



**Government of India
Ministry of Railways**

**CHECKSHEETS
FOR
BOGIE ANHYDROUS LIQUID AMMONIA TANK WAGON
(80.1 Tonnes)
TYPE – BTALN (Variant-B) i.e. BTALNM**

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

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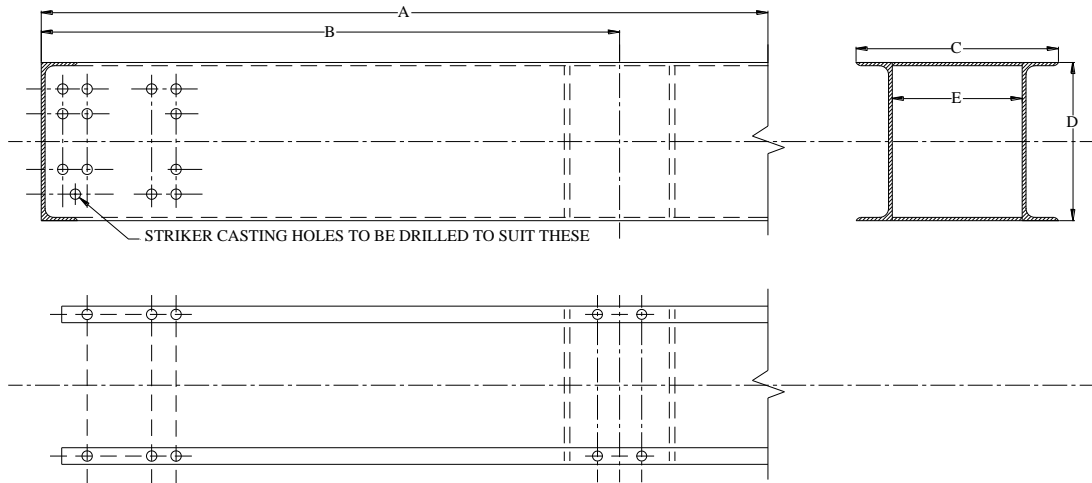
FINAL WAGON CHECK SHEET TYPE BTALNM

1.	Wagon No.		2.	Date of offer	
3.	Under frame No.		4.	Name of the Wagon Manufacturer:	
5.	Contract/P.O. placed by		6.	Contract/P.O. No. and date	
7.	Delivery period (upto)		8.	Return Date	
9.	Running Gear				
	a) Bearing Make		i)	j)	
			ii)	ii)	
			iii)	iii)	
			iv)	iv)	
	b) Wheel Make		i)	i)	
			ii)	ii)	
			iii)	iii)	
			iv)	iv)	
	c) Axle Make & Serial Nos.		i)	i)	
			ii)	ii)	
	d) Bogie Make & Sr. Nos.	i)	e) Air Brake Make		
		ii)			
	f) DV Make & Sr. no.		SAB Make & Sr. No		
	g) Date of air brake testing		h) Date of SWTR unit calibration		
10.	Date of pneumatic test		11.	Date of Hydraulic test	
12.	Name of Inspection authority of Barrel & date of acceptance.				
13.	Coupler Make & Sr. Nos.	i)	14.	Draft Gear Make & Sr. Nos.	i)
		ii)			ii)
15.	Tare Weight		16.	Shot Blasting Date	
17.	D.M. Issue date		18.	TXR fit memo issue date	
19.	RAD Availed				
20.	Defects observed				

