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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/BOXNLWM1/22.32 t/PROV.

Dated :13.08.2008

**The General Manager (Engg.)**

1. Northern Railway, Baroda House, New Delhi – 110 001.
2. Central Railway, Chhatrapati Shivaji Terminus, Mumbai – 400 001.
3. Eastern Railway, Fairlie place, Kolkata – 700 001.
4. Western Railway, Churchgate, Mumbai – 400 020.
5. Southern Railway, Park Town, Chennai – 600 003.
6. South Central Railway, Rail Nilayam, Secunderabad – 500 071.
7. South Eastern Railway, Garden Reach, Kolkata – 700 043.
8. North Eastern Railway, Gorakhpur – 273 001.
9. North East Frontier Railway, Maligaon, Guwahati – 781 011.
10. East Central Railway, Hajipur – 844 101.
11. North Central Railway, Allahabad – 211 001
12. North Western Railway, Jaipur – 302 006.
13. South Western Railway, Hubli – 580 023.
14. East Coast Railway, Railway Complex, Bhubaneswar – 751 023.
15. West Central Railway, Jabalpur – 482 001.
16. South East Central Railway, Bilaspur – 495 004.

**Sub : Provisional Speed Certificate for 22.32 t (CC+6t+2t) axle load Broad Gauge Bogie Open Wagon type BOXNLWM1.**

- 1.0 Broad Gauge bogie Open wagon type BOXNLWM1 having maximum axle load of 22.32 t (CC+6t+2t) is same as existing 20.32 t axle load BOXNLW wagon. Both are designed for bulk transportation of coal and iron ore etc over the entire BG system of the Indian Railways. All dimensions, bogie particulars (except suspension), purpose etc. are same. The leading particulars of BOXNLWM1 wagon are indicated in RDSO Drg.No. WD-08054-S-01Alt.1.
- 1.1 On the basis of Oscillation trials report No. MT-594/F of May 2005, vide RDSO speed certificate No. MW/BOXNHT Dated 7/12.11.2005, BOXNLW wagons with 20.32t axle load are permitted to run up to a maximum speed of 100 kmph in empty and loaded condition.
- 1.2 Advantages of 22.32 t (CC+6t+2t) axle load BOXNLWM1 over BOXNLW is that, it will increase the throughput per rake.
- 2.0 Hence, it is certified that BOXNLWM1 wagon to RDSO Drg.No.WD-08054-S-01Alt.1 with axle load of 22.32t (CC+6t+2t) is permitted to run up to a maximum speed of 65kmph in empty and at 60kmph in loaded condition, subject to the following conditions: -

- 2.1 As per Railway Board's letter No. 2007/CE-II/TS/1 dated 23-07-2007, operation of BOXNLWM1 wagon with axle load of 22.32 t (CC+6t+2t) is permitted on all over IR except following sections where it will be restricted:

Rly.	Sections
CR	Parasia-Chindwara Branch line, Wani-Pampalkutti
ER	Nalhati-Azimganj, Mandarhill-Bhagalpur Munger-Jamalpur, Sitarampur-Jhajha(UP), Bhagalpur-Sahibganj Shaktigarh-Bandel-BTPS-Titagarh
ECR	Kiul-Patna, Kiul-Gaya, Kiul-Simariya-Garhara-Barauni <a href="#">Samastipur-Darbhanga</a> , <a href="#">Muzaffarpur-Narkatiaganj-Valmikinagar</a> Saugali-Raxaul, Hazipur-Bachwara via Shahpur Patori, Barauni-Katihar
ECoR	Khurda Road -Puri
NR	Firozpur city-Fazilka, Faizabad-Prayag-Allahabad, Jalandhar city-Nakodar Zafarabad-Janghai, Amritsar-Khemkaran, Verka-Dera Baba Nanak
NCR	Shikohabad-Farrukhabad, Ait-Komach Yamuna Bridge,-Agra City-Raja Ki Mandi
NWR	Suratgarh-Anoopgarh, Merta-Merta Road
SCR	PGDP-NDKD, ADB-PIMP. JKM-BDHN, PDPL-KRMR-JGTL
SER	Baltikuri-Amta, Rupsa-Baripada, Tamluk-Digha, Tata-Badapahar
SWR	Bagalkot-Hotgi, Londa-Miraz, Birur-Shimoga
WCR	Guna-Gwalior

However in case of emergencies such as accidents etc, running of CC+6t+2t loaded wagons, in the restricted sections indicated as above, can be permitted. This however shall be done at the level of PCE, who will advice suitable speed restrictions keeping in view the condition of fixed infrastructure.

## 2.2 Track

### 2.2.1

#### (a) Loaded condition

##### **Maximum Speed upto 60 Kmph:**

The track shall be to a minimum standard of 52Kg rail (72UTS) 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.

