भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226 011
EPBX (0522) 2451200
Fax (0522) 2458500

Government of India-Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226 011
DID (0522) 2450115
DID (0522) 2465310

Speed Certificate for Operation of Train

No.	MC/LHB/COACH	Date:	01.10.2020

महाप्रबन्धक (इंजीनियरिंग)
पूर्व मध्य रेलवे, हाजीपुर - 844 101.

Sub: Speed Certificate for operation of train consisting of maximum 24 LHB (EOG) coaches comprising of LHB AC Generator Van (LWLRRM), LHB (EOG) AC First class (LWFAC), LHB (EOG) AC First cum AC-2 Tier (LWFCWAC), LHB (EOG) AC 2-Tier Sleeper coach (LWACCW), LHB (EOG) AC 3-Tier coach (LWACCN), LHB (EOG) AC Hot Buffet Car (LWCBAC), LHB (EOG) Executive AC Chair Car (LWFCZAC), LHB (EOG) Second Class AC Chair AC Chair Car (LWSCZAC), LHB (EOG) Non AC Chair Car (LWSCZ), LHB (EOG) 3-Tier Sleeper (LWSCN), LHB (EOG) Second Class Non AC Unreserved coach with Vestibules (LWS), LHB (EOG) High Capacity Parcel Van (LVPH), LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD) with single WAP7 locomotive, with maximum speed up to 130 kmph over Deen Dayal Upadhyaya (DDU) - Jhajha (JAJ) except Tall (TALL) to Kiul (KIUL & back between Jhajha (JAJ) to Deen Dayal Upadhyaya (DDU) sections of East Central Railway on track maintained as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522.

Ref: Eastern Railway letter No. MD/19/RAJDHANI/Vol.1 dated 24.10.2019

1.0	Indian Railways had signed a contract with M/s LHB Germany for supply of 24 nos. all metal lightweight high-speed BG AC coaches along with transfer of technology. These LHB coaches are fitted with CBC and FIAT bogies to 16.25 t axle load capacity with disc brake arrangement. These coaches have been designed with overall dimension to RDSO Sketch-96077 to operate up to a maximum speed of 160 kmph.
1.1	LHB AC EOG Chair car has undergone detailed oscillation trials up to test speed of 180kmph on Palwal-Mathura section of Northern Railway & North-Central Railway on track maintained to C&M-I, Vol.-I standard. The test results of trials as contained in RDSO Report no. MT-240, exhibit satisfactory riding and stability behavior, upto test speed of 180 kmph on track maintained to C&M-I, Vol.-I standard. The LHB AC Generator Van has undergone detailed oscillation trials up to test speed of 145 kmph on Palwal-Mathura section of Northern Railway & North-Central Railway and from 145 kmph upto 180 kmph on Ghaziabad-Tundla section of North-Central Railway on track maintained to C&M-I, Vol.-I standard. The test results of trials as contained in RDSO Report no. MT-274 and MT-282 respectively. The test results of these trials exhibit satisfactory riding and stability behavior, upto test speed of 180 kmph on track maintained to C&M-I, Vol.-I standard. Based on the results, a speed certificate for regular operation of LHB AC chair cars and LHB AC Generator Vans at a maximum speed of 160 km/h on track maintained to C&M-I Vol.-I standard have been issued vide RDSO's letter no. MC/LHB/Coach dated 19.3.2003 followed by partial amendment dated 27.2.2004 and amendments dated 18.11.2014 & 20.12.2014 for LHB AC EOG Chair Car and RDSO letter no. MC/LHB/COACH dated 20.3.2003 followed by partial amendment dated 27.2.2004 and amendments dated 18.11.2014, 20.12.2014 & corrigendum no. 01 dated 08.01.2015 to Amendment no.02 for LHB Generator Van. The revised final speed certificate for operation of BG EOG type LHB AC Chair Cars (LWSCZAC & LWFCZAC) & LHB AC Generator Van (LWLRRM) fitted with FIAT bogies upto maximum speed of 160 kmph on track maintained to C&M-I Volume-I standard, has also been issued vide RDSO's letter nos. MC/LHB/Coach dated 08.04.2015 after incorporating concerned amendments as desired by CRS Northern Circle. An amendment no. 01, dated 07.03.2018 to RDSO letter no. MC/LHB/ COACH, dated 08.04.2015 for LHB AC Generator Van fitted with FIAT bogies has also been issued.

1.2	RCF has built AC 2-Tier (LWACCW), AC First Class (LWFAC), AC First cum AC-2 Tier (LWFCWAC), AC Hot Buffet Car (LWCBAC), BG LHB AC EOG variant Broad Gauge coaches confirming to RDSO's Sketch no. 96077 fitted with Fiat bogies. These Coaches have been built to the state of art technology and provided with disc brakes and CBC. CCRS was approached for granting dispensation for conduct of trials on the basis of similar suspension design and other parameter of above said coaches, being comparable to LHB EOG AC Chair cars, which had exhibited satisfactory riding up to maximum test speed of 180 kmph in accordance with report no MT-240 for track maintained to C&M-I, Vol.-I. Accordingly CCRS/Lucknow vide letter Q-17016/06/2013-14.T.V dated 05.03.2014, granted dispensation from conduct of oscillation trials for above said coaches. Based on above, the speed certificate for operation of AC 2-Tier (LWACCW), AC First Class (LWFAC), AC First cum AC-2 Tier (LWFCWAC), AC Hot Buffet Car (LWCBAC), BG LHB AC EOG variant Broad Gauge coaches has been issued up to maximum speed of 160 kmph on track maintained to C&M-I, Vol.-I standard vide letter no. MC/LHB/COACH dated 05.06.2014.
1.3	BG EOG Type AC-3 Tier LHB coach (LWACCN) has undergone detailed oscillation trials up to test speed of 180 kmph on Ghaziabad (GZB) -Tundla section of North-Central Railway on track maintained to C&M-I, Vol.-I standard. The test results of trials as contained in RDSO Report no. MT-412, exhibit satisfactory riding and stability behavior, upto test speed of 180 kmph on track maintained to C&M-I, Vol.-I standard. Based on the results, a speed certificate for regular operation of BG EOG Type AC-3 Tier LHB variant coach (LWACCN) at a maximum speed of 160 km/h on track maintained to C&M-I Vol.-I standard has been issued vide RDSO's letter no. MC/LHB/COACH dated 20.05.2003 followed by partial amendment dated 27.2.2004 and amendment no. 01 dated 03.07.2015.
1.4	RCF has built LHB EOG Composite First AC Cum AC -2 Tier coach (LWFCWACA) & dispensation to detailed oscillation has been granted based on similarity to BG EOG AC-2 Tier LHB coach (LWACCW) by CCRS vide letter no. Q-17016/01/2018-19 T.W. dated 17.04.2018 for track maintained to C&M-I Volume-I standard. Based on above, the final speed certificate for operation of BG EOG Composite First AC Cum AC -2 Tier LHB coach (LWFCWACA) upto maximum speed of 130 kmph on track maintained to C&M-I Volume-I standard, has been issued vide RDSO's letter nos. SV. FIAT (SC) dated 12.9.2018 followed by amendment no. 01 dated 14.8.2019.
1.5	RCF has built Three Tier Sleeper coaches (LWSCN) & dispensation to detailed oscillation has been granted based on similarity to BG EOG LHB AC Chair Car by CCRS vide letter no. Q-17016/04/2011-T.W. dated 08.08.2011 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of Three Tier Sleeper coaches (LWSCN), up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO letter no. MC/LHB/COACH dated 14.10.2011.
1.6	RCF has built Three Tier Sleeper coaches (LWSCN1) & dispensation to detailed oscillation has been granted based on similarity to BG EOG Second Class Non AC LHB coach (LS3) by CCRS vide letter no. Q-17016/03/2017-18-T.W. dated 04/8.09.2017 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of Three Tier Sleeper coaches (LWSCN1), up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO letter no. MC/LHB/COACH dated 03.11.2017.
1.7	RCF has built Three Tier Sleeper coaches (LWSCNA) & dispensation to detailed oscillation has been granted based on similarity to BG EOG Non AC GS LHB coach (LS5) by CCRS vide letter no. Q-17016/04/2017-18-T.W. dated 04/8.09.2017 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of Three Tier Sleeper coaches (LWSCNA), up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO's letter no. SV.FIAT dated 09.11.2017.
1.8	RCF has built BG EOG Non AC Chair Car LHB coach (LWSCZ) & dispensation to detailed oscillation has been granted based on similarity to BG EOG AC Chair Car LHB coach by CCRS vide letter no. Q-17016/03/2011-T.V., dated 15.03.2011 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of BG EOG Non AC Chair Car LHB coach (LWSCZ), upto maximum speed of 130 kmph on track maintained to C&M-I Volume-I standard, has been issued vide

	RDSO's letter no. MC/LHB/Coach dated 31.3.2011 followed by amendment no. 01 & amendment no. 02 dated 06.03.2013 & 19.07.2016 respectively.
1.9	RCF has built BG LHB Non AC EOG Second class Chair Car (LWSCZA) & dispensation to detailed oscillation has been granted based on similarity to BG LHB EOG GS (LS5) coach by CCRS vide letter no. Q-17016/02/2018-19-T.W dated 17.04.2018 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of BG LHB Non AC EOG Second class Chair Car (LWSCZA) upto maximum speed of 130 kmph on track maintained to C&M-I Volume-I standard, has been issued vide RDSO's letter no. SV.FIAT dated 20.08.2018.
1.10	The final speed certificate for operation of BG EOG LHB Second Class Non AC Unreserved coach with vestibules (LWS) and pneumatic suspension at secondary stage on FIAT bogies, upto maximum speed of 130 kmph on track maintained to C&M-I Volume-I standard, has been issued vide RDSO's letter no. SV. FIAT (SC), dated 07.09.2018.
1.11	The final speed certificate for operation of LHB High capacity parcel van (LVPH) up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO's letter no. SV.FIAT (SC)LVPH/130 dated 29.11.2019.
1.12	The final speed certificate for operation of LHB Second class Cum Luggage & Brake Van (LSLRD). up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO's letter no. SV.FIAT (SC)LSLRD/130 dated 23.07.2019.
1.13	Coupler force & Emergency Braking Distance trials of 24 numbers of AC/Non AC (EOG) LHB coaches and LHB AC/Non AC (EOG) Chair Car coaches including 2 numbers of LHB AC Generator Vans with single WAP7 Locomotive have been conducted at maximum speed of 130 kmph on Andul (ADL)- Tata Nagar (TATA)-Andul (ADL) section of South Eastern Railway and results are contained in Report no. RDSO/2019/TG/MT-1593/F Rev.-0/Amendment –Nil dated 28-2-2019. The Braking distance during Full Service of 24 numbers loaded LHB coaches with single WAP7 Locomotive at speed of 130 kmph on level tangent track was recorded as 1161 meters.
1.14	The Confirmatory Oscillograph Car Runs of 24 numbers of AC/Non AC (EOG) LHB coaches and LHB AC/Non AC (EOG) Chair Car coaches including 2 numbers of LHB AC Generator Vans (LWLRRM) & 01 no. of LSLRD with single WAP7 Locomotive have been conducted at maximum speed of 130 kmph over DDU - Jhajha (JAJ) - DDU Section on East Central Railway on track maintained as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522 and results are contained in RDSO Report no. RDSO/2020/TG/MT-1697/F, Rev.0, Dt. 08.04.2020 Amendment-Nil, exhibits satisfactory riding and stability behavior.
2.0	Based on the above, it is certified that train consisting of maximum 24 LHB (EOG) coaches comprising of LHB AC Generator Van (LWLRRM), LHB (EOG) AC First class (LWFAC), LHB (EOG) AC First cum AC-2 Tier (LWFCWAC), LHB (EOG) AC 2-Tier Sleeper coach (LWACCW), LHB (EOG) AC 3-Tier coach (LWACCN), LHB (EOG) AC Hot Buffet Car (LWCBAC), LHB (EOG) Executive AC Chair Car (LWFCZAC), LHB (EOG) Second Class AC Chair AC Chair Car (LWSCZAC), LHB (EOG) Non AC Chair Car (LWSCZ), LHB (EOG) 3-Tier Sleeper (LWSCN), LHB (EOG) Second Class Non AC Unreserved coach with Vestibules (LWS), LHB (EOG) High Capacity Parcel Van (LVPH), LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD) with single WAP7 locomotive, is fit for operation, up to maximum speed of 130 kmph over Deen Dayal Upadhyaya (DDU) - Jhajha (JAJ) except Tall (TALL) to Kiul (KIUL) & back between Jhajha (JAJ) to Deen Dayal Upadhyaya (DDU) sections of East Central Railway on track maintained as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522. In this connection, the following conditions shall apply:

2.1	**Locomotives**

2.1.1	The WAP7 class of locomotive manufactured by Chittaranjan Locomotive Works has undergone detailed oscillation trials at maximum speed of 155 kmph and the results are contained in RDSO report no. MT/983/F (27.08.2009). Based on the results, WAP7 class of locomotives have been cleared for operation up to a maximum speed of 140 kmph on track maintained to standards laid down in RDSO report no. C&M-I Vol. I vide RDSO's

	letter no. EL/3.1.35/4 dated 13.10.2009 followed by amendment no. 1 dated 12.12.2013.

