भारत सरकार – रेल मंत्रालय
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Government of India – Ministry of Railways
Research Designs & Standards Organisation
Lucknow – 226011
DID (0522) 2450115
DID (0522) 2465310

PROVISIONAL SPEED CERTIFICATE FOR OPERATION

No.	TM/HM/S082/RBMV Phooltas/DFCCIL	Date	As signed

(A) महाप्रबन्धक (इंजीनियरिंग),

1. मध्य रेलवे, छत्रपति शिवाजी 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, पार्क टाऊन, चेन्नई– 600 003
7. दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद– 500 071
8. दक्षिण पूर्व रेलवे, गार्डन रीच, 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 फ्रेट कोरीडोर कॉर्पोरेशन ऑफ इण्डिया लि0 पाँचवा तल, प्रगति मैदान मेट्रो स्टेशन बिल्डिंग कॉम्पलेक्स नई दिल्ली–110 001

Sub.	Provisional Speed Certificate for operation of Rail Bound Mobile Vehicle for Civil Engineering works with MMU Equipment Model RBMV.02.B (**Transportation Code-RBMVC D**) manufactured by M/s. Phooltas Transrail Ltd Patna, upto maximum speed of 60kmph when running on its own power as well as when running in train formation over Indian Railways BG routes and over routes of Eastern & Western dedicated freight corridors of DFCCIL.

Ref.	Contract Agreement (HQ/EN/PWC/PHASE I/PKG-PE-P6/D&B/11/Mitsui) dated 16.11.2020.

1.0	**IMPORTANT PARAMETERS RELATED TO ROLLING STOCK**

Type	**Final / Provisional / Oscillation Trial / COCR Movement**	Provisional	**Validity/ Period or Permanent**	IR / Sectional/ DFCCIL	5 Years/ IR & Routes of Eastern & Western DFCCIL.

Stock Name	Rail Bound Mobile Vehicle for Civil Engineering works with MMU Equipment	**Max. Axle Load (Empty)**	17t	**Max. Axle Load (Loaded)**	20t

Transportation Code	**RBMVC D**	**GA Drg. No.**	M/s Phooltas Drg. No. 8B0302000100 Rev. 03

Bogie Arrgt. Drg. No.	M/s Phooltas Drg. No. SV/DPC3-0-0-001 Rev.0	**Suspension Arrgt. Drg. No.**	M/s Phooltas Drg. No. 8B0302030002 Rev. 0

Commodity	Coal / Ore / Steel /Bagged / Oil /etc.	NA	**Gauge**	BG	

Type of Bogie	ICF	**Type of Coupler**	High Tensile Transition CB Coupler	**Wheel Dia.(mm)**	New: 952 / Worn: 877

Max. Permissible Speed over IR as well as over routes of Eastern & Western DFCCIL.	**Own Power** 60kmph	**Train Formation**	60kmph

2.0	**INTRODUCTION**
2. 1	Rail Bound Mobile Vehicle (RBMV) is a self-propelled machine manufactured by M/s. Phooltas Transrail Ltd Patna, as per their GA Drawing No. 8B0302000100 Rev. 03. The vehicle is used for accommodation and transportation of small track machines, tools & equipments, track workmen and carrying Permanent Way material at worksite for day-to-day track maintenance on Indian Railways/DFCCIL.
2. 2	The maximum axle load and wheel diameter of machine are 20t and 952mm respectively. Suspension details of the machine are as per M/s Phooltas Drg. No. 8B0302030002 Rev. 0. The design speed of machine is 100kmph when running on its own power as well as in train formation as last vehicle and as a dead vehicle. The design details are given in Annexure-A.
3.0	Based on design features, details given in Annexure-A and dynamic simulation results of Rail Bound Mobile Vehicle (RBMV) manufactured by M/s. Phooltas Transrail Ltd Patna, it is certified that the machine as per M/s Phooltas GA Drg. No. 8B0302000100 Rev. 03 may be permitted provisionally to run up to maximum permissible speed of 60kmph when running on its own power as well as when running in train formation as last vehicle and as a dead vehicle for operation over Indian Railways and over routes of Eastern & Western dedicated freight corridors of DFCCIL, subject to the following conditions: -
3.1	**TRACK**
3.1.1	**FOR INDIAN RAILWAYS**
3.1.1.1	**The track shall be to a minimum standard of-**

Rail Section	**Sleeper Density**	**Ballast Cushion**	**Max. Speed (Own Power)**	**Max. Speed (Train Formation)**
52 kg (72UTS)	1540 Nos./km PSC Sleeper	250mm (100mm clean & rest in caked up condition on compacted and stable formation)	Upto 60kmph	Upto 60kmph

3.1.1.2	Track geometry standards shall be maintained to as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522.
3.1.1.3	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 may suitably restrict the maximum permissible speed depending upon the local conditions.
3.1.1.4	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. Maximum cant deficiency permitted would be 75mm.
3.1.1.5	The welds shall be protected by joggled fish plates as per provisions of USFD Manual and Indian Railways Permanent Way Manual, June-2020 and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of Indian Railways Permanent Way Manual, 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.
3.1.1.6	Zonal Railways may 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 Indian Railways Permanent Way Manual, June-2020, regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination.
3.1.2	**FOR EASTERN & WESTERN DEDICATED FREIGHT CORRIDORS OF DFCCIL**
3.1.2.1	**The track shall be to a minimum standard of-**

Rail Section	**Sleeper Density**	**Ballast Cushion**	**Max. Speed (Own Power)**	**Max. Speed (Train Formation)**
60 kg (90 UTS)	1660 Nos./Km PSC sleeper	300mm (200mm clean & rest in caked up condition on compacted and stable formation)	60kmph	60kmph

3.1.2.2	The minimum standard of track geometry maintenance shall be as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522.
3.1.2.3	For track maintained to lower standard than that mentioned above, the Chief Engineer/GGM (Engg.) concerned shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, instructions issued by Railway Board's letter no. 65/WDO/SR/26 dated 19/20.10.1966 may be seen. When the Chief Engineer/GGM (Engg.) 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.
3.1.2.4	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.

	Maximum cant deficiency permitted would be 75mm.
3.1.2.5	The welds shall be protected by joggled fish plates as per provisions of USFD Manual and Indian Railways Permanent Way Manual, June-2020 and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of Indian Railways Permanent Way Manual, 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.
3.1.2.6	DFCCIL 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 the provisions 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	**FOR INDIAN RAILWAYS**
3.2.1.1	The clearance refers to “Standard RDSO Spans” bridges with standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by RDSO for BGML, RBG, MBG and 25t Loading -2008 standard loadings.
3.2.1.2	Superstructures & Bearings of “Special Spans” (designed and constructed by Zonal Railways based on site requirements), Arches and sub-structures (including foundation) of all bridges (Standard RDSO spans & Special Spans) are to be got examined by the Chief Bridge Engineer and certified safe with respect to current Indian Railway Standard Codes with up to-date correction slips.
3.2.1.3	The clearance is subject to the following parameters of Rail Bound Mobile Vehicle (RBMV) manufactured by M/s. Phooltas Transrail Ltd Patna:

Rolling Stock	**Maximum axle load (t)**	**Maximum tractive effort per axle (t)**	**Maximum braking force at rail level per axle (t)**	**Maximum CG height from rail level (mm)**
Rail Bound Mobile Vehicle	20	8.88	6.36	1485

3.2.1.4	All Standard RDSO spans of BGML, RBG, MBG and 25t Loading-2008 standard loadings are fit for proposed speed of up to a maximum speed of 60kmph when running on its own power as well as when running in train formation as a dead vehicle.
3.2.1.4.1	Track on bridges and approaches of BGML loading standard spans of 3.0m (effective) , RBG loading standard spans of 1.0m, 1.5m, & 3.0m (all effective) and MBG loading standard spans of 1.0m, 1.5m, & 3.0m 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.
3.2.1.5	During operation of Rail Bound Mobile Vehicle (RBMV) with single/multiple locomotives and other rolling stocks the speed certificate issued by RDSO of the single/multiple locomotives/rolling stocks in empty/loaded condition shall be strictly complied with. Therefore, speed certificate of each single/multiple locomotive and rolling stocks in train formation shall be examined carefully & speed restriction/strengthening/prohibition/any other restriction shall be imposed according to most restrictive rolling stock/locomotive/multiple locomotives in train formation.
3.2.1.6	Location of bridges on which speed restrictions are imposed should be notified by the Railways and incorporated in the working timetable.
3.2.1.7	The final speed on bridges shall also be governed by the track structure on the bridges. Therefore, the lower of the two speeds i.e. speed on particular bridges and speed for track structure over those particular bridges shall prevail as the running speed.
3.2.1.8	The above clauses have been arrived at considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed restriction to be imposed by Chief Bridge Engineer of Zonal Railway on condition basis.
3.2.2	**FOR EASTERN & WESTERN DEDICATED FREIGHT CORRIDORS OF DFCCIL**
3.2.2.1	The clearance refers to “Standard RDSO Spans” bridges with standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by RDSO for “DFC loading (32.5t axle load)”.
3.2.2.2	Superstructures & Bearings of “Special Spans” (designed and constructed by DFCCIL based on site requirements), Arches and sub-structures (including foundation) of all bridges (Standard RDSO spans & Special Spans) are to be examined by DFCCIL and certified safe with respect to current Indian Railway Standard Codes with up to-date correction slips.
3.2.2.3	The clearance is subject to the following parameters of Rail Bound Mobile Vehicle (RBMV) manufactured by M/s. Phooltas Transrail Ltd Patna:

Rolling Stock	**Maximum axle load (t)**	**Maximum tractive effort per axle (t)**	**Maximum braking force at rail level per axle (t)**	**Maximum CG height from rail level (mm)**
Rail Bound Mobile Vehicle	20	8.88	6.36	1485

3.2.2.4	All Standard RDSO spans of DFC loading are fit for proposed speed of 60kmph when running on its own power as well as when running in train formation.
3.2.2.5	During operation of Rail Bound Mobile Vehicle (RBMV) with single/multiple locomotives and other rolling stocks the speed certificate issued by RDSO of the single/multiple locomotives/rolling stocks in empty/loaded condition shall be strictly complied with. Therefore, speed certificate of each single/multiple locomotive and rolling stocks in train formation shall be examined carefully & speed

	restriction/strengthening/prohibition/any other restriction shall be imposed according to most restrictive rolling stock/locomotive/multiple locomotives in train formation.
3.2.2.6	Location of bridges on which speed restrictions are imposed should be notified by DFCCIL and incorporated in the working timetable.
3.2.2.7	The final speed on bridges shall also be governed by the track structure on the bridges. Therefore, the lower of the two speeds i.e. speed on particular bridges and speed for track structure over those particular bridges shall prevail as the running speed.
3.2.2.8	The above clauses have been arrived at considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed restriction to be imposed by DFCCIL on condition basis.

