



**Government of India
Ministry of Railways**

**CHECKSHEETS
FOR
BOGIE POL TANK WAGON (81.28 Tonnes)
TYPE – BTPN (BMBS)**

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1.	December 2011	-	First issue

ISSUED BY

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

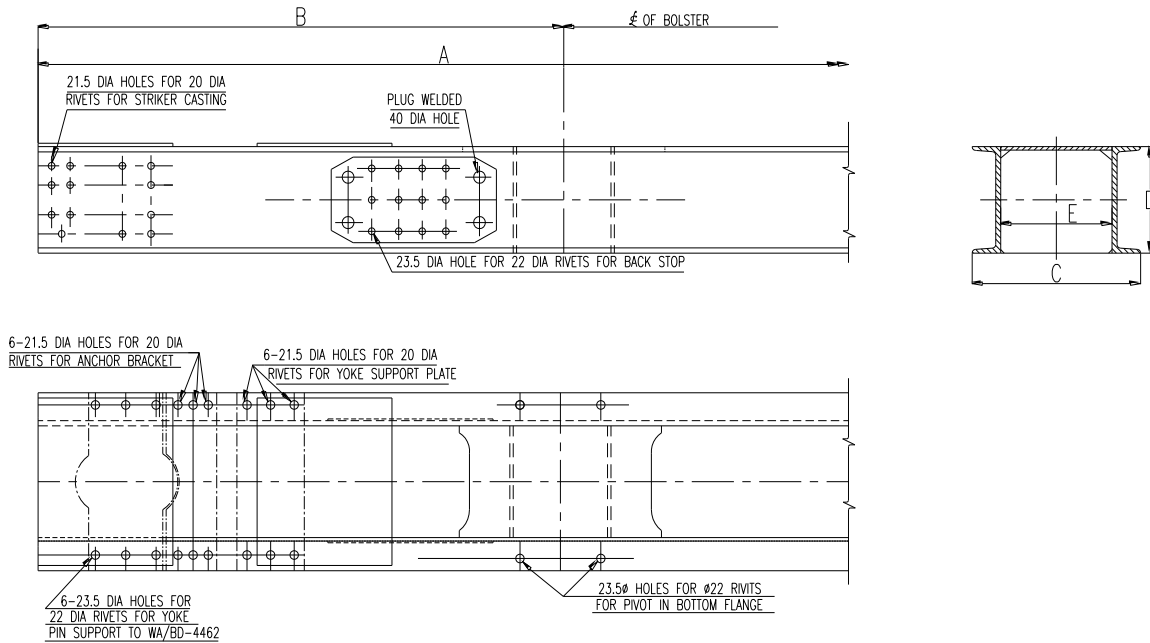
NOTE: These check sheets do not detail all the dimensions or technical requirements of respective wagon assemblies/ components. These check sheets are issued only for General Guidance & assistance of inspecting officials. Notwithstanding the above, the inspecting officials are advised to refer the relevant drawings and/ or relevant specifications to confirm conformity to the specified dimensions and technical details.

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CENTRE SILL



Ref. Drg. No.- WD-09050-S-04

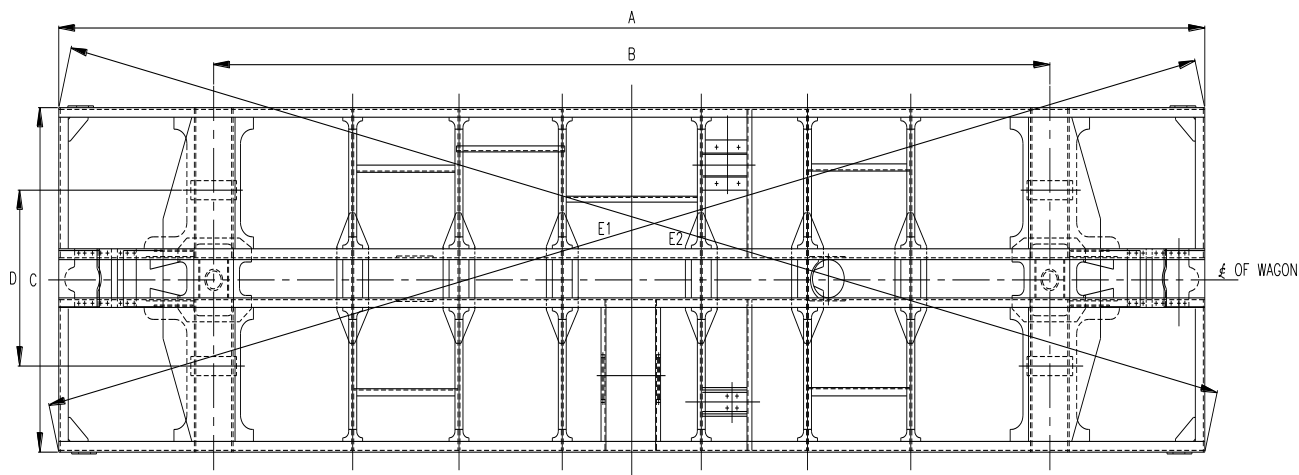
CENTRE SILL NO:			Date:			
SL. NO.	ATTRIBUTE	Works Inspection		RDSO Inspection	Remarks	
1.	Fitment of all components					
2.	Riveting					
3.	Welding					
4.	Dressing					
5.	Dimensions					
SL. NO.	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Length of centre sill	A	11491, +7,-3			
2.	Distance between headstock to bolster	B	1550			
3.	Width of centre sill	C	507			
4.	Height of centre sill	D	300			
5.	Inner distance of centre sill	E	327			

