



BLC WAGON

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NORTHERN RAILWAY

BLC Wagon

- **Meaning of BLC** – Bogie Low platform container flat wagons.
- Low platform container flat wagon, light weight, all welded skelton design underframe for an optimum tare to payload ratio.
- Wheel dia – 840 mm, condemn. – 780 mm.
- CBC on raised end of A car and slackless draw bar on inner end of A car and on all B cars
- Tare wt (A) - 19.1 t, B – 18.01 t
- Pay load – 61 t.
- Speed – 100 kmph

Necessity for introducing BLC

- If the ISO containers are loaded on the BFKI 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.

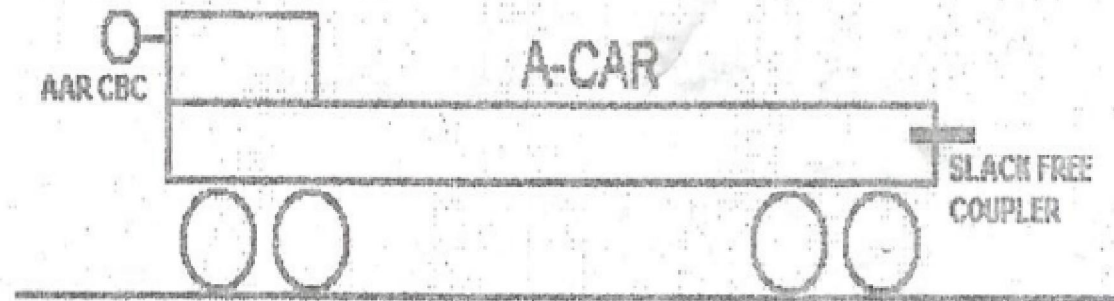
- If the same containers are loaded on the specially made well wagons, the load can very well be moved as Non-ODC, but at either ends of the wagon 1.5 metres of length are necessary to accommodate the CBC couplers. Consequently the length of the wagon is increased by 3 metres (3000 mm). This will inturn reduces the number of wagons on a loop line from 42 for the existing BFKI wagons to 38 resulting in loss of earning capacity.

- So to overcome the above two shortcomings, the BLC wagons are developed with an intention to move the ISO containers as non-ODC load with high speed as well as with more number of wagons for a given length of formation.

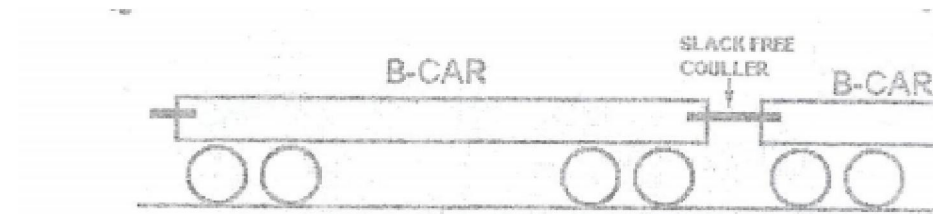
BLC Wagons

- **1. 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.

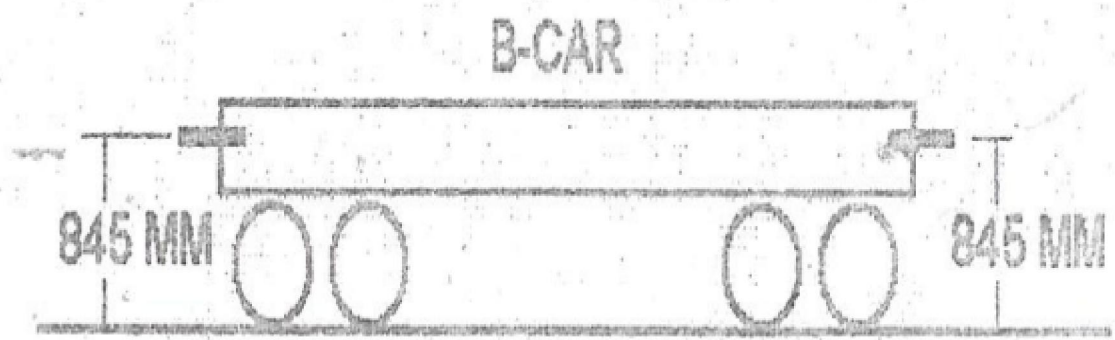
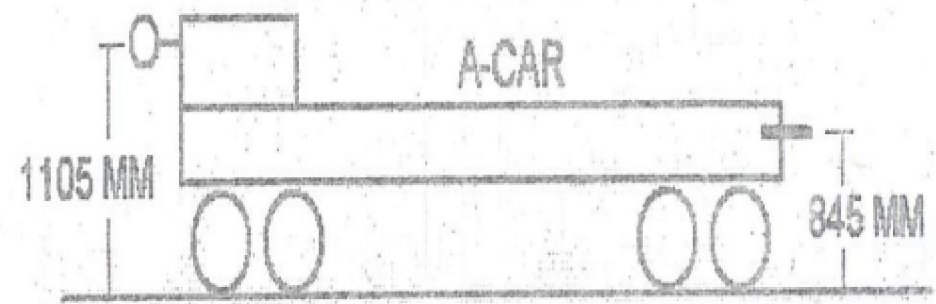
- D. Both the ends of B-CARS are having a buffer height of 845 mm .
- E. The outer end of A-CAR is provided with AAR CBC coupler and it the inner end is provided with slackness Couplers.