3.3	**SIGNALLING STIPULATIONS**

3.3.1	Provisions of GR, SR, IRSOD, DFC-SSOD, SEM & all extant instructions issued from time to time as applicable shall be complied with.
3.3.2	In case of locomotive/rolling stocks/ Train (having this machine in its composition) having EBD of more than 1 Km and non-provision of second distant signal/ 4 Aspect automatic signalling in the section, action as per Para 7.8.9 of IRSEM (issue July 2021) shall be taken.
3.3.3	While running through a station yard, speed of the Rolling stock shall be restricted to the maximum permissible speed as per standard of interlocking provided at the station or any other speed restriction whichever is severe.

3.4	**ROLLING STOCK STIPULATIONS**

3.4.1	Before initiating the operation of the Rail Bound Mobile Vehicle (RBMV) manufactured by M/s. Phooltas Transrail Ltd Patna, the Chief Engineer (Track Machine) of the concerned Railway/CGM (Civil Engg.) of the DFCCIL shall ensure the safety of the rolling stock and certify the track worthiness. He shall ensure the proper maintenance of the rolling stock.
3.4.2	Brake of the Rail Bound Mobile Vehicle (RBMV) shall be in perfect working condition during the operation.

3.5	**TRACTION INSTALLATION**

3.5.1	**FOR INDIAN RAILWAYS**
3.5.1.1	In 25KV AC traction area, the Principal Chief Electrical Engineer of the concerned 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, Electric Traction 'Schedule of Dimensions of 1676mm Gauge (BG) revised 2022' with latest Addendum & Corrigendum Slips is not violated and strictly followed to ensure its safe running.

3.5.1.2	In addition to above, the Principal Chief Electrical Engineer of the 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.
3.5.1.3	When the Rail Bound Mobile Vehicle (RBMV) is being moved, it shall be ensured that all the protruding parts are withdrawn and suitably locked, so that during the run there is no possibility of any infringement occurring to the standard moving dimensions.
3.5.2	**FOR EASTERN & WESTERN DEDICATED FREIGHT CORRIDORS OF DFCCIL**
3.5.2.1	In 25 KV AC traction area, the GGM (Electrical) of the DFCCIL shall have to ensure that the minimum height of contact wire and electrical clearances as stipulated in provisions of Chapter VII of Eastern Corridor & Chapter XIV of Western Corridor, Electric Traction 'Standard Schedule of Dimensions' for dedicated freight corridors with latest Addendum & Corrigendum Slips is not violated and strictly followed to ensure its safe running.
3.5.2.2	In addition to above, the GGM (Electrical) of the concerned DFCCIL 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.
3.5.2.3	When the Rail Bound Mobile Vehicle (RBMV) is being moved, it shall be ensured that all the protruding parts are withdrawn and suitably locked, so that during the run there is no possibility of any infringement occurring to the standard moving dimensions.

3.6	**GENERAL STIPULATIONS**
3.6.1	The working of Maintenance Machine shall be as per provision of Indian Railways Permanent Way Manual, June-2020.
3.6.2	The profile of Rail Bound Mobile Vehicle (RBMV) manufactured by M/s. Phooltas Transrail Ltd Patna, as per their GA Drg. No. 8B0302000100 Rev. 03 does not infringe with the clauses of Chapter IV (D) of Indian Railway Schedule of Dimensions B.G. Revised-2022 and clauses of Chapter-IV for Eastern Dedicated Freight Corridor and Chapter-XI for Western Dedicated Freight Corridor of 'Standard Schedule of Dimensions' of January 2013.
3.6.3	All the permanent and temporary speed restrictions in force and those that shall be imposed from time to time due to track, bridges, curves, signalling and interlocking etc. shall also be observed. In this connection, the speed on curve shall be in accordance with para 3.1.1.4 for Indian Railway Track and para 3.1.2.4 for DFCCIL track of this speed certificate.
3.6.4	For the movement of the machine, in case of failure of the machine in block sections, the instructions of the para 708(4) of Indian Railways Track Machine Manual, September -2019 shall be followed.
3.6.5	In case of emergency, the machine shall be attached with passenger /goods trains and operation speed of passenger/goods trains shall not be more than 60kmph.
3.6.6	Competent track machine staff who can apply the machine brakes in case of train parting shall escort the machine while running in train formation as a dead vehicle.

3.6.7	This speed certificate is provisional and shall be valid up to 5 years from date of issue or before date of issuance of relevant final speed certificate, whichever is earlier. This Speed Certificate is valid only for Rail Bound Mobile Vehicle for Civil Engineering works with MMU Equipment Model "RBMV.02.B" coming under Contract Agreement (HQ/EN/PWC/PHASE I/PKG-PE-P6/D&B/11/Mitsui) dated 16.11.2020.

ENCLOSURES: / संलग्नक:

i)	Annexure-A
ii)	M/s Phooltas GA Drawing No. 8B0302000100 Rev. 03
iii)	M/s Phooltas Bogie arrangement Drawing No. SV/DPC3-0-0-001 Rev.0
iv)	M/s Phooltas Suspension arrangement Drawing No. 8B0302030002 Rev. 0
v)	DFCCIL letter No. HQ/ENWC/PWC(PnE)/1/2020(6106) dated 29.02.2024
vi)	Railway Board's letter No. 65/WDO/SR/26 dated 19/20.10.1966
vii)	Para 708(4) of Indian Railways Track Machine Manual, September -2019

08/04/24

(नितिन मेहरोत्रा)
कार्यकारी निदेशक मानक / चालन शक्ति

प्रतिलिपि:

1. सचिव, {यांत्रिक / विद्युत / इंजीनियरिंग(जी)}, रेलवेबोर्ड, रेल भवन, नई दिल्ली– 110001
2. मुख्य रेल संरक्षा आयुक्त, अशोक मार्ग, लखनऊ–226001
3. महाप्रबन्धक (यांत्रिक / विद्युत / संचालन / संकेत एवं दूरसंचार)

i) मध्य रेलवे, छत्रपति शिवाजी टर्मिनस मुम्बई– 400 001
ii) पूर्व रेलवे, फेयरली प्लेस, कोलकाता– 700 001
iii) उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली– 110001
iv) पूर्वोत्तर रेलवे, गोरखपुर– 273001
v) पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव ,गुवाहाटी– 781 011
vi) दक्षिण रेलवे, एनेक्सी, पार्क टाऊन, चेन्नई– 600 003
vii) दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद– 500 071
viii) दक्षिण पूर्व रेलवे, गार्डन रीच, 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 प्रबंध निदेशक, कोंकण रेलवे कारपोरेशन लिमिटेड, बेलापुर भवन, सेक्टर–11, सी.बी.डी.बेलापुर नवी मुम्बई–400 614.

5. जी.जी.एम (मेकैनिकल/इंजी/यातायात/संकेत एवं दूर संचार) डेडीकेटेड फ्रेट कोरीडोर कॉर्पोरेशन ऑफ इण्डिया लि0 नई दिल्ली–110001.

