



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

No.	SV.FIAT (SC)/LWACCNE/160kmph	Date	05 .03.2021
-----	------------------------------	------	-------------

महाप्रबन्धक (इंजीनियरिंग)

1. मध्य रेलवे, छत्रपति शिवाजी महाराज टर्मिनस, मुम्बई- 400001.
2. पूर्व रेलवे, फेयरलीप्लेस, कोलकाता- 700001.
3. उत्तर रेलवे, बडौदा हाउस, नईदिल्ली- 110001.
4. दक्षिण रेलवे, पार्क टाउन, चेन्नई- 600 003.
5. दक्षिण मध्य रेलवे, रेलनिलायम, सिकन्दराबाद- 500025.
6. दक्षिणपूर्व रेलवे, गार्डेनरीच, कोलकाता- 700043.
7. पूर्वोत्तर रेलवे, गोरखपुर- 273001.
8. पूर्वोत्तर सीमान्त रेलवे, मालीगाँव, गुवाहाटी- 781011.
9. पश्चिम रेलवे, चर्चगेट, मुम्बई- 400020.
10. पूर्व मध्य रेलवे, हाजीपुर- 844101.
11. पूर्वतटीय रेलवे, बीडीए रेंटल कालोनी, रेलवे काम्पलेक्स, भुवनेश्वर, उड़ीसा- 751017.
12. उत्तर मध्य रेलवे, सूबेदारगंज, प्रयागराज- 211011.
13. उत्तर पश्चिम रेलवे, जयपुर- 302006.
14. दक्षिण पश्चिम रेलवे, हुबली- 580023.
15. पश्चिम मध्य रेलवे, जबलपुर- 482001.
16. दक्षिणपूर्व मध्य रेलवे, आर ई आफिस काम्पलेक्स, बिलासपुर- 495004.

Sub	Final Speed Certificate for operation of AC-III Tier Economy coach (Transportation code-LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage in FIAT bogies up to a maximum speed of 160 kmph over Indian Railways on track maintained as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522.
-----	--

1. IMPORTANT PARAMETERS RELATED TO ROLLING STOCK

Type	Final / Provisional / Oscillation Trial / COCR	Operation	Validity/ Period or Permanent	IR / Sectional	Permanent
------	--	-----------	-------------------------------	----------------	-----------

Stock Name	AC-III Tier Economy coach (Transportation code- LWACCNE)	Designed Axle Load capacity	16.25t	Max. Axle Load capacity	16.25 t
------------	--	-----------------------------	--------	-------------------------	---------

Transportation Code	LWACCNE	GA Drg. No.	RCF Layout Drg. no.LE90067.
----------------------------	----------------	--------------------	-----------------------------

Commodity	Passengers	Gauge	BG
------------------	------------	--------------	----

Type of Bogie	FIAT	Type of Coupler	CBC	Wheel Dia. (mm)	New	Worn
					915	845

Max. Permissible Speed	Empty	160 kmph	Loaded	160 kmph
-------------------------------	--------------	----------	---------------	----------

INTRODUCTION

1.1.	<p>RDSO has conducted oscillation trials of AC-III Tier Economy coach (Transportation code LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage in FIAT bogies. The Coach is manufactured as per RCF Layout Drg. no. LE90067.</p> <p>The Salient features of this coach are as under:-</p> <ul style="list-style-type: none"> (i) Coaches have been designed for maximum operational speed of 160kmph on track maintained as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522. (ii) Coach has been built with state of art technology and provided with Disc Brakes and CBC Coupling. (iii) Length of the coach over body is 23540mm & that over couplers is 24000mm. (iv) Overall height of coach from rail level is 4250mm. (v) Wheel base is 2560 mm & axle load capacity is 16.25t.
1.2.	<ul style="list-style-type: none"> (i) Detailed oscillation trials of AC-III Tier Economy coach (Transportation code LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage in FIAT bogies up to maximum test speed of 115 kmph over Vikarabad- Parli Baijnath (VKB-PRLI) section of South Central Railway have been conducted. The test results as contained in RDSO's report no. RDSO/2021/TG/MT-1772/F Rev.-0 Amendment-NIL Dt. 01.03.2021 for LWACCNE coach, indicate satisfactory riding and stability characteristics in empty and loaded condition with pneumatic suspension at secondary stage in inflated condition on straight track, station yard and curved sections of track up to the test speed of 115 kmph and up to maximum speed of 70 Kmph with pneumatic suspension at secondary stage in deflated condition in empty and loaded condition. (ii) Detailed oscillation trials of AC-III Tier Economy coach (Transportation code LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage in FIAT bogies up to maximum test speed of 180 kmph over NAD-KOTA-SWM have been conducted. The test results as contained in RDSO's report no. RDSO/2021/TG/MT-1774/F Rev.-0 Amendment-NIL Dt. 03.03.2021 for LWACCNE coach, indicate satisfactory riding and stability characteristics in empty and loaded condition on straight track, station yard sections of track up to the test speed of 180 kmph and on curves at maximum speed 120 kmph on 2^o curve (100 mm cant deficiency) & 150 kmph on 1^o curve

