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

FINAL SPEED CERTIFICATE FOR OPERATION

No.	TM/HM/11/52/SRGM-LORAM	Date	As Signed

(A) महाप्रबन्धक (इंजीनियरिंग),

1. मध्य रेलवे, छत्रपति शिवाजी टर्मिनस, मुम्बई– 400001
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता– 700001
3. उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली– 110001
4. पूर्वोत्तर रेलवे, गोरखपुर– 273001
5. पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव, गुवाहाटी– 781011
6. दक्षिण रेलवे, एनेक्सी, पार्कटाऊन, चेन्नई– 600003
7. दक्षिण मध्य रेलवे, रेलनिलायम, सिकन्दराबाद– 500071
8. दक्षिण पूर्व रेलवे, गार्डनरीच, कोलकाता– 700043
9. पश्चिम रेलवे, चर्चगेट, मुम्बई– 400020
10. उत्तर मध्य रेलवे, प्रयागराज– 211001
11. उत्तर पश्चिम रेलवे, जयपुर– 302006
12. पूर्व मध्य रेलवे, हाजीपुर– 844101
13. पूर्व तट रेलवे, रेलवे कॉम्पलेक्स, भुवनेश्वर– 751023
14. दक्षिण पश्चिम रेलवे, हुबली– 580023
15. पश्चिम मध्य रेलवे, जबलपुर– 482001
16. दक्षिण पूर्व मध्य रेलवे, बिलासपुर– 495004

(B) प्रबन्ध निदेशक,

डेडीकेटेड फ्रेट कोरीडोर कॉर्पोरेशन ऑफ इण्डिया लि0 पाँचवा तल, प्रगति मैदान मेट्रो स्टेशन बिल्डिंग कॉम्पलेक्स नई दिल्ली–110001

Sub:	Final speed certificate for operation of Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" **(Transportation Code- SRGRGI20)** supplied by M/s. LORAM, USA upto maximum speed of 65kmph when running on its own power as well as when running in train formation as a dead vehicle and as a last vehicle over Indian Railways and over routes of Eastern & Western dedicated freight corridors of Indian Railway.

Ref:	Railway Board's Contract No. 2019/Track-III/MC/2 dated 12.06.2020.

1.0 IMPORTANT PARAMETERS RELATED TO ROLLING STOCK

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

Stock Name	Switch Rail Grinding Machine	**Max. Axle Load(Empty)**	Grind Car	21.28t	**Max. Axle Load(Loaded)**	Grind Car	21.66t
			Camp Coach	11.44t		Camp Coach	13.63t

Transportation Code	**SRGRGI20**	**GA Drg. No.**	M/s. LORAM, USA's GA Drawing No. 246953

Bogie Arrgt. Drg. No.	RDSO's Drg. No.WD- 04078-S/1 for Grind Car & M/s San Engg. Drg No. SNSK4865 for Camp coach	**Suspension Arrgt. Drg. No.**	RDSO's Drawing No.WD- 04078-S/1 for Grind Car & M/s San Engg. Drg No. SNSK4865 for Camp coach

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

Type of Bogie	CASNUB for Grind Car (WD-17-Casnub-22HS-Bogie-92 Rev.3 with amend 5) & ICF for Camp coach (Drawing No. DHMU/DPC-0-1-001, DMU/DPC10-0-5-001 & EMU/M-0-6-001)	**Type of Coupler**	H Type, Coupler with Transition Screw

Wheel Dia.(mm)	**Grind Car**		**Camp Coach**	
	New	Worn	New	Worn
	1000	908	952	877

Max. Permissible Speed for IR & for routes of Eastern & Western DFCCIL	**Own Power**	65kmph	**Train Formation**	65kmph

2.0	**INTRODUCTION**
2.1	Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" supplied by M/s. LORAM, USA as per their Consist SRGM GA Drg. No. 246953, Grind car GA Drg. No. 246963 & Camp Coach GA Drg. No. SNSK4837 is a self- propelled machine which is used for turnout rail grinding as well as plain track rail grinding. Switch Rail Grinding Machine, Model "RGI Series 20 Stone Rail Grinder" is consisting of one Grind Car and one Camp Coach. The machine was permitted to run provisionally upto maximum speed of 65kmph when running on its own power as well as when running in train formation as a dead vehicle against design speed of 80kmph when running on its own power and 100kmph when running in train formation as per RDSO speed certificate No. TM/HM/11/52/SRGM-LORAM dated 04.02.2022. Subsequently the detailed oscillation trial was conducted over Mahoba-Khajuraho section of North Central Railway and the machine shown satisfactory running behaviour upto 75kmph on its own power as well as when running in train formation as a dead vehicle as per results contained in Oscillation trial report No. RDSO/2022/TG/MT-1943/F Rev.-0/Amendment–Nil dated 23.12.2022. As per the trial report mentioned above, the test vehicle (Switch Rail Grinding Machine, Model "RGI Series 20 Stone Rail Grinder") has shown riding & stability characteristics values within limits at test speed upto 75kmph on its own power as well as in train formation as a dead vehicle.
2.2	Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" supplied by M/s Loram, USA is having maximum axle load 21.66t and 13.63t for Grind Car and Camp Coach respectively. The wheel diameters of Grind Car and Camp Coach are 1000mm and 952mm respectively. The bogie suspension arrangement of Grind Car and Camp Coach is as per RDSO Drg. No. WD-04078-S/1 and M/s SAN Engg. & Locomotive Company Ltd, Bangalore's Drg. No. SNSK 4865 respectively. The design speed of machine is 80kmph when running on its own power and 100kmph when running in train formation as a dead vehicle and as a last vehicle. The design details are given in Annexure- A.
2.3	The Camp Coach is a new vehicle for SRGM consists. The maximum axle load, wheel base and wheel diameter of camp coach are 13.63t, 2896mm and 952mm respectively. The design speed of Camp Coach is 100kmph when running in train formation as a dead vehicle.

3.0	Based on design features of the machine, supplied by M/s Loram, USA and satisfactory test results as indicated in oscillation trial Report no. RDSO/2022/TG/MT-1943/F Rev.-0/Amendment–Nil dated 23.12.2022, it is certified that the Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" to GA Drg. No. 246953 of consist SRGM & 246963 of grind car and **Transportation Code- 'SRGRGI20'** may be permitted to run on regular basis upto a maximum speed of 65kmph when running on its own power as well as when running in train formation as a dead vehicle and as a last vehicle for operation over Indian Railways and over routes of Eastern & Western dedicated freight corridors of Indian Railway, 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 50kmph	Upto 50kmph
	52 kg (90UTS)	1540 Nos./km PSC Sleeper	250mm (100mm clean & rest in caked up condition on compacted and stable formation)	Upto 65kmph	Upto 65kmph
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 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 Indian Railways Permanent Way Manual, June-2020, regarding permanent way renewals and shall 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 structure shall be of minimum standard-**				
	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)	65kmph	65kmph
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 RAILWAY**
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 Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" supplied by M/s Loram, USA:-

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)**	
	Grind Car	**Camp Coach**		**Grind Car**	**Camp Coach**	**Grind Car**	**Camp Coach**
Switch Rail Grinding Machine (SRGM)	21.66	13.63	6.06	4.1	1.7	1626	1284

3.2.1.4	All Standard RDSO spans of BGML, RBG, MBG and 25t loading-2008 loading are fit for proposed speed of 65kmph when running on its own power as well as when running in train formation.
3.2.1.5	During operation of Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" 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 should be examined carefully & speed restriction/strengthening/ prohibition/any other restriction should 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 Para 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 Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" supplied by M/s Loram, USA:-

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)**	
	Grind Car	**Camp Coach**		**Grind Car**	**Camp Coach**	**Grind Car**	**Camp Coach**
Switch Rail Grinding Machine (SRGM)	21.66	13.63	6.06	4.1	1.7	1626	1284

3.2.2.4	All Standard RDSO spans of DFC loading are fit for proposed speed of 65kmph when running

	on its own power as well as when running in train formation.
3.2.2.5	During operation of Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" 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 should be examined carefully & speed restriction/strengthening/ prohibition/any other restriction should 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 Para 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 Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" supplied by M/s Loram, USA 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 Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" supplied by M/s Loram, USA 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 Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" 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 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 Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" 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 Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" supplied by M/s Loram, USA does not infringe to any clause of Chapter IV (D) of Indian Railways Schedule of Dimensions B.G. Revised, 2022 and any clause of chapter IV for Eastern Dedicated Freight Corridor and chapter XI for Western Dedicated Freight Corridor for BG 'Standard Schedule of Dimension of Indian Railways, 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	In case any secondary air spring of rolling stock gets deflated during operation, the maximum speed of rolling stock shall be brought down to 45kmph immediately and rolling stock withdrawn from service and brought for attention, to a depot or taken to a siding, as situation demands, at earliest opportunity.
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 65kmph.
3.6.6	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.
3.6.7	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.
3.6.8	This Final Speed Certificate is valid only for Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" coming under Railway Board's Contract No. 2019/Track-III/MC/2 dated 12.06.2020.