All dimensions are in mm

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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UNDER-FRAME



Ref. Drg. No.- WD-09050-S-03

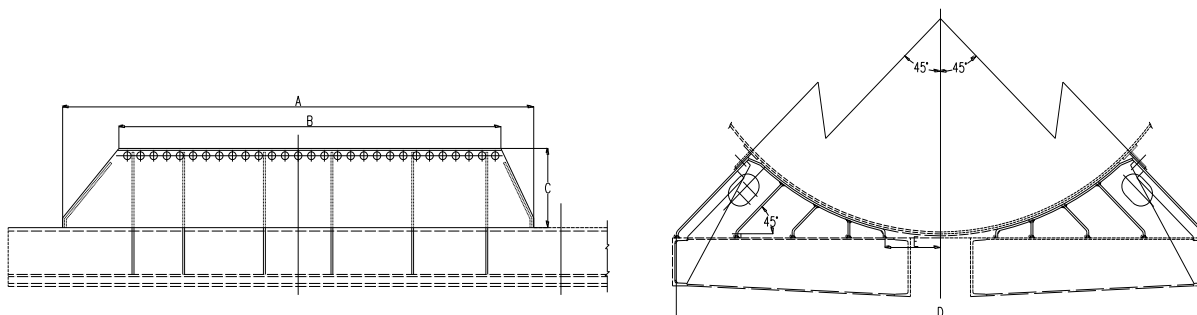
UNDERFRAME NO:		Date:				
SL. NO.	ATTRIBUTE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions					
SL. NO.	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Length over head stock	A	11491, +7,-3			
2.	Width over sole bar	B	2860±3			
3.	Distance between bolster bogie centre	C	8391, +5, -2			
4.	Distance between side bearers centre	D	1474±2			
5.	Diagonal difference over head stock	E1 & E2	≤5			
6.	Camber		4 mm at centre			

All dimensions are in mm

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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CRADLE ASSEMBLY



Ref. Drg. No.- WD-86081-S-57

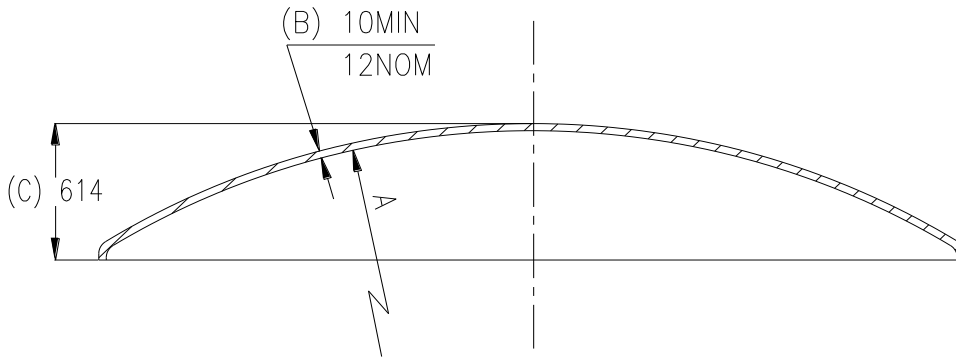
CRADLE ASSEMBLY NO:			Date:			
SL. NO.	ATTRIBUTE	Works Inspection		RDSO Inspection	Remarks	
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions					
SL. NO.	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Overall cradle length	A	2500±3			
2.	Cradle head length	B	2060±3			
3.	Vertical height of cradle at sole bar	C	420, +3, -2			
4.	Width of cradle	D	2820±2			
5.	Centre line to first pressing	E	300,+0,-5			

All dimensions are in mm

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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DISH-END



