FREIGHT STOCK

STC/SPJ

FREIGHT STOCK

Rolling stock used exclusively for transport of goods is termed as freight stock. Freight Stock are broadly classified either according to their under gear or according to utility.

Classification according to under gear:

- Four wheeler wagon
- Bogie wagons

Four wheeler wagons:

At present only Brake van is in service, other 4 wheeler wagons like tank wagon and CRT wagons are phased out.

Bogie wagons:

There are four different types of bogies used in wagons.

Diamond frame bogie, Cast steel Bogie, UIC fabricated bogie, CASNUB Bogie

Classification according to utility:

Open wagons, Covered wagons, Flat wagons, Hopper wagons, Well wagons, Container wagons, Tank wagons, Brake vans

Open wagons:

These are wagons are used for transportation of coal, ore, limestone's etc. which does not require protection from rain. The wagons are provided with flap doors for ease of loading/unloading of consignment.

Covered wagons:

The consignments which required to be protected from rain etc; are transported in covered wagons. These wagons generally carry food grains, cement, fertilizers, fruits & vegetables etc.

Flat wagons:

These wagons are without side walls and are generally used for carrying steel coils, billets, rails sleepers etc.

Hopper wagons:

These are special wagons designed for Rapid discharge from bottom or side. These are used for transporting coal and ballast.

Well wagons:

These wagons have well shaped under frame and are used for larger consignments like military tanks, heavy equipments etc.

Container wagons:

These are special flat wagons designed for handling containers.

Tank wagons:

These are wagons designed to carry liquid consignment like petroleum products, milk, edible oils, etc.

Brake vans:

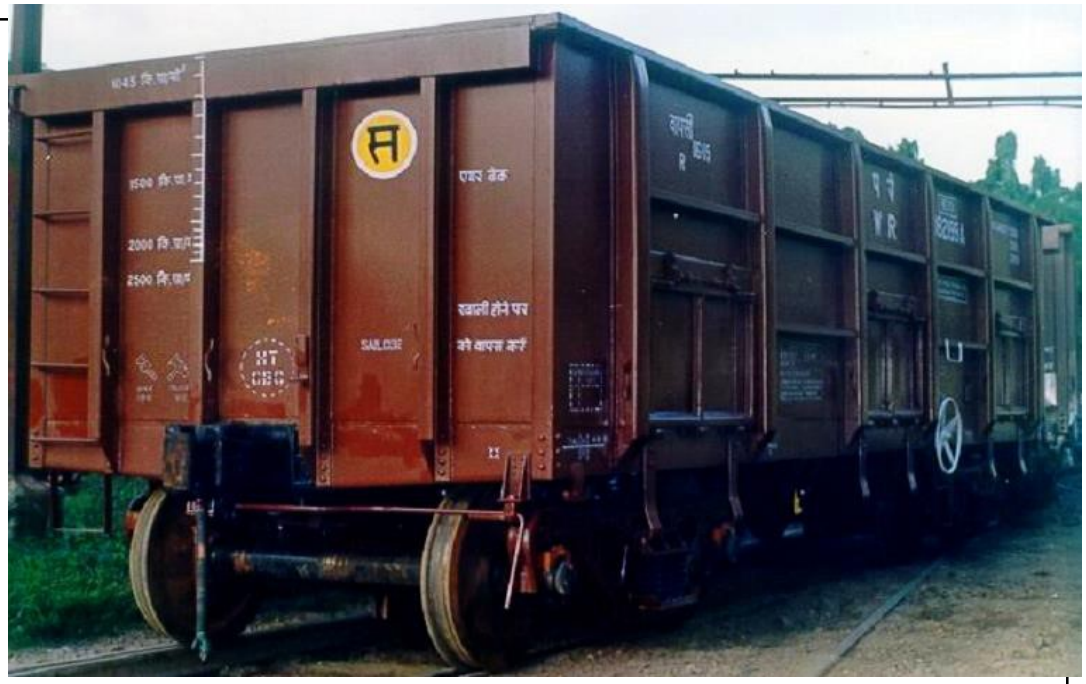
These are guards van used with freight trains as last vehicle

OPEN WAGONS

BOY: Designed in 1967 for heavy minerals. Axle Load - 22.9t. Cast Steel Bogie. It has no doors. Speed 65/75 Kmph.

BOY EL: Introduced in 2006 for operation at 25t Axle Load. Bogie –Casnub 22NLC. Differentiated from BOY by an Olive Green Band. Speed restricted to 50/65 Kmph.

BOXN: Designed in 1980 for coal. Axle Load - 20.32t. CASNUB Bogie, Speed 75/80 Kmph.



BOXN M1: In 2005 for increasing the CC up to C+8+2t, suspension of BOXN is augmented by providing additional springs. A caption "Fitted with additional springs for Axle Load of 22.2t" in the centre of the wagon in golden yellow is printed to differentiate. Bogie side frame is also painted with Golden Yellow band. Speed 70/80 Kmph for C+6+2t & 60/80 Kmph for CC+8+2t.

BOXN EL: Introduced in 2006 for operation with 25t Axle Load. Bogie - Casnub22 NLC. Differentiated from BOXN by an Olive Green Band. Speed restricted to 50/65 Kmph.

BOXN HS: Designed in 2000. Variant of BOXN with Casnub 22HS bogie for increasing speed. Differentiated from BOXN by a Golden Yellow band. Speed 100/100 Kmph.

BOXN HSM1: In 2005 for operation up to CC+8+2 t, suspension of BOXNHS modified by providing two additional inner springs. Differentiated from BOXNHS by a caption "Fitted with additional springs for Axle Load 22.82t" in centre of the Golden Yellow band. Bogie side frame also provided with Golden Yellow band. Speed 75/90 Kmph for CC+6+2t and 60/90 Kmph for CC+8+2t.

BOXN CR: Designed in 1999. Material of body of BOXN changed to stainless steel (IRS: M 44). Other parameters are same as BOXN.

BOXN R: Designed in 2007. It is upgraded rehabilitated version of BOXN. Entire superstructure of MS replaced with Stainless steel (IRS: M 44). Height is 177 mm more than BOXN. Carrying capacity increased by 6t. Nine stanchions provided, instead of 6 in BOXN. Axle Load - 22.9t.

BOXNHA: This wagon was designed in 2001 for transportation of coal with an axle load of 22.1t. Bogie - IRF 108HS. Its height is more than BOXN. Speed at 20.32t and 22.1t Axle Load 100/100 Kmph and at 22.82t Axle Load 60/65 Kmph.