ENCLOSURES:/ संलग्नकः

i)	Annexure-A
ii)	M/s Loram, USA's Consist SRGM GA Drg. No. 246953.
iii)	M/s Loram, USA's Grind Car GA Drg. No. 246963.
iv)	M/s SAN Engg. and Locomotive Company Ltd, Bangalore's Camp Coach GA Drg. No.SNSK4837.
v)	Bogie Arrangement: RDSO's Drg. No. WD-04078-S/1 for Grind Car & M/s San Engg. Drg No. SNSK4865 for Camp coach.
vi)	Suspension Arrangement: RDSO's Drg. No. WD-04078-S/1 for Grind Car & M/s San Engg. Drg No. SNSK4865 for Camp coach.
vii)	Rly. Bd's letter No. 2020/M(C)/202/3 dated 22.04.2022.
viii)	Railway Board's letter No. 65/WDO/SR/26 dated 19/20.10.1966.
ix)	Para 708 (4) of Indian Railways Track Machine Manual, September -2019.
x)	Para 704 of Indian Railways Track Machine Manual, September -2019.

Digitally Signed by Nitin Mehrotra
Date: 12-07-2024 11:29:31
Reason: Approved

(नितिन मेहरोत्रा)
कार्यकारी निदेशक मानक/चालन शक्ति

प्रतिलिपिः

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

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 प्रबन्ध 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:/ संलग्नक:

i)	Annexure-A
ii)	M/s Loram, USA's Consist SRGM GA Drg. No. 246953.
iii)	M/s Loram, USA's Grind Car GA Drg. No. 246963.
iv)	M/s SAN Engg. and Locomotive Company Ltd, Bangalore's Camp Coach GA Drg. No.SNSK4837.
v)	Bogie Arrangement: RDSO's Drg. No. WD-04078-S/1 for Grind Car & M/s San Engg. Drg No. SNSK4865 for Camp coach.
vi)	Suspension Arrangement: RDSO's Drg. No. WD-04078-S/1 for Grind Car & M/s San Engg. Drg No. SNSK4865 for Camp coach.
vii)	Rly. Bd's letter No. 2020/M(C)/202/3 dated 22.04.2022.
viii)	Railway Board's letter No. 65/WDO/SR/26 dated 19/20.10.1966.
ix)	Para 708(4) of Indian Railways Track Machine Manual, September-2019.
x)	Para 704 of Indian Railways Track Machine Manual, September-2019.

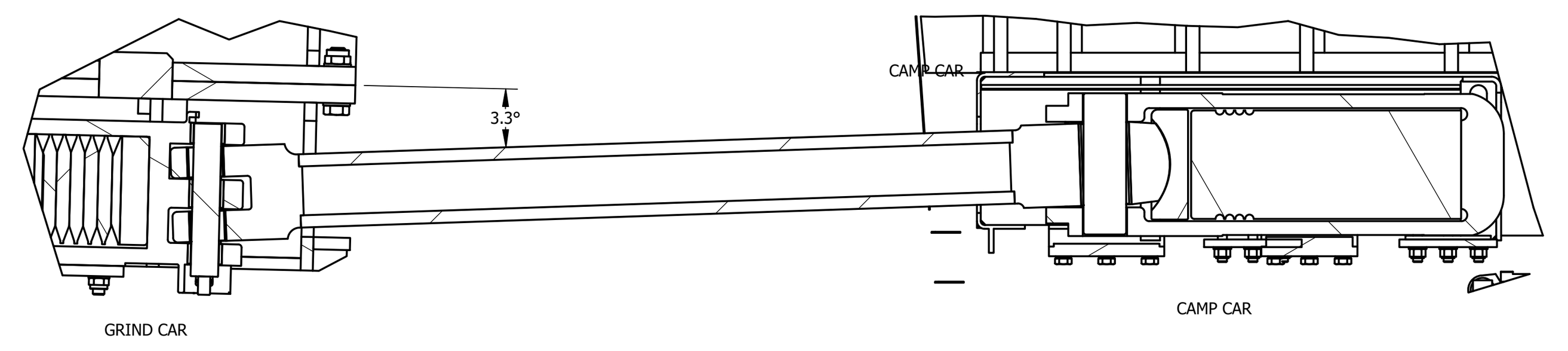
(Signed)
(नितिन मेहरोत्रा)
कार्यकारी निदेशक मानक/चालन शक्ति

Annexure-A

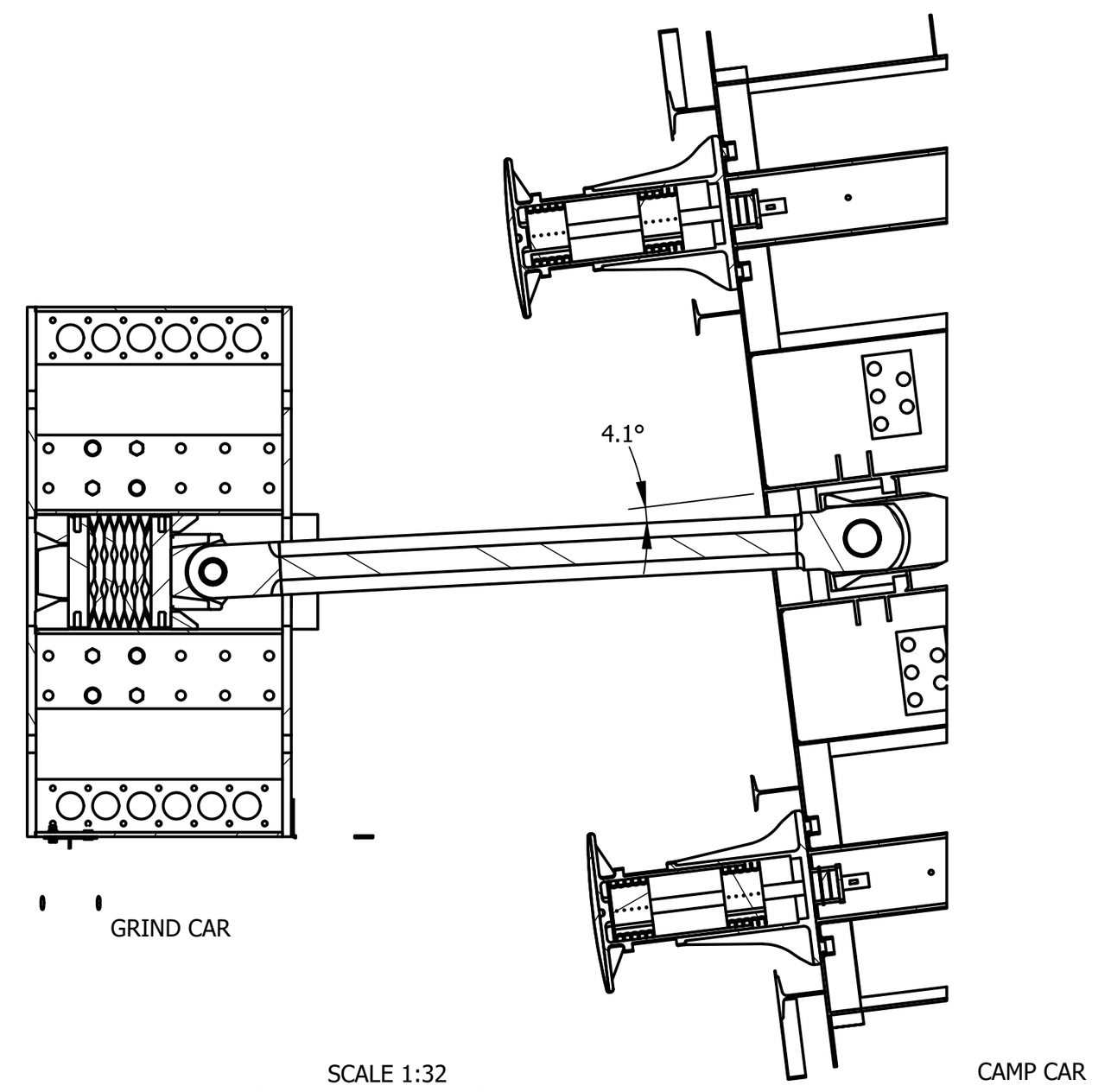
Salient features of Switch Rail Grinding Machine (SRGM) Model "RGI Series 20 Stone Rail Grinder" supplied by M/s Loram, USA.

SN	Description	Details
1.	Principal dimensions of rolling stock	M/s LORAM, USA's Consist GA Drg. No. 246953. a. Bogie centre distance : Grind Car 13106mm, Camp Coach 14783mm b. Wheel base : Grind Car 2000mm, Camp Coach 2896mm c. Max. axle load : Grind Car 21.66t, Camp Coach 13.63t d. Max. design speed- i) Own power : Grind Car 80kmph, Camp Coach - ii) Train formation : Grind Car 100kmph, Camp Coach 100kmph e. Weight i) Empty : Grind Car 81.64t, Camp Coach 45.75t ii) Loaded : Grind Car 86.47t approx., Camp Coach 54.5t approx.
2.	Bogie and wheel details	RDSO's Drawing No.WD-04078-S-1 for Grind Car & M/s San Engg. Drawing No. SNSK4865 for Camp Coach. Wheel dia : - (i) Grind Car:- New : 1000mm Worn : 908mm (ii) Camp Coach:- New : 952mm Worn : 877mm
3.	Suspension arrangement	RDSO's Drawing No. WD-04078-S-1 for Grind Car & M/s San Engg. Drawing No. SNSK4865 for Camp Coach.
4.	Brake system details	Grind Car: Twin pipe Air brake system as per Drg. No. WD-08093-S/2 Camp Coach: Twin pipe Air brake system as per Drg. No. WD-08093-S/2 EMU-M-3-2-064 (S1)
5.	Coupler and Buffer details	Coupler: Automatic coupler Type 'H' with transition screw as per Drg no. SK1730 Buffer: Side buffer with face plate riveted as per Drg no. ICF_STD-2-2-009 Side Buffer
6.	Engine details	Engine Make: Cummins Model-QST30G5ATAC Tier II. 1800 RPM Prime Power 1350 BHP
7.	Safety Items	As per Para 704 of Indian Railways Track Machine Manual, September -2019.

