



**Government of India
Ministry of Railways**

**CHECKSHEETS
FOR
BOGIE OPEN RAPID DISCHARGE COAL HOPPER WAGON (89.28 Tonnes)
TYPE – BOBRNHSM1-MBS (CC+6t+2t)**

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1.	November 2011	-----	-----	First issue

ISSUED BY

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

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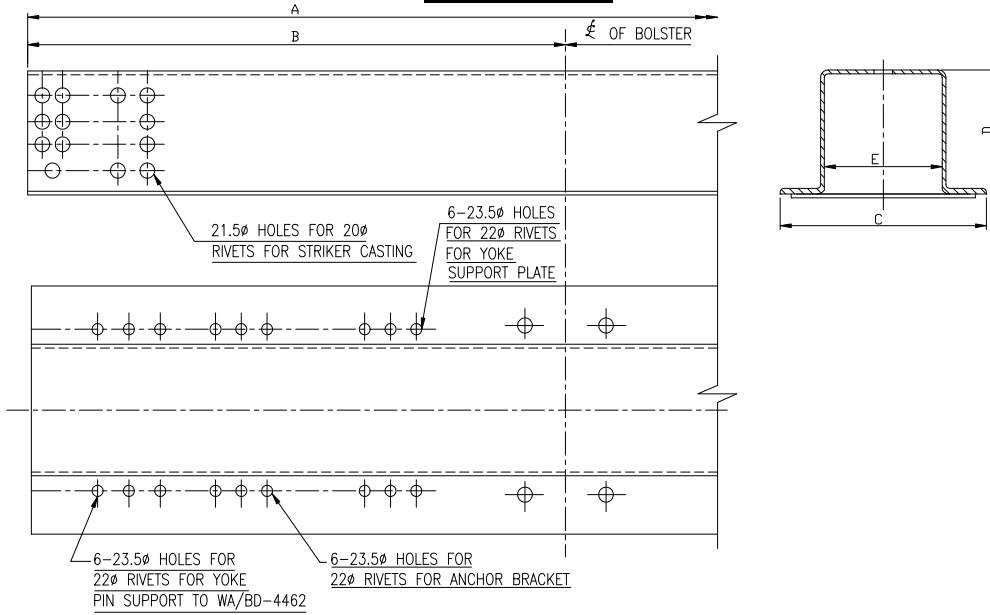
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CENTRE SILL



Drq.No.-WD-09065-S-54

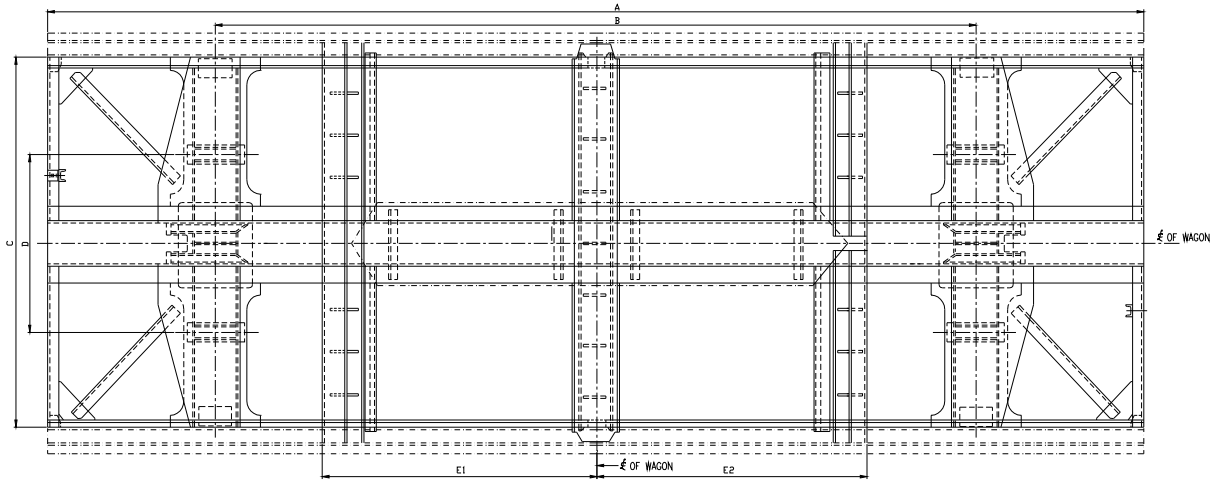
CENTRE SILL NO:			Date:			
SL. NO.	ATTRIBUTE	Works Inspection		RDSO Inspection	Remarks	
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions					
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Overall Length	A	9671, +7,-3			
2.	Overhang Length	B	1440.5, +2 -2			
3.	Overall width of Centre Sill bottom flange	C	530, +1.5, -0			
4.	Overall height and inside width of Centre Sill	D	327, +1.5, -0			
		E	327, +1.5, -0			
5.	Draft Gear Pocket	X	625.5, +0, -1.5			
		Y	327, +1.5, -0			