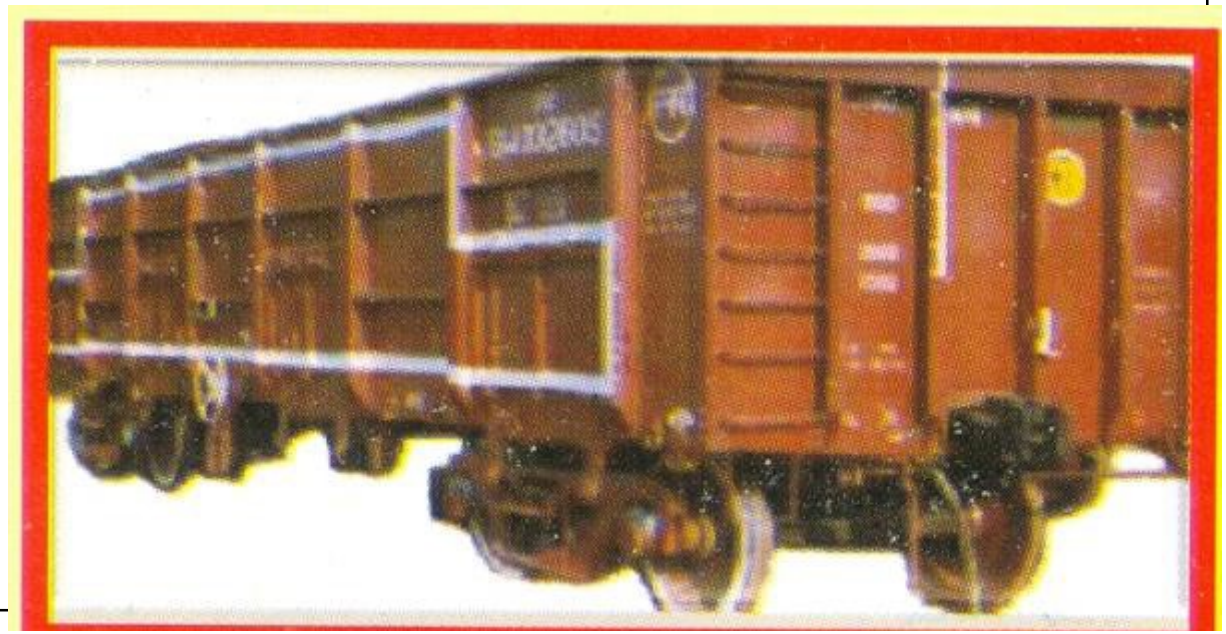
BOXN LW: Designed in 1988 to meet the requirement of higher pay to tare ratio. Axle Load - 20.32t. Casnub22HS bogie, Width is 50 mm more than BOXN. Stainless steel (IRS: M44) & corton steel (IRS: M41) used in body and under frame and Cold Rolled Formed (CRF) sections were used in design to reduce the tare weight of the wagons. Manufacturing of this wagon started in 2005. Speed 100/100 Kmph.

BOXN LWM1: In year 2008, design and Suspension of BOXNLW modified for operation up to CC+8+2t. Speed 60/65Kmph for both CC+6+2t and CC+8+2t.

BOXN HL: Designed in year 2005, 250mm longer, 76mm higher & 50mm wider than BOXN. Axle Load - 22.9t. Casunub22HS Bogie. Stainless steel (IRS:M44) and CRF section used in body and under frame to reduce tare weight (20.6t). Has been provided with improved quality coupler and draft gears. PU painting is used. Speed 75/100 Kmph.

BOST: Designed in 2000 for long steel products. Axle Load - 20.32t. CASNUB 22HS Bogie. Speed 75/80 Kmph.

BOST M1: In 2006 for operation up to CC+6+2t, it is modified by providing additional springs. Differentiated from BOST by a caption "Fitted with additional springs for Axle Load 22.32t" in centre of the wagon in Golden Yellow. Speed 60/65 Kmph.



BOST HS: Designed in 2004. Variant of BOST with Casnub 22HS (Mod-1) bogie for increased speed. It is differentiated from BOST by a Golden Yellow Band. Speed 100/100 Kmph.

BOST HS M1: In 2006 for operation up to CC+6+2t. it is differentiated from BOSTHS by a caption "Fitted with additional spring for Axle Load 22.32t" in centre of the Golden Yellow Band. Speed 60/80 Kmph.

BOST HS M 2: Designed in 2007 for increasing speed. Axle load 22.32t. Variant of BOSTHS with CASNUB 22HS (Mod-II). Speed 60/100

COVERED WAGONS

BCN: Designed in 1984 for transportation of bagged commodities. Axle Load 20.32t. present stock is mostly with CASNUB 22NLB, Speed 75/80 Kmph.

BCN M 1: Introduced in 2006 for operation up to C+8+2t. It is differentiated from BCN by a caption "Fitted with additional springs for Axle Load 22.82t" in centre of the wagon in Golden yellow. Golden Yellow Band is provided on bogie side frame also. Speed 75/80 Kmph for CC+6+2t and 65/80 Kmph for CC+8+2t

BCN A: Designed in 1990 by reducing the length of BCN wagon and increasing height, there by increasing the number of wagons in a rake to 44. Axle Load 20.32t. Bogie is CASNUB 22NLB, Speed 80/80 Kmph.

BCNA M 1: Introduced in 2006 for operation up to CC+8+2t. It is differentiated from BCNA by a caption "Fitted with additional springs for Axle Load 22.82 t" in centre of the wagon in Golden yellow. Golden Yellow Band is provided on bogie side frame also. Speed 75/80 Kmph for CC+6+2t and 65/80 Kmph for CC+8+2t

BCNA HS: Designed in 2001, variant of BCNA with CASNUB 22HS bogie for increased speed. It is differentiated from BCNA by a Golden yellow band. Speed 100/100 Kmph.

BCNA HSM 1: Introduced in 2006 for operation up to CC+8+2t. It is differentiated from BCNAHS by a caption "Fitted with additional springs for Axle Load 22.82t" in centre of the wagon in Golden yellow. Golden Yellow Band is provided on bogie side frame also. Speed 75/100 Kmph for CC+6+2t and 65/100 Kmph for CC+8+2t.

BCN HL: Designed in2006 for bagged commodities. Axle Load 22.9t. Length is further reduced and both width and height increased compared to BCNA. Hence number of wagons per rake increased to 58. Bogie is of CASNUB 22 HS type. Stainless steel (IRSM: M44) and CRF sections used in body and under frame construction to reduce the tare weight.

Has been provided with improved quality coupler and draft gears. PU painting of Phirozi blue colour is used.

Speed 65/65 Kmph

BCC/BCC A/BCC B:

BCC variants for carrying bulk cement (not packed in bags). Loading is through ports at the top; unloading via chutes at the bottom.

NMG: The class code 'NMG' stands for 'New Modified Goods' These are single-decker automobile carriers constructed out of old ICF and BEML passenger coaches. The design is not entirely uniform but generally all the windows and doors on the side walls are removed and the opening closed. End body is modified by providing doors to allow vehicles to be driven into it.