246953 CONSIST LAYOUT



SCALE 1:16
VERTICAL DRAWBAR ANGLE WHEN
TRAVELING UP TO 3% GRADIENT



SCALE 1:32
HORIZONTAL DRAWBAR ANGLE WHEN
TRAVELING AROUND 10 DEGREE CURVE

OM PRAKASH 2021.05.21 16:15:48 +05'30'

NOTES
1) SPECIALLY DESIGNED & MANUFACTURED AS PER ENGINEERING REQUIREMENTS OF LORAM MAINTENANCE OF WAY, USA
2) GRIND CAR COUPLER DETAILS:
   SPECIFICATIONS: RDSO/2009/CG-22 REV. 1
   TO FIR POCKET SIZE: 510 MM
   PRE LOAD AT 510 MM: BALANCED DRAFT GEAR SUITABLY COMPRESSED FOR THE APPLICATION
   TRAVEL IN BUFF MODE = 90 MM (MAXIMUM)
   TRAVEL IN DRAW MODE = 58 MM (MAXIMUM)
   END FORCE = 1600 KN(MAXIMUM)
   ENERGY STORAGE CAPACITY (DYNAMIC):
      BUFF MODE : 35 KJ (MINIMUM)
      DRAW MODE: (1- DAMPING FACTOR)*ENERGY STORAGE IN BUFF MODE (MINIMUM)
   DAMPING FACTOR (DYNAMIC) = 0.6 (MINIMUM)
   TIGHTENING TORQUE FOR WEDGE BOLT = 350 NEWTON METER
3) FLOOR HEIGHT OF RAIL GRINDING MACHINE IS TALLER TO ACCOMMODATE ELECTRIC GRIND MOTOR CLEARANCE.
4) ALL DIMENSIONS ARE FOR REFERENCE ONLY.
5) MACHINE DIMENSIONS SHOWN IN TARE CONDITION.
6) RDSO MAXIMUM MOVING DIMENSIONS (MMD) DIAGRAM NO 1D, EDO/T -2202 1676 MM.

SPECIALLY DESIGNED & MANUFACTURED
AS PER ENGINEERING REQUIREMENTS
OF LORAM MAINTENANCE OF WAY, USA

LORAM MAINTENANCE OF WAY INC. CORPORATE SEAL

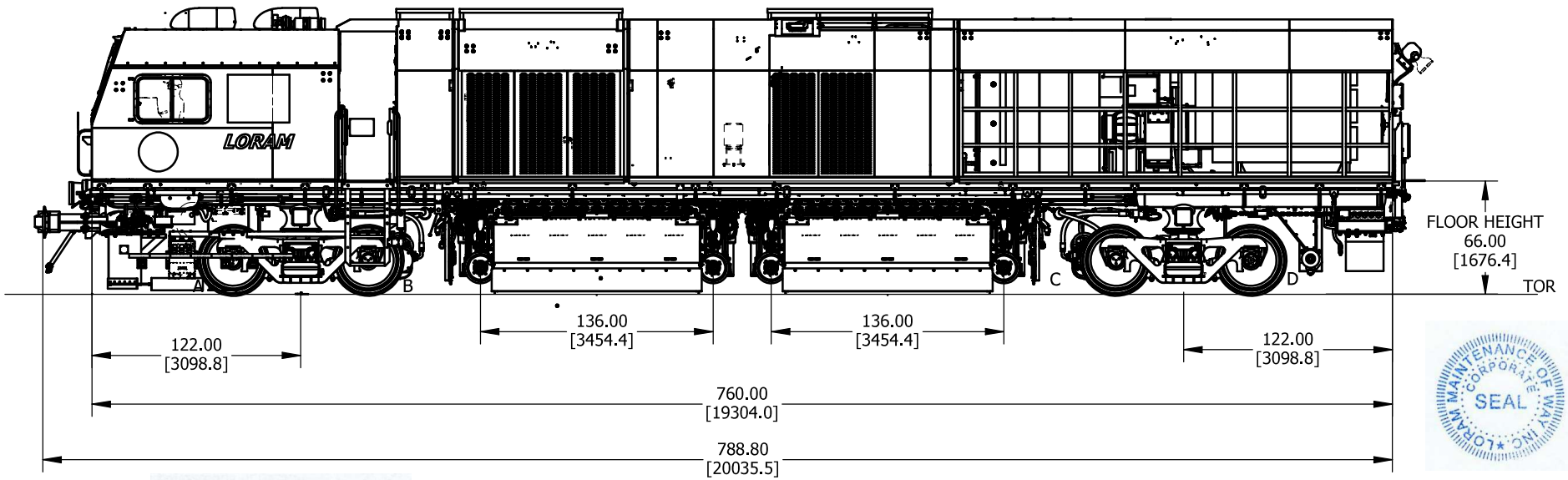
COMMERCIAL/CATALOG PART TOLERANCES, AS PURCHASED	MFG NAME: MFG P/N:				THIRD ANGLE PROJECTION
UNLESS OTHERWISE SPECIFIED - DIMENSION AND TOLERANCE PER: ASME Y14.5-2009 FASTENER TORQUE SPECIFICATION PER: LORAM ES-11 TOLERANCES: INCH [MM]	.X ± N/A [X] ± N/A	.XX ± .06 [.X] ± 1.5	.XXX ± .010 [.XX] ± .25	ANGLES ± .5 ° SURFACE FINISH RMS	
LORAM	DRN AJFERGEN	DATE 12/21/2020	SCALE 1:64	ECO NA	
	CHK AJFERGEN	DATE 1/4/2021	MATL	REV A	
	APR SRVAKITI	DATE 1/4/2021	WT 0.00 lbmass		
This drawing contains confidential information of Loram Maintenance of Way Inc. and may not be disclosed to any others without express written authorization. Unauthorized disclosure shall constitute a breach of confidence. This drawing may not be copied in whole or in part without the express written authorization of Loram Maintenance of Way Inc.	TITLE CONSIST LAYOUT RGI 20			NO 246953	SHT 1 OF 1

Custom Size (inches)

GRIND CAR GA DRAWING 246963_1.5.2021

APPROVED
BY SATYA R. VAKITI
AT 1/5/2021, 9:04 PM

PARAMETER	AT AXLE A	AT AXLE B	AT AXLE C	AT AXLE D
TARE AXLE LOAD (TONNE)	21.28	21.28	19.54	19.54
LADEN AXLE LOAD (TONNE)	21.57	21.57	21.66	21.66
TRACTIVE EFFORT AT OPERATING SPEED (N)	NA	60647	60647	NA
BRAKING FORCE (N)	41349	41349	41349	41349
WHEEL DIAMETER (MM)	1000	1000	1000	1000



SPECIALLY DESIGNED & MANUFACTURED
AS PER ENGINEERING REQUIREMENTS
OF LORAM MAINTENANCE OF WAY, USA

NOTES
1) SPECIALLY DESIGNED AND MANUFACTURED AS PER ENGINEERING REQUIREMENTS OF LORAM MAINTENANCE OF WAY, USA.
2) FLOOR HEIGHT OF RAIL GRINDING MACHINE IS TALLER TO ACCOMMODATE ELECTRIC GRIND MOTOR CLEARANCE.
3) MACHINE DIMENSIONS SHOWN IN TARE CONDITION.
4) ALL DIMENSIONS ARE FOR REFERENCE ONLY.

