

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
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D.O.No.EL.8.5.10.1

Dt: 02.12.2020

प्रिय श्री विवारी,

Sub: PCDO for the month of November, 2020.

1.0 HIGHLIGHTS

Nil

2.0 RELIABILITY IMPROVEMENT

- 2.1 A meeting was conducted by Railway Board through Video Conferencing on 12.11.2020 on failures of traction motor type 6FRA6068 associated with mechanical components and bearings and attended by RDSO, CLW, DLW and manufacturers of traction motor namely M/s BHEL, M/s CGL & M/s Saini Electricals. PED/RS/Railway Board expressed serious concern regarding increasing trend of traction motor failures. Minutes of Meeting has been issued vide letter No.EL/2.2.13 dated 16.11.2020 for implementation. Minutes of Meeting has also been uploaded on RDSO's website.
- 2.2 Minutes of Virtual meeting held on reliability related issues of Brake System of 3-Phase Electric Locomotives conducted on 08.10.2020 have been issued to Railway Board, Zonal Railways and firms vide RDSO letter No.EL/3.2.19/3-Phase dtd. 09.11.2020.
- 2.3 Meeting was held on 13.11.2020 and 17.11.2020 through Web/Video Conference with Railway Board and CLW to discuss the reliability issues of Harmonic filter capacitor of M/s Sunny make supplied by M/s Yash Capacitors Pvt. Ltd.
- 2.4 Meeting through Web/Video Conference was held on 12.11.2020 to discuss the reliability issues of different make Hotel Load Converter fitted in 3-phase electric locomotives. Representative from M/s Siemens, M/s BHEL, M/s Medha, M/s S. International and Zonal Railway were present.
- 2.5 CLW has been requested to take necessary action as per extant guideline of CLW on M/s Yash Capacitors for poor reliability of Sunny make Harmonic Filter Capacitors supplied by M/s Yash Capacitors vide this office letter No.EL/11.5.5/21 dated 13.11.2020.
- 2.6 M/s BHEL has been asked to submit action plan for long pending reliability issues with IGBT based Traction converter, Auxiliary converter, Hotel load converter and TCN based VCU vide this office letter No.EL/11.5.5/21 dated 26.10.2020.

3.0 DEVELOPMENTAL ACTIVITIES

3.1 Development of End of Train Telemetry(EoTT)

Electrical & Pneumatic interface circuit documents of M/s Siemens, M/s Signotron & M/s Tata Power received through ECoR& SER have been examined. RDSO vide letter No.EL/4.2.15/EoTT/Siemens dated 13.11.2020 had conveyed observations/modifications in Electrical & pneumatic interface circuit for EoTT fitment in WAG9, WAG-7 locos (with & without MPCS) locomotives for implementation by ECoR & SER.