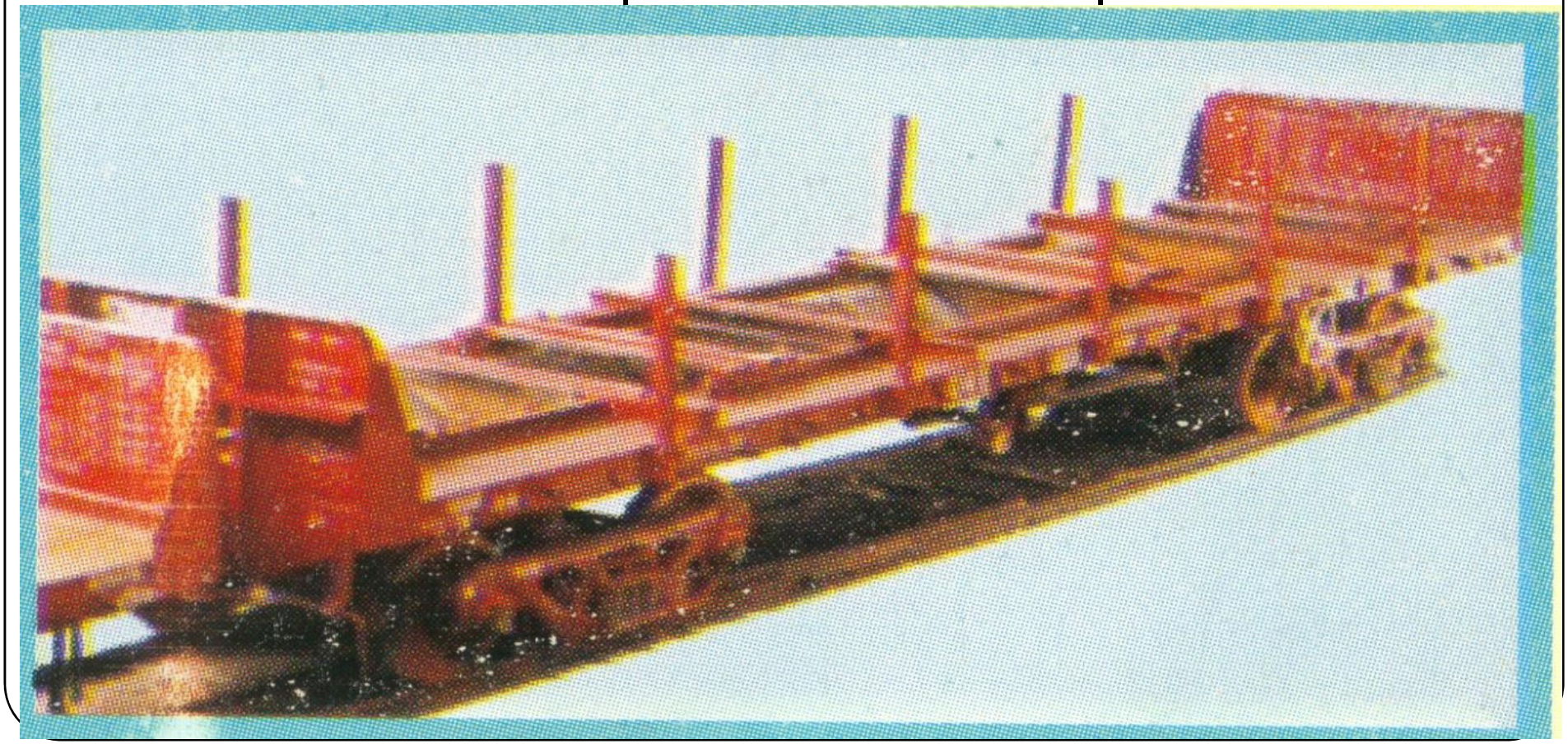
FLAT WAGONS

BRN: Designed in 1992 for transportation of rails and heavy steel products. Axle Load 20.32t. provided with CASNUB 22 NLB, Speed 75/80 Kmph.

BRN A: Designed in 1994, improved version of BRN. The design is riveted cum welded construction. Higher pay to tare ratio, compared to BRN. Other parameters are same as BRN. Speed 75/80 Kmph.

BRN AHS: Designed in 2001. Variant of BRNA with CASNUB22HS bogies for increased speed. Speed 100/100 Kmph.

BFNS: Designed in 2002 especially for transportation of hot rolled/cold rolled coils, plates, sheets and billets etc. This is the first wagon designed in Indian Railways to carry point load. Provided with CASNUB 22HS bogie, Axle Load 20.32t. Speed 100/100 Kmph.



BRHNEHS: This bogie rail wagon was designed in 2004 for use of Engineering department of various Zonal Railways for Track Relaying Train (TRT), specially for loading RCC sleepers. Axle Load 20.32t. provided with CASNUB 22HS Bogies. The design was provided with Transition CBC and air brake system. Speed 50/65 Kmph.

HOPPER WAGONS

BOBSN: Designed in 1994 for transportation of iron ore, Axle Load 22.9t. Provided with modified CASNUB 22NLB bogie. It is provided with side discharge. Speed 75/75 Kmph.

BOBSNM1: In 2006 for operation at A/L 25t, suspension of BOBSN modified by providing 4 additional inner springs, Bogie renamed as Casnub22NLC. Speed 50/60.

BOBR: Designed in 1986 for transportation of Coal, it is provided with bottom discharge. Axle Load 20.32t. Provided with CASNUB 22NLB bogie, Speed 80/80 Kmph.

BOBRM1: Introduced in 2006 for operation up to CC+6+2t. It is differentiated from BOBR by caption "Fitted with additional springs for A/L 22.32t" in centre of wagon in Golden Yellow. Golden Yellow Band is provided on bogie side frame also. Speed 70/75 Kmph.

BOBRN: Designed in year 1991 by reducing the length of BOBR wagon to increase the number of wagons in a rake to 58 (from 53 of BOBR). Axle Load 20.32t. provided with CASNUB NLB bogie. Speed75/70 Kmph.

BOBRNM1: Introduced in 2006 for operation up to CC+6+2t, it is differentiated from BOBRN by a caption "Fitted with additional springs for A/L 22.32t" in centre of wagon in Golden Yellow. Golden Yellow Band is provided on bogie side frame also. Speed 70/80 Kmph.

BOBRNHSM1: Designed in 2006 for Axle load of 22.32t. Variant of BOBRN with modified CASNUB 22HS Bogie for increased speed. Instead of BOBRNHS this (BOBRNHSM1)was manufactured. Speed 60/100Kmph.

BOBRNEL: Introduced in 2008 for operation at Axle Load of 25t. It is differentiated from BOBRN by an olive Green band. Speed restricted to 50/65 Kmph.

BOBYN: Designed in year 1996 for transportation of ballast for engineering department. It has chutes at side & bottom for discharging ballast on both sides and centre of rails. Provided with CASNUB 22NLB Bogie, Axle Load 20.32t. Speed 75/75 Kmph.

BCBFG: Bogie covered Hopper Wagon for Food Grain. This wagon has been designed for transportation of food grain in bulk. It is provided with CASNUB-22HS Mod-I bogie. There are 2 Nos. gravity discharge gates at bottom for unloading. Axle Load 21.82t, speed 65/65 Kmph.

TANK WAGON

BTPN: Bogie Tank Wagon. This wagon was designed in 1986 for transportation of petroleum products i.e. Kerosene, petrol, diesel and naphtha. Axle Load 20.32t. CASNUB 22 NLB bogie. Speed 80/80 Kmph.

BTFLN: Improved version of BTPN, designed to increase the pay load. This tank is without complete under frame; hence the tare weight is reduced from 27t to 23.53t. Pay load is increased from 54.28t to 57.75t increasing the pay/tare ratio from 2.0 to 2.45. the volume is also increased from 70.4 m3 to 76 m3. since the under frame is not available the brake system is also modified to Bogie mounted brake system, with rigging components only on bogies.

BTPGLN: This wagon is designed for transportation of LPG. Provided with Air brake and CASNUB 22NLB bogie, Axle Load is 20.32t. Speed 75/80 Kmph.

BTALN: Bogie Ammonia Tank Wagon. This tank wagon was designed in 1984 for transportation of anhydrous liquid ammonia. Provided with UIC Bogie, Axle Load is 20.32t. Speed 65/65 Kmph.

BTCS: Bogie Caustic Soda Tank Wagon. This wagon was designed in 1980 for transportation of Caustic soda. Bogie CASNUB 22W. Axle Load 20.32t. Speed 65/65 Kmph.

BTAP: Bogie Alumina Tank Wagon This wagon was designed in 1982 for transportation of Alumina powder. Present stock is fitted with CASNUB 22NLB bogie, Axle Load 20.32t. Speed 65/65 Kmph.

BRAKE VAN

BVZI: Bogie Brake Van This 8-wheeled brake van was designed in 2004 with ICF bogie to achieve comfort level equivalent to loco for goods guard and capable of running at 100 Kmph. The brake van is 5 meter longer than BVZC brake van.

BVZC: 4 Wheeler Brake Van with Air Brake .This 4-wheeled brake van is fitted with 9 plated laminated bearing springs. Wheel base of 5400 mm. Fitted with cylindrical roller bearing wheels. Auxiliary reservoir capacity is 75 ltrs. Brake cylinder dia 304mm/12 inches.

CONTAINER WAGONS

BFKN: Bogie Container Flat Wagon. Broad gauge Bogie Container flat wagon type BFKN is modified version of BFKI wagons, which are in operation on IR from 1975 for transportation of containers (max pay load of 48t). Operating speed is 75 kmph. Modified BFKN (Air brake & enhanced pay load) wagons can carry payload of 61t.

BLCA/BLCB: Bogie Low Platform Container Flat Wagon.

Designed in 1994 for transportation of 20' & 40' long ISO containers with operation speed of 100 kmph. Lower height of under frame floor from R/L. has been achieved with introduction of hybrid design of bogie frame, bolster and use of smaller diameter wheel in LCCF 20(C) bogie, Axle Load 20.32t. Speed 100/100 Kmph. Provided with Automatic twist lock for securing of containers on the wagon.

