



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: 25.02.2021

महाप्रबन्धक (इंजीनियरिंग)

उत्तर रेलवे, बडौदा हाउस, नई दिल्ली - 110 001.

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 AC First cum AC-2 Tier (LWFCWACA) with pneumatic suspension at secondary stage, 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 Car (LWSCZAC), LHB (EOG) Non AC Chair Car (LWSCZ), LHB (EOG) Non AC Chair Car (LWSCZA), LHB (EOG) 3-Tier Sleeper (LWSCN), LHB (EOG) 3-Tier Sleeper (LWSCN1), LHB (EOG) 3-Tier Sleeper (LWSCNA), LHB (EOG) Second Class Non AC Unreserved coach with Vestibules (LWS), LHB (EOG) High Capacity Parcel Van (LVPH), LHB (EOG) Second Class Non AC Coach (LS3), LHB (EOG) Non AC GS coach (LS5), LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD) & LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD) with single WAP5 locomotive, with maximum speed up to 130 kmph over Chipiyana Buzurg (CPYZ) - New Delhi (NDLS) -Ambala Cantt (UMB)- Ludhiana (LDH) via Panipat (PNP) & back sections of Northern Railway on track maintained to as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522.

Ref: (i) Northern Railway letter No. 519-W/1833/Speed Raising/NDLS-TKD, dated 12.12.2019
(ii) Northern Railway letter No. 802-M/6/16/LHB/Pt-IV/MC-I, dated 06.12.2019

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 180 kmph 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

	<p>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.</p> <p>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.</p>
1.2	<p>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 drawing 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.</p>
1.3	<p>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.</p>
1.4	<p>RCF has built LHB EOG First AC Cum AC -2 Tier coach (LWFCWACA) & dispensation to detailed oscillation has been granted by CCRS vide letter no. Q-17016/01/2018-2019 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 First AC Cum AC -2 Tier LHB coach (LWFCWACA) upto maximum speed of 160 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, amendment no. 02 dated 20.03.2020 and amendment no. 03 dated 28.10.2020.</p>
1.5	<p>RCF has built Three Tier Sleeper coaches (LWSCN) & dispensation to detailed oscillation has been granted by CCRS vide letter no. Q-17016/04/2011-TV 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's letter no. MC/LHB/COACH dated 14.10.2011.</p>
1.6	<p>RCF has built Three Tier Sleeper coaches (LWSCN1) & dispensation to detailed oscillation has been granted by CCRS vide letter no. Q-17016/03/2017-18-TW 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's letter no. MC/LHB/COACH dated 03.11.2017.</p>
1.7	<p>RCF has built Three Tier Sleeper coaches (LWSCNA) & dispensation to detailed oscillation has been granted by CCRS vide letter no. Q-17016/04/2017-18-TW dated 04/8.09.2017 for track maintained to C&M-I, Vol.-I standard. Based on above, the final</p>

	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	The final speed certificate for operation of BG EOG Non AC Chair Car LHB coach (LWSCZ) fitted with 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 nos. 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	The final speed certificate for operation of BG LHB Non AC EOG Second class Chair Car (LWSCZA) & 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 nos. 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 & amendment no. 01 dated 19.12.2019.
1.11	The final speed certificate for operation of BG EOG Second Class Non AC LHB coach (LS3) fitted with FIAT bogies upto maximum speed of 130 Kmph with pay loads upto 18.5T maximum on track maintained to C&M-I Volume-I standard, has been issued vide RDSO's letter no. MC/LHB/COACH (HS), dated 16.01.2013 followed by amendments dated 12.03.2013, 31.12.2013, 19.07.2014, 25.08.2014 & 12.12.2014.
1.12	The final speed certificate for operation of BG EOG Non AC GS LHB coach (LS5) fitted with FIAT bogies with maximum pay load up to 24.34 t, 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.AS.ML, dated 05.10.2015.
1.13	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 followed by amendment no. 01 dated 23.03.2020.
1.14	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 followed by amendment no. 01 dated 20.03.2020.
1.15	RCF has built LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD) & dispensation to detailed oscillation has been granted based on similarity to BG EOG Non AC GS LHB coach (LS5) by Executive Director/ Motive Power/ RDSO vide note no. SD. Dispensation/ Carriage.11, dated 16.09.2019 on track maintained as per standard specified under Para 607 of IRPWM Reprint-2004. Based on above, the final speed certificate for operation of LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD), 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)/LWLRRMD/130 dated 09.10.2019 followed by amendment no. 01 & amendment no. 02 dated 10.12.2019 & 20.03.2020 respectively.
1.16	The WAP5 class of locomotives imported from M/s ABB, Switzerland have undergone detailed oscillation trials at maximum speed of 180 Kmph and the results are contained in RDSO's report no. MT-88 (June, 1997). Based on the results, WAP5 class of locomotives have been cleared for operation up to a maximum speed of 160 Kmph on track maintained to standards laid down in RDSO report no. C&M-I Vol.I vide RDSO's letter no. SD.WAP5.11 dated 19.06.1997 followed by amendments dated 23.10.2006, 20.01.2012, 13.06.2012, 20.12.2014 and revised speed certificate no. SD.WAP5.11 dated 28.3.2015 followed by amendments dated 22.06.2018 & 18.11.2020.
1.17	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 1161 meters.
1.18	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 one number of LHB AC Generator Van (LWLRRM) & one number of LHB Second class Cum Luggage & Brake Van (LSLRD) with single WAP5 Locomotive have been conducted at maximum speed of 130 kmph over Chipiyana Buzurg (CPYZ) - New Delhi (NDLS) -Ambala Cantt (UMB)- Ludhiana (LDH) via Panipat (PNP) & back sections of Northern Railway on track maintained to 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/2021/TG/ MT- 1769/ F, dated 10.02.2021, exhibit satisfactory riding and stability behaviour.
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 AC First cum AC-2 Tier (LWFCWACA) with pneumatic suspension at secondary stage, 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 Car (LWSCZAC), LHB (EOG) Non AC Chair Car (LWSCZ), LHB (EOG) Non AC Chair Car (LWSCZA), LHB (EOG) 3-Tier Sleeper (LWSCN), LHB (EOG) 3-Tier Sleeper (LWSCN1), LHB (EOG) 3-Tier Sleeper (LWSCNA), LHB (EOG) Second Class Non AC Unreserved coach with Vestibules (LWS), LHB (EOG) High Capacity Parcel Van (LVPH), LHB (EOG) Second Class Non AC Coach (LS3), LHB (EOG) Non AC GS coach (LS5), LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD) & LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD) with single WAP5, is fit for operation, with maximum speed up to 130 kmph over Chipiyana Buzurg (CPYZ) - New Delhi (NDLS) -Ambala Cantt (UMB)- Ludhiana (LDH) via Panipat (PNP) & back sections of Northern Railway on track maintained to 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	Track
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2.1.1	The track shall be to a minimum standard of 52 kg (90 UTS) rail laid on PSC sleeper with 1540 Nos./km on 250 mm ballast cushion below the sleepers, which may consist of 100 mm clean and rest in caked up condition, on compact and stable formation.
2.1.2	For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, instructions issued by Railway Board letter no.65/WDO/SR/26 dt 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.
2.1.3	The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railway Permanent Way Manual, June-2020.
2.1.4	The welds shall be protected by joggled fish plates as per provisions of USFD Manual, AT welding manual and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of Indian Railway 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.