2.2	**Track**

2.2.1	The track shall be to a minimum standard of 52kg (90UTS) rail laid on PSC sleeper with 1540 No./Km on 250mm ballast cushion below the sleepers which may consist of 100mm clean and rest in caked up condition, on compacted and stable formation.
2.2.2	For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, instructions issued by Railway Board letter no. 65/WDO/SR/26 dated 19/20.10.1966 may be seen. When the Chief Engineer considers that the road bed is not compacted or there is improper drainage, he may suitably restrict the maximum permissible speed depending upon the local conditions.
2.2.3	The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual, June -2020.
2.2.4	The welds shall be protected by joggled fish plates as per provisions of USFD Manual and AT welding manual and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provision 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.
2.2.5	Zonal Railway may ensure further detailed examination of track as deemed fit based on age cum condition basis, overdue renewal and condition of formation etc. as per provisions of Indian Railways Permanent Way Manual, June-2020 regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination.
2.2.6	All the turnouts shall be fixed heel curved switches type laid on PSC sleepers layout with CMS crossings
2.2.7	Sleepers on bridges (other than ballasted deck) would be steel channel/H-Beam/ Composite Sleeper.

2.3	**Bridges**

2.3.1	The clearance refers to bridges "Standard Spans" with standard design of girders, slabs, pipe culverts, piers and abutments, etc. issued by RDSO for BGML, RBG & MBG-1987 standard loadings. However, the bearings of span 76.2 meters (clear) designed for BGML standard loading as per RDSO's drg. no. BA-11154 should be strengthened by providing two additional anchor bolts.
2.3.2	Superstructures and bearings of "Special Spans" (designed and constructed by zonal railways based on site requirements) including all Arches and sub-structures of all bridges (all standard Spans & Special Spans) shall be examined under the directions of the Chief Bridge Engineer concerned and certified safe by him in terms of current Indian Standard Codes with up to- date correction slips.
2.3.3	The above clauses have been arrived considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed restriction to be imposed by concerned Chief Bridge Engineer of Zonal Railway.
2.3.4	Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working timetable.
2.3.5	This clearance is subject to the following parameters of locomotive and LHB AC/ Non AC (EOG) coaches:

(A)	**For Locomotive:-**

S No	Description	WAP7
1.	Max. axle load	20.5 ± 2% t
2.	Max. tractive effort	32.9 t
3.	Max. braking force at rail level	18.6 t
4.	CG height above rail level	Not exceeding 1830 mm

(B)	For LHB AC (EOG) and Non AC (EOG) Variant Coaches:-

S. No.	Name of Coaches	Maximum Axle Load	Maximum Braking Force at Rail Level	CG height above rail level
1.	Executive AC Chair Car (LWFCZAC)	16.25t	5.8t	Not exceeding 1830 mm
2.	Second Class AC Chair Car (LWSCZAC)	16.25t	5.8t	
3.	AC First Class (LWFAC)	16.25t	5.8t	
4.	AC First cum AC-2 Tier (LWFCWAC)	16.25t	5.8t	
5.	AC 2-Tier Sleeper Coach (LWACCW)	16.25t	5.8t	
6.	AC 3-tier Sleeper Coach (LWACCN)	16.25t	5.8t	
7.	AC Hot Buffet Car (LWCBAC)	16.25t	5.8t	
8.	Three Tier Sleeper Coach (LWSCN)	16.25t	5.8t	
9.	Non AC Chair Car coach (LWSCZ)	16.25t	5.8t	
10.	Second Class Non AC Unreserved coach with vestibules (LWS)	16.25t	5.4t	
11.	LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD)	16.25t	5.8t	
12.	LHB (EOG) High Capacity Parcel Van (LVPH)	16.25t	6.6t	
13.	Generator van (LWLRRM)	16.25t	6.6t	

(C)	For LHB AC (EOG) and Non AC (EOG) Variant Coaches: After Completion of Route Proving Run as per Para 2.7.10 of subject speed certificate

S. No.	Name of Coaches	Maximum Axle Load	Maximum Braking Force at Rail Level	CG height above rail level
1.	AC First cum AC-2 Tier (LWFCWACA)	16.25t	6.6t	Not exceeding 1830 mm
2.	Three Tier Sleeper coaches (LWSCNA)	16.25t	6.6t	
3.	Three Tier Sleeper coaches (LWSCN1)	16.25t	5.8t	
4.	Non AC Second class Chair Car (LWSCZA)	16.25t	5.4t	

2.3.6	Specific restrictions are applicable as mentioned in relevant speed certificates of hauling single/ multiple locomotives issued by RDSO.

2.4	Signaling

2.4.1	Provisions of GR, SR, IRSOD, SEM & all extant instructions issued from time to time as applicable shall be complied with.
2.4.2	In case of operation of Train (having these coaches in it's composition) / rolling stocks having EBD of more than 1 Km and non provision of second distant signal / 4 Aspect automatic signaling in the section, action as per A & C no. 09 of SEM Pt-I shall be taken.

2.5	Traction Installation

2.5.1	The 25 kV AC OHE shall have swiveling type Cantilever Assembly having 1000 kgf (min) tension in the conductors, regulated automatically with a presag. The presag of 50/100 mm is required on the Contact Wire for a maximum span of 72 m, proportionately less for smaller spans.
2.5.2	In case of locations where 25 kV AC porcelain section insulators are installed on main line and lies within first 1/10th and 1/3rd of the span immediately after the OHE structure and the Runners in the trailing direction, the maximum speed shall be 120 km/h. At all other locations where 25 kV AC porcelain section insulators are installed, the speed shall be limited to 80 km/h.
2.5.3	It is recommended that the cantilevers in the section should have BFB Steady Arm (RI No. 2390) with 25 mm Drop Bracket Assembly (RI No. 2360) instead of Tubular Steady Arm (RI No. 2520). Bent Steady Arm at overlap locations shall continue.
2.5.4	The current collection shall be made through one no. pantograph fit for high-speed operation.

2.5.5	In 25 kV AC traction area, the Chief Electrical Engineer of the Railway shall have to ensure that the minimum height of contact wire and electrical clearances, as stipulated in provisions of Chapter-V and V-A, Electric Traction "Schedule of Dimension of 1676 mm gauge (BG) revised 2004" with latest addendum & corrigendum slips is not violated and strictly followed to ensure its safe running.
2.5.6	In addition to the above, the Chief Electrical Engineer of the concerned Railway may impose any temporary speed restriction on the basis of his personal knowledge and experience of the sectional OHE and the field conditions prevailing on the particular section.

2.6	**Rolling Stock**

2.6.1	The Wheel Slide Protection (WSP) device of all the coaches in the rake shall be functional at the starting station. If the WSP of any coach become defective enroute of any train running upto 140 kmph with rake composition less or equal to 25 coaches and with maximum brake cylinder pressure of 3.0 kg/cm^2, the train can go upto destination without speed restriction as per RDSO's letter no. MC/LHB/Brake dated 25/29.04.2016.
2.6.2	The earthing arrangement on the coaches shall be maintained as per design.
2.6.3	The LHB AC/ Non AC (EOG) coaches shall be maintained as per "Maintenance manual for LHB coaches issued by CAMTECH Gwalior with latest amendments.

2.7	**General**

2.7.1	All the permanent and temporary speed restrictions in force and those that may be imposed from time to time due to track, bridges, curves, signaling and interlocking etc.
2.7.2	Attention is also invited to the note on "Preparation of Electrical Equipment of Diesel and Electric Locomotives for high speed operation" circulated with this office letter no. EL/3.3.15/WAM2/Gr.CON dated 24.12.1970 and the locomotive should be attended accordingly.
2.7.3	All type of LHB AC/ Non AC (EOG) coaches and LHB Generator Van do not infringe any clause of "Chapter-IV (A)" of Revised IRSOD-2004 with latest addendum & corrigendum slip.
2.7.4	WAP7 locomotives alongwith pantograph in locked down condition and surge arresters does not infringe any clause of Chapter IV (C), Chapter V-A and Maximum Moving Dimension 1D of Indian Railway BG Schedule of Dimensions-2004 and its Addendum and Corrigendum Slip (ACS) No. 27.
2.7.5	Before starting the operation, Principal Chief Mechanical Engineer & Principal Chief Electrical Engineer of the concerned Railway shall certify track worthiness and safety of the Coaching Stock and Locomotive respectively. They shall also ensure proper maintenance of respective rolling stock.
2.7.6	Para no. 6.1.3 of policy circular no. 6 shall be followed by Zonal Railways for introduction of a passenger train having 22 coaches or more plus one inspection carriage (LHB or other types).
2.7.7	Track maintained to C&M-I, Vol.-I standard in this speed certificate shall be considered as track maintained as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522.
2.7.8	All the level crossings shall be manned with telecommunication facilities and preferably interlocked.
2.7.9	Concerned Zonal Railway shall ensure provision of fencing at vulnerable locations on need basis.
2.7.10	LHB AC First cum AC-2 Tier (LWFCWACA), Three Tier Sleeper coaches (LWSCNA), Three Tier Sleeper coaches (LWSCN1) & Non AC Second class Chair Car (LWSCZA) shall be included in this train only after successful completion of route proving run by Zonal railway as per Para 6.5.1.3 of Policy Circular-6 (Revised-2018) at maximum speed of 130 kmph and result should be found satisfactory as per Policy and criteria. The Report of Route Proving Run shall be sent to RDSO before operation of train with these coaches.
2.7.11	As per Para 6.1..2 of revised policy circular no.6, dated 31.10.2018, speed certificate of train for operation in the section shall be as per provision of General Rules 1976- Rule 4.08.1 (a).

2.7.12	The track structure has been specified to standards laid down by Railway Boards through letter no. 2014/CE-II/TSC/1Pt.1 dated 8th Sep. 2016 for speed above 110 kmph and up to 130 kmph. The same has been circulated to all Zonal Railways vide letter no. CT/Tech Mission/ High Speed dated 19.09.2016. The conditions stipulated in the letter shall be followed by Zonal Railway.

Enclosures / संलग्नक:

(i)	RDSO Sketch 96077
(ii)	RCF's drawing no. LE90009
(iii)	RDSO drawing no. CG-11034
(iv)	RCF's drawing no. LJ90004
(v)	RDSO drawing no.CSC-1844
(vi)	ICF drawing No.LGS/EOG/ASR-9-0-001
(vii)	RCF's drawing no. LJ90007
(viii)	RDSO drawing CSC-1808
(ix)	RDSO drawing CSC-1840
(x)	RCF's drawing no. WA90004

Digitally signed by VINAY KUMAR AGARWAL
Date:Thu Oct 01 17:58:23 IST 2020
Reason: Approved

(वी॰ के॰ अग्रवाल)
कार्यकारी निदेशक मानक/चालन शक्ति

प्रतिलिपि:

1. सचिव {यांत्रिक / इलेक्ट्रिकल / इंजीनियरिंग (जी)} , रेलवे बोर्ड, रेल भवन, नई दिल्ली - 110 001.
2. मुख्य रेल संरक्षा आयुक्त, मण्डल रेल प्रबन्धक कार्यालय, पूर्वोत्तर रेलवे परिसर, अशोक मार्ग लखनऊ - 226 001.
3. महाप्रबंधक (यांत्रिक / विद्युत / परिचालन / संकेत एवं दूरसंचार) पूर्व मध्य रेलवे, हाजीपुर - 844 101.