- 3.2 In reference to Railway Board's letter No.2018/Elect (Dev)/181/4 Pt dated 13.11.2020, RDSO vide letter No.EL/4.2.15/EoTT dated 19.11.2020 has apprised status of development of EoTT system of all the firms to Railway Board. RDSO has assured Railway Board that it is committed towards early development of EoTT and finalization of its specification after successful field trials so that Indian Railways get benefitted from this development.
- 3.3 M/s Mersen India Private Limited has applied for STR verification and capability assessment for fresh registration of High Reach Pantograph. The design, drawing and Bill of Material has been scrutinized and considered generally in order. RDSO vide letter No.EL/2.2.1/High Reach/Mersen dtd. 11.11.20, firm is advised to submit the minor information/documents and develop a prototype unit, submit internal type test (ITR) and offer the High Reach Pantograph for type testing and QAP verification.
- 3.4 RDSO vide letter No.EL/3.2.19/3-Phase dtd. 04.11.20, M/s. Knorr-Bremse revised installation drawing No.KP0688678 rev.0, dtd. 20.10.20 and test protocol document No.PRF13150 Rev. 2 dtd. 15.10.20 of CCB brake system with remapped auxiliary manifold has been examined and approved provisionally.
- 3.5 M/s ECE Railway Equipment Private Limited has submitted the technical description of Pantograph, OGA layout of Pantograph as per RDSO Specification No.RDSO/2007/EL/SPEC/0054 (Rev.2) dtd. 04.11.2015. RDSO has examined the documents and comments have been advised vide RDSO letter No.EL/2.2.1/High Reach dtd. 11.11.2020.
- 3.6 A draft Standard Scheme for conversion of WAM4/WAG5 locos to battery cum electric locomotives has been prepared & sent to Zonal Railways for suggestions/comments vide letter No.EL/3.1.28 (DML), dated 23.11.2020.
- 3.7 Instruction for withdrawal of MS 405 & implementation of MS 446 have been communicated to Zonal Railways/PUs/Workshops vide RDSO letter No.EL/2.2.21, dated 04.11.2020.
- 3.8 Approval of Test & Inspection Schedules and QAPs of various Panels of WAG7 locomotive with regenerative feature was communicated to M/s BHEL vide letter No.EL/3.1.22/4 dated 11.11.2020.
- 3.9 Banaras Locomotive Works (BLW) has been advised to undertake the conversion of one WDG4 locomotive to cost effective WAG11 Ver4 locomotive vide this office letter No.EL/11.5.5/20 dated 23.11.2020.

- 3.10 Electrical Inspector General (EIG) sanction for safety certification for all electrical system of WAG-9HH locomotive has been accorded vide Northern Railway letter No.230-Elect./TRS/197/WAG9HH dated 19.11.2020.
- 3.11 M/s Medha make Hall Effect speed sensor for IGBT based three phase electric locomotive propulsion equipments has been approved vide this office letter No.EL/3.1.35/17/Medha dated 19.11.2020.
- 3.12 Design documents (MAE675UE/LTC/DD, Rev-2) & type test protocol (MAE675UE/LTC/TP, Rev.1) of M/s Medha has been approved for LTCU of IGBT based propulsion system of 3-phase under slung EMU vide this office note No.EL/11.5.5/1/USEMU/Medha dated 13.11.2020.
- 3.13 Type test protocol (MAE675UM/LTC/TP, Rev-3) of M/s Medha has been approved for LTCU of IGBT based propulsion system of 3-phase under slung MEMU vide this office note No.EL/11.5.5/1/ USMEMU/Medha dated 17.11.2020.
- 3.14 Online application ID No.1115 dated 21.09.2020 of M/s Mansons International Pvt. Ltd., Navi Mumbai for fresh vendor registration for manufacturing and supply of Spheriblocs for 3-phase electric locomotives was scrutinized and some major/minor deficiencies were found. The same has been communicated to firm for further processing the application vide this office letter No.EL/3.1.35/12(SB)/MIPL dated 06.11.2020.
- 3.15 Routine Test Procedure of Drive System Components (Main Gear & Pinion, Gear Case & Reaction Rod Body) of 3-Phase IGBT based electrics for Kolkata Metro as per RDSO Specification No.RDSO/PE/Spec/EMU/0182 Rev. 01 against ICF P.O. No.08/15/1466/1119/F dated 25.02.2017 to M/s Zhuzhou CRRC TECL vide this office letter No.EL/4.2.13 (Zhuzhou CRRC TECL) dated 06.11.2020 is provisionally approved.
- 3.16 Minutes of the virtual meeting held on 21.10.2020 with representative of Sheds and M/s Basant Rubber, Mumbai to review the performance of Spheriblocs used in 3 Phase Locomotive has been issued vide this office letter No.EL/3.1.35/12 (SB) dated 11.11.2020.
- 3.17 Minutes of the virtual meeting held on 22.10.2020 with representative of Electric Loco Sheds and M/s S. K. Sales, Kolkata(Indian Agent of M/s BHC, Germany) to review the performance of Spheriblocs used in 3 Phase Locomotive has been issued vide this office letter No.EL/3.1.35/12(SB) dated 11.11.2020
- 3.18 Online application ID No.1108 dated 19.09.2020 of M/s LVH Energy Pvt. Ltd., Bengaluru for fresh vendor registration for manufacturing and supply of LED based Head Light for an electric locomotive was scrutinized and some major deficiencies were found. The same has been communicated to firm for further processing the application vide this office letter No.EL/6.11.1 (LVH) dated 26.11.2020.

