

I/7273/2020



भारत सरकार - रेल मंत्रालय
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FINAL SPEED CERTIFICATE FOR OPERATION

No.	SV.FIAT (SC)/LRAAC/160kmph	Date	19 .11 .2020
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महाप्रबन्धक (इंजीनियरिंग),

1. मध्य रेलवे, छत्रपति शिवाजी महाराज टर्मिनस, मुम्बई- 400 001
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता- 700 001
3. उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली- 110 001
4. पूर्वोत्तर रेलवे, गोरखपुर- 273 001
5. पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव, गुवाहाटी- 781 011
6. दक्षिण रेलवे, एनेक्सी, पार्कटाऊन, चेन्नई- 600 003
7. दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद- 500 071
8. दक्षिण पूर्व रेलवे, गार्डनरीच, कोलकाता- 700 043
9. पश्चिम रेलवे, चर्चगेट, मुम्बई- 400020
10. उत्तर मध्य रेलवे, प्रयागराज - 211 011
11. उत्तर पश्चिम रेलवे, जयपुर- 302 006
12. पूर्व मध्य रेलवे, हाजीपुर- 844 101
13. पूर्व तट रेलवे, रेलवे कॉम्पलेक्स, 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	Final Speed Certificate for operation of LHB EOG Air Conditioned Inspection Carriage-Administrative (LRAAC) fitted with pneumatic suspension (120 KN capacity) at the secondary stage on FIAT bogies up to a speed of 160 kmph on track maintained as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522.
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1. IMPORTANT PARAMETERS RELATED TO ROLLING STOCK

Type	Final / Provisional / Oscillation Trial / COCR	Final	Validity/ Period or Permanent	IR / Sectional	Permanent
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Stock Name	LRAAC	Design d Axle Load	16.25T	Max. Axle Load	16.25 t
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Transportation Code	LRAAC	GA Drg No.	ICF Layout no. LRAAC-9-0-001.		
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Commodity	Departmental	Gauge	BG		
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Type of Bogie	FIAT	Type of Coupler	CBC	Wheel Dia. (mm)	New	Worn
					915	845

Max. Permissible Speed	Empty	160 kmph	Loaded	160 kmph
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INTRODUCTION

1.1.	<p>LHB RA Air Conditioned Inspection Carriage-Administrative (Transportation code-LRAAC) (Transportation code LRAAC) is Railway Administration coach on LHB platform, which has been conceptualized by RDSO and prototype has been manufactured by ICF as per ICF Layout Drawing no. LRAAC-9-0-001. The subject coach is similar to LWCBAC coach in all characteristics except internal layout, which is different from that of LWCBAC coach.</p> <p>The Salient features of this coach are as under:-</p> <ul style="list-style-type: none"> (i) The coach is on LHB platform with FIAT Bogie. (ii) Coach has been built with state of the 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 4039mm. (v) Wheel base is 2560 mm.
1.2.	<ul style="list-style-type: none"> (i) Detailed oscillation trials of LHB EOG AC Buffet Car (LWCBAC) fitted with pneumatic suspension (120 KN capacity) at secondary stage on FIAT bogies up to maximum test speed of 180 kmph over PWL-AGC (Up & Down) BG section of North Central Railway on track maintained to C&M-1 Vol-1 standard. The test results as contained in RDSO's report no. MT-961/Rev.0 dated 02.04.2009, indicate satisfactory riding and stability characteristics up to the test speed of 180 kmph in inflated condition of Air Springs in empty and loaded condition.