Ref. Drg. No.- WD-86081-S-58

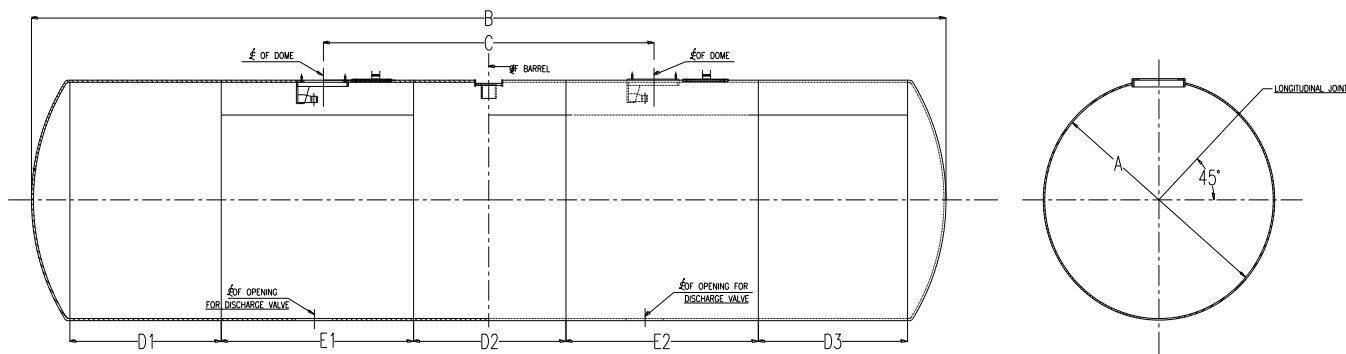
DISHEND NO.:			Date:			
SL. NO.	ATTRIBUTE	Works Inspection	RDSO Inspection	Remarks		
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions					
SL. NO.	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Dish-end inner dia.	A	2850±3			
2.	Dish-end thickness	B	12(nominal) 10(min. at radius)			
3.	Inner depth	C	614±2			
4.	Outside circumference	D	9030±3			

All dimensions are in mm

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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BARREL



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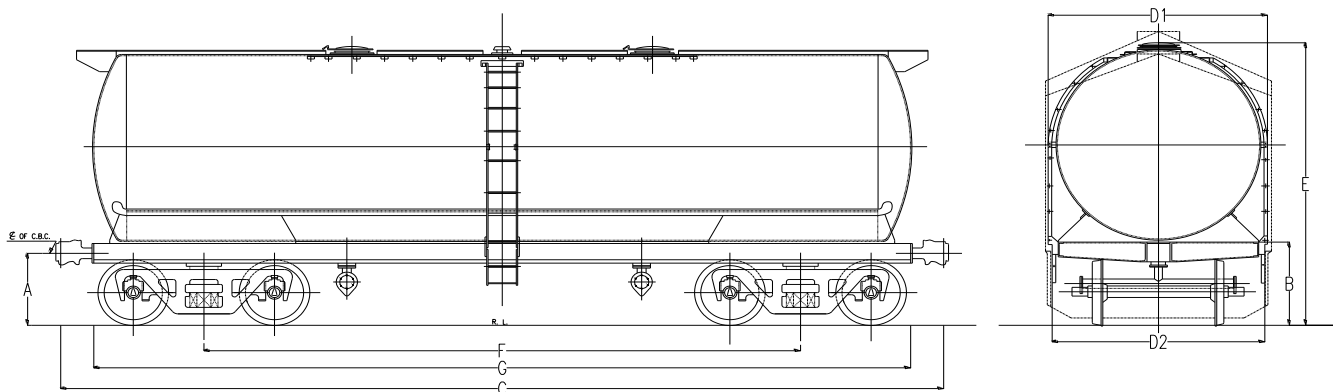
BARREL NO:			Date:			
SL. NO.	ATTRIBUTE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions					
SL. NO.	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Overall inside diameter	A	2850±3			
2.	Overall distance between dished end	B	11458,+7,-3			
3.	Distance between dome opening	C	2070+2070=4140,+0,-5			
4.	Barrel shell width	D1	1900±1.5			
		D2	1900±1.5			
		D3	1900±1.5			
5.	Barrel shell width	E1	2265±2			
		E2	2265±2			

All dimensions are in mm

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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WD-CS-01-BTPN-BMBS-(VARIANT-B)-2011
FINAL ASSEMBLY