Enclosures / संलग्नक:

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(ix)	RDSO drawing CSC-1840
(x)	RCF's drawing no. WA90004

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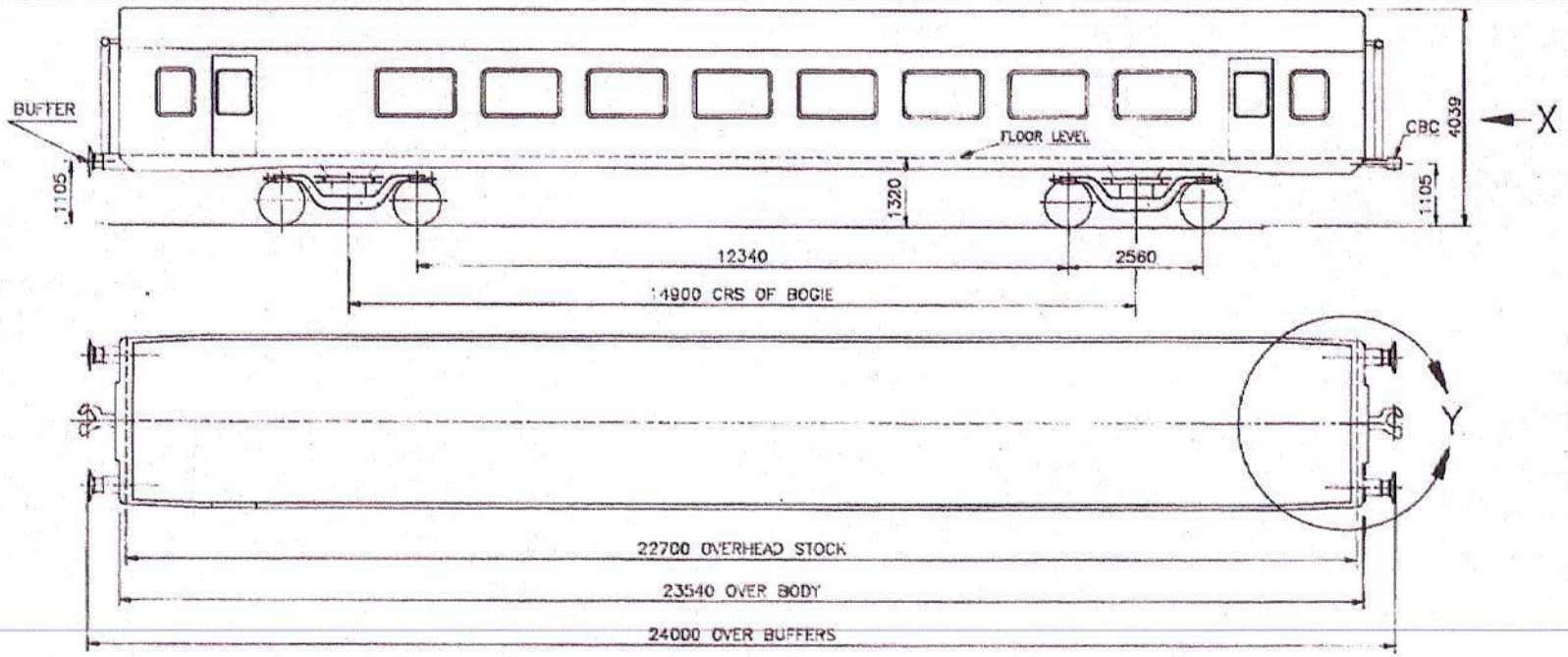
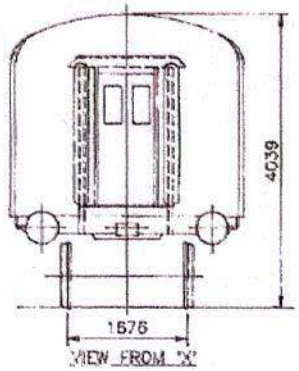
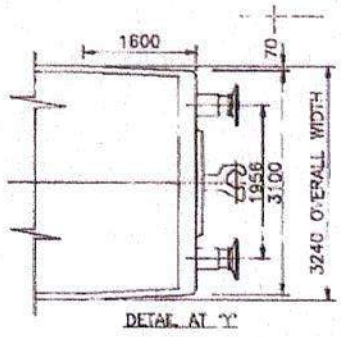
(वी॰ के॰ अग्रवाल)
कार्यकारी निदेशक मानक/चालन शक्ति





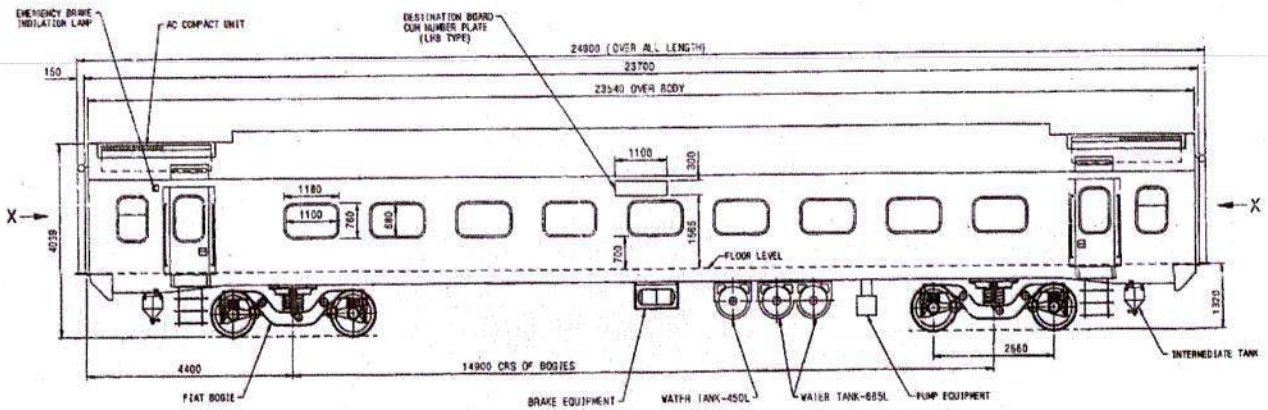


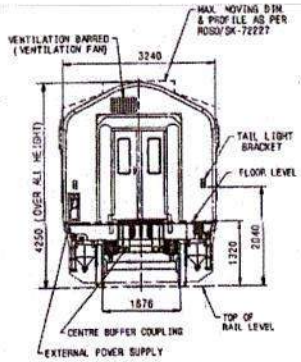
NOTE:-

BUFFERS ARE TO BE PROVIDED ONLY IN POWER CAR.

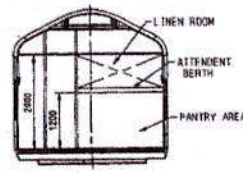
DIAGRAM SHOWING MAIN DIMENSIONS OF LHB-IR COACH

SKETCH-96077

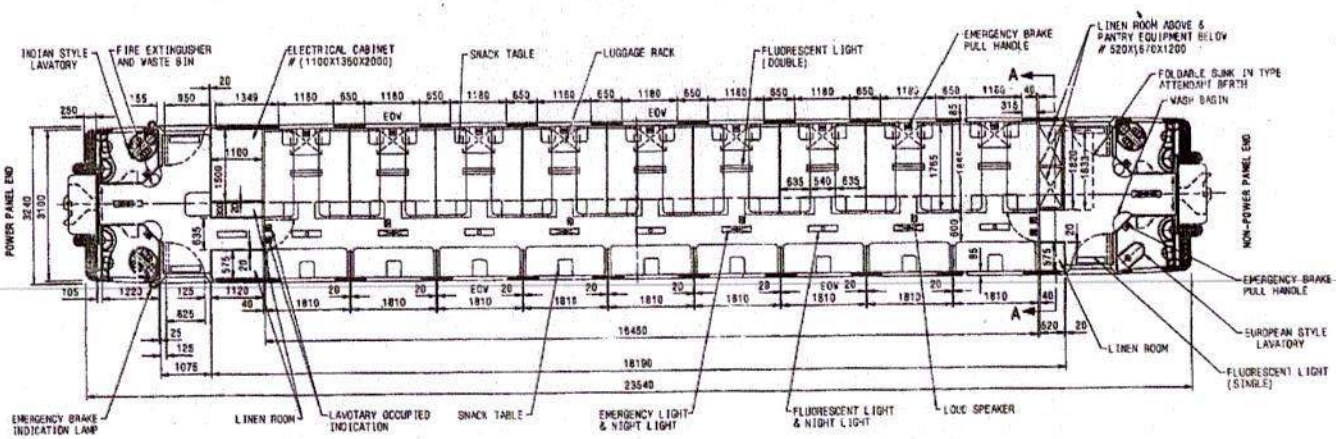




VIEW FROM-X



SECTION-AA



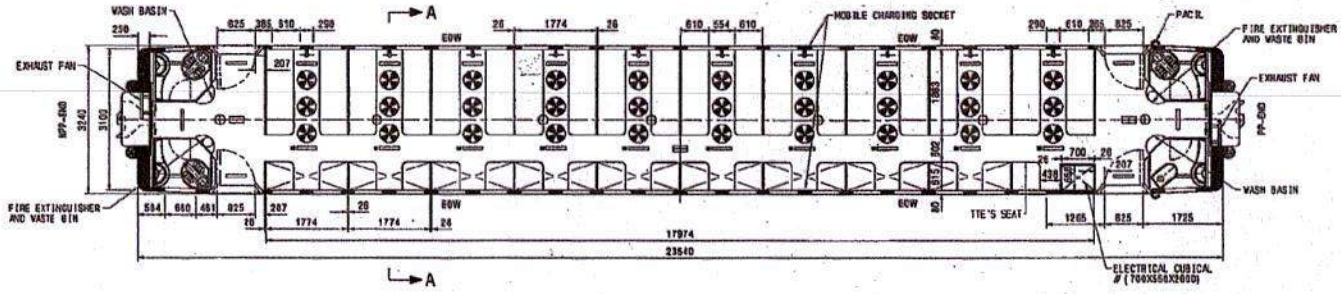
D — LAVATORY LIGHT
— LOUD SPEAKER
— PACIL
EB — EMERGENCY BRAKE
OS — LAV. OCCUPIED INDICATION
— EMERGENCY FLUORESCENT LIGHT & NIGHT LIGHT
— FLUORESCENT LIGHT & NIGHT LIGHT
— FLUORESCENT LIGHT (SINGLE)
— FLUORESCENT LIGHT (DOUBLE)
EOW — EMERGENCY OPENING WINDOW

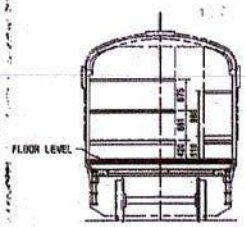
NOTE :-
1. SEATING CAPACITY --- =72
2. SLEEPING CAPACITY --- =72
3. NO. OF DOORS ASTE --- =02
4. NO. OF LAVATORIES --- =04
5. NO. OF PASSENGERS PER DOOR --- =18
6. NO. OF PASSENGER PER LAVATORY --- =18
7. # INDICATES CLEAR SPACE FOR ELECTRICAL EQUIPMENT (DEPTH), (WIDTH), (HEIGHT).

