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PROVISIONAL SPEED CERTFICATE FOR OPERATION OF BTAPM1 WAGON

No.	As header	Dated	08.09.2020

(A) महाप्रबन्धक (इंजीनियरिंग),

1. मध्य रेलवे, छत्रपति शिवाजी महाराज टर्मिनस, मुम्बई– 400 001
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता– 700 001
3. उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली– 110 001
4. पूर्वोत्तर रेलवे, गोरखपुर– 273 001
5. पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव, गुवाहाटी– 781 011
6. दक्षिण रेलवे, एनेक्सी, पार्कटाऊन, चेन्नई– 600 003
7. दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद– 500 071
8. दक्षिण पूर्व रेलवे, गार्डनरीच, कोलकाता– 700 043
9. पश्चिम रेलवे, चर्चगेट, मुम्बई– 400020
10. उत्तर मध्य रेलवे, प्रयागराज – 211 001
11. उत्तर पश्चिम रेलवे, जयपुर– 302 006
12. पूर्व मध्य रेलवे, हाजीपुर– 844 101
13. पूर्व तट रेलवे, रेलवे कॉम्पलेक्स, भुवनेश्वर– 751 023
14. दक्षिण पश्चिम रेलवे, हुबली– 580 023
15. पश्चिम मध्य रेलवे, जबलपुर– 482 001
16. दक्षिण पूर्व मध्य रेलवे, बिलासपुर– 495 004

(B) प्रबन्ध निदेशक डेडीकेटेड फेट कोरीडोर कॉर्पोरेशन ऑफ इण्डिया लि0 पाँचवा तल, प्रगति मैदान मेट्रो स्टेशन बिल्डिंग कॉम्पलेक्स, नई दिल्ली–110001.

Sub.:	**Provisional Speed certificate for 21.92t axle load BG Bogie Alumina Tank wagon type 'BTAPM1'.**

1.0	**IMPORTANT PARAMETERS RELATED TO ROLLING STOCK**

Type	**Final / Provisional / Oscillation Trial / COCR Movement**	Provisional		**Validity/ Period or Permanent**	**IR / Sectional**	IR / 05 Years

Stock Name	Bogie Covered Alumina Wagon type "BTAP"		**Max. Axle Load (Empty)**	6.83t		**Max. Axle Load (Loaded)**	21.92t

Transportation Code	BTAPM1	**GA Drg. No.**	RDSO's Drg. No. WD-82056-S-01 Alt. 6

Bogie Arrgt. Drg.	RDSO's Drg. No WD-89073-S-02	**Suspension Arrgt. Drg.**	RDSO's Drg. No. WD-83069-S-01

Commodity	**Coal / Ore / Steel / Bagged / Oil /etc.**	Alumina Powder / Fly ash	**Gauge**	BG	

Type of Bogie	CASNUB 22 NLB	**Type of Coupler**	Non-Transition CBC	**Wheel Dia. (mm)**	**New** 1000 / **Worn** 906

Rake / Train consist for COCR / Oscillation Trial	51 Wagons

Max. Permissible Speed	**Empty**	65Kmph	**Loaded**	60Kmph

2.0	**INTRODUCTION**

2.1	BG Bogie Alumina Tank wagon type 'BTAP' has been designed & developed by RDSO as per drawing no. WD-82056-S-01 Alt.-1 for mass transportation of Alumina powder. The wagon has been fitted with single pipe graduated release air brake and non-transition type high tensile center buffer coupler. Originally axle load of BTAP wagon was 20.3t and it was fitted with Casnub 22W bogie. Subsequently, the wagon was provided with Casnub 22 NLB bogie and axle load was increased to 21.92t. Railway Board vide letter no. 2010/M (N)/951/23 dated 04.09.2020 has allotted new Transportation code BTAPM1 to distinguish this wagon with axle load of 21.92 t from previous ones. The salient features of the Alumina Tank Wagon type 'BTAPM1' are given in Annexure-I.
2.2	The leading design particulars of the wagon have been indicated in RDSO drawing no. WD-82056-S-01 Alt.-6. The detailed NUCAR Simulation of BTAPM1 wagon has been carried out by RDSO and the results indicate that the wagon exhibited satisfactory riding characteristics & stability behaviour up to test speed of 80 Kmph in empty and loaded conditions on straight track and 2°curves in the simulation.

