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/11/40/BRM-SRIDA	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 Ballast Regulating Machine Model No. "SRDSPZ 350" **(Transportation Code- BRSPZ350)** manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China upto a maximum speed of 70kmph when running on its own power and 75kmph 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 DFCCIL.

Ref:	Railway Board's Contract No. 2016/Track-III/MC/6(i) dated 03.10.2017.

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 & Routes of Eastern & Western DFCCIL.

Stock Name	Ballast Regulating Machine	**Max. Axle Load (Empty)**	19.91t	**Max. Axle Load (Loaded)**	20.32t

Transportation Code	**BRSPZ350**	**GA Drg. No.**	M/s. Hubei Srida's Drg. No. SPZ-350A0-00-00 Ver. A

Bogie Arrgt. Drg. No.	M/s. Hubei Srida's Drg. No. SZ-009-00-00 & SZ-009-00-00(I)	**Suspension Arrgt. Drg. No.**	M/s. Hubei Srida's Drg. No. SPZ-350A0-15-00

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

Type of Bogie	Center Pin welded Bogie	**Type of Coupler**	Screw Type Coupler	Wheel Dia. (mm)	New 864 / Worn 824

Max. Permissible Speed for IR & for routes of Eastern & Western DFCCIL	**Own Power**	70kmph	**Train Formation**	75kmph

2.0	**INTRODUCTION**
2.1	Ballast Regulating Machine Model No. "SRDSPZ 350" manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China as per their GA Drg. No. SPZ-350A0-00-00 Ver. A is a self- propelled machine which is used for regulation of track ballast to obtain required ballast profile. The machine was permitted to run provisionally upto a maximum speed of 60kmph when running on its own power as well as when running in train formation as a dead vehicle as per Amendment no. 3 dated 05.12.2023 to provisional speed certificate no. TM/HM/11/40/BRM-SRIDA dated 03.07.2019 against design speed of 80kmph when running on its own power and 100kmph when running in train formation. Subsequently the detailed oscillation trial was conducted over Mahoba-Khajuraho section of North Central Railway and the machine has shown satisfactory running behaviour upto a maximum speed of 80kmph on its own power and 85kmph when running in train formation as a dead vehicle and average emergency braking distance is **351.46 meters** in loaded condition at 72kmph in EBD test in self- propelled condition as per results contained in Oscillation trial report No. RDSO/2022/TG/MT-1866/F/Rev.-0/Amendment–Nil dated 08.06.2022.
2.2	Ballast Regulating Machine Model No. "SRDSPZ 350" manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China is having maximum axle load and wheel diameter of 20.32t and 864mm respectively. The bogie suspension arrangement of machine is as per M/s. Hubei Srida's Drg. No. SPZ-350A0-15-00. 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.

3.0	Based on design features of the machine manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China and satisfactory test results as indicated in oscillation trial Report no. RDSO/2022/TG/MT-1866/F/Rev.-0/Amendment–Nil dated 08.06.2022, it is certified that the Ballast Regulating Machine Model No. "SRDSPZ 350" to GA Drg. No. SPZ-350A0-00-00 Ver. A may be permitted to run on regular basis upto a maximum speed of 70kmph when running on its own power and 75kmph 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 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 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 70kmph	Upto 75kmph
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)	70kmph	75kmph
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 Ballast Regulating Machine Model No. "SRDSPZ 350" manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China:-				
	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)**
	Ballast Regulating Machine	20.32	3.75	2.0	1294
3.2.1.4	All Standard RDSO spans of BGML, RBG, MBG and 25t loading-2008 loading are fit for proposed speed of 70kmph when running on its own power and 75kmph when running in train formation.				
3.2.1.5	During operation of Ballast Regulating Machine Model No. "SRDSPZ 350" 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 Ballast Regulating Machine Model No. "SRDSPZ 350" manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China:-				
	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)**
	Ballast Regulating Machine	20.32	3.75	2.0	1294
3.2.2.4	All Standard RDSO spans of DFC loading are fit for proposed speed of 70kmph when running on its own power and 75kmph when running in train formation.				
3.2.2.5	During operation of Ballast Regulating Machine Model No. "SRDSPZ 350" 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 Ballast Regulating Machine Model No. “SRDSPZ 350” manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China 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 Ballast Regulating Machine Model No. “SRDSPZ 350” manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China 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 Ballast Regulating Machine Model No. “SRDSPZ 350” 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 Ballast Regulating Machine Model No. “SRDSPZ 350” 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 Ballast Regulating Machine Model No. “SRDSPZ 350” manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China infringes clause 2(ii) of Chapter IV (A) of Indian Railways Schedule of Dimensions (BG) Revised, 2004. Railway Board has condoned the infringement vide letter no. 2019/CEDO/SD/RS/05 dated 20.05.2019. However, the profile of Ballast Regulating Machine Model No. “SRDSPZ 350” manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China does not infringe to any clause of Chapter IV (D) of Indian Railways Schedule of Dimensions (BG) Revised, 2022 and Chapter IV of Eastern Dedicated Freight Corridor & Chapter XI of Western Dedicated Freight Corridor for BG ‘Standard Schedule of Dimension of Indian Railways, January-2013’

