

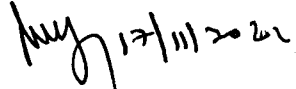
RAIL COACH FACTORY, KAPURTHALA
(Coach Alteration Instruction No. CAI/RCF/MECH/CONV/129)

MD21561

Dated 07/11/2022

17

1. **Description:** Stenciling of revised Transportation Code and speed on 3 phase Memu Coaches in which modification of bogies has been carried out to suit 110 KMPH operation as per ICF CAI No. ICF/QMS/MDM/File/F015 dtd. 18.10.2021
2. **Drawing no.** 1. EM83105 alt a (Transportation Code For 3Ø MEMU/DMC)
2. ET83103 alt a (Transportation Code For 3Ø MEMU/TC)
3. CC83172 alt nil (Speed for both 3Ø MEMU/TC & DMC)
3. **Reason for alteration:** RDSO Letter No. MC/MEMU/3-Phase dtd. 29.09.2022
4. **To be carried Out:** Zonal Railways
5. **Alteration Instructions :** 1. Transportation Code (**MEMUDUHS**) to be stenciled on End Wall of 3Ø MEMU/DMC Coaches.
2. Transportation Code (**MEMUTUHS**) to be stenciled on End Wall of 3Ø MEMU/TC Coaches.
3. **110 KMPH** speed to be written on the End wall of both 3Ø MEMU/TC & DMC Coaches.
6. **Corrective Instructions :** 1. Old Transportation codes pasted on End walls need to be removed and new transportation codes as advised above needs to be stenciled.
2. 110 KMPH speed needs to be stenciled in place of 100 KMPH on End walls


For CDE RCF (Mech.)

Encls : As above.

Copy to:

All Principal Chief Mechanical Engineers of IR
All Chief workshop Engineers of IR

Principal Chief Mechanical Engineers :

1. Central Railway, Mumbai CST-400 001
2. W. Railway Churchgate, Mumbai - 400 020
3. Northern Railway, Baroda House, New Delhi- 110 001
4. N.E. Railway Gorakhpur., Gorakhpur-273 001
5. N.F. Railway Maligaon, Guwahati- 781 011
6. S. Railway, Park Town, Chennai- 600 003
7. S. C. Railway, Rail Nilayam, Secunderabad- 500 371
8. S. E. Railway, Garden Reach, Kolkata-700 043
9. Eastern Railway, Fairlie Place, Kolkata-700 001
10. E. Coast. Railway, Bhubhaneswar- 751 016
11. North Central Railway, Allahabad – 211 001
12. North West Railway, Jaipur – 302 001
13. S. E. Central Railway, Bilaspur- 495 004
14. S. W. Railway, Hubli – 580 023
15. West Central Railway, Jabalpur- 482 001
16. East Central Railway, Hazipur- 844 101

Chief Works Engineer :

1. Central Railway, Matunga, Mumbai- 400 019
2. Bhopal, West Central Railway Nishatpura, MP-462 001
3. Lilluah, Eastern Railway, Howrah- 711 204
4. Alambagh , Northern Railway, Lucknow- 226 005
5. Jagadhari, Northern Railway,- 135 003
6. Gorakhpur N. E. Railway- 273 001
7. New Bongaigaon N. East Frontier Railway- 783 381
8. Perambur, Southern Railway, Chennai- 600 023
9. Golden Rock, Southern Railway, Trichy- 620 004
10. Ashokpuram , Southern Railway, Mysore South- 570 008
11. Lallagudda, S. C. Railway Secunderabad- 500 017
12. Hubli, South Western Railway- 580 020
13. Tirupati ,S. C. Railway - 517 506
14. Mancheswar, East Coast Railway, Bhubhaneswar- 751 017
15. Kharagpur, S. E. Railway- 721 301
16. Lower Parel, N.M.Joshi Marg, Western Railway, Mumbai- 400 013
17. Western Railway, Ajmer, Rajasthan
18. North East Frontier Railway, Dibrugarh, Assam-786 001