All dimensions are in mm

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

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UNDER-FRAME



Drq.No.-WD-09065-S-53

UNDERFRAME NO:			Date:			
SL. NO.	STAGE	Works Inspection		RDSO Inspection	REMARKS	
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions					
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1..	Length over head stock	A	9671, +7,-3			
2.	Distance between bolster bogie centre	B	6790, ±2			
3..	Width over solebar	C	3135, +3,-3			
4.	Distance between side bearers centre	D	1474±2			
5.	Distance from C.L.of wagon to end of end ridge	E1	2445±3			
		E2				
6.	Diagonal Difference		≤ 5			
7.	Camber		Nil			

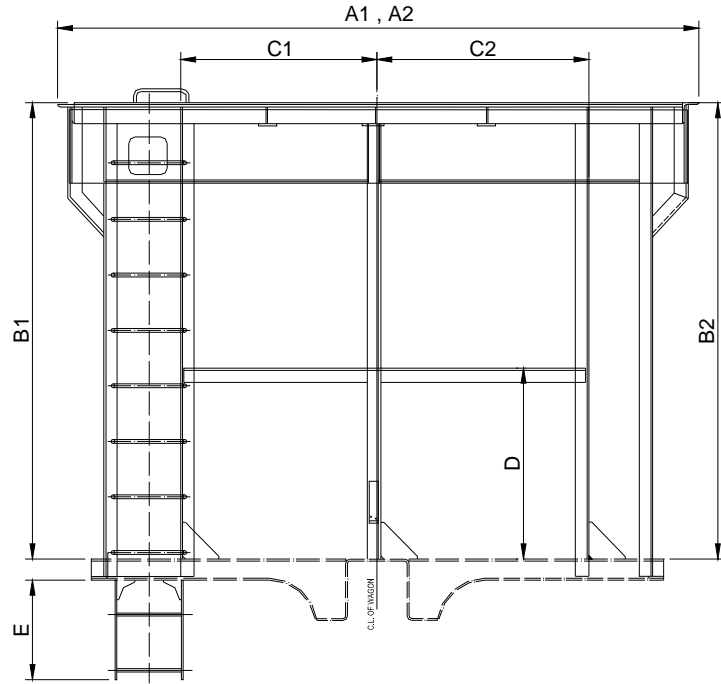
All dimensions are in mm

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

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BODY END



Drq.No.-WD-09065-S-62

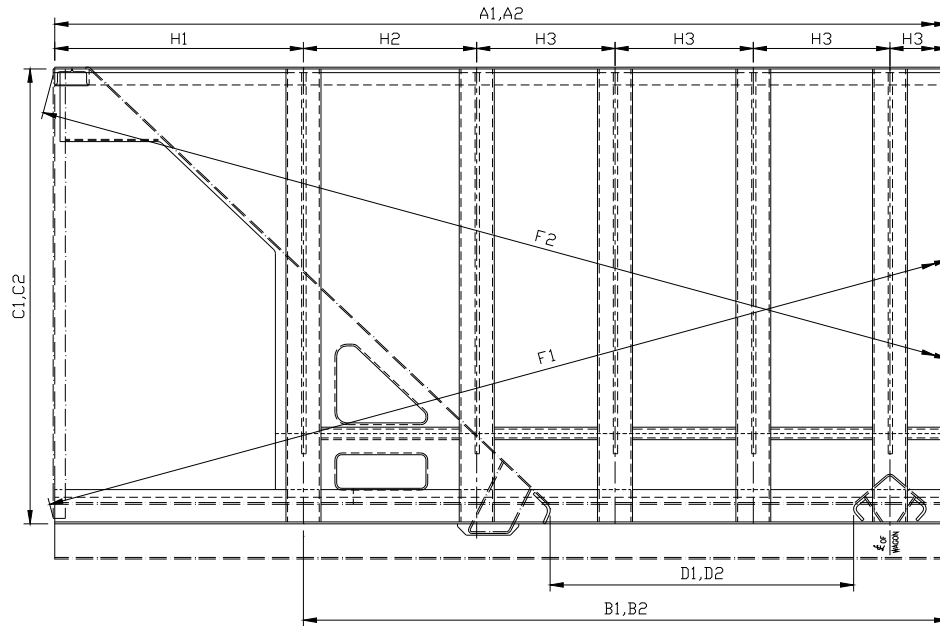
SL. NO.	STAGE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions					
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Width over side top coping	A1	3500± 3			
		A2				