2.1.5	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.
2.1.6	All the turnouts shall be fixed heel curved switches laid on PSC sleepers layout with CMS crossings.
2.1.7	Sleepers on bridges (other than ballasted deck) would be steel channel/ H-Beam/ Composite Sleeper.

2.2 Bridges

2.2.1	The clearance refers to bridges "Standard Spans" with standard design of girders, slabs, pipe culverts, piers and abutments, etc. issued by RDSO for BGML, RBG & 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.
2.2.2	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.
2.2.3	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.
2.2.4	Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working timetable.
2.2.5	This clearance is subject to the following parameters of locomotive and LHB AC/ Non AC (EOG) coaches:

(A) For Locomotive:-

S. No.	Description	WAP5
1.	Max. axle load	19.5 ± 2% t.
2.	Max. tractive effort	26.3 t
3.	Max. braking force at rail level	16.3 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 First cum AC-2 Tier (LWFCWACA)	16.25t	6.6t	
6.	AC 2-Tier Sleeper Coach (LWACCW)	16.25t	5.8t	
7.	AC 3-tier Sleeper Coach (LWACCN)	16.25t	5.8t	
8.	AC Hot Buffet Car (LWCBAC)	16.25t	5.8t	
9.	Three Tier Sleeper Coach (LWSCN)	16.25t	5.8t	
10.	Three Tier Sleeper coaches (LWSCN1)	16.25t	5.8t	
11.	Three Tier Sleeper coaches (LWSCNA)	16.25t	6.6t	

12.	Non AC Chair Car coach (LWSCZ)	16.25t	5.8t	
13.	Second Class Non AC Unreserved coach with vestibules (LWS)	16.25t	5.4t	
14.	LHB (EOG) Second Class Non AC Chair Car (LS3)	16.25t	5.8t	
15.	LHB (EOG) Second Class Non AC Chair Car (LS5)	16.25t	6.6t	
16.	LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD)	16.25t	5.8t	
17.	LHB (EOG) High Capacity Parcel Van (LVPH)	16.25t	6.6t	
18.	Generator van (LWLRRM)	16.25t	6.6t	

(C) For LHB AC (EOG) and Non AC (EOG) Variant Coaches: After Completion of Route Prove Run as per Para 2.6.12 of subject speed certificate

S. No.	Name of Coaches	Maximum Axle Load	Maximum Braking Force at Rail Level	CG height above rail level
1.	LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD)	16.25t	5.8t	Not exceeding 1830 mm
2.	LHB Non AC EOG Chair Car coach (LWSCZA)	16.25t	5.4t	

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

2.3 Signaling

- 2.3.1 Provisions of GR, SR, IRSOD, SEM & all extant instructions issued from time to time as applicable shall be complied with.
- 2.3.2 In case of locomotive/rolling stocks/ Train (having these coaches 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 A & C no. 09 of SEM Pt-I shall be taken.

2.4 Traction Installation

- 2.4.1 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.
- 2.4.2 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.
- 2.4.3 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.

2.4.4	The current collection shall be made through one no. pantograph fit for high-speed operation.
2.4.5	In 25 kV AC traction area, the Principal 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.
2.4.6	In addition to the above, the Principal 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.

2.5 Rolling Stock

2.5.1	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.
2.5.2	The earthing arrangement on the coaches shall be maintained as per design.
2.5.3	The LHB AC/ Non AC (EOG) coaches shall be maintained as per "Maintenance manual for LHB coaches issued by CAMTECH Gwalior with latest amendments.
2.5.4	For operation with LSLRD coach of 24 LHB (EOG) AC/ Non AC coaches, the rake formation is to be maintained in such a way that total maximum electrical demands should not be more than 2x336KW = 672kW (with one Power Car).

2.6 General

2.6.1	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.
2.6.2	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.
2.6.3	All type of LHB AC/ Non AC (EOG) coaches and LHB Generator Van do not infringe any clause of "Chapter-IV (A)" of IRSOD (BG), Revised -2004 with latest addendum & corrigendum slip.
2.6.4	WAP5 locomotive alongwith pantograph in locked down condition and the surge arrestors 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 it's Addendum and Corrigendum Slip (ACS) No. 27.
2.6.5	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.
2.6.6	Para no. 6.1.3 of policy circular no. 6 shall be followed by Zonal Railways for introduction of a passenger train having 24 coaches plus one inspection carriage (LHB or other types).
2.6.7	"Track maintained to C&M-I, Vol.-I standard/ other than C&M-I, Vol-I standard/ Para-607 of Indian Permanent Way Manual Third Reprint-2019" in this speed certificate shall be considered as "track maintained as per provisions of Indian Railways Permanent Way Manual, June-2020 containing track geometry standards under Para 522
2.6.8	All the level crossings shall be manned with telecommunication facilities & preferably interlocked.
2.6.9	Concerned Zonal Railway shall ensure provision of fencing at vulnerable locations on need basis.

2.6.10	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).
2.6.11	The track structure has been specified to standards laid down by Railway Board through letter no. 2014/CE-II/TSC/1 Pt. 1 dated 08/9/2016 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.
2.6.12	LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRMD) & LHB Non AC EOG Chair Car coach (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) alongwith its ACS No.-1 issued vide letter no.-2018/CEDO/SR/PC-6/0 dated 12.10.2020 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.