ALT.NO	ALT.DATE	ZONE	ALTERATIONS	AUTHORITY
NIL	NIL	NIL	NIL	NIL

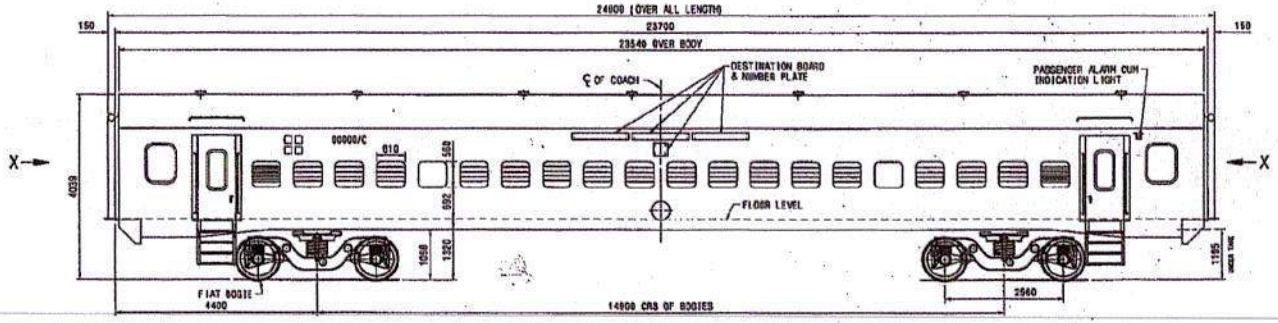
WELD LENGTH	ITEM	DESCRIPTION & DIMENSIONS	SPECIFY DETAIL DRG	MATL. & SPEC.	REMARKS
NIL M	GROUP	COACH LAYOUT	SUPERSEDES: NIL		
WEIGHT	FILE	/user1/brlhb/te/le90009a.prt			
NIL KG		LAYOUT OF AC THREE TIER EOG	SCALE	SSD/REG	
S.AREA		FOR LHB VARIANT COACH WITH FIAT BOGIES	1:50	SSD	
NIL M²		RAIL COACH FACTORY, KAPURTHALA		DRN	
LENGTH/DIAM. 24.000 M		INDIAN RAILWAYS STANDARD	ORIGINAL LE90005 ALT 'B'		
WIDTH/THICK. 3.248 M			PL NO. 01901357		
HEIGHT 4.250 M			DRG.NO. LE90009		
			ALT. NIL	SHEET 1 OF 1	

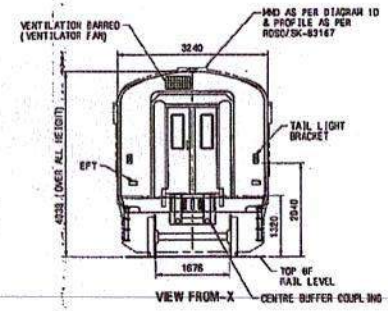
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.
FOR UNTOLERANCED DIMENSIONS REFER NDG0006
DETAIL DRGS STARTING WITH "LI" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE.
DATE OF FIRST ISSUE 04/03/2002





SECTION-AA





VIEW FROM-X

--- RAILWAY CREST
--- RAILWAY
00000/C --- COACH NUMBER
--- VENTILATOR
--- FAN FIXED TYPE (400MM SWEEP)
--- FLOURESCENT LIGHT
--- NIGHT LIGHT
--- DISASTER EMERGENCY LIGHT (LHB TYPE)
--- ALARM PULL
--- PACIL
EOW --- EMERGENCY OPENABLE WINDOW
--- MOBILE CHARGING SOCKET (02 Nos. IN EACH BAY)

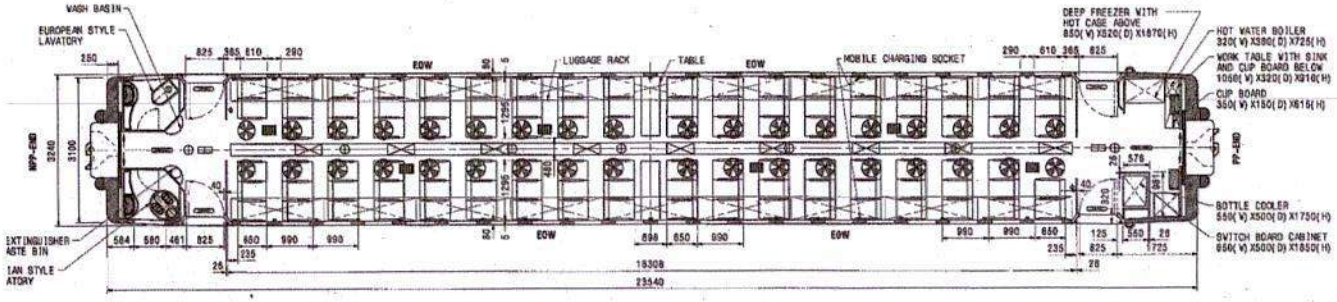
NOTE:-
1. NO. OF PASSENGERS TO SLEEP -78
2. NO. OF PASSENGERS TO SIT -78
3. NO. OF DOOR ASIDE -02
4. NO. OF LAVATORIES -04
5. NO. OF EMERGENCY OPENABLE WINDOWS -04
6. WINDOW TO BE PROVIDED WITH DUST SCREEN.
INDICATE CLEAR SPACE(LXWXH)

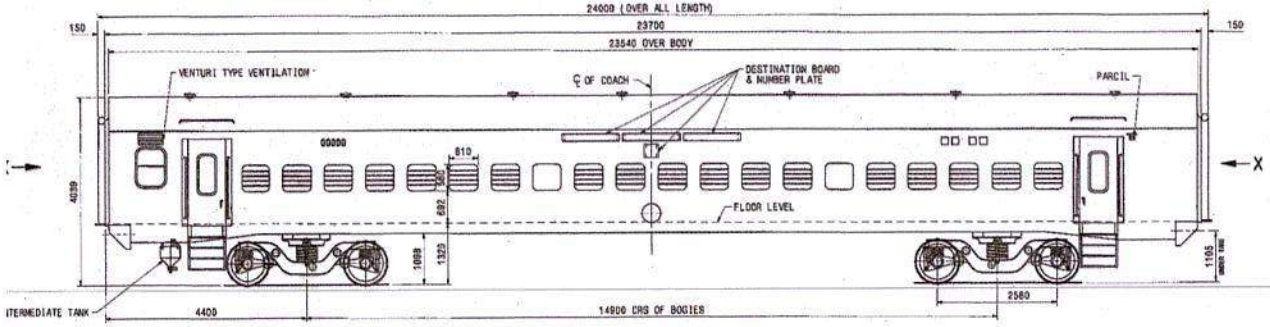
ALT.	ITEM	AUTHY.	DESCRIPTION	CKD.	DATE
2		STD/29/11	"NON AC" ADDED IN DESCRIPTION.		27-07-2011
1		STD/18/10	NUMBER OF PASSENGERS TO SEAT/SLEEP WAS 80.		04-04-2011

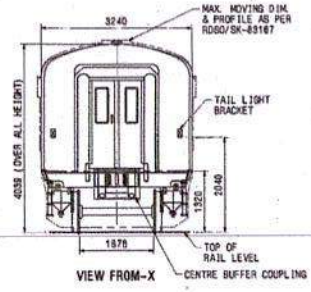
SUPERSEDED BY:-
ASSEMBLY DRGS.
SUPERSEDES:-
REFERENCE :-
SCALE P C D
J.S. STD/29/11
CDIC NO. :-
B.G.
R.D.S.O. ICGI

INDIAN RAILWAYS STANDARDS
NON AC (EOG) LHB VARIANT COACHES
PROPOSED LAYOUT OF
THREE TIER SLEEPER NON AC (EOG) COACH
CG-11034

ALT.NO	ALT.DATE	ZONE	ALTERATIONS	AUTHORITY
NIL	NIL	NIL	NIL	NIL







--- RAILWAY CREST
--- RAILWAY
00000 --- COACH NUMBER
--- VENTILATOR
--- FAN FIXED TYPE (400MM SWEEP)
--- FLOURESCENT LIGHT (SINGLE)
--- COMPACT FLOURESCENT LIGHT (DOUBLE)
--- FLOURESCENT LIGHT (DOUBLE)
--- LAVATORY LIGHT
--- DISASTER EMERGENCY LIGHT (LHB TYPE)
--- DIFFUSER FOR BALLAST
--- LOUD SPEAKER
--- ALARM PULL
--- PARCIL
EOW --- EMERGENCY OPENABLE WINDOW
--- MOBILE CHARGING SOCKET

NOTE:-
1. NO. OF PASSENGERS TO SEAT ---------- 108
3. NO. OF DOOR ASIDE ---------- 02
4. NO. OF LAVATORIES ---------- 02
5. NO. OF EMERGENCY OPENABLE WINDOWS -- 04

30 JUN 2010

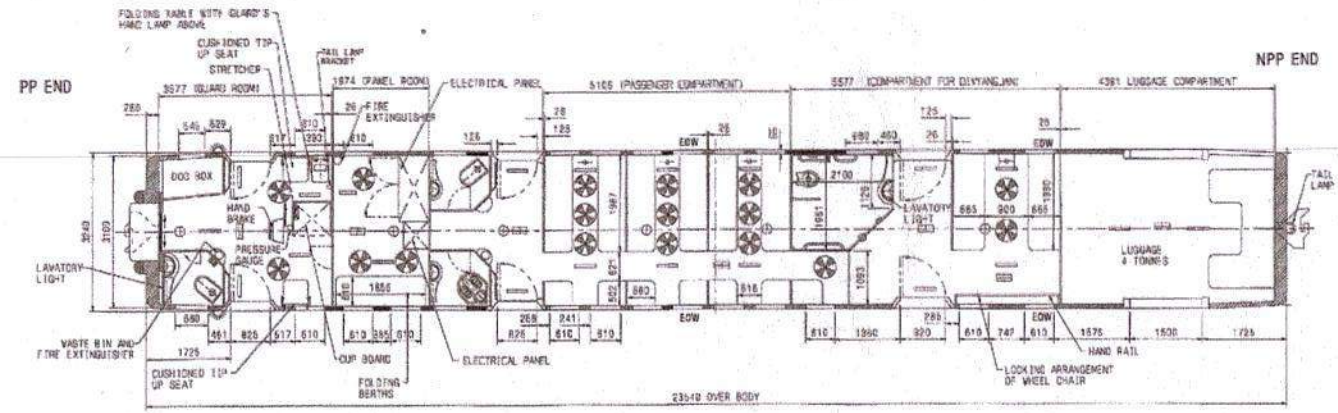
WELD LENGTH		NIL	LAYOUT OF LWSCZ (DURONTO)	NIL	NIL	NIL	NIL
NIL	m	ITEM	DESCRIPTION & DIMENSIONS	SPARES.Y	DETAIL DRG	MATL. & SPEC.	REMARKS
WEIGHT		GROUP	COACH LAYOUT & INSTALLATION	DISPENSER=1		NIL	
NIL	KG	FILE	\\LJ90004.prt (20)				
S.AREA			LAYOUT OF 2ND CLASS NON AC CHAIR CAR (EOG) (LHB SHELL ON FIAT BOGIES)			SCALE	ER/REC
NIL	m²					1:50	DIS
LENGTH/DIA							MDL
24.000	m		RAIL COACH FACTORY, KAPURTHALA			SPARING	NIL
WIDTH/HEIGHT							
3.240	m		रेलकोच फैक्टरी कपूरथला	IRS		PL NO.	NIL
HEIGHT						DRG.NO.	LJ90004
4.039	m	DRAWN BY	CHECKED BY	CERTIFIED BY	APPROVED BY	ALT.	NIL

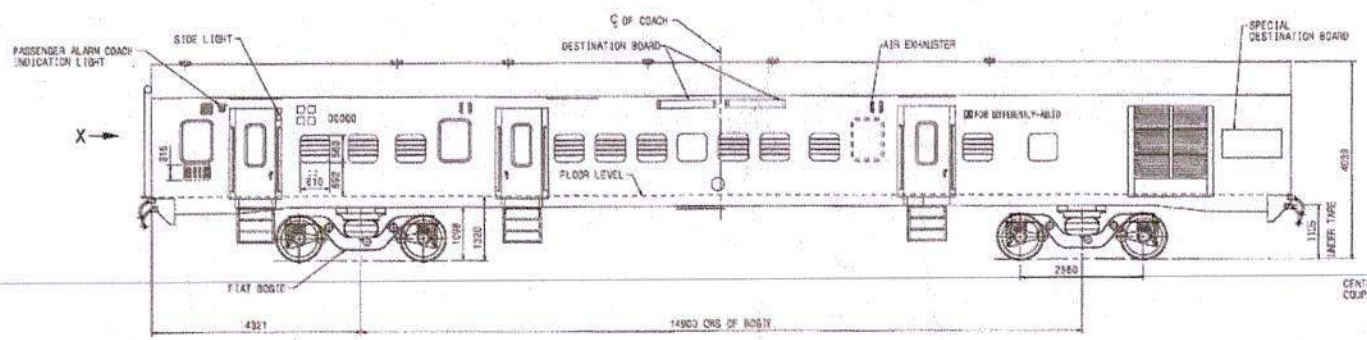
MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.

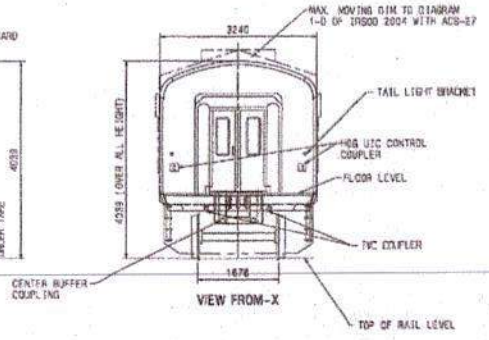
DETAIL DRGS STARTING WITH "LI" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE.

