



**Government of India
Ministry of Railways**

**CHECK SHEETS
FOR
BOGIE OPEN HOPPER WAGON TYPE BOBYN 22.9 WITH BMBS**

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ISSUED BY

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

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These check sheets are issued only for General Guidance & assistance of inspecting officials. Notwithstanding the above, the inspecting officials are advised to refer to relevant drawings and / or relevant specifications to confirm conformity to the specified dimensions and technical details.

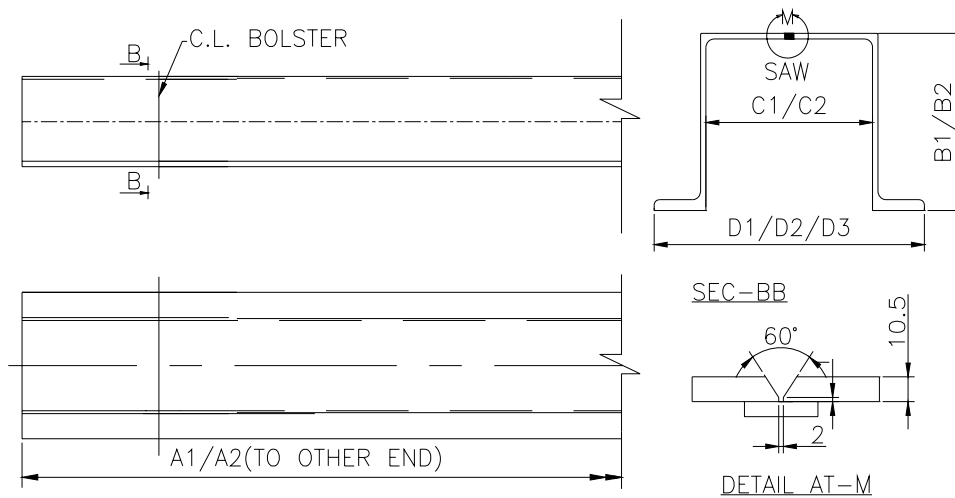
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Centre Sill



WD-9055-S-55

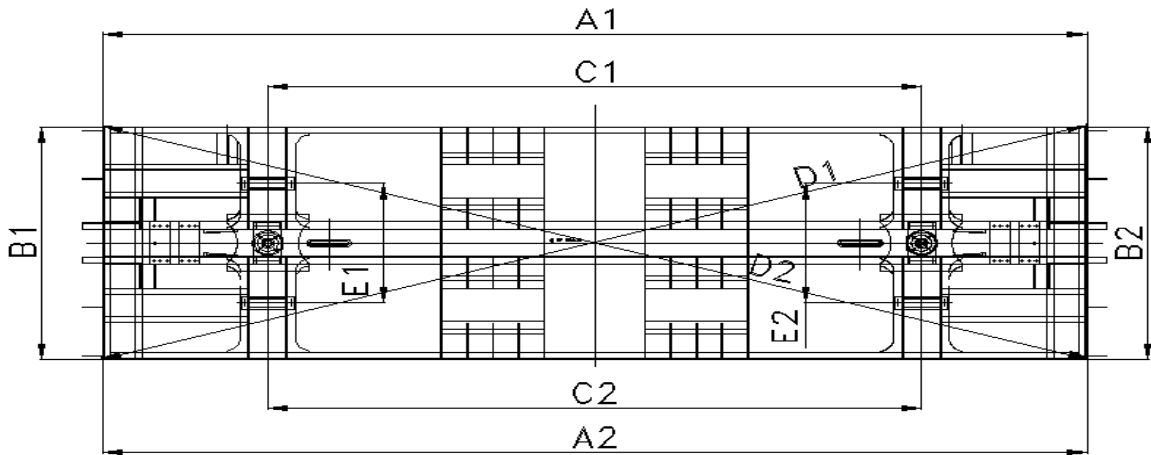
CENTRE SILL NO:			Date:			
SL. NO.	STAGE	Works Inspection		RDSO Inspection		Remarks
1	Fabrication of Centre Sill					
2	Fitment of all components					
3	Welding					
4	Dressing					
5	Rivetting					
6.	Dimensions			As follows		
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
i.	Overall Length	A1	10718, +2,-2 mm			
		A2				
ii.	Overall height and inside width of Centre Sill	B1/B2	327, +1.5, -0			
		C1/C2	327, +1.5, -0			
iii.	Overall width of Centre Sill bottom flange	D1	530, +1.5, -0			
		D2	530, +1.5, -0			
		D3	530, +1.5, -0			
iv.	Draft Gear Pocket	X	625.5, +0, -1.6			
		Y	327, +1.5, -0			
v.	Camber		10±3mm			The camber value 10±3mm shall be achieved in final wagon