2..	Inside height from top centre sill	B1	2466± 3			
		B2				
3.	Distance between stanchion	C1	1085± 1.5			
		C2				
4.	Distance between top of vertical tie angle and top of headstock	D	1025± 1.5			
5.	Height of ladder	E	530± 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



Drq.No.-WD-09065-S-59

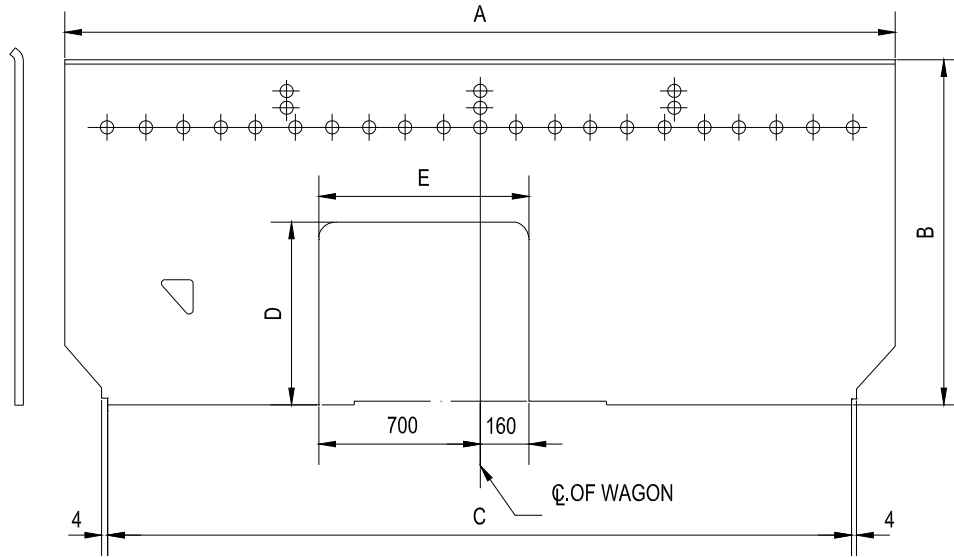
BODY SIDE NO:			Date:			
SL. NO.	STAGE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions			As follows		
	LOCATION	Nominal Dimensions & Allowable Deviation	Actual Dimension		Remarks	
			Works Inspection	RDSO Inspection		
.1	Distance between end top coping	A1	9671, +7,-3			
		A2				
2.	Distance between bolster bogie centre.	B1	6790, +5,-2			
		B2				
3.	Overall height from bottom of solebar	C1	2580, ± 3			
		C2				
4.	Door opening(Horizontal)	D1	1720, +0,-2,			
		D2	1720, +0,-2,			
5.	Distance between side stanchion	H1	1440.5, ±2			
		H2	995			
		H3	800			
6.	Distance between corners.	F1	≤ 5			
		F2				

All dimension are in mm

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

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VERTICAL SUPPORT PLATE (X-END)