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	(ii) Detailed oscillation trials of LHB EOG AC Buffet Car (LWCBAC) fitted with pneumatic suspension (120 KN capacity) at secondary stage on FIAT bogies have been conducted up to maximum test speed of 135 kmph over Nagda – Ujjain-Bairagarh (NAD-UJN-BIH) section of Western Railway on track maintained to other than C&M-1 Vol-1 standard. The test results as contained in RDSO's report no. MT-935/Rev.0 dated 02.04.2009, Amendment - NIL, indicate satisfactory riding and stability characteristics up to the test speed of 135 kmph in inflated condition of Air Springs in empty and loaded condition.
	(iii) Based on existing similar stock LWCBAC coach oscillation trial report no. MT-961/Rev.0 & MT-935/ Rev.0, oscillation trial of LRAAC has been dispensed by EDSMP in consultation with ED/Carriage, ED/Track and ED/ B&S dte vide letter no. SD. Dispensation/Carriage.11 dated 19.10.2020.

2.0	Based on the above trial results & dispensation given by ED/MP vide letter no. SD. Dispensation/Carriage.11 dated 19.10.2020 from the oscillation trial of above LRAAC coach, it is certified that of LHB EOG Air Conditioned Inspection Carriage-Administrative (Transportation code-LRAAC) fitted with pneumatic suspension (120 KN capacity) at secondary stage on FIAT bogies is fit for operation up to max. speed of 160 kmph on track maintained as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522 on Indian Railways with the conditions laid down as follows:
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2.1	TRACK STRUCTURE DETAILS & SPEED:
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2.1.1	<u>For speed up to 110 kmph</u>
2.1.1.1	The track shall be to a minimum standard of 52kg rail laid on PSC sleeper with 1540 No/Km on 250mm ballast cushion below the sleepers which may consist of 100mm clean and rest in caked up condition, on compacted and stable formation.
2.1.1.2	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.

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2.1.1.4	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. The 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.
2.1.1.5	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 Chapter-III of IRPWM-2004 regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination.
2.1.2	<u>For speed more than 110 kmph and up to 130kmph</u>
2.1.2.1	The track shall be to a minimum standard of 52kg (90UTS) rail laid on PSC sleeper with 1540 No/Km on 250mm ballast cushion below the sleepers which may consist of 100mm clean and rest in caked up condition, on compacted and stable formation.
2.1.2.2	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 should also be followed. 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 subject to maximum speed on curve would not be more than 130kmph.
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 sleepers

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	layout with CMS crossings.
2.1.2.7	Sleeper on bridges (other than ballasted deck) would be steel channel/H-beam/Composite sleepers.
2.1.3	<u>For speed more than 130kmph and up to 160kmph</u>
2.1.3.1	The track shall be to a minimum standard of 60kg (90UTS) rail laid on PSC sleeper with 1660 No/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 subject to maximum speed on curve would not be more than 130kmph
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 shall be fixed heel curved switches laid on PDC sleepers layout with CMS crossings.
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

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	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:
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2.2.1	The clearance refers to bridges "Standard Spans" with standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by ROSO for BGML. RBG and MBG-1987 standard loadings. However the bearings of span 76.2 m (clear) designed for BGML standard loading as per ROSO's drawing no.BA-11154 should be strengthened by providing two additional anchor bolts.
2.2.2	Superstructures & bearings of "Special Spans" (designed and constructed by Zonal Railways based on site requirements) including arches and sub-structures of all bridges (all Standard & Special Spans) are to be examined under the directions of Chief Bridge Engineer concerned and certified safe with respect to current Indian Railway standard codes with upto date correction slips.
2.2.3	The clearance for LHB EOG Air Conditioned Inspection Carriage-Administrative (LRAAC) coach is subject to the following parameters:- Maximum axle load capacity : 16.25 t Maximum braking force at rail level : 6.62 t Maximum CG height from rail level : Not exceeding 1830mm
2.2.4	Specific restrictions shall be applicable which are indicated in relevant speed certificates of hauling locomotives, issued by RDSO.
2.2.5	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 impose by concern Chief Bridge Engineer of Zonal Railway.
2.2.6	Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working timetable

