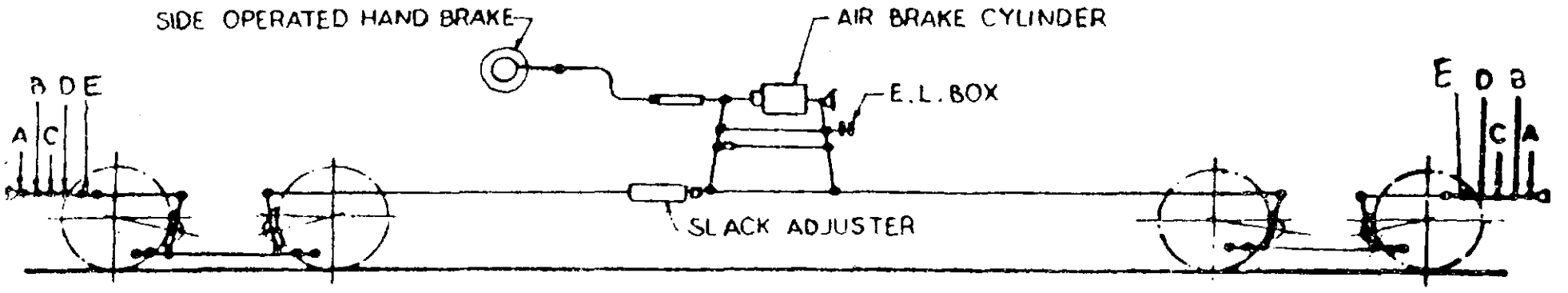
S. No.	*Wagon*	*Drawing No.*	*Empty Load Device Yes/No*	*Loading sensing device Yes/No*	*Piston stroke*		*Distance between the control rod head and adjuster barrel (A) "A"*	*Dimensions (e) i.e. the distance between the end of protection tube and fixed mark on the slack adjuster pull rod. "E"*	*Type of Slack adjuster IRSA-600 OR IRSA-750*	*Length of main pull rod SAB side (mm.)*	*Length of long pull rod (mm.)*	*Bogie center distance (mm.)*	*Remarks*
					Empty (mm.) "P"	*Loaded (mm.) "Q"*							
1	*BCN*	*WD-84014-S-4*	*Yes*	*No*	*85+10/-10*	*130+10/-10*	*70+2/-0*	*575+10/-10*	*IRSA-600*	*3130*	*2690*	*10000*	
2	*BCNA/BCNAHS/BCNAHSM1*	*WD-90030-S-57*	*Yes*	*No*	*85+10/-10*	*130+10/-10*	*70+2/-0*	*575+10/-10*	*IRSA-600*	*3265.5*	*2052.5*	*9500*	
4	*BCNHL Design-B*	*WD-06076-S-08*	*Yes*	*No*	*85+10/-10*	*120+10/-10*	*70+2/-0*	*560+25/-25*	*IRSA-750*	*837*	*1885*	*7153*	
5	*BCNHL Design-C*	*WD-06076-S-08*	*Yes*	*No*	*85+10/-10*	*120+10/-10*	*70+2/-0*	*560+25/-25*	*IRSA-750*	*837*	*1885*	*7153*	
6	*BCNHL Design-D*	*WD-10068-S-08*	*Yes*	*No*	*85+10/-10*	*120+10/-10*	*70+2/-0*	*560+25/-25*	*IRSA-750*	*837*	*1885*	*7153*	
7	*BOBR Design-A*	*WD-86013-S-72*	*-*	*-*	*-*	*-*	*-*	*-*	*-*		*-*	*-*	*SAB not used*
8	*BOBRM1 Design-B*	*WD-86013-S-72*	*-*	*-*	*-*	*-*	*-*	*-*	*-*		*-*	*-*	*SAB not used*
9	*BOBRN Design C*	*WD-89007-S-72*	*No*	*Yes*	*100+10/-10*	*110+10/-10*	*27+2/-0*	*575+10/-10*	*IRSA-600J*	*740*	*1880*	*6790*	
10	*BOBRNM1 Design D*	*WD-89007-S-72*	*No*	*Yes*	*100+10/-10*	*110+10/-10*	*27+2/-0*	*575+10/-10*	*IRSA-600J*	*740*	*1880*	*6790*	
11	*BOBRNEL Design E*	*WD-89007-S-72*	*No*	*Yes*	*100+10/-10*	*110+10/-10*	*27+2/-0*	*575+10/-10*	*IRSA-600J*	*740*	*1880*	*6790*	
12	*BOBRNUG Design F*	*WD-89007-S-72*	*No*	*Yes*	*100+10/-10*	*110+10/-10*	*27+2/-0*	*575+10/-10*	*IRSA-600J*	*740*	*1880*	*6790*	
13	*BOBRNHS Design G*	*WD-89007-S-72*	*No*	*Yes*	*100+10/-10*	*110+10/-10*	*27+2/-0*	*575+10/-10*	*IRSA-600J*	*740*	*1880*	*6790*	
14	*BOBRNHSM1 Design H*	*WD-89007-S-72*	*No*	*Yes*	*100+10/-10*	*110+10/-10*	*27+2/-0*	*575+10/-10*	*IRSA-600J*	*740*	*1880*	*6790*	
15	*BOBRNHSM2Design m*	*WD-89007-S-72*	*No*	*Yes*	*100+10/-10*	*110+10/-10*	*27+2/-0*	*575+10/-10*	*IRSA-600J*	*740*	*1880*	*6790*	
16	*BOXNHL Design-B*	*WD-09082-S-01*	*Yes*	*No*	*85+10/-10*	*120+10/-10*	*70+2/-0*	*560+25/-25*	*IRSA-750*	*758*	*1536*	*6690*	
17	*BOXNHL Design-C*	*WD-08008-S-12*	*Yes*	*No*	*85+10/-10*	*120+10/-10*	*70+2/-0*	*560+25/-25*	*IRSA-750*	*758*	*1536*	*6690*	
18	*BOXNS Design-F(25 ton)*	*WD-14014-S-9 & 10*	*Yes*	*No*	*85+10/-10*	*120+10/-10*	*70+2/-0*	*560+25/-25*	*IRSA-750*	*470*	*1380*	*6524*	
19	*BTPN Design-A*	*WD-86081-S-71*	*Yes*	*No*	*85+10/-10*	*130+10/-10*	*70+2/-0*	*575+10/-10*	*DRV-2-600*	*2093*	*2239*	*8391*	
20	*BOY*	*SK-73515*	*Yes*	*No*	*90+10/-10*	*135+10/-10*	*70+2/-0*	*DRB2-600*	*IRSA-600*	*955*	*2070*	*7330*	
21	*BRN Design-A*	*WD-84013-S-5*	*Yes*	*No*	*85+10/-10*	*130+10/-10*	*70+2/-0*	*565+10/-10*	*IRSA-600*	*1495*	*3467*	*9144*	
22	*BVZC*	*WD-81035-S-12*	*No*	*No*	*70+10/-10*	*NA*	*-*	*565+10/-10*	*-*	*1900*	*2900*	*5400*	

