

Fax : 0522 - 2465717  
Telephone : 0522 - 2454070  
e-mail: edse.rdsso@gmail.com



सत्यमेव जयते

भारत सरकार - रेल मंत्रालय  
अनुसंधान अभिकल्प और मानक संगठन  
लखनऊ - 226011  
Government of India - Ministry of Railways  
Research Designs & Standards  
Organization, LUCKNOW - 226011

Om Prakash Kesari  
Principal Executive Director Standards Electrical

D.O.No.EL.8.5.10.1

Dt: 31.07.2019

*Dear Shri Rajesh Tiwari ji,*

**Sub: PCDO for the month of July, 2019.**

**1.0 HIGHLIGHTS:**

**1.1 Technical report No. RDSO/2019/EL/RM/0187, Rev.'0' on Important fasteners for electric locomotives**

Technical Report No. RDSO/2019/EL/RM/0187, Rev.'0' on Important Fasteners for electric locomotives had been prepared and issued on 22.07.2019.

Technical report had been uploaded on RDSO website and it may be downloaded using following path:-

www.rdsso.indianrailways.gov.in → Directorates → Electric Loco  
→ Investigation/Other Reports.

**1.2 Modification Sheet NO. RDSO/2012/EL/MS/ 0415 (Rev. '0'), Amendment 3 (Rev.1) dated 02.07.2019**

Modification sheet No. RDSO/2019/EL/MS/ 0415 (Rev. '0'), Amendment 3(Rev.1) dated 02.07.2019 to ensure adequate interference between assembly components of TM type 6FRA6068 has been prepared and issued to all concerned vide letter No. EL/3.2.182 dated 02.07.2019. It is expected that implementation of this amendment of modification will improve reliability of assembly components of Traction motors of Electric locomotives.

**1.3 In compliance to decision taken during Minutes of Meeting on RTIS at Railway Board on 28.06.2019, the operation & maintenance instructions for RTIS was prepared & issued in form of Technical Circular bearing No. RDSO/2019/EL/TC/0152 (Rev. '0') on 25.07.2019.**

**1.4 A meeting cum workshop was held at ELS/GZB on 25.07.2019 with Railways and Firm's representative on reliability issue of motor supports fitted in bogies of**



WAP7/WAG9/WAG9H Electric Locomotives. The minutes of meeting (MOM) for the same has been issued vide this office letter No. EL/3.1.35/2 (TMS) dated 29.07.2019 to firms & Railways. During the meeting following points action plan were discussed.

- (a) While carrying out the work of provision of modified motor supports OEMs and Zonal Railways were requested to ensure strict compliance of procedure specified by RDSO.
- (b) Progress of provision of modified support was reviewed.
- (c) OEMs were requested to supply template for measuring the profile of motor support.
- (d) Adequacy of strength of safety slings was also deliberated in detail.
- (e) **Action Plan**-submission of drawing of proposed arrangement by OEMs. within a fortnight to RDSO and CLW and Provision of proposed arrangement in one loco by OEMs at ELS/GZB (by M/s Ved), ELS/TKD (by M/s Anup) and ELS/AQ (by M/s Ashika) within a month.

## 2.0 DEVELOPMENTAL WORKS:

### 2.1 Regenerative braking system in WAG7 locomotives by M/s BHEL

Performance calculation of re-generative braking for WAG7 loco & characteristics curves submitted by M/s BHEL had been examined in reference with Clause 2.6 of specification No. RDSO/2018/EL/SPEC/0133, Rev '0' and cleared provisionally. Submitted OGA drawings are also cleared provisionally subject to fitment.

- 2.2 A meeting was convened at RDSO on 26.07.2019 with OEMs for development of 4- Quadrant Converter for conventional electric locomotive converted from ALCO diesel locomotive. The draft Functional Requirement Specification (FRS) was discussed & MOM was prepared & issued.

- 2.3 Prototype testing of 1276kVA MEMU transformer bearing SN 2046588 manufactured by M/s BHEL, Jhansi has been completed by RDSO on 19.07.2019. Prototype clearance has been advised to Director/MRVC vide note No. EL/3.2.1/Indig.EMU/BHEL dated 26.07.2019.

