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No. MC/LHB/COACH

Dated: 20.12.2014

**महाप्रबन्धक (इंजीनियरिंग),**

1. मध्य रेलवे, छत्रपति शिवाजी टर्मिनस मुम्बई - 400 001
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता - 700 001
3. उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली - 1100 01
4. पूर्वोत्तर रेलवे, गोरखपुर - 27 3001
5. पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव गुवाहाटी- 781 011
6. दक्षिण रेलवे, एनेक्सी, पार्क टारुन, चेन्नई - 600 003
7. दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद - 500 071
8. दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता - 700 043
9. पश्चिम रेलवे, चर्च गेट, मुम्बई - 400020
10. उत्तर मध्य रेलवे, इलाहाबाद - 211 001
11. उत्तर पश्चिम रेलवे, जयपुर - 302 006
12. पूर्व मध्य रेलवे, हाजीपुर - 844 101
13. पूर्व कोस्ट रेलवे, रेलवे कॉम्प्लेक्स, भुवनेश्वर - 751 023
14. दक्षिण पश्चिम रेलवे, हुबली - 580 023
15. पश्चिम मध्य रेलवे, जबलपुर - 482 001
16. दक्षिण पूर्व मध्य रेलवे, बिलासपुर - 495 004

**Sub: Amendment no.02 to final speed certificate for operation of BG EOG type LHB AC chair car fitted with FIAT bogies upto maximum speed of 160 kmph.**

Ref: i) This office speed certificate no. MC/LHB/COACH dated 19.3.2003 followed by partial amendment of even no. dated 27.02.2004 and amendment no.1 dated 18.11.2014

(ii) Railway Board letters no.2013/Infra/12/43 dated 18.12.2014 & 19.12.2014.

Vide ref. (ii) above, it has been instructed to issue an amendment in the final speed certificate for operation of BG EOG type LHB AC chair car fitted with FIAT bogies upto maximum speed of 160 kmph on track maintained to C&M-I, Volume-I standard, issued on 19.03.2003 followed by partial amendment of even no. dated 27.02.2004 and amendment no.01 dated 18.11.2014, duly incorporating the provisions of RDSO's report CT-20 Rev 2 as approved by Railway Board vide their letter No. 2014/CE-II/TK/HS dated 09.12.2014. The Subject & following paragraphs of the Speed certificate are amended/inserted accordingly:

**subject modified as - Subject:** Final speed certificate for operation of BG EOG type LHB AC chair car fitted with FIAT bogies upto maximum speed of 160 kmph on track maintained to C&M-I Volume-I standard.

**Para 2.1 Track:** All paras replaced by para no.2.1.1 to 2.1.7

**Para 2.3 Signalling :**Para 2.3.5 (new para) added.

**Para 2.4. Roling stock:** para 2.4.1 modified, 2.4.3, 2.4.4, 2.4.5 added

**Para 2.6 Traction Installation:** para 2.6.1 and 2.6.2 added

The details of the amendments are as follows:

## 2.1 Track

### 2.1.1 For speed upto 130km/h

“The track shall be to a minimum standard of 52kg/90 UTS rail laid on PSC sleeper with sleeper density of 1540 No./Km on minimum 250mm ballast cushion below the sleepers which may consist of at least 100mm clean and rest in caked up condition, on compacted and stable formation and track maintained to the standards recommended in RDSO’s report no. C&M-I, Vol.-I.

In this connection, the instruction for maintenance of track on high speed routes, circulated to the railways under RDSO’s DO letter no. CRA/509 dated 07.07.1971 and approved by Railway Board vide letters no. 71/W6/HS/8 dated 27.08.1971 and 71/W6/HS/1 dated 21.10.1971 should also be followed.

### 2.1.2 For speed beyond 130km/h and upto 160kmph

#### 2.1.2.1 For speed upto 150 km/h on Sections having annual GMT less than 10

“The track shall be to a minimum standard of 52kg/90UTS rail laid on PSC sleeper with 1540 sleeper density on 250mm ballast cushion below the sleepers which may consist of at least 100mm clean and rest in caked up condition (300 mm ballast cushion below the sleepers which may consist of at least 150mm clean and rest in caked up condition for speed of 150 kmph) on compacted and stable formation and maintained to the standards recommended in RDSO’s report no. C&M-I, Vol.-I.