All dimensions are in mm

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

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UNDERFRAME



WD-09055-S-54

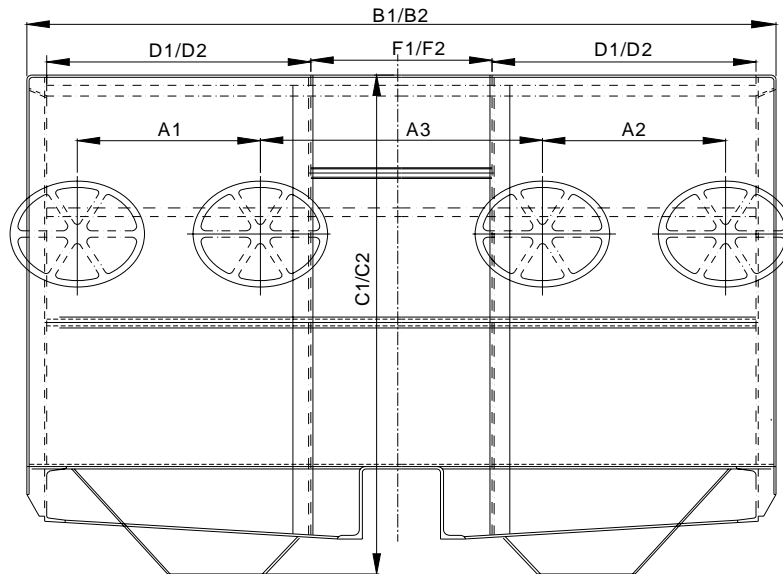
UNDERFRAME NO:		Date:				
SL. NO.	STAGE	Works Inspection		RDSO Inspection	REMARKS	
1.	Fitment of all components					
2.	Welding					
3.	Rivetting					
3.	Dressing					
4.	Dimensions	As follows				
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
i.	Length over head stock	A1	10718, +7,-3			
		A2				
ii.	Width over solebar	B1	2875 ±3			
		B2				
		B3				
ii.	Distance between bolster bogie centre	C1	7470, +2,-2			
		C2				
iv.	Diagonal difference over head stocks	D1-D2	≤ 5			
vi.	Distance between side bearers centre	E1	1474±2			
		E2				
vii.	Draft Gear Pocket	X	625.5, +0,-1.6			
		Y	327, +1.5, -0			
viii.	Camber		10±3			The camber value 10±3mm shall be achieved in final wagon

All dimensions are in mm

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

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BODY END



WD-09055-S-65 & SK-77536

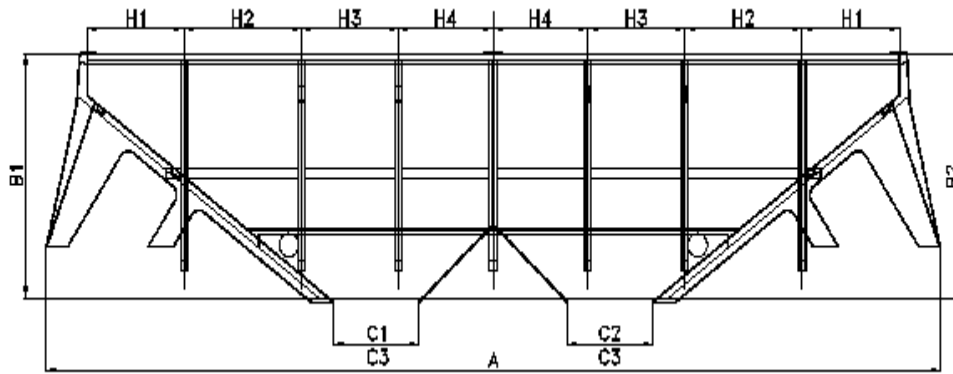
BODY END NO:		Date:				
SL. NO.	STAGE	Works Inspection	RDSO Inspection	Remarks		
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions	As follows				
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
i.	Distance between outer wheel to inner wheel	A1	746			
		A2				
ii.	Distance between inner wheel	A3	1164			
iii.	Width over corner stanchion	B1/B2	3025 ±3			
iv.	End wall overall height(from end wall bottom to top of end top coping)	C1	2517 ±3			
		C2				
v.	Distance between stanchion (Non- operating end)	D1	909.5 ±1.5			
vi.	Distance between stanchion (Operating end)	D2	1065.5,±1.5			
vii.	Distance between inner to inner stanchion(Non-operating end)	F1	1044 ±1.5			
viii.	Distance between inner to inner stanchion (Operating end)	F2	732 ±1.5			