23	BLC/BLCM (A-CAR)	CONTR-9405-S-10, CONTR-9405-S-11	No	Yes	95+10/-10	120+10/-10	70+2/-0	575+10/-10	IRSA-600	3615	1720	9675	
24	BLC/BLCM (B-CAR)	CONTR-9406-S-07, CONTR-9405-S-11	No	Yes	95+10/-10	120+10/-10	70+2/-0	575+10/-10	IRSA-600	2955	1555	8812	
25	BLL/BLLM (A-CAR)	RITES Drg. no. 45-A-2001-S-11, 45-A-2001-S-12,	No	Yes	95+10/-10	120+10/-10	70+2/-0	575+10/-10	IRSA-600	2851	3477	10700	
26	BLL/BLLM (B-CAR)	RITES Drg. no. 45-B-2001-S-11, 45-A-2001-S-12,	No	Yes	95+10/-10	120+10/-10	70+2/-0	575+10/-10	IRSA-600	1577	3777	9810	
27	BLCS(A-CAR)(25 Ton)	WD-15011-S-11, WD-15011-S-12	No	Yes	95+10/-10	120+10/-10	70+2/-0	560+25/-25	IRSA-600	3555	1774	9675	
28	BLCS (B CAR) (25 Ton)	WD-15012-S-07, WD-15011-S-12	No	Yes	95+10/-10	120+10/-10	70+2/-0	560+25/-25	IRSA-600	2896	1555	8812	
29	BLSS(A-CAR)(25 Ton)	WD-22061-S-18, WD-22062-S-17	No	Yes	80+10/-10	110+10/-10	70+2/-0	560+25/-25	IRSA-600	3293	2086	9657.5	
30	BLSS (B CAR) (25 Ton)	WD-22062-S-16, WD-22062-S-17	No	Yes	80+10/-10	110+10/-10	70+2/-0	560+25/-25	IRSA-600	2464	2086	8777	
31	CMP	WD-23016-S-17, WD-23016-S-18	No	Yes	95+10/-10	120+10/-10	70+2/-0	575+25/-25	IRSA-600	1464	2944	8797	
32	BFNS22.9	WD-98057-S-11	Yes	No	85+10/-10	120+10/-10	70+2/-0	575+25/-25	IRSA-600	1495	3467	9144	
33	BTAP	WD-82056-S-70	No	Yes	80+10/-10	105+10/-10	35+2/-0	285+10/-10	DRV-2K-300	745 (HEAD STOCK END)	572 (HOPPER END)	8300	
34	BVCM Design-A	WD-09107-S-12	No	No	85+10/-10	-	70+2/-0	565+10/-10	IRSA-600	870	1518	6524	
35	BVCM Design-B	WD-15009-S-14	No	No	85+10/-10	-	70+2/-0	565+10/-10	IRSA-600	870	1518	6524	
36													
37	BTALNM Design-B /BTALNM1	WD-84058-S-11	No	No	-	-	70+2/-0	575+10/-10	IRSA-600	2895	4290	11570	
38	BTPGLN	WD-93047-S-62	No	No	85+10/-10	130+10/-10	70+2/-0	575+10/-10	IRSA-600	4140	4720	12970	
39	BTPN (Variant-A)	WD-86081-S-71	Yes	No	85+10/-10	130+10/-10	70+2/-0	575+10/-10	DRV-2-600	2093	2239	8391	
40	BOBYN / BOBYNHS	WD-96021-S-08	No	Yes	95+10/-10	110+10/-10	27+2/-0	575+10/-10	IRSA-600J	740	3015	7470	
41	BOSTHS (Design-C)	WD-00012-S-15	Yes	No	85+10/-10	130+10/-10	70+2/-0	575+25/-25	IRSA-600	1826	2779	8800	
42	BOBSN (Design-A)	WD-94035-S-09	Yes	No	85+10/-10	130+10/-10	70+2/-0	575+10/-10	IRSA-600	400	2760	7112	
43	BRNAHS	WD-92004-S-13	Yes	No	85+10/-10	130+10/-10	70+2/-0	565+10/-10	IRSA-600	1495	3467	9144	

