

सुनील कुमार  
प्रधान कार्यकारी निदेशक मानक विद्युत

**Sunil Kumar**  
Principal Executive Director Stds. Electrical



सत्यमेव जयते

भारत सरकार – रेल मंत्रालय  
अनुसंधान अभिकल्प और मानक संगठन  
मानक नगर, लखनऊ – 226011

Government of India - Ministry of Railways  
**Research, Designs & Standards Organization,**  
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D.O.No.EL.8.5.10.1

Dt: 01.07.2021

प्रिय श्री जैन,

**Sub: PCDO for the month of June, 2021.**

**1.0 HIGHLIGHTS**

Nil

**2.0 RELIABILITY IMPROVEMENT**

- 2.1 All OEMs of propulsion equipments for three phase electric locomotive have been advised to enhance service and supports to improve reliability vide this office letter No.EL/11.5.5/21 dated 14.06.2021.
- 2.2 All Zonal Railways have been asked to provide performance feedback report on MS/0413 for Paralleling of interlocks of EP contactors and auxiliary contactors of three phase locomotives to improve reliability vide this office letter No.EL/11.5.5/21 dated 11.06.2021.
- 2.3 Zonal Railways have been advised to submit their comments on protection logic and messaging in M/s Medha make IGBT based propulsion system vide this office letter No.EL/3.1.35/17/Medha dated 10.06.2021.
- 2.4 Failure and operational issues meeting of WAG12B locomotive through video conference has been done on 18.06.2021 with Railway Board, Zonal Railways and M/s MELPL.
- 2.5 A note to Traction Installation Directorate with EMI/EMC test reports of different three phase locomotives has been sent vide this office note No.EL/3.1.35/24 dated 01.06.2021.
- 2.6 A note to Traction Installation Directorate with some mitigation measures for OHE/TSS to be taken by Traction Installation Directorate regarding OHE voltage and current fluctuation issue in different TSS of IR vide this office note No.EL/3.1.35/24 dated 17.06.2021.
- 2.7 A letter to Railway Board on OHE voltage and current fluctuation issue in different TSS of IR (LFO) has been sent vide this office letter No.EL/3.1.35/24 dated 17.06.2021.
- 2.8 A letter to Railway Board on technical comments on GM/ECR DO letter No. ECR/ELE/RS/17 dated 11.02.2021 has been sent vide this office letter No.EL/3.1.35/24 dated 21.06.2021.
- 2.9 Zonal Railways have been requested vide this office letter No.EL/3.6.1, dated 25.06.2021 to furnish their remarks on 'Review of periodicity of Maintenance Schedules of Electric Locomotives' especially on 'Must Change items' by 05.07.2021 to be incorporated suitably before apprising Railway Board.
- 2.10 A web based meeting on reliability issues in 3 phase locomotive main transformer between OEMs of Loco transformer and RDSO, BLW & CLW held on 17.06.2021. The MoM of web based meeting has been circulated to all concerned for necessary compliance as applicable on 25.06.2021.