2.3	SIGNALLING STIPULATIONS
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2.3.1	Provisions of GR, SR, IRSOD, SEM & all extant instructions issued from time to time as applicable shall be complied with.
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2.4	TRACTION INSTALLATION STIPULATIONS
2.4.1	When the Coach is moved with Diesel Locomotive:
2.4.1.1	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.
2.4.1.2	In addition to above, the Principal Chief Electrical Engineer of the Concerned Railway may impose any temporary speed restriction on the basis of personal knowledge, experience of sectional OHE and the field conditions prevailing on the particular section.
2.4.2	When the Coach is moved with Electric Locomotive:
2.4.2.1	The 25kV AC OHE shall have swiveling type Cantilever Assembly having tension in the conductors, regulated automatically with a presag. The presag of 50/100mm is on the Contact Wire for a maximum span of 72m, proportionately less for smaller spans.
2.4.2.2	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 are in trailing direction, the maximum speed shall be 120 kmph. At all other locations where 25 kV AC Porcelain Section Insulators are installed, the speed shall be limited to 80 kmph.
2.4.2.3	The current collection shall be made through 1 nos. of Pantograph fit for high speed operation.
2.4.2.4	It will be ensured that the cantilevers in the trial section have BFB Steady Arm (RI No. 2390) with 25 mm Drop Bracket Assembly (RI No.2360).
2.4.2.5	25kV AC traction area', the PCEE 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 slip is not violated and strictly followed to ensure its safe running.
2.4.2.6	In addition to above, the PCEE 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.
2.4.2.7	There should not be any Crossed type OHE within trial section,

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	otherwise PCEE of concerned Railway will impose speed restriction.
2.4.2.8	Modification in OHE for running for 160kmph train as advised by NCR vide letter no. EL/NCR/Gatiman dated 19.11.18 should be preferably adopted for running the loco from 140kmph to 160kmph.

2.5	ROLLING STOCK STIPULATIONS
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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.

2.6	GENERAL STIPULATIONS
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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. shall be observed.
2.6.2	The LHB EOG Air Conditioned Inspection Carriage-Administrative (LRAAC) fitted with pneumatic suspension at the secondary stage does not infringe any clause of IRSOD (BG) Revised-2004 with latest addendum and corrigendum slips.
2.6.3	For speed more than 110kmph and upto 130kmph
2.6.3.1	All the level crossing shall be manned with telecommunication facilities and preferably interlocked.
2.6.3.2	Concerned Zonal Railway shall ensure provision of fencing at vulnerable location on need basis.
2.6.4	For speed more than 130kmph and upto 160kmph
2.6.4.1	All the level crossing shall be manned with telecommunication facilities and interlocked. Removal of level crossings with grade separator shall be planned.
2.6.4.2	Concerned Zonal Railway shall ensure provided fencing all along the track.
2.6.4.3	Action to be taken for relocation/modification of engineering signals in consultation with S&T and OHE department of Zonal Railways.
2.6.4.4	Stretches of existing weak formations (where permanent/temporary speed restriction is imposed), if any, shall be planned to be

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	rehabilitated/strengthen first before permitting higher speed.
2.6.4.5	Zonal Railways should also plan subways at suitable location to avoid trespass and ensure effectiveness of fencing provided.
2.6.4.6	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.
2.6.5	The track structure has been specified to standards laid down by Railway Board through letter no. 2014/CE-II/TSC/1 PI.-1 dated 8th Sep 2016 for speed above 130kmph 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 latter shall be followed by Zonal Railways. RDSO report no. CT - 20 may also be referred for operation of train at 160kmph.
2.6.6	Zonal Railway must ensure COCR/Route proving run with LHB EOG Air Conditioned Inspection Carriage-Administrative (LRAAC) fitted with pneumatic suspension (120 KN capacity) at the secondary stage on FIAT bogies shall be conducted as per extant stipulation of Policy Circular No. 6(Revised-2018) before start of operation/introduction of LHB EOG Air Conditioned Inspection Carriage-Administrative (LRAAC) fitted with pneumatic suspension (120 KN capacity) at the secondary stage on FIAT bogies in passenger train.
2.6.7	Track maintained to C&M-1 Vol.-I / other than C&M-1 Vol.-I standard 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.