Drq.No.-WD-09065-S-60

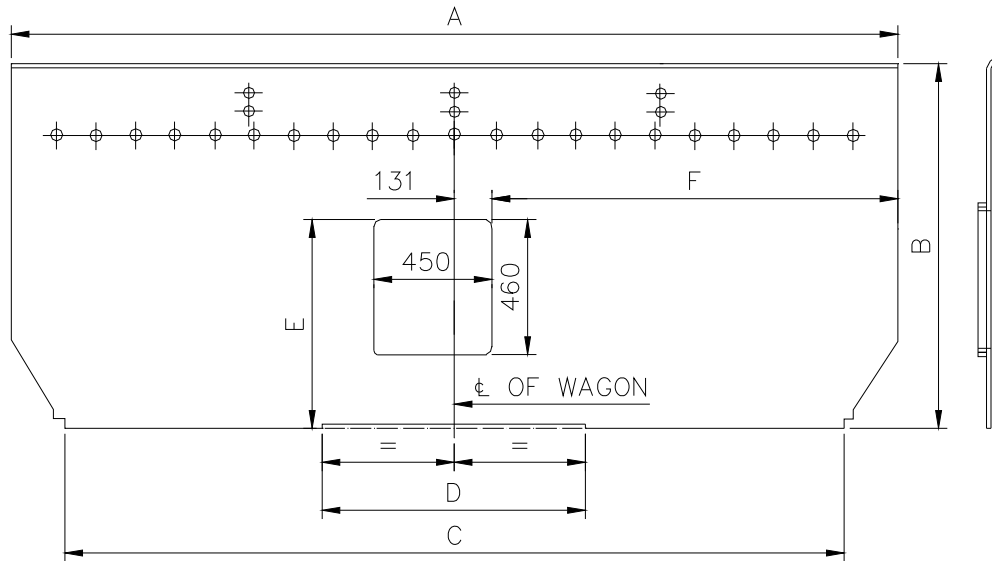
VERTICAL SUPPORT PLATE (X-END) NO:			DATE:		
SL. NO.	STAGE	Works Inspection	RDSO Inspection		Remarks
1.	Fitment of all components				
2.	Welding				
3.	Dressing				
4.	Dimensions	As follows			
	LOCATION	Nominal Dimensions & Allowable Deviation	Actual Dimension		Remarks
			Works Inspection	RDSO Inspection	
1.	Overall width (Upper)	A 3340, +3,-3			
2.	Overall height	B 1315, +2,-2			
3.	Overall width(Lower)	C 2985+3,-3			
4.	Height of Cutting	D 500			
5.	Width of cutting	E 860			

All dimensions are in mm

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

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VERTICAL SUPPORT PLATE (Y-END)



Drq.No.-WD-09065-S-61

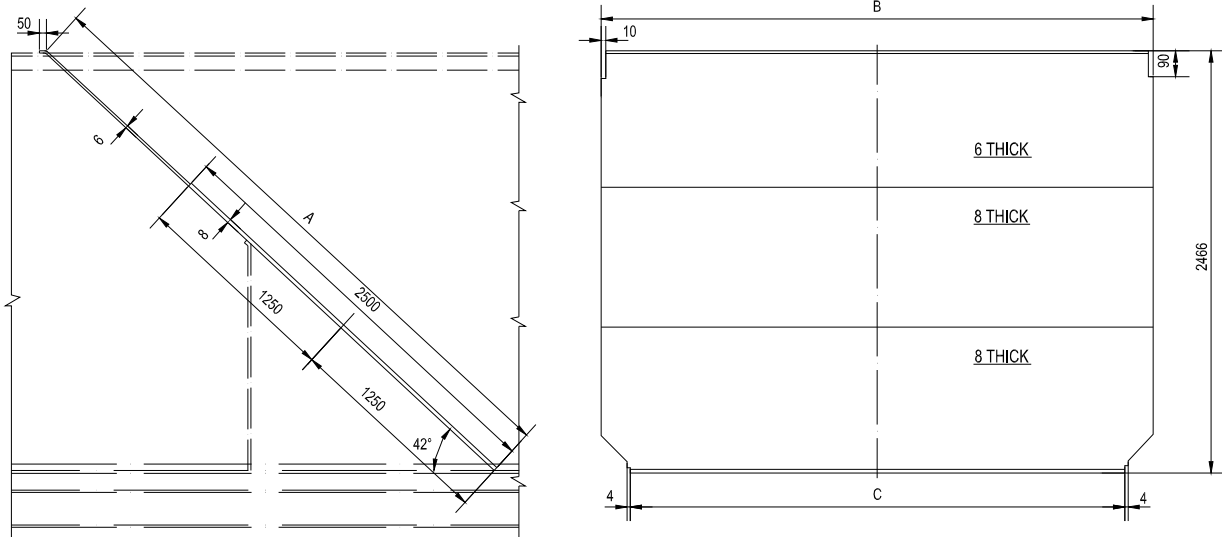
VERTICAL SUPPORT PLATE (Y-END) NO:			DATE:			
SL. NO.	STAGE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Welding					
3.	Dressing					
4.	Dimensions	As follows				
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Overall width (Upper)	A	3340, +3,-3			
2.	Overall height	B	1315, +2,-2			
3.	Overall width(Lower)	C	2985,+3,-3			
4.	Lenght of Cutting	D	1000,+2,-0			
5.	Width of cutting	E	820 +2,-2			
6.	Distance between end and cutting	F	1539,+2,-2			