### 3.0 DEVELOPMENTAL ACTIVITIES

- 3.1 Development of End of Train Telemetry (EoTT) System- Type & Routine Test Protocol document No.TP/EoTT/01 Rev No.0 dt. 02.06.2021 along with Annexure 'A', 'B' & 'C' was found in order and has been provisionally approved for type testing vide RDSO's letter No.EL/4.2.15/EoTT/PPS dated 10.06.2021.
- 3.2 Development of End of Train Telemetry (EoTT) System- Prototype testing of EoTT system offered by M/s PPS International has been carried out in-house from 14.06.2021 to 16.06.2021 as per approved type test protocol. Shortcomings observed during prototype testing have been communicated to firm vide letter No.EL/4.2.15/EoTT/PPS dt.21.06.2021 for compliance by firm. Outsourced type tests on EoTT system are yet to be completed.
- 3.3 Computer/microprocessor controlled air brake system (EMCBS) developed by M/s Escorts Limited, vide RDSO letter No.EL/3.2.19/3-Phase (Escorts) dated 10.06.2021.
- 3.4 M/s Medha had submitted the compliance of 2x130 KVA SIV against RDSO queries which has been scrutinized and deficiencies advised to firm vide RDSO letter No.EL/1.2.9.1/SIV/Medha dated 11.06.2021.
- 3.5 RDSO vide letter No.EL/3.2.19/3-Phase/EP Assist/FTRTIL dated 22.06.2021, M/s Faiveley has been advised to rectify deficiencies noticed in submitted documents of Design, Drawing, BOM and QAP for EP assisted brake system for 3-Phase electric locomotive application compatible with EP assisted brake system on coaches.
- 3.6 Design Documents submitted by M/s CGPISL, Bhopal for Drive System and Components of IGBT based Three Phase On Board MEMU has been scrutinized. The observations/comments communicated to PS&EMU Directorate vide note No.EL/4.2.13 (MEMU/CGPISL) dated 02.06.2021
- 3.7 Internal Test Report submitted by M/s Nu-Cork Products Pvt. Ltd., Haryana in regard to fresh vendor registration ON line ID No.1261 dated 11.12.2020 for Elastic Ring used in Three Phase Electric Locomotives has been scrutinized and deficiencies noticed has been communicated to the firm for compliance vide this office letter No.EL/3.1.35/12(Nu-Cork) dated 03.06.2021
- 3.8 Revised Design Documents submitted by M/s Titagarah, Kolkata for Twin Beam LED Head Light of IGBT based Three Phase On Board EMU/MEMU has been scrutinized. The same has been provisionally approved and communicated to PS&EMU Directorate vide note No.EL/6.11.1 dated 07.06.2021
- 3.9 Design Documents submitted by M/s Medha, Hyderabad for Drive System and Components of IGBT based Three Phase On Board MEMU for RCF/Kapurthala has been scrutinized. The observations/comments communicated to PS&EMU Directorate vide note No.EL/4.2.13/On Board MEMU/Medha/RCF dated 08.06.2021
- 3.10 Internal Test Report submitted by M/s Sujan Industries, Mumbai in regard to fresh vendor registration On Line ID-912 dated 19.02.2020 for Spheribloc used in Three Phase Electric Locomotives has been scrutinized and deficiencies noticed has been communicated to the firm for compliance vide this office letter No.EL/3.1.35/12(SB/Sujan) dated 15.06.2021
- 3.11 Online application ID No.1401 dated 17.03.2021 of M/s Urban Engineering Association Pvt. Ltd., Kolkata for fresh vendor registration for manufacturing and supply of Twin Beam LED Head Light for Electric Locomotives was scrutinized and accepted by competent authority for further processing with some minor deficiencies. The same has been communicated to firm vide this office letter No.EL/6.11.1 (UEAPL) dated 21.06.2021