3.0	Based on the design features and NUCAR simulation results and above, it is certified that the B.G. Bogie Alumina Tank wagon type 'BTAPM1' to RDSO drawing no. WD-82056-S-01 Alt.-6 with axle load 6.83t in empty condition & 21.92t in loaded condition, may be permitted to run up to maximum permissible speed of 65Kmph over Indian Railway track under conditions stipulated below:-

3.1	**TRACK STRUCTURE DETAILS & SPEED:**

3.1.1	The track structure shall be to a minimum standard of-			
	For Empty condition			
	Track structure	**Sleeper Density**	**Ballast Cushion**	**Max. speed**
	52 Kg (72 UTS)	1540Nos./ km PSC sleeper	250mm (100mm clean & rest caked up condition on compact and stable formation.)	Up to 60 Kmph
	52 Kg (90 UTS)	1540Nos./ km PSC sleeper	250mm (100mm clean & rest caked up condition on compact and stable formation.)	Above 60Kmph and up to 65 Kmph
	For Loaded condition			
	52 Kg (90 UTS)	1540Nos./ km PSC sleeper	300mm (150mm clean & rest caked up condition on compact and stable formation.)	60Kmph
3.1.2	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, instructions issued by Railway Board 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 shall suitably restrict the maximum permissible speed depending upon the local conditions.			
3.1.3	The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual, June-2020.			
3.1.4	The welds shall be protected by joggled fish plates as per provisions of USFD manual and AT welding manual and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per IRPWM, June-2020. In addition, wherever condition warrants on account of corrosion on rail/weld collar, wear on rail, cupping of welds etc. necessary precautions shall be taken for fish plating/ joggled fish plating.			
3.1.5	Zonal Railway shall ensure further detailed examination of track as deemed fit based on age cum condition basis, overdue renewal and condition of formation etc. as per provisions of Chapter-7 of Indian Railways Permanent Way Manual June-2020 regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination.			

3.2	**BRIDGE STIPULATIONS:**

3.2.1	The clearance refers to bridges “Standard spans” 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 76.2 m (clear) designed for BGML standard loading as per RDSO’s drawing No. BA-11154 should be strengthened by providing two additional anchor bolts.

3.2.2	Superstructures and bearings of "Special spans" (designed and constructed by Zonal Railways based on site requirements) including Arches and sub-structures of all bridges (all standard and special spans) are to be examined under the directions of the Chief Bridge Engineer concerned and certified safe with respect to current Indian Railways Standard codes with up to-date correction slips.
3.2.3	Other Specific restrictions are applicable as mentioned in relevant speed certificates of hauling locomotives/attached wagon issued by RDSO.
3.2.4	The above clauses have been arrived considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed restriction shall be imposed by concerned Chief Bridge Engineer of Zonal Railway.
3.2.5	Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working timetable.
3.2.6	In empty condition, all Standard spans of BGML/RBG/MBG loading Standards are fit for proposed speed of 65 Kmph.
	In loaded condition following restrictions are applicable:- i) All Standard spans up to 47.25m, 63.0m & 78.8m (all effective) of BGML / RBG / MBG Loading Standards shall be restricted to speed of 60 Kmph. ii) Track on bridges and approaches of BGML loading standard spans 31.9m, 47.3m, 63.0m & 78.8m (all effective) shall be strengthened or modified in such a way so as to allow 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.
3.2.7	The clearance is subject to the following parameters of BTAPM1 wagon: i) Maximum axle load (empty) = 6.83t ii) Maximum axle load (loaded) = 21.92t iii) Maximum C.G. height from rail level (empty) = 1222mm iv) Maximum C.G. height from rail level (loaded) = 2206mm v) Maximum braking force at rail level per axle = 10% of axle load

3.3	**SIGNALLING STIPULATIONS:**

3.3.1	Provisions of GR, SR, IRSOD, SEM & all extant instructions issued from time to time as applicable shall be complied with.
3.3.2	In case of train (having this wagon in its composition) / rolling stocks having EBD of more than 1 Km and non-provision of second distant signal / 4 Aspect automatic signaling in the section, action as per A&C no.09 of SEM Pt-1 shall be taken.