Enclosures / संलग्नक:

- (i) RDSO Sketch 96077
- (ii) RCF's drawing no. LE90009
- (iii) RDSO drawing no. CG-11034
- (iv) RCF's drawing no. LG90010
- (v) RCF's drawing no. LJ90004
- (vi) RDSO drawing no.CSC-1844
- (vii) ICF drawing no. LGS/EOG/ASR-9-0-001
- (viii) RCF's drawing no. LJ90007
- (ix) RDSO drawing CSC-1808
- (x) RDSO drawing CSC-1840
- (xi) RCF's drawing no. WA90004
- (xii) RDSO drawing no. CG-14045
- (xiii) RDSO drawing no. CSC-1847

Signed by Vinay Kumar
Agarwal

Date: 25-02-2021 19:23:08

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. महाप्रबन्धक (यांत्रिक / विद्युत / परिचालन / संकेत एवं दूरसंचार)

उत्तर रेलवे, बड़ीदा हाउस, नई दिल्ली - 110 001.

संलग्नक

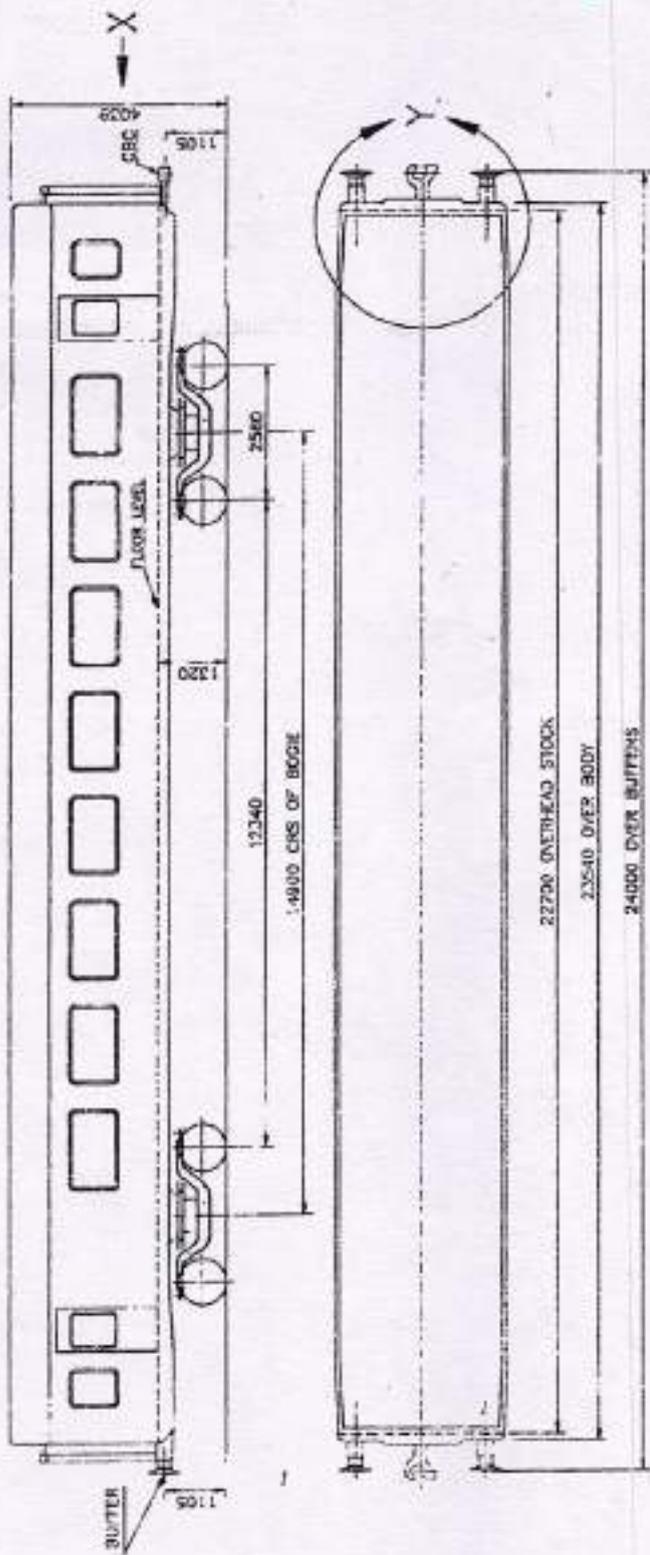
- (i) RDSO Sketch 96077
- (ii) RCF's drawing no. LE90009

- (iii) RDSO drawing no. CG-11034
- (iv) RCF's drawing no. LG90010
- (v) RCF's drawing no. LJ90004
- (vi) RDSO drawing no.CSC-1844
- (vii) ICF drawing no. LGS/EOG/ASR-9-0-001
- (viii) RCF's drawing no. LJ90007
- (ix) RDSO drawing CSC-1808
- (x) RDSO drawing CSC-1840
- (xi) RCF's drawing no. WA90004
- (xii) RDSO drawing no. CG-14045
- (xiii) RDSO drawing no. CSC-1847

/

(वी. के. अग्रवाल)

कार्यकारी निदेशक मानक/चालन शक्ति



NOTE:-
BUFFERS ARE TO BE PROVIDED ONLY
2: POWER CAR.