All dimensions are in mm

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

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END SLOPE PLATE



Drq.No.-WD-09065-S-60.61

END SLOPE PLATE 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	
1.	Overall length	A	3677, +3,-3			
2.	Overall width (Upper)	B	3340, +3,-3			
3.	Overall width (Lower)	C	2985,+3,-3			

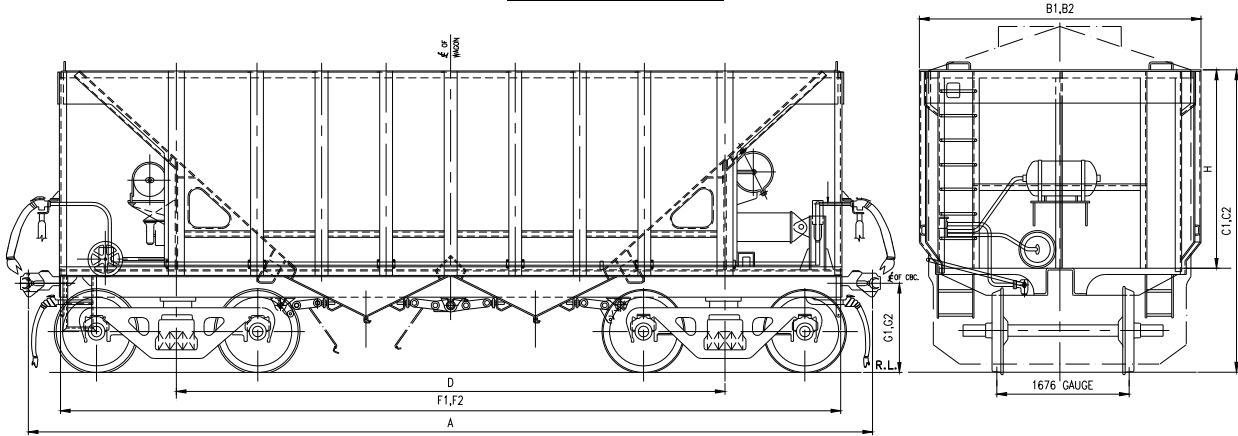
All dimensions are in mm

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

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FINAL ASSEMBLY



Drq.No.-WD-09065-S-51

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.	Slot Blasting (level SA2)					
9.	Painting					
10.	Lettering					
11.	Dimensions	As follows				
	LOCATION		Nominal Dimensions & Allowable Deviation	Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
i.	Length over coupler face	A1	10600,+7,-3			
ii.	Overall Width	B1 B2	3500,± 3			
iii.	Overall Height (From R.L. To top)	C1 C2	3735,± 3			
iv.	Bogie Centre	D1	6790, ± 2			
v.	Overall Length Over Head Stock (End Sill)	F1 F2	9671,+7,-3			
vi.	Coupler height from R.L.	G1 G2	1105,+0,-5			
vii.	Height Inside (Centre Sill level to top)	H	2466,± 3			
viii.	Side Bearer Clearance	-	Nil			

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 SHEET FOR BOGIE OPEN RAPPID DISCHARGE COAL HOPPER WAGON TYPE - BOBRNHSM1-(MBS)

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	
f)	DV Make & Sr. no.		g)	SAB Make & Sr. No.	
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.....

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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No.	Check	Specified	Actual
9	Piston stroke Empty condition *	54±10 mm	
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	
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.	
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.	
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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