ENCLOSURES:/ संलग्नकः

i)	Annexure-A
ii)	M/s Phooltas GA Drawing No. 8B0302000100 Rev. 03
iii)	M/s Phooltas Bogie arrangement Drawing No. SV/DPC3-0-0-001 Rev.0
iv)	M/s Phooltas Suspension arrangement Drawing No. 8B0302030002 Rev. 0
v)	DFCCIL letter No. HQ/ENWC/PWC(PnE)/1/2020(6106) dated 29.02.2024
vi)	Railway Board's letter No. 65/WDO/SR/26 dated 19/20.10.1966
vii)	Para 708(4) of Indian Railways Track Machine Manual, September -2019

(**Signed**)
(नितिन मेहरोत्रा)
कार्यकारी निदेशक मानक/चालन शक्ति

Annexure-A

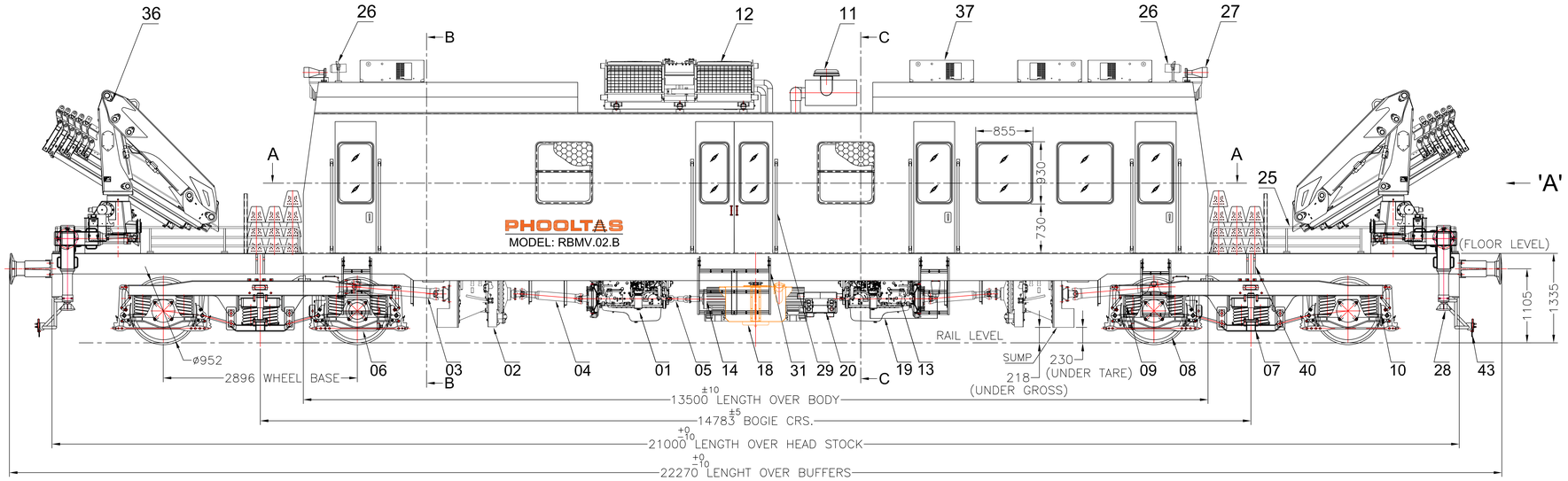
Salient features of Rail Bound Mobile Vehicle (RBMV) manufactured by M/s. Phooltas Transrail Ltd Patna.

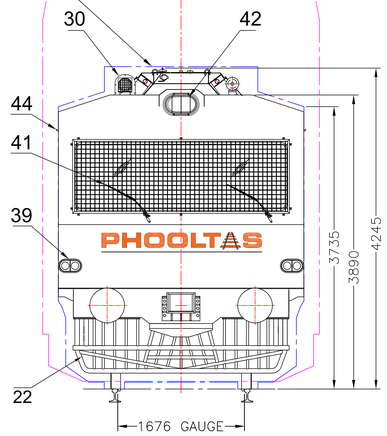
S.No.	Description	Details
1.	Principal dimensions of rolling stock	M/s Phooltas GA Drg. No. 8B0302000100 Rev. 03 a) Length over buffers : 22270 mm b) Bogie center distance : 14783±5 mm c) Wheel base : 2896 mm d) Max. axle load : 20t e) Max. design speed- i) Own power : 100kmph ii) In train formation : 100kmph f) Weight: i) Empty : 68t ii) Loaded : 80t
2.	Bogie details & Wheel dia	M/s Phooltas Bogie arrangement Drawing No. SV/DPC3-0-0-001 Rev.0 a) Wheel dia.: (i) New - 952 mm (ii) Worn - 877 mm
3.	Suspension arrangement	M/s Phooltas Suspension arrangement Drawing No. 8B0302030002 Rev. 0
4.	Brake system details	Air Brake System as per M/s Phooltas Drawing No. 8B0302080000 Rev. 00
5.	Details of Coupler and Buffer	Coupler : High Tensile Transition CB Coupler Buffer : As per RDSO sketch no. 98145
6.	Transmission & Engine Details	Transmission: Hydrodynamic Make: Ashok Leyland Model: N6 CRS 450 HP @ 2200 RPM
7.	Safety	a) Fire extinguisher : One b) Hooter (manual) : Two c) Jack (10t) : Two d) Wooden Blocks : Four e) Crow bars : Four f) Hydraulic hand pump : One g) Emergency pneumatic/hydraulic hose with end fittings : One

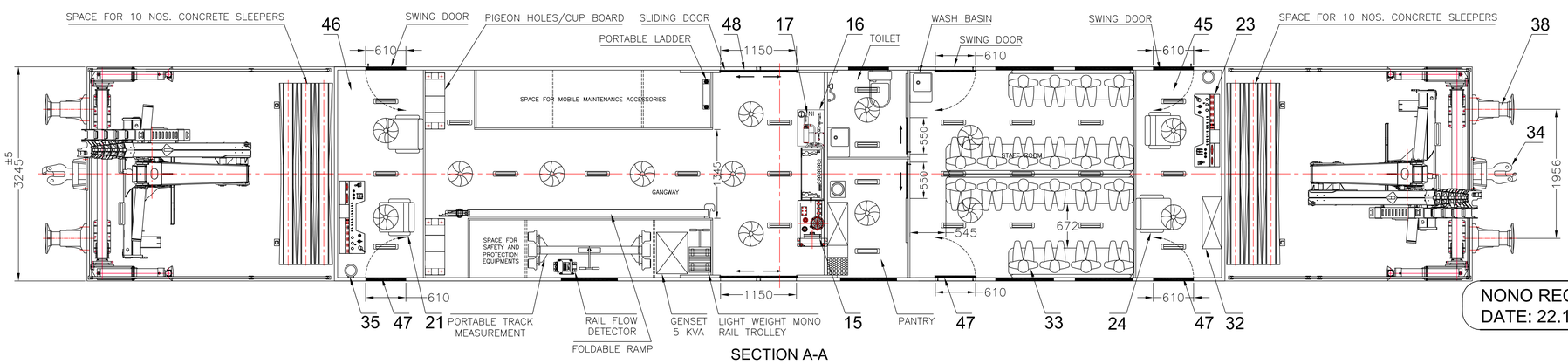
"FOR PROTOTYPE ONLY"

DIAGRAM NO:-8 1676 mm GAUGE
MMD OF DFC FOR WESTERN CORRIDOR

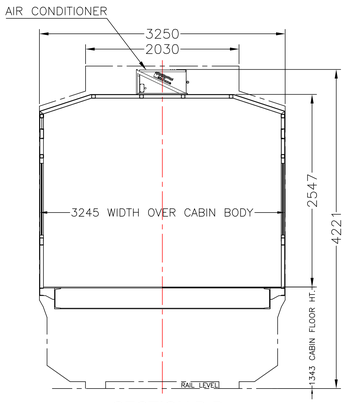
DIAGRAM No. 1D (EDO/T-2202) 1676mm GAUGE







SECTION A-A

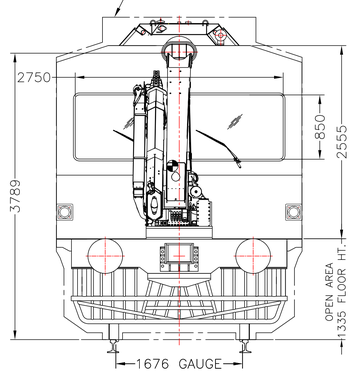


SECTION B-B

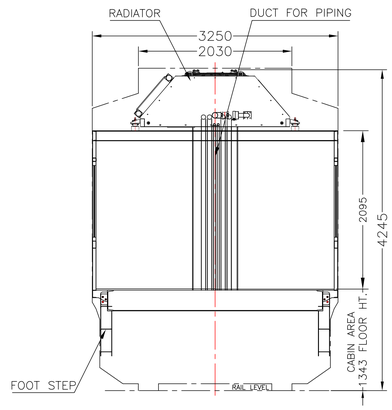
TARE WEIGHT: 68000 kgs.
GROSS WEIGHT: 80000 kgs.
MAX. OPERATING SPEED: 100 kmph

NONO RECEIVING
DATE: 22.10.2021

DIAGRAM NO:1D OF INDIAN RAILWAY SOD 1676 MM GAUGE (BG) REVISED 2004 WITH LATEST ACS



VIEW FROM 'A'



SECTION AT C-C

NOTE:
1. ALL DIMENSIONS ARE IN mm.
2. ALL DIMENSIONS UNDER TARE CONDITION.