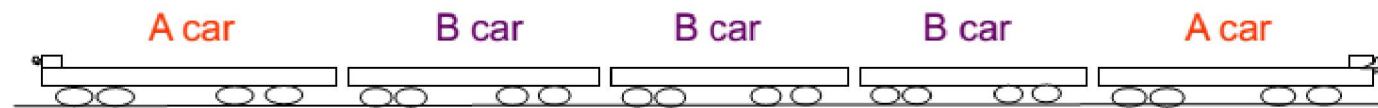
- F. Both the ends of B-CARS are provided with slack less coupler.



G. The overall slack in slackness couplers between the two wagons is only $1\frac{1}{2}$ ", when compared to a slack of $7\frac{1}{2}$ " in the standard AAR CBCS between the two wagons.



One Unit BLC Wagons







Slack less draw bar
fitting

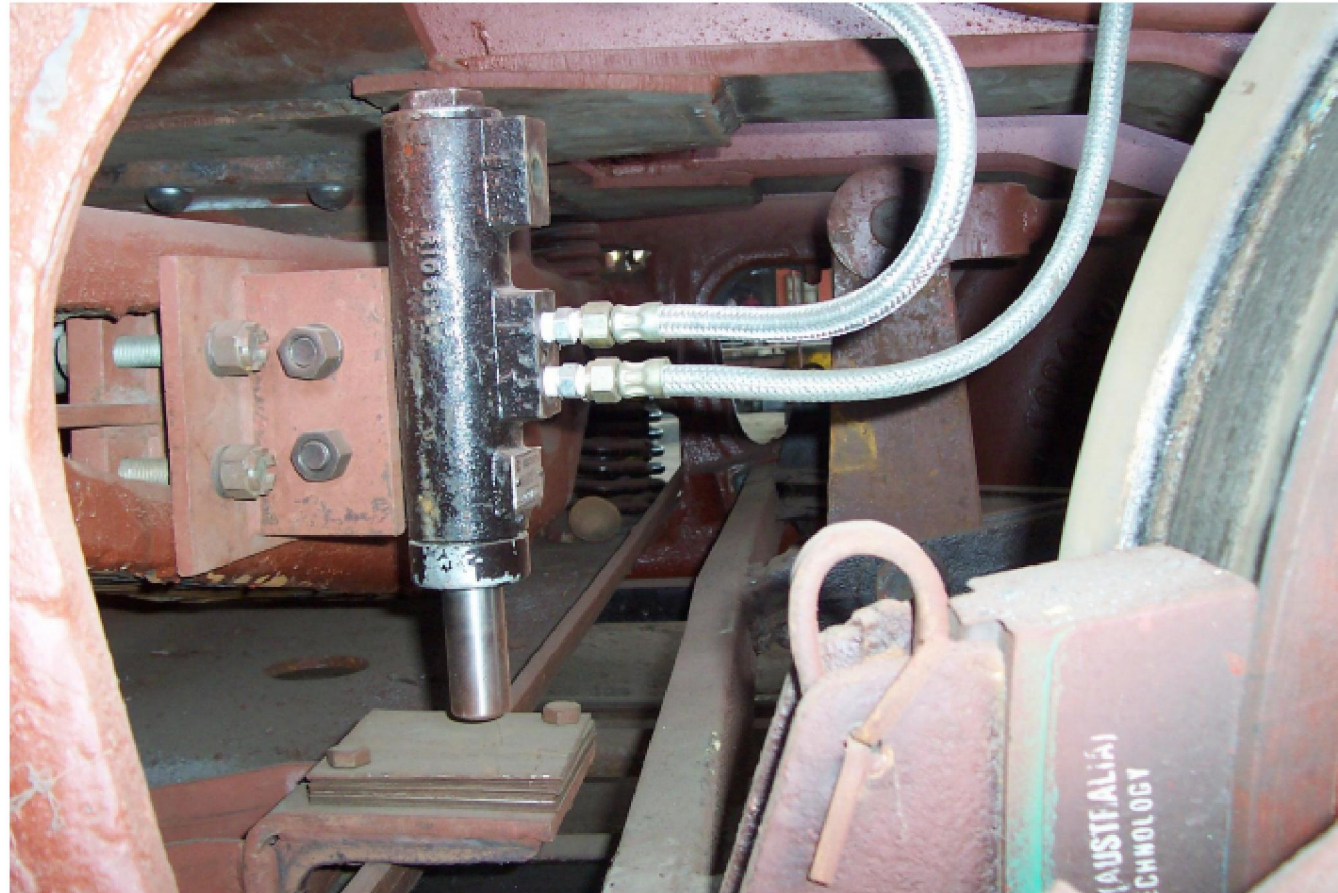


CBC fitting

- 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**



- These wagons are provided with **new hybrid design of bogie frame and bolster**. In order to bring down the plat form height.
- **Note (1)** – Use of L type composition brake blocks are used in order to achieve an emergency braking distance within 1200 m.