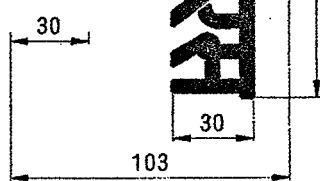
Copy to:

1. DG/Carriage, RDSO, Manak Nagar, Lucknow- 226 011
2. EDME (Coaching), Railway Board, New Delhi-110 001
3. EDME (W), (Coaching), Railway Board New Delhi-110 001

रामई रामपूदीपूरवरा

MEMUTUHS

339



THIS DRAWING IS THE INTELLECTUAL PROPERTY OF RAIL COACH FACTORY, KAPURTHALA. THIS DRAWING SHOULD NOT BE REPRODUCED, ALTERED, USED FOR MANUFACTURING OF COMPONENTS, SOLD OR TRANSFERRED WITHOUT PERMISSION FROM CHIEF DESIGN ENGINEER, RAIL COACH FACTORY, KAPURTHALA.

NOTE:-

1. COLOUR OF LETTERING SHALL BE COBAL T BLUE TO RAL 5013.
2. ALL ENGLISH LETTERS & NUMERALS SHALL BE AS PER GILLSANS FONT TO RDSO DRG. NO. CSCW-740.
3. THE SHAPE AND PROPORTION OF HINDI LETTERS TO BE AS PER RDSO SKETCH-66510 & 66511.

DETAIL DRGS STARTING WITH "LI" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE. THIS IS A COMPUTER GENERATED DRAWING. ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER IT INVALID. FOR UNTOLERANCED DIMENSIONS REFER MDG0008 DATE OF FIRST ISSUE 08/07/2019 CGM BY

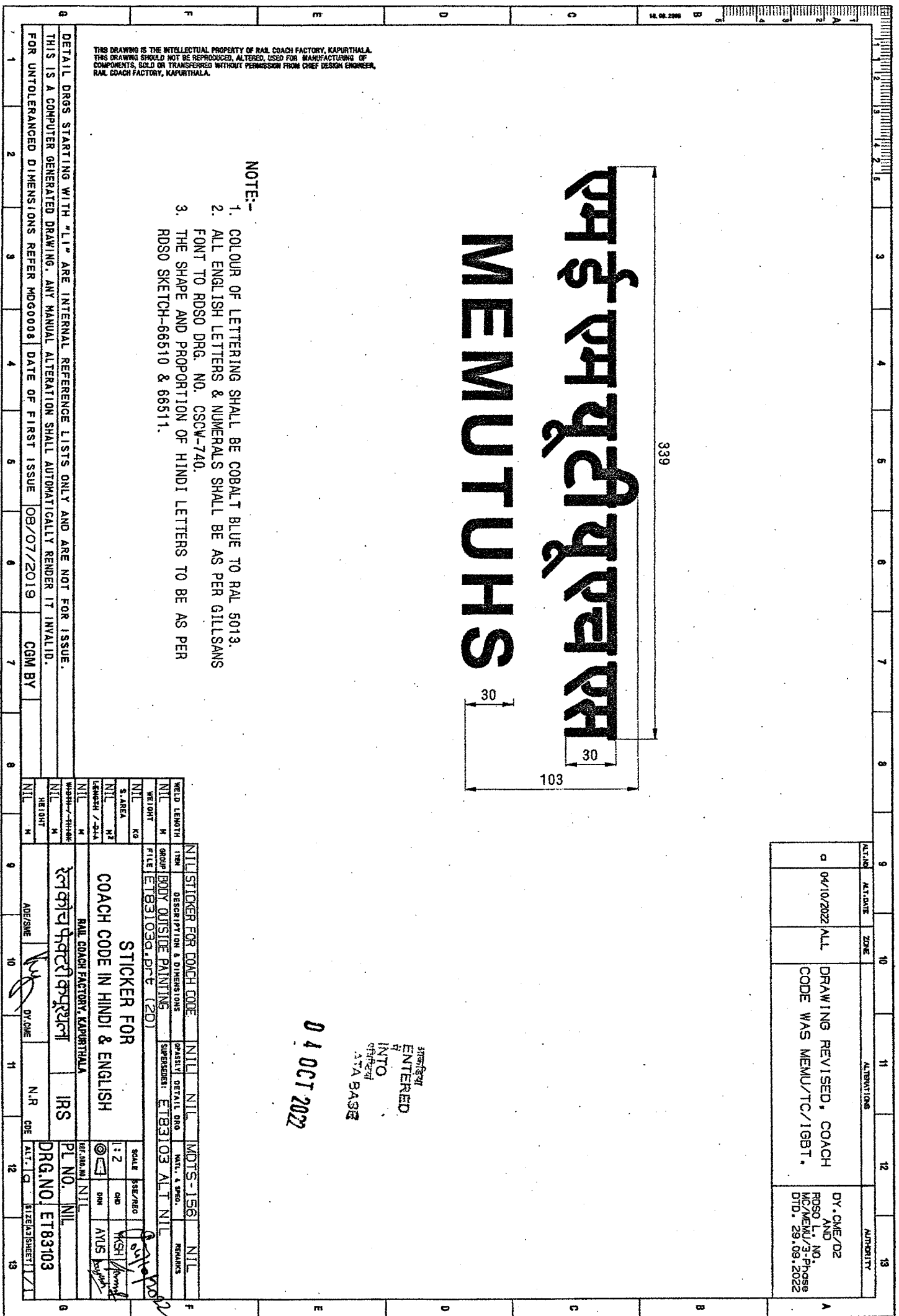
9	10	11	12	13
ALTN	ALT DATE	ZONE	ALTERATIONS	AUTHORITY
0	04/10/2022	ALL	DRAWING REVISED, COACH CODE WAS MEMU/TC/19BT.	DY. CME/D2 AND RO SO L. NO. MC/MEMU/3-Phase DTD. 29.09.2022

