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भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226 011
Government of India - Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226 011

MC/LHB/Coach

Dt 23-6-2010

The General Manager (Engg.):

1. Central Railway, Chhatrapati Shivaji Terminus, Mumbai - 400 001
2. Eastern Railway, Fairlie Place, Kolkata - 700 001
3. Northern Railway, Baroda House, New Delhi - 110 001
4. North Eastern Railway, Gorakhpur - 273 001
5. Northeast Frontier Railway, Maligaon, Guwahati - 781 011
6. Southern Railway, Park Town, Chennai - 600 003
7. South Central Railway, Rail Nilayam, Secunderabad - 500 071
8. South Eastern Railway, Garden Reach, Kolkata - 700 043
9. Western Railway, Churchgate, Mumbai - 400 020
10. East Central Railway, Hajipur - 844 101
11. East Coast Railway, Chandrasekharapur, Bhubaneswar - 751 016
12. North Central Railway, Allahabad - 211 001
13. North Western Railway, Jaipur - 302 006
14. South East Central Railway, Bilaspur - 495 004
15. South Western Railway, Hubli - 580 023
16. West Central Railway, Jabalpur - 482 008

Sub: Final speed Certificate for operation of AC Chair car Executive Class, AC Chair car Second Class, LHB AC Generator Van BG LHB AC EOG coaches and AC-3 Tier, AC-2 Tier, AC First Class, AC First cum AC 2-Tier, AC First cum AC 3-Tier, AC 2-Tier cum AC 3-Tier, AC Hot Buffet Car BG LHB AC EOG variant coaches fitted with FIAT bogies at speed of 110 kmph on track maintained to C & M-I, Volume-I standard.

RCF has built LHB AC EOG variant broad gauge coaches fitted with FIAT bogies under Transfer of Technology from M/s. ALSTOM-LHB. These coaches, generally conforming to RDSO's drawing no. Sk. 96077 and to RCF's drawing no. LE 90009 have a speed potential for operating at a maximum speed of 160 km/h, on track maintained to standards contained in RDSO's Report No. C & M-I, Vol.-I. These coaches are built to the-state-of-art technology, provided with disc brakes and centre buffer couplers and have a unique feature of wheel slide protection device (WSP), to prevent formation of wheel flats.

- 1.1 The detailed oscillation trials and long confirmatory run of BG EOG Type LHB AC Chair car have been conducted up to a speed of 180 kmph on Palwal-Mathura section of Central Railway. The results of trial are contained in RDSO Report no. MT-240 (June-2000). The results of trial Report indicate that on track maintained to C & M-I Vol. I standard, the coach exhibits satisfactory riding and stability behavior up to a maximum test speed 180 kmph. The final speed certificate has been issued vide letter no. MC/LHB/Coach dt. 04-04-2001 on speed of 140 kmph.