- **Note (2)** – One container wagon – sick, the unit of 5 wagons to be disconnected.

Basic characteristics and dimensions

SI No.	Description	A car	B car
1	Track gauge	1676	1676
2	Estimated tare wt.	19.10 t	18 t
3	Pay load	61 t	61 t
4	Gross wt.	80.10 t	79 t

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

Cast steel Bogie type LCCF 20(C)

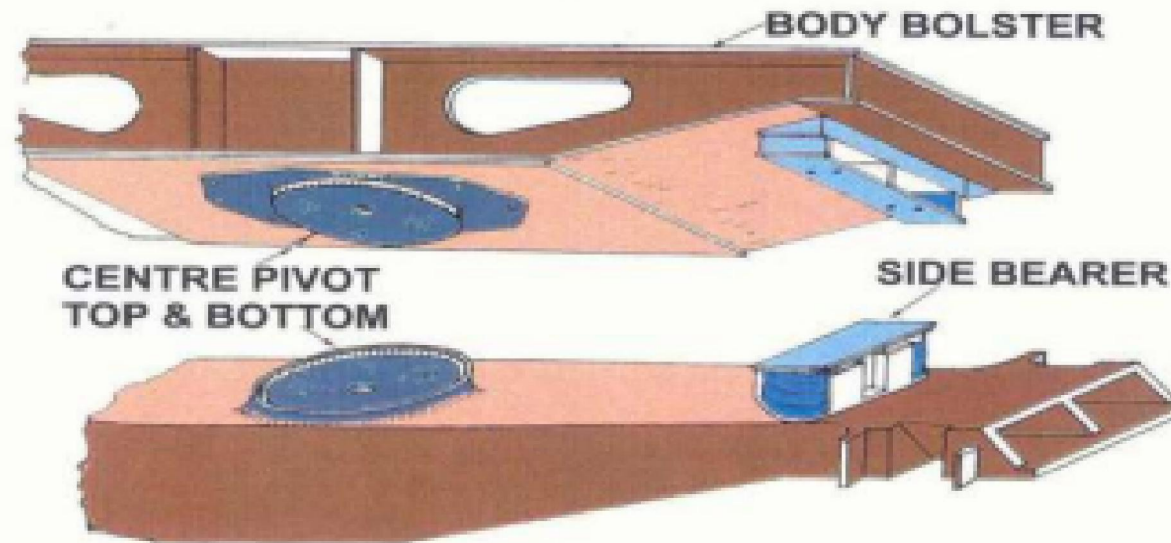
- BLC wagons are mounted on two nos. of cast steel bogies **similar to** CASNUB bogies.
- **Salient features** -
 - Gauge** - 1676 mm
 - Axle load** – 20.32 t
 - Wheel dia.** – 840(new)/780 mm (worn)
 - Wheel base** – 2000 mm
 - Type of roller bearing** – CTRB
 - Distance bet. Journal centers**- 2260 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 arrgt. 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)