SL.NO:	DESCRIPTION	QTY.
48	SLIDING DOOR (MIDDLE)	02
47	SWING DOOR (CABIN & STAFF ROOM)	06
46	CABIN-2	01
45	CABIN-1	01
44	RAIN WATER GUTTER	04
43	RAIL GUARD ARRGT.	02
42	HEAD LIGHTS	02
41	ELECTRICAL WIPER AND WASHER ASSLY. (2 FRONT & 2 REAR)	04
40	LIFTING BRACKET	04
39	MARKER LIGHT	04
38	BUFFERS	04
37	AIR CONDITIONERS, (CH24-7K)	04
36	CRANE	02
35	FIRE EXTINGUISHERS	02
34	C.B.C COUPLERS	02
33	CREW SEATS	20
32	TOOL BOX	02
31	FOOT STEPS	08
30	FLASHER LIGHTS	02
29	HAND HOLDS	16
28	STABILISERS	04
27	HORN	02
26	CAMERA	02

SL.NO:	DESCRIPTION	QTY.
25	FIXED RALLING	12
24	FOLDABLE SEATS	02
23	CONTROL PANEL	02
22	CATTLE GUARD	02
21	DRIVER'S SEAT	02
20	T.C. COOLER	02
19	110V BATTERY BOX	01
18	FUEL TANK-700 LTRS	01
17	WATER RAISING APPARATUS	01
16	COOLANT TANK 100 LTS. WITH WATER FILLING ARRGT. TO RADIATOR	01
15	HYDRAULIC TANK WITH OIL COOLER	01
14	AUXILIARY ALTERNATORS, KEL 4.5 KW, 110V/EQUIVALENT	02
13	AIR COMPRESSOR (ENGINE MOUNTED)	02
12	RADIATOR, ROOF MOUNTED	01
11	AIR CLEANERS	02
10	CLASP TYPE BRAKE ASSY.	08
09	COIL SPRING SUSPENSION ASSY.	08
08	WHEEL	08
07	BOGIE	02
06	AXLE DRIVE GEAR BOX (HYDRODYNAMIC DRIVE)	02
05	CARDAN SHAFTS (AUXILIARY ALT. DRIVE)	02
04	CARDAN SHAFT-2 (ENGINE TO TRANS.)	02
03	CARDAN SHAFT-1 (TRANS. TO ADGB)	02
02	TRANSMISSION	02
01	ENGINE	02

REV.NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
03	DRAWING MODIFIED AS PER MITSUI LETTER NO. -NKC-DFCC-PMC-2109-46, DATE:2021.09.07	P.K.C	VIJAY	P.K.C	P.K.C
02	DRAWING MODIFIED AS PER MITSUI LETTER NO. PEPG-MIT-NKC-2021-4-006	P.K.C	VIJAY	P.K.C	P.K.C
01	DRAWING MODIFIED AS PER MITSUI LETTER NO. PEPG-MIT-NKC-2021-4-002	P.K.C	VIJAY	P.K.C	P.K.C

RIVISIONS

PROJECT:
DESIGN, MANUFACTURING, SUPPLY, TESTING, COMMISSIONING AND TRAINING OF PLANT AND EQUIPMENT FOR RAILWAY TRACK AND ELECTRIC OVER HEAD EQUIPMENT (OHE) ON DADRI REWARI-JNPT NETWORK OF WDFC PLANT AND EQIPMENT WORKS
Package-6
Issued on: 1st Dec. 2017
ICB No. PE P-6

ORGANIZATION

CLIENT: DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LTD.
CONTRACTOR: MITSUI & CO.
DESIGNER: PHOOLTAS TRANSRAIL LIMITED
FORMERLY PHOOLTAS HARSCO RAIL SOLUTIONS (P) LTD.
LAYAK ENCLAVES, SAHAY NAGAR, PATNA-801 506

STRUCTURE: RAIL BOUND MOBILE VEHICLE
MODEL:RBMV.02.B

TITLE: GA-RBMV FOR CIVIL ENGINEERING WORKS WITH MMU EQUIPMENT

JOB NO:

	NAME	SIGN	DATE
DSGN	P.K.C		
DRWN	VIJAY		
CHKD	P.K.C		
APPD	S.K.R		

SIZE A1
PROJECTION
SCALE

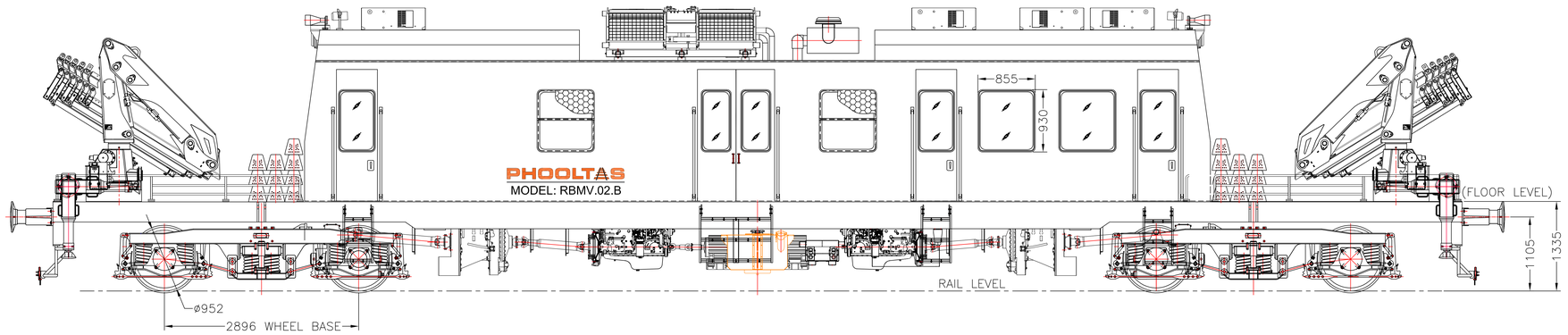
RELEASED FOR
- ☐ PRELIMINARY
- ☑ FOR APPROVAL
- ☐ GOOD FOR CONSTRUCTION
- ☐ AS BUILT

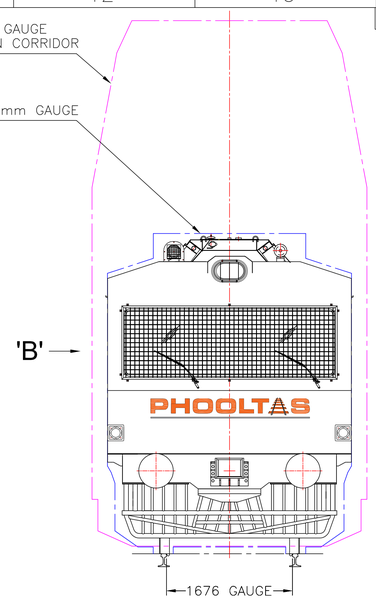
DRG.NO. 8 B 0 3 0 2 0 0 0 1 0 0
REV 03
SHEET NO. 1 OF 3

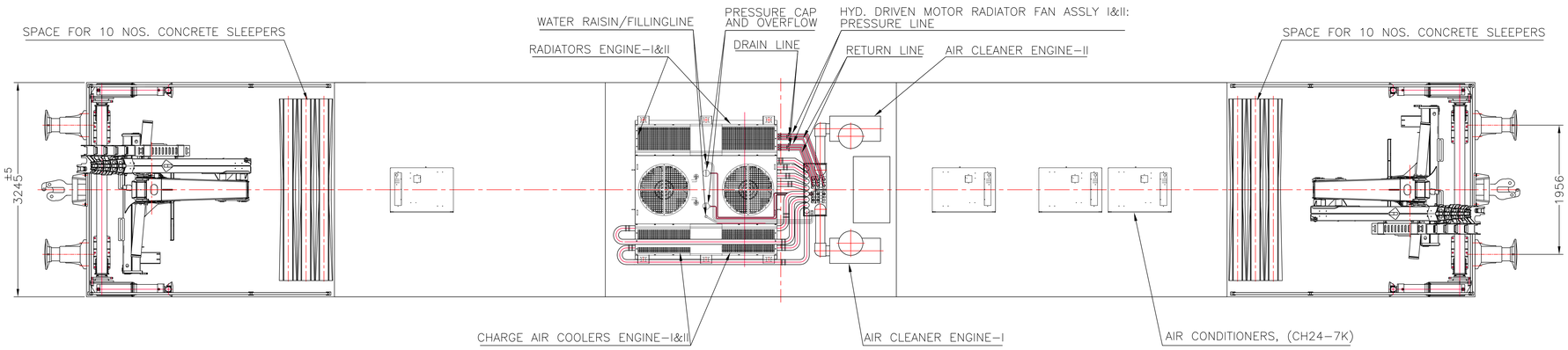
"FOR PROTOTYPE ONLY"

DIAGRAM NO:-8 1676 mm GAUGE
MMD OF DFC FOR WESTERN CORRIDOR

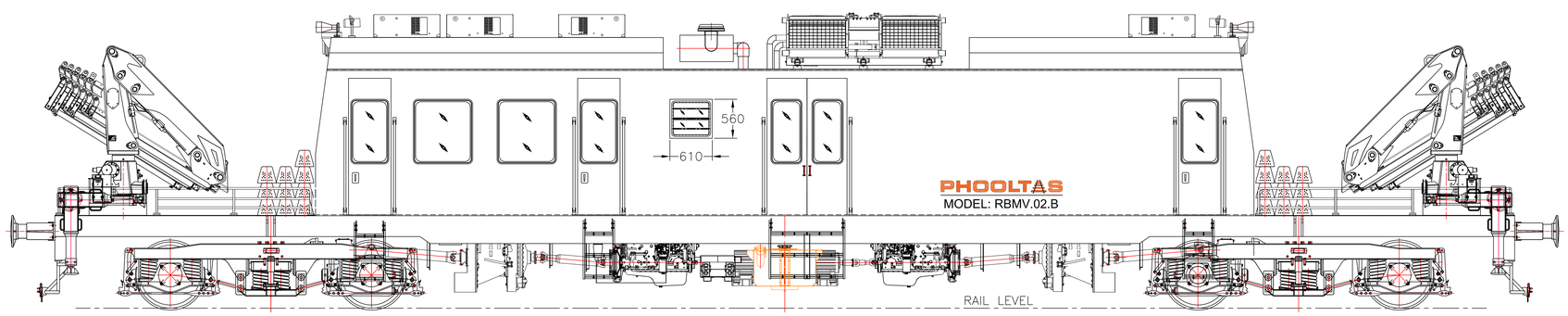
DIAGRAM No. 1D (EDO/T-2202) 1676mm GAUGE







NONO RECEIVING
DATE: 22.10.2021



VIEW FROM 'B'

NOTE:
1. ALL DIMENSIONS ARE IN mm.
2. ALL DIMENSIONS UNDER TARE CONDITION.