- 1.2 The detailed oscillation trials & long confirmatory run of BG LHB AC Generator Van have been conducted up to test speed of 145 kmph on Palwal – Mathura section of Central Railway and up to speed of 180 kmph on Ghaziabad-Tundla section of North Central Railway. The results of these trials are contained in RDSO Report no. MT-274 and MT-282 respectively. The results of trial Report indicate that on track maintained to C & M-I Vol. I standard, the coach exhibits satisfactory riding and stability behavior up to a maximum test speed 180 kmph. The final speed certificate has been issued vide letter no. MC/LHB/Coach dt. 04-04-2001 on speed of 140 kmph.
- 1.3 The detailed oscillation trials & long confirmatory run of EOG Type LHB AC 3-Tier Sleeper coach ACCN (LHB variant) have been conducted up to a speed of 145 kmph on Surat - Mumbai central section of Western Railway. The results of trial are contained in RDSO Report no. MT-493. The results of trial Report that on track maintained to C & M-I Vol. I standard, the coach exhibits satisfactory riding and stability behavior up to a maximum test speed 145 kmph. The final speed certificate has been issued vide letter no. MC/LHB/Coach dt. 17-11-2004 on speed of 120 kmph.
2. Based on results of detailed oscillation trials and confirmatory run, it is certified that these AC Chair car Executive Class, AC Chair car Second Class, LHB AC Generator Van BG LHB AC EOG coaches and AC-3 Tier, AC-2 Tier, AC First Class, AC First cum AC 2-Tier, AC First cum AC 3-Tier, AC 2-Tier cum AC 3-Tier, AC Hot Buffet Car BG LHB AC EOG variant coaches fitted with FIAT bogies may be permitted to run at maximum speed 110 kmph on track maintained to C & M-I ,Volume-I standard.
 - 2.1 **Track**
 - 2.1.1 The track shall be to a minimum standard of 52 Kg rails on sleepers to M+7 density and minimum depth of ballast cushion below the sleepers to 200 mm which may consist of at least 100 mm clean and the rest in caked up condition on compacted and stable formation.
 - 2.1.2 The track maintenance shall be in accordance with the recommendations contained in RDSO Report No. C&M-I, Vol.I in this connection, the instructions for the maintenance of track on high speed routes circulated to the railways under RDSO's DO letter no. CRA/509 dated 07.7.1971 and approved by railway board vide their letters No. 71/W6/HS/8 dated 27.8.1971 and 71/W6/HS/1 dated 21.10.1971 should also be followed.
 - 2.1.3 The maximum permissible speed on curves to be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual Second Reprint-2004.
 - 2.2 **Bridges**
 - 2.2.1 The clearance refers to bridges with standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by RDSO for BGML, RBG and MBG-1987 standard loadings. However, the bearings of span 78.8 m (effective) designed for BGML standard loading as per RDSO's drawing no. BA-11154 should be strengthened by providing two additional anchor bolts.

- 2.2.2 Superstructures and bearings of non-standard spans including Arches and sub-structures of all bridges are to be examined under the directions of the Chief Bridge Engineer concern and certified safe by him in terms of current IRS Bridge Rules, Steel Bridge Code, Concrete Bridge Code, Arch Bridge Code, Bridge Sub Structures and Foundations code etc. read with upto-date correction slips.
- 2.2.3 Zonal Railways to certify adequacy of existing bridges for permitted rolling based on physical condition of bridges by keeping them under observations considered necessary by the Chief Bridge Engineer of 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 LHB AC EOG coaches and LHB AC EOG variant coaches:

(A) For LHB AC EOG Coaches

i) AC Chair car Executive Class and AC Chair car Second Class

Maximum Axel Load	:	16.25 t
Maximum Braking Force (at 3 kg/cm ² BC pressure)	:	5.8 t (14.4 % of tare weight and 8.92% of gross weight)
CG height above rail level	:	Not exceeding 1830 mm

ii) Generator van

Maximum Axel Load	:	16.25 t
Maximum Braking Force (at 3 kg/cm ² BC pressure)	:	5.32 t (12.7 % of tare weight and 10.18% of gross weight)
CG height above rail level	:	Not exceeding 1830 mm

(B) For LHB AC EOG Variant Coaches

Maximum Axel Load	:	16.25 t
Maximum Braking Force (at 3 kg/cm ² BC pressure)	:	4.65 t
CG height above rail level	:	Not exceeding 1830 mm

- 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 Provision of GR, SR, SEM and all extant instructions issued from time to time shall be complied with.
- 2.3.2 On the sections where EBD of more than 1 Km is to be catered for, second distant signal or automatic signaling- should be available failing which suitable speed restriction is to be imposed.

2.4 Traction Installation

For 25 kV ac Traction area

- 2.4.1 In 25kV a.c. traction area, the CEE of Railway shall have to ensure that the minimum height of contact wire and electrical clearances as stipulated in provision of Chapter-V and V-A, Electric Traction "Schedule of Dimension of 1676 gauge (BG) revised 2004" is not violated and strictly followed to ensure its safe running".
- 2.4.2 In addition to the above, the CEE may impose any temporary speed restriction based on the conditions prevailing on a particular section.

For DC Traction

- 2.4.3 "For DC OHE the condition of operation shall be specified by CEE of the concerned railway."

2.4 Rolling Stock


- 2.5.1 Before starting the operation, CME of the concerned railway will certify the track worthiness and safety of the rolling stocks. He will also ensure proper maintenance of the stocks.
- 2.5.2 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 becomes defective enroute, the brake system of that particular coach shall be isolated.
- 2.5.3 The LHB EOG coaches shall be maintained as per "Preventive Maintenance system for LHB Coaching Stock" issued by Railway Board and the instructions issued by RDSO & Railway Board time to time.

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 LHB AC EOG variant coaches (other than ACCN) with 23540 mm length over body and 12340 mm maximum distance apart between any two adjacent axles infringes clauses 13 (b), 16, 17, 19 (b), 20 (b), 21(b), 22 & 32 (b) of Chapter IV (A) of BG Schedule of Dimensions, 1973 Reprint. These infringements of LHB AC variant coaches were condoned by Railway Board vide their letter No. 97/CEDO/SR/3, dated 07.02.1997.
- 2.6.4 LHB ACCN variant coach with 23540 mm length over body and 12340 mm maximum distance apart between any two adjacent axles infringes clause 13 (b), 16, 17, 19 (b), 20 (b), 21(b), 22, 31 and 32 (b) of Chapter IV (A) of BG Schedule of Dimensions, 1973 Reprint. These infringements of LHB ACCN EOG variant coach were

condoned by Railway Board vide their letter No. 2002/CEDO/SR/13, dated 10.12.2002.

- DA: 1. Rly. Bd.'s letter No.97/CEDO/SR/3 dated 07.02.1997
2. RDSO Sk.96077
3. Rly. Bd.'s letter No.2002/CEDO/SR/13 dated 10.12.2002
4. RCF's drawing no. LE 90009



(S. MANI)

Executive Director Standards (Motive Power)

Copy to:

The Secretary (Mech., Elec. & Engg. /G)
Railway Board,
Rail Bhawan,
New Delhi - 110 001

The General Manager (Mech., Elect. & Optg./S & T)

1. Central Railway, Chhatrapati Shivaji Terminus, Mumbai - 400 001
2. Eastern Railway, Fairlie Place, Kolkata - 700 001
3. Northern Railway, Baroda House, New Delhi - 110 001
4. North Eastern Railway, Gorakhpur - 273 001
5. Northeast Frontier Railway, Maligaon, Guwahati - 781 011
6. Southern Railway, Park Town, Chennai - 600 003
7. South Central Railway, Rail Nilayam, Secunderabad - 500 071
8. South Eastern Railway, Garden Reach, Kolkata - 700 043
9. Western Railway, Churchgate, Mumbai - 400 020
10. East Central Railway, Hajipur - 844 101
11. East Coast Railway, Chandrasekharapur, Bhubaneswar - 751 016
12. North Central Railway, Allahabad - 211 001
13. North Western Railway, Jaipur - 302 006
14. South East Central Railway, Bilaspur - 495 004
15. South Western Railway, Hubli - 580 023
16. West Central Railway, Jabalpur - 482 008

Managing Director, Konkan Railway Corporation, Belapur, Navi Mumbai-400614.

DA:

1. Rly. Bd.'s letter No.97/CEDO/SR/3 dated 07.02.1997
2. RDSO SK.96077
3. Rly. Bd.'s letter No.2002/CEDO/SR/13 dated 10.12.2002
4. RCF's drawing no. LE 90009.



(S. MANI)

Executive Director Standards (Motive Power)

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. 97/CEDU/SR/3.

1
297

FORM NO. 10001 (1/82)
New Delhi, dated 07.02.97

To,

The Director General (Track),
R.D.S.C.,
Manak Nagar,
LUCKNOW - 226 001.

Dr. No. 127

Sub: LHB Coach - Condonation of the infringements to Schedule of dimensions 1973.

With reference to your application No. CT/LC/EG, dt. 17/20.1.97, sent through the Chief Commissioner of Railway Safety, Lucknow, the sanction of Ministry of Railways is hereby communicated for condonation of infringement to item 13(b), 16, 17, 19(b), 20(b), 21(b), 22 & 32(b) of Chapter-IV(A) of B.G. Schedule of dimensions (1973) involved in 23540 mm long LHB coach with 2350 mm width.

The sanction is based on Form-XI and Sketch No. 96077 accompanying your application referred to above.

(V.K. SARANI)
Exec. Dir. Civil Engg. (G)
Railway Board.

No. 97/CEDU/SR/3.

New Delhi, Dt. 07.02.97.

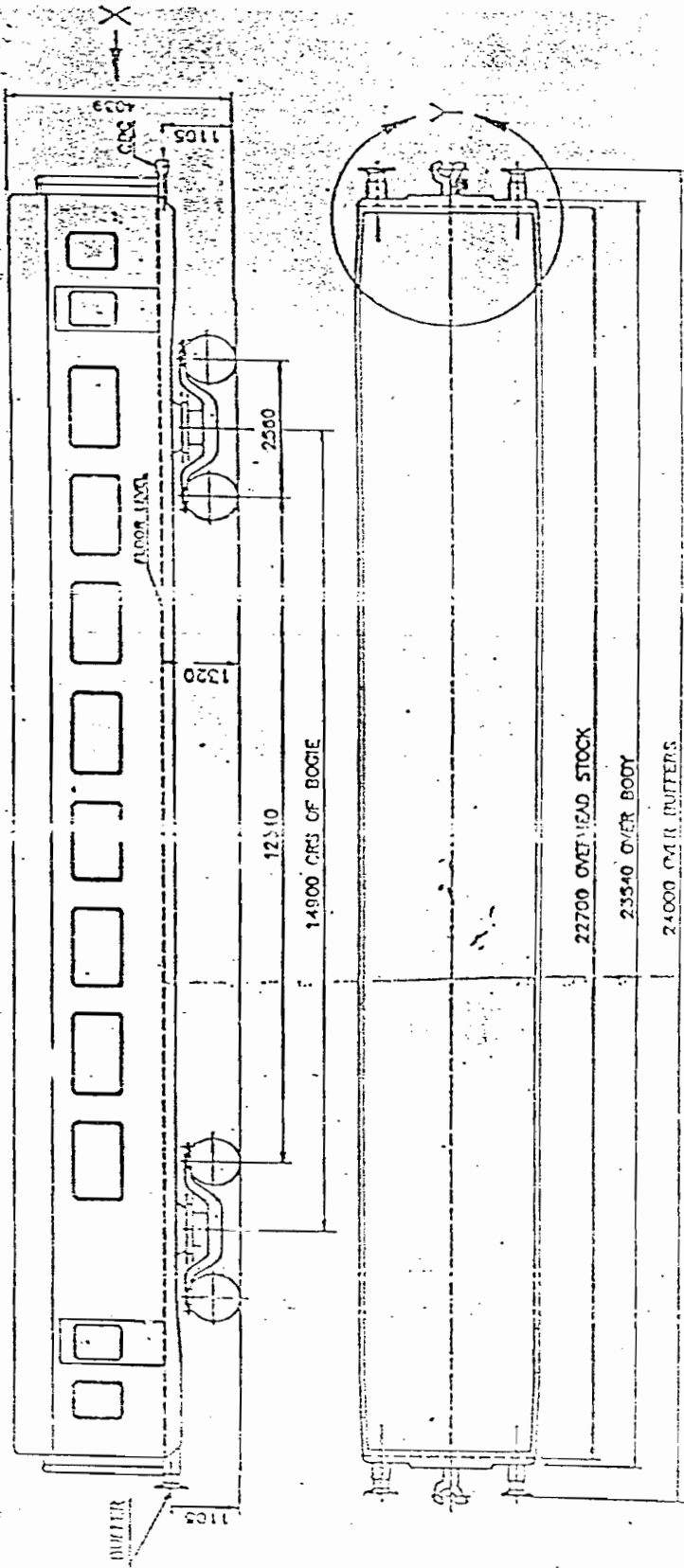
Copy forwarded for information to the Chief Commissioner of Railway Safety, 16-A, Ashok Marg, Lucknow - 226 001 with reference to his endorsement No. Q. 7012/1/97/RS dated Nil.

(V.K. SARANI)
for Secretary Railway Board.

DST 15 - T

ADST-P

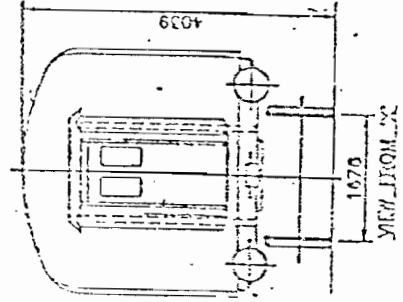
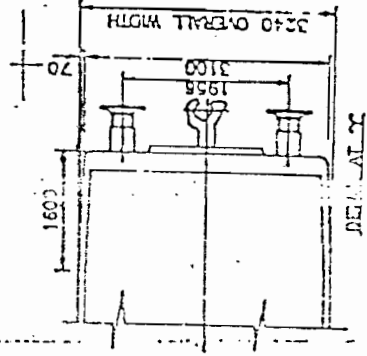
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NOTE:-

BUFFERS ARE TO BE PROVIDED ONLY
IN POWER CAR.

DIAGRAM SHOWING MAIN DIMENSIONS
OF LHB-IR COACH.



SKETCH-96077



भारत सरकार GOVERNMENT OF INDIA
 रेल मंत्रालय MINISTRY OF RAILWAYS
 (रेलवे बोर्ड RAILWAY BOARD)

7001/1005
 11/12
 10/12
 C/- Conv.

भारत, नई दिल्ली 110001, दिनांक
 Rail Bhavan, New Delhi-110 001, dated 10-12-2002

No. 2002/CEDU/SR/13

The Director General/Track,
 R.S.O.P.
 HANNA NAGAR,
 LUCKNOW - 226011

11
 10/12

Sub:- LHB variant AC3 - Tier EOG coach- Condonation of the infringements to Schedule of Dimensions-1929.

With reference to your application No. CT/DHS/3/Coach dt. 25-7-02, sent through the Chief Commissioner of Railway, Safety, Lucknow, the sanction of Ministry of Railways is hereby communicated for condonation of infringement to the profile of standard maximum moving dimensions 1929 and others to clause 13(b), 16, 17, 19(b), 20(b), 21(b), 22, 31 & 32(b), Chapter-IV(A) of Schedule of Dimensions, 1973 (Reprint) involved in the design of LHB Variant AC3-Tier EOG Coach as shown in Form-XI and sketch Plans accompanying your application referred above.

As the said coach has to move under restricted speed conditions.. The Zonal Railways therefore to take the sanction of the Competent Authority both for movement of these coaches and for the condonation of infringement on the respective section as usual.

(Parmod Kumar)
 Exec. Dir. Civil Engg. (G)
 Railway Board

No. 2002/CEDU/SR/13

New Delhi, dated 10-12-2002

Copy forwarded for information to the Chief Commissioner of Railway Safety, Lucknow-226001, w.r.t. his endorsement No. R-17612/01/2002-RC dated 24-10-2002.

(Parmod Kumar)
 for Secretary, Railway Board