श्रीकांत
ENTERED
INTO
श्रीकांत
ATA BASS

04 OCT 2022

WELD LAYOUT	LIBR	GROUP	DESCRIPTION & DIMENSIONS	SUPERSEDER	FILE	ETB3103	ALT	MDTS-156	REMARKS
NIL	M	LIBR	BODY OUTSIDE PAINTING	ETB3103	ALT	NIL	NIL	NIL	NIL
WEIGHT	KG	FILE	ETB3103.dprt (2D)						
NIL	M	SCALE	1:2						
NIL	M	S.AREA	000						
NIL	M	LENGHTH / DIA	000						
NIL	M	HEIGHT	000						
NIL	M	ADT/SME	IRS						
NIL	M	DY/ONE	PL NO.						
NIL	M	N/R	DRG. NO.						
NIL	M	ONE	ETB3103						

NIL STICKER FOR COACH CODE
COACH CODE IN HINDI & ENGLISH
STICKER FOR
RAM COACH FACTORY, KAPURTHALA
रामकोच फॅक्टरी कपूरथला
IRS

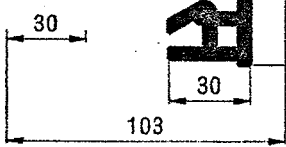


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मेमुदुहस

MEMUDUHS

339



NOTE:-

1. COLOUR OF LETTERING SHALL BE COBALT BLUE TO RAL 5013.
2. ALL ENGLISH LETTERS & NUMERALS SHALL BE AS PER GILLSANS FONT TO RDSO DRG. NO. CSCW-740.
3. THE SHAPE AND PROPORTION OF HINDI LETTERS TO BE AS PER RDSO SKETCH-66510 & 66511.