UNTOLERANCED DIMENSIONS REFER MD00008

DATE OF FIRST ISSUE: 25/06/2010 DGM BY







00000 --- COACH NUMBER
--- RAILWAY CREST
--- RAILWAY
--- ROOF VENTILATOR
--- FAN FIXED TYPE (400MM SWEEP)
--- FAN SWIVEL TYPE (400MM SWEEP)
--- ALARM (ER PULL BOX)
--- LED LIGHT FITTING
--- PACIL
--- TAIL LAMP FITTING
EOW --- EMERGENCY OPENABLE WINDOW
--- SIDE LIGHT FITTING (140x94)
--- DISASTER EMERGENCY LIGHT

1. NO. OF OTHER PASSENGERS TO SEAT	=31
2. NO. OF DIVYANJAN PASSENGERS/ATTENDENT TO SEAT	=6
3. NO. OF DIVYANJAN PASSENGERS/ATTENDENT TO SLEEP	=2+2
4. NO. OF LAVATORY FOR DIVYANJAN/ ATTENDENT	=1
5. NO. OF DOOR ASIDE FOR DIVYANJAN/ ATTENDENT	=1
6. NO. OF LAVATORY FOR OTHER PASSENGERS	=2
7. NO. OF LAVATORY FOR GUARD	=1
8. NO. OF OTHER PASSENGERS PER LAVATORY	=16
9. LUGGAGE CAPACITY	=4 TONNES
10. NO. OF EMERGENCY WINDOWS	=4 NOS.

NOTE: -
1. THE GENERAL ARRANGMENT OF PWD'S COMPARTMENT AND LAVATORY SHALL BE SIMILAR TO RDSO DRAWING CSC-1752.
2. NECESSARY AMINITIES IN PANEL ROOM TO BE PROVIDED AS PER EXTANT POLICY.
3. MOBILE CHARGING POINT SHALL BE PROVIDED AS PER EXTANT POLICY.
4. UNDER-SLUNG ELECTRICAL EQUIPMENTS LIKE BATTRIES, RBC, TRANSFORMER, FUSE BOXES ETC. SHALL BE PROVIDED AS PER REQUIREMENTS.

APPROVED VIDE RAILWAY BOARD'S LETTER NO. 2007/MC(T)/120/16 VOL.-IX(T) DATED 05.04.2019 (RDSO FILE NO. MC/LHB/LAYOUT S.NO. 1171)

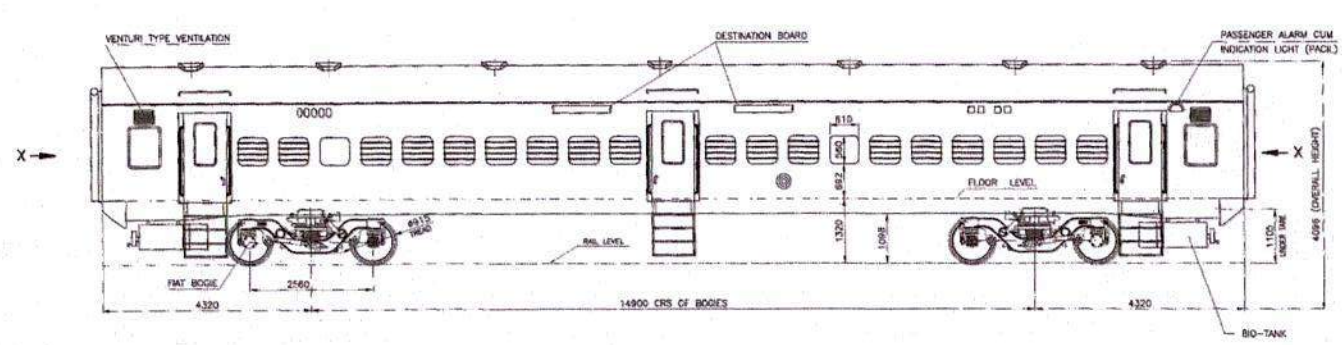
ALT. ITEM	AUTHY.	DESCRIPTION	CKD.	DATE
1	STD/25/19	DRAWING REVISED & REDRAWN	-	09/19

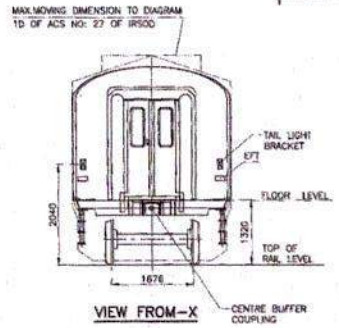
TRANSPORTATION CODE	LSLRD
REFERENCE :-	CS-18220
CDIC NO. :-	KB03
SUPERSEDED BY:-	
SUPERSEDES	
SCALE	1:50
P	
C	
D	
J.S.	STD/20/19
B.G.	
R.D.S.O.	LCG

INDIAN RAILWAYS STANDARDS
LHB SHELL ON FIAT BOGIES
LAYOUT OF SECOND CLASS CUM LUGGAGE AND BRAKE VAN WITH COMPARTMENT FOR DIVYANGJAN PASSENGERS (HOG COMPLIANT SLRD COACH)
CSC-1844

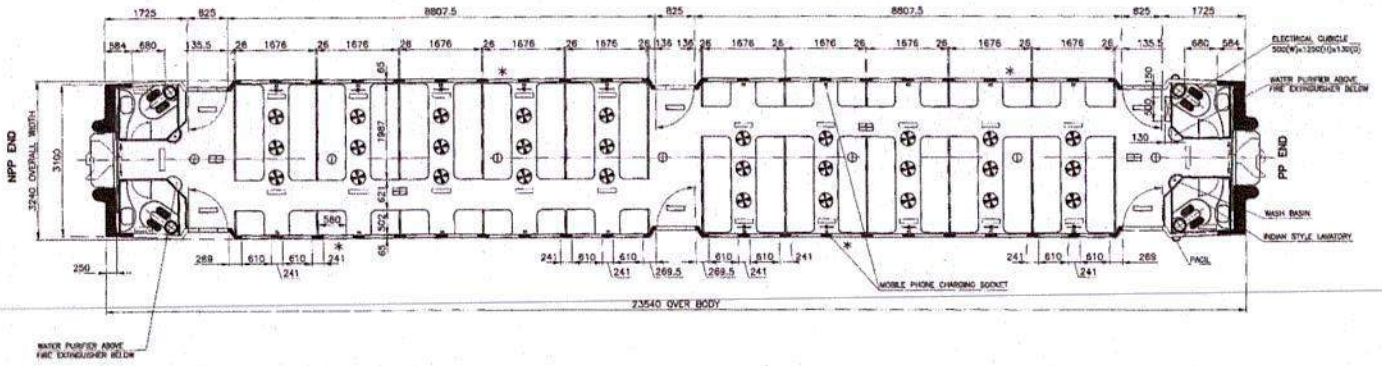
LGS/EOG/ASR-9-0-001

ALTERATIONS		
(a)	04/2016	EMERGENCY WINDOWS RELOCATED. NOTE REVISED.
	-Sd- SSE/D	-Sd- SME/DSD
(b)	12/2019	VESTIBULE ADDED. MMD UPDATED.
	SSE/D	SME/D





VIEW FROM–X



NOTE:

NO. OF PASSENGERS TO SEAT	100
NO. OF DOORS ASIDE	03
NO. OF LAVATORIES	04
NO. OF EMERGENCY WINDOWS	04
NO. OF PASSENGERS PER LAVATORY	25
BOGIE	AIR SPRING
MAX. LOAD PER AXLE	18T
WATER TANK CAPACITY (455Lx4)	1820 Ltrs.
TYPE OF BRAKE	AIR BRAKE
TRAIN LIGHTING SYSTEM	110V DC
TYPE OF GENERATION	EOG

- RAILWAY CREST
- RAILWAY
- 00000 COACH NUMBER
- VENTILATOR
- FIXED FAN (400mm SWEEP)
- FLUORESCENT LIGHT
- EMERGENCY LIGHT
- ALARM PULL
- PACIL
- EMERGENCY WINDOW
- MOBILE PHONE CHARGING SOCKET

QTY	DESCRIPTION & DIMENSION	ITEM	ROF DRGS	MAT SPEC	WEIGHT/UNIT	REMARKS
	GROUP: 9-0				SUPERSEDED BY:	
					SUPERSEDS LGS/EOG/ASR-9-0-001 of -2	

LAYOUT OF GS COACH(EOG)
(LHB SHELL ON FIAT BOGIES
WITH AIR SPRINGS IN SECONDARY SUSPENSION)

SCALE 1:50	
CHD	SSE/D
AUTO	M.SIVAKUMAR
DRN	V.S.SRIDHARAN

Alpha Alt:- b

INTEGRAL COACH FACTORY CHENNAI-38

ASSEMBLY DRAWINGS

		13-12-2019	01-02-2016		
	C	Num. Alt.	DATE OF LATEST ALT	DATE OF FIRST ISSUE	AME/SME

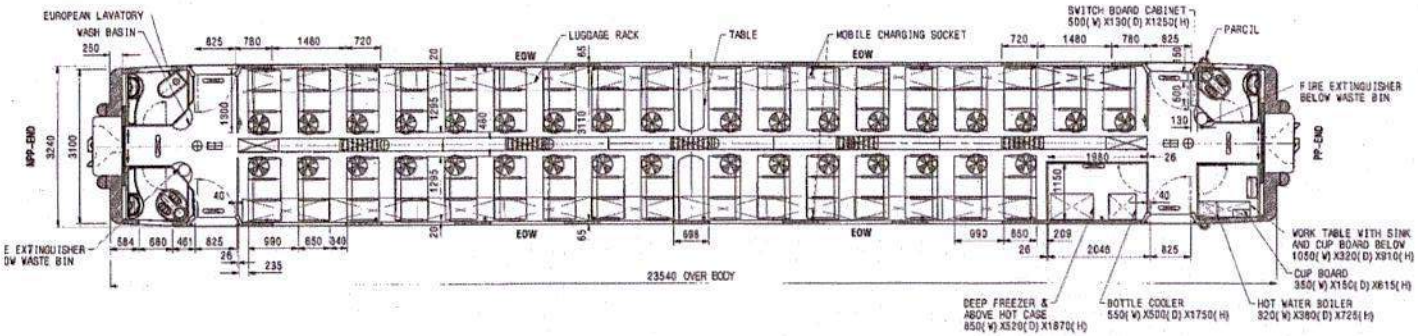
DATA CODE NO. 667

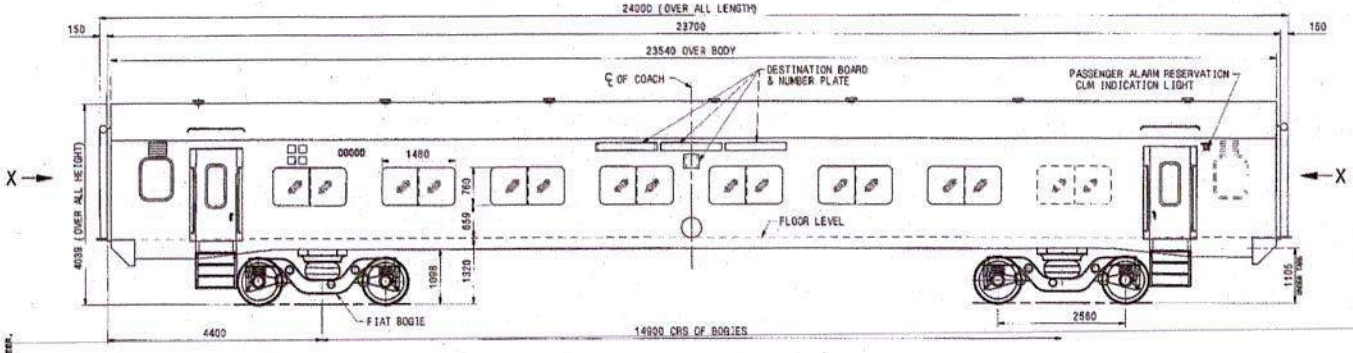
INDIAN RAILWAY STANDARDS

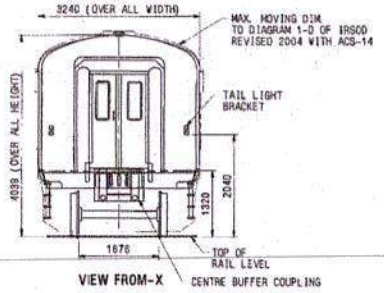
SHEET 1 OF 1

LGS/EOG/ASR-9-0-001

ALT.NO	ALT.DATE	ZONE	ALTERATIONS	AUTHORITY
a	23/04/2013	5-H 12-B 12-B	1. WINDOWS HEIGHT FROM FLOOR LEVEL WAS 892mm. 2. DOUBLE LEAF DOOR REPLACED WITH FLAP DOOR IN PANTRY AREA. 3. CHAMFERED CORNER PARTITION REPLACED WITH SHARP CORNER IN PANTRY AREA.	DIC NO. MD120032
b	13/10/2018	9,11-B 9,12-B 5-B 18-K	1. FIAT BOGIES WITH AIR SUSPENSION PROVIDED. 2. FIRE EXTINGUISHER BELOW WASTE BIN PROVIED ON BOTH ENDS. 3. AISLE WIDTH CORRECTED. 4. TITLE DESCRIPTION UPDATED.	DIC NOS. MD180005 & MD180015