Wheel dia – 840 mm, condemn. – 780 mm.

Tare wt (A) - 19.1 t, B – 18.01 t

Pay load – 61 t.

Special features of BLC wagons.

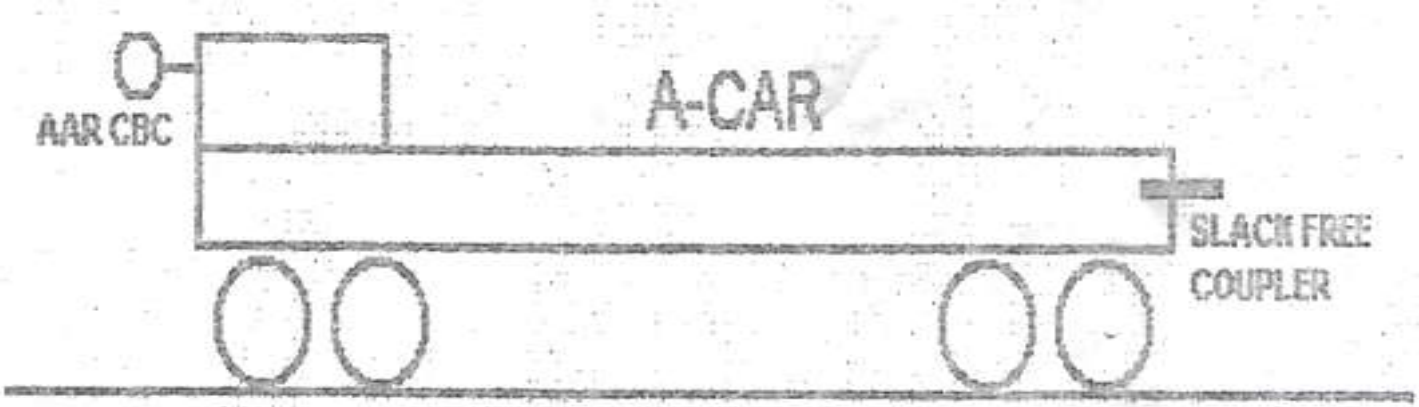
A. These wagons are designed to carry ISO containers with a height of 2896 mm as non- ODC load.

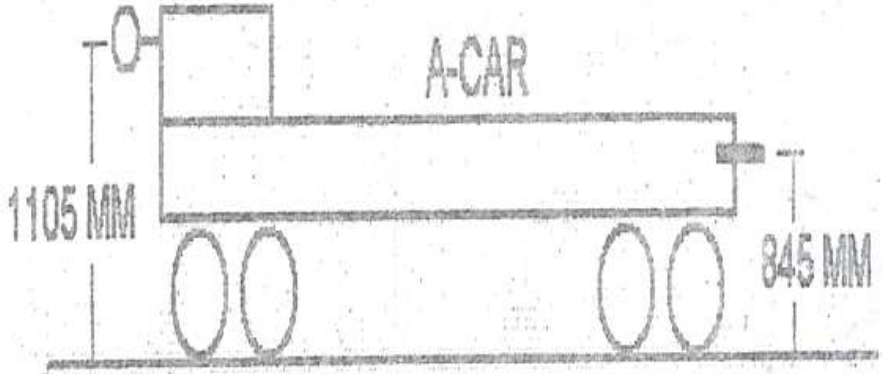
B. These wagons are manufactured in multiple unites. Each multiple units consist of two A-CARS.

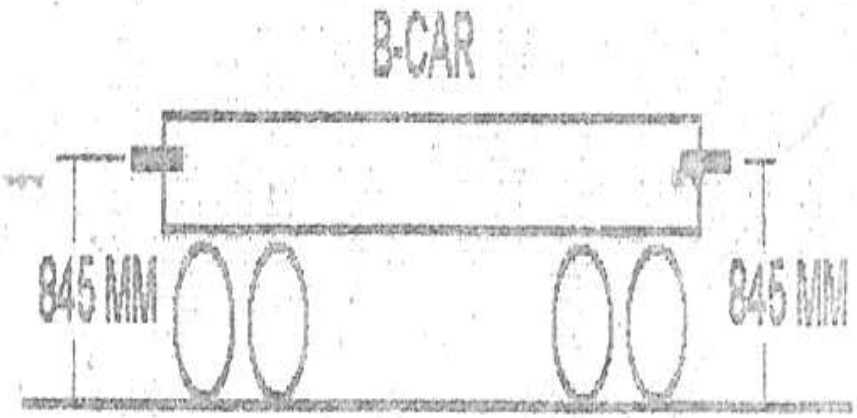
C. The buffer height of outer end of A-CAR is 1105mm and it the inner end is 845mm.

