

फैक्स / Fax : 91-0522-2452494
तार : 'रेलमानक' लखनऊ

Telegram : 'RAILMANAK'
Lucknow
टेलीफोन / Tele: 2451200 (PBX)
2465775 (DID)



सत्यमेव जयते

भारत सरकार —रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ — 226011

Government of India - Ministry of Railways
Research Designs & Standards Organisation
Lucknow — 226011

No. MW/SPD/BG/CONTR/DOUBLE STACK/22.0 t

Dated:12 -11-2007

The General Manager (Engg.)

1. Northern Railway, Baroda House, New Delhi – 110 001.
2. Central Railway, Chhatrapati Shivaji Terminus, Mumbai – 400 001.
3. Western Railway, Churchgate, Mumbai – 400 020.
4. North Western Railway, Jaipur – 302 006.

**Sub: Final Speed Certificate for operation of 22.0 t. axle load
Broad Gauge Double Stacked Container wagon type
BLCAM and BLCBM.**

- 1.0 Broad Gauge Double Stacked Container wagon type BLCA and BLCB wagon with 20.32 t axle load has been permitted to run at maximum permissible speed of 75 kmph in empty and loaded condition vide Speed Certificate No. MW/CONTR/DOUBLE STACK dated 27.01.2006.
- 1.1 To increase throughput of container traffic, Broad Gauge low platform Bogie container flat wagons type BLCAM & BLCBM wagon having maximum axle load of 22.0t are being introduced. BLCAM to RDSO Drg. No. CONTR-05076-S/3 Alt. Nil and BLCBM to RDSO Drg. No. CONTR-05077-S/3 Alt. Nil, loaded with double stack are same as existing 20.32t axle load double stacked BLCA & double stacked BLCB wagons except suspension. Two additional inner springs in suspension are provided. Suspension consists of 14 Outer, 14 inner and 4 snubber springs along with friction wedges to drg. no. SK-03206 (Specification No. CONTR-02-Misc-2007) and Constant Contact Side Bearer as per drawing No. 40704 of Miner-Sujan made to AAR M 948 specifications (RDSO's Specification No. CONTR-01-Misc-2007) fitted on LCCF bogie.
- 1.2 To determine the speed potential of double stacked 22.0 t axle load BLCAM to RDSO Drg. No. CONTR-05076-S/3 Alt. Nil and BLCBM to RDSO Drg. No. CONTR-05077-S/3 Alt. Nil , without/with empty

and loaded containers, detailed oscillation trial have been conducted on Dhasa-Savarkundla section between Dhasa – Rajula Jn. of Pipavav Rail Corporation Ltd. of Western Railway. The results of these trials are published in RDSO Report No. MT-813/F of October, 2007. The results indicate that wagons loaded with Double Stack containers exhibit satisfactory performance upto a test speed of 110 Kmph in both empty and loaded condition on straight track, station yard and such lower speeds on 2 degree curve track maintained to main line standard.

- 2.0 Based on the results of these trials, it is certified that low platform container wagon type BLCAM/BLCBM may be permitted to run without any containers at 100 Kmph , with loaded containers in double stack upto a maximum permissible speed of 100 Kmph and with empty containers in double stack at 90 kmph subject to the following conditions: -

2.1 **Track**

- 2.1.1 The track shall be to a minimum standard of 52Kg rail (90 UTS) on sleeper with M+7 density and minimum depth of ballast cushion below sleeper of 250mm, which may consist of at least 100mm clean and the rest in caked up condition on compact and stable formation.
- 2.1.3 Wherever condition warrant on account of corrosion on rail/weld collar, wear of rail, cupping in the welds necessary precautions should be taken for fish plating/ joggle fish plating of the rail/weld.
- 2.1.4 Zonal Railways may impose such further restrictions of speed as deemed fit, based on the age and condition of track and the extent of rail fractures/weld failures/defect generation rate occurring in the sections.
- 2.1.5 The maximum permissible speed on curves to be decided on the basis of the existing provision of Indian Railway Permanent Way Manual Second Reprint-2004.
- 2.1.6 For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, Railway Board's letter No. 65/WDO/SR/26 dated 19/20-10-1966 may be seen. When the Chief Engineer considers that the roadbed is not compacted or there is improper drainage, he may suitably restrict the maximum permissible speed depending upon the local conditions.

2.1.7 Besides USFD testing of rail as per USFD manual, testing of rail head for detection of gauge face corner defects shall be undertaken at the frequency specified for need based concept in USFD manual.