3.6.3	A speed restriction of 15kmph shall be imposed on Diamond crossings when machine is running in train formation. No speed restriction on main line route at points and crossing is required. Speed restriction on turnout side of points and crossing shall be applicable as per provision in Indian Railways Permanent Way Manual, June 2020.
3.6.4	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.
3.6.5	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.
3.6.6	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 Final Speed Certificate is valid only for Ballast Regulating Machine Model No. "SRDSPZ 350" coming under Railway Board's Contract No. 2016/Track-III/MC/6(i) dated 03.10.2017.

ENCLOSURES:/ संलग्नक:

i)	Annexure-A
ii)	M/s. Hubei Srida's GA Drg. No. SPZ-350A0-00-00 Ver. A.
iii)	M/s. Hubei Srida's Suspension Drg. No. SPZ-350A0-15-00.
iv)	Railway Board's Letter No. 2019/CEDO/SD/RS/05 dated 20.05.2019.
v)	Railway Board's Letter No. 2020/M(C)/202/3 dated 01.02.2022.
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.
viii)	Para 704 of Indian Railways Track Machine Manual, September -2019.

Digitally Signed by Nitin Mehrotra
Date: 14-11-2024 12:09:31
Reason: Approved

(नितिन मेहरोत्रा)
कार्यकारी निदेशक मानक/चालन शक्ति

प्रतिलिपि:

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:/ संलग्नकः

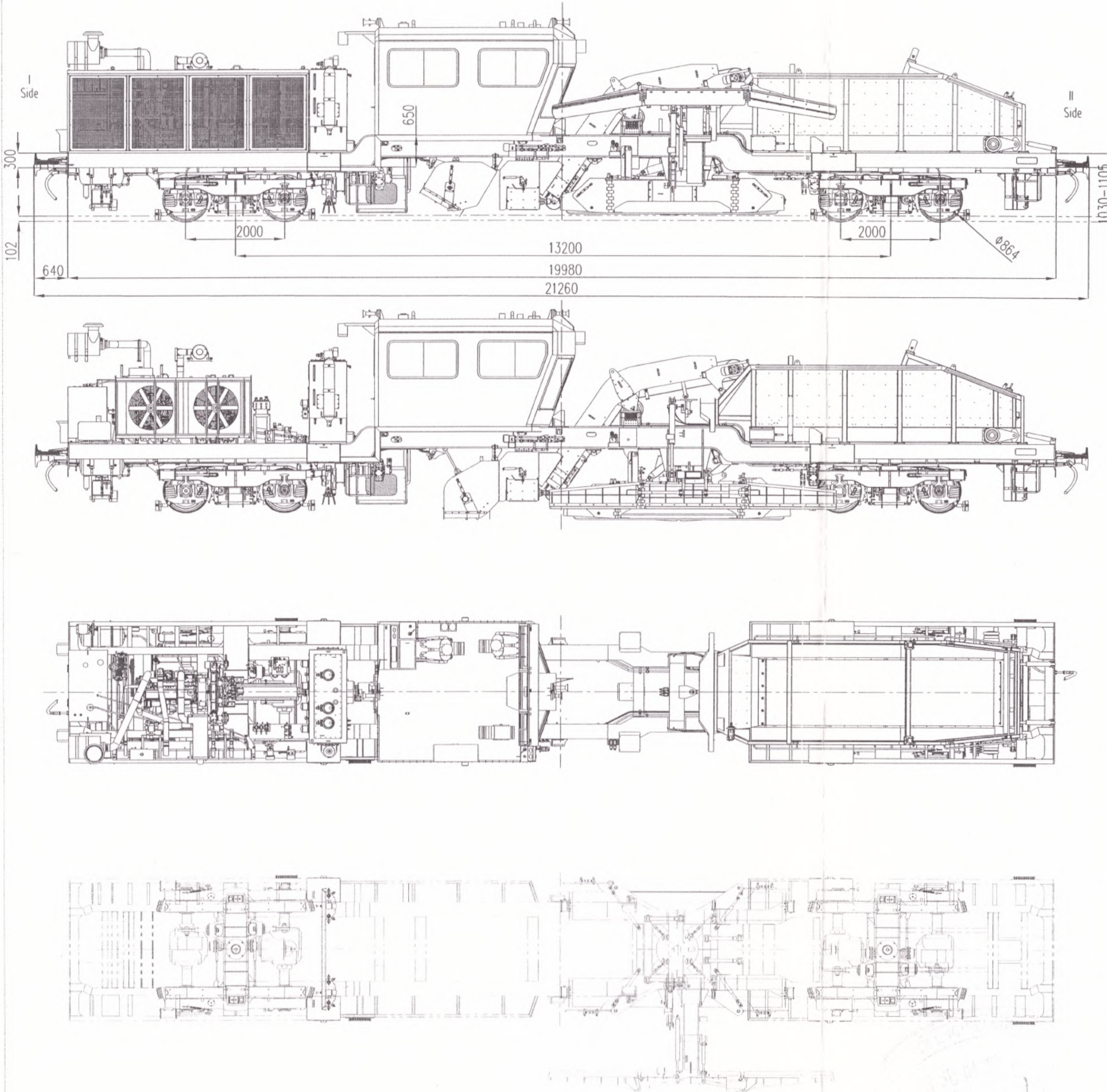
i)	Annexure-A
ii)	M/s. Hubei Srida's GA Drg. No. SPZ-350A0-00-00 Ver. A.
iii)	M/s. Hubei Srida's Suspension Drg. No. SPZ-350A0-15-00.
iv)	Railway Board's Letter No. 2019/CEDO/SD/RS/05 dated 20.05.2019.
v)	Railway Board's Letter No. 2020/M(C)/202/3 dated 01.02.2022.
vi)	Railway Board's Letter No. 65/WDO/SR/26 dated 19/20.10.1966.
vii)	Para 708(4) of Indian Railways Track Machine Manual, September -2019.
viii)	Para 704 of Indian Railways Track Machine Manual, September -2019.

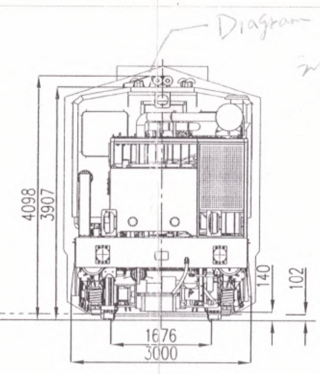
(Signed)
(नितिन मेहरोत्रा)
कार्यकारी निदेशक मानक/चालन शक्ति

Annexure-A

Salient features of Ballast Regulating Machine Model No. “SRDSPZ 350” manufactured by M/s Hubei Srida Heavy Duty Engineering Machinery Co. Ltd., China.

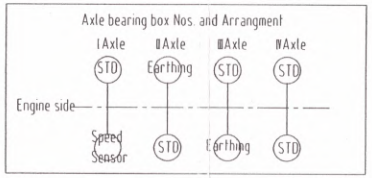
SN	Description	Details
1.	Principal dimensions of rolling stock	M/s. Hubei Srida’s GA Drg. No. SPZ-350A0-00-00 Ver. A. a. Length over buffers : 21260mm b. Wheel base : 2000mm c. Max. axle load : 20.32t d. Max. design speed- i) Own power : 80kmph ii) Train formation : 100kmph e. Weight i) Empty : 60t ii) Loaded : 80t
2.	Bogie and wheel details	M/s. Hubei Srida’s Bogie Arrangement Drg. No. SZ-009-00-00 & SZ-009-00-00(I). Wheel dia : - New : 864mm Worn : 824mm
3.	Suspension arrangement	M/s. Hubei Srida’s Suspension Drg. No. SPZ-350A0-15-00.
4.	Brake system details	Pneumatic Brake: Drg No. SPZ350A0-07-00
5.	Coupler and Buffer details	Coupler: Drg. No. QKX35-00-00-00 Buffer: Drg. No. QKX65-00-00-00
6.	Engine details	Model: QSNT-C360S30 Power: 269kW @ 2100RPM
7.	Safety Items	As per Para 704 of Indian Railways Track Machine Manual, September -2019.