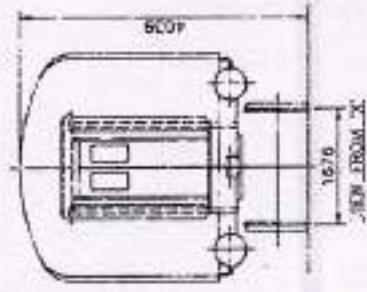
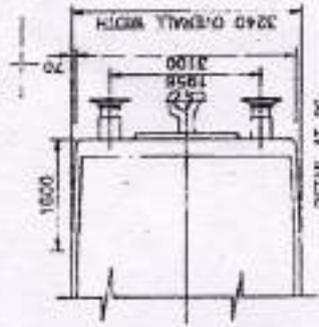
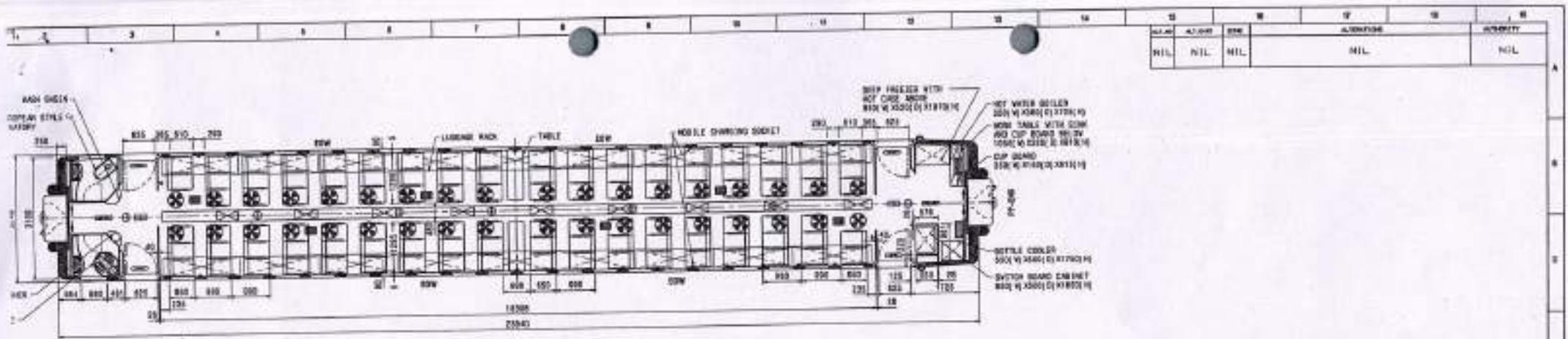
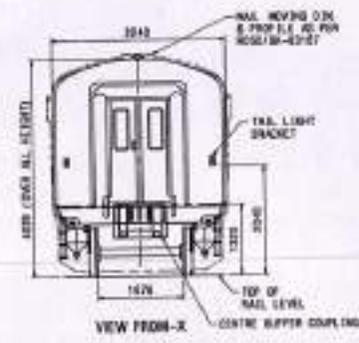
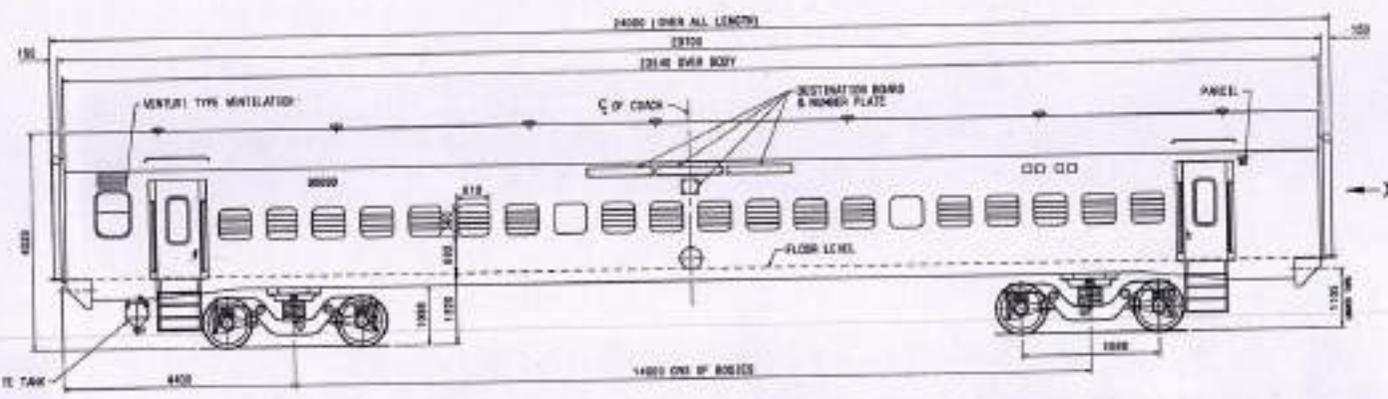