3.4	**TRACTION STIPULATIONS:**

3.4.1	In 25KV AC traction area, the PCEE of the Railway shall have to ensure that the minimum height of contact wire and electrical clearances as stipulated in provisions of Chapter –V and V-A, Electrical Traction 'Schedule of Dimensions of 1676mm. Gauge (BG) Revised 2004' with latest Addendum slips is not violated and strictly followed to ensure its safe running.
3.4.2	The Dome cover of Bogie Alumina tank Wagon shall be in closed & locked down condition during movement.
3.4.3	In addition to above, the Principal Chief Electrical Engineer of Concerned Railway may impose any temporary speed restriction on the basis of personal knowledge, experience of the sectional OHE and the field conditions prevailing on the particular section.
3.4.4	Stipulations as per para 10436 and 10437 of manual of AC traction maintenance and operation, Volume – I, general with latest correction slip must be followed.

3.5	**ROLLING STOCK STIPULATIONS:**

3.5.1	Before initiating the movement, PCME of the Railway shall arrange to certify the safety & the track worthiness. He shall ensure proper maintenance of the rolling stock.
3.5.2	The brakes of the rakes of the wagon shall be in good & proper working order during the movement.

3.6	**GENERAL STIPULATIONS:**

3.6.1	All the permanent and temporary speed restrictions in force and those that may be imposed from time to time due to curves, bridges, track, signaling and inter-locking etc. shall also be observed. In this connection, the speed on curve shall be in accordance with para 3.1.3 of the speed certificate.
3.6.2	The wagon shall run at 65/60 Kmph where the fixed structure height is as per Schedule – I (Diagram no. IA, IA (modified), IB, IC, and 2) of Indian Railway Schedule of Dimension (BG), Revised-2004.
3.6.3	The wagon shall not run on the sections/routes having minimum fixed structure height of 4420 mm from rail level as mentioned in Schedule-II of Indian Railway Schedule of Dimension (BG), Revised-2004.
3.6.4	The wagon shall run as per extant class of ODC where minimum fixed structure height exists as 4505 mm from rail level.
3.6.5	For placement of the wagon on any private or assisted siding for loading or unloading of consignment, Chief Engineer of the concerned Railway shall be referred to.

3.6.6	The maximum permissible speed of empty and loaded wagon in the siding at originating point and destination shall be decided by the Chief Engineer concerned.
3.6.7	Rake formation shall be decided in consultation with Zonal Railways.
3.6.8	The design of the wagon infringes clause 13 (b) of Chapter IV (A) of maximum moving dimensions of 1929 as shown in diagram no. IA of BG Metric Schedule of Dimensions, (Reprint 1973). The profile is, however, within the maximum moving dimensions of 'X' class engine. These infringements have been condoned by Railway Board vide their letter no. 83/WDO/SR/16 dated 23.09.1983.
3.6.9	This speed certificate for operation of BG bogie Alumina tank wagons type 'BTAPM1' shall remain valid for 05 years from the date of issue of the speed certificate or till issue of final speed certificate, whichever is earlier.

ENCLOSURES: /संलग्नक:

i)	RDSO Drg. No. WD-82056-S-01 Alt.-6
ii)	Annexure-I (Salient features of BTAPM1).
iii)	Annexure-II (List of referred documents available in soft copy in enclosed Compact disc).

Digitally signed by VINAY KUMAR AGARWAL
Date:Tue Sep 08 12:33:01 IST 2020
Reason: Approved

(**वी. के. अग्रवाल**)
कार्यकारी निदेशक मानक/चालन शक्ति

प्रतिलिपि –

1. सचिव (यान्त्रिक/इंजी॰), रेलवे बोर्ड, रेल भवन, नई दिल्ली – 110 001.
2. मुख्य रेल संरक्षा आयुक्त, अशोक मार्ग, लखनऊ–226 001.
3. महाप्रबंधक (यान्त्रिक /यातायात/ संकेत एवं दूरसंचार),

(i) मध्य रेलवे, छत्रपति शिवाजी महाराज टर्मिनस, मुम्बई– 400 001
(ii) पूर्व रेलवे, फेयरली प्लेस, कोलकाता– 700 001
(iii) उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली– 110 001
(iv) पूर्वोत्तर रेलवे, गोरखपुर– 273 001
(v) पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव, गुवाहाटी– 781 011
(vi) दक्षिण रेलवे, एनेक्सी, पार्कटाऊन, चेन्नई– 600 003