Main Technical Specification

1. Working Performance Spec.
   - Max.ballast distribution width: 3800mm
   - Max.re-profile width: 7200mm
   - Max.sweeping width: 2700mm
   - Re-profile track bed slope: Adjustable
   - Working speed: 0~12km/h
   - Min.curve radius in working mode: 176m
2. Machine technical spec.
   - Engine: QSNT-C360S30(269kw/2100rpm)
   - Max.self-propelled speed: 80km/h
   - Max.speed in train formation: 100km/h
   - Min.curve radius in running mode: 150m
   - Max.gradient capability: 30‰
   - Wheel dia.: 864mm (worn out: 824mm)



SL	CODE	NAME	QTY	MATERIAL	U-Wt	T-Wt	Remark
23		Coupler & Buffer	2		660	1320	India Railway
22	SPZ270A0-32-00	Gen-set	1		154.38	154.38	
21	SPZ270A0-80-00	Rail sweeping device	1		3659.08	3659.08	
20	SPZ270A0-79-00	Shoulder plough	2		1237.66	2475.3	Left-right sysmetric
19	SPZ270A0-78-00	Central plough	1		3234.21	3234.21	
18	SPZ270A0-67-00	Vertical sweeping device	1		246.96	246.96	
17	SPZ270A0-62-00	Ballast hopper	1		4581.2	4581.2	
16	SPZ270A0-29-00	Air conditioner	1		149.06	149.06	
15	SPZ270A0-28-00	Exterior decoration	1		80	80	
14	SPZ270A0-26-00	Floor and handrail	1		710.73	710.73	
13	SPZ270A0-23-00	Hydraulic sys.	1		3286.6	3286.6	
12	SPZ270A0-22-00	Hand brake	1		134.22	134.22	
11	SPZ270A0-20-00	Transmission system	1		194.9	194.9	
10	SPZ270A0-19-00	Air compressor	1		89.72	89.72	
9	SPZ270A0-18-00	Power ass.	1		5293.5	5293.5	
8	SPZ270A0-13-00	Electric sys.	1		817	817	
7	SPZ270A0-11-00	Interior arrangement	1		1035.9	1035.9	
6	SPZ270A0-10-00	Cab	1		2099.8	2099.8	
5	SPZ270A0-08-00	Pneumatic control system	1		37.01	37.01	
4	SPZ270A0-07-00	Air brake	1		777.96	777.96	
3	SZ009-00-00(I)	Bogie ass.	1		8836.07	8836.07	
2	SZ009-00-00	Bogie ass	1		8845.99	8845.99	
1	SPZ270A0-01-00	Main frame	1		12829.3	12829.3	

Mark	Pla	Partition	Revise	Sign	Date
Design	Wang GL	2016/12/10	Craft	Liu G	2016/12/20
Drawer					
Examin			STD		
Check	Wang CW	2016/12/12	Approval	Wan L	2016/12/23