COMMERCIAL/CATALOG PART MFG NAME:
TOLERANCES, AS PURCHASED MFG P/N:

UNLESS OTHERWISE SPECIFIED - DIMENSION AND TOLERANCE PER: ASME Y14.5-2009 .X ± N/A .XX ± .06 .XXX ± .010 ANGLES ± .5 °
FASTENER TORQUE SPECIFICATION PER: LORAM ES-11 TOLERANCES: INCH [MM] [X] ± N/A [.X] ± 1.5 [.XX] ± .25 SURFACE FINISH RMS

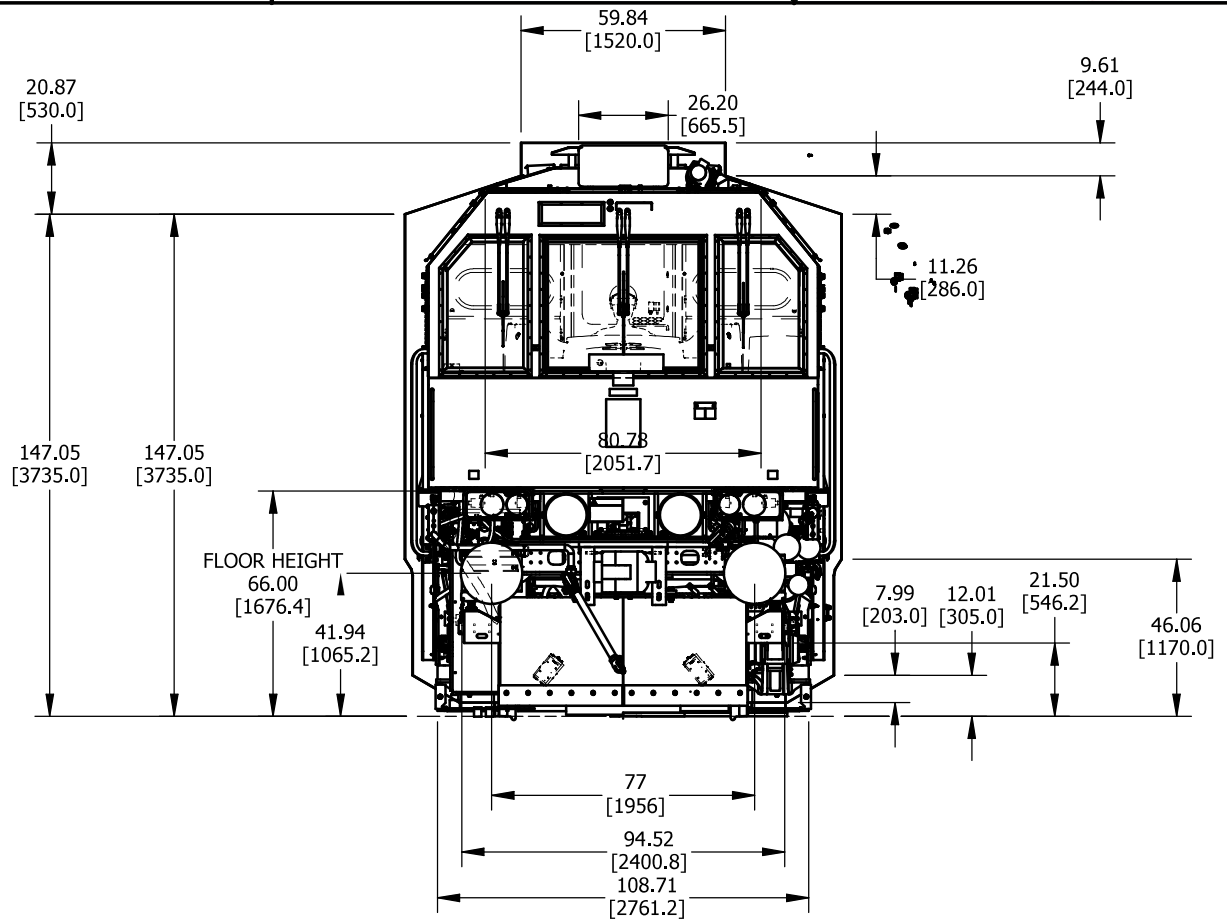
THIRD ANGLE PROJECTION

DRN SRVAKITI	DATE 7/28/2020	SCALE 1:60	ECO	
CHK DSHENDERSON	DATE 9/14/2020	MATL	REV A	
APR MJCANTON	DATE 9/14/2020	WT N/A		

TITLE RGM GRINDCAR
GENERAL ARRANGEMENT

NO 246963
SHT 1 OF 2

GRIND CAR GA DRAWING 246963_1.5.2021



SPECIALLY DESIGNED & MANUFACTURED
AS PER ENGINEERING REQUIREMENTS
OF LORAM MAINTENANCE OF WAY, USA

LORAM MAINTENANCE OF WAY, INC. CORPORATE SEAL

COMMERCIAL/CATALOG PART TOLERANCES, AS PURCHASED	MFG NAME: MFG P/N:		THIRD ANGLE PROJECTION
UNLESS OTHERWISE SPECIFIED - DIMENSION AND TOLERANCE PER: ASME Y14.5-2009 FASTENER TORQUE SPECIFICATION PER: LORAM ES-11	.X ± N/A .XX ± .06 .XXX ± .010 ANGLES ± .5 ° [X] ± N/A [.X] ± 1.5 [.XX] ± .25 SURFACE FINISH RMS		
DRN SRVAKITI	DATE 7/28/2020	SCALE 1:60	ECO
CHK DSHENDERSON	DATE 9/14/2020	MATL	REV A
APR MJCANTON	DATE 9/14/2020	WT N/A	
TITLE RGM GRINDCAR GENERAL ARRANGEMENT		NO 246963 SHT 2 OF 2	

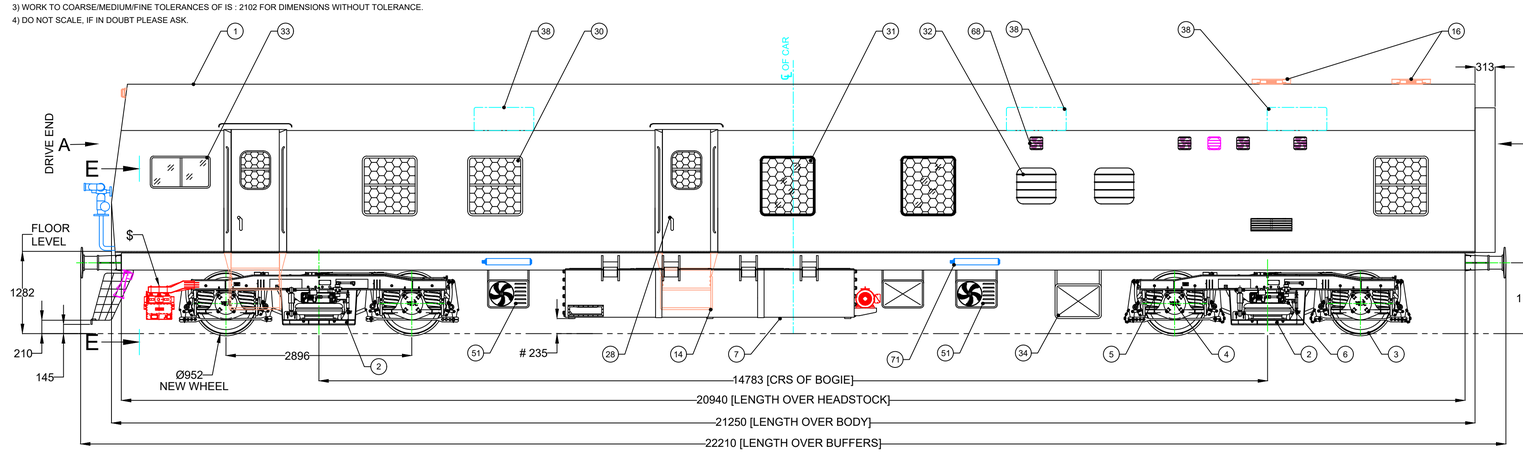
1) ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
2) CODE OF PRACTICE, ABBREVIATION ETC., TO IS : 696.
3) WORK TO COARSE/MEDIUM/FINE TOLERANCES OF IS : 2102 FOR DIMENSIONS WITHOUT TOLERANCE.
4) DO NOT SCALE, IF IN DOUBT PLEASE ASK.

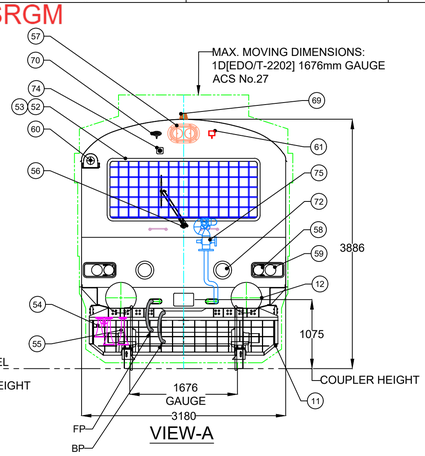
5) * INDICATES NO SEPARATE DRAWINGS.