(vii) दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद– 500 071
(viii) दक्षिण पूर्व रेलवे, गार्डनरीच, कोलकाता– 700 043
(ix) पश्चिम रेलवे, चर्चगेट, मुम्बई – 400020
(x) उत्तर मध्य रेलवे, प्रयागराज – 211 001
(xi) उत्तर पश्चिम रेलवे, जयपुर – 302 006
(xii) पूर्व मध्य रेलवे, हाजीपुर– 844 101
(xiii) पूर्व तट रेलवे, रेलवे कॉम्पलेक्स, भुवनेश्वर– 751 023
(xiv) दक्षिण पश्चिम रेलवे, हुबली– 580 023
(xv) पश्चिम मध्य रेलवे, जबलपुर– 482 001
(xvi) दक्षिण पूर्व मध्य रेलवे, बिलासपुर– 495 004

4. अध्यक्ष एवं प्रबन्ध निदेशक, कोंकण रेलवे कारपोरेशन लिमिटेड, बेलापुर भवन, सेक्टर–11, सी.बी.डी.बेलापुर नवी मुम्बई–400 614

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कार्यकारी निदेशक मानक/चालन शक्ति

Annexure-I

Salient features of Bogie Tank Alumina wagon type 'BTAPM1' Wagon

S.No	Description	Details
01	Principle dimensions of Rolling Stock	Diagram Drawing no. WD-82056-S-51 Alt. 3 a. Length over Couplers/Buffers= 12329 mm b. Bogie centre distance = 8300 mm c. Wheel Base = 2000 mm d. Axle load (Loaded) = 21.92 t e. Axle load (Empty) = 6.8275 t ≈ 6.83 t
02	Details of Bogie and Wheel	a. CASNUB 22NLB Bogie to RDSO specification no. WD-17-Casnub 22 NLB Bogie-93 having 06 nos. outer, 04 nos. Inner and 02 nos. Snubber springs each Bogie. b. 1000 mm diameter wheels set to RDSO Drg.no.WD-89025-S-01 & specification no. R-19/93 Pt-1. c. Condemning wheel dia. = 906mm.
03	Details of Brake system	Under frame mounted Brake system to RDSO specification no. 02-ABR-02.
04	Detail of Brake Rigging, brake ratio and parking brake	a. Brake rigging to RDSO Drawing no. WD-82056-S-67 & Brake Diagram drg.no.WD-82056-S-68. b. Brake ratio (Loaded) = 41.3 % c. Brake ratio (Empty) = 86.2 % d. Hand brake(loaded) = 16.0 %
05	Details of Coupler and buffer	a. E/F NT-Coupler to RDSO specification no. 48-BD-08. b. Draft gears to RDSO specification no. 49-BD-08.
06	Periodic maintenance schedules and standards (safety limits) to be followed in respect of safety items.	Standards of Bogie Maintenance defined in RDSO Bogie Maintenance Manual no.G-95.
07	Instructions regarding operation of rolling stock in case of failure of any of the safety items.	a. Bogie Maintenance Manual no. G-95 b. For wheel & axle ref. para 2.8 of Chapter-2 of IRCA Part-III addition-1973 c. Air Brake Maintenance Manual no. G-97. d. Coupler Maintenance Manual no. G-76 (for Line staff) e. Coupler Maintenance Manual no. G-80 (for Workshop staff)
08	Carrying capacity	60.36 t

Annexure-II

{List of documents referred in speed certificate of BTAPM1 wagon. The copy of these documents available in the CD enclosed with the speed certificate}

i) WD-17-Casnub-22NLB Bogie-93
ii) RDSO drg.no.WD-82056-S-01 Alt. 6
iii) Wheel Spec. no. R-19/93 Pt.1
iv) Para 2.8 of Chapter 2 of IRCA Part III / 1973
v) Air Brake Spec. No. 02-ABR-02
vi) Air Brake Maintenance Manual No. G-97
vii) Brake Diagram drg.no. WD-82056-S-67
viii) Brake Rigging drg.no. WD-82056-S-68
ix) E/F NT.CBC Spec. No. 48-BD-08
x) Instruction & Maintenance Manual of CBC.
    a) G-80 (For workshop staff)
    b) G-76 (For line staff)
xi) Draft Gear Spec. No. 49-BD-08
xii) Bogie Maintenance Manual No. G-95
xiii) Railway Board's letter no. 83/WDO/SR/16 dated 29.09.1983
xiv) Indian Railways Permanent Way Manual, June-2020
xv) USFD Manual, Revised 2012
xvi) Maximum moving profile of 1D (EDO/T-2202) of IRSOD, Revised 2004.
xvii) RDSO drg.no.BA-11154