--- RAILWAY CREST
--- RAILWAY
00000 --- COACH NUMBER
--- VENTILATOR
--- FAN FIXED TYPE (400MM SWEEP)
--- FLOURESCENT LIGHT (SINGLE)
--- FLOURESCENT LIGHT (DOUBLE)
--- LAVATORY LIGHT
--- DISASTER EMERGENCY LIGHT (LHB TYPE)
--- DIFFUSER FOR BALLAST
--- ALARM PULL
--- PARCIL
EOW --- EMERGENCY OPENABLE WINDOW
--- MOBILE CHARGING SOCKET

NOTE:-

1. NO. OF PASSENGERS TO SIT -102
2. NO. OF DOOR ASIDE -02
3. NO. OF LAVATORIES -03
4. NO. OF EMERGENCY OPENABLE WINDOWS -04

ENTERED IN DATA BASE 15 OCT 2018

NIL	NIL	NIL	NIL	NIL	NIL	NIL
ITEM	DESCRIPTION & DIMENSIONS	SPARSLY	DETAIL DRG	MATL. & SPEC.	REMARKS	
GROUP	COACH LAYOUT & INSTALLATION	SUPERSEDES: LJ90007 ALT a				
FILE	\\LJ90007b.prt (2D)					

LAYOUT OF SECOND CLASS NON-AC CHAIR CAR (LHB/EOG) 102 SEATER
FOR JAN SHATABDI TRAIN WITH AIR SUSPENSION

SCALE 1:50 | SHT/REV | DIM

RAIL COACH FACTORY, KAPURTHALA

रेलकोच फैक्टरी कपूरथला IRS

PL NO. NIL
DRG.NO. LJ90007
ALT. b SIZE A3 SHEET 1/1

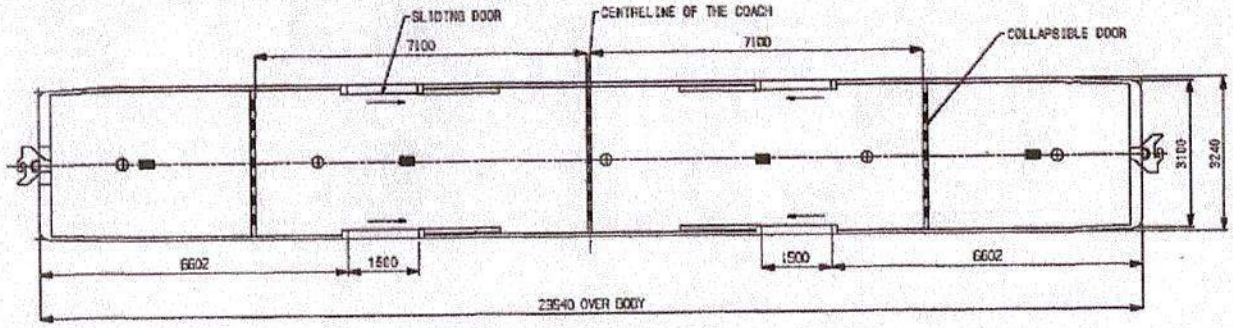
WELD LENGTH	NIL			
WEIGHT	NIL	KG		
S.AREA	NIL	M²		
LENGTH/DIA.	24.000	M		
WIDTH/THICK.	3.240	M		
HEIGHT	4.039	M		

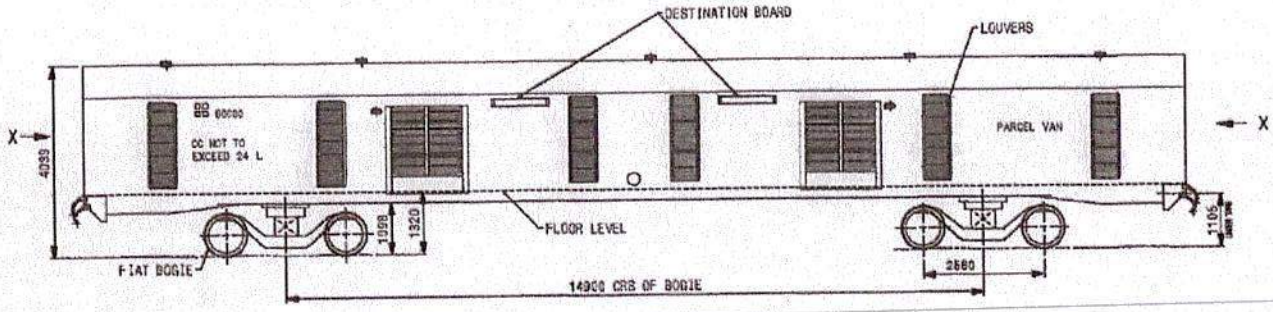
MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.

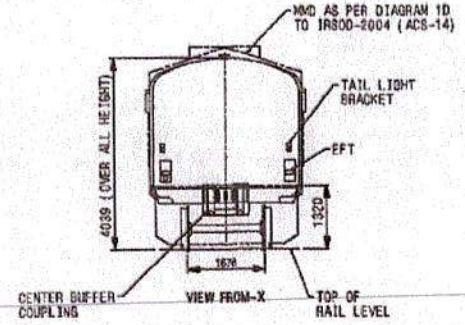
UNTOLERANCED DIMENSIONS REFER MDG0008

DETAIL DRGS STARTING WITH "LI" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE.

DATE OF FIRST ISSUE 28/03/2013 CDM BY







00000 --- COACH NUMBER
--- RAILWAY CREST
--- RAILWAY
--- ROOF VENTILATOR
--- LED LIGHT WITH WIREMESH GUARD
--- SIDE LAMP

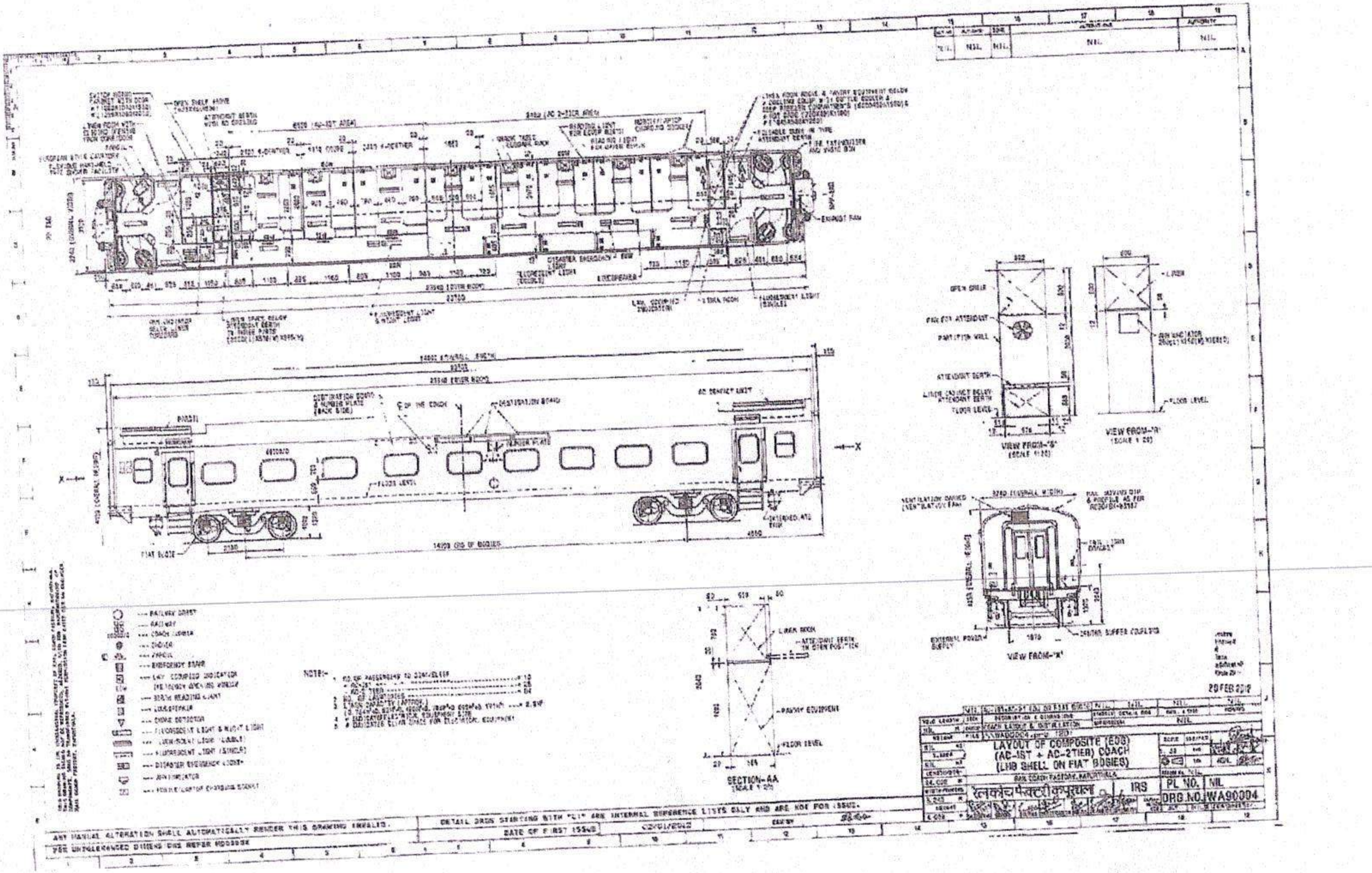
NOTE: -
1. LUGGAGE CARRYING CAPACITY – 24 TONNES
2. COVERED POCKETS FOR THE SLIDING DOORS TO BE PROVIDED.

APPROVED VIDE RAILWAY BOARD'S LETTER NO. 97/M(C)/202/4 Pt.(1)
DATED 06/09/2018 [RDSO FILE MC/LHB/LAYOUT, S.NO.1012]

ALT.	ITEM	AUTHY.	DESCRIPTION	CKD.	DATE
2	-	STD/48/18	MAX. CARRYING CAPACITY REDUCED FROM 60T TO 24T.	-	10/18
1	-	STD/48/18	DRAWING REVISED	-	09/18

TRANSPORTATION CODE	LVPH
REFERENCE :-	CC-18218
CDSC NO. :-KBOS	
SUPERSEDED BY:-	
SUPERSEDES:-	
SCALE	P C D 1:80
	A.S. STD/39/18
B.G.	R.D.S.O. 1061

INDIAN RAILWAYS STANDARDS
LHB SHELL ON FIAT BOGIES COACHES
LAYOUT OF LHB DESIGN HIGH CAPACITY PARCEL VAN WITHOUT LUGGAGE RACKS
CSC-1840



LAYOUT OF COMPOSITE (EOG) COACH
(AC-1ST + AC-2TIER) COACH
(LHB SHELL ON FIAT BOGIES)
रेलकोच फैक्टरी कपूरथला
IRS
PL NO. NIL
DRG.NO. WA90004
VIEW FROM-'X'
VIEW FROM-'S'
VIEW FROM-'R'
SECTION-AA
FLOOR LEVEL
NOTE:-
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.
DATE OF FIRST ISSUE

भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226 011
EPBX (0522) 2451200
Fax (0522) 2458500

Government of India-Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226 011
DID (0522) 2450115
DID (0522) 2465310

Speed Certificate for Operation of Train

No.	MC/LHB/COACH	Date:	01.10.2020

महाप्रबन्धक (इंजीनियरिंग)
पूर्व मध्य रेलवे, हाजीपुर - 844 101.