DIAGRAM SHOWING MAIN DIMENSIONS
OF LHB-IR COACH

SKETCH-96077



ALUM.	ALUM.	STEEL	ALUMINUM	ALUMINUM
NIL	NIL	NIL	NIL	NIL



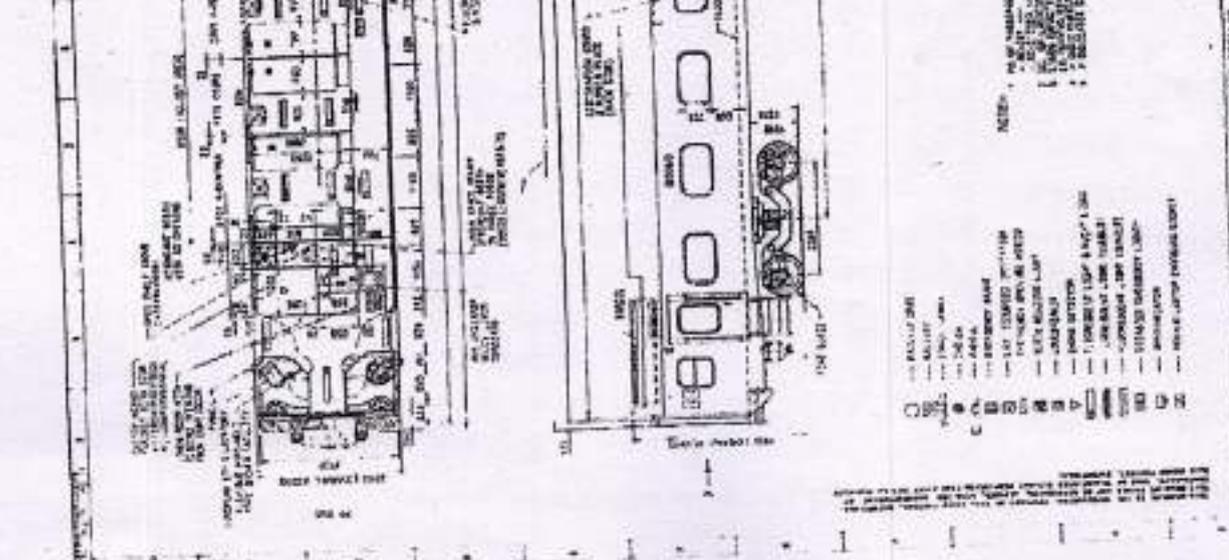
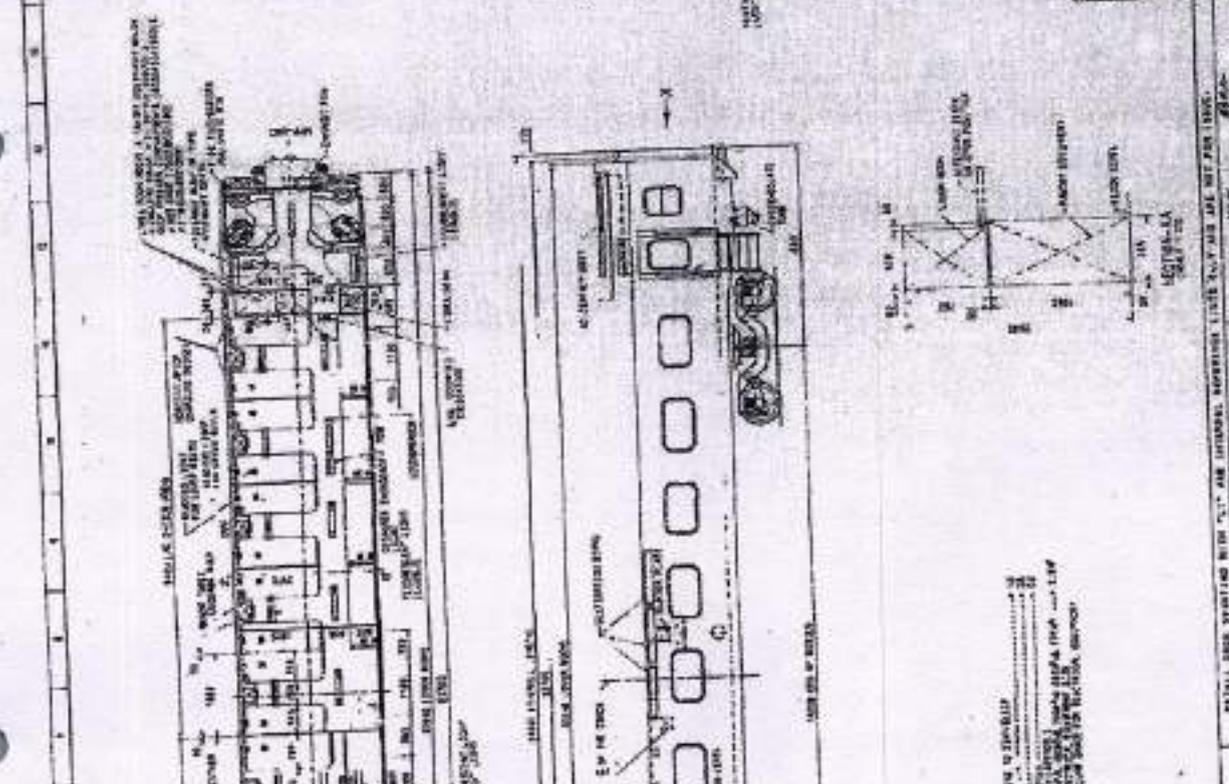
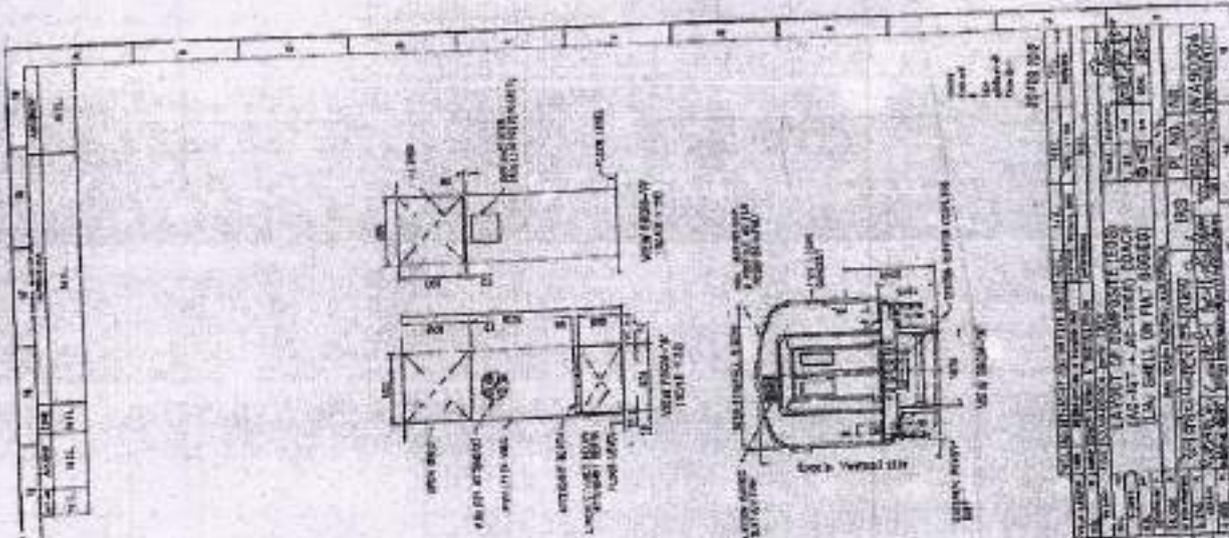
- --- RAILWAY DREST
- --- RAILWAY
- 8000 --- COACH NUMBER
- ⊕ --- VENTILATOR
- ⊗ --- FAN (1/20 TYPE (400MM DIA))
- ⊙ --- FLOORLIGHT LIGHT (SINGLE)
- ⊙ --- COMPACT FLOORLIGHT LIGHT (DOUBLE)
- ⊙ --- FLOORLIGHT LIGHT (DOUBLE)
- ⊙ --- LAMPIRY LIGHT
- ⊙ --- SIGNALOR EMERGENCY LIGHT (LMB TYPE)
- ⊙ --- DIFFUSED FIBRE BALLAST
- ⊙ --- LOUD SPEAKER
- ⊙ --- ALARM BELL
- ⊙ --- PANEL
- ⊙ --- EMERGENCY OPENABLE WINDOW
- ⊙ --- MOBILE CHARGING SOCKET

NOTE:-
 1. NO. OF PASSENGER TO SEAT --- 02
 2. NO. OF COACH AISLE --- 02
 3. NO. OF LIGHTS/FIXES --- 02
 4. NO. OF EMERGENCY OPENABLE WINDOWS --- 04