ENCLOSURES: / संलग्नक:

i)	ICF Layout no. LRAAC-9-0-001.
ii)	Dispensation letter dated 19.10.2020.

(वी०के०अग्रवाल)

कार्यकारी निदेशक मानक/चालन शक्ति

प्रतिलिपि:

1. सचिव, {यांत्रिक / विद्युत / इंजीनियरिंग (जी)}, रेलवे बोर्ड, रेल भवन, नई दिल्ली- 110 001
2. मुख्य रेल संरक्षा आयुक्त, अशोक मार्ग, लखनऊ-226 001

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3. महाप्रबन्धक (यांत्रिक / विद्युत / परिचालन / संकेत एवं दूरसंचार)
- (i) मध्य रेलवे, छत्रपति शिवाजी महाराज टर्मिनस, मुम्बई- 400 001
 - (ii) पूर्व रेलवे, फेयरली प्लेस, कोलकाता- 700 001
 - (iii) उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली- 110 001
 - (iv) पूर्वोत्तर रेलवे, गोरखपुर- 273 001
 - (v) पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव, गुवाहाटी- 781 011
 - (vi) दक्षिण रेलवे, एनेक्सी, पार्कटाऊन, चेन्नई- 600 003
 - (vii) दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद- 500 071
 - (viii) दक्षिण पूर्व रेलवे, गार्डनरीच, कोलकाता- 700 043
 - (ix) पश्चिम रेलवे, चर्चगेट, मुम्बई- 400020
 - (x) उत्तर मध्य रेलवे, प्रयागराज - 211 011
 - (xi) उत्तर पश्चिम रेलवे, जयपुर- 302 006
 - (xii) पूर्व मध्य रेलवे, हाजीपुर- 844 101
 - (xiii) पूर्व तट रेलवे, रेलवे कॉम्पलेक्स, 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. प्रबन्ध निदेशक, कोंकण रेलवे कारपोरेशन, बेलापुर भवन, नवी मुम्बई-400 014

ENCLOSURES: / संलग्नक:

i)	ICF Layout no. LRAAC-9-0-001.
ii)	Dispensation letter dated 19.10.2020.

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(वी०के०अग्रवाल)

कार्यकारी निदेशक मानक/चालन शक्ति

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File No.RDSO-MP0LKO(SC)/30/2020-O/o JD/SC/MP/RDSO

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चालन शक्ति निदेशालय
Motive Power Directorate

No. SD. Dispensation /Carriage.11

Date: 19.10.2020

Sub:Dispensation of oscillation trial of RA coach on LHB platform (Transportation code LRAAC).

Ref: (i) Carriage **Dte's** file no. CARR0VDG(SCT)/1/2020-O/o ED/ CARRIAGE /RDSO and SV.FIAT(SC) dated 24.06.2020
(ii) Track Design **Dte's** Note No. CT/DHS/3/Coaches dated 09.10.2020.
(iii) B&S Directorate's Note No. CBS/HS/ICF dated 16-07-2020.

Apropos above, proposal for dispensation from oscillation trial of RA coach on LHB platform (Transportation code LRAAC), based on existing similar stock LWCBAC coach oscillation trial report no.-MT-961/F Rev.-0 & MT-935/F Rev.-0, for operation upto a max. speed of 160 kmph by ED/Carriage has been examined and approved in consultation with ED/Track and ED/B&S in accordance with Para 3.2.3 of Policy Circular no. 6 (revised 2018) and following the stipulations contained in Rule 28 of G.S.R 945 (E) of Railways (Opening for Public Carriage of Passengers) Amendments Rules, 2018 of Railway Board Gazette Notification dated 01.10.2018.

However, dispensation of EBD based on other vehicle is not allowed. It may be calculated as per Policy Circular-6 (revised 2018).