44	BRHNEHS	WD-04004-S-61	Yes	No	85+10/-10	130+10/-10	70+2/-0	575+10/-10	IRSA-600	1495	3467	9144	
45	BOBSNS	WD-18076-S-09	Yes	No	85+10/-10	120+10/-10	70+2/-0	560+25/-25	IRSA-750	196	1685	6524	
46	BOBYNM1/BOBYNHSM1	WD-96021-S-08	NO	YES	95+10/-10	110+10/-10	27+2/-0	575+10/-10	IRSA-600J	740	3015	7470	
47	BFNSM1 (UMBS)	WD-23077-S-11	Yes	No	85+10/-10	130+10/-10	70+2/-0	575+25/-25	IRSA-750	455	1839	6690	
48	BFNV	WD-20044-S-10	No	Yes	95+10/-10	120+10/-10	70+2/-0	575+25/-25	IRSA-600	780	1530	6690	
49	BCNAHSM1(2BC&2SAB)	WD-23040-S-02	No	NO	50+7/-7	65+7/-7	35+2/-0	325+25/-25	IRSA-450	210		9500	
50	BCFCM/BCFCM1	WD-23089-S-10	NO	YES	95+10/-10	130+10/-10	70+2/-0	560+25/-25	IRSA-600	230	735	6684	
51	BOXN,BOXNHS, BOXNHAM,BOXNEL, BOXNM1,BOXNM2, BOXNHSM1,BOXNHSM2 BOXNM2, BOXNR, BOXNRM1	WD-80007-S-10	Yes	No	85+10/-10	130+10/-10	70+2/-0	575+10/-10	IRSA-600	870	1518	6524	
52	BOXNHA	WD-98015-S-07	Yes	No	85+10/-10	130+10/-10	70+2/-0	575+10/-10	IRSA-600	870	1518	6524	
53	BOXNLW	WD-88088-S-10	Yes	No	85+10/-10	130+10/-10	70+2/-0	575+10/-10	IRSA-600	870	1518	6524	
54	BWTB	WD-00009-S-66	No	No	160±10		-	-	-	1846		11850	
55	BOMN	WD-02051-S-61	No	No	130±10		70+2/-0	575±25	IRSA-600	4787	5829	13890	
56	BRSTN	WD-02054-S-14	Yes	No	85±10	130±10	70+2/-0	575±10	IRSA-600	1495	3467	9144	
57	BCACBM-A	WD-11013-S-19	No	No	100±10		70+2/-0	575±25	IRSA-750	4002	5829	14345	
58	BCACBM-B	WD-11013-S-20	No	No	100±10		70+2/-0	575±25				14345	
59	FMPA	WD-19066-S-14	No	Yes	85±10	120±10	70+2/-0	560±25	IRSA-750	2377	2944	9681	
60	FMPB	WD-19067-S-14	No	Yes	85±10	120±10	70+2/-0	560±25	IRSA-750	1975	2346	8681	
61	ACT1	WD-22073-S-18	No	No	100±10		70+2/-0	575±25	IRSA-750	3230	6020	13700	