D. Both the ends of B-CARs are having a buffer height of 845 mm .

E. The outer end of A-CAR is provided with AAR CBC coupler and it the inner end is provided with slackness Couplers.



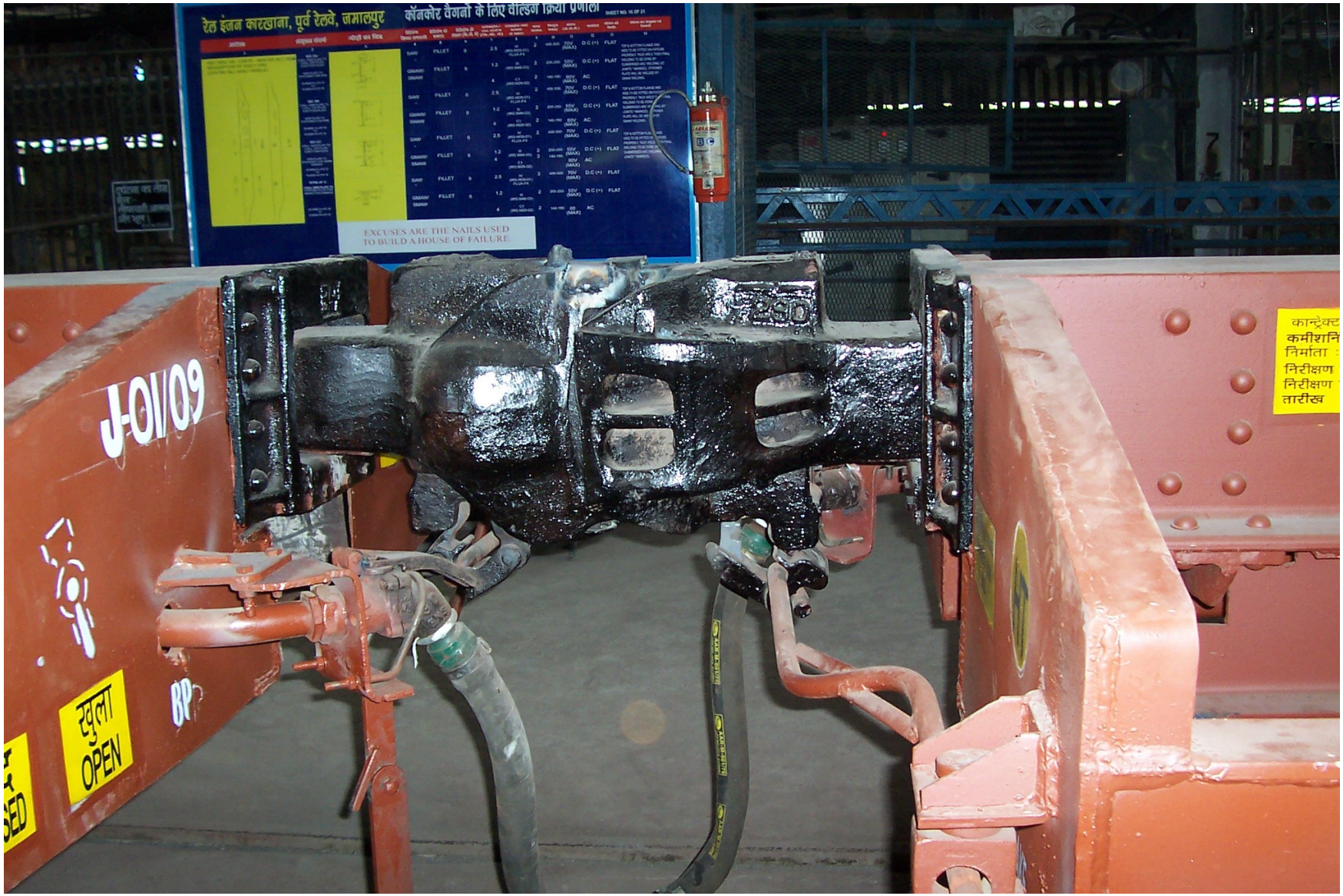




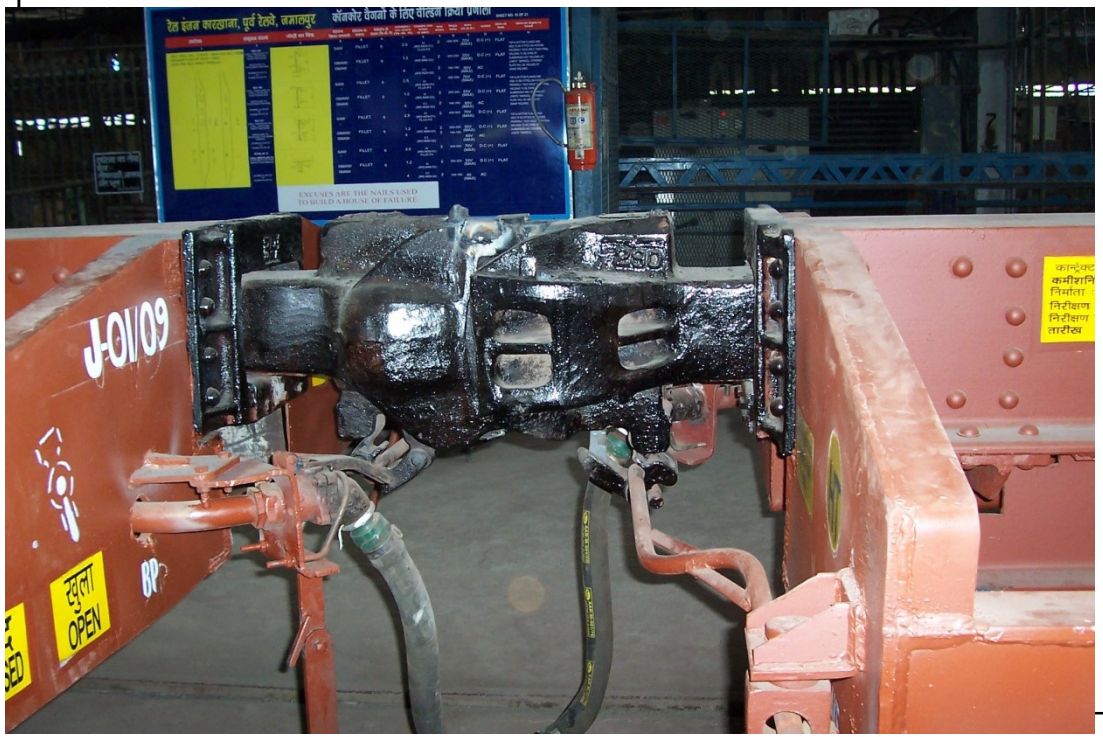
Necessity for introducing BLC

If the ISO containers are loaded on the BFKIBFKN wagons, the overall dimensions exceeds the **Standard moving dimensions of X-class engine** by 254 mm at the top side height, in such a case the load is to be moved as ODC with speed restrictions. This will in turn decreases the speedy movement of containers.

CBC fitting


रेल इंजन कारखाना, पूर्व रेलवे, जमालपुर
कॉनकोर वैगनों के लिए वेल्डिंग क्रिया प्रणाली
EXCUSES ARE THE NAILS USED TO BUILD A HOUSE OF FAILURE
J-01/09
खुला
OPEN
BP