REV.NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED

RIVISIONS

PROJECT:
DESIGN, MANUFACTURING, SUPPLY, TESTING, COMMISSIONING AND TRAINING OF PLANT AND EQUIPMENT FOR RAILWAY TRACK AND ELECTRIC OVER HEAD EQUIPMENT (OHE) ON DADRI REWARI-JNPT NETWORK OF WDFC PLANT AND EQIPMENT WORKS
Package-6
Issued on: 1st Dec. 2017
ICB No. PE P-6

ORGANIZATION

CLIENT: DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LTD.

CONTRACTOR: MITSUI & CO.

DESIGNER: PHOOLTAS TRANSRAIL LIMITED
FORMERLY PHOOLTAS HARSCO RAIL SOLUTIONS (P) LTD.
LAYAK ENCLAVES, SAHAY NAGAR, PATNA-801 506

STRUCTURE: RAIL BOUND MOBILE VEHICLE
MODEL:RBMV.02.B

TITLE: GA-RBMV FOR CIVIL ENGINEERING WORKS WITH MMU EQUIPMENT

JOB NO:

SIZE A1

	NAME	SIGN	DATE
DSGN	P.K.C		
DRWN	VIJAY		
CHKD	P.K.C		
APPD	S.K.R		

PROJECTION

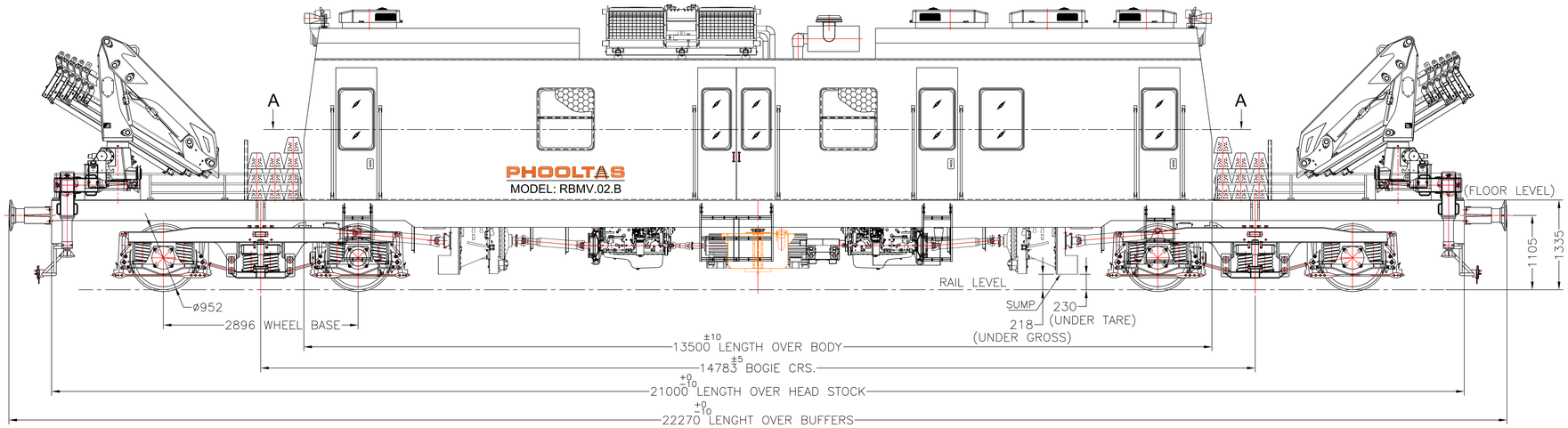
SCALE

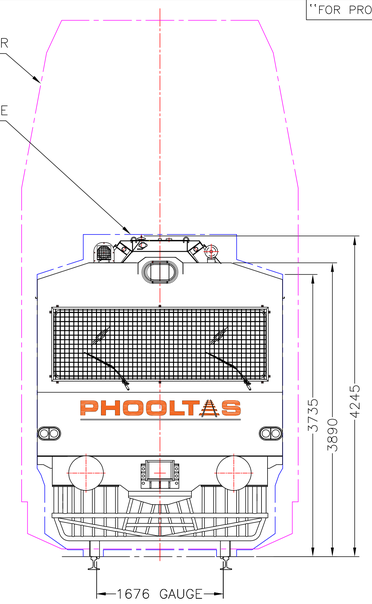
RELEASED FOR
- [ ] PRELIMINARY
- [x] FOR APPROVAL
- [ ] GOOD FOR CONSTRUCTION
- [ ] AS BUILT

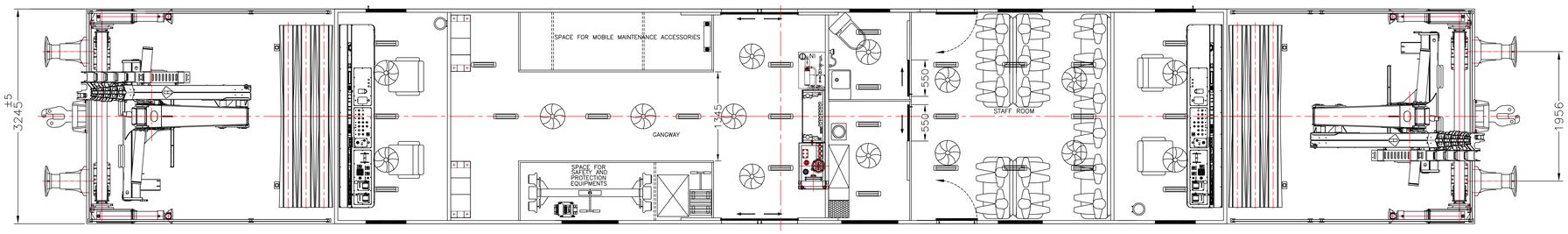
DRG.NO. 8B030200010 0 REV 03

SHEET NO. 2 OF 3

"FOR PROTOTYPE ONLY"







NONO RECEIVING
DATE: 22.10.2021

SL. NO.	DESCRIPTION	DATA
01	TARE WEIGHT:	68000 kgs.
02	GROSS WEIGHT:	80000 kgs.
03	MAX. DESIGN SPEED:	100 kmph
04	MAX. DESIGN SPEED IN TRAIN FORMATION	100 kmph
05	MAX. OSCILLATION TRIAL SPEED	110 kmph
06	MAXIMUM AXLE LOAD:	20 t
07	MAXIMUM TRACTIVE EFFORT PER AXLE:	8877.8 Kg
08	MAXIMUM BRAKING FORCE PER WHEEL:	3178.5 Kg
09	HEIGHT OF CENTRE OF GRAVITY OF VEHICLE ABOVE RAIL LEVEL:	1406 mm (Tare) 1485 mm (Gross)
10	ENGINE MAKE, MODEL AND RATING:	MAKE: ASHOK LEYLAMD MODEL: N6, CRS RATING: 450 HP@2200 RPM

NOTE:
1. ALL DIMENSIONS ARE IN mm.
2. ALL DIMENSIONS UNDER TARE CONDITION.

REV.NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED

RIVISIONS

PROJECT:
DESIGN, MANUFACTURING, SUPPLY, TESTING, COMMISSIONING AND TRAINING OF PLANT AND EQUIPMENT FOR RAILWAY TRACK AND ELECTRIC OVER HEAD EQUIPMENT (OHE) ON DADRI REWARI-JNPT NETWORK OF WDFC PLANT AND EQIPMENT WORKS
Package-6
Issued on: 1st Dec. 2017
ICB No. PE P-6

ORGANIZATION

CLIENT: DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LTD.
डेडीकेटेड फ्रेट कॉरीडोर

CONTRACTOR: MITSUI & CO.

DESIGNER: PHOOLTAS TRANSRAIL LIMITED
FORMERLY PHOOLTAS HARSCO RAIL SOLUTIONS (P) LTD.
LAYAK ENCLAVES, SAHAY NAGAR, PATNA-801 506

STRUCTURE: RAIL BOUND MOBILE VEHICLE
MODEL:RBMV.02.B

TITLE: GA-RBMV FOR CIVIL ENGINEERING WORKS WITH MMU EQUIPMENT

JOB NO:

SIZE A1

	NAME	SIGN	DATE
DSGN	P.K.C		
DRWN	VIJAY		
CHKD	P.K.C		
APPD	S.K.R		

PROJECTION

SCALE

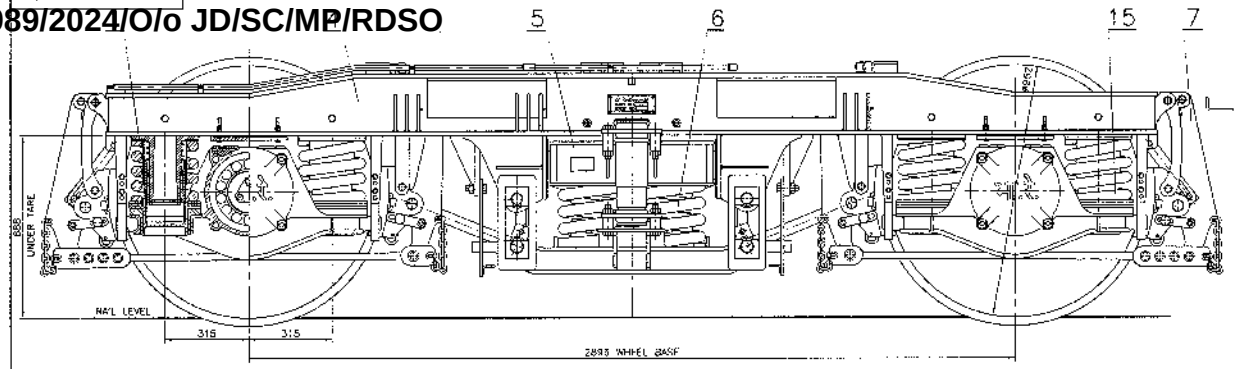
RELEASED FOR
- ☐ PRELIMINARY
- ☑ FOR APPROVAL
- ☐ GOOD FOR CONSTRUCTION
- ☐ AS BUILT