Model SPZ 350

SRIDA 时瑞达

Phase: S A B C

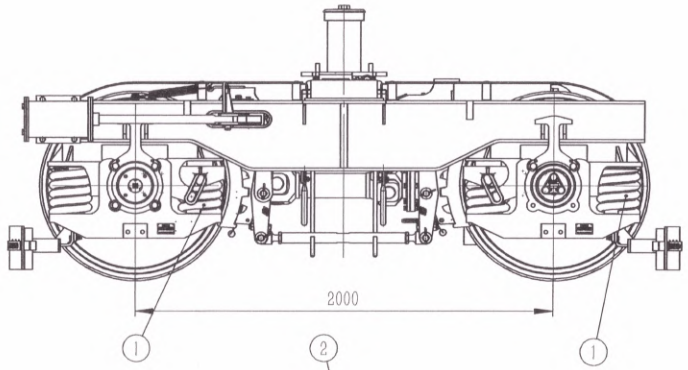
Weight

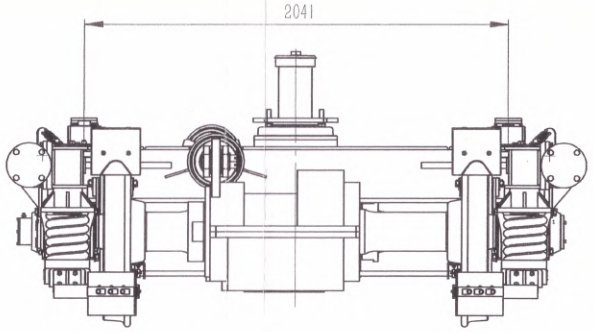
Bi-direction Ballast Regulator

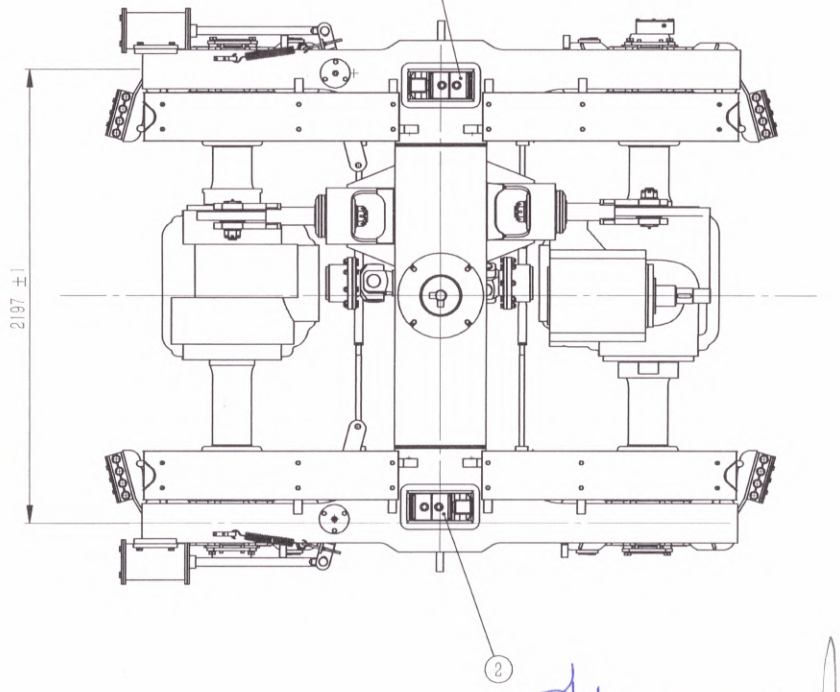
Pages: 1 page

Scale 1:60 | QTY 1 | Size A2 | Version A

Drg. No. SPZ-350A0-00-00







S.L.	CODE	NAME	QTY	Material	U.Weight	T.Weight	Remarks
3							
2	SZ005-02-03-00	Secondary Suspension	2		30.68	61.36	
1	SZ005-05-00	Primary Suspension	4		234.97	939.88	

Marks	Places	Partition	Revision	Sign	Date
Design		Han RZ 2018/1/11	Craft	Liu Gen	2018/1/17
Drawer		Han RZ 2018/1/11			
Check			Standard		
Review		Feng H 2018/1/14	Approval	Wan Li	2018/1/17

Phase Marker S | Weight | Pages: Total 1 page, Page 1 | Scale: 1:25 | Size: A3 | Version: A

SRIDA 时速达

Suspension Ass.

SPZ350A0-15-00

7.9.2020
निदेशक-III/रेलपथ मशीन
Director-III/Track Machine
अ.अ.मा.सं./लखनऊ-226011
RDSO/Lucknow-226011

S.No 9

भारत सरकार Government Of India
रेल मंत्रालय Ministry Of Railways
(रेलवे बोर्ड) (Railway Board)

सं.2019/CEDO/SD/RS/05 **New Delhi, Dated 20.05.2019**

The Director General,
Manak Nagar, RDSO,
Lucknow.