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

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CENTRE SILL



REF. DRG. NO.- WD-84058-S-05

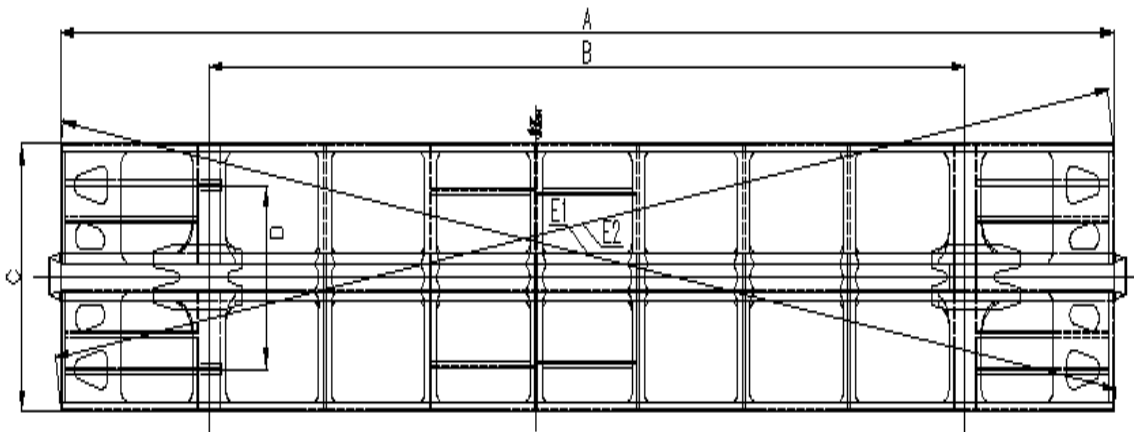
Centre Sill No.:		Date:				
SL. NO.	ATTRIBUTE	Works Inspection		RDSO Inspection	Remarks	
1.	Fitment of all components					
2.	Riveting					
3.	Welding/ Huck Bolt					
4.	Dressing					
5.	Dimensions					
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Length of Centre Sill	A	16580 +7 -3			
2.	Distance between headstock to bolster	B	2515			
3.	Width of Centre Sill	C	507			
4.	Height of Centre Sill	D	300			
5.	Inner distance of Centre Sill	E	327 +1.5 -0.0			

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-14002-S-54

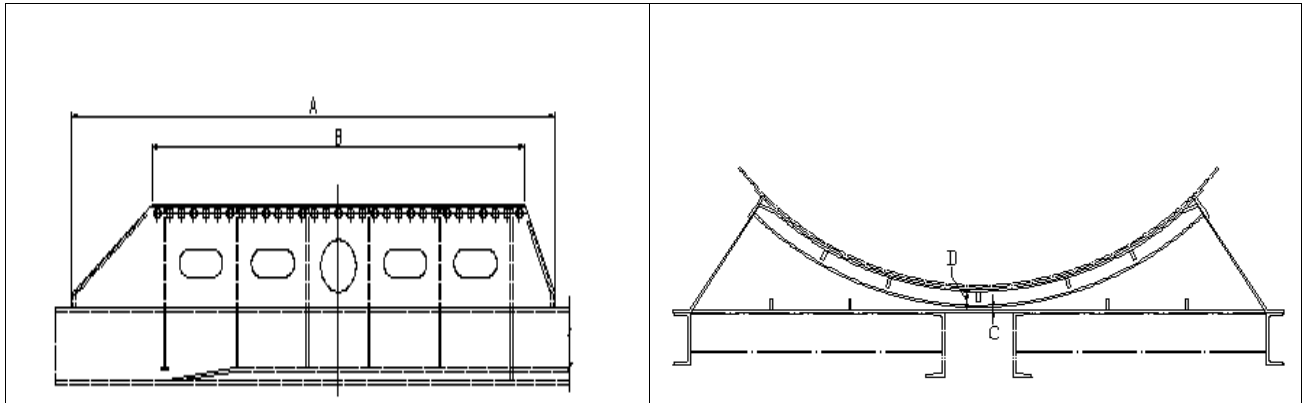
Under frame No.:		Date:				
Sl. No.	STAGE	Works Inspection		RDSO Inspection	Remarks	
1.	Fitment of all components					
2.	Welding/Huck Bolt					
3.	Dressing					
4.	Dimensions					
5.	Anti-corrosive paint					
6.	Manual cleaning of under frame					
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Length over Head Stock	A	16600 +7 -3			
2.	Distance over Bolster center	B	11570 +5 -2			
3.	Width over Sole Bar	C	2865 ± 3			
4.	Distance between Side Bearer Centre	D	1474 ± 2			
5.	Diagonal Difference over Head Stock	(E1 & E2)	≤ 5			
6.	Draft gear pocket		625.5 + 0 -1.6 X 327+1.5 - 0.0			