	(100 mm cant deficiency) on track maintained as per provisions of Indian Railway Permanent Way Manual, June – 2020, containing track geometry standards under para 522.
2.0	Based on the above trial results, it is certified that AC-III Tier Economy coach (Transportation code-LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage in FIAT bogies is fit for operation up to max. speed of 160 kmph in inflated condition of pneumatic suspension, over Indian Railways on track maintained as per provisions of Indian Railway Permanent Way Manual, June – 2020, containing track geometry standards under para 522, with the conditions laid down as follows:

2.1	TRACK STRUCTURE DETAILS & SPEED:
------------	---

2.1.1	For speed up to 110kmph
2.1.1.1	The track shall be to a minimum standard of 52kg (72UTS) rail laid on PSC sleeper with 1540 Nos./km on 250mm ballast cushion below the sleepers which may consist of 100mm clean and rest in caked up condition, on compacted and stable formation.
2.1.1.2	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.
2.1.1.3	The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual, June – 2020. Maximum cant deficiency permitted would be 100mm, subject to provision of Para 404 of IRPWM, June-2020
2.1.1.4	The welds shall be protected by joggled fish plates as per provisions of USFD Manual and AT welding manual and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of the Indian Railways Permanent Way Manual, June – 2020. In addition, wherever condition warrants on account of corrosion on rail/weld collar, wear on rail, cupping of welds etc., necessary precautions shall be taken for fish plating/ joggled fish plating.
2.1.1.5	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 the Indian Railways Permanent Way Manual, June – 2020 regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination.
2.1.2	For speed more than 110kmph and up to 130kmph
2.1.2.1	The track shall be to a minimum standard of 52kg (90UTS) rail laid on PSC

	sleeper with 1540 Nos./km on 250mm ballast cushion below the sleepers which may consist of 100mm clean and rest in caked up condition, on compacted and stable formation.
2.1.2.2	For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, instructions issued by Railway Board letter no.65/WDO/SR/26 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.
2.1.2.3	The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual, June – 2020. Maximum cant deficiency permitted would be 100mm, subject to provision of Para 404 of IRPWM, June-2020
2.1.2.4	The welds shall be protected by joggled fish plates as per provisions of USFD Manual and AT welding manual and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of the Indian Railways Permanent Way Manual, June – 2020. In addition, wherever condition warrants on account of corrosion on rail/weld collar, wear on rail, cupping of welds etc., necessary precautions shall be taken for fish plating/ joggled fish plating.
2.1.2.5	Zonal Railway may ensure further detailed examination of track as deemed fit based on age cum condition basis, overdue renewal and condition of formation etc. as per provisions of the Indian Railways Permanent Way Manual, June – 2020 regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination.
2.1.2.6	All turnouts shall be fixed heel curved switches laid on PSC sleeper layout with CMS crossings.
2.1.2.7	Sleeper on bridges (other than ballasted deck) would be steel channel/H-beam/Composite sleepers.
2.1.2.8	Track geometry shall be monitored once in three month by Track Recording Car, once a month by OMS and once in six month by Oscillograph Car.
2.1.3	For speed more than 130kmph and up to 160kmph
2.1.3.1	The track shall be to a minimum standard of 60kg (90UTS) rail laid on PSC sleeper with 1660 Nos/km on 300mm ballast cushion below the sleepers which may consist of 150mm clean and rest in caked up condition, on compacted and stable formation.
2.1.3.2	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.

