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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

Date: 10.09.2018

*Dear Shri Ghanshyam Singh ji,*

**Subject: PCDO for the month of August, 2018.**

## **1.0 HIGHLIGHTS**

- 1.1 Technical Circular no. RDSO/ 2018/EL/TC/0148, Rev.'0' Dated 23.08.2018 issued vide this office letter no. EL/3.2.19/3-phase dated 23.08.2018 regarding guidelines for refurbishment/ rehabilitation of printed circuit boards of E70 Brake System for 3- Phase Electric Locomotives type WAP5, WAG9 & WAP7.
- 1.2 Modification Sheet No. RDSO/2018/EL/MS/0422 Rev '1' dated 01.08.2018 for GR-'0' indication of middle & trailing locomotives through additional signaling lamps in leading locomotive in Multiple Unit/consist operation of two/three locomotives had been prepared and issued vide letter no. EL/4.2.15/Gen dated 01.08.2018
- 1.3 Special Maintenance Instruction No. RDSO/2018/EL/SMI/0324 Rev '0' dated 24.08.2018 for Use of portable oil dust checker (Metal content checker) for condition monitoring of Gear case oil to detects in bull gear, pinion and Motor Suspension Unit (MSU) in 3-Phase electric locomotives had been prepared and issued vide letter no. EL/1.3.10/3 dated 24.08.2018.
- 1.4 Special Maintenance Instruction No.RDSO/2018/EL/SMI/0323 Rev '0' dated 20.08.2018 for Procedure of measurement of axial clearance and limit of axial clearance for traction motor type 6FRA6068 had been prepared and issued vide letter no. EL/2.2.13 dated 20.08.2018. It is expected that implementation of this SMI will improve reliability of Traction Motors & bearings of Electric locomotives.

- 1.5 Modification Sheet (MS) No. RDSO/2018/EL/MS/0472 Rev '0' dated 20.08.2018 for Modification in Hex. Socket CSK Head Screws for fixing of Traction motor Bellow plate to achieve adequate mechanical strength in Traction motor TM type 6FRA6068 for WAG9/WAP7 class of locomotives had been prepared and issued vide letter no. EL/3.2.85 dated 20.08.2018
- 1.6 A progress review meeting on WAG9H locomotive to be manufactured by M/s BHEL, Jhansi against supply order of 30 nos. of WAG9H locomotives with representatives of M/s BHEL, Jhansi and Inspection cell RDSO/ Jhansi was held at RDSO, Lucknow on 21.08.2018. Minutes of meeting were circulated vide letter no. EL/3.1.22/4 dated 21.08.2018.

## **2.0 RELIABILITY IMPROVEMENT**

- 2.1 Vide letter no. EL/11.5.5/5 dtd. 01.08.18, MOM on reliability issues of TM temperature sensors, transformer oil pressure sensor and FDU unit held at ELS/BIA had been issued to Railways and suppliers.
- 2.2 A meeting on reliability improvement of VCB for Electric Locomotive with Zonal Railways and VCB manufacturers held on 10.08.2018 at RDSO, Lucknow. Minutes of meeting were circulated vide letter no. EL/3.2.61 dated 16.08.2018.
- 2.3 A meeting on reliability improvements of N-32 Tap Changer with Zonal Railways & Tap Changer manufacturers was held at RDSO, Lucknow on 24.08.2018. Minutes of meeting were circulated vide letter no. EL/3.1.22/4 dated 31.08.2018.
- 2.4 A meeting was held at RDSO on reliability of Oil cooling unit of three phase Electric Locomotive on 20.08.2018 at RDSO. Minutes of meeting were issued vide letter no: EL/3.2.176/2 dated 23/08/2018.
- 2.5 A meeting was held at RDSO with manufacturers to review the performance of ESMON of conventional locomotive on 28.08.2018 at RDSO.
- 2.6 Technical Circular No. RDSO/2018/EL/TC/0149 Rev.0 dated 27.08.2018 for repair of crack in welding of plate of Pivot Transom sub assembly of bogie frames for WAP7/WAG9 has been issued to zonal railways vide this office letter No. EL/3.1.35/2(Bogie) dated 27.08.2018.