I/69535/2024

Annexure-II A



T/90000000

LIMITS OF WHEEL DIAMETER FOR MANUAL ADJUSTMENT OF BRAKE GEAR.

WHEEL DIA. ON TREAD					
HOLES TO BE USED FOR BRAKE ADJUSTMENT	BETWEEN 1000 & 982	BETWEEN 981 & 963	BETWEEN 962 & 944	BETWEEN 943 & 925	BETWEEN 924 & 906
	A	B	C	D	E

NOTE :-

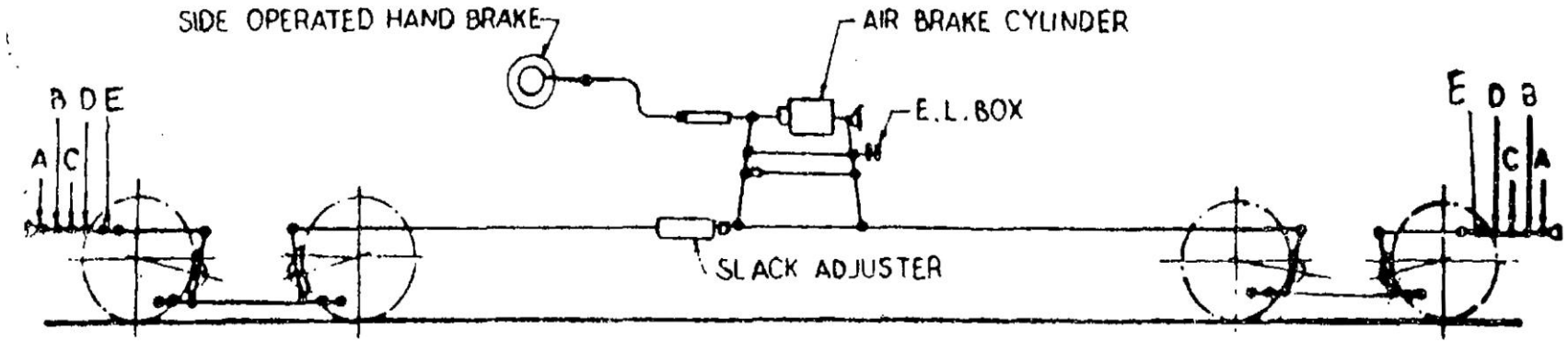
THE ADJUSTMENT OF BRAKE GEAR PINS SHOULD BE MADE DURING THE CHANGE OF BRAKE BLOCKS & AS WHEEL WEARS.