In this connection, the instruction for maintenance of track on high speed routes, circulated to the railways under RDSO’s DO letter no. CRA/509 dated 07.07.1971 and approved by Railway Board vide letters no. 71/W6/HS/8 dated 27.08.1971 and 71/W6/HS/1 dated 21.10.1971 should also be followed.”

#### 2.1.2.2 For other Sections (having annual GMT of 10 or more) and for speed of 160 km/h on all sections:

The track shall be to a minimum standard of 60kg/90UTS rail laid on PSC sleeper with 1660 sleeper density on 300mm ballast cushion below the sleepers which may consist of at least 150mm clean and rest in caked up condition, on compacted and stable formation and maintained to the standards recommended in RDSO’s report no. C&M-I, Vol.-I.

However, on NDLS-AGC section, already cleared for operation at 150 kmph, limited operation of these coaches at 160 kmph can be permitted with the stipulations with which 150 kmph speed was introduced, i.e. with track structure of 52 Kg/90 UTS rails laid on PSC sleepers.

In this connection, the instruction for maintenance of track on high speed routes, circulated to the railways under RDSO’s DO letter no. CRA/509 dated 07.07.1971 and approved by Railway Board vide letters no. 71/W6/HS/8 dated 27.08.1971 and 71/W6/HS/1 dated 21.10.1971 should also be followed.

#### 2.1.2.3 Zonal Railway shall ensure that all turnouts on section are with fixed heel curved switches laid on PSC sleeper layout with CMS crossings with adequate arrangement to ensure designed geometry of turnouts. Turnouts with thick web switches shall be preferred on such routes. Provision of clamp type lock along with thick web switches in facing direction on mainlines shall be ensured for speeds in

excess of 140 kmph. Other turnouts on the route shall be provided with thick web switches in planned manner.

- 2.1.2.4 Improvement on track geometry parameters on the route of operation of the coaches to be carried out as required.
- 2.1.2.5 The curves will have to be suitable realigned and proper transition lengths shall be provided.
- 2.1.2.6 Action should be taken for relocation/ modification of engineering signals in consultation with respective S&T and OHE departments of Zonal Railways.
- 2.1.2.7 Concerned Railway will ensure provision of sturdy through fencing of track to prevent trespassing and to eliminate instances of cattle run over. However, on Delhi-Agra section, fencing of track at vulnerable locations prone to cattle crossing / trespassing identified by General Manager of respective railway shall be provided as train is already running at a speed of 150kmph on this section.
- 2.1.2.8 Preferably improved SEJ should be provided on such routes.
- 2.1.2.9 Stretches of existing weak formations (where permanent /temporary speed restriction is imposed), if any, will have to be rehabilitated/strengthened first before permitting higher speeds.
- 2.1.2.10 The track recording/ monitoring shall be ensured as per frequency specified in Para 606, 615(3) and 618(3) of Indian Railways Permanent Way Manual, Second Reprint-2004. Zonal Railways shall interpret the results of OMS runs/ TRC and oscillograph car run and impose suitable speed restrictions wherever considered necessary.
- 2.1.3 For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, Railway Board's 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.
- 2.1.4 The maximum permissible speed on curve shall be decided on the basis of existing provisions of the Indian Railways Permanent Way Manual, Second Reprint-2004. Higher speeds may however be permitted subject to the maximum cant deficiency of 100 mm and the rate of change of cant and cant deficiency not exceeding 55 mm per second.
- 2.1.5 The welds shall be protected by joggled fish plates as per provisions of Para 6.4 and Para 8.14 of USFD Manual and Para 6.3 of AT welding manual and other policy instructions of Railway Board. Maintenance of Rails and Rail joints shall be ensured as per Para 250 & 251 of IRPWM. 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.
- 2.1.6 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 Chapter-III of IRPWM-2004 regarding permanent way renewals.
- 2.1.7 Route Proving Run/ Confirmatory Oscillograph car run shall be conducted before starting of operation, as per extant stipulations of Policy Circular No. 6.