2.1.3.3	The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual, June – 2020. Maximum cant deficiency permitted would be 100mm, subject to provision of Para 404 of IRPWM, June-2020
2.1.3.4	The welds shall be protected by joggled fish plates as per provisions of USFD Manual and AT welding manual and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of the Indian Railways Permanent Way Manual, June – 2020. In addition, wherever condition warrants on account of corrosion on rail/weld collar, wear on rail, cupping of welds etc., necessary precautions shall be taken for fish plating/ joggled fish plating.
2.1.3.5	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 the Indian Railways Permanent Way Manual, June – 2020 regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination.
2.1.3.6	All the turnouts in facing direction shall be laid with thick web switches with provision of clamp type lock. All the crossings shall be CMS crossing. All other turnout shall be of fixed heal curved switch type with CMS crossing.
2.1.3.7	All the SEJs shall be of improved type.
2.1.3.8	Sleeper on bridges (other than ballasted deck) would be steel channel/H-beam/Composite sleepers.
2.1.3.9	Track geometry shall be monitored once in two months by Track Recording Car, once a month by OMS and once in four month by Oscillograph Car.
2.1.3.10	Improvement on track geometry parameters on the route of operation of the train to be carried out as required.

2.2	BRIDGE STIPULATIONS:
------------	-----------------------------

2.2.1	The clearance refers to "Standard RDSO Spans" bridges with standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by RDSO for BGML, RBG, MBG and 25t-2008 standard loadings.
2.2.2	Superstructures & bearings of "Special Spans" (designed and constructed by Zonal Railways based on site requirements), Arches and sub-structures of all bridges (Standard RDSO spans and Special Spans) are to be got examined by the Chief Bridge Engineer concerned and certified safe with respect to current Indian Railway standard codes with up to-date correction slips.
2.2.3	<p>The clearance for AC-III Tier Economy coach (Transportation code-LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage in FIAT bogies is subject to the following parameters:-</p> <p align="right"> Maximum axle load capacity : 16.25 t Maximum braking force at rail level : 5.8 t Maximum CG height from rail level : Not exceeding 1830mm </p>

2.2.4	Specific restrictions are applicable as mentioned in relevant Speed Certificates of hauling single/multiple locomotives attached issued by RDSO.
2.2.5	The above clauses have been arrived at considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed restriction to be imposed by Chief Bridge Engineer of Zonal Railway on condition basis.
2.2.6	Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working time table.

2.3	SIGNALLING STIPULATIONS
------------	--------------------------------

i)	Provisions of GR, SR, IRSOD, SEM & all extant instructions issued from time to time, as applicable, shall be complied with.
ii)	In case of train (having this coach 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 STIPULATIONS:
------------	-------------------------------

2.4.1	In 25 KV AC traction area, the PCEE of the Railway shall have to ensure that the minimum height of Contact Wire and electrical clearance as stipulated in provisions of Chapter-V and V-A, Electric Traction 'Schedule of Dimensions of 1676 mm Gauge (BG) revised 2004' with latest Addendum & Corrigendum Slips is not violated and strictly followed to ensure its safe running.
2.4.2	In addition to above, the Principal Chief Electrical Engineer of the Concerned Railway may impose any temporary speed restrictions on the basis of personal knowledge and experience of sectional OHE and the field conditions prevailing on the particular section.

2.5	ROLLING STOCK STIPULATIONS
------------	-----------------------------------

2.5.1	Before starting the operation, the PCME of the concerned Railway shall arrange to certify the track worthiness and safety of the Rolling stocks.
2.5.2	In case of air spring gets deflated, the speed shall be limited to 60kmph. This has to be manually implemented by loco pilot.
2.5.3	The stock (Transportation code-LWACCNE) is LHB type coach and maintenance instructions contained in Maintenance Manual for LHB Coaches issued by CAMTECH shall be followed.
2.5.4	Brakes of coaches should be in good working order during operation.
2.5.5	The Wheel Slide Protection (WSP) device of all the coaches in the rake shall be 100% functional at the starting station. Enroute working of the WSP is mandatory and in any case of failure of any WSP, train can run at restricted speed of 140kmph (for trains having booked speed above 140kmph), as per RDSO's letter no.MC/LHB/Brake dated 25/29.04.2016.