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.- WCS-7004-S-54

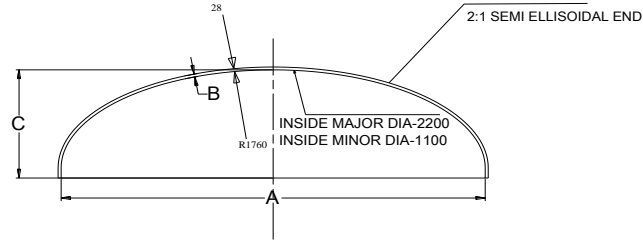
Cradle Assembly No:			Date:			
SL. NO.	STAGE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Welding/Huck Bolt					
3.	Dressing					
4.	Dimensions					
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspectio	RDSO Inspection	
1.	Overall Cradle length	A	5000 ± 3			
2.	Cradle Head Length	B	3950 ± 3			
3	Clearance between top of Center sill to bottom of Barrel	D	132 (without Insulation)			
		C	30 (with Insulation)			

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. - WCS-7004-S-53

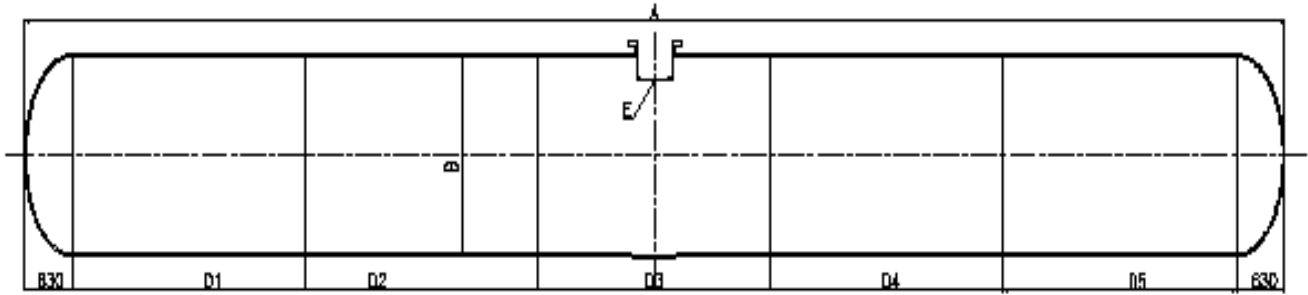
Barrel End No.:			Date:			
SL. No.	STAGE	Works Inspection		RDSO Inspection		Remarks
1.	Fitment of all components					
2.	Dressing					
3.	Dimensions					
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Inner Diameter of Semi Ellipsoidal Barrel End	A	2200			
2.	End plate Thickness	B	28 (Nominal) 25 (minimum)			
3.	Depth of Semi Ellipsoidal Barrel End	C	630			