- 2.7 A meeting was held at RDSO on 21.08.2018 with Firm & Railways regarding failure of TM Shaft Pinion of WAG9 Electric Locomotives. The minutes of meeting (MOM) for the same have been issued vide this office letter No. EL/3.2.35/20 dated 29.08.2018 to Zonal Railways & firm. During the meeting firms were advised to replace the balance pinion failed during warranty period. M/s SAN was asked to bring a new pinion to check the profile along with detailed failure investigation report and action plan.
- 2.8 A meeting was held at RDSO on 27.08.2018 with Firm & Railways regarding failure of Fabricated Bolster in WAP-4 electric locomotives. The minutes of meeting (MOM) for the same have been issued vide this office letter No. EL/3.2.13/6 dated 29.08.2018 to Zonal Railways & firm. During the meeting it was decided that the firm shall submit the corrective action plan to prevent repetition of failure along with the relevant reports.
- 2.9 A draft modification sheet no RDSO/2018/EL/MS/XXXX Rev 0 dated 20.08.2018 for provision of air supply for un-loader valve circuit directly from MR 1 pipe line instead of Aux. Reservoir pipe line in CCB brake system in 3 phase locomotive has been uploaded in RDSO website for comments/suggestions if any, vide RDSO letter no. EL/3.2.19/3-phase/(CCB) dated 20.08.2018.
- 2.10 The minutes of meeting which was held on 08.08.18 at RDSO to discuss on reliability issues and refurbishment of electronic cards for E 70 brake system of 3 phase Locomotive has been released vide RDSO letter no EL/3.2.19/3 phase dated 20.08.2018.
- 2.11 The minutes of meeting held on 08.08.18 at RDSO on failure cases of BP/FP hose pipe has been released vide RDSO letter no EL/3.2.19/G dated 20.08.2018.
- 2.12 To resolve the problem in Feed valve failure in CCB brake system of 3 phase locomotive, OEM has improved the rubber seal of feed valve and provided in 03 locos for field trial. Railways has been advised to furnish the performance report vide RDSO letter no EL/3.2.19/3 phase/CCB/3 dated 30.08.2018.
- 2.13 The minutes of meeting which was held on 07.08.18 at RDSO on developmental issues of brake system for three phase locomotive has been released vide RDSO letter no EL/3.2.19/3 phase ( CCB) dated 20.08.2018.
- 2.14 The minutes of meeting which was held on 31.07.18 at RDSO to review of performance of main compressors having capacity 1000 lpm & 1750 lpm for electric locomotive has been released vide RDSO letter no EL/3.2.15/3-phase dated 01.08.2018.

### **3.0 PROTOTYPE TESTING/QUALITY AUDIT**

- 3.1 The balance tests i.e. after endurance test resistance to shock test, transverse rigidity test of high reach pantograph developed by M/s. FTRTIL has been carried out at firm's works premises Hasur. The report is under scrutiny.
- 3.2 Prototype testing on six sets of Assembly components of Traction motor type 6FRA-6068 developed by M/s Saini Electrical & Engineering Works, Navi Mumbai was carried out by RDSO jointly with CLW from 17.07.2018 to 23.07.2018 at firm premises, at Mumbai. Type test results had been examined & found to be in order. Prototype clearance had been given vide letter no. EL/3.2.182/6FRA/SAINI/Part dated 08.08.2018 for fitment & field trial.

### **4.0 SPECIFICATION/STR**

- 4.1 The final draft Specification including the reasoned documents of 1745 lpm oil lubricated compressor for electric locomotives no RDSO/2018/EL/SPEC/XXXX Rev 0 dated Aug 2018 has been uploaded at RDSO website for comments/suggestion from railways and industries vide RDSO letter no EL/3.2.15./3 phase dated 31.08.2018.

### **5.0 DEVELOPMENTAL ACTIVITIES**

- 5.1 Vide letter no. EL/11.5.5/21 dated 06.08.18, MOM was issued for coolant being used in traction converter of three phase locomotive.
- 5.2 Vide letter no. EL/11.5.5/21 dated 23.08.18, limited approval was accorded for downloading the modified software release package 218T01BT and 318T01BT in 05 WAP-7 locomotives at ELS/BRC and in 05 WAG9/9H locomotives at ELS/VSKP in BTIPL make Traction Converter.
- 5.3 Clearance to M/s High-Volt, Mumbai make secondary conservator tank for fitment and field trial in 10 nos. 1300 KVA EMU transformers to prevent ingress of transformer oil into silica gel breather has been accorded vide this office letter no. EL/4.3.35/AC-DC dated 02.08.2018.
- 5.4 Electrical and Pneumatic test schedules & check-sheet for WAG9H locomotive for inspection of WAG9H locomotive against Railway Board P.O. no. 9276502 dated 01.09.2017 awarded to M/s BHEL, Jhansi is cleared vide this office letter no. EL/3.1.22/4 dated 08.08.2018.



- 5.6 The OGA drawing no. H-6531-WDG4-0001 and mounting arrangement drawings of under-slung transformer of M/s High-Volt for converted WDG4 locomotive has been cleared based on the comments of DLW subject to validation of FE analysis of modified under-frame from Motive Power Dte. of RDSO vide this office letter no. EL/3.2.1/3-phase dated 28.08.2018.
- 5.7 A trial on TCAS with CCB/E 70 brake system equipped WAP-5 locos at a speed of 160 Kmph is to be conducted by NR. Railways has been advised to take the suitable action vide RDSO letter no. EL/3.2.19/3-phase/TCAS dated 28.08.2018.
- 5.8 Vide letter no. EL/3.1.35/24 dated 06.08.18, M/s MELPL was requested to provide proper solution/modification and reoffer the locomotive for oscillation trials as the test locomotive WAG12 had exhibited unsatisfactory riding and stability characteristics at 70 kmph.

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

- 6.1 The online application for fresh registration of 1750 lpm oil lubricated compressor model RR 1750 of M/s AIML has been examined by RDSO and found to be in order. Hence closed. Firm has been informed vide RDSO letter no EL/3.2.15/ 3 phase (AIML) dated 08.08.2018.
- 6.2 The report no. SBP1604044 of instrumented trial of Suspension tube & TM type 3701BY/BX for Metro Railway Kolkata submitted by M/s BHEL vide their letter no. TME/TM3701BY&BX/RDSO/2018-19/204 dated 04.05.2018 had been examined. The acceptance of the report and further course of actions to be taken had been communicated to PS & EMU Directorate vide Electrical Directorate's note no. EL/4.3.42 (