BLC Container Wagons



GENERAL VIEW SHOWING THE WORKING OF SIDE BEARER ARRANGEMENT

BLC Container Wagons - Couplers



SDB

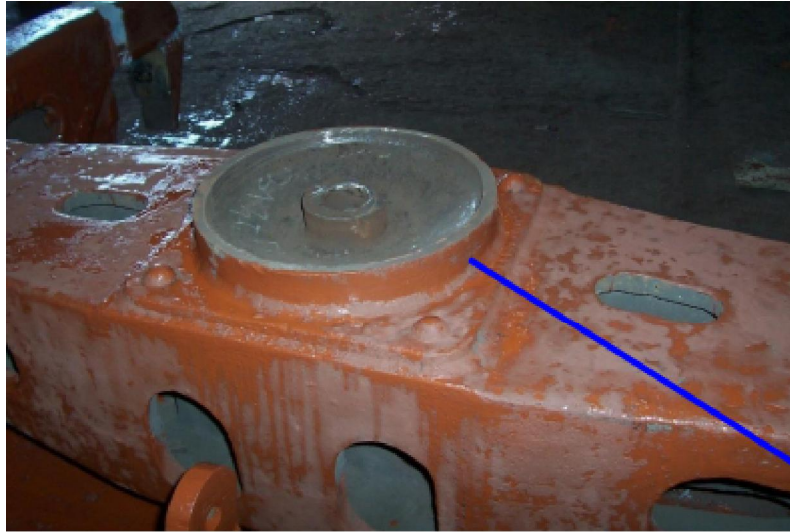
Slackless Draw Bar (SDB)
: This is a semi permanent coupler.

Normally not disconnected unless required for repairs .

Center Buffer Coupler (CBC) :

Most commonly used coupler in wagons over Indian Railways and abroad.





**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

Ready for dispatch



The following points are nominated for ROH and POH repairs for BLC wagons.

S.No.	Rly.	No of Rakes	No of Wagons	ROH Depot	POH Depot
1	CR	18	810	BSL/CR	KTTW/WCR
2	ER	24	1055	NH/ER	LLHM/ER
3	ECoR	5	225	VSKP/ECoR	LLHM/ER
4	NR	173	7760	TKD, MB/NR	JUDW/NR
5	NCR	61	2745	GMC/NCR	JHSW/NCR
6	NWR	23	1035	SBI/WR	KTTW/WCR
7	SR	14	600	TNPM/SR	PWP/SR
8	SCR	28	1235	RDM/SCR	RYPS/SCR
9	SER	10	435	NMP/SER	LLHM/ER
10	SWR	13	535	MNGT/SWR	PWP/SR
11	WR	23	1020	SBI/WR	KTTW/WCR
	TOTAL	392	17455		

POH/ROH INTERVAL

WAGON STOCK	FIRST	SUBSEQUENT
POH	6 Years	4.5 years
ROH	24 MONTHS	18 MONTHS

NEW WAGON NUMBERING SCHEME

Type of wagon		Owning Railway		Year of Manufacture		Individual Wagon Number				Check Digit
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11

FLAT WAGON	CODE ALLOTTED
BLCA	61
BLCB	62

CONDEMNATION OF WAGON-35 YEARS

MAINTENANCE SCHEDULES

Short duration check-ups:

- i) **“B schedule” –every 3 months**
 - All items of intensive examination.
 - All dirt collectors, drain cocks should be drained.
 - Test Air Brake System to all the parameters as per test chart.

- ii) **“C schedule” –every 6 months**
 - All items of “B” schedule
 - Load Sensing Device (VTA) tip to stopper distance 16 mm be set if required.
 - Six months Schedule as prescribed by the Air Brake Manufacturer for the Air Brake System including the Pressure Reducing Valve may be maintained.
 - Check for defective or damaged Elastomeric pads

THANK YOU