All dimensions are in mm

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

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BARREL



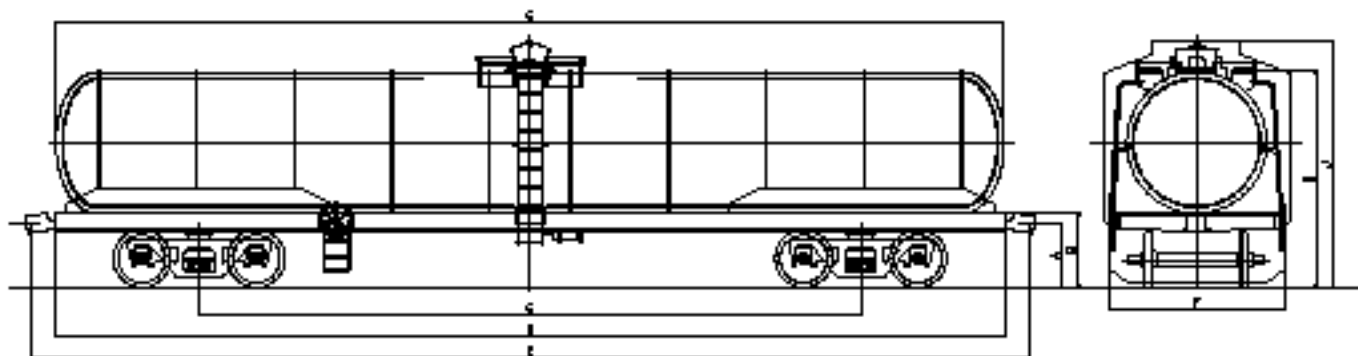
REF. DRG. NO.-WCS-7004-S-53

Barrel No.:		Date:				
S. No.	STAGE	Works Inspection		RDSO Inspection	Remarks	
1.	Fitment of all components					
2.	Welding/Huck Bolt					
3.	Dressing					
4.	Dimensions					
	LOCATION	Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspection	RDSO Inspection	
1.	Overall length of the barrel (outside)	A	16375 +10 -3			
2.	Inside diameter of barrel	B	2200			
4.	Barrel Shell Width	D1, D2, D3, D4 & D5	3023			
6.	Inside diameter of manhole	E	470 ± 2			

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

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FINAL ASSEMBLY**REF. DRG. NO.-WD-14002-S-53**

Wagon No.		Under frame No.		Date:		
S.N o.	STAGE	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 Testing. ii) Hand brake Testing.					
7.	Painting					
8.	Lettering					
4.	Dimensions					
LOCATION		Nominal Dimensions & Allowable Deviation		Actual Dimension		Remarks
				Works Inspecti	RDSO Inspection	
1.	Coupler height from R.L	A	1105 + 0,-5			
2.	Height of top of sole bar from rail level	B	1257			
3.	Bogie center	C	11570 + 5, -2			
4.	Length over head stock	D	16600 +7,-3			
5.	Length over coupler faces	E	17529 +7,-3			
6.	Overall width over hand brake wheel	F	3050 ± 3			
7.	Length over Jacket Sheet	G	16578 +7, -3			
8.	Height of top of platform from RL	H	3921 ± 3			
9.	Overall height (from RL to top of dome)	J	4265 ± 3			

All dimensions are in mm

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

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CHECK SHEET FOR BARREL OF BTALN WAGON**ATTACH THIRD PARTY INSPECTION CERTIFICATE FOR THE FOLLOWING**

Sl. No .	DESCRIPTION	WHETHER ATTACHED
1	NAME OF INSPECTION AGENCY.	
2	APPROVING AUTHORITY.	
3	CERTIFICATION OF MATERIAL.	
4	CERTIFICATION THAT FABRICATION OF BARREL IS AS PER IS: 2825 -1969 (WITH LATEST AMENDMENT).	
5	CERTIFICATION OF RADIOGRAPHY.	
6	CERTIFICATION OF STRESS RELIEVING OF BARREL.	
7	CERTIFICATION OF PNEUMATIC TESTS.	
8	CERTIFICATION OF HYDRSTATIC TESTS.	
9	CERTIFICATION OF ALL DOME FITTINGS FUNCTIONING.	
10	CERTIFICATION OF MATERIAL AND FABRICATION OF CRADLE.	
11	CERTIFICATION OF PROPER MOUNTING OF BARREL ON UNDER FRAME AND RIVETTING THEREOF.	
12	CERTIFICATION OF CORRECT SURFACE PREPARATION AND APPLICATION OF PRIMER PAINT ON THE BARREL & ITS ATTACHMENTS	
13	DATE OF BARREL CLEARANCE BY THIRD PARTY INSPECTION.	
14	DIMENSION OF BARREL.	
15	INSPECTION REPORT OF DISHED END.	

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

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CHECK SHEET FOR MARKING, COUPLER, HAND BRAKE and AIR BRAKE