2.1.8 Conditions stipulated in the Railway Board's letter no. 2005/CE-II/TS/7 dated 01-05-06 for operation of 22.32t (CC+6t+2t) axle load shall continue to apply.

2.2 Bridges

2.3.1 The clearance refers to bridges with standard design of girders, slabs, pipe culverts, piers and abutments etc, issued by RDSO for BGML, RBG and MBG-1987 standard loadings. However, the bearings of span 78.8 m (effective) designed for BGML standard loading as per RDSO's drawing No. BA-11154 should be strengthened by providing two additional anchor bolts.

2.3.2 Superstructures and bearings of non standard spans including arches and sub-structures of all bridges are to be examined under the directions of the Chief Bridge Engineer concerned and certified safe by him in terms of current IRS Bridge Rules, Steel Bridge Code, Concrete Bridge Code, Arch Bridge Code, Bridge Sub-Structures and Foundation Code etc. read with up to date correction slips.

2.2.3 In loaded condition, the following restrictions are applicable:

- (i) BGML spans 2.0m and 3.0m (both effective), RBG spans 2.0m and 3.0m (both effective) and MBG-1987 span 2.0m(effective) are restricted to 60 kmph.
- (ii) BGML spans 2.5m (effective), RBG spans 2.5m, 3.71m and 4.32m (all effective) and MBG-1987 span 10.0m (effective) are restricted to 65 kmph.
- (iii) BGML spans 1.5m and 3.71m (both effective), RBG spans 1.5m and 10.0m (both effective) and MBG-1987 spans 2.5m, 3.0m and 3.71m (all effective) are restricted to 70 kmph.
- (iv) RBG span 5.31m (effective) and MBG-1987 spans 4.32m, 5.31m and 6.91m (all effective) are restricted to 75 kmph.
- (v) BGML span 1.0m (effective) and RBG spans 1.0m and 6.91m (both effective) are restricted to 80 kmph.

- (vi) BGML span 4.32m (effective) and MBG-1987 span 1.5m (both effective) are restricted to 85 kmph.
- (vii) BGML span 5.31m (effective) and RBG span 13.1m (effective) are restricted to 90 kmph.
- (viii) MBG-1987 span 1.0m (effective) is restricted to 95 kmph.
- (ix) For double-headed operation, track on bridges and approaches of BGML spans 63.0m and 78.8m (both effective) shall be strengthened or modified in such a way so as to allow for dispersion of longitudinal force as per clause 2.8.3.2 of IRS Bridge Rules. In cases where dispersion cannot be allowed as per clause 2.8.3.2 such as due to provision of SEJ in bridges etc., the bridge sub-structure and superstructure including bearings shall be checked for longitudinal force without dispersion and certified safe by the Chief Bridge Engineer concerned.

2.2.4 Other specific restrictions are applicable which are indicated in relevant Speed Certificates of hauling single/multiple locomotives issued by RDSO.

2.2.5 The clearance is subject to the following parameters of wagon –

S.No.	Description	A-Car	B-Car
1	Maximum axle load (loaded)	22.0 t	22.0 t
2	Maximum axle load (empty)	4.775 t	4.5 t
3	Maximum C.G. height from rail level (loaded)	2660 mm	2695 mm
4	Maximum C.G. height from rail level (empty)	551 mm	548 mm
5	Maximum braking force at rail level per axle	1 0 % of axle load	

2.2.6 (i) Zonal Railways to certify the adequacy of bridges for permitting rolling stocks based on physical condition of bridges by the Chief Bridge Engineer.

(ii) Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working timetable.

2.3 Signalling

- 2.3.1 Provisions of GR, SR, SEM and all extant instructions issued from time to time shall be complied with.
- 2.3.2 The condonation regarding infringements in schedule of dimensions shall be obtained in accordance with local conditions before movement.
- 2.3.3 On the sections where EBD of more than 1 Km is to be catered for second distant signalling or automatic signally should be available failing which suitable speed restriction is to be imposed.

2.4 Rolling stock

- 2.4.1 Before initiating the trials, CME of the Railway will certify the track worthiness and the safety of the rolling stock.
- 2.4.2 Double stacking of 8'- 6" (2591mm) high and 9'- 6"(2896 mm) high ISO containers on BLCAM/BLCBM wagon should be strictly done as per table given below with following instructions:-

Instructions:

- (i) While loading, care should be taken that gross load of bottom containers(20') should be equal to each other to the maximum possible extent.
- (ii) Gross weight of wagon should not exceed 88.0 tonnes in any case.
- (iii) In no case, load of top container should be more than the load of bottom container/containers for all Series.
- (iv) Payload for container wagon implies tare weight of containers + weight of goods in containers. This should be strictly followed to prevent overloading of wagon.