ENTERED INTO DATA BASE

08/07/2022

ALTN	ALTDTE	ZONE	ALTERATIONS	AUTHORITY
0	04/10/2022	ALL	DRAWING REVISED, COACH CODE WAS MEMU/DMC/19BT.	DY. CME/D2 AND RDSO L. NO. MC/MEMU/3-Phase DTD 29.09.2022

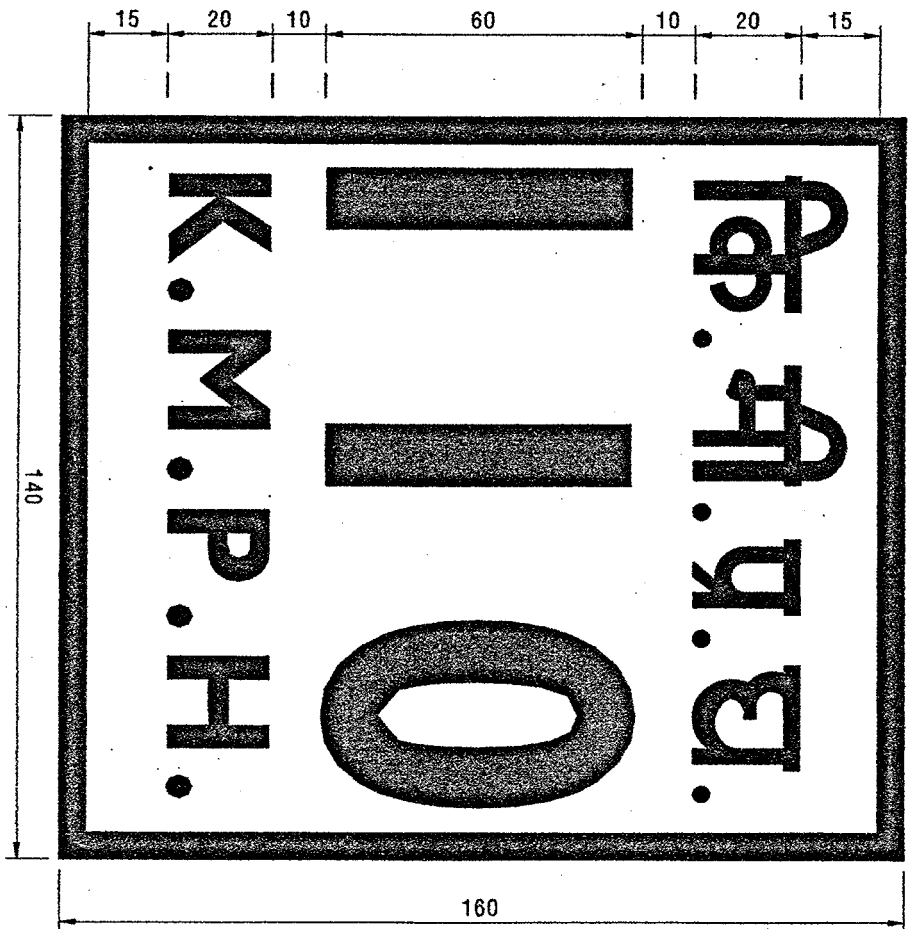
DETAIL DRS STARTING WITH "L1" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE. THIS IS A COMPUTER GENERATED DRAWING. ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER IT INVALID. FOR UNTOLERANCED DIMENSIONS REFER MDG0008 DATE OF FIRST ISSUE 08/07/2019 CGM BY

WELD LENGTH	WGT	GROUP	DESCRIPTION & DIMENSIONS	PRESS	DETAIL DRG	REMARKS
NIL	NIL	NIL	EM831050.PRT (2D)	NIL	NIL	NIL
NIL	NIL	NIL	STICKER FOR COACH CODE	NIL	NIL	NIL
NIL	NIL	NIL	COACH CODE IN HINDI & ENGLISH	NIL	NIL	NIL
NIL	NIL	NIL	RAIL COACH FACTORY, KAPURTHALA	NIL	NIL	NIL
NIL	NIL	NIL	मेमुदुहस कोच कोड में हिंदी और अंग्रेजी	NIL	NIL	NIL
NIL	NIL	NIL	IRS	NIL	NIL	NIL
NIL	NIL	NIL	DRG.NO. EM83105	NIL	NIL	NIL

THIS DRAWING IS THE INTELLECTUAL PROPERTY OF RAIL COACH FACTORY, KAPURTHALA. THIS DRAWING SHOULD NOT BE REPRODUCED, ALTERED, USED FOR MANUFACTURING OF COMPONENTS, SOLD OR TRANSFERRED WITHOUT PERMISSION FROM CHIEF DESIGN ENGINEER, RAIL COACH FACTORY, KAPURTHALA.