Ref. Drg. No.- WD-09050-S-01

WAGON NO.:		U/F NO.:		Date:		
SL. NO.	ATTRIBUTE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Riveting					
3.	Welding					
4.	Operation of dome					
5.	Operation of coupler					
6.	Brake test:- i. Air brake test ii. Hand brake operation					
7.	Slot blasting (level SA2)					
8.	Painting					
9.	Lettering					
10.	Dimensions					
SL. NO.	LOCATION	Nominal Dimensions & Allowable Deviation	Actual Dimension		Remarks	
			Works Inspection	RDSO Inspection		
1.	Coupler height from rail level	A	1105 ⁺⁰ ₋₅			
2.	Height from rail level to sole bar top	B	1010+250=1260±3			
3.	Length over coupler faces	C	12420,+7,-3			
4.	Overall width	D1	3126±3 over ladder (upper)			
		D2	3046±3 over ladder (lower)			
5.	Overall height (From R.L. to top of dome)	E	4265			
6.	Bogie centre	F	8391			
7.	Overall length over head stock	G	11491,+7,-3			

All dimensions are in mm

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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**FINAL WAGON CHECKSHEET
TYPE-BTPN (BMBS)**

1.	Wagon No.		2.	Date of offer	
3.	Underframe No.		4.	Name of the Wagon Manufacturer	
5.	Contract/P.O. No. and date		6.	Contract/P.O. placed by	
7.	Delivery period (upto)		8.	Return date	
9.	<u>RUNNING GEAR</u>				
	(a) Bearing Make & Serial Nos.		i.	ii.	
			iii.	iv.	
	(b) Wheel Make & Serial Nos.		i.	ii.	
			iii.	iv.	
	(c) Axle Make & Serial Nos.		i.	ii.	
			iii.	iv.	
	(d) Bogie Make & Serial Nos.		(e)	Date of SWTR unit calibration	
	(f) Date of air brake testing		(g)	Air Brake Make (BMBS)	
	(h) DV Make & Serial Nos.				
10.	Coupler Make & Serial Nos.				
11.	Shot Blasting/Manually Cleaned		12.	Tare Weight	
13.	D.M. Issue date		14.	TXR fit memo issue date	
15.	Date of hydraulic test		16.	Date of pneumatic test	
17.	Date of calibration				
18.	RAD availed				
19.	Defects Observed				

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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PAINTING INSPECTION CHECKSHEET

PAINTING INSPECTION CHECKSHEET				Date:	
SL. NO. OF BODY					
TYPE OF WAGON					
ASSEMBLY DRG. NO.					
SL. NO.	ATTRIBUTE	CHARACTERISTIC/ PARAMETER	REFERENCE DOCUMENT/ SPECIFICATION	ACCEPTANCE CRITERIA	REMARKS
1.	Preparation of surface before painting	A. Decreasing B. Visual inspection of surface/welded areas	G-72(LATEST REVISION)	G-72(LATEST REVISION)	
2.	1 ST coat of	A. Finishing B. Paint thickness >40 microns	G-72(LATEST REVISION)	G-72(LATEST REVISION)	
3.	List coat	A. Finishing B. Paint thickness >80 microns	G-72(LATEST REVISION)	G-72(LATEST REVISION)	
4.	Finish coat	A. Finishing B. Paint thickness >110-120 microns	G-72(LATEST REVISION)	G-72(LATEST REVISION)	
5.	Marking	Visual	MARKING DIAGRAM	AS PER DRG.	

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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PROCESS INSPECTION CHECKSHEET

NAME		JIGS AND FIXTURES TEMPLATES		
DATE				
DRAWING NO.				
SL. NO.	CHARACTERISTIC/ PARAMETER	REFERENCE DOCUMENT/ SPECIFICATION	ACCEPTANCE CRITERIA	REMARKS
1.	DIMENSION		G-72(LATEST REVISION)	
2.	IDENTIFICATION		G-72(LATEST REVISION)	
3.	GENERAL CONDITION		G-72(LATEST REVISION)	
4.	DATE OF CALIBRATION		G-72(LATEST REVISION)	
5.	DUE DATE OF CALIBRATION		G-72(LATEST REVISION)	

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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AIR BRAKE TEST FOR SINGLE WAGON WITH SINGLE PIPE FOR BTPN (BMBS) WAGONS

Wagon No..... Bogie Make.....DV Make.....