Wagon No.:		U/F No.:	Date:	
S. No.	ATTRIBUTES	ACCEPTANCE LIMIT	WORKS INSPN.	RDSO INSPN.
1	Check for paint, thickness & finish	Total minimum thickness of primer & finishing paint shall be 120 microns as per G-72 (Latest Rev & amendment). Paint surface shall be free from blistering, brush mark and peeling.		
2	Lettering & marking for size, location & punch mark.	As per Drg. No.WD-14002-S-62 & 63 (latest alteration)		
3	COUPLER			
3.1	Height from Rail Level	1105 +0 -5		
3.2	Operation of knuckle with operating handle	Full knuckle throw lock to lock.		
3.3	Articulation of coupler body	Free movement.		
4	HAND BRAKE			
4.1	Apply hand brake (by one person only) and striking all wheels with a Hammer.	There should not be ringing sound.		
4.2	Release the hand brake and apply crow bar on one end of brake block to take up all slack.	All brake blocks must be released. Gap between the brake block and wheel tread not to be less than 23.6 mm (5.9 x 4)		
5	AIR BRAKE & SLACK ADJUSTER			
5.1	Distance between the control rod head and adjuster barrel (A)	Must be 70 +2 - 0		
5.2	Dimension (E) i.e. the distance between the end of protection tube and a fixed mark on the slack adjuster pull rod.	575 ±10		
5.3	Apply air brake and then release the same. Apply crow bar on one end of brake block to take up all slack	Gap should not be less than 23.6 mm. (5.9 x4)		
5.4	Rotate the brake slack adjuster in clock-wise direction (looking from control rod end) to decrease the slack. Apply and release the air brake twice.	Gap between the brake block and wheel tread as measured should be 23.6 +1 - 0		
5.5	Now rotate the barrel in anticlockwise direction. Apply and release the air brake once	Gap between the brake block and wheel tread as measured should be 23.6 +1,- 0		
6	AIR BRAKE EQUIPMENT			
	Full service application			
6.1	Pressure in BP	5.0 ± 0.1 Kg/ cm ²		
6.2	Pressure in AR	5.0 ± 0.1 Kg/ cm ²		
6.3	Leakage from the system	0.1 Kg/cm ² in 1 minute		
6.4	Brake cylinder filling time (pressure rise from 0 to 3.6 Kg/ cm ²)	18 to 30 Sec.		
6.5	Maximum B.C. pressure in Kg/ cm ²	3.8 ± 0.1 Kg/ cm ²		
6.6	Reduction in B.P. pressure required for full service application.	1.3 to 1.6 Kg/ cm ²		

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S. No.	ATTRIBUTES	ACCEPTANCE LIMIT	WORKS INSPN.	RDSO INSPN.
7	RELEASE AFTER FULL SERVICE APPLICATION			
7.1	Draining time: B.C pressure to fall from 3.8 ± 0.1 to 0.4 Kg/cm^2 .	45 to 60 sec.		
8	SENSITIVITY OF BRAKES			
8.1	Isolate brake pipe 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 seconds	Brake should apply within 6 seconds.		
9	INSENSITIVITY OF BRAKES			
9.1	Isolate brake pipe from main line, Check the response of brakes when brake pipe pressure is reduced at least equal to 0.3 Kg/cm^2 in 60 seconds	Brake should not apply		
10	EMERGENCY APPLICATION			
10.1	Brake cylinder filling time (pressure rise from 0 to 3.6 Kg/cm^2).	18 to 30 sec.		
10.2	Maximum B.C pressure in Kg/cm^2 .	$3.8 \pm 0.1 \text{ Kg/cm}^2$		
10.3	Piston stroke in mm			
11	Leakage from Brake Cylinder after Emergency application.	0.1 Kg/cm^2 within 5 minutes.		
12	QUICK RELEASE AND ISOLATION			
12.1	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.		
12.2	Bring isolating valve of D.V. to off position.	Auxiliary reservoir should also exhaust.		
12.3	Check any (minimum) twenty number of APD fittings.	Both legs of cotter are split at 90 degree (approx). Split pin legs are opened at 180 degrees (approx). Tack welding of cotter/split pin with washer/nut with bolts is adequate.		
13	AR Charging time (Pressure rise from 0 to 5 Kg/cm^2)	175 ± 30 sec for C3W DV		
		60 to 120 sec for KEO DV		
14	CR Charging time (Pressure rise from 0 to 4.8 Kg/cm^2)	165 ± 20 sec for C3W DV		
		160 to 210 sec for KEO DV		

Note- **Serial No. 13 & 14 to be checked at time of Prototype Wagon Only.**

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

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