SUGGESTED REST VAN LAYOUT AS PER CLAUSE 6.3 TECH SPECS SRGM

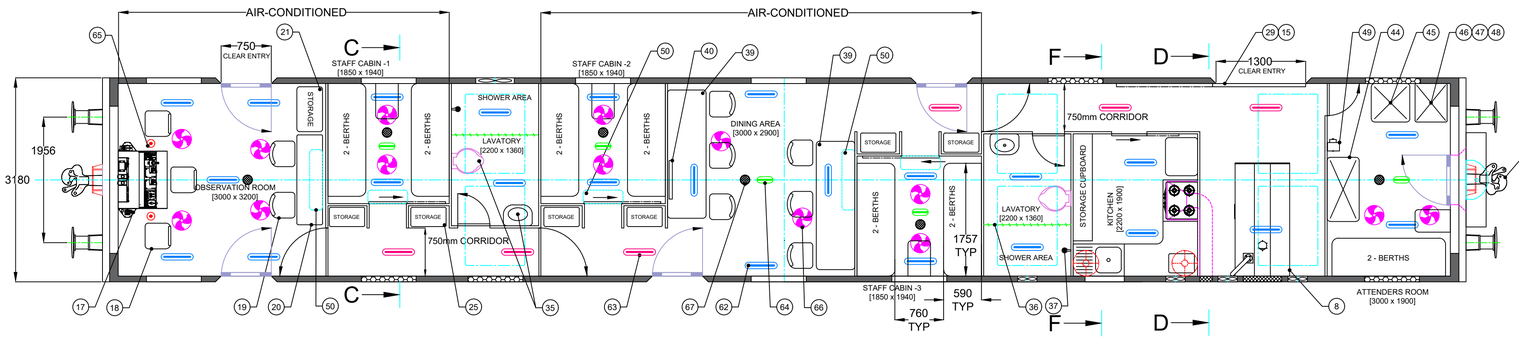
DRG. NO. SNSK 4837

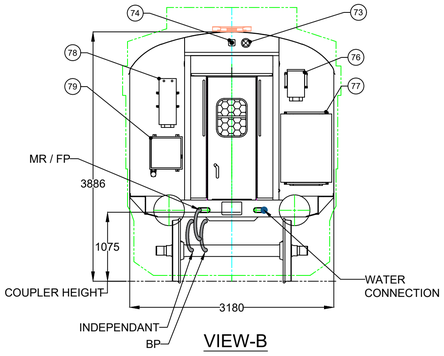
TENTATIVE



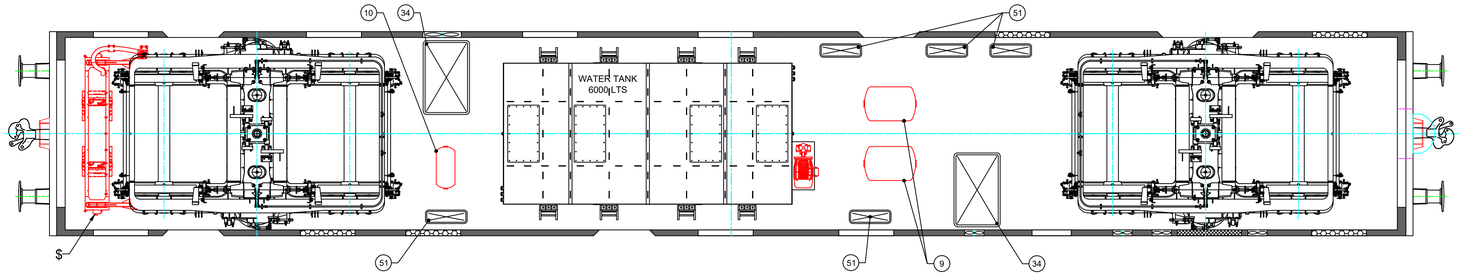


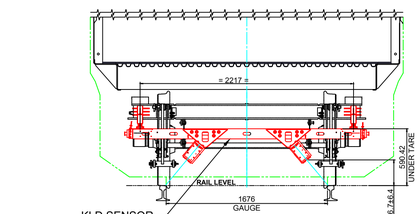
VIEW-A



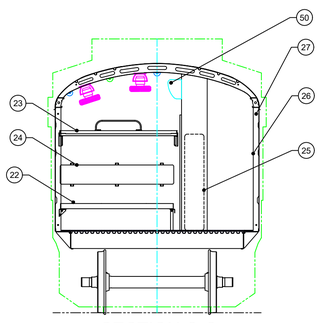


VIEW-B

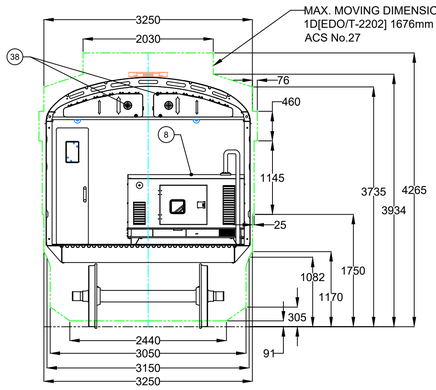




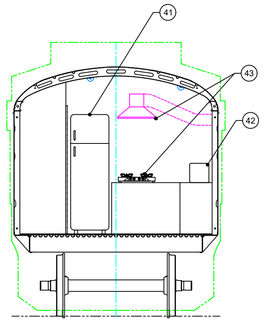
SECTION E-E
90°



SECTION C-C
90°

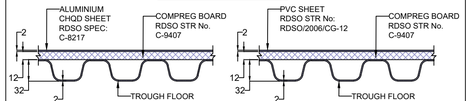


SECTION D-D
90°



SECTION F-F
90°

FLOORING DETAILS



SPECIALLY DESIGNED AND MANUFACTURED
AS PER ENGINEERING REQUIREMENTS
OF LORAM MAINTENANCE OF WAY, USA

NOTE:
[1] ALL DIMENSIONS SHOWN ARE IN TARE CONDITION.
[2] DIMENSION MARKED [#] INDICATES THAT THE CRITICAL LOWEST EQUIPMENT IS WATER TANK WITH MINIMUM RAIL CLEARANCE OF 235mm (WITH NEW WHEEL ø952mm) AT TARE & 195.5mm (WITH FULLY WORN WHEEL ø877mm) AT GROSS.
[3] PARTS INDICATED AS [$] ARE IN SCOPE OF LORAM.

WEIGHT TABLE	
TARE	45.75 TONS
PAY LOAD	8.75 TONS
GROSS	54.5 TONS

SUBMISSION No.:	
DATE:	

ITEM No.	DESCRIPTION	QTY / VEHICLE
70	CENTRE MARKER LIGHT	1
69	AMBER STROBE LIGHT	1
68	EXHAUST FAN	5
67	SPEAKER	6
66	FAN	14
65	SPOT LIGHT	2
64	NIGHT LIGHT	5
63	WALK WAY LIGHT [LED TYPE]	6
62	COACH LIGHT [LED TYPE]	24
61	BRAKE LIGHT	1
60	FLASHER LIGHT [ELRS/SPEC/LFL/0017, REV-1. SEPT-04]	1
59	HID	2
58	MARKER LIGHT	2
57	HEAD LIGHT [ELRS/SPEC/PR/0024,REV-1]	1
56	WIND SCREEN PNEUMATIC WIPER	1
55	PNEUMATIC 1-STAGE TRAVEL HORN	1
54	PNEUMATIC 2-STAGE WORK HORN	1
53	GUARD FOR LOOKOUT GLASS	1
52	STONE PROOF LOOKOUT GLASS [ICF/MD/SPEC-159]	1
51	AIR CONDITIONER [CONDENSER UNIT, UNDER SLUNG MOUNTED]	5
50	AIR CONDITIONER [EVAPORATOR UNIT, WALL MOUNTED INSIDE COACH]	5
49	HAND BRAKE ASSEMBLY	1
48	ELECTRICAL CUBICLE	1
47	CHARGING SELECTOR SWITCH	1
46	STATIC FREQUENCY CONVERTER 30kVA [INPUT:3PH, 60Hz, 480V AC ; OUTPUT:1PH, 50Hz, 230V AC]	1
45	WASHING MACHINE	1
44	DEEP FREEZER	1
43	STOVE WITH CHIMNEY	1
42	MICROWAVE OVEN	1
41	FRIDGE	1
40	LCD / LED TV WITH DVD PLAYER	1 SET
39	FOLDABLE DINING TABLE WITH 3 Nos. CHAIRS	2 SETS
38	ROOF WATER TANK [70 GALLONS EACH]	6
37	HAND SHOWER WITH ACESSORIES	2
36	WATER PROOF CURTAIN SCREEN	2
35	WATER CLOSET & WASH BASIN WITH ACESSORIES	2 SET
34	BIO-TOILET	2
33	GLASS SLIDING WINDOW	2
32	LAVATORY WINDOW	3
31	DOUBLE SEALED GLASS WINDOW WITH GRILL	5
30	SLIDING WINDOW WITH GRILL [EMU/4C/ASR-5-4-402]	5
29	BODY SIDE SLIDING DOOR	1
28	CABIN DOORS	5
27	CABIN INSULATION [FIBERGLASS]	1 SET
26	PLYWOOD PANELLING TO IS:303-89 WITH LAMINATE TO IS:2046-95	1 SET
25	STORAGE WARDROBE	6
24	BACKREST	6
23	UPPER BERTH	7
22	LOWER BERTH	7
21	STORAGE CUPBOARD IN OBSERVATION ROOM	1
20	COMPUTER DESK	1
19	OBSERVATION ROOM SEAT	2
18	OPERATORS' SEAT	3
17	DRIVERS' DESK	1
16	VENTILATOR [WLRRM4-7-3-402]	2
15	FOOT STEP FOR SLIDING DOOR	1
14	FOOT STEP FOR CABIN	4
13	COUPLER [RDSO/56-BD-07]	2
12	SIDE BUFFER [RDSO/SK-98145]	4
11	CATTLE GUARD [WITH ADJUSTABLE RAIL GUARD]	1
10	40 Litre AIR RESERVOIR	1
9	150 Litre AIR RESERVOIR	2
8	25 kVA GENSET [93L FUEL TANK CAPACITY]	1
7	WATER TANK [6000 LT] WITH 3Ø, 460 V AC, 60 Hz, 15 HP PUMP	1
6	SECONDARY SUSPENSION AIR SPRINGS	4
5	PRIMARY SUSPENSION HELICAL SPRINGS	16
4	AXLE BOX ASSEMBLY	8
3	WHEEL AXLE ASSEMBLY [NON-POWERED]	4
2	BOGIE	2
1	BODY SHELL	1

ITEM No.	DESCRIPTION	QTY / VEHICLE
79	INTERCONNECT ENCLOSURE	1
78	POWER CONDITIONER	1
77	480 V ENCLOSURE	1
76	480 V TRANSFORMER	1
75	FIRE WATER MONITOR	1
74	ELECTRIC SIREN	2
73	STAIRWAY LIGHT	1
72	WORK LIGHT	2
71	MACHINE LIGHTS	4

ECN. NO.	REV.	DESCRIPTION	DATE	INTL.
10663	05	REVISED & REDRAWN.	18.12.2020	KVA
10646	04	REVISED & REDRAWN.	07.12.2020	KVA
10604	03	DRAWING REVISED & WEIGHT TABLE UPDATED	17.10.2020	KVA
10573	02	REVISED & REDRAWN.	10.09.2020	KVA
10534	01	TITLE BLOCK REVISED.	31.07.2020	KVA

ECN. NO.	REV.	DESCRIPTION	DATE	INTL.