MANUAL ADJUSTMENT OF BOGIE BRAKE GEAR ON WAGONS

CASNUB-22W,22W(M),22NL, 22NLB,22HS BOGIES.

FIG.50

MANUAL ADJUSTMENT OF BOGIE BRAKE GEAR



LIMITS OF WHEEL DIAMETER FOR MANUAL ADJUSTMENT OF BRAKE GEAR

WHEEL DIA ON TREAD					
HOLES TO BE USED FOR BRAKE ADJUSTMENT	BETWEEN 1000 & 982	BETWEEN 981 & 963	BETWEEN 962 & 944	BETWEEN 943 & 925	BETWEEN 924 & 906
	A	B	C	D	E

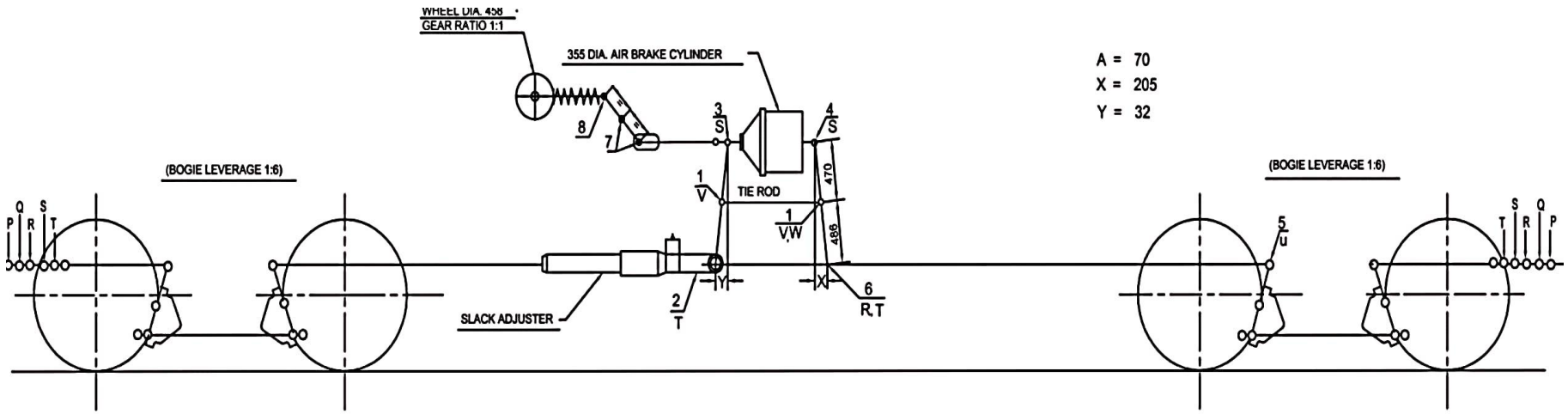
NOTE:-

THE ADJUSTMENT OF BRAKE GEAR PINS SHOULD BE MADE DURING THE CHANGE OF BRAKE BLOCKS & AS WHEEL WEARS

Manual Adjustment of Bogie brake gear on wagons fitted with CSNUB-22W,22W(M),22NL,22NLB,22HS Bogies

Annexure-II B

MANUAL ADJUSTMENT OF BOGIE BRAKE GEAR



LIMITS OF WHEEL DIAMETER FOR MANUAL ADJUSTMENT OF BRAKE GEAR					
	WHEEL DIAMETER ON TREAD				
HOLES TO BE USED FOR BRAKE ADJUSTMENT	BETWEEN 840-829	BETWEEN 828-817	BETWEEN 816-805	BETWEEN 804-793	BETWEEN 792-780
	P	Q	R	S	T