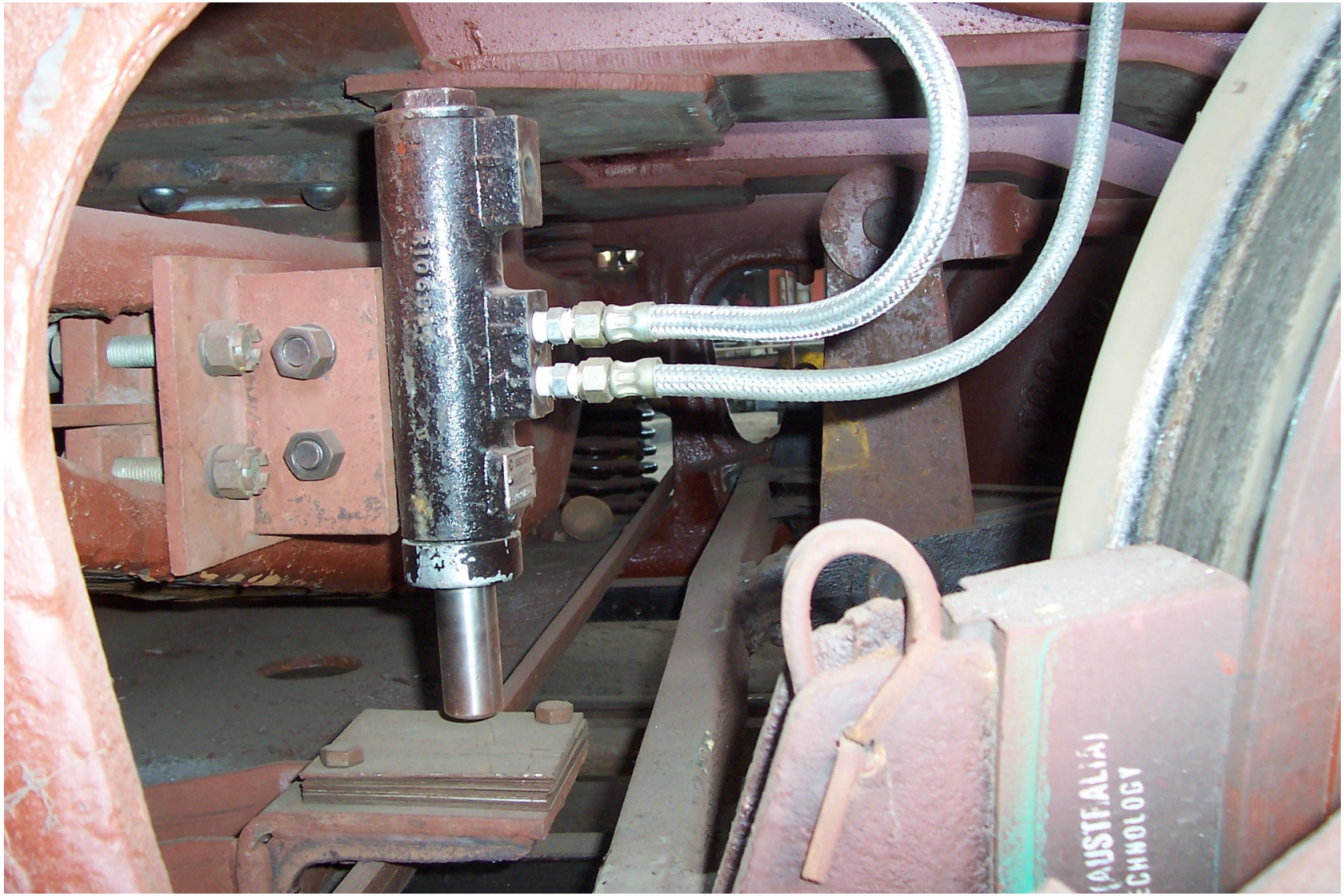
Slack less draw bar fitting



CBC fitting

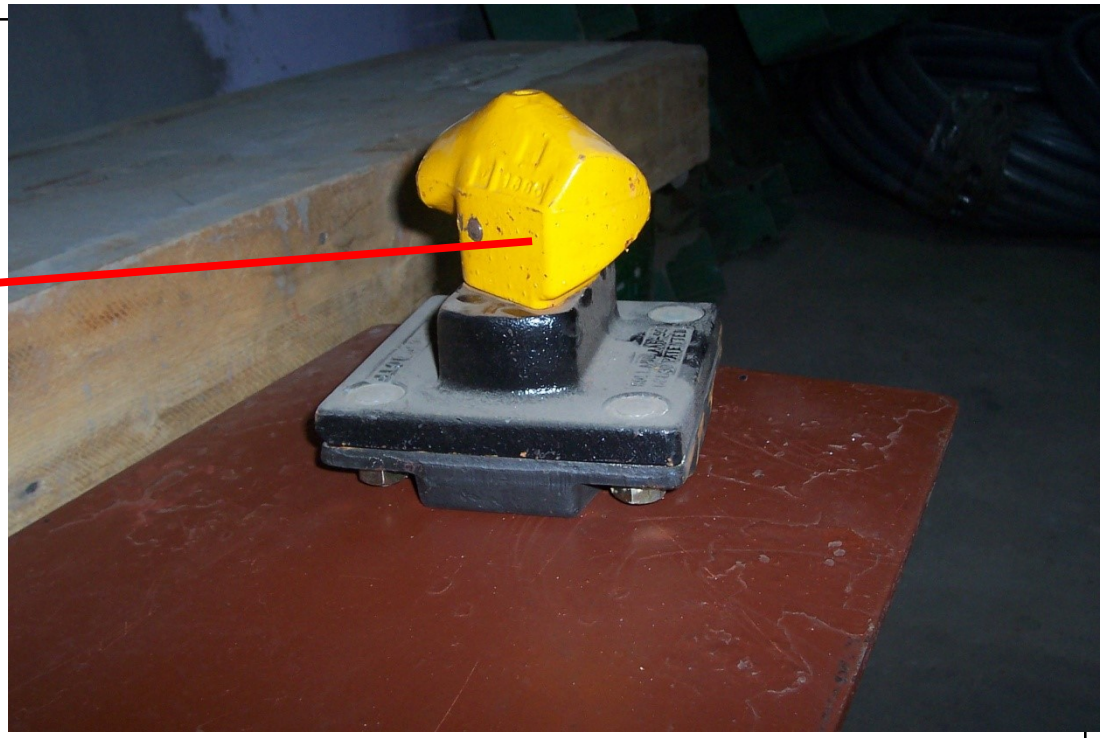
- These wagons are provided with two stage load sensing device which admits a maximum pressure of 2.2kp/sq.cm when the gross load is less than 40 tons and 3.8kg/sq.cm when the gross load exceeds 40 tons automatically.
- The maximum permissible speed is 100KMPH.

Load Sensing Device



- These wagons provided with automatic twisting locks. These locks are designed to lock the containers with the wagons with a force of 600 kgs. It unlocks the container from the wagon with a force of 1000 kgs.
- The floor height of these wagons from the rail level is decreased to 1009 mm from the standard of 1269mm.
- A formation can be formed with 9 multiple units with 45 wagons. The length of each unit is 69 metres approximately.

Automatic Twist locks



Basic characteristics and dimensions

Sl No.	Description	A car	B car
1	Length over H/stock	13625	12212
2	Width over sole bar at c/line	2100	2100
3	Distance between bogie centers	9675	8812
4	Floor height	1009	1009
5	Ht. of CBC from rail level	1105	-
6	Ht. of draw bar from rail level	845	845
7	Wheel base	2000	2000
8	Dia. Of wheel	840/780	840/780

Salient features at a glance

- **Bogie** – High speed cast steel bogie
- **Floor height** – 1009mm which is 266 mm less than IRS wagon height.
- **Axle load** – 20.32 t
- **CC** – 61 t
- **Max. speed** – 100 kmph
- **Unit** – 5 wagons – A CAR-2, B CAR-3.
- **Rake** – 45 wagons in form of 9 units, length of each unit – 69 meters approx.

- **Brake beam** – Bogie is fitted with sliding type brake beam and brake head is the integral part of brake beam. Composition brake blocks are fitted.
- **Air brake system** – single pipe graduated release
  - DV fitted with empty load function
  - Automatic load sensing device (LSD)
  - BC pressure -2.2 in tare and 3.8 kg/cm^2 in loaded condition.
- **Automatic twist locks-** for securing containers for quick loading and unloading

Cast steel Bogie type LCCF 20(C)

- BLC wagons are mounted on two nos. of cast steel bogies **similar to** CASNUB bogies.
- **Salient features** -

  Axle load – 20.32 t

  Wheel dia. – 840(new)/780 mm (worn)

  Wheel base – 2000 mm

  Type of roller bearing – CTRB

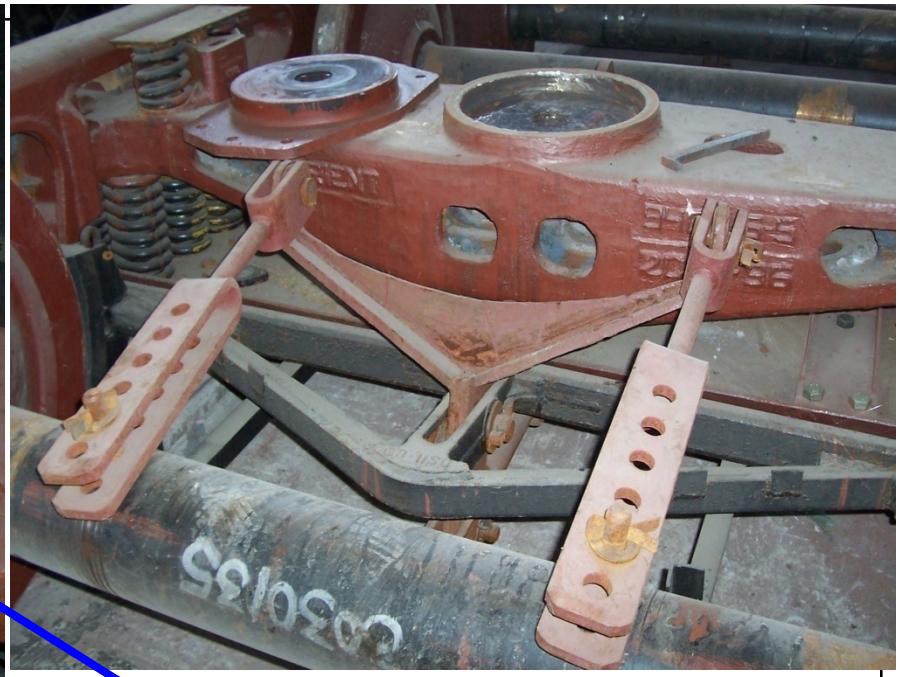
  Distance bet. Journal centers- 2260 mm

  Distance bet. Side bearers – 1750 mm

  Side bearers – Spring loaded side bearers

- **Center pivot** – Flat type
- **Bolster spring group** – Helical springs, inner spring lower than outer spring.
- **Damping**– friction spring arrangement With spring
  - manganese steel wedge
  - friction liners on bolster & side frame.
- **Anti rotation features** – Anti rotation lugs are provided on bolster and simultaneous anti rotation stopper at side frame.
- **LSD** fitted on bolster and spring plank
- **Brake beam** – Unit type fabricated brake beam