GA OF REST VAN SRGM

DRN.	RAM
TRCD.	
CHKD.	VB
APPD.	KVA

GENERAL ARRANGEMENT OF DRIVING CAMP COACH [SRGM / RGI-20] WITH WATER TANK

SCALE 1:50

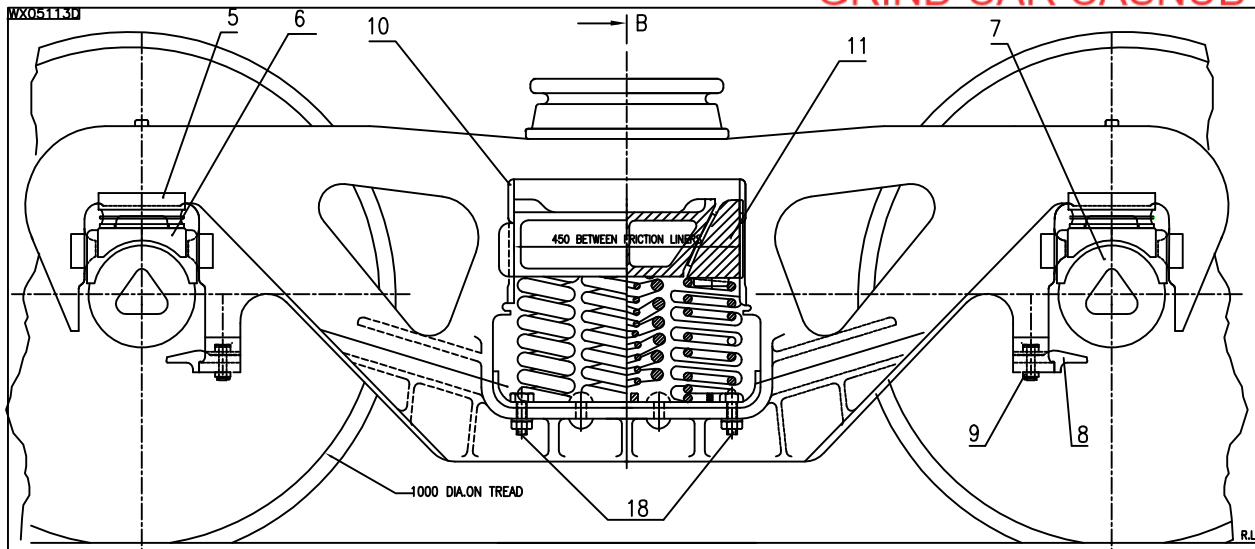
SAN ENGG. AND LOCOMOTIVE COMPANY LTD.
BANGALORE - 560 048

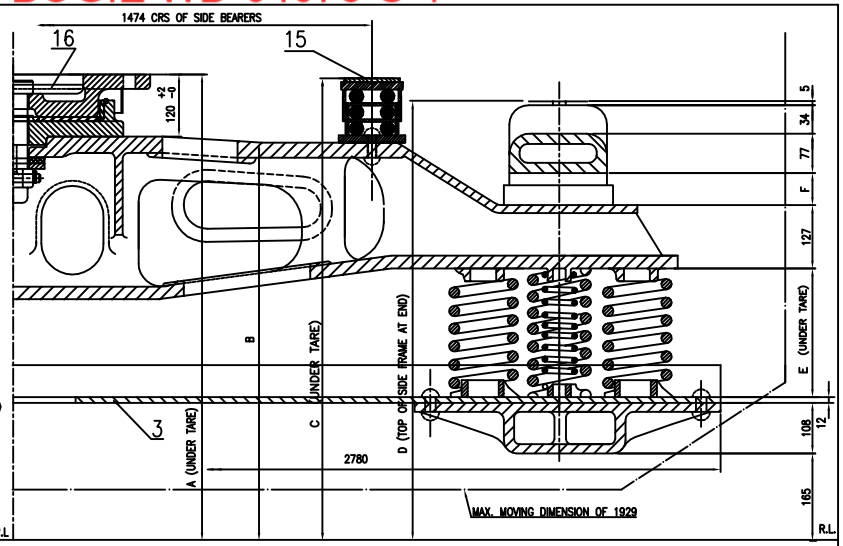
DATE 07.07.2020

DRG. NO. SNSK4837 REV 05

GRIND CAR CASNUB BOGIE WD-04078-S-1

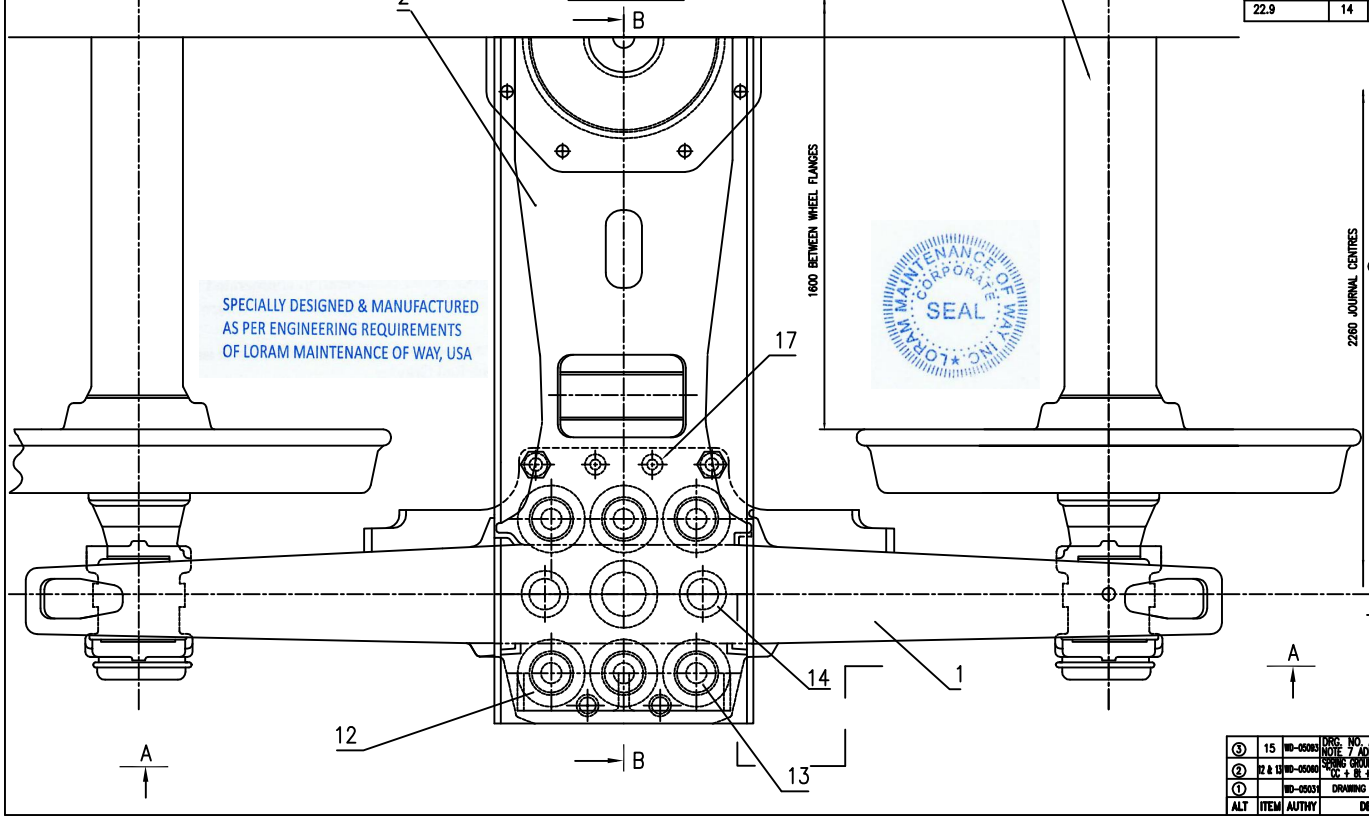
WX05113D





2000 WHEEL BASE

SECTION–AA



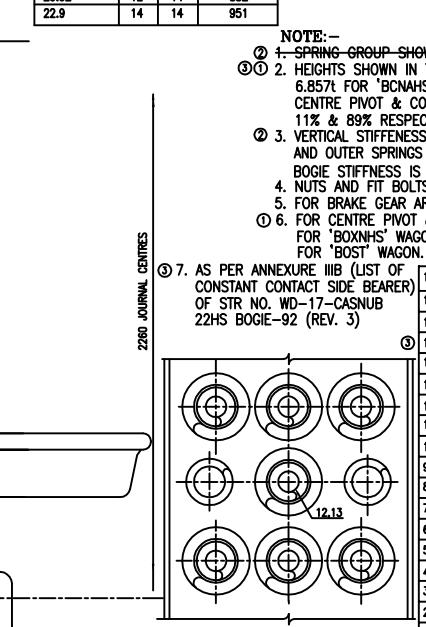
SPECIALLY DESIGNED & MANUFACTURED AS PER ENGINEERING REQUIREMENTS OF LORAM MAINTENANCE OF WAY, USA