- 3.12 Online application ID No.1423 dated 21.06.2021 of M/s RT Vision Technologies Pvt. Ltd., Grater Noida for fresh vendor registration for manufacturing and supply of Twin Beam LED Head Light for Electric Locomotives was scrutinized and accepted by competent authority for further processing with some minor deficiencies. The same has been communicated to firm vide this office letter No.EL/6.11.1 (RTVTPL) dated 21.06.2021
- 3.13 BLW has been advised for movement of trial locomotive (WAG-11 / 29003) to DSL/Shed/AMV/LKO vide this office letter No.EL/11.5.5/20 dated 01.06.2021.
- 3.14 A letter to CLW on submission of test plan for EMI/EMC for WAG9HH locomotive (BHEL) has been sent vide this office letter No.EL/3.1.35/37 dated 03.06.2021.
- 3.15 A note to Signal Directorate with Signal Interference and Axle Counter test report of WAG9HH locomotive fitted with up gradation kit of M/s Siemens (loco No.90002) has been sent for approval vide this office note No.EL/3.1.35/37 dated 10.06.2021.
- 3.16 Provisional approval of layout/drawing for fitment of on-board equipment of Loco TCAS on various Electrical locos & layout of auto-regression circuit of conventional locomotives have been accorded vide letter No.EL/0.1.3/3,dtd 01.06.2021.
- 3.17 Final draft of Interface control document (ICD) for interfacing microprocessor based brake system & distributed Power Wireless control system (DPWCS) on 3-phase electric locomotives have been prepared & circulated to OEMs of brake system & DPWCS vide this office letter No.EL/3.1.3/DPWCS, dated 11.06.2021.
- 3.18 The documents of Line Current Transformer& Line Potential Transformer to be used in 3-phase IGBT based propulsion system 25kV AC On-board MEMU project of M/s Titagarh Wagons Ltd against ICF PO No.08//18/1848/1610/DO/F dated 29.04.2019received vide note No.EL/1.3.16.6/TWL/MEMU, dated 01.02.2021 has been scrutinized & comments on same has been given to Director/MRVC vide this office note No.EL/3.2.1/Indig. EMU/CTPT, dated 17.06.2021.
- 3.19 The documents of Line Current Transformer & Line Potential Transformer to be used in 3-phase IGBT based propulsion system 25kV AC On-board EMU project of M/s Titagarh Wagons Ltd against ICF PO No.08/18/1418/2629/DO/F, dated 24.11.2018 received vide note No.EL/1.3.16.6/Titagarh, dated 01.02.2021 has been scrutinized & comments on same has been given to Director/MRVC vide this office note No.EL/3.2.1/Indig. EMU/CTPT, dated 17.06.2021.

#### **4.0 SPECIFICATION/STR**

- 4.1 Final Specification for Elastic Ring used in Three Phase Electric Locomotives has been revised as Specification No.RDSO/2007/EL/SPEC/0053, Rev. '2' dated 29.06.2021 and sent to Railways & Vendors vide letter No.EL/3.1.35 (Elastic Ring) dated 29.06.2021.
- 4.2 Final Specification No.RDSO/2018/EL/SPEC/0439,Rev-1 and STR No.RDSO/2018/EL/STR/ 0091,Rev-1 for development of functionally equivalent PCB cards of GTO based converter and MICAS VCU in 3-phase electric locomotive have been uploaded on RDSO website and circulated vide letter No.EL/11.5.5/14 dated 15.06.2021.
- 4.3 Revised final specification No.RDSO/EL/SPEC/0064(Rev. 3) for Zirconium-Copper Punched type Resistance ring mechanically interlocked to End Plate design rotor for traction motor type 6FRA6068 for WAG9/WAP7 has been issued on 16.06.2021and also updated on RDSO website.

## **5.0 PROTOTYPE TESTING/QUALITY AUDIT**

- 5.1 Provisional approval for Prototype of Regenerative braking converter for WAG-7 locomotive to be supplied by BHEL/Bhopal have been accorded vide letter No.EL/3.1.22/4 dated 29.06.2021.
- 5.2 Prototype testing of EoTT system offered by M/s PPS International (Hot Master No.M-A19288, HoT Slave No.S-A19288&EoT No.71007) has been carried out in-house FROM 14.06.2021 TO 16.06.2021 at M/s PPS International, Plot No.32, Udyog Kendra, Ecotech-III, Greater Noida-201 308 from 23.06.2021 to 28.06.2021 by the representatives of RDSO, Lucknow & BLW, Varanasi as per Provisional Approved test protocol No.TP/EoTT/01 Rev. 0 dt. 02.06.2021 and RDSO FRS NO.RDSO/2019/EL/FRS/0025Rev.'0' issued on 25.06.2019.
- 5.3 Partial prototype testing of EoTT system offered by M/s Signotron Kolkata (Hot Master No.M24493, HoT Slave No.S02307 &EoT No.20004) has been carried out in-house from 23.06.2021 to 28.06.2021 at M/s Signotron (India) Pvt. Ltd., "SIGNOTRON TOWER", Plot J1-6, Block - EP, Sector - V, Salt Lake City, Electronics Complex, Kolkata - 700 091 from 23.06.2021 to 28.06.2021 by the representative of RDSO, Lucknow as per Provisional Approved test protocol No.SIGN0001-D5101-0004 Version 1.0.2 dated 08.03.2021 and RDSO FRS NO.RDSO/2019/EL/FRS/0025Rev.'0' issued on 25.06.2019. Outsourced type tests are yet to be completed.