LCCF 20 (C)



Centre pivot
rivetted to bolster

Integral flat type
centre pivot

Comparison of 22 NLB &container bogie type LCCF 20(C)

Description	22 NLB	LCCF20 (C)
C/pivot ht. from rail	932 mm	715 mm
Max ht. of side frame from rail	851	786
Bottom of side frame	165	149
Ht. of side bearer top	921	772
Wheel dia	1000/925	840/780
Side frame design	Cast steel design for narrow jaw adapter	Cast steel design for wide jaw adapter
Bolster design	Separate c/pivot	Integral c/pivot
Side bearer	CC pad	Coil spring

Description	22 NLB	LCCF20 (C)
Load bearing coil spring	12 outer,8 inner spring	14 outer,12 inner spring
Snubber springs	4,material IS:3195Gr.60 Si7	4, IS3195 Gr 50 CrMoV4
Brake shoe	Conventional	Non metallic
Adapter	Narrow jaw	Wide jaw
Elastomeric pads	similar	Similar
Side frame key	similar	Similar
Spring plank	similar	Similar

INTRODUCTION TO BLLA/BLLB WAGON :

Bogie Low Platform Longer Container flat (BLL) wagons has been designed jointly by RDSO & RITES for transportation of 22' 24' & 45' containers along with 20' & 40' long ISO containers at an operating speed of 100kmph. Lower height of under frame floor from R.L. has been achieved with introduction of hybrid design of bogie frame, bolster and use of smaller diameter wheel in LCCF 20(C) Bogie.

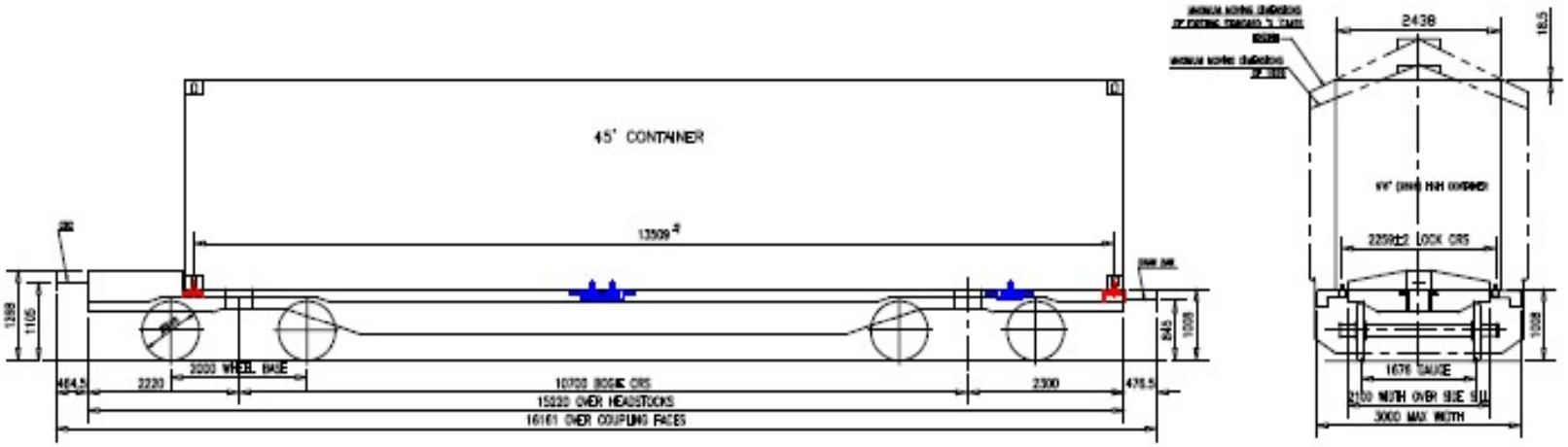
BLLA (A-Car) wagons are placed at extreme end in formation of one unit of 5- cars (with 3 BLLB wagons in middle). Outer end of BLLA wagons are fitted with standard AAR-E/FTYPE Center Buffer Coupler (C.B.C.) and inner ends are fitted with Slackless Draw Bar (S.D.B.). BLLB (B-Car) wagons are placed in middle, in one unit of 5- cars (with outer A-Cars). Both ends of BLLB wagons are fitted with with Slackless Draw Bar (S.D.B.). Wagons are fitted with automatic twist locks to secure containers.

BOGIE LONGER CONTAINER FLAT WAGON 'BLLA'

STANDARD FEATURES OF 'BLLA' WAGON

S.No.	PARTICULARS		BLLA
1	Length over head stock	(mm)	15220
2	Length over couplers	(mm)	16161
3	Length inside	(mm)	-
4	Width over Headstock/Width over Bolster (mm)		2100/2200
5	Height inside/Height(max.)from RL.		1008
6	Bogie centers	(mm)	10700
7	Journal length × dia.	(mm)	144x278
8	Journal centers	(mm)	2260
9	Wheel dia. on tread (New/Worn)	(mm)	840/780
10	Height of C.B.C. from R.L.	(mm)	1105
11	C.G. from R.L. (empty)	(m)	0.604
12	C.G. from R.L. (loaded)	(m)	1.998
13	Floor area	(Sq.M)	-
14	Cubic Capacity	(Cu.M)	-
15	Maximum axle load	(tonne)	20.32
16	Tare Weight	(tonne)	19.8
17	Pay load	(tonne)	61
18	Gross load (Pay+Tare)	(tonne)	80.8
19	Ratio gross load/Tare		4.08
20	Ratio (Pay load to tare)		3.08
21	Track Loading density (tonnes/meter)		5
22	No. of wagons per train of 45 wagons		16
23	Brake System		Air Brake
24	Coupler		C.B.C/S.D.B
25	Bearing		R.B.
26	Maximum Speed	(Loaded) (Empty)	100 kmph 100 kmph

WAGON DIRECTORATE R.D.S.O.	BOGIE LOW PLATFORM LONGER CONTAINER FLAT WAGON	OPERATIONAL CODE 'BLLA'
GAUGE–B.G.	D I A G R A M	TYPE OF WAGON CODE 63



SPECIAL FEATURES

Suitable for carrying 22',24' & 45' long containers along with 20' & 40' long ISO containers.

Wt. OF ASSEMBLY SUB–COMPONENT

Wt. of U'frame	6.79 t.
Wt. of air brake fittings & piping and brake gear on U'frame....	1.1 t.
Wt. of coupling (one end C.B.C & S.D.B. opposite end.....	1.26t

SPEED CERTIFICATE NO:–
MW/SPD/BG Dt. 15.05.2008

REFERENCE:–
DRAWING NO:– 45–A–2001–S/02

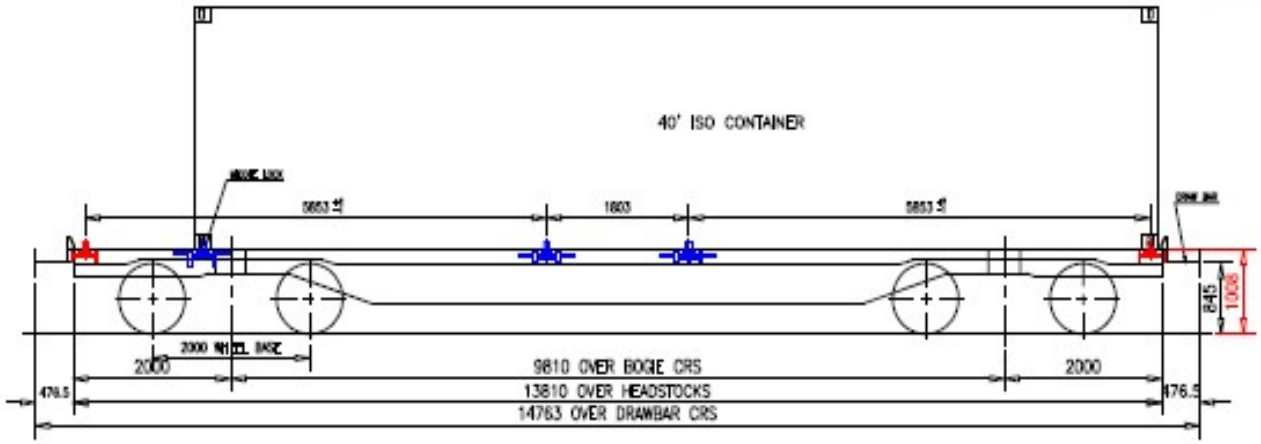
BLLB (B-Car)