**Digitally signed by VINAY
KUMAR AGARWAL
Date: Mon Oct 19 17:33:03 IST
2020
Reason: Approved**

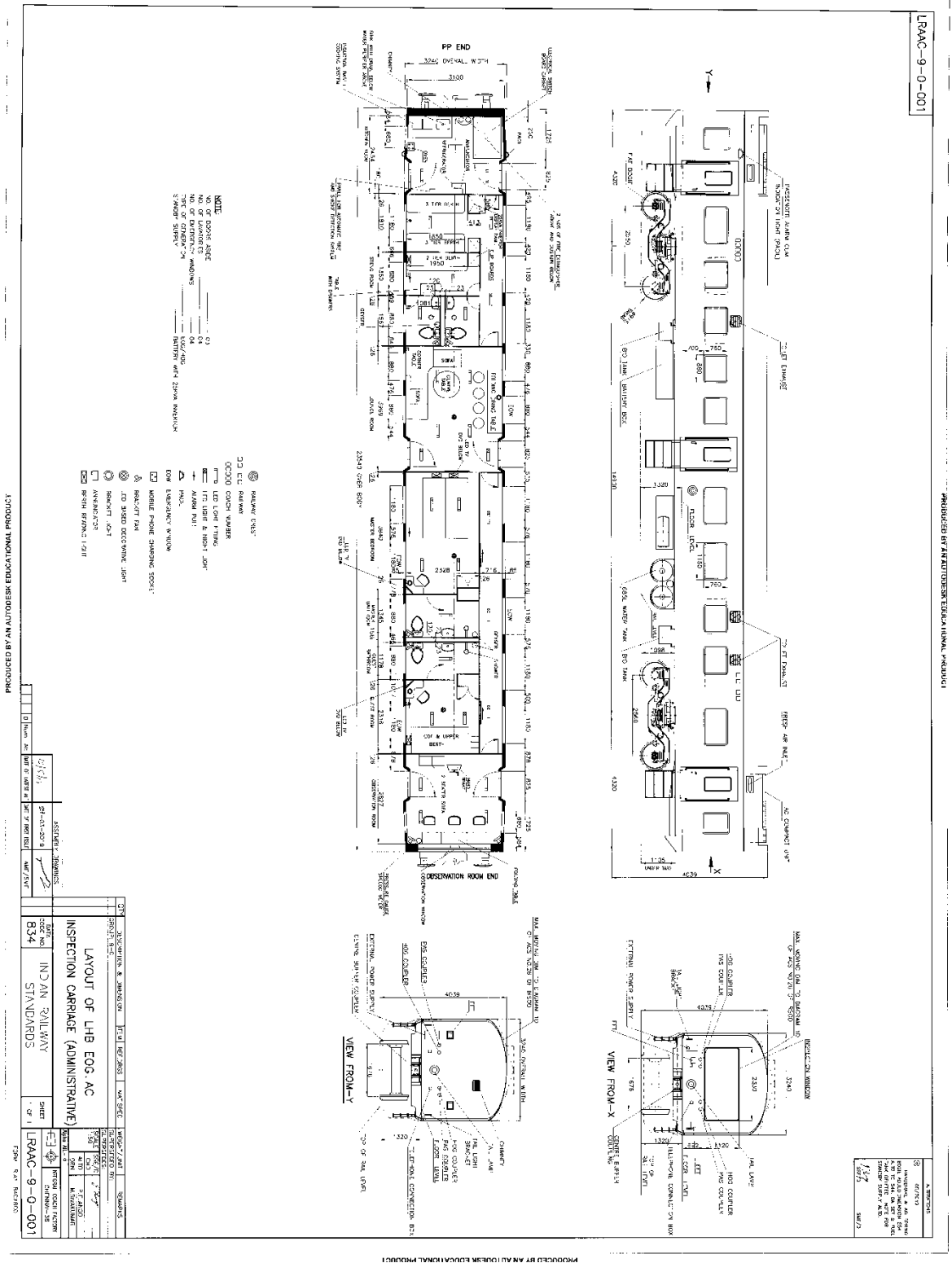
संलग्नक: कुछ नहीं

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

कार्यकारी निदेशक मानक / सवारी डिब्बा

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PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



LRAAC-9-0-001

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