LORAM MAINTENANCE OF WAY INC. CORPORATE SEAL

② SPRING GROUP OF OUTER & INNER SPRINGS

AXLE LOAD (t)	INNER SPRING	OUTER SPRING	BOGIE STIFFNESS (IN LOADED) KG/MM
20.32	12	14	882
22.9	14	14	951

SECTION–BB



② SPRING GROUP FOR "CC + 8t + 2t" (22.9t AXLE LOAD) PAY LOAD

	A	B	C	D	E	F
BOXNHS	932	796	921	851	251	72
BCNAHS	930	794	917	851	249	74
① BOST	929	793	916	851	248	75

NOTE:–

② ~~1. SPRING GROUP SHOWN IN THIS DRAWING IS APPLICABLE FOR 20.32t AXLE LOAD.~~

③① 2. HEIGHTS SHOWN IN THIS DRAWING ARE UNDER A LOAD OF 6.066t FOR 'BOXNHS' WAGON 6.857t FOR 'BCNAHS' WAGON & 8.094t FOR 'BOST' WAGON (SHARED BETWEEN CENTRE PIVOT & CONSTANT CONTACT SIDE BEARER IN THE APPROXIMATE RATIO OF 11% & 89% RESPECTIVELY.

② 3. VERTICAL STIFFENESS OF SECONDRY SUSPENSION IS 466 Kg/mm IN TARE(ONLY SNUBBER AND OUTER SPRINGS OPERATIONAL) & IN GROSS CONDITION (ENTIRE GROUP OPERATIONAL) BOGIE STIFFNESS IS GIVEN IN TABLE.

4. NUTS AND FIT BOLTS SHALL BE WELDED WITH THE BOLTS AFTER TIGHTENING.

5. FOR BRAKE GEAR ARRANGEMENT REFER DRG. NO. WD–89067–S/5.

① 6. FOR CENTRE PIVOT & SIDE BEARER ARRANGEMENT,REFER DRAWING NO. WD–04038–S/2 FOR 'BOXNHS' WAGON, WD–04038–S/5 FOR 'BCNAHS' WAGON & WD–05027–S/1 FOR 'BOST' WAGON.

③ 7. AS PER ANNEXURE IIIB (LIST OF CONSTANT CONTACT SIDE BEARER) OF STR NO. WD–17–CASNUB 22HS BOGIE–92 (REV. 3)

ITEM	DESCRIPTION	NO. OFF	REF. DRG.	WT. OF ONE(Kg)	MATL. & SPCN	REMARKS
18	M–24 FIT BOLT WITH CASTLE NUT WASHER & 50 SPLIT PIN	4	–		IS:3640, IS:3016 IS:2232, IS:549	
17	24ϕSNAP HEAD RIVETS	8	–		IS:1929, IS:1148	
16	CENTRE PIVOT ASSEMBLY & DETAILS	2	WD–97049–S/3			SEE NOTE 6
③ 15	CONSTANT CONTACT SIDE BEARER	2	SEE NOTE–7			SEE NOTE 6
14	SNUBBER SPRING	4	WD–92058–S/5 ITEM–3			
13	BOLSTER SPRING INNER ②	12	WD–92058–S/5 ITEM–2			② SEE TABLE
12	BOLSTER SPRING OUTER ②	14	WD–92058–S/5 ITEM–1			
11	WEDGE	4	SK–77579			
10	SIDE FRAME FRICTION LINER	4	WD–92058–S/4 ITEM–4			
9	SIDE FRAME KEY BOLT, NUT SPG WASHER & 4 ϕ SPLIT PIN	4	WD–92058–S/4 ITEM–5			
8	SIDE FRAME KEY	4	WD–92058–S/4 ITEM–3			
7	STD ANR CARTRIDGE RB CLASS 'E' ASSLY COMPLETE	4	–			
6	NARROW JAW ADAPTER	4	WD–89067–S/9			
5	ELASTOMERIC PAD	4	WD–95005–S/1			
4	WHEEL & AXLE COMPLETE	2	WD–89025–S/1			
3	SPRING PLANK	1	WD–92058–S/4 ITEM–1			
2	CAST STEEL BOLSTER	1	WD–92058–S/3 ITEM–1			
1	SIDE FRAME	2	WD–89067–S/3			

ALT	ITEM	AUTHY	DESCRIPTION	DATE	ASSLY. DRG
③	15	WD–05083	DRG. NO. AAL–021101 DELETED & NOTE 7 ADDED.	12/05	
②	12 & 13	WD–05080	SPRING GROUP SHOWN FOR (IT NO. 12,13) "CC + 8t + 2t PAY LOAD."	08/05	
①		WD–05031	DRAWING REVISED	04/05	

SUPERSEDED BY

SUPERSEDES

DATE

SCALE 1:5

PASSED	S. C. DIXIT	10/04
CHECKED	S. K. SHARMA	10/04
DRAWN	SUDHIR	10/04
TRACED		
J.S.NO.		

CASNUB–22 HS BOGIE UNDER HIGH SPEED WAGONS

① BOGIE GENERAL ARRANGEMENT WITH FLAT PIVOT & CONSTANT CONTACT ③ SIDE BEARER

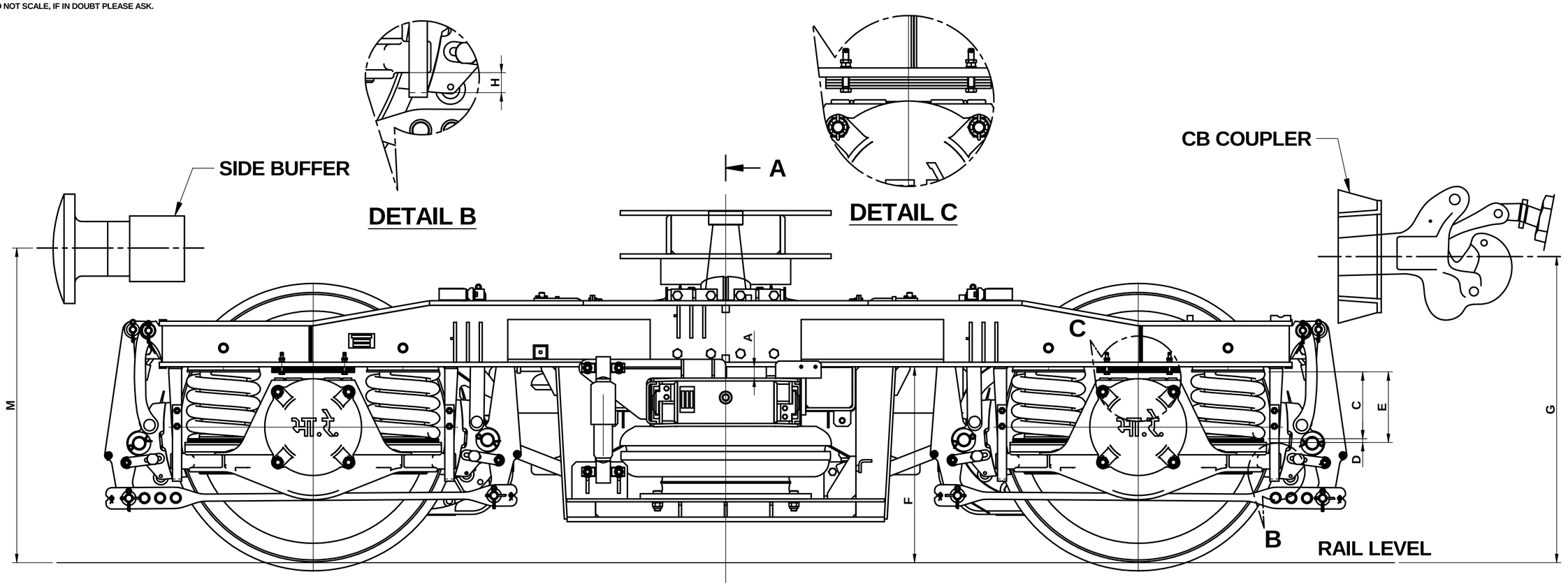
B.G. | R.D.S.O. [W] | GROUP | WD–04078–S/1

1) ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
2) CODE OF PRACTICE, ABBREVIATION ETC., TO IS : 696.
3) WORK TO COARSE/MEDIUM/FINE TOLERANCES OF IS : 2102 FOR DIMENSIONS WITHOUT TOLERANCE.
4) DO NOT SCALE, IF IN DOUBT PLEASE ASK.