NOTE:-

1. COLOUR OF ALL LETTERING SHALL BE COBAL T BLUE TO RAL 5013 FOR ALL LHB TYPE COACHES.
2. ALL ENGLISH LETTERS & NUMERALS SHALL BE AS PER GILLSANS FONT TO RDSO DRG. NO. CSCW-740.
3. THE SHAPE AND PROPORTION OF HINDI LETTERS SHALL BE AS PER RDSO/SK-66510 & 66511.



DETAIL DRG STARTING WITH "L" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE. THIS IS A COMPUTER GENERATED DRAWING. ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER IT INVALID. FOR UNTOLERANCED DIMENSIONS REFER MDG0006 DATE OF FIRST ISSUE 06/07/2019 CQM BY

WELD LENGTH	WELD NO	S. AREA	LENGTH / SHA	WDRH / THROE	HEIGHT	FILE	GROUP	DESCRIPTION & DIMENSIONS	DRAWN	DETAIL DRG	REMARKS
NIL	NIL	NIL	NIL	NIL	NIL	CC83172.DWG(20)	BODY	OUTSIDE PAINTING	NIL	NIL	NIL
NIL	NIL	NIL	NIL	NIL	NIL						

NIL STICKER FOR SPEED 140X160
 STICKER FOR SPEED

ENTERED INTO DATA BASE
 09 JUL 2019

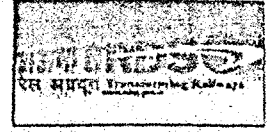
ALTER	ALTER DATE	ZONE	ALTERATIONS	APPROVE
NIL	NIL	NIL	NIL	NIL

1	2	3	4	5	6	7	8	9	10	11	12	13
RAIL COACH FACTORY, KAPURTHALA STICKER FOR SPEED DRG. NO. CC83172 PL. NO. NIL SCALE 1:1 DATE 06/07/2019 CQM BY												



भारत सरकार - रेल मंत्रालय
अनुसंधान अभियंत्रण 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



No. MC/MEMU/3-Phase

R-9122006146
28/10/22

PM

0912200200
29/10/22

Date: 29.09.2022

Principal Chief Mechanical Engineers,

1. Central Railway, CSMT, Mumbai - 400 001	2. East Coast Railway, Chandrasekharpur, Bhubaneswar - 751 016
3. Eastern Railway, Fairlie Place, Kolkata - 700 001	4. North Central Railway, Allahabad - 211 001
5. Northern Railway, Baroda House, New Delhi - 110 001	6. North Western Railway, Jaipur - 302 005
7. Southern Railway, Park Town, Chennai - 600 003	8. West Central Railway, Jabalpur - 482 008
9. South Central Railway, Rail Nilayam, Secunderabad - 500 071	10. South Western Railway, Hubli - 580 023
11. South Eastern Railway, Garden Reach, Kolkata - 700 043	12. South East Central Railway, Bilaspur - 495 004
13. North Eastern Railway, Gorakhpur - 273 001	14. Integral Coach Factory, Chennai - 600 038
15. Western Railway, Churchgate, Mumbai - 400 020	16. Rail Coach Factory, Hussainpur, Kapurthala, Punjab - 144 602
17. Northeast Frontier Railway, Maligaon, Guwahati - 781 011	18. Modern Coach Factory, Lalganj, Raebareilly - 229206
19. East Central Railway, Hajipur - 844 101	20. Konkan Railway Corp. Ltd. Corporate office, Belapur Bhawan, Nawi, Mumbai-400 614