4.0 SPECIFICATION/STR

- 4.1 Final draft specification of Single Phase to Three Phase 2 x 13 KVA SIV, Spec No.RDSO/2018/EL/SPEC/0140, Rev. 1 along with reasoned document uploaded on RDSO website for comments/suggestions.

- 4.2 Following three final draft STR along with reasoned document uploaded on RDSO website for comments / suggestions:
- i. RDSO/2007/EL/STR/0015, Rev.1; for Main Compressor on 18.11.20.
 - ii. RDSO/2011/EL/STR/0076, Rev.2, for Brake System for three phase Electric Locomotives on 24.11.2020.
 - iii. RDSO/2008/EL/STR/0049, Rev.2, for manufacture of Pantographs for Electric Locomotives on 23.11.2020.
- 4.3 Final draft specification bearing No.RDSO/2008/EL/SPEC/0067,Rev.3along with reasoned documents for Cable transit system with EPDM rubber modules in Electric Locomotives/EMU/MEMU/Metro have been prepared and uploaded on RDSO website for suggestions/comments from ZRs/PUs vide note No.EL/2.2.37, dated 23.11.2020.
- 4.4 Final draft Schedule of Technical Requirement bearing no RDSO/2014/EWL/STR/0082, Rev-1along with reasoned documents for manufacture & supply of cable transit system with EPDM rubber modules for Electric Locomotives/ EMU/ MEMU/ Metro have been prepared and circulated to ZRs/PUs for their comments vide note No.EL/2.2.37, dated 23.11.2020.
- 4.5 The Technical Circular No.RDSO/2020/EL/TC/0154,Rev.'0', dated 19.11.2020 regarding procedure for manual CAB selection in Electric Locomotives fitted with Distributed Power Wireless Control System (DPWCS) in train consist have been issued. &same has been uploaded on RDSO website vide RDSO letter No.EL/3.1.3/DPWCS, dated 19.11.2020.
- 4.6 Draft specification No.RDSO/2018/EL/SPEC/0139 (Rev-1) and Draft STR No.RDSO/2018/EL/STR/0091 (Rev-1) for development of functionally equivalent cards for GTO based converters and MICAS VCU has been reviewed and documents have been uploaded on RDSO website and circulated for comments from Zonal Railways / Manufacturers vide this office letter No.EL/11.5.5/14 dated 04.11.2020.
- 4.7 Final draft of Specification No.RDSO/2007/EL/SPEC/0051 Rev. 3 of Spheriblocs for 3 phase locomotives has been uploaded on website for 15 days on 12.11.2020.

5.0 PROTOTYPE TESTING/QUALITY AUDIT

- 5.1 Quality Audit of M/s AAL for manufacturing and supply of sets of connectors was carried out jointly with CLW at the works of M/s AAL at Baddi and Noida in presence of AAL representative from 28.10.2020 to 30.10.2020.

6.0 OTHER ITEMS

- 6.1 Submitted design document of traction Motor type TME-49-35-4 for Under Slung EMUs/ MEMUs through PS&EMU Directorate note No. EL/1.3.16.6/Under-Slung MEMU/Medha dated 04.11.2020 has been examined as per RDSO specification No.RDSO/PE/SPEC/EMU/0096-2008(Rev.4) of Dec-2009 along with ICF Annexure ICF/EMU/0096-01, Rev.02). Comments as well as provisional approval of Type & Routine test protocol for testing of TM have been communicated to PS & EMU Directorate vide Electrical Directorate note No.EL/3.2.182/Under-Slung EMU MEMU/Medha dated 18.11.2020.