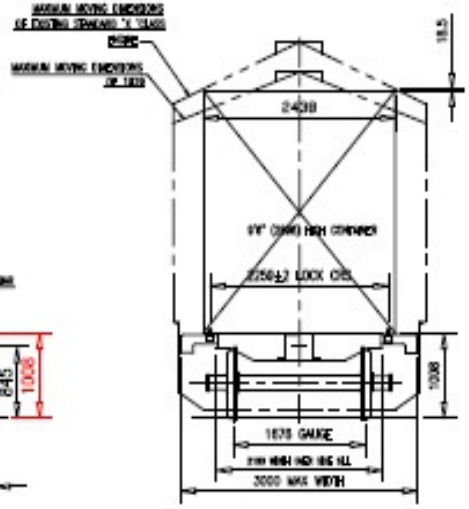
BOGIE LONGER CONTAINER FLAT WAGON 'BLLB'

STANDARD FEATURES OF 'BLLB' WAGON

S.No.	PARTICULARS		BLLB
1	Length over head stock	(mm)	13810
2	Length over couplers	(mm)	14763
3	Length inside	(mm)	-
4	Width over Headstock/Width over Bolster (mm)		2100/2200
5	Height inside/Height(max.)from RL.		1008
6	Bogie centers	(mm)	9810
7	Journal length x dia.	(mm)	144x278
8	Journal centers	(mm)	2260
9	Wheel dia. on tread (New/Worn)	(mm)	840/780
10	Height of C.B.C./S.D.B. from R.L. (mm)		845
11	C.G. from R.L. (empty)	(m)	0.603
12	C.G. from R.L. (loaded)	(m)	2.011
13	Floor area	(Sq.M)	-
14	Cubic Capacity	(Cu.M)	-
15	Maximum axle load	(tonne)	20.32
16	Tare Weight	(tonne)	19
17	Pay load	(tonne)	61
18	Gross load (Pay+Tare)	(tonne)	80
19	Ratio gross load/Tare		4.21
20	Ratio (Pay load to tare)		3.21
21	Track Loading density (tonnes/meter)		5.42
22	No. of wagons per train of 45 wagons		24
23	Brake System		Air Brake
24	Coupler		S.D.B
25	Bearing		R.B.
26	Maximum Speed	(Loaded) (Empty)	100 kmph 100 kmph

WAGON DIRECTORATE R.D.S.O.	BOGIE LOW PLATFORM LONGER CONTAINER FLAT WAGON	OPERATIONAL CODE 'BLLB'
GAUGE-B.G.	D I A G R A M	TYPE OF WAGON CODE 64





SPECIAL FEATURES

Suitable for carrying 22',24' & 45' long containers along with 20' & 40' long ISO containers.

Wt. OF ASSEMBLY SUB-COMPONENT

Wt. of U'frame & floor plates	6.05 t.
Wt. of air brake fittings & piping and brake gear on U'frame	1.1 t.
C.B.C. complete including uncoupling gear	1.2 t.

SPEED CERTIFICATE NO:-
MC/SPD/BG Dt. 05.05.2008

REFERENCE:-
DRAWING NO:- 45-B-2001-S/02

BOGIE CONTAINER FLAT WAGON 'BLCAM'

INTRODUCTION TO BLCAM WAGON :

Modified BLC wagons for carrying enhanced pay load has been coded as BLCM. These wagons are suitable for carrying 20` & 40` long containers. Load in top container has been restricted to maintain C.G. restrictions. BLCAM wagons have been fitted with Miner-Sujan make side bearers, new friction wedges and one additional inner spring per nest for DSC operation with axle load of 22t.

STANDARD FEATURES OF 'BLCAM' WAGON

S.No.	PARTICULARS		BLCAM
1.	Length over head stock	(mm)	13625
2.	Length over couplers	(mm)	14566
3.	Length inside	(mm)	-
4.	Width over Headstock/Width over Bolster (mm)		2100/2200
5.	Height inside/Height(max.)from RL.		1269/1009
6.	Bogie centers	(mm)	9675
7.	Journal length × dia.	(mm)	144x278
8.	Journal centers	(mm)	2260
9.	Wheel dia. on tread (New/Worn)	(mm)	840/780
10.	Height of C.B.C./S.D.B. from R.L. (mm)		1105/845
11.	C.G. from R.L. (empty)	(m)	0.551
12.	C.G. from R.L. (loaded)	(m)	2.66
13.	Floor area	(Sq.M)	-
14.	Cubic Capacity	(Cu.M)	-
15.	Maximum axle load	(tonne)	22
16.	Tare Weight	(tonne)	19.1
17.	Pay load	(tonne)	68.9
18.	Gross load (Pay+Tare)	(tonne)	88
19.	Ratio gross load/Tare		4.61
20.	Ratio (Pay load to tare)		3.61
21.	Track Loading density (tonnes/meter)		6.04
22.	No. of wagons per train of 45 wagons		18
23.	Brake System		Air Brake
24.	Coupler		C.B.C./S.D.B
25.	Bearing		R.B.
26.	Maximum Speed	(Loaded) (Empty)	100 kmph 90 kmph

BOGIE CONTAINER FLAT WAGON 'BLCBM'

INTRODUCTION TO BLCBM WAGON :

Modified BLC wagons for carrying enhanced pay load has been coded as BLCM. These wagons are suitable for carrying 20` & 40` long containers. Load in top container has been restricted to maintain C.G. restrictions. BLCBM wagons have been fitted with Miner-Sujan make side bearers (constant contact side bearer as per drawing no. 40704 of miner sujan made to AAR M 948 specification), new friction wedges and one additional inner spring per nest for DSC operation with axle load of 22t.

STANDARD FEATURES OF 'BLCBM' WAGON

S.No.	PARTICULARS		BLCB
1	Length over head stock	(mm)	12212
2	Length over couplers (mm)		13165
3	Length inside	(mm)	-
4	Width over Headstock/Width over Bolster (mm)		2100/2200
5	Height inside/Height(max.)from RL.		1009
6	Bogie centers	(mm)	8812
7	Journal length x dia.	(mm)	144x278
8	Journal centers	(mm)	2260
9	Wheel dia. on tread (New/Worn) (mm)		840/780
10	Height of S.D.B. from R.L.	(mm)	845
11	C.G. from R.L. (empty)	(m)	0.548
12	C.G. from R.L. (loaded)	(m)	2.695
13	Floor area	(Sq.M)	-
14	Cubic Capacity	(Cu.M)	-
15	Maximum axle load	(tonne)	22
16	Tare Weight	(tonne)	18
17	Pay load	(tonne)	70
18	Gross load (Pay+Tare)	(tonne)	88
19	Ratio gross load/Tare		4.89
20	Ratio (Pay load to tare)		3.89
21	Track Loading density (tonnes/meter)		6.68
22	No. of wagons per train of 45 wagons		27
23	Brake System		Air Brake
24	Coupler		S.D.B
25	Bearing		R.B.
26	Maximum Speed	(Loaded) (Empty)	100 kmph 90 kmph

BCACM: In the year 2007, to meet the immediate requirement of auto car industry, design of existing container flat wagons (A type & B type) modified by provision of a suitable bi-level structure for transportation of auto cars. One rake can carry up to 270 auto cars.

THANKS