##### **Maximum Speed upto 30Kmph:**

The track shall be to a minimum standard of 90R rail on sleeper with M+4 density and minimum depth of ballast cushion below sleeper of 200mm, which may consist of at least 75mm clean and the rest in caked up condition on compact and stable formation.

(b) **Empty Condition**

**Maximum Speed upto 65Kmph:**

The track shall be to a minimum standard of 90R rail on sleeper with M+4 density and minimum depth of ballast cushion below sleeper of 200mm, which may consist of at least 75mm clean and the rest in caked up condition on compact and stable formation.

- 2.2.2 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.
- 2.2.3 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.
- 2.2.4 The maximum permissible speed on curves to be decided on the basis of the existing provision of Indian Railway Permanent Manual second reprint-2004.
- 2.2.5 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 road bed is not compacted or there is improper drainage, he may suitably restrict the maximum permissible speed depending upon the local conditions.

**2.3 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.
- 2.3.3 In loaded condition(CC+6t+2t), the following restrictions are applicable:
  - (i) RBG span of 78.8m (effective) is restricted for 50kmph.
  - (ii) For Single-headed operation, track on bridges and approaches of BGML span 78.8m (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 superstructure including bearings and sub-structure shall be checked for longitudinal force without dispersion and certified safe by the Chief Bridge Engineer concerned.

- (iii) For double-headed operation, track on bridges and approaches of BGML spans 47.3m, 63.0m and 78.8m (all 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 superstructure including bearings and sub-structure shall be checked for longitudinal force without dispersion and certified safe by the Chief Bridge Engineer concerned.

2.3.4 Other specific restrictions of hauling single/multiple locomotives are applicable as per respective Speed Certificates issued by RDSO.

2.3.5 The clearance is subject to the following parameters of 22.32t (CC+6t+2t) axle load BOXNLWM1 wagon.

- |   |                        |
|---|------------------------|
| (i) Maximum axle load (Empty)                       | - 5.103 t              |
| (ii) Maximum axle load (loaded)                     | - 22.32 t              |
| (iii) Maximum C.G height from Rail level (Empty)    | - 1014 mm              |
| (iv) Maximum C.G height from Rail level (loaded)    | - 2043mm               |
| (v) Maximum braking force at rail level<br>per axle | - 10 % of<br>axle load |

2.3.6 The directives of RDSO for operation of CC+6t+2t axle load 22.32t communicated vide RDSO letter no. CBS/Golden/Q/Strength dated 20-03-2007 shall also be followed.

2.3.7 Zonal Railways to certify adequacy of existing bridges for permitting rolling stock based on physical condition of bridges by keeping them under observations considered necessary by the Chief Bridge Engineer of Railway.

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

## **2.4 Signaling**

2.4.1 Provision of GR, SR, SEM and all extent instructions issued from time to time shall be complied with.

2.4.2 On the sections where EBD of more than 1Km. is to be catered for second distant signal or automatic signaling should be available failing which suitable speed restriction is to be imposed.

## **2.5 Rolling Stock**

2.5.1 Before initiating the movement, CME of the railway will certify the track worthiness and safety of the rolling stock.

2.5.2 For movement of wagon on any private or assisted siding for loading or unloading the consignments, the Chief Engineer of Railway shall be referred to.

## **2.6 General**

2.6.1 All the permanent and temporary speed restrictions enforced and those that may be imposed from time to time due to track, bridges, curves, signaling and interlocking etc shall be observed.

2.6.2 The design of BOXNLWM1 wagon 1 does not infringe to Clauses of Chapter IV (A) of Indian Railway Schedule of Dimensions B.G. Revised, 2004.

2.6.3 Conditions stipulated in the Railway Board letter no. 2005/CE-II/TS/7 dated 01-05-06 for operation of 22.32t/22.82t axle load shall also be applicable in this case.

2.6.4 The heap of loading should not exceed the diagram no. 1D of Indian Railway Schedule of Dimensions BG revised, 2004.

2.6.5 The provisional speed certificate for operation of 22.32t axle load (CC+6t+2t) BOXNLWM1 wagon shall remain valid up to 5 years from date of issue or before date of issue of the Final Speed Certificate whichever is earlier.

Encl: RDSO Drg.No.WD-08054-S-01Alt.1

(S.Mani)

Exe.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./S&T)
  - (i) Northern Railway, Baroda House, New Delhi – 110 001.
  - (ii) Central Railway, Chhatrapati Shivaji Terminus, Mumbai – 400 001.
  - (iii) Eastern Railway, Fairlie place, Kolkata – 700 001.
  - (iv) Western Railway, Churchgate, Mumbai – 400 020.
  - (v) Southern Railway, Park Town, Chennai – 600 003.
  - (vi) South Central Railway, Rail Nilayam, Secunderabad – 500 071.
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  - (xvi) South East Central Railway, Bilaspur – 495 004.

Encl: As above.

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