CDE
CPL
9977
28/10

Sub:	Introduction of 8/12/16 car rake formation on-board MEMU stock having 3-phase IGBT based propulsion system with stainless steel car body and modified suspension system having pneumatic suspension in secondary stage, up to a maximum speed of 110 kmph on track maintained as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under para-522.
Ref:	(i) Railway Board letter no. 2019/CEDO/SR/09 dt. 27.06.2019 (ii) Railway Board letter no. 2021/M(C)/202/1 dt. 28.10.2021 (iii) RDSO final speed certificate no. MC/MEMU/3-Phase dt. 10.05.2022, and Amendment no. 1 dt. 13.06.2022 (iv) ICF letter no. ICF/QMS/MDM/File/F015 dated 18.10.2021 (v) Railway Board letter 2022/CEDO/SR/13/MEMU-IGBT-0/12/16Car dt. 28.09.2022

- Vide ref. (i), on-board MEMU having 3-phase IGBT based propulsion system with stainless steel car body [transportation code. MEMU/DMC/IGBT (DMC) + MEMU/TC/IGBT (TC)] was sanctioned for operation upto a maximum speed of 100 kmph.
- Further, to enhance operational speed from 100 kmph to 110 kmph, ICF turned out a trial rake with modified suspension (modified design lower rubber washer and lateral stopper, 600 kg capacity secondary vertical damper, 200 kg capacity lateral dampers in DMCs, 20

29/9/22

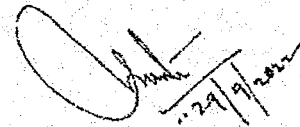
litre additional aux reservoir with 28mm piping in secondary suspension). To differentiate on-board MEMU having 3-phase IGBT with modified suspension for operation speed of 110 kmph from already running on-board MEMU having 3-phase IGBT with permissible operation speed upto 100 kmph, Railway Board vide letter at ref.-(ii) above has allotted following new transportation codes of DMC & TC coaches of 3-phase on-board MEMU rolling stock with modified suspension system fit for operational speed of 110 kmph:

Type of coach	ICF layout drawing no.	Transportation code
Driving Motor Coach (DMC)	MEMU/DMC3-9-0-301	MEMUDUHS
Trailer Coach (TC)	MEMU/TC2-9-0-201	MEMUTUHS

Detailed Oscillation trial has been conducted on this rake (with modified suspension) up to maximum test speed of 120 kmph & EBD trial up to maximum test speed of 110 kmph. After successful trials, RDSO has issued Final speed Certificate for operation up to 110 kmph [ref (iii)]. Further, sanction of Ministry of Railways for introduction of this stock in 8/12/16-car formation (up to 110 kmph) has been communicated vide ref (v).

3. ICF vide letter at ref. (iv) has already issued Coach Alteration Instructions (CAI) detailing modifications in suspension system to existing 3-Phase on-board MEMU bogies to suit 110 kmph operation.
4. Accordingly, it is advised that:
 - (a) Production Units undertaking manufacture of on-board MEMU stock having 3-phase IGBT based propulsion system with stainless steel car body shall turn out MEMU rolling stock fit for operational speed of 110 kmph. Applicable transportation code and Max. Permissible Speed of 110 kmph may be clearly stencilled on the coaches.
 - (b) Zonal Railways may plan for carrying out modifications in existing 3-Phase on-board MEMU rakes in service with permissible speed of 100 kmph to upgrade the speed potential to 110 kmph as per CAI advised by ICF at ref (iv). After implementation of the CAI and upgradation of the rake to 110 kmph, transportation code and Max. Permissible Speed may be updated on the coaches as per ref (ii) and ref (iii).
 - (c) Necessary assistance for implementation of ICF's CAI at ref (iv) may be provided by PUs to Zonal Railways for early completion of upgradation of 3-phase on-board MEMU rakes to their full speed potential.
 - (d) For already turned out 3-phase on-board MEMU rakes with modified suspension as per ICF's CAI at ref (iv), concerned PUs shall ensure that transportation code and Max. Permissible Speed are updated on the coaches as per ref (ii) and ref (iii). PUs must ensure that this activity is completed within a week in consultation with Zonal Railways.