All dimensions are in mm

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

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BODY SIDE ARRANGEMENT



WD-09055-S-63/65

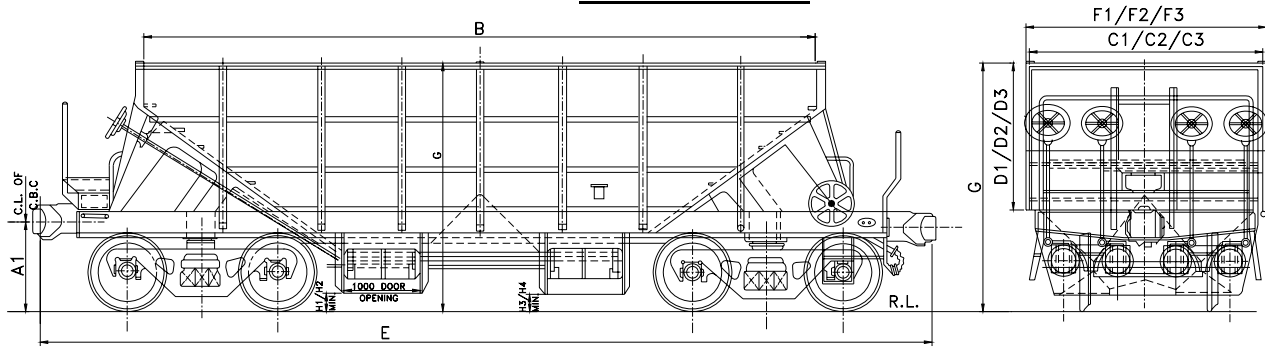
BODY SIDE NO:			Date:		
SL. NO.	STAGE	Works Inspection	RDSO Inspection		Remarks
1.	Fitment of all components				
2.	Welding				
3.	Dressing				
4.	Dimensions		As follows		
	LOCATION	Nominal Dimensions & Allowable Deviation	Actual Dimension		Remarks
			Works Inspection	RDSO Inspection	
i.	Side wall overall height (Pressing edge to top coping)	B1	2496 ±3		
		B2			
ii.	Door opening (Horizontal)	C1	1000, +0, -3		
		C2			
		C3			
		C4			
iii.	Distance between corner stanchion	A	9918 +7,-3		
iv.	Distance between body side stanchion	H1	1075 ±3		
		H2	1300 ±3		
		H3	1075 ±3		
		H4	1050 ±3		

All dimensions are in mm

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

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FINAL ASSEMBLY



WD-09055-S-53

Wagon No.:		U/F No.:		Date:		
SL. NO.	STAGE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Riveting					
3.	Welding					
4.	Operation of Doors					
5.	Operation of Couplers					
6.	Under gear Examination					
7.	Brake test i) Air brake ii) Hand brake					
8.	Shot Blasting(ExcpLever SAB)					
8.	Painting in second coat>80 micron					
9.	Lettering					
10.	Dimensions	As follows				
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
i.	Coupler height from R.L	A1	1105, +0, -5			
		A2				
ii.	Length Inside	B	9000, +7, -3			
iii.	Width Inside	C1	2863, ± 3			
		C2				
		C3				
iv.	Height Inside (Floor level to top)	D1	2024, ± 3			
		D2				
		D3				
v.	Length over coupler face	E	11647, +7, -3			
vi.	Side bearer clearance	-	Nil			
vii.	Width over stanchion	F1	3025, ± 3			
		F2				
		F3				
viii.	Height of door from R.L.(L.V.)	H1	180(Min)			
		H2	180(Min)			
		H3	180(Min)			
		H4	180(Min)			
ix	Height overall from R.L.	G	3293 ±3			

All dimensions are in mm

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

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FINAL WAGON

RDSO

CHECK SHEETS FOR BOGIE OPEN HOPPER WAGON TYPE – BOBYN22.9 WITH BMBS WD-04-BOBYN-2011 (With Latest Amendment)

1.	Wagon No.		2.	Date of offer	
3.	Underframe No.		4.	Name of the Wagon Manufacturer:	
5.	Contract/P.O. placed by		6.	Contract/P.O. No. and date and D.P. (Upto)	
7.	Running Gear				
a)	Bearing Make			Serial Nos.	
b)	Wheel Make			Serial Nos.	
c)	Axle Make			Serial Nos.	
d)	Bogie Make & Sr. Nos.		e)	Air Brake Make (BMBS).	
f)	DV Make & Sr. no.		g)	Brake Cylinder Make & Sr. No. (1) Without Hand Brake (2) With Hand Brake.	
h)	Date of air brake testing		i)	Date of SWTR unit calibration	
8.	Coupler Make & Sr. Nos.		9.	Draft Gear Make & Sr. Nos.	
10.	Tare Weight		11.	Shot blasting/manually cleaned	
12.	D.M. Issue date		13.	TXR fit memo issue date	