- 6.2 Design document of traction Motor type 2141C of M/s Inder Engineering Industries, Bhopal for 8-Wheeler Diesel Electric Tower Car submitted by TI Directorate vide note No. RDSO-TIOLKO(OHE)/06/2020-O/o PED/TI/RDSO dated 16.10.2020 against DMW's Purchase order No.02192667100191 dated 23.01.2020. Submitted document of Traction motor has been examined in reference with ICF, Chennai specification No.ICF/MD/SPEC/300 Rev. 00 CS-02 and comments have been communicated to TI Directorate vide note No.EL/3.2.182 (TI/OHE/TENDER) dated 12.11.2020.
- 6.3 Design document of 25kV line CT and Earth Return CT for 1276 kVA Traction Transformer used in M/s BHEL make 25kV AC Microprocessor controlled IGBT based three phase IGBT based AC EMU have been scrutinized and comments for same have been given to Director/MRVC vide note No.EL/3.2.1/Indig. EMU/CTPT, dated 27.11.2020.
- 6.4 Design document of cable transit system with EPDM rubber module used in M/s BHEL make 25kV AC Microprocessor controlled based three phase IGBT based AC EMU have been scrutinized and status for same has been given to Director/MRVC vide note No.EL/2.2.4/EPDM/Wallmax, dated 27.11.2020.
- 6.5 Simulation studies were carried out for determination of haulage chart of WAP4 loco for use in freight services & a tentative haulage chart of WAP4 has been advised to Eastern Railways accordingly.

Encl: Annexure I, II & III

21/12/20

Yours sincerely,

21/12/20
(Sunil Kumar)

Shri Rajesh Tiwari,
Member (Traction & Rolling Stock),
Railway Board,
New Delhi – 110 001

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

21/12/20
(Sunil Kumar)
Pr.Exe.Dir.Stds. (Electrical)

Status of un-modified motor support in WAP7 & WAG9/9H three phase locomotives

Position on: 27.11.2020

Rly	Shed	TM location	WAP7	WAG9H	Total no. of bogies	Balance to be modified	PDC
CR	AQ	1,2	28	204	232	6	Dec' 20
		3	30	257	287	161	June'21
	KYN	3	0	29	58	23	Dec' 20
ECR	GMO	3	0	2	4	4	Feb'21
SCR	LGD	3	0	116	116	80	March 21
	KZJ	3/4	0	200	200	20	Jan'21
SECR	BIA	3/4	0	57	114	15	Jan'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.

Status of modified/unmodified brake lever of WAG-9/9H 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	60	9
3	KYN	29	8	15	6
4	GMO	238	03	163	72
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	114	38	56	20
12	TKD	103	82	0	21
13	NKJ	08	03	01	04
14	BNDM	82	0	19	63
Total		1537	361	599	575

Position of Provision of 2 High Reach Pantograph in electric locomotives as on 27.11.2020