- 2.4 Design documents/Test reports for different type of cables of M/s Leoni Cable solution & M/s Thermo Cable for 25kV, AC IGBT based 3-phase electrics (On Board Mounted) for AC MEMU to specification no. RDSO/PE/SPEC/EMU/0163(Rev- I) 2012 Addendum 1 to 3(with RCF addendum/corrigendum 4, 5, 6) was scrutinized & comments furnished to ED/PS&EMU vide note No. EL/8.1.25.1/BHEL/3-phase EMU dated 17.07.2019.

- 2.5 RDSO issued a letter regarding field trial of re-modified rear fan guard for M/s ELGI make compressor model RR20100 CG (M) to arrest its failures. M/s ELGI



appraised that re-modified rear fan guard had been fitted in 10 locos at ELS/GZB, ELS/BRC, ELS/TKD & ELS/AQ. Vide letter No. EL/3.2.15/3-phase dated 23.07.2019, RDSO has requested above sheds to send performance report.

- 2.6 Railway Board had issued policy/Roadmap for providing High Reach Pantographs on Electric Locomotives & same was circulated to ZRs/Pus by RDSO. Vide letter no. EL/2.2.1/High Reach dated 23.07.2019, it was intimated that PUs and ZRs should follow the action plan for fitment of high reach pantograph as advised. As of now, WR & NR have been advised to plan movement of locos having high reach pantograph for the high rise OHE section of Rewari-Palanpur of WDFC as per the requirement of traffic. Present Status of High Reach Pantograph is attached in **Annexure-III**.
- 2.7 Prototype clearance of Spheriblocs for 3-phase Electric Locomotives as per RDSO's Specification No. RDSO/2007/EL/SPEC/0051, Rev.2 and ABB drawing Nos. IA 016-00003(Rev-1) has been given to M/s. Prag Industries (India) Pvt. Ltd., Talkatora Industrial Estate, Lucknow-226011 vide this office letter No. EL/3.1.35/12 (Prag) dated 29.07.2019.
- 2.8 Design sketches for provision of water closet in WAP-4 and WAG-7 Electric Locomotives have been prepared and issued to all Zonal railways along with RDSO's specification No. RDSO/2016/EL/SPEC/0121(Rev- 0) & scheme for under slung compressor vide this office letter No. EL/3.1.10/1 dated 29.07.2019.
- 2.9 Workshop was done by M/s Alstom, Bangalore on 9th & 10th July-2019 to review the DDS Screen design. Joint note has been issued by RDSO vide letter no. EL/3.1.35/24 dated 12-07-19.
- 2.10 Statuary inspection for provisional running of WAG12 Locomotive was done by CCRS on 19<sup>th</sup> July-2019 at Safdarganj Railway Station.
- 2.11 The MOM of the meeting held at Railway Board on 25 the July -2019 to explore the feasibility of interfacing the passenger comfort amenities like Passenger Information System (PIS), Door Opening and Closing System etc. with the TCN complainant VCU has been issued vide letter no. EL/4.2.17 dated 29-07-2019.

### **3.0 RELIABILITY IMPROVEMENT:**

- 3.1 **Meeting on issues related to Zr.Cu rotor bars used in traction motor type 6FRA-6068**  
Meeting on issues related to Zr.Cu rotor bars used in traction motor type 6FRA-6068 was conducted with manufacturers & CLW at RDSO on 17.07.2019. All the



firms & CLW were requested to give their suggestions on changes required in the specification, if any and review their QAPs for compliance with the specification.

**3.2 Performance review meeting of MPCS & SIV**

Performance review meeting of Microprocessor based Control & fault diagnostic System (MPCS) and SIV of conventional electric locomotives was conducted with manufacturers, Zonal Railways, CLW & RDSO on 19.07.2019 at RDSO, Lucknow.

3.3 RDSO officials attended the meeting at Railway Board on 28.06.2019 regarding implementation of Real-time Train Information System (RTIS). During the meeting, issues related with fitment of RTIS in electric locos, its operation & Maintenance instructions, problems faced by Loco sheds in fitment of RTIS etc. were discussed & decisions were taken accordingly.

3.4 A seminar cum workshop was organized at ELS/AQ/CR on 10th & 11th July' 2019 to make the operation & maintenance staff aware of RTIS purpose & its functioning. Further, the location for fitment of RTIS in various classes of electric locos was also finalized during the seminar. MOM was prepared & issued vide letter no. EL/3.1.28 (RTIS) dated 15.07.2019.