विषय : Condonation of infringements w.r.t. IRSOD (BG) Revised, 2004 by Ballast Regulating Machine Model SRDSPZ350, manufactured by M/s Hubei Srida, Heavy Duty Engineering Machinery Co. Ltd., China to its General Arrangement Drawing No. SPZ-350A0-00-00 Version-A.

संदर्भ : (i) RDSO's letter No.CT/TMM/GENL, dated 08.03.2019.
(ii) CCRS's letter No.Q-14011/14/2018-19-T.W., dated 26.03.2019.

With reference to your above application, dated 08.03.2019{ref. (i)}, sent through the Chief Commissioner of Railway Safety, Lucknow; the sanction of Ministry of Railways, Railway Board is hereby communicated for condonation of infringement w.r.t. Chapter-IV(A), Schedule-I of IRSOD (BG) Revised, 2004 by Ballast Regulating Machine Model SRDSPZ350, manufactured by M/s Hubei Srida, Heavy Duty Engineering Machinery Co. Ltd., China to its General Arrangement Drawing No. SPZ-350A0-00-00 Version-A, as shown in details enclosed with above mentioned application, details of infringements as under :

(i) **Clause 2(ii) –** Minimum diameter on the tread of new carriage of wagon wheel, measured at 63.5mm from wheel gauge face by 50mm (i.e. 864mm instead of 914mm)

Further, above sanction of condonation is subject to the following stipulations :

"Instruction related to the movement of the machine on Points and Crossing/Turnouts & Diamond Crossings should be incorporated in the Speed Certificate for its operation, whenever being issued. In addition, issues related to the movement of the machine in Train formation in case of emergency should also be considered & addressed, and accordingly, instructions for movement in such cases should be clearly mentioned in Speed Certificate."

Prem Sagar 20.05.19
o/c
(प्रेम सागर गुप्ता)
कार्यकारी निदेशक/सिविल इंजीनियरिंग(जी)/रेलवे बोर्ड
[Phone : 030-44803 (Rly.); 011-23383379 (MTNL); 09717647692 (CUG Mobile)]
e-mail address : edceg@rb.railnet.gov.in

सं.2019/CEDO/SD/RS/05 **New Delhi, Dated .05.2019**

Copy forwarded for information to :

1. The Chief Commissioner of Railway Safety, Compound of DRM/NER, Ashok Marg, Lucknow-1 w.r.t. his endorsement No.Q-14011/14/2018-19-T.W., dated 26.03.2019
2. Commissioner of Railway Safety, all Circles.
3. ED Standards (Track-1), RDSO, Manak Nagar,Lucknow
4. EDTk(Mc)/Railway Board, New Delhi.

Prem Sagar 20/05/19
o/c
(प्रेम सागर गुप्ता)
कृते सचिव, रेलवे बोर्ड

रेल मंत्रालय Ministry of Railways Railway Board 21-5-19

आज़ादी का अमृत महोत्सव

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

Azadi Ka Amrit Mahotsav

(E-File no. 3329265)

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

New Delhi-01.02.2022

ED/ Carriage,
RDSO, Lucknow

Sub: Allotment of transportation code for Ballast regulating Machine Model - SRDSPZ 350, manufactured by M/s Hubei Srida, Heavy Duty Engineering Machinery Co. Ltd. China.

Ref: i. RDSO letter no. MC/TW dated 06.12.2019.
ii. Railway Board' letter no. 95/Sec.(Spl.)/75/1 dated 30.05.97.

Vide reference i. above, RDSO requested for allotment of Transportation code for Ballast regulating Machine Model - SRDSPZ 350, manufactured by M/s Hubei Srida, Heavy Duty Engineering Machinery Co. Ltd. China

In this regard, following transportation code is being allotted:

Type of Coach	Layout No.	Transportation code
Ballast Regulating Machine Model SRD-SPZ-350	Drg. No. SPZ-350AO-00-00 Version - A	BRSPZ350

Provision of Fire extinguishers may also be reviewed in view of Railway Board guidelines issued for rolling stock and accordingly may be increased to 02 Nos.

For further necessary action please.

01/02/2022

(सुमन कुमार ताती)
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 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.

....

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