14. RAD availed _____

15. Defects Observed _____

16. Remarks _____

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

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PROFORMA FOR SINGLE WAGON AIR BRAKE TEST WITH BMBS SINGLE PIPE / TWIN PIPE

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

S.No.	Check	Specified	Actual
1	Pressure in BP	5 ± 0.1 kg/sq.cm.	
1.a	Pressure in FP	6 ± 0.1 kg/sq.cm.(twin pipe)	
2	Pressure in AR	5 ± 0.1 kg/sq.cm.(for single pipe) 6 ± 0.1 kg/sq.cm.(twin pipe)	
3	Leakage from the system in one minute.	0.1 kg/sq. cm.(max.)	
4	Full service application after charging		
4.1	Brake cylinder filling time a) Empty (Pressure rise from 0 to 2.1 kg/sq.cm.) b) Loaded (Pressure rise from 0 to 3.6 kg/sq.cm.)	18 to 30 sec 18 to 30 sec.	
4.2	Maximum brake cylinder pressure a) Empty b) Loaded	2.2 ± 0.25 kg/sq.cm. 3.8 ± 0.1 kg/sq.cm.	
4.3	Reduction in BP pressure required for full service application.	1.3 to 1.6 kg/sq.cm.	
5	Release after full service application.		
5.1	Draining time (Brake cylinder pressure to fall from 2.2 ± 0.25 kg/sq.cm. to 0.4kg/sq.cm in empty condition and 3.8±0.1kg/sq.cm. to 0.4kg/sq.cm in loaded condition) 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/sq.cm. 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/sq.cm. 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/sq.cm.) b) Loaded (Pressure rise from 0 to 3.6 kg/sq.cm.)	18 to 30 sec. 18 to 30 sec.	
8.2	Maximum brake cylinder pressure a) Empty b) Loaded	2.2 ± 0.25 kg/sq.cm. 3.8 ± 0.1 kg/sq.cm.	

Works Inspector		RDSO Inspector	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
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S.No.	Check	Specified	Actual
9	Piston Stroke Empty condition *	54±10mm	
10	Leakage from brake cylinder after emergency application.	0.1 kg/sq.cm. (max.) within 5 minutes	
11	Automatic exhausting of brake cylinder and control chamber.		
11.1	Apply emergency brakes (i.e. BP=0kg/sq.cm). Check the brake cylinder pressure after giving a brief pull to release hook.	Brake cylinder and control reservoirs should exhaust automatically.	
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/sq.cm.	
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 ± 0.1kg/cm ²	
12.3	APM arm movement from fully retracted position to Bogie side frame top.	91.0 +1/-0 mm	
12.4	Brake cylinder pressure with unrestricted movement of lever arm of APM Device.	Brake cylinder pressure 2.2± 0.25 kg/sq.cm.	
12.5	Restrict the movement of lever arm of APM Device with 12 mm block placed on bogie frame.	Brake cylinder pressure 3.8 ±0.1kg/cm ²	
12.6	Restrict the movement of lever arm of APM Device with 10 mm block placed on bogie frame	Brake cylinder pressure 2.2±0.25 kg/sq.cm.	
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/sq.cm.)	175 ± 30 Sec for C3W D.V 60 to 120 Sec for KEO for Knorr D.V.	
15	CR Charging time (Pressure rise from 0 to 4.8 kg/sq.cm.)	165 ± 20 Sec for C3W D.V 160 to 210 Sec for KEO D.V	

*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.

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

Works Inspector

Date: -

RDSO Inspector

Date:-

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

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BMBS CLEARANCE IN ASSEMBLED CASNUB BOGIE
(BRAKE IN RELEASED CONDITION)

(Reference RDSO Drawing No.-WD-08093-S-02)

Wagon No.

Bogie No. (1)

Sr. No.	Description	Minimum value (mm)	Measured value.	
			L	R
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 clearances) between 3.1 Spring plank & primary brake beam and 3.2 Spring plank & secondary brake beam.	77	L	
			R	
			Total	
4.	Clearance between brake cylinder & brake beam.	30		

Bogie No. (2)

Sr. No.	Description	Minimum value (mm)	Measured value.	
			L	R
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 clearances) between 3.1 Spring plank & primary brake beam and 3.2 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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