Sub: Speed Certificate for operation of train consisting of maximum 24 LHB (EOG) coaches comprising of LHB AC Generator Van (LWLRRM), LHB (EOG) AC First class (LWFAC), LHB (EOG) AC First cum AC-2 Tier (LWFCWAC), LHB (EOG) AC 2-Tier Sleeper coach (LWACCW), LHB (EOG) AC 3-Tier coach (LWACCN), LHB (EOG) AC Hot Buffet Car (LWCBAC), LHB (EOG) Executive AC Chair Car (LWFCZAC), LHB (EOG) Second Class AC Chair AC Chair Car (LWSCZAC), LHB (EOG) Non AC Chair Car (LWSCZ), LHB (EOG) 3-Tier Sleeper (LWSCN), LHB (EOG) Second Class Non AC Unreserved coach with Vestibules (LWS), LHB (EOG) High Capacity Parcel Van (LVPH), LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD) with single WAP7 locomotive, with maximum speed up to 130 kmph over Deen Dayal Upadhyaya (DDU) - Jhajha (JAJ) except Tall (TALL) to Kiul (KIUL & back between Jhajha (JAJ) to Deen Dayal Upadhyaya (DDU) sections of East Central Railway on track maintained as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522.

Ref: Eastern Railway letter No. MD/19/RAJDHANI/Vol.1 dated 24.10.2019

1.0	Indian Railways had signed a contract with M/s LHB Germany for supply of 24 nos. all metal lightweight high-speed BG AC coaches along with transfer of technology. These LHB coaches are fitted with CBC and FIAT bogies to 16.25 t axle load capacity with disc brake arrangement. These coaches have been designed with overall dimension to RDSO Sketch-96077 to operate up to a maximum speed of 160 kmph.
1.1	LHB AC EOG Chair car has undergone detailed oscillation trials up to test speed of 180kmph on Palwal-Mathura section of Northern Railway & North-Central Railway on track maintained to C&M-I, Vol.-I standard. The test results of trials as contained in RDSO Report no. MT-240, exhibit satisfactory riding and stability behavior, upto test speed of 180 kmph on track maintained to C&M-I, Vol.-I standard. The LHB AC Generator Van has undergone detailed oscillation trials up to test speed of 145 kmph on Palwal-Mathura section of Northern Railway & North-Central Railway and from 145 kmph upto 180 kmph on Ghaziabad-Tundla section of North-Central Railway on track maintained to C&M-I, Vol.-I standard. The test results of trials as contained in RDSO Report no. MT-274 and MT-282 respectively. The test results of these trials exhibit satisfactory riding and stability behavior, upto test speed of 180 kmph on track maintained to C&M-I, Vol.-I standard. Based on the results, a speed certificate for regular operation of LHB AC chair cars and LHB AC Generator Vans at a maximum speed of 160 km/h on track maintained to C&M-I Vol.-I standard have been issued vide RDSO's letter no. MC/LHB/Coach dated 19.3.2003 followed by partial amendment dated 27.2.2004 and amendments dated 18.11.2014 & 20.12.2014 for LHB AC EOG Chair Car and RDSO letter no. MC/LHB/COACH dated 20.3.2003 followed by partial amendment dated 27.2.2004 and amendments dated 18.11.2014, 20.12.2014 & corrigendum no. 01 dated 08.01.2015 to Amendment no.02 for LHB Generator Van. The revised final speed certificate for operation of BG EOG type LHB AC Chair Cars (LWSCZAC & LWFCZAC) & LHB AC Generator Van (LWLRRM) fitted with FIAT bogies upto maximum speed of 160 kmph on track maintained to C&M-I Volume-I standard, has also been issued vide RDSO's letter nos. MC/LHB/Coach dated 08.04.2015 after incorporating concerned amendments as desired by CRS Northern Circle. An amendment no. 01, dated 07.03.2018 to RDSO letter no. MC/LHB/ COACH, dated 08.04.2015 for LHB AC Generator Van fitted with FIAT bogies has also been issued.

1.2	RCF has built AC 2-Tier (LWACCW), AC First Class (LWFAC), AC First cum AC-2 Tier (LWFCWAC), AC Hot Buffet Car (LWCBAC), BG LHB AC EOG variant Broad Gauge coaches confirming to RDSO's Sketch no. 96077 fitted with Fiat bogies. These Coaches have been built to the state of art technology and provided with disc brakes and CBC. CCRS was approached for granting dispensation for conduct of trials on the basis of similar suspension design and other parameter of above said coaches, being comparable to LHB EOG AC Chair cars, which had exhibited satisfactory riding up to maximum test speed of 180 kmph in accordance with report no MT-240 for track maintained to C&M-I, Vol.-I. Accordingly CCRS/Lucknow vide letter Q-17016/06/2013-14.T.V dated 05.03.2014, granted dispensation from conduct of oscillation trials for above said coaches. Based on above, the speed certificate for operation of AC 2-Tier (LWACCW), AC First Class (LWFAC), AC First cum AC-2 Tier (LWFCWAC), AC Hot Buffet Car (LWCBAC), BG LHB AC EOG variant Broad Gauge coaches has been issued up to maximum speed of 160 kmph on track maintained to C&M-I, Vol.-I standard vide letter no. MC/LHB/COACH dated 05.06.2014.
1.3	BG EOG Type AC-3 Tier LHB coach (LWACCN) has undergone detailed oscillation trials up to test speed of 180 kmph on Ghaziabad (GZB) -Tundla section of North-Central Railway on track maintained to C&M-I, Vol.-I standard. The test results of trials as contained in RDSO Report no. MT-412, exhibit satisfactory riding and stability behavior, upto test speed of 180 kmph on track maintained to C&M-I, Vol.-I standard. Based on the results, a speed certificate for regular operation of BG EOG Type AC-3 Tier LHB variant coach (LWACCN) at a maximum speed of 160 km/h on track maintained to C&M-I Vol.-I standard has been issued vide RDSO's letter no. MC/LHB/COACH dated 20.05.2003 followed by partial amendment dated 27.2.2004 and amendment no. 01 dated 03.07.2015.
1.4	RCF has built LHB EOG Composite First AC Cum AC -2 Tier coach (LWFCWACA) & dispensation to detailed oscillation has been granted based on similarity to BG EOG AC-2 Tier LHB coach (LWACCW) by CCRS vide letter no. Q-17016/01/2018-19 T.W. dated 17.04.2018 for track maintained to C&M-I Volume-I standard. Based on above, the final speed certificate for operation of BG EOG Composite First AC Cum AC -2 Tier LHB coach (LWFCWACA) upto maximum speed of 130 kmph on track maintained to C&M-I Volume-I standard, has been issued vide RDSO's letter nos. SV. FIAT (SC) dated 12.9.2018 followed by amendment no. 01 dated 14.8.2019.
1.5	RCF has built Three Tier Sleeper coaches (LWSCN) & dispensation to detailed oscillation has been granted based on similarity to BG EOG LHB AC Chair Car by CCRS vide letter no. Q-17016/04/2011-T.W. dated 08.08.2011 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of Three Tier Sleeper coaches (LWSCN), up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO letter no. MC/LHB/COACH dated 14.10.2011.
1.6	RCF has built Three Tier Sleeper coaches (LWSCN1) & dispensation to detailed oscillation has been granted based on similarity to BG EOG Second Class Non AC LHB coach (LS3) by CCRS vide letter no. Q-17016/03/2017-18-T.W. dated 04/8.09.2017 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of Three Tier Sleeper coaches (LWSCN1), up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO letter no. MC/LHB/COACH dated 03.11.2017.
1.7	RCF has built Three Tier Sleeper coaches (LWSCNA) & dispensation to detailed oscillation has been granted based on similarity to BG EOG Non AC GS LHB coach (LS5) by CCRS vide letter no. Q-17016/04/2017-18-T.W. dated 04/8.09.2017 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of Three Tier Sleeper coaches (LWSCNA), up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO's letter no. SV.FIAT dated 09.11.2017.
1.8	RCF has built BG EOG Non AC Chair Car LHB coach (LWSCZ) & dispensation to detailed oscillation has been granted based on similarity to BG EOG AC Chair Car LHB coach by CCRS vide letter no. Q-17016/03/2011-T.V., dated 15.03.2011 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of BG EOG Non AC Chair Car LHB coach (LWSCZ), upto maximum speed of 130 kmph on track maintained to C&M-I Volume-I standard, has been issued vide

	RDSO's letter no. MC/LHB/Coach dated 31.3.2011 followed by amendment no. 01 & amendment no. 02 dated 06.03.2013 & 19.07.2016 respectively.
1.9	RCF has built BG LHB Non AC EOG Second class Chair Car (LWSCZA) & dispensation to detailed oscillation has been granted based on similarity to BG LHB EOG GS (LS5) coach by CCRS vide letter no. Q-17016/02/2018-19-T.W dated 17.04.2018 for track maintained to C&M-I, Vol.-I standard. Based on above, the final speed certificate for operation of BG LHB Non AC EOG Second class Chair Car (LWSCZA) upto maximum speed of 130 kmph on track maintained to C&M-I Volume-I standard, has been issued vide RDSO's letter no. SV.FIAT dated 20.08.2018.
1.10	The final speed certificate for operation of BG EOG LHB Second Class Non AC Unreserved coach with vestibules (LWS) and pneumatic suspension at secondary stage on FIAT bogies, upto maximum speed of 130 kmph on track maintained to C&M-I Volume-I standard, has been issued vide RDSO's letter no. SV. FIAT (SC), dated 07.09.2018.
1.11	The final speed certificate for operation of LHB High capacity parcel van (LVPH) up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO's letter no. SV.FIAT (SC)LVPH/130 dated 29.11.2019.
1.12	The final speed certificate for operation of LHB Second class Cum Luggage & Brake Van (LSLRD). up to maximum speed of 130 kmph on track maintained to C&M-I, Vol.-I standard, has been issued vide RDSO's letter no. SV.FIAT (SC)LSLRD/130 dated 23.07.2019.
1.13	Coupler force & Emergency Braking Distance trials of 24 numbers of AC/Non AC (EOG) LHB coaches and LHB AC/Non AC (EOG) Chair Car coaches including 2 numbers of LHB AC Generator Vans with single WAP7 Locomotive have been conducted at maximum speed of 130 kmph on Andul (ADL)- Tata Nagar (TATA)-Andul (ADL) section of South Eastern Railway and results are contained in Report no. RDSO/2019/TG/MT-1593/F Rev.-0/Amendment –Nil dated 28-2-2019. The Braking distance during Full Service of 24 numbers loaded LHB coaches with single WAP7 Locomotive at speed of 130 kmph on level tangent track was recorded as 1161 meters.
1.14	The Confirmatory Oscillograph Car Runs of 24 numbers of AC/Non AC (EOG) LHB coaches and LHB AC/Non AC (EOG) Chair Car coaches including 2 numbers of LHB AC Generator Vans (LWLRRM) & 01 no. of LSLRD with single WAP7 Locomotive have been conducted at maximum speed of 130 kmph over DDU - Jhajha (JAJ) - DDU Section on East Central Railway on track maintained as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522 and results are contained in RDSO Report no. RDSO/2020/TG/MT-1697/F, Rev.0, Dt. 08.04.2020 Amendment-Nil, exhibits satisfactory riding and stability behavior.
2.0	Based on the above, it is certified that train consisting of maximum 24 LHB (EOG) coaches comprising of LHB AC Generator Van (LWLRRM), LHB (EOG) AC First class (LWFAC), LHB (EOG) AC First cum AC-2 Tier (LWFCWAC), LHB (EOG) AC 2-Tier Sleeper coach (LWACCW), LHB (EOG) AC 3-Tier coach (LWACCN), LHB (EOG) AC Hot Buffet Car (LWCBAC), LHB (EOG) Executive AC Chair Car (LWFCZAC), LHB (EOG) Second Class AC Chair AC Chair Car (LWSCZAC), LHB (EOG) Non AC Chair Car (LWSCZ), LHB (EOG) 3-Tier Sleeper (LWSCN), LHB (EOG) Second Class Non AC Unreserved coach with Vestibules (LWS), LHB (EOG) High Capacity Parcel Van (LVPH), LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD) with single WAP7 locomotive, is fit for operation, up to maximum speed of 130 kmph over Deen Dayal Upadhyaya (DDU) - Jhajha (JAJ) except Tall (TALL) to Kiul (KIUL) & back between Jhajha (JAJ) to Deen Dayal Upadhyaya (DDU) sections of East Central Railway on track maintained as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522. In this connection, the following conditions shall apply:

2.1	**Locomotives**

2.1.1	The WAP7 class of locomotive manufactured by Chittaranjan Locomotive Works has undergone detailed oscillation trials at maximum speed of 155 kmph and the results are contained in RDSO report no. MT/983/F (27.08.2009). Based on the results, WAP7 class of locomotives have been cleared for operation up to a maximum speed of 140 kmph on track maintained to standards laid down in RDSO report no. C&M-I Vol. I vide RDSO's

	letter no. EL/3.1.35/4 dated 13.10.2009 followed by amendment no. 1 dated 12.12.2013.