5) * INDICATES NO SEPARATE DRAWINGS.

CAMP CAR SUSPENSION SNSK4865

DRG. NO. SNSK4865

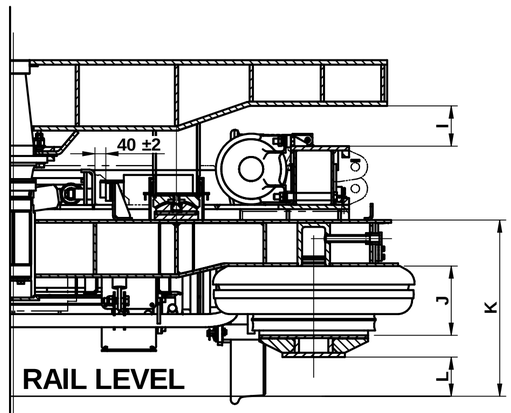


SUSPENSION DATA								
TYPE OF COACH	TARE WEIGHT	NORMAL PAY LOAD	OVER LOAD	TOTAL PAY LOAD	WEIGHT OF BOGIE	WEIGHT OF BOLSTER	UNSPRUNG MASS OF BOGIE	GROSS WEIGHT
	IN TONNES	IN TONNES	IN TONNES	IN TONNES	IN TONNES	IN TONNES	IN TONNES	IN TONNES
	52	2.5	---	2.5	7.185	0.5	2.992	54.5

	CONDITION	TEST LOAD PER BOGIE	BOLSTER CLEARANCE	CROWN CLEARANCE	SPRING HEIGHT	THICKNESS OF CR (SEE NOTE.1)	AVAILABLE SPACE (SEE NOTE.1)	BOGIE FRAME HEIGHT FROM RAIL LEVEL	CB COUPLER HEIGHT FROM RAIL LEVEL	LUG CLEARANCE	BODY BOGIE CLEARANCE	AIR SPRING HEIGHT	BOLSTER HEIGHT FROM RAIL LEVEL	LS BEAM HEIGHT FROM RAIL LEVEL	SIDE BUFFER HEIGHT FROM RAIL LEVEL
			A	B	C	D	E	F	G	H	I	J	K	L	M
DETC/US WITH AIR SPRING		IN TONNES	IN mm	IN mm	IN mm	IN mm	IN mm	IN mm	IN mm	IN mm	IN mm	IN mm	IN mm	IN mm	IN mm
	TARE	19.24	40 ±5	23 ±3	243 +2/-1	5	248 ±3	688 ±5	1075 +0/-5	35 ±5	148 ±3	255 +5/-0	648 ±5	144 ±5	1105 +0/-10
	GROSS	20.255	40 ±5	21 +1/-2	241 +3/-2	5	246 ±3	686 ±5	1073 +8/-5	37 ±5	148 ±3	255 +5/-0	646 +8/-5	142 ±5	1103 +8/-5

SPECIALLY DESIGNED & MANUFACTURED AS PER ENGINEERING REQUIREMENTS OF LORAM MAINTENANCE OF WAY, USA

LORAM MAINTENANCE OF WAY, INC. CORPORATE SEAL



SECTION A-A

NOTE:

1. DIMENSION 'E' SHALL BE MAINTAINED WITH REQD. No. OF CR OF STANDARD THICKNESS OF 1, 2, 3 & 4 mm.
2. DIMENSIONS A,G,I,J,K SHALL BE ENSURED AFTER GIVING AIR CONNECTION TO THE AIR SPRING & CONTROL SYSTEMS.

SUBMISSION No.: 1
DATE: 10.09.2020

DRN.	RAM
TRCD.	
CHKD.	VB
APPD.	KVA

SUSPENSION DIAGRAM

SCALE 1:1

DATE 09.09.2020

SAN ENGG. AND LOCOMOTIVE COMPANY LTD. BANGALORE - 560 048

DRG. NO. SNSK4865 REV 00

ECN. NO.	REV.	DESCRIPTION	DATE	INTL.
ECN. NO.	REV.	DESCRIPTION	DATE	INTL.

A2

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
रेलवे बोर्ड Railway Board

No. 2020/M(C)/202/3

(E-Office No. 3329265)
New Delhi, dated 22.04.2022

ED / Carriage
RDSO Lucknow

Sub: Transportation code for Switch Rail Grinding machine (SRGM), Model No. RGI series 20 stone Rail Grinder supplied by M/s LORAM, USA

Ref: RDSO letter no. MC/TW dated 19.01.2022.

****

In reference to above, RDSO requested for allotment of Transportation code for Switch Rail Grinding machine (SRGM), Model No. RGI series 20 stone Rail Grinder supplied by M/s LORAM, USA.

In this regard, following transportation code is being allotted.

Type of Coach	Transportation Code
Switch Rail Grinding machine (SRGM), Model No. RGI series 20 stone Rail Grinder supplied by M/s LORAM, USA	SRGRGI20

For further necessary action please.

23/04/2022

(सुमन कुमार तांती)
निदेशक / यांत्रिक इंजी. को.
रेलवे बोर्ड

No.65/WDO/SR/26 (Railway Board) 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.

.....

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.

....

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 CMEs 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 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 CEEs of the zonal railways. In discharging these functions, the CEs and CMEs/CEEs 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.

....

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 Breakdown 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.

certificate. Machine competency certificate is to be issued to SSE/JE/TM by Dy.CE/TM Line or an officer authorized by him. This certificate will be issued as per proforma given in **Annexure 7.3** after ascertaining the successful completion of technical training, G & SR training and his medical fitness. The validity of this certificate will be up to the earliest expiry date of the three i.e. (i) Technical training (ii) G & SR training and (iii) PME.

For automatic block section, separate competency is required to be issued as per the practice in the Zonal Railway.

704 Safety Equipment

(1) **General** - SSE/JE/TM in-charge shall be responsible to ensure that the following equipment in working condition are available on the track machine:

(a) Two red and one green hand signal flags.

(b) Two tri-colour hand signal lamps /LED torch.

(c) Two chains with padlocks.

(d) One fire extinguisher in each cabin.

(e) Two hooters (manually controlled).

(f) Two jacks10 t.

(g) Four wooden blocks.

(h) Four crow bars.

(i) One hydraulic hand pump.

(j) Emergency pneumatic/hydraulic hose off sizes suiting to different machines (Complete with end fitting).

(k) Wire rope with close loops at both ends 2 m and 9 m long for BCM: One of each length.

(l) Machine specific equipment, if any, listed in Chapter 2, 3, 4 and 5.

(m) Ten fog signals (detonators) in a tin case.

(n) A copy of the working timetable of the section where the machine is working.

(o) G & SR book with up to date amendment slips.

(p) One 4 cell flasher light LED lamp cum flasher light (rechargeable).

(q) Two banner flags.

(r) One first aid box.

(s) Two skids.

(t) Safety helmets for all machine staff.

(u) Protective clothing, safety shoes and safety gloves.

(v) Walkie talkie with frequency of SM, Guard and Loco Pilots.

(w) Internal communication system like walkie-talkie and/or head mounted system.

(x) Track Machine Manual with up to date correction slips.

(y) Accident Manual.

(z) Tail lamp.

(2) **Head and Tail Lights –** Each track machine must be equipped with prescribed head and tail lights, marker lights and flasher lights as per GR 4.14, 4.15 & 4.16 and SRs thereof. Each machine shall display LV board/tail lamp when moving alone. While moving in conveyor coupled, the LV board/tail lamp shall be fixed on the last vehicle; in the direction of movement.

705 Rules for Operation – General

(1) **Stabling of Track Machines -** When the track machine(s) is/are stabled at a station, SSE/JE/TM in-charge shall ensure that it is clear of fouling marks and traps and necessary precautions against rolling down such as pinning down hand brakes, chaining and provision of skids; is taken in accordance with G&SR.

(2) **Shunting of Track Machines -** No track machine shall be moved between a running line and the siding/stabling line without the written permission of the Station Master on duty in the form of shunting order/shunt signals.

(3) **Machine Ready Memo -** SSE/JE/TM shall issue a written machine ready memo (as per Annexure 7.4) after necessary maintenance/repairs/schedules and Brake Power testing and other stipulated checks, if any, to on duty SM, indicating time and date, under advice to SSE/JE/P.Way deputed to work with the machine.

(4) **Movement of Track Machines -** When the track machine is required to move from one station to another station, SSE/JE/TM shall run the machine only with proper authority to proceed and all necessary permits, notices and cautions as specified in G&SR. When track machine is to move on wrong road (against the direction of traffic), the speed of track machine shall not exceed more than 25 kmph and flasher light shall be kept "ON".

(5) ***Working in Group***

(a) When more than one machine is required to work within the same block section, these machines may be allowed to move into the block section in a group under one authority as detailed in this chapter. In such situation all the track machines must leave and enter the section simultaneously one after another keeping adequate distance among them and with proper authority as detailed further in the following paras.

(b) Total number of the machines shall be clearly mentioned in the line clear/block authority message with exchange of private numbers. For