## **6.0 OTHER ITEMS**

- 6.1 IIT/Kharagpur has reminded to return unutilized amount balance of Rs.8161805/- to this office pertains with project "Aerodynamic Design of Traction Rolling Stock with speed potential of 250 km/h (upgradable to 350 km/h)" vide this office letter No.EL/8.5.17/2/A1 dated 21.06.2021.
- 6.2 BLW was advised to submit the required details as mentioned in RDSO letter No.EL/2.2.9/10, dated 09.06.2021 to examine the suitability for provision of speedometer in WAG-11 locomotive in line with SER letter No.PCEE/RS/220/WAG-11/BNDM, dated 27.05.2021.
- 6.3 Question bank of SSE/Electrical (Level-7) along with their answers was provided vide this office note No.EL/Misc/EDSE, dated 24.06.2021 to APO/Bills in line with APO Bills note No.Rectt/R/SP/Vol-II dated 17.06.2021.
- 6.4 PS & EMU Directorate vide note No.EL/1.3.16.7/ON BOARD/RCF/BHEL dtd.16.03.2021 had forwarded the clarifications related to design document of Traction Motor type IM3302AZ/BZ submitted by M/s BHEL. Submitted clarifications examined & comments were communicated to PS & EMU Directorate vide note No.EL/3.2.182/OTM/BHEL dated 09.06.2021.
- 6.5 RDSO has conducted on-line Video Conference with all the approved & prospective vendor of bearings on 11.06.2021 with a view to increase vendor base of bearings of WAP5 locomotive. During the deliberations, all the firms were requested to initiate development of bearings used in WAP5 locomotives. Minutes of Meeting was issued vide RDSO letter No.EL/2.2.13 dt. 18.06.2021.
- 6.6 Comments on CLW's draft specification "Stamping/Laminations punched type from cold rolled non grain oriented (CRNO) electrical steel sheets/strips for manufacture of three phase Traction Motor Type 6FRA6068/6FXA7059, smoothing reactor (SL-30) & Inductive Shunt (SJ)" has been furnished vide this office letter No.EL/3.2.182 dated 28.06.2021.

- 6.7 Capability cum capacity assessment of M/s Sequoia Safety Products Pvt. Ltd., Sahibabad for fresh vendor registration reference ID:1278dt.04.01.2021 for High Reach Pantograph for electric locomotives was conducted on 29.06.2021.
- 6.8 Capability cum capacity assessment of M/s Knorr-Bremse India Pvt. Ltd., Palwal (Haryana) for fresh vendor registration reference ID:1232dt.05.12.2020 for EP assisted brake system for 3-ph electric locomotive application compatible with EP assisted brake system on coaches was conducted on 30.06.2021.
- 6.9 Revised ITR & Type test plan of TM bearings of 6FRA6068 of M/s Schaeffler submitted vide their letters dated 28.06.2021 & 29.06.2021 have been examined & approved for further prototype inspection vide RDSO letter No.EL/2.2.13/FAG/NU2236 dated 30.06.2021.