Sl. No.	Check	Specified	Actual
1	Pressure in BP	5 ± 0.1 Kg/cm ²	
2	Pressure in AR	5 ± 0.1 Kg/cm ² (for single pipe)	
3	Leakage from the system in one minute.	0.1 Kg/cm ² (max.)	
4	Full service application after charging		
4.1	Brake cylinder filling time a) Empty (Pressure rise from 0 to 2.1 Kg/cm ²) b) Loaded (Pressure rise from 0 to 3.6 Kg/cm ²)	18 to 30 sec 18 to 30 sec.	
4.2	Maximum brake cylinder pressure a) Empty b) Loaded	2.2 ± 0.25 Kg/cm ² 3.8 ± 0.1 Kg/cm ²	
4.3	Reduction in BP pressure required for full service application.	1.3 to 1.6 Kg/cm ²	
5	Release after full service application.		
5.1	Draining time (Brake cylinder pressure to fall from 3.8±0.1 Kg/cm ² to 0.4 Kg/cm ²) a) Empty b) Loaded	45 to 60 sec 45 to 60 sec.	
6	Sensitivity of brakes. Isolate brake pipes from mainline. Check the response of brakes when brake pipe pressure is reduced at the most equal to 0.6 Kg/cm ² in 6 sec.	Brake should apply within 6 sec.	
7	Insensitivity of brakes, isolate brake pipe from mainline. Check the pressure of brakes when brake pipe pressure is reduced at least equal to 0.3 Kg/cm ² in 60 sec.	Brake should not apply	
8	Emergency application:		
8.1	Brake cylinder filling time a) Empty (Pressure rise from 0 to 2.1 Kg/cm ²) b) Loaded (Pressure rise from 0 to 3.6 Kg/cm ²)	18 to 30 sec. 18 to 30 sec.	
8.2	Maximum brake cylinder pressure a) Empty b) Loaded	2.2 ± 0.25 Kg/cm ² 3.8 ± 0.1 Kg/cm ²	
9	Piston stroke Empty (However, if in a few cases, the piston stroke at empty pressure during testing on SWTR exceeds the specified range, the piston stroke is to be tested by locking the wheels with wedges).	54±10 mm	
10	Leakage from brake cylinder after emergency application.	0.1 Kg/cm ² (max.) within 5 minutes	
11	Automatic exhausting of brake cylinder and control chamber.		
11.1	Apply emergency brakes (i.e. BP=0 Kg/cm ²). Check the brake cylinder pressure after giving a brief pull to release hook.	Brake cylinder and control reservoirs should exhaust automatically.	

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Sl. No.	Check	Specified	Actual
12	Empty load change over by APM Device		
12.1	Unrestricted movement of lever arm APM Device.	Brake cylinder pressure 2.2 ± 0.25 Kg/cm ²	
12.2	Restrict the movement of lever arm of APM Device by more than 25 mm (by putting a block of 25 mm thickness) from its initial position.	Brake cylinder pressure 3.8 ± 0.1 Kg/cm ²	
13	Hand Brake		
13.1	Apply hand brakes (by one person only and strike all wheels with hammer)	There should not be ringing sound	
14.	AR Charging time (Pressure rise from 0 to 5.0 Kg/cm ²)	175 \pm 30 Sec for C3W D.V	
		60 to 120 Sec for KEO D.V	
15	CR Charging time (Pressure rise from 0 to 4.8 Kg/cm ²)	165 \pm 20 Sec for C3W D.V	
		160 to 210 Sec for KEO D.V	

Sl. No. 14 and 15 to be checked at the time of prototype wagon only.

Works Inspector

Date:-

RDSO Inspector

Date:-

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BMBS CLEARANCE IN ASSEMBLED CASNUB BOGIE
(BRAKE IN REALEASED CONDITION)
(Reference RDSO Drawing No.:- WD-08093-S-02)

Wagon No.
Bogie No.(1)

Sl. No.	Description	Minimum value (mm)	Measured Value	
1.	Clearance between push rod and spring plank.	10	L	
			R	
2.	Total Clearance between bell crank levers and wheel face (i.e. Total of left & right side).	80 Min20 (if measured on any one side)	L	
			R	
			Total	
3.	Total Clearance (i.e. sum of clearance) between 3.1 Clearance between spring plank & primary brake beam. 3.2 Clearance between spring plank & secondary brake beam.	77	L	
			R	
			Total	
4.	Clearance between brake cylinder & brake beam.	30		

Bogie No.(2)

Sl. No.	Description	Minimum value in mm	Measured Value	
1.	Clearance between push rod and spring plank.	10	L	
			R	
2.	Total Clearance between bell crank levers and wheel face (i.e. Total of left & right side).	80 Min20 (if measured on any one side)	L	
			R	
			Total	
3.	Total Clearance (i.e. sum of clearance) between 3.1 Clearance between spring plank & primary brake beam. 3.2 Clearance between spring plank & secondary brake beam.	77	L	
			R	
			Total	
4.	Clearance between brake cylinder & brake beam.	30		

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

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