DA: As above



(Samir Lohani)

Executive Director (Stds) / Carriage

Copy to: for kind information please.

EDME (Coaching)/Railway Board, New Delhi.

EDEE (G)/Railway Board, New Delhi.

PED/PS&EMU, RDSO/LKO.



INDIAN RAILWAYS
INTEGRAL COACH FACTORY,
CHENNAI - 600 038

No.

Tele Fax 044-26261872 / Railway 46802 e-mail: dycmedicf@gmail.com

ICF/QMS/MDM/F/le/F015

Office of the General Manager/Mech. (Designs)

Dt: 18-10-2021

Coach Alteration Instructions

1. CAI No. : B-2021 / 04
2. Group : Bogie
3. Description : Modifications to 3Ø MEMU bogies to suit 110 kmph operation
4. Authority for CAI : RDSO letter No. MC/MEMU/3-Phase Dt. 24-09-2021
5. Drawing Nos. :
 - 1) ICF/MRVC/C-0-0-001 alt g - Bogie GA for trailer coaches
 - 2) ICF/MRVC/M-0-0-001 alt d - Bogie GA for motor coaches with M/s Bombardier electrics
 - 3) EMU/M/3PH-0-0-001 alt e - Bogie GA for motor coaches with M/s Medha electrics
 - 4) EMU/M/3PH-0-1-002 alt nil - Axlebox guide arrgt for MEMU bogies
 - 5) ICF/MRVC/C-0-3-001 alt l - Bogie frame arrgt for EMU trailer coaches
 - 6) 61703007 alt nil, AAA03673 alt nil, AAA03674 alt nil - Bracket and details for reservoir fitment for MEMU trailer coaches
 - 7) ICF/SK3-0-4-001 alt d - Bogie bolster arrgt. with built in reservoir for MEMU/DMC coaches
 - 8) EMU/M/3PH-0-5-001 alt a - Bogie bolster suspension arrgt with air springs for MEMU coaches
 - 9) 61705004 alt nil - Lateral rubber stop
 - 10) DMU/DPC5-0-5-503 alt k - Item-4 - Vertical damper - 400 kg capacity.
 - 11) DC/EMUM/ASR-0-5-005 alt p - Item- 2 - Lateral damper - 200 kg capacity
 - 12) 61705002 alt nil - Pneumatic piping arrgt for MEMU trailer coaches (with 28mm OD pipes)
 - 13) 32905037 alt nil - Pneumatic piping arrgt for MEMU trailer coaches (for 2x20 lit additional reservoir on bogie frame)
 - 14) 61705003 alt nil - Pneumatic piping arrgt for MEMU motor coaches (with 28mm OD pipes)
 - 15) ICF/MRVC/M-9-0-006 alt j - Suspension diagram for motor coaches
6. Modification : Modification to MEMU bogies to suit 110 kmph operation (annexure-2).
 - 1) For MEMU/DMC, bogie bolster to be replaced with new bogie bolster with built in reservoir.
 - 2) Modified design lower rubber washer & lateral rubber stopper to be provided on all MEMU/DMC & TC bogies.
 - 3) Existing 300 kg capacity vertical damper to be replaced with 600 kg capacity vertical damper on all MEMU/DMC & TC bogies.
 - 4) For MEMU/DMC, existing 100 kg capacity lateral dampers to be replaced with 200 kg capacity lateral dampers.
 - 5) For MEMU/TC, to fix 20 lit reservoirs, brackets to be welded on bogie frame.
 - 6) Pneumatic pipe connections for air springs on bogie to be replaced with 28mm OD pipe and fittings as per respective drawings.
 - 7) 28 ±3 mm crown clearance shall be kept on all MEMU/DMC bogies.
 - 8) Modification procedure as per annexure-2 shall be followed.