2.6	GENERAL STIPULATIONS
------------	-----------------------------

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. shall be observed.
-------	---

2.6.2	The AC-III Tier Economy coach (Transportation code LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage does not infringe any clause of chapter -IV (A) of IRSOD (BG) Revised-2004 with latest addendum and corrigendum slips.
2.6.3	The track structure has been specified to standards laid down by Railway Board through letter no. 2014/CE-II/TSC/1Pt.1 dated 8th Sep 2016 for speed above 110kmph and up to 160kmph. 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. CT-20 may also be referred for operation of train at 160kmph.
2.6.4	Zonal Railway must ensure COCR/Route Proving Run, as applicable with AC-III Tier Economy coach (Transportation code - LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage on FIAT bogies shall be conducted as per extant stipulations of Policy Circular No. 6 (Revised-2018) with ACS-1 dated 12.10.2020 before start of operation/introduction of AC-III Tier Economy coach (Transportation code - LWACCNE) on LHB platform (83 berth capacity) fitted with pneumatic suspension at the secondary stage on FIAT bogies in passengers train.
2.6.5	Every train shall run on each section of the railway within the limits of speed sanctioned for that section by approved special instructions as stipulated in Rule 4.08(1) (a) of GR-1976.
2.6.6	For speed more than 110kmph and upto 130kmph
2.6.6.1	Concerned Zonal Railway shall ensure provision of fencing at vulnerable location on need basis.
2.6.6.2	All the level crossing shall be manned with telecommunication facilities and interlocked.
2.6.7	For speed more than 130kmph and upto 160kmph
2.6.7.1	All the level crossing shall be manned with telecommunication facilities and interlocked. Removal of level crossings with grade separator shall be planned.
2.6.7.2	Concerned Zonal Railway shall ensure provision of sturdy fencing all along the track.
2.6.7.3	Action to be taken for relocation/modification of engineering signals in consultation with S&T and OHE department of Zonal Railways.
2.6.7.4	Stretches of existing weak formations (where permanent/temporary speed restriction is imposed), if any, shall be planned to be rehabilitated/strengthen first before permitting higher speed.
2.6.7.5	Zonal Railways should also plan subways at suitable location to avoid trespass and ensure effectiveness of fencing provided.
2.6.7.6	The visibility at level crossing should be as laid down in IRPWM/Railway Board's instructions. All requirements pertaining to level crossing as laid down in IRPWM/Railway Board's instructions should be fulfilled to ensure safety at level crossing. Drainage of the level crossing and adjoining track should be in good condition.

ENCLOSURES: / संलग्नक:

i)	RCF Layout drawing no. LE90067.
----	---------------------------------

(वी.के.अग्रवाल)

कार्यकारी निदेशक मानक/चालन शक्ति

प्रतिलिपि.

- 1 सचिव(यांत्रिक/इलेक्ट्रिकल/इंजीनियरिंग)-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)
 - i) मध्य रेलवे, छत्रपति शिवाजी महाराज टर्मिनस, मुम्बई- 400001.
 - ii) पूर्वरेलवे, फेयरली प्लेस, कोलकाता- 700001.
 - iii) उत्तर रेलवे, बड़ौदा हाउस, नई दिल्ली- 110001.
 - iv) दक्षिण रेलवे, पार्क टाउन, चेन्नई- 600 003.
 - v) दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद- 500 025.
 - vi) दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता- 700043.
 - vii) पूर्वोत्तर रेलवे, गोरखपुर- 273001.
 - viii) पूर्वोत्तर सीमान्त रेलवे, मालीगॉव, गुवाहाटी- 781011.
 - ix) पश्चिम रेलवे, चर्चगेट, मुम्बई- 400020.
 - x) पूर्व मध्य रेलवे, हाजीपुर- 844101.
 - xi) पूर्वतटीय रेलवे, बीडीए रेंटल कालोनी, रेलवे काम्पलेक्स, भुवनेश्वर, उड़ीसा 751017.
 - xii) उत्तर मध्य रेलवे, सूबेदारगंज, प्रयागराज- 211011.
 - xiii) उत्तर पश्चिम रेलवे, जयपुर- 302 006.
 - xiv) दक्षिण पश्चिम रेलवे, हुबली- 580 023.
 - xv) पश्चिम मध्य रेलवे, जबलपुर- 482 001.
 - xvi) दक्षिणपूर्व मध्य रेलवे, आरइ आफिस काम्पलेक्स, बिलासपुर- 495004.
4. प्रबन्ध निदेशक, कोंकण रेलवे कार्पोरेशन, बेलापुर भवन ए नवीमुम्बई . 400014

ENCLOSURES: / संलग्नक:

i) RCF Layout drawing no. LE90067.

/

(वी.के.अग्रवाल)

कार्यकारी निदेशक मानक/चालन शक्ति