3.5 A meeting and workshop was held at ELS/RPM/SR on 7 & 8.06.2019 to discuss the reliability related and maintenance issues of Brake System of 3-Phase locomotive. Vide letter no. EL/3.2.19/3-Phase dated 18.07.2019, MOM and workshop on Brake system of 3-Phase locos have been issued and also uploaded on RDSO's website.

3.6 A meeting was held at RDSO on 26.06.2019 with Railways and Firm's representative to review the performance of Hurth coupling and Membrane in WAP-5 Electric Locomotives. The minutes of meeting (MOM) for the same has been issued vide this office letter No. EL/3.1.35/22 dated 18.07.2019 to firms & Railways. During the meeting following points were discussed.

- (a) Performance of Hurth coupling and Membrane reviewed.
- (b) Firm (M/s. Mackeil, Kolkata) were advised to submit modification details of forging ratio of ingot.
- (c) Detailed procedure of MPT/UST on star of hurth coupling advised to share.
- (d) And test the coupling as per the specification to improve the reliability of the product.

3.7 A meeting cum workshop on proposal of Southern Railway on use of Interlock washer in Axle guide fixing bolt was held at ELS/AQ on 11.07.2019 with Electric Locomotive Sheds regarding the feasibility of use of interlock washer in Axle guide fixing bolt. During Meeting it was decided that ELS/ED/SR can do trial basis on 02 locos and submit report to RDSO for better appreciation of above proposal.

**4.0 SPECIFICATION/STR:**



- 4.1 Vide letter no. EL/3.1.14 dated 08.07.2019, MOM was issued to implement the revised Specification No. RDSO/2008/EL/Spec/0025 Rev.'6' (June'2019) of vigilance control device (VCD) in conventional locomotives. CLW and Zonal Railways were requested to take necessary action on revised Specification of vigilance control device (VCD) in conventional locomotives.

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

- 5.1 Vide letter no. EL/1.2.9.1/Hind dated 08.07.2019, M/s Hind Rectifier had been informed that firm has been considered capable for development 2 x 130 KVA SIV after RDSO official visit for capability/capacity assessment on 25.06.2019 & 26.06.2019.
- 5.2 Vide letter no. EL/3.2.19/3-Phase (Hind) dated 22.07.2019, M/s. Hind Rectifier has been informed that firm had been considered capable for development of Computer/Microprocessor Controlled Air Brake System for 3-Phase Electric Locomotive subject to fulfillment of deficiencies in STR after RDSO official visit for capability/capacity assessment on 25.06.2019 & 26.06.2019.
- 5.3 Vide letter no. EL/1.2.9.1/ABB dated 08.07.2019, M/s ABB has been informed that firm had been considered capable for development of 2 X 130 KVA SIV Converter after RDSO official visit for capability/capacity assessment on 28.06.2019 & 29.06.2019.
- 5.4 Prototype testing of six sets of assembly components (Stator Chamber, End Frames, Labyrinths etc.) of traction motor type 6FRA-6068 manufactured by M/s Narmada Equipments Pvt. Ltd., Bhopal had been carried out. Tests results had been examined and found to be in order. Prototype units had been cleared for fitment & field trial vide RDSO's letter No. EL/3.2.182/ NEP/Part dated 24.07.2019.

#### **6.0 OTHER ITEMS:**

- 6.1 Up-gradation from 'developmental category to 'approved vendor' category of M/s NEI, Jaipur for manufacturing & supply of 'Suspension Tube bearings for WAG9/WAP7 locomotives has been accorded vide letter No. EL/1.3.10 dated 28.06.2019.
- 6.2 Submitted documents for fresh registration application ID: 523 dated 15.02.2019 for bearing of TM type 6FRA6068 has been examined and observations advised to M/s NSK vide letter No. EL/2.2.13/NSK/NU2236 dated 24.07.2019.
- 6.3 Online application with reference ID: 641 of M/s Schaeffler India Limited for fresh registration of bearing of TM type 6FRA6068 has been examined. Observations



had been communicated to the firm vide RDSO's letter No. EL/2.2.13/FAG/NU2236 dated 09.07.2019.