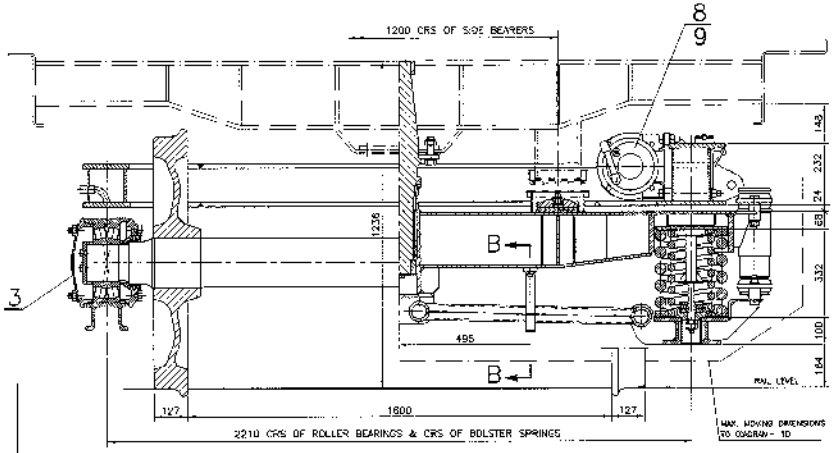
DRG.NO. 8B0302000100

REV 03

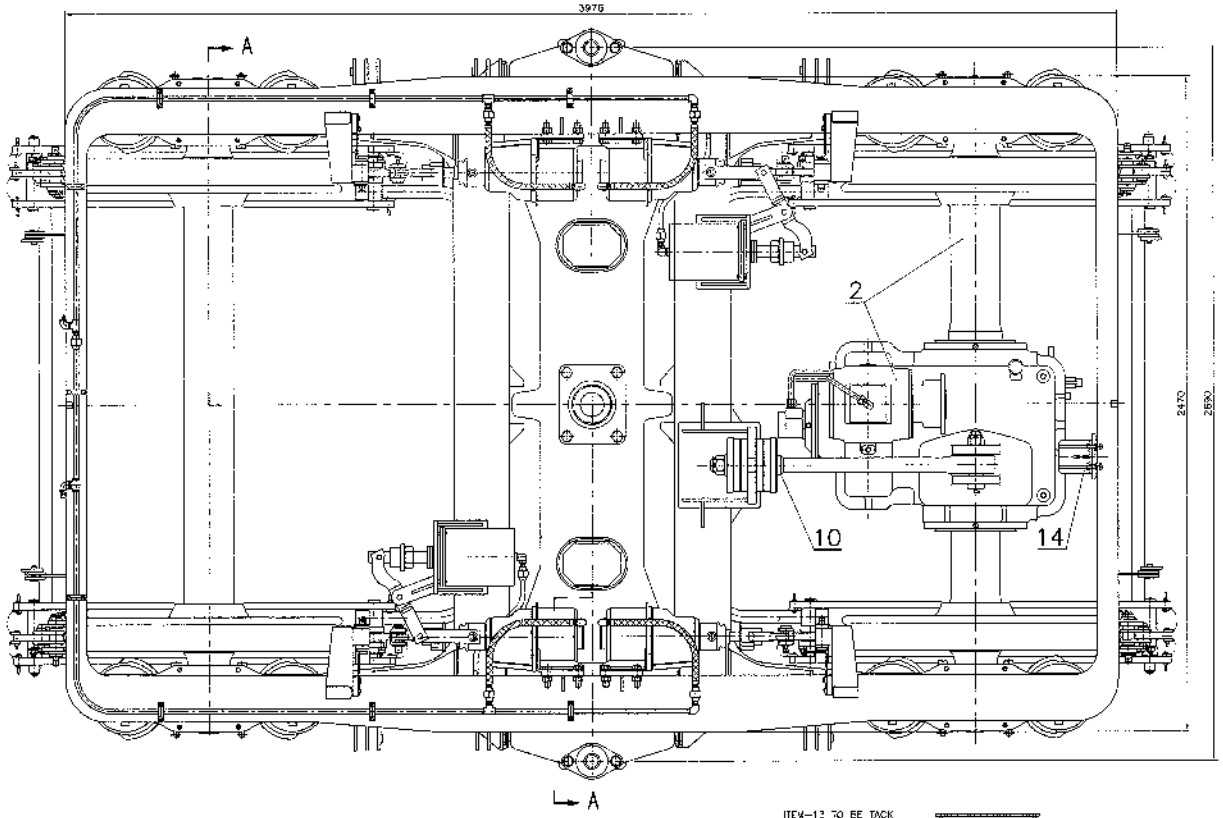
SHEET NO. 3 OF 3

▽ ROUGH MACHINED	(R) ROUGH CLEANING	ALTERATIONS:	
▽▽ FINISH MACHINED	(C) CHAMFERED	04/2014	FOR ITM-6 SET DRG DELETED AND ADDED IN TABLE-1.
▽▽▽ FINE FINISH MACHINED	(B) BURRS REMOVED		





SECTION – AA

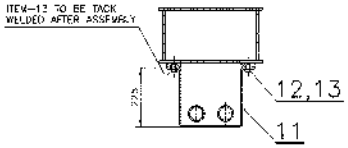


NOTE:

1. COL- 1 PERTAINS TO SHELL ITEMS.
   COL- 2 & 3 PERTAINS TO FUR ITEMS.
2. FOR OPEN TOLERANCES AND SURFACE FINISH VALUES REFER ORG. NO. ICF/STG-9-0-001.
3. GALVANISED TO IS:1573 TO SERVICE GRADE NO-2 OF TABLE-2.

TABLE-1

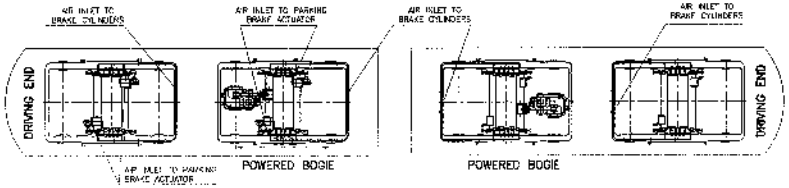
ITEM NO.	DESCRIPTION		DRAWING NUMBER
6	BOGIE BOLSTER SUSPENSION ARRANGEMENT	WITH LONG CENTRE PIVOT PIN	DMU/DPC-0-5-001/COL-8
		WITH SHORT CENTRE PIVOT PIN	SV/DPC3-0-5-001/COL-1
8	BOGIE BRAKE PIPING AND PARKING BRAKE ARRANGEMENT	MS PIPE & FITTINGS	DMU/DPC-3-2-002
		SS PIPE & DOUBLE FERRULE FITTINGS	DMU/DPC7-3-2-702
9	BOGIE BRAKE PIPING ARRANGEMENT	MS PIPE & FITTINGS	DMU/M-3-2-052/COL-1
		SS PIPE & DOUBLE FERRULE FITTINGS	DMU/DPC7-3-2-701/COL-2



SECTION – BB

@ SV/DPC3 WITH "SAN" EQUIPMENTS

ARTV5 WITH "SAN" EQUIPMENTS



SV/DPC3 (WITH PARKING BRAKE) KEY DIAGRAM ARTV5

QTY			ITEM	DESCRIPTION & DIMENSION	REF. DRGS	MAT. SPEC	WEIGHT/UNIT	REMARKS
1	1	1	15	SUSPENSION DIAGRAM	SV/DPC 0-0-004			
–	–	1	14	FIXING ARRGT OF STOPPER FOR FINAL DRAW	SV/DPC3 0-0-002			COL-1
–	–	4	13	SPRING LOCK WASHER B12-IS:3063	IS:3063			SEE NOTE-3
–	–	4	12	HEXAGON HEAD SCREW-S 1363(Part 2)/ ISO 4018-M12x20-4.6	IS: 363(PT2)			SEE NOTE-3
–	–	2	11	SAFETY STRAP	DC/DMU/M 0-5-011			ITEM-1
–	–	1	10	TORQUE ARM FIXING ARRGT	SAN MAKE SEE NOTE			
–	–	–	9	BOGIE BRAKE PIPING ARRANGEMENT	SEE TABLE 1			
–	–	1	8	BOGIE BRAKE PIPING AND PARKING BRAKE ARRGT.	SEE TABLE 1			
–	–	1	7	BOGIE BRAKE ARRANGEMENT	DMU/M 3-2-064			COL-2
–	–	1	6	BOGIE BOLSTER SUSPENSION ARRGT.	SEE TABLE 1			
–	–	1	5	BOGIE BOLSTER ARRANGEMENT	DMU/DPC 0-4-001			COL-2
–	–	1	4	BOGIE FRAME ARRANGEMENT	SV/DPC3 0-3-001			COL-1
–	–	1	3	ROLLER BEARING ARRGT (NON-POWERED AXLE)	SV/DPC 0-7-003			COL-1
–	–	1	2	ROLLER BEARING ARRGT (POWERED AXLE)	SV/DPC 0-2-001			COL-2
–	–	8	1	AXLE BOX GUIDE ARRANGEMENT	DMU/DPC 0-5-001			COL-7

3 2 1 GROUP: 0-0

SUPERSEDED BY:

SUPERSEDES: 56800001 ALT-/-

SCALE: SEE NOTE

1:10

CHD	
ALTD	S.N.Karthikeyan
DRN	M.Chandrasekaran

Aphc Alt:- 0

BOGIE GENERAL ARRANGEMENT FOR POWERED BOGIE OF SPART WITH "SAN" EQUIPMENTS

INTEGRAL COACH FACTORY CHENNAI-38

56790002					
56800002					
ASSEMBLY DRAWINGS					
30-04-2014	09-01-2012				
0 Num. Alt.	DATE OF LATEST ALT.	DATE OF FIRST ISSUE	AME/SME		

PER COACH / PER COACH

DATE CODE NO. 568

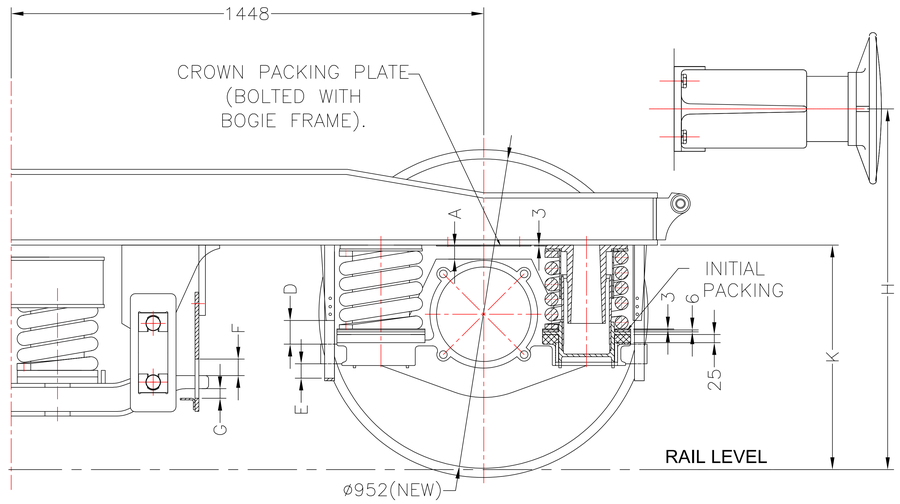
INDIAN RAILWAY STANDARDS

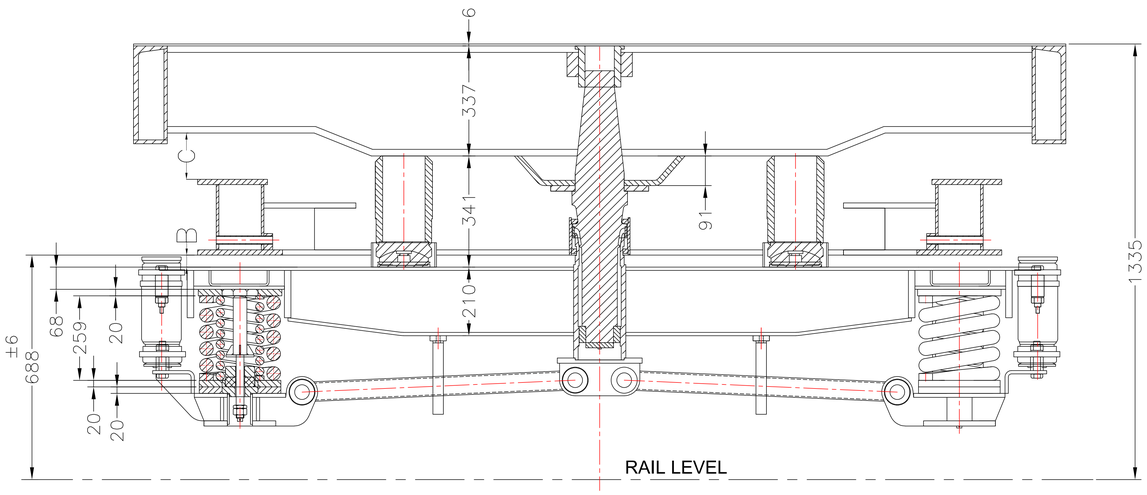
SHEET 1 OF 1

SV/DPC3-0-0-001

FORM:-IR.A1-840X600

"FOR PROTOTYPE ONLY"





LOADING CONDITION			TARE	GROSS
S.NO.	DESCRIPTION		DESIGN DIMENSION	DESIGN DIMENSION
1	CROWN CLEARANCE	A	40±6	29±6
2	BOLSTER CLEARANCE (IN BETWEEN BOGIE BOLSTER & BOGIE FRAME)	B	37±5	49±5
3	CLEARANCE BETWEEN TOP OF BOGIE FRAME & BOTTOM OF BODY BOLSTER	C	142±5	130±5
4	AXLE BOX SAFETY LUGS CLEARANCE — TOP	D	55±6	44±6
	AXLE BOX SAFETY LUGS CLEARANCE — BOTTOM	E	35±6	46±6
5	BOLSTER SAFETY LUGS CLEARANCE — TOP	F	25±5	25±5
	BOLSTER SAFETY LUGS CLEARANCE — BOTTOM	G	55±5	55±5
6	BUFFER HEIGHT FROM RAIL LEVEL	H	1105+0/−5	1082±5
7	BOGIE FRAME HEIGHT FROM RAIL LEVEL	K	688±6	677±6
8	SPRING HEIGHT — PRIMARY		239±5	228±5
	SPRING HEIGHT — SECONDARY		259±5	247±5

NOTE:—

1. ALL DIMENSIONS ARE IN mm.
2. AXLE BOX SPRING TO DRG. NO. SPMUV01−03 01.00, REV. 0
3. BOLSTER NEST TO DRG. NO. SPMUV01−03 02.00, REV. 0
4. INITIAL PACKING PROVIDED AT BOLSTER NEST: 20 mm+20mm THK. AT BOTTOM AND 20 mm THK. AT TOP AT EACH BOLSTER NEST.
5. INITIAL PACKING PROVIDED AT AXLE BOX SPRING: 6mm+3mm THK. AT BOTTOM AT EACH AXLE BOX SPRING.
6. CROWN PLATE : 3 mm THK. EACH

WEIGHT PARTICULARS :

1. TARE WEIGHT OF VEHICLE : 68 TONNES
2. WEIGHT OF EACH BOGIE : 7.5 TONNES
3. WEIGHT OF EACH BOLSTER : 0.5 TONNES
4. PAY LOAD : 12 TONNES

REV.NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED

RIVISIONS

PROJECT:
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Package-6
Issued on: 1st Dec. 2017
ICB No. PE P-6

ORGANIZATION

CLIENT: DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LTD.

CONTRACTOR: MITSUI

DESIGNER: PHOOLTAS TRANSRAIL LIMITED
FORMERLY PHOOLTAS HARSCO RAIL SOLUTIONS (P) LTD.
LAYAK ENCLAVES, SAHAY NAGAR, PATNA−801 506

STRUCTURE: RAIL BOUND MOBILE VEHICLE
MODEL:RBMV.02.B

TITLE: SUSPENSION DIAGRAMMATIC ARRANGEMENT

JOB NO:

SIZE A1

	NAME	SIGN	DATE
DSGN	ANAND		
DRWN	VIJAY		
CHKD	P.K.C		
APPD	ANAND		

PROJECTION

SCALE

RELEASED FOR
- ☐ PRELIMINARY
- ☑ FOR APPROVAL
- ☐ GOOD FOR CONSTRUCTION
- ☐ AS BUILT

DRG.NO. 8B03020300002 REV 0

SHEET NO. 1 OF 1

डेडीकेटेड फ्रेट कोरीडोर

डेडीकेटेड फ्रेट कोरीडोर कार्पोरेशन ऑफ़ इंडिया लि.
Dedicated Freight Corridor Corporation of India Limited
(भारत सरकार का उपक्रम) (A Govt. of India Enterprises)
5th Floor, Supreme Court Metro Station Building Complex, New Delhi -110001

No.: HQ/ENWC/PWC(PnE)/1/2020(6106) Dated: 29.02.2024

ED/Track Machine
RDSO
Manak Nagar
Lucknow- 226011

Sub: Allotment of Transportation Code for Rail Bound Mobile Vehicle (RBMV) regarding.

Ref: This office letter of even no. Dated 01.02.2023 and 04.05.2023

In reference to the referred letter dated 01.02.2023, the proposed Transportation Codes for various vehicles were conveyed. Further, the details pertaining to the subject vehicle were conveyed vide this office letter dated 04.05.2023.

The details pertaining to Transportation Code etc. of the subject vehicle are again reiterated in the following table:

S.No.	Name of the Machine	Proposed Transportation Code	Model No.	Layout Drawing No.
1.	Rail Bound Mobile Vehicle (RBMV) for civil Engineering Works with MMU equipment	RBMVC D	RBMV.02.B	8B0302000100 Rev. 3

In view of the above details, it is requested that the Provisional Speed Certificate for this vehicle may please be issued at the earliest.

Praveen Kumar
29.2.24
(Praveen Kumar)
ED/Asset Mgmt./WDFC

(Railway Board)

No.65/WDO/SR/26 New Delhi, October 19/20, 1966

To

The General Managers,
All Indian Railways.

The G.M. & Chief Engineer,
Railway Electrification project, Calcutta.

The Chief Administrative Officer,
B.B.K. Railway Projects, Waltair.

Sub: Use of new type of Rolling Stock.

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Use of new type of rolling stock on existing Railway systems is governed by the Rules laid down in Chapter VI of the Rules for opening of a Railway. In terms of para 5 of this Chapter, applications for use of new type of rolling stock are required to be accompanied by a certificate to be signed by the Chief Engineer and Chief Mechanical Engineer of a Railway in a form specified therein.