DATE
 30 JUN 2010

NIL LAYOUT OF LINE/STATION		NIL	NIL	NIL	NIL
FIELD NO.	100	DESCRIPTION & DIMENSIONS	SPACIAL REFERENCE	NO. OF BAYS	REMARKS
NO.	1	LAYOUT OF LINE/STATION			NIL
NO.	2	LAYOUT OF LINE/STATION			NIL
LAYOUT OF 2ND CLASS NON AC CHAIR CAR (EOG) (LMB SHELL ON FIAT BOGIES)					
NO.	3	LAYOUT OF LINE/STATION			NIL
NO.	4	LAYOUT OF LINE/STATION			NIL
NO.	5	LAYOUT OF LINE/STATION			NIL
NO.	6	LAYOUT OF LINE/STATION			NIL
NO.	7	LAYOUT OF LINE/STATION			NIL
NO.	8	LAYOUT OF LINE/STATION			NIL
NO.	9	LAYOUT OF LINE/STATION			NIL
NO.	10	LAYOUT OF LINE/STATION			NIL
NO.	11	LAYOUT OF LINE/STATION			NIL
NO.	12	LAYOUT OF LINE/STATION			NIL
NO.	13	LAYOUT OF LINE/STATION			NIL
NO.	14	LAYOUT OF LINE/STATION			NIL
NO.	15	LAYOUT OF LINE/STATION			NIL
NO.	16	LAYOUT OF LINE/STATION			NIL
NO.	17	LAYOUT OF LINE/STATION			NIL
NO.	18	LAYOUT OF LINE/STATION			NIL
NO.	19	LAYOUT OF LINE/STATION			NIL
NO.	20	LAYOUT OF LINE/STATION			NIL
NO.	21	LAYOUT OF LINE/STATION			NIL
NO.	22	LAYOUT OF LINE/STATION			NIL
NO.	23	LAYOUT OF LINE/STATION			NIL
NO.	24	LAYOUT OF LINE/STATION			NIL
NO.	25	LAYOUT OF LINE/STATION			NIL
NO.	26	LAYOUT OF LINE/STATION			NIL
NO.	27	LAYOUT OF LINE/STATION			NIL
NO.	28	LAYOUT OF LINE/STATION			NIL
NO.	29	LAYOUT OF LINE/STATION			NIL
NO.	30	LAYOUT OF LINE/STATION			NIL
NO.	31	LAYOUT OF LINE/STATION			NIL
NO.	32	LAYOUT OF LINE/STATION			NIL
NO.	33	LAYOUT OF LINE/STATION			NIL
NO.	34	LAYOUT OF LINE/STATION			NIL
NO.	35	LAYOUT OF LINE/STATION			NIL
NO.	36	LAYOUT OF LINE/STATION			NIL
NO.	37	LAYOUT OF LINE/STATION			NIL
NO.	38	LAYOUT OF LINE/STATION			NIL
NO.	39	LAYOUT OF LINE/STATION			NIL
NO.	40	LAYOUT OF LINE/STATION			NIL
NO.	41	LAYOUT OF LINE/STATION			NIL
NO.	42	LAYOUT OF LINE/STATION			NIL
NO.	43	LAYOUT OF LINE/STATION			NIL
NO.	44	LAYOUT OF LINE/STATION			NIL
NO.	45	LAYOUT OF LINE/STATION			NIL
NO.	46	LAYOUT OF LINE/STATION			NIL
NO.	47	LAYOUT OF LINE/STATION			NIL
NO.	48	LAYOUT OF LINE/STATION			NIL
NO.	49	LAYOUT OF LINE/STATION			NIL
NO.	50	LAYOUT OF LINE/STATION			NIL

CHANGES IN DIMENSIONS SHALL BE INDICATED BY A CIRCLE WITH A NUMBER. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. DIMENSIONS STARTING WITH "L" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE. ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID. DATE OF FIRST ISSUE: 25/05/2010. DRAWN BY: [Signature]



NOTES:
 1. ALL DIMENSIONS TO FACE UNLESS OTHERWISE NOTED.
 2. FINISHES TO BE AS SHOWN ON DRAWINGS.
 3. MATERIALS TO BE AS SPECIFIED IN SPECIFICATIONS.
 4. WORKMANSHIP TO BE AS SHOWN ON DRAWINGS.
 5. ALL WORK TO BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE BUILDING CODES AND REGULATIONS.
 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.
 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.
 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL ADJACENT PROPERTIES.
 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL ENVIRONMENTAL FEATURES.
 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL HISTORICAL FEATURES.
 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL CULTURAL HERITAGE.
 12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL ARCHAEOLGICAL REMAINS.
 13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PALEONTOLOGICAL REMAINS.
 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL BOTANICAL REMAINS.
 15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL ZOOLOGICAL REMAINS.
 16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL GEOLOGICAL REMAINS.
 17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL MINERAL REMAINS.
 18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL Fossil REMAINS.
 19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PREHISTORIC REMAINS.
 20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL HISTORIC REMAINS.



Speed Certificate for Operation of Train

No. MC/LHB/COACH

Date: 25.02.2021

महाप्रबन्धक (इंजीनियरिंग)

उत्तर रेलवे, ब्रिजौदा हाउस, नई दिल्ली - 110 001.

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 AC First cum AC-2 Tier (LWFCWACA) with pneumatic suspension at secondary stage, 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 Car (LWSCZAC), LHB (EOG) Non AC Chair Car (LWSCZ), LHB (EOG) Non AC Chair Car (LWSCZA), LHB (EOG) 3-Tier Sleeper (LWSCN), LHB (EOG) 3-Tier Sleeper (LWSCN1), LHB (EOG) 3-Tier Sleeper (LWSCNA), LHB (EOG) Second Class Non AC Unreserved coach with Vestibules (LWS), LHB (EOG) High Capacity Parcel Van (LVPH), LHB (EOG) Second Class Non AC Coach (LS3), LHB (EOG) Non AC GS coach (LS5), LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD) & LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD) with single WAP5 locomotive, with maximum speed up to 130 kmph over Chipiyana Buzurg (CPYZ) - New Delhi (NDLS) -Ambala Cantt (UMB)- Ludhiana (LDH) via Panipat (PNP) & back sections of Northern Railway on track maintained to as per provisions of Indian Railway Permanent Way Manual, June-2020, containing track geometry standards under Para 522.