- 6.4 Submitted document of M/s BEML for traction motor has been examined. Comments on type test protocol of traction motor advised to M/s BEML vide note No. EL/3.2.182 dated 16.07.2019.
- 6.5 Overall characteristic test results with document nos. TR-MM-SEA445-0007 Rev.1, Attachment 1 & Attachment 2 of M/s Toshiba make traction Motor type SEA-445 of Dalian Project for IGBT based 3-phase drive propulsion of Metro Railway, Kolkata submitted by M/s CRRC Dalian vide their letter No. Nil dated 14.05.2019 through PS & EMU Directorate's note No. dated 21.05.2019 were examined and Comments has been given vide note No. EL/3.2.182/KM/30 (Dalian) dated 16.07.2019 to concerned group.
- 6.6 M/s Alstom had submitted 'Validation details of traction motor' Doc. No. NHD0000266721-Rev 8 for examination. Validation details of traction motor has been examined and comments had been communicated vide Electrical Directorate note No. EL/3.2.182 (Madhepura) dated 24.07.2019.
- 6.7 M/s Alstom had submitted internal type test report No. NRD0000572260-Rev 2 of Traction Motor for examination. Type test report has been examined and comments has been communicated vide Electrical Directorate note No. EL/3.2.182 (Madhepura) dated 27.07.2019.

**7.0 FRESH VENDOR REGISTRATION APPLICATION DURING July'2019**

SN	No. of Online Application received	No. of Application registered after fee verification	No. of application where query raised	No. of application rejected due to deficiencies
01	Nil	Nil	Nil	Nil

*with regards,*

Yours sincerely,

*ओमप्रकाश 31.7.19*  
(Om Prakash Kesari)

**Shri Rajesh Tiwari,  
Member Traction,  
Railway Board, Rail Bhavan,  
New Delhi-110 001**

Copy for kind information to-

Additional Member (Electrical), Railway Board, Rail Bhawan, New Delhi-01.



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

Position as on: 08.07.2019

Rly	Shed	TM location	WAP7	WAG9H	Total no. of bogies	Balance to be modified	PDC
CR	AQ	1,2	28	214	242	72	Dec'19
		3	30	255	285	285	
	BSL	1,2	0	6	6	6	
		3	0	21	21	21	
	KYN	1,2	0	0	0	Nil	
		3	0	96	96	96	
ECR	GMO	1,2	0	198	198	58	Dec'19
		3	0	49	49	0	
NR	GZB	1,2	143	0	143	64	Dec'19
		3	159	0	159	73	
SCR	LGD	1,2	68	164	232	0	Dec.' 19
		3	84	206	290	240	
	KZJ	1,2	0	0	0	Nil	
		3	0	102	102	9	
SER	TATA	1,2	0	0	0	Nil	Dec.'19
		3	0	49	49	49	
WCR	TKD	1,2	39	77	116	7	Oct'19
		3	47	89	136	7	

Note: Following sheds have already modified motor support in all locations of bogies.  
HWH, WAT, LDH, CNB, BRC, ED, BNDM, SRC, ET, NKJ, BIA, RPM

**Annexure- II****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	16	15	01	0
2	AQ	158	80	77	1
3	KYN	69	16	53	0
4	GMO	177	0	177	0
5	WAT	140	13.5	125.5	1
6	LDH	51	22	0	29
7	CNB	42	9	3	30
8	LGD+GY(D)	104+7(WAG9HC)	27	76	1+7(WAG9HC received from CLW)
9	KZJ +GY(D)	51	27	10	14
10	TATA	152	1	151	0
11	BIA	102	31	69	2
12	TKD	103	81	1	21
13	NKJ	29	11	14	4
14	BNDM	41	18	19	4
<b>Total</b>		1242	351.5	776.5	114