NOTE :-

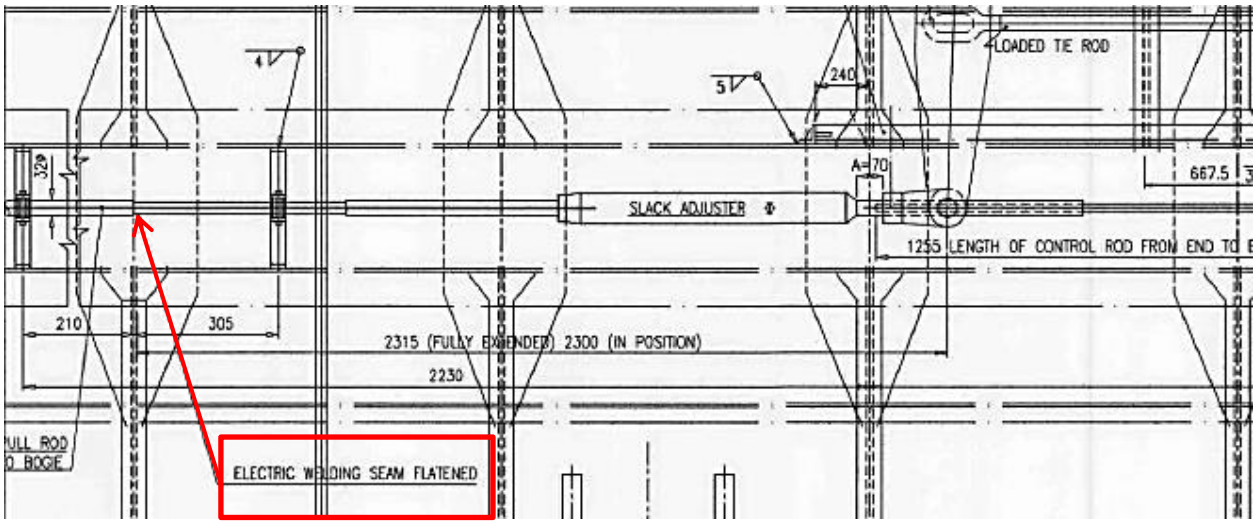
THE ADJUSTMENT OF BRAKE GEAR PINS SHOULD BE MADE DURING THE CHANGE OF BRAKE BLOCKS & AS WHEEL WEARS, SO THAT THE EQUALIZING LEVER REMAINS IN VERTICAL POSITION. IN THIS REGARD THE HOLES PROVIDED IN THE PUSH ROD CAN ALSO BE MADE USE OF.

Manual Adjustment of Bogie brake gear on wagons fitted with LWLH 25T Bogies

Annexure III

Facilities and Procedure required for welding of SAB with pull rod during ROH/POH of wagons

1. Electric welding seam flattened is recommended for welding of spindle of SAB with pull rod of all type of wagon .



2. In case , electric resistance welding facility is not available in ROH depot/POH shop then the welding of spindle SAB with pull rod may done by electric arc welding, however the straightness of spindle of SAB with pull rod should be ensured during welding .