## **2.3 Signalling**

New Para 2.3.5 may be added as under:

2.3.5 For 160 Km/h operation, TPWS of type cleared by RDSO shall be mandatory.

## **2.4 Rolling Stock**

2.4.1 Before starting the operation, CME of the concerned Railway shall arrange to certify the track worthiness and safety of the rolling stocks. He shall also ensure proper maintenance of the stock. However where the maintenance of rolling stock is being done by Electrical Department, CEE will also be consulted.

2.4.3 The LHB AC EOG Chair Car shall be maintained as per provision in "Maintenance Manual for LHB Coaches " issued by CAMTECH, Gwalior in 2013.

2.4.4 Locomotives identified to haul passenger services should be provided with 'H' type tight lock coupler and modified draft gear with pre-load. Coaches should be fitted with AAR 'H' type tight lock CBC with draft gear having pre-load in the range of 30-35 KN or better available draft gear. However, for operation at 160 km/h, coaches should be fitted with AAR 'H' type tight lock CBC with balanced draft gear having suitable pre-load.

2.4.5 Since NDLS-AGC section is already cleared for operation at 150 km/h, operation of these coaches at 160 km/h may be permitted with the same stipulations with which 150 km/h speed was introduced. However as stipulated in Railway Board letter no. 97/M(C)/137/1 Volume-VI dated 9.6.2004 and as also stipulated in CT-20 Rev.2 duly approved by Railway Board, the following maintenance facilities are required to be developed by Railways for operation at 160 km/h on priority:

- (i) Well lighted all weather covered area for under gear examination and maintenance of sub-assemblies.
- (ii) Boundary wall for safety and security of the rake and the facilities.
- (i) Automatic washing plant at entry point.
- (ii) Wheel profile measurement and re-profiling system
- (iii) In situ wheel changing facility
- (iv) Automated and instrumented maintenance system in lieu of existing system based on visual inspection
- (v) A separate bay with capacity for lifting and change of complete bogie will also be required.
- (vi) Platform for attention to roof mounted AC equipments

## **2.6 Traction Installation**

2.6.1 In 25 kV AC Traction area, the Chief Electrical Engineer of the concerned Railway shall have to ensure that the minimum height of Contact Wire and electrical clearances, as stipulated in provisions of Chapter – V and V- A, Electric Traction of Schedule - I of 'Schedule of Dimensions of 1676 mm Gauge (BG) Revised 2004' with latest Addendum & Corrigendum Slips is not violated.

2.6.2 In addition to above, the Chief Electrical Engineer of the concerned Railway may impose any temporary speed restriction, on the basis of personal Knowledge,

experience of the Sectional OHE and the field conditions prevailing on the particular Section.

संलग्नक : RB letters no. 2013/Infra/12/43 dated 18.12.2014 & 19.12.2014.

(सी. मधुसूदन राव)

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, परिचालन, विद्युत, संकेत एवं दूरसंचार),
  - i) मध्य रेलवे, छत्रपति शिवाजी टर्मिनस मुम्बई - 400 001
  - ii) पूर्व रेलवे, फेयरली प्लेस, कोलकाता - 700 001
  - iii) उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली - 1100 01
  - iv) पूर्वोत्तर रेलवे, गोरखपुर - 27 3001
  - v) पूर्वोत्तर फ्रन्टियर रेलवे, मालीगाँव गुवाहाटी- 781 011
  - vi) दक्षिण रेलवे, एनेक्सी, पार्क टाऊन, चेन्नई - 600 003
  - vii) दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद - 500 071
  - viii) दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता - 700 043
  - ix) पश्चिम रेलवे, चर्च गेट, मुम्बई - 400020
  - x) उत्तर मध्य रेलवे, इलाहाबाद - 211 001
  - xi) उत्तर पश्चिम रेलवे, जयपुर - 302 006
  - xii) पूर्व मध्य रेलवे, हाजीपुर - 844 101
  - xiii) पूर्व कोस्ट रेलवे, रेलवे कॉम्प्लेक्स, भुवनेश्वर - 751 023
  - xiv) दक्षिण पश्चिम रेलवे, हुबली - 580 023
  - xv) पश्चिम मध्य रेलवे, जबलपुर - 482 001
  - xvi) दक्षिण पूर्व मध्य रेलवे, बिलासपुर - 495 004
4. मैनेजिंग डायरेक्टर, कोंकण रेलवे कार्पोरेशन लिमिटेड, बेलापुर, नवी मुम्बई - 400614