2. The Board wish to point out that this certificate by the Chief Engineer and the Chief Mechanical Engineer (and Chief Electrical Engineer in case of electrical stock) is a positive act of certification in regard to track and locomotive maintenance standards for the speed indicated and a statutory obligation. The Officers signing the certificate are required to decide, on the basis of their personal knowledge and experience of the maintenance conditions of the track, locomotives or rolling stock, with due regard to relevant information available and the maintenance requirements of the new type of rolling stock, as to whether the operation of the particular type of locomotive or rolling stock on the relevant section of the Railway is safe and practicable with the facilities available on the Railway system. The RDSO merely recommend the maximum speed at which locomotives and rolling stock could be permitted to run on standard track under average maintenance conditions and this recommendation is made only on the basis of design features of the particular type of locomotive, rolling stock and assessment of their suitability from oscillation and other tests conducted by the RDSO. These certificates for speed issued by RDSO are meant merely to assist the CEs and CMEs/CEEs in deciding on the speed at which these engines/rolling stock may be permitted to run on their Railway system for the maintenance conditions obtaining on their Rlys.

3. A note on the subject prepared by the DG/RDSO is enclosed herewith in quadruplicate for guidance of your officers.

4. Receipt of this letter may please be acknowledged.

Sd/-
(B.S.D. Baliga)
Director, Civil Engineering,
Railway Board
New Delhi, October 19/20, 1966,

DA: As above.

No.65/WDO/SR/26

Copy to D.G. RDSO, Alambagh, Lucknow with reference to his letter No.MRA/573 of 16.8.1966.

Sd/-
(B.S.D. Baliga)
Director, Civil Engineering.
Railway Board.

Enclosure to Board's letter No.65/WDO/SR/26 dated 19-10-66.

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Use of new types of Rolling Stock.

The rules for use of new types of rolling stock on existing railways are laid down in Chapter VI of the Rules for Opening of a Railway. According to para 5 of this Chapter, applications for use of new type of rolling stock arerequired to be accompanied by a certificate to be signed by the Chief Engineer and the Chief Mechanical Engineer of the Railway in the form specified in para 5(a)(ii). It should be clearly understood that this certificate by the Chief Engineer and the Chief Mechanical Engineer(Chief Electrical Engineer in the case of Electrical Stock) is a positive act of certification and a statutory obligation.

2. The Chief Engineers and Chief Mechanical Engineers (Chief Electrical Engineers in the case of electric stock) are required to decide on the basis of their personal knowledge and experience of track, locomotives or rolling stock with due regard to relevant information available of track and rolling stock and their maintenance requirements, as to whether the operation of particular locomotive or rolling stock is safe and practicable with the facilities provided on the railway system. It may be emphasized that respective Heads of Departments are required to certify annually regarding the sound condition of the track and rolling stock in operation in terms of para 1522 of Indian Railway Code for Accounts department.

3. Prior to the setting up of testing facilties on the Indian Railways, the safety certificate for operation of locomotives and rolling stock was issued by the Chief Engineer and Chief Mechanical Engineers on the basis of their personal knowledge and experience and on the basis of the recommendation for speed limit by the consulting engineers, who available. With the build up of increased design and testing facilities in RDSO, due recommendation is made by RDSO on the basis of design features of particular stock and assessment of their stability from oscillation tests conducted on main line track in normal state of maintenance and not subjected to speed restriction.

4. R.D.S.O. advises the Railway of the speed at which different types of locomotive and rolling stock can be permitted to run on different track structures. This is done in two stages:

(a) preliminary speed; and

(b) final maximum speed.

The preliminary speed is based on a study of the design characteristics of the vehicle and experience of performance of similar designs in India and/or abroad. Such speed would be generally lower than the sectional maximum speed and it would not be difficult for CEs and CMAs to arrive at a decision in issuing the Safety Certificate. Further, it is up to the CEs to decide whether any particular sections or routes require the imposition of a restriction on a generally sanctioned speed. Such a decision has to be based purely on the personal knowledge and experience of the engineers of the zonal railways.

5. It is, however, necessary to keep a watch on the performance of vehicles permitted on such preliminary speed limit to gather experience for guidance in determination of the final maximum speed both by RDSO and Railways the former taking this aspect into account along with the review of the oscillation test, and the latter while issuing the certificate for the final maximum speed. The final maximum speed is determined by the RDSO on review of the oscillation tests generally conducted for new designs and on confirmation of the suitability of the stock from the point of view of strength of track and bridges, although such investigation is made even at the initial stage of design. The oscillation trials are conducted with a view to obtaining data relating, inter-alia to the riding characteristics of the vehicle at the specified speeds. Such tests include aspects, such as, vertical wheel/axle load and lateral force ratio and vertical and lateral acceleration of the vehicle. The studies are aimed at assessing the possibilities of track distortion, wheel mounting, riding comforts etc. For conducting these tests, a section of main line track is selected over which there are no temporary restrictions and which is considered by the railway as being in a generally run down condition for main line standards but without speed restriction. The vehicle is tested generally for new and worn clearance conditions and also where relevant for operation in the forward or back-ward direction. The vehicle selected is one of those in average condition of normal maintenance. The tests are conducted on speeds usually 10% higher than that to which it is proposed to be certified.

On the basis of the theoretical as well studies and investigations of the tests as indicated and the analysis of the test results, the RDSO recommends the maximum speeds up to which a vehicle may be permitted in normal traffic operation. The certificate of the RDSO though issued by the Director Standards(Mech.) is the final result of studies conducted by the various concerned

Directorates such as Civil Engineering, Carriage and Wagon Motive Power etc. This recommendation of the RDSO is meant to be used as guidance by the CEs and CMEs of the zonal railways in formulating their own certificates to be furnished to the ACRS. It is upto Chief Engineer, Chief Mechanical Engineers and Chief Electrical Engineers to consider on the basis of their personal knowledge and experience of track locomotive and rolling stock and their maintenance requirements whether the conditions prevailing are such as to require a reduction in the speed of the vehicles in normal traffic operation.

6. In the case of certification of speeds by the CEs and CMEs up to 105 Km/hr., it is neither feasible nor it is considered necessary that any more guidance than that at present being given by RDSO should be available to them in normal cases in arriving at their conclusions in the matter of formulation of their certificates to the ACRS. In the case of operation at higher speeds, it is proposed that in addition to the data at present being furnished, copies of track recording charts of the track over which the tests were conducted would also be incorporated in the test reports and made available for reference to the CEs and CMEs. It has already been accepted by the Board that in the case of high speed track (speed above 105 km/hr) track recording would be done at intervals of about 6 months. A comparison of the track recording for the test track with the track recording of the routes over which the high speeds are to be run would be an additional guidance to the CEs and CMEs in the formulation of their certificates.

In conclusion, it may be pointed out that the statutory obligation of certification of speeds is that of the CEs and CMEs/ and CAEs of the zonal railways. In discharging these functions, the CEs and CMEs/CAEs are assisted by the RDSO. The extent of such assistance would normally depend on the speeds involved and the facilities available with the RDSO [illegible]. The procedures, at present, followed are considered satisfactory for speeds upto 105 km/hr. For higher speeds, recording of characteristics of the test track would also be made available to the zonal railways for purpose of comparison with the actual track conditions prevailing from time to time.

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involve large number of labour working with the machine. Hence, extra care is necessary as detailed below, to ensure safety of workers.

(b) Hooters should be provided on the track machines. These hooters should be used to warn the staff working on/around the track machine about approaching train on adjoining track. Remote controlled hooters shall also be deployed as an added precaution by SSE/JE/P.Way so that lookout man standing around 150 m away from the track machine can also operate the hooter to warn the staff suitably. SSE/JE/TM shall also put on the flasher light on as an added precaution till the train on adjacent line has passed the site of work.

(c) Caution order of 30 to 50 kmph with instructions to whistle freely should be imposed on the adjacent line, during the duration of block, for the safety of workmen, depending upon the site conditions and visibility.

(8) **Checking Infringement After Work -** The vertical and lateral clearance for OHE, signal post and any other structure should be checked and adjusted before clearing the block. It shall be ensured by SSE/JE (P.Way) working with track machine that there should be no infringement to signal post, OHE and any other structure as per schedule of dimensions.

708 Failure and Accidents of Track Machines

(1) **Protection in case of Breakdown -** In the event of breakdown, the track machines shall be protected as per GR 6.03 and SR there to by the machine staff, as directed by machine in-charge.

(2) **Failures in Block Section -** Failures in block sections of the track machines will be treated as accident under class 'J – Equipment failure'.

(3) **Accidents involving Track Machine -** Accidents involving track machines shall be treated as train accidents under the appropriate class and action shall be taken as per the rules in force.

(4) **Action in case of Failure in Block -** In case of failure of track machine in block section, immediate information with details should be conveyed to the ADEN/DEN/Sr.DEN of the section and the AXEN/XEN/Dy.CE/Line/TM. SE/JE/TM should decide in consultation with SSE/JE (P. Way), the action to be taken to clear the section. They may decide to push the disabled unit to the nearest station provided the brake power is in good condition. Otherwise, intimation shall be sent to the nearest Station Master asking for a light engine to tow the unit.

(5) **Request for ART/Breakdown -** In case, SSE/JE (P. Way) and/or SSE/JE/TM feels clearance of section is going to take long time, the assistance of Road Break-down or Accident Relief Train shall be asked for immediately. Meanwhile SSE/JE/TM in-charge on the machine shall take necessary action to rectify the defect(s). SSE/JE (P. Way) shall provide all necessary assistance.