3. Edge preparation for butt welding shall be carried out as per IS 9595:1996 .

POINTS NOTED DURING MEETING AT RDSO ON 28.11.2024

<table>
<tr><th>SN</th><th>Items</th><th>Action to be taken by</th></tr>
<tr><td>1</td><td>e-Dimension: PCME/NER made the presentation where he made the following points:
• Braking was effective in the incoming wagon although none of the wagon has standard e-dimension. e-Dimension was found to have the following distribution in total 1101 wagons checked:
<table><tr><th>Up to 0 – 50 mm</th><th>51 – 200 mm</th><th>201 – 400 mm</th><th>401+ mm</th></tr><tr><td>2%</td><td>26%</td><td>48%</td><td>24%</td></tr></table>• Braking was effective in the incoming wagons even with the above e-dimension.
• The maintenance of e-dimension to the prescribed range requires
o Correct setting of length of pull rod.
o This is tedious task with respect to ROH &Sickline maintenance.
o Lead to unnecessary changing of serviceable brake blocks, pins, bushes etc.
• Hence NER has recommended the following:
o Instructions on maintenance of e-dimension in sickline & ROH need to be reviewed by RDSO.
o The clarification regarding the range of e-dimension needs to be addressed.
The NER data matches with the study conducted by Jhansi workshop. It is noted that at present, recommendations regarding e-dimension are ambiguous. Therefore, it was decided that RDSO will remove this ambiguity and take their decision on value of e-dimension to be maintained in the examination yard, sick line & ROH (in consultation with NER).
In view of the study by NER and Jhansi shop, do we even need to measure E dimension in the yard examination?</td><td>PED/RS/RDSO</td></tr>
<tr><td>2</td><td>The recent studies have also highlighted that the pull rod to SAB connection, though specified to be made through resistance welding , is being made through arc welding. Also, the arc welding is being done in various ways – including welding two strips across the joint 180 deg apart.
RDSO needs to lay down the procedure for joining SAB with pull rod.</td><td>PED/RS/RDSO</td></tr>
<tr><td>3</td><td>SECR has reported failure of 38 side frames & 07 bolsters within first POH. RDSO shall investigate these premature failures of LWLH bogie and take necessary action.</td><td>PED/RS/RDSO</td></tr>
<tr><td>4</td><td><u>Failure of snubber spring in BOXNS</u>
RDSO has attributed these spring failures to multiple peeling of 16mm bar (to bring it to 11.5mm). This is leading to high hardness and brittleness causing failures. However, we need to have a plan in place to replace all the suspect springs .</td><td></td></tr>
<tr><td>5</td><td>RDSO presented that three firms i.e. Raneka, Sienna and Oriental have alone contributed to 77% failure involving the LWLH side frame and</td><td>EDME/Freight
PED/RS/RDSO</td></tr>
</table>

	bolster. These firms have also had failures within 18 months of commissioning. Vendor review needs to be taken to its logical conclusion.	
6	There were 1,60,000 wagons which need upgradation to 75/100 standardized speed (under Mission Raftar). This upgradation was started in 2023. Railways have so far converted 10,000 wagons over the past two years. We need to do around 30,000 wagons/year, if we intend to complete the upgradation in the next 5 years. If this work is to be completed in two years' time, it would be required to be done in ROH. The best way forward is to take substantial sanction, and procure in kit form. We can also consider centralized procurement of this kit form (at Railway Board).	EDME/Freight
7	RDSO had made the specification for development of vendors of ATL in 2011. However, **though the specification was developed 13 years ago, RDSO has not been able to develop any new source**. As a result **we are continuing with single vendor scenario for the last two decades.** It is also significant that the **design being used by IR for the last two decades has been abandoned by the OEM** (the OEM M/s Holland is now using a different design). It is also a fact that the **design being used by IR has several reliability issues – which are affecting safety.** It is clear that we need to graduate from the single vendor scenario if we are to solve the reliability and safety issues. The RDSO 2011 specification has an impact test clause which is only possible at TTCI, Colorado, USA and is becoming an entry barrier. The study done by RDSO shows that **the impact test clause is not there in the following Foreign Railways** • **Railways of Australia** • **UIC being followed by European and British Railways** We therefore need to revise our specification if we are seriously interested in developing more sources. The RDSO spec also calls for environment test at -50 deg F. Considering that the minimum temperature encountered in India would be in Srinagar which would be approx -4 def F , this aspect also needs to be reviewed by RDSO.	PED/RS/RDSO

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AM/ME
Railway Board

No. 2018/M(N)/951/17 (E: 3322675) Dated: 29.11.2024

Copy to:

1. **MTRS -- for kind information**
2. **DG/RDSO – for kind information**
3. **AM (PU)/ RB– for kind information**
4. **PED(RS)/RDSO – for information and necessary action**
5. **EDME (Freight)/RB – for necessary action**