RLY	Shed	How many locos with type of loco and its number provided with 2 HRPTs today	Cummulative position. How many locos with type of loco and its number provided with 2 HRPTs so far	How many locos will be provided with 2 HRPTs tomorrow	Population of HRPTs
CR	AQ	0	28 WAG-9 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	0	12 WAG9 (32194, 31575, 32431, 31453, 31384, 32262, 31387, 32242, 31382, 31367, 31584, 31450)		25
CR	BSL	0	18 WAG9 (31560, 31406, 31738, 31642, 31403, 31516, 32401, 31402, 31404, 31405, 32432, 32273, 32429, 31645, 32274, 32377, 32270, 41043)		36
NR	LDH	0	23 WAG9 (32142, 32387, 32455, 31665, 32166, 32286, 32315, 32263, 32246, 32317, 32436, 32454, 32585, 32283, 32252, 32397, 32584, 32261, 32680, 32186, 32383, 32193, 32313) 3 WAG-7 (24590, 24583, 24580)		50
NR	TKD/D	0	10 WAP1 (22024, 22028, 22029, 22036, 22039, 22040, 22049, 22050, 22056, 22076) 1 WAP4 (22345)	0	33
NR	GZB	0	23 WAP5 (30001, 30011, 30014, 30018, 30021, 30022, 30024, 30028, 30030, 30043, 30098, 30100, 30132, 30133, 30135, 30141, 30146, 30149, 30163, 30164, 30165, 30187, 30188)		47
NR	KJGY	0	4 WAG-9 (32805, 32714, 32804, 32803)		8
NCR	JHS	0		0	21
NCR	CNB	0	25 WAG9 (32265, 32394, 32233, 32229, 32549, 32433, 32291, 32308, 32268, 32338, 32645, 32318, 32266, 32346, 32244, 32446, 32307, 32545, 32256, 32309, 32255, 32448, 32550, 32398, 32287.)	0	50
ER	ASN	0	0	0	0
ER	HWH	0	0	0	0
ER	BWN	0	16 WAG9 (31619, 31416, 32515, 32563, 32516, 32560, 31418, 31409, 32557, 32451, 34015, 34011, 32450, 32562, 31551, 32449)	0	33

ECR	GMO		In 17 WAG9 Locomotive both side high reach Pantograph provided. (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	0	3(WAG7-27038, 27032,27057)	0	6
ECR	BJU	0	5 WAG-9 (32334,32444, 32445,32457,32340)	0	10
ECOR	ANGL	0	0	0	2
ECOR	VSKP	0	10 WAG-9 (31625, 32607, 32810, 32809, 31623, 32693,32690, 31987,32682, 32683)	0	20
SCR	KZJ	0	23 WAG-9 (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)	0	46
SCR	LGD	0	17 WAG9 (32700, 31143, 32367, 32655, 32480, 32418,32681,32653, 32066 GY, 32413, 32481,32670,32363,32798,32512,32513,.....)	0	43
SCR	BZA	0	03 WAG-7 (28249,28424,28464)	0	8
SER	BKSC	0	4 WAG-9 - 32755, 32672,32521, 32522	0	13
SER	BNDM	0	4 WAG9-32655,32681,32653,32700	0	11
SER	SRC	0	In 05 WAP7 locomotives both side High Reach Pantograph provided (as on 29.10.2020) (30600, 37320, 37324, 37326, 37336)	0	12
SER	TATA	0	09 WAG9 (32324, 32647, 32582, 31432, 32576, 31716, 31899, 31425, 31603)	0	19
SER	ROU	0	03 WAG9 (32597,32281,32302)	NIL	29
SECR	BIA	0	10 WAG-9H (32688, 31844,31806,32679,32757,32807, 32807, 31886,)	0	32
SR	AJJ	0	0	0	0
SR	ED	0	6 WAG7(27460 , 27486 , 28027,27491 , 27271,)	0	12
SR	RPM	0	0	0	0
WCR	ET	0	3 WAP 7 (39006, 39097 , 37054)	0	8
WCR	NKJ	0	5 nos WAG-9 (31943, 32290, 32468 , 32070,32514)	0	17
WCR	TKD	0	29 WAG9 (31807, 31415, 31185,32303, 32251, 32775, 32331, 31210, 32294, 31183,31186, 32773, 31196,31607,31471,31181, 31297, 32335,31614, 32170, 32264, 32295, 32332, 31610, 31170,	0	60

			32321,32654,31503,31634)		
WR	BL	0	5 nos- WAP-4 (22293, 22324, 22351,22344' 22279) 8 WAG-7 (28727, 28621, 28752, 24691,28726,24689,28640,28619)	0	64
WR	BRC	0	1 WAP-5 (30185) 29 WAP-7 (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)	0	144
TOTAL	IR	0	WAG9=262 WAP7=37 WAP5= 24 WAG7=23 WAP4=6 WAP1=10		952