SERIES	CONTAINERS POSITION		LOADING CONDITION		Loading Limits (in tonnes)	
	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER
I	2 x 20'	1 x 40'	EMPTY	EMPTY	--	--
II	2 x 20'	1 x 40'	LOADED	EMPTY	61 (max.)	-
III(a)	2 x 20'	1 x 40'	LOADED	LOADED	45.0 to 61.0 tonne	Difference of Pay load capacity of wagon and combined load of lower containers
III(b)	2 x 20'	1 x 40'	LOADED	LOADED	<45 to >35	<=22
III(c)	2 x 20'	1 x 40'	LOADED	LOADED	<=35 to >25	<=20
III(d)	2 x 20'	1 x 40'	LOADED	LOADED	<=25 to >20	<=17
III(e)	2 x 20'	1 x 40'	LOADED	LOADED	Empty to 20.0 tonne	Load in top container should not be more than gross load in lower containers and maximum limit of load is 17.0 tonne.
IV(a)	1 x 40'	1 x 40'	EMPTY	EMPTY	--	--
IV(b)	1 x 40'	1 x 40'	LOADED	EMPTY	30.0 (max.)--	--
IV(c)	1 x 40'	1 x 40'	LOADED	LOADED	<=30 to >15	15 (max.)
IV(d)	1 x 40'	1 x 40'	LOADED	LOADED	Empty to 15.0 tonne	Load in top container should not be more than gross load in lower containers and maximum limit of load is 15.0 tonne.

2.5 General

- 2.5.1 All the permanent and temporary speed restrictions in force and those that may be imposed from time to time due to track, bridges, curves, signaling and interlocking etc. shall be observed.
- 2.5.2 The movement of wagon shall be avoided on platform line.
- 2.5.3 The bogie container flat wagon loaded with Double Stack Containers as shown in RDSO Drg. No. CONTR-05076-S/3 Alt. Nil for BLCAM and RDSO Drg. No. CONTR-05077-S/3 Alt. Nil for BLCBM infringes Clause No. 2(ii), 11,14,29 & 30 of Chapter IV(A) Schedule of Dimension BG, Revised 2004. Such type of infringements were condoned by Railway Board vide letter no. 2005/CEDO/SR/19 Dt. 30.12.2005 for conducting detailed Oscillation trials of double stack wagons on Jaipur-Pipavav Section as a special case.
- 2.5.4 Movement of Double stack containers on bogie low platform container wagon type BLCAM/BLCBM wagons on any section of IR

on the basis of this speed certificate will be subject to the final condonation of Infringements certificate issued by Railway Board for regular operation of Double Stack Container wagons with two 9' 6" containers or combination of 8' 6" and 9' 6" on that particular section.

2.5.5 The removal of infringement for providing necessary clearances as advised vide this office letter no. CT/CONTR/BG/MG dated 07-11-05 should be ensured by concerned Railway enroute for operation of these wagons.

2.5.5 Precaution to be taken in case of abnormal wind condition:

- (a) When Containers are empty, and wind speed increases more than 50 kmph measured at 10m height from ground level, train to be moved at speed of 30 kmph and stabled at nearest possible station /Yard.
- (b) When Containers are loaded, and wind speed increases more than 80 kmph measured at 10m height from ground level, the train speed to be reduced to 40 kmph. Train to be stabled at nearest Station /Yard if wind speed increases more than 100 kmph.

Encl: (i) RDSO Drg.No.-CONTR-05076-S/3 Alt. Nil for BLCAM and RDSO Drg. No. CONTR-05077-S/3 Alt. Nil for BLCBM.
(ii) Railway Board letter no. 2005/CEDO/SR/19 Dt. 30.12.2005.

(S. Mani)
Executive Director Standards (Motive Power)

Copy for information to :

- (1) The Secretary (Mech. / Engg.), Railway Board, Rail Bhavan, New Delhi-110 001.
- (2) The General Manager (Mech./Optg.):
 - (i) Northern Railway, Baroda House, New Delhi – 110 001.
 - (ii) Central Railway, Chhatrapati Shivaji Terminus, Mumbai – 400 001.
 - (iii) Western Railway, Churchgate, Mumbai – 400 020.
 - (iv) North Western Railway, Jaipur – 302 006.

Encl. – As above

(S. Mani)
Executive Director Standards (Motive Power)