Encl: Annexure I ,II & III

सादर,

Yours sincerely,

**(Sunil Kumar)**

**Shri Rahul Jain,  
Member Traction & Rolling Stock,  
Railway Board, Rail Bhavan,  
New Delhi - 110 001**

Copy for kind information to-  
Additional Member (Traction), Railway Board, Rail Bhawan, New Delhi.

**(Sunil Kumar)  
Pr.Exe.Dir.Stds. Electrical**

**Status of Un-modified Motor Support in WAP-7 & WAG-9/9H Three Phase Locomotives**

Rly	Shed	TM location	WAP7	WAG9H	Total no. of bogies	Balance to be modified	PDC
CR	AQ	3	30	257	287	131	March'22
	KYN	3	0	29	58	6	Sep' 21
SCR	KZJ	3/4	0	200	200	20	May21
SECR	BIA	3/4	0	57	114	14	Dec'21

**Note:** Following sheds have already modified motor support in all locations of bogies.

HWH, WAT, LDH, CNB, BRC, ED, BNDM, SRC, ET, NKJ,RPM,TKD, BSL, GZB, GMO, LGD.

## Annexure- II

**Status of Modified/Un-modified Brake Lever of WAG-9/9H Three Phase Locomotive as per MS 455 issued on Dec'16.**

SN	Shed	No. of WAG-9/9H locos	Modified with TBU/PBU	Un-Modified with TBU/PBU	Converted to conventional rigging
1	BSL	30	13	0	17
2	AQ	161	92	58	9
3	KYN	29	18	5	6
4	GMO	239	03	162	74
5	WAT	185	22	108	55
6	LDH	129	22	0	107
7	CNB	95	12	0	83
8	LGD	130	28	50	52
9	KZJ	100	38	14	48
10	TATA	133	0	113	20
11	BIA	95	40	55	0
12	TKD	103	82	0	21
13	NKJ	08	03	01	04
14	BNDM	82	0	19	63