2.2	**Track**

2.2.1	The track shall be to a minimum standard of 52kg (90UTS) rail laid on PSC sleeper with 1540 No./Km on 250mm ballast cushion below the sleepers which may consist of 100mm clean and rest in caked up condition, on compacted and stable formation.
2.2.2	For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, instructions issued by Railway Board letter no. 65/WDO/SR/26 dated 19/20.10.1966 may be seen. When the Chief Engineer considers that the road bed is not compacted or there is improper drainage, he may suitably restrict the maximum permissible speed depending upon the local conditions.
2.2.3	The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual, June -2020.
2.2.4	The welds shall be protected by joggled fish plates as per provisions of USFD Manual and AT welding manual and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provision 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.
2.2.5	Zonal Railway may ensure further detailed examination of track as deemed fit based on age cum condition basis, overdue renewal and condition of formation etc. as per provisions of Indian Railways Permanent Way Manual, June-2020 regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination.
2.2.6	All the turnouts shall be fixed heel curved switches type laid on PSC sleepers layout with CMS crossings
2.2.7	Sleepers on bridges (other than ballasted deck) would be steel channel/H-Beam/ Composite Sleeper.

2.3	**Bridges**

2.3.1	The clearance refers to bridges "Standard Spans" with standard design of girders, slabs, pipe culverts, piers and abutments, etc. issued by RDSO for BGML, RBG & MBG-1987 standard loadings. However, the bearings of span 76.2 meters (clear) designed for BGML standard loading as per RDSO's drg. no. BA-11154 should be strengthened by providing two additional anchor bolts.
2.3.2	Superstructures and bearings of "Special Spans" (designed and constructed by zonal railways based on site requirements) including all Arches and sub-structures of all bridges (all standard Spans & Special Spans) shall be examined under the directions of the Chief Bridge Engineer concerned and certified safe by him in terms of current Indian Standard Codes with up to- date correction slips.
2.3.3	The above clauses have been arrived considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed restriction to be imposed by concerned Chief Bridge Engineer of Zonal Railway.
2.3.4	Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working timetable.
2.3.5	This clearance is subject to the following parameters of locomotive and LHB AC/ Non AC (EOG) coaches:

(A)	**For Locomotive:-**

S No	Description	WAP7
1.	Max. axle load	20.5 ± 2% t
2.	Max. tractive effort	32.9 t
3.	Max. braking force at rail level	18.6 t
4.	CG height above rail level	Not exceeding 1830 mm

(B)	For LHB AC (EOG) and Non AC (EOG) Variant Coaches:-

S. No.	Name of Coaches	Maximum Axle Load	Maximum Braking Force at Rail Level	CG height above rail level
1.	Executive AC Chair Car (LWFCZAC)	16.25t	5.8t	Not exceeding 1830 mm
2.	Second Class AC Chair Car (LWSCZAC)	16.25t	5.8t	
3.	AC First Class (LWFAC)	16.25t	5.8t	
4.	AC First cum AC-2 Tier (LWFCWAC)	16.25t	5.8t	
5.	AC 2-Tier Sleeper Coach (LWACCW)	16.25t	5.8t	
6.	AC 3-tier Sleeper Coach (LWACCN)	16.25t	5.8t	
7.	AC Hot Buffet Car (LWCBAC)	16.25t	5.8t	
8.	Three Tier Sleeper Coach (LWSCN)	16.25t	5.8t	
9.	Non AC Chair Car coach (LWSCZ)	16.25t	5.8t	
10.	Second Class Non AC Unreserved coach with vestibules (LWS)	16.25t	5.4t	
11.	LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD)	16.25t	5.8t	
12.	LHB (EOG) High Capacity Parcel Van (LVPH)	16.25t	6.6t	
13.	Generator van (LWLRRM)	16.25t	6.6t	

(C)	For LHB AC (EOG) and Non AC (EOG) Variant Coaches: After Completion of Route Proving Run as per Para 2.7.10 of subject speed certificate

S. No.	Name of Coaches	Maximum Axle Load	Maximum Braking Force at Rail Level	CG height above rail level
1.	AC First cum AC-2 Tier (LWFCWACA)	16.25t	6.6t	Not exceeding 1830 mm
2.	Three Tier Sleeper coaches (LWSCNA)	16.25t	6.6t	
3.	Three Tier Sleeper coaches (LWSCN1)	16.25t	5.8t	
4.	Non AC Second class Chair Car (LWSCZA)	16.25t	5.4t	

2.3.6	Specific restrictions are applicable as mentioned in relevant speed certificates of hauling single/ multiple locomotives issued by RDSO.

2.4	Signaling

2.4.1	Provisions of GR, SR, IRSOD, SEM & all extant instructions issued from time to time as applicable shall be complied with.
2.4.2	In case of operation of Train (having these coaches in it's composition) / rolling stocks having EBD of more than 1 Km and non provision of second distant signal / 4 Aspect automatic signaling in the section, action as per A & C no. 09 of SEM Pt-I shall be taken.

2.5	Traction Installation

2.5.1	The 25 kV AC OHE shall have swiveling type Cantilever Assembly having 1000 kgf (min) tension in the conductors, regulated automatically with a presag. The presag of 50/100 mm is required on the Contact Wire for a maximum span of 72 m, proportionately less for smaller spans.
2.5.2	In case of locations where 25 kV AC porcelain section insulators are installed on main line and lies within first 1/10th and 1/3rd of the span immediately after the OHE structure and the Runners in the trailing direction, the maximum speed shall be 120 km/h. At all other locations where 25 kV AC porcelain section insulators are installed, the speed shall be limited to 80 km/h.
2.5.3	It is recommended that the cantilevers in the section should have BFB Steady Arm (RI No. 2390) with 25 mm Drop Bracket Assembly (RI No. 2360) instead of Tubular Steady Arm (RI No. 2520). Bent Steady Arm at overlap locations shall continue.
2.5.4	The current collection shall be made through one no. pantograph fit for high-speed operation.

2.5.5	In 25 kV AC traction area, the Chief Electrical Engineer of the Railway shall have to ensure that the minimum height of contact wire and electrical clearances, as stipulated in provisions of Chapter-V and V-A, Electric Traction "Schedule of Dimension of 1676 mm gauge (BG) revised 2004" with latest addendum & corrigendum slips is not violated and strictly followed to ensure its safe running.
2.5.6	In addition to the above, the Chief Electrical Engineer of the concerned Railway may impose any temporary speed restriction on the basis of his personal knowledge and experience of the sectional OHE and the field conditions prevailing on the particular section.

2.6	**Rolling Stock**

2.6.1	The Wheel Slide Protection (WSP) device of all the coaches in the rake shall be functional at the starting station. If the WSP of any coach become defective enroute of any train running upto 140 kmph with rake composition less or equal to 25 coaches and with maximum brake cylinder pressure of 3.0 kg/cm^2, the train can go upto destination without speed restriction as per RDSO's letter no. MC/LHB/Brake dated 25/29.04.2016.
2.6.2	The earthing arrangement on the coaches shall be maintained as per design.
2.6.3	The LHB AC/ Non AC (EOG) coaches shall be maintained as per "Maintenance manual for LHB coaches issued by CAMTECH Gwalior with latest amendments.

2.7	**General**

2.7.1	All the permanent and temporary speed restrictions in force and those that may be imposed from time to time due to track, bridges, curves, signaling and interlocking etc.
2.7.2	Attention is also invited to the note on "Preparation of Electrical Equipment of Diesel and Electric Locomotives for high speed operation" circulated with this office letter no. EL/3.3.15/WAM2/Gr.CON dated 24.12.1970 and the locomotive should be attended accordingly.
2.7.3	All type of LHB AC/ Non AC (EOG) coaches and LHB Generator Van do not infringe any clause of "Chapter-IV (A)" of Revised IRSOD-2004 with latest addendum & corrigendum slip.
2.7.4	WAP7 locomotives alongwith pantograph in locked down condition and surge arresters does not infringe any clause of Chapter IV (C), Chapter V-A and Maximum Moving Dimension 1D of Indian Railway BG Schedule of Dimensions-2004 and its Addendum and Corrigendum Slip (ACS) No. 27.
2.7.5	Before starting the operation, Principal Chief Mechanical Engineer & Principal Chief Electrical Engineer of the concerned Railway shall certify track worthiness and safety of the Coaching Stock and Locomotive respectively. They shall also ensure proper maintenance of respective rolling stock.
2.7.6	Para no. 6.1.3 of policy circular no. 6 shall be followed by Zonal Railways for introduction of a passenger train having 22 coaches or more plus one inspection carriage (LHB or other types).
2.7.7	Track maintained to C&M-I, Vol.-I standard in this speed certificate shall be considered as track maintained as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522.
2.7.8	All the level crossings shall be manned with telecommunication facilities and preferably interlocked.
2.7.9	Concerned Zonal Railway shall ensure provision of fencing at vulnerable locations on need basis.
2.7.10	LHB AC First cum AC-2 Tier (LWFCWACA), Three Tier Sleeper coaches (LWSCNA), Three Tier Sleeper coaches (LWSCN1) & Non AC Second class Chair Car (LWSCZA) shall be included in this train only after successful completion of route proving run by Zonal railway as per Para 6.5.1.3 of Policy Circular-6 (Revised-2018) at maximum speed of 130 kmph and result should be found satisfactory as per Policy and criteria. The Report of Route Proving Run shall be sent to RDSO before operation of train with these coaches.
2.7.11	As per Para 6.1..2 of revised policy circular no.6, dated 31.10.2018, speed certificate of train for operation in the section shall be as per provision of General Rules 1976- Rule 4.08.1 (a).

2.7.12	The track structure has been specified to standards laid down by Railway Boards through letter no. 2014/CE-II/TSC/1Pt.1 dated 8th Sep. 2016 for speed above 110 kmph and up to 130 kmph. The same has been circulated to all Zonal Railways vide letter no. CT/Tech Mission/ High Speed dated 19.09.2016. The conditions stipulated in the letter shall be followed by Zonal Railway.

Enclosures / संलग्नक:

(i)	RDSO Sketch 96077
(ii)	RCF's drawing no. LE90009
(iii)	RDSO drawing no. CG-11034
(iv)	RCF's drawing no. LJ90004
(v)	RDSO drawing no.CSC-1844
(vi)	ICF drawing No.LGS/EOG/ASR-9-0-001
(vii)	RCF's drawing no. LJ90007
(viii)	RDSO drawing CSC-1808
(ix)	RDSO drawing CSC-1840
(x)	RCF's drawing no. WA90004

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(वी॰ के॰ अग्रवाल)
कार्यकारी निदेशक मानक/चालन शक्ति

प्रतिलिपिः

1. सचिव {यांत्रिक / इलेक्ट्रिकल / इंजीनियरिंग (जी)} , रेलवे बोर्ड, रेल भवन, नई दिल्ली - 110 001.
2. मुख्य रेल संरक्षा आयुक्त, मण्डल रेल प्रबन्धक कार्यालय, पूर्वोत्तर रेलवे परिसर, अशोक मार्ग लखनऊ - 226 001.
3. महाप्रबंधक (यांत्रिक / विद्युत / परिचालन / संकेत एवं दूरसंचार) पूर्व मध्य रेलवे, हाजीपुर - 844 101.

Enclosures / संलग्नक:

(i)	RDSO Sketch 96077
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(vii)	RCF's drawing no. LJ90007
(viii)	RDSO drawing CSC-1808
(ix)	RDSO drawing CSC-1840
(x)	RCF's drawing no. WA90004

Digitally signed by VINAY KUMAR AGARWAL
Date:Thu Oct 01 17:59:13 IST 2020
Reason: Approved

(वी॰ के॰ अग्रवाल)
कार्यकारी निदेशक मानक/चालन शक्ति