### Status of provision of High Reach Pantograph

Annexure-III

RLY	Shed	Rev. 1								
		WAG5	WAG7	WAG9	WAP5	WAP7	WAP1	WAP4	Shop Floor	Rev 1 Total
CR	AQ	0	0	14	0	0	0	0	5	19
CR	KYN	0	0	1	0	0	0	0	0	1
CR	BSL	0	0	0	0	0	0	0	0	0
NR	LDH	0	6	0	0	0	0	0	3	9
NR	GZB	0	0	0	0	0	0	0	0	0
NR	KJGY	0	1	0	0	0	0	0	0	1
NCR	JHS	1	18	0	0	0	0	0	1	20
NCR	CNB	0	6	27	0	0	0	0	5	38
ER	ASN	0	0	0	0	0	0	0	0	0
ER	HWH	0	0	0	0	0	0	0	0	0
ECR	GMO	0	0	0	0	0	0	0	0	0
ECR	MGS	0	0	0	0	0	0	0	0	0
ECOR	ANGL	0	3	0	0	0	0	0	0	3
ECOR	VSKP	0	0	3	0	0	0	0	3	6
SCR	KZJ	0	0	0	0	0	0	0	0	0
SCR	LGD	0	0	9	0	0	0	0	2	11
SCR	BZA	0	1	0	0	0	0	0	2	3
SER	BKSC	0	0	0	0	0	0	0	0	0
SER	BNDM	0	0	8	0	0	0	0	0	8
SER	SRC	0	0	0	0	0	0	0	0	0
SER	TATA	0	2	6	0	0	0	0	3	11
SECR	BIA	0	0	8	0	2	0	0	14	24
SR	AJJ	0	0	0	0	0	0	0	0	0
SR	ED	0	3	0	0	0	0	0	0	3
SR	RPM	0	0	0	0	0	0	0	0	0
WCR	ET	0	0	0	0	0	0	0	0	0
WCR	NKJ	0	0	0	0	0	0	0	0	0
WCR	TKD	0	0	0	0	0	0	0	2	2
WR	BL	0	0	0	0	0	0	0	0	0
WR	BRC	0	0	0	0	0	0	0	0	0
IR	TOTAL	1	40	76	0	2	0	0	40	159



RLY	Shed	Rev. 2									
		WAG5	WAG7	WAG9	WAP5	WAP7	WAP1	WAP4	Shop Floor	Rev 2 Total	Total Shed (Rev. 1 & 2)
CR	AQ	0	0	3	0	2	0	0	0	5	24
CR	KYN	0	0	28	0	1	0	0	2	31	32
CR	BSL	0	0	13	0	0	0	0	1	14	14
NR	LDH	0	1	31	0	0	0	1	0	33	42
NR	GZB	0	0	0	8	0	8	0	15	31	31
NR	KJGY	0	0	0	0	0	0	0	0	0	1
NCR	JHS	1	0	0	0	0	0	0	0	1	21
NCR	CNB	0	0	0	0	0	0	0	0	0	38
ER	ASN	0	0	0	0	0	0	0	0	0	0
ER	HWH	0	0	0	0	0	0	0	0	0	0
ECR	GMO	0	0	21	0	0	0	0	0	21	21
ECR	MGS	0	3	0	0	0	0	0	0	3	3
ECOR	ANGL	0	0	0	0	0	0	0	0	0	3
ECOR	VSKP	0	0	1	0	0	0	0	3	4	10
SCR	KZJ	0	0	23	0	0	0	0	2	25	25
SCR	LGD	0	0	9	0	0	0	0	0	9	20
SCR	BZA	0	5	0	0	0	0	0	0	5	8
SER	BKSC	0	0	0	0	0	0	0	0	0	0
SER	BNDM	0	0	0	0	0	0	0	0	0	8
SER	SRC	0	0	0	0	1	0	0	2	3	3
SER	TATA	0	0	8	0	0	0	0	0	8	19
SECR	BIA	0	0	0	0	3	0	0	0	3	27
SR	AJJ	0	0	0	0	0	0	0	0	0	0
SR	ED	0	4	0	0	0	0	0	0	4	7
SR	RPM	0	0	0	0	0	0	0	0	0	0
WCR	ET	0	0	0	0	0	0	0	2	2	2
WCR	NKJ	0	5	4	0	0	0	0	1	10	10
WCR	TKD	0	0	41	0	7	0	0	7	55	57
WR	BL	0	51	0	0	0	0	0	0	51	51
WR	BRC	0	0	0	27	11	0	7	42	87	87
IR	TOTAL	1	69	182	35	25	8	8	77	405	564

**Note:** (i) For BSL/CR- 01 No. at Shop floor since under repair (Under warranty)  
(ii) For LDH/NR- all 09 nos. Rev-1 panto has been modified for increasing working height (CAM Modification)