Ref: (i) Northern Railway letter No. 519-W/1833/Speed Raising/NDLS-TKD, dated 12.12.2019
(ii) Northern Railway letter No. 802-M/6/16/LHB/Pt-IV/MC-I, dated 06.12.2019

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 180 kmph 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

	<p>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.</p> <p>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.</p>
1.2	<p>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 drawing 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.</p>
1.3	<p>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.</p>
1.4	<p>RCF has built LHB EOG First AC Cum AC -2 Tier coach (LWFCWACA) & dispensation to detailed oscillation has been granted by CCRS vide letter no. Q-17016/01/2018-2019 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 First AC Cum AC -2 Tier LHB coach (LWFCWACA) upto maximum speed of 160 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, amendment no. 02 dated 20.03.2020 and amendment no. 03 dated 28.10.2020.</p>
1.5	<p>RCF has built Three Tier Sleeper coaches (LWSCN) & dispensation to detailed oscillation has been granted by CCRS vide letter no. Q-17016/04/2011-TV 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's letter no. MC/LHB/COACH dated 14.10.2011.</p>
1.6	<p>RCF has built Three Tier Sleeper coaches (LWSCN1) & dispensation to detailed oscillation has been granted by CCRS vide letter no. Q-17016/03/2017-18-TW 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's letter no. MC/LHB/COACH dated 03.11.2017.</p>
1.7	<p>RCF has built Three Tier Sleeper coaches (LWSCNA) & dispensation to detailed oscillation has been granted by CCRS vide letter no. Q-17016/04/2017-18-TW dated 04/8.09.2017 for track maintained to C&M-I, Vol.-I standard. Based on above, the final</p>

	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	The final speed certificate for operation of BG EOG Non AC Chair Car LHB coach (LWSCZ) fitted with 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 nos. 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	The final speed certificate for operation of BG LHB Non AC EOG Second class Chair Car (LWSCZA) & 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 nos. 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 & amendment no. 01 dated 19.12.2019.
1.11	The final speed certificate for operation of BG EOG Second Class Non AC LHB coach (LS3) fitted with FIAT bogies upto maximum speed of 130 Kmph with pay loads upto 18.5T maximum on track maintained to C&M-I Volume-I standard, has been issued vide RDSO's letter no. MC/LHB/COACH (HS), dated 16.01.2013 followed by amendments dated 12.03.2013, 31.12.2013, 19.07.2014, 25.08.2014 & 12.12.2014.
1.12	The final speed certificate for operation of BG EOG Non AC GS LHB coach (LS5) fitted with FIAT bogies with maximum pay load up to 24.34 t, 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.AS.ML, dated 05.10.2015.
1.13	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 followed by amendment no. 01 dated 23.03.2020.
1.14	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 followed by amendment no. 01 dated 20.03.2020.
1.15	RCF has built LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD) & dispensation to detailed oscillation has been granted based on similarity to BG EOG Non AC GS LHB coach (LS5) by Executive Director/ Motive Power/ RDSO vide note no. SD. Dispensation/ Carriage.11, dated 16.09.2019 on track maintained as per standard specified under Para 607 of IRPWM Reprint-2004. Based on above, the final speed certificate for operation of LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD), 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)LWLRRMD/130 dated 09.10.2019 followed by amendment no. 01 & amendment no. 02 dated 10.12.2019 & 20.03.2020 respectively.
1.16	The WAP5 class of locomotives imported from M/s ABB, Switzerland have undergone detailed oscillation trials at maximum speed of 180 Kmph and the results are contained in RDSO's report no. MT-88 (June, 1997). Based on the results, WAP5 class of locomotives have been cleared for operation up to a maximum speed of 160 Kmph on track maintained to standards laid down in RDSO report no. C&M-I Vol.I vide RDSO's letter no. SD.WAP5.11 dated 19.06.1997 followed by amendments dated 23.10.2006, 20.01.2012, 13.06.2012, 20.12.2014 and revised speed certificate no. SD.WAP5.11 dated 28.3.2015 followed by amendments dated 22.06.2018 & 18.11.2020.
1.17	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 1161 meters.
1.18	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 one number of LHB AC Generator Van (LWLRRM) & one number of LHB Second class Cum Luggage & Brake Van (LSLRD) with single WAP5 Locomotive have been conducted at maximum speed of 130 kmph over Chipiyana Buzurg (CPYZ) - New Delhi (NDLS) –Ambala Cantt (UMB)- Ludhiana (LDH) via Panipat (PNP) & back sections of Northern Railway on track maintained to 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/2021/TG/ MT- 1769/ F, dated 10.02.2021, exhibit satisfactory riding and stability behaviour.
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 AC First cum AC-2 Tier (LWFCWACA) with pneumatic suspension at secondary stage, 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 Car (LWSCZAC), LHB (EOG) Non AC Chair Car (LWSCZ), LHB (EOG) Non AC Chair Car (LWSCZA), LHB (EOG) 3-Tier Sleeper (LWSCN), LHB (EOG) 3-Tier Sleeper (LWSCN1), LHB (EOG) 3-Tier Sleeper (LWSCNA), LHB (EOG) Second Class Non AC Unreserved coach with Vestibules (LWS), LHB (EOG) High Capacity Parcel Van (LVPH), LHB (EOG) Second Class Non AC Coach (LS3), LHB (EOG) Non AC GS coach (LS5), LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD) & LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD) with single WAP5, is fit for operation, with maximum speed up to 130 kmph over Chipiyana Buzurg (CPYZ) - New Delhi (NDLS) –Ambala Cantt (UMB)- Ludhiana (LDH) via Panipat (PNP) & back sections of Northern Railway on track maintained to 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	Track
2.1.1	The track shall be to a minimum standard of 52 kg (90 UTS) rail laid on PSC sleeper with 1540 Nos./km on 250 mm ballast cushion below the sleepers, which may consist of 100 mm clean and rest in caked up condition, on compact and stable formation.
2.1.2	For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, instructions issued by Railway Board letter no.65/WDO/SR/26 dt 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.
2.1.3	The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railway Permanent Way Manual, June-2020.
2.1.4	The welds shall be protected by joggled fish plates as per provisions of USFD Manual, AT welding manual and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of Indian Railway 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.

2.1.5	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.
2.1.6	All the turnouts shall be fixed heel curved switches laid on PSC sleepers layout with CMS crossings.
2.1.7	Sleepers on bridges (other than ballasted deck) would be steel channel/ H-Beam/ Composite Sleeper.

2.2 Bridges

2.2.1	The clearance refers to bridges "Standard Spans" with standard design of girders, slabs, pipe culverts, piers and abutments, etc. issued by RDSO for BGML, RBG & 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.
2.2.2	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.
2.2.3	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.
2.2.4	Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working timetable.
2.2.5	This clearance is subject to the following parameters of locomotive and LHB AC/ Non AC (EOG) coaches:

(A) For Locomotive:-

S. No.	Description	WAP5
1.	Max. axle load	19.5 ± 2% t
2.	Max. tractive effort	26.3 t
3.	Max. braking force at rail level	16.3 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 First cum AC-2 Tier (LWFCWACA)	16.25t	6.6t	
6.	AC 2-Tier Sleeper Coach (LWACCW)	16.25t	5.8t	
7.	AC 3-tier Sleeper Coach (LWACCN)	16.25t	5.8t	
8.	AC Hot Buffet Car (LWCBAC)	16.25t	5.8t	
9.	Three Tier Sleeper Coach (LWSCN)	16.25t	5.8t	
10.	Three Tier Sleeper coaches (LWSCN1)	16.25t	5.8t	
11.	Three Tier Sleeper coaches (LWSCNA)	16.25t	6.6t	

12.	Non AC Chair Car coach (LWSCZ)	16.25t	5.8t
13.	Second Class Non AC Unreserved coach with vestibules (LWS)	16.25t	5.4t
14.	LHB (EOG) Second Class Non AC Chair Car (LS3)	16.25t	5.8t
15.	LHB (EOG) Second Class Non AC Chair Car (LS5)	16.25t	6.6t
16.	LHB (EOG) Second Class Cum Luggage & Brake Van (LSLRD)	16.25t	5.8t
17.	LHB (EOG) High Capacity Parcel Van (LVPH)	16.25t	6.6t
18.	Generator van (LWLRRM)	16.25t	6.6t

(C) For LHB AC (EOG) and Non AC (EOG) Variant Coaches: After Completion of Route Prove Run as per Para 2.6.12 of subject speed certificate

S. No.	Name of Coaches	Maximum Axle Load	Maximum Braking Force at Rail Level	CG height above rail level
1.	LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD)	16.25t	5.8t	Not exceeding 1830 mm
2.	LHB Non AC EOG Chair Car coach (LWSCZA)	16.25t	5.4t	

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

2.3 Signaling

- 2.3.1 Provisions of GR, SR, IRSOD, SEM & all extant instructions issued from time to time as applicable shall be complied with.
- 2.3.2 In case of locomotive/rolling stocks/ Train (having these coaches 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 A & C no. 09 of SEM Pt-I shall be taken.

2.4 Traction Installation

- 2.4.1 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.
- 2.4.2 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.
- 2.4.3 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.

2.4.4	The current collection shall be made through one no. pantograph fit for high-speed operation.
2.4.5	In 25 kV AC traction area, the Principal 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.
2.4.6	In addition to the above, the Principal 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.

2.5	Rolling Stock
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2.5.1	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.
2.5.2	The earthing arrangement on the coaches shall be maintained as per design.
2.5.3	The LHB AC/ Non AC (EOG) coaches shall be maintained as per "Maintenance manual for LHB coaches issued by CAMTECH Gwalior with latest amendments.
2.5.4	For operation with LSLRD coach of 24 LHB (EOG) AC/ Non AC coaches, the rake formation is to be maintained in such a way that total maximum electrical demands should not be more than 2x336KW = 672kW (with one Power Car).

2.6	General
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2.6.1	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.
2.6.2	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.
2.6.3	All type of LHB AC/ Non AC (EOG) coaches and LHB Generator Van do not infringe any clause of "Chapter-IV (A)" of IRSOD (BG), Revised -2004 with latest addendum & corrigendum slip.
2.6.4	WAP5 locomotive alongwith pantograph in locked down condition and the surge arrestors 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 it's Addendum and Corrigendum Slip (ACS) No. 27.
2.6.5	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.
2.6.6	Para no. 6.1.3 of policy circular no. 6 shall be followed by Zonal Railways for introduction of a passenger train having 24 coaches plus one inspection carriage (LHB or other types).
2.6.7	"Track maintained to C&M-I, Vol.-I standard/ other than C&M-I, Vol-I standard/ Para-607 of Indian Permanent Way Manual Third Reprint-2019" in this speed certificate shall be considered as "track maintained as per provisions of Indian Railways Permanent Way Manual, June-2020 containing track geometry standards under Para 522.
2.6.8	All the level crossings shall be manned with telecommunication facilities & preferably interlocked.
2.6.9	Concerned Zonal Railway shall ensure provision of fencing at vulnerable locations on need basis.

2.6.10	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).
2.6.11	The track structure has been specified to standards laid down by Railway Board through letter no. 2014/CE-II/TSC/1 Pt. 1 dated 08/9/2016 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.
2.6.12	LHB Non AC EOG/HOG compliant Brake, Luggage Cum Generator Van coach (with on board 1x500 KVA DA Set) with compartment for Divyangjan passengers having pneumatic suspension 140 KN capacity Air spring) in secondary stage on FIAT Bogies (LWLRRMD) & LHB Non AC EOG Chair Car coach (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) alongwith its ACS No.-1 issued vide letter no.-2018/CEDO/SR/PC-6/0 dated 12.10.2020 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.

Enclosures / संलग्नक:

- (i) RDSO Sketch 96077
- (ii) RCF's drawing no. LE90009
- (iii) RDSO drawing no. CG-11034
- (iv) RCF's drawing no. LG90010
- (v) RCF's drawing no. LJ90004
- (vi) RDSO drawing no.CSC-1844
- (vii) ICF drawing no. LGS/EOG/ASR-9-0-001
- (viii) RCF's drawing no. LJ90007
- (ix) RDSO drawing CSC-1808
- (x) RDSO drawing CSC-1840
- (xi) RCF's drawing no. WA90004
- (xii) RDSO drawing no. CG-14045
- (xiii) RDSO drawing no. CSC-1847

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(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)

उत्तर रेलवे, बड़ीदा हाउस, नई दिल्ली - 110 001.

संलग्नक

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**Signed by Vinay Kumar
Agarwal**

Date: 25-02-2021 19:23:40

Reason: Approved

(वी. के. अग्रवाल)

कार्यकारी निदेशक मानक/चालन शक्ति