## Position of Provision of 2 High Reach Pantograph in electric locomotives as on 25.06.2021

RLY	Shed	Cummulative position. How many locos with type of loco and its number provided with 2 HRPTs so far	Population of HRPTs
CR	AQ	<b>28 WAG-9</b> 32005, 31264, 32032,32052, 31114,31116, 32073, 31271, 31276, 31981, 31110, 32374, 31280, 31027, 31270, 31277, 31439, 31273, 31484, 31359, 31076,31464, 31224, 31278,31259, 31104,31111, 31115	58
CR	KYN	<b>16 WAG9 (32262, 32242, 31584, 31450, 32194, 31382, 31648, 32107)</b>	17
CR	BSL	<b>23 WAG9</b> (31560, 31406, 31738, 31642, 31403, 31516, 32401, 31402, 31404, 31405, 32432, 32273, 32429, 31645, 32274, 32377,32270, 41043, 32278, 31769, 32381, 32355, 41047)	47
NR	LDH	<b>23 WAG9</b> (32142, 32387, 32455, 31665, 32166, 32286, 32315, 32263, 32246, 32317, 32436, 32454, 32585, 32283, 32252, 32397, 32584, 32261, 32680, 32186, 32383, 32193, 32313) <b>3 WAG-7</b> (24590, 24583, 24580)	50
NR	TKD/D	<b>10 WAP1</b> (22024, 22028, 22029, 22036, 22039, 22040, 22049, 22050, 22056, 22076) <b>1 WAP4</b> (22345)	33
NR	GZB	<b>20 WAP5</b> (30001, 30011, 30018, 30021, 30022, 30024, 30030, 30043, 30098, 30100, 30132, 30133, 30135, 30146, 30149, 30163, 30164, 30165, 30187, 30188) <b>08 WAP7</b> <b>(30747, 37054, 37264, 37314, 37378, 39006, 39039, 39097)</b>	56
NR	KJGY	<b>4 WAG-9</b> (32805, 32714, 32804, 32803 )	8
NCR	JHS		21
NCR	CNB	<b>25 WAG9</b> (32265, 32394, 32233, 32229, 32433, 32291, 32308, 32268, 32338, 32645,32266, 32346, 32244, 32446,32256,32309,32255, 32448, 32550,32287.)-Both side HRPTs Rev-2 (32549,32318,32307,32545,32398-PT2 HRPTs Rev-1 )	50
ER	ASN	0	0
ER	HWH	0	0
ER	BWN	16 WAG9 (31619, 31416, 32515, 32563, 32516, 32560,31418,31409, 32557, 32451,34015, 34011,32450, 32562, 31551, 32449)	33
ECR	GMO	<b>In 17 WAG9 Locomotive both side high reach Pantograph provided.</b> (1. 32289, 2. 32339, 3. 32652, 4. 31853, 5. 31473, 6. 31859, 7. 31857, 8. 31509, 9. 31533, 10. 31488, 11. 31413, 12. 31834, 13. 31508 14. 31489, 15. 31546, 16.31532, 17. 31467)	35
ECR	MGS	3( <b>WAG7</b> -27038, 27032,27057)	6
ECR	BJU	<b>5 WAG-9</b> (32334,32444, 32445,32457,32340)	10
ECOR	ANGL	0	2
ECOR	VSKP	<b>4 WAG-9</b> (31625, 31623, 32693, 31987) at both sides.	8
SCR	KZJ	<b>23 WAG-9</b> (34001, 34002, 32542,32247, 32458, 32325, 32718, 32280, 32408, 32410,32649, 32389 GY,32279,32520,32461, 32282,32456, 32044 GY, 32695 32720,32322,32323) (32066 GY HRPTs Provided by ELS/LGD)	46
SCR	LGD	<b>15 WAG9</b> (31143, 32367, 32480, 32418, 32413, 32481,32670,32363,32798,32512,32513,31618,31444,32928,41019)	33
SCR	BZA	<b>04 WAG-7 (28249,28424,28464,28255(PT2))</b>	7
SER	BKSC	<b>2 WAG-9</b> - 32755, 32672	11
SER	BNDM	4 WAG9-32655,32681,32653,32700	11
SER	SRC	0	2

SER	TATA	<b>09 WAG9</b> (32324, 32647, 32582, 31432, 32576, 31716, 31899, 31425, 31603)	19
SER	ROU	<b>03 WAG9</b> (32597,32281,32302)	29
SECR	BIA	<b>10 WAG-9H</b> (32688, 31844,31806,32679,32757,32807, 32807, 31886, .....)	32
SR	AJJ	0	0
SR	ED	<b>6 WAG7</b> ( 27460 , 27486 , 28027,27491 , 27471, 27492)	12
SR	RPM	0	0
WCR	ET	<b>3 WAG 9 (31943,32468,32070 )</b>	10
WCR	NKJ	<b>4nos WAG-9</b> ( 32027,32031,32290,32223)	10
WCR	TKD	29 WAG9 (31170,31181,31183,31186,31196,31210,31297,31415,31471,31503,31607,31610,31614,31634,31807,32170,32251,32264,32294,32295,32303,32321,32331,32332,32335,32654,32656,32773,32775)	60
WR	BL	<b>13 WAG-7</b> (28727, , 28752, 24691,28726,24689,28640,28619,28649 and 10 WAG-9- 31575,32431,31453,31384,31981,32005,32032,32052,32073,32374)	79
WR	BRC	<b>1 WAP-5</b> (30185) <b>29 WAP-7</b> (30470, 30473, 30474, 30480, 30526, 30527, 30531, 30569, 30574, 30585, 30598, 30634, 30637, 30719, 30759, 30761, 30767, 37111, 37126, 37128, 37163, 37164, 37175, 37302, 37303, 39018, 39027, 39065, 39103)	122
TOTAL	IR	<b>WAG9=263 WAP7=37 WAP5= 21</b> <b>WAG7=29 WAP4=1 WAP1=10</b>	917