संलग्नक : RB letters no. 2013/Infra/12/43 dated 18.12.2014 & 19.12.2014.

(सी. मधुसूदन राव)

कार्यकारी निदेशक मानक / चालन शक्ति











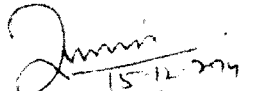




5. It is also said in the enclosures with the application that track is maintained as per C&M-1, Vol.-1 report. This RDSO's report pertains to operation of rolling stocks at a sanctioned speed of 120 kmph, and at test speeds upto 136 kmph. In the C&M-1, Vol.-I report certain limits have been prescribed for the guidance of the engineering officials in deciding on the suitability, of the standard of maintenance of the track, for general operation of the WDM-4 locomotive and the ICF all coil coaching stock at a sanctioned speed of 120 kmph, and at test speeds up to 136 kmph. In view of this how C&M-1, Vol.-I report is being made applicable at 160 kmph speed for the rolling stock involved in this case?

In view of the above, the proposal is returned for necessary action at your end.

**DA: As above**

  
15-12-2014  
{ राज कुमार कर्म }  
रेल संरक्षा आयुक्त

S.No 3369/2

**GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS  
(RAILWAY BOARD)**

No.2013/Infra/12/43

Dated: 19.12.2014.

**Director General,  
RDSO, Lucknow.**


**Subject: Amendments in Final Speed Certificates of rolling stock for operation at 160 kmph.**

- Ref: 1. RDSO speed certificate for maximum permissible speed of 160 kmph for WAP5 loco No. SD.WAP5.11 dated 19.06.1997 and amendment dated 23.11.2006.**
- 2. RDSO speed certificate for maximum permissible speed of 160 kmph for LHB stock No. MC/LHB/COACH dated 19.03.2003 and amendment dated 18.11.2014.**
- 3. RDSO speed certificate for maximum permissible speed of 160 kmph for BG LHB Generator Van No. MC/LHB/COACH dated 20.03.2003 and amendment dated 27.02.2004 and 18.11.2014.**
- 4. RDSO speed certificate for maximum permissible speed of 160 kmph for shatabdi express and other similar trains hauled by single WAP5 class of locomotive comprising maximum 12 nos. of LHB AC (EOG) coaches No. MC/LHB/COACH dated 22.07.2014.**
- 5. CRS letter No. 2014/Q-15/LHB/NC/735, 736 & 737 dated 15.12.2014 to GM/NR & NCR.**

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Kindly connect this office letter of even no. dated 18.12.2014 in which RDSO has been requested to make the necessary changes in the final Speed certificates of rolling stock for operation at 160 kmph regarding the structure of track particularly for New Delhi-Agra corridor.

Vide reference 05 above CRS has also desired that "Now since Railway Board vide their letter dated 09.12.2014 has approved RDSO's Report no. CT-20 Rev.-2 for introduction of train at speed upto 160 kmph on New Delhi-Mumbai Central routes, the various provisions of this report shall invariably has to form the part of the RDSO's speed certificates for the relevant rolling stock". In this connection you are further requested to kindly incorporate the relevant provisions of RDSO's Report no. CT-20 Rev.-2 in the final Speed certificates of rolling stock also.

  
(Vijay Kumar)

**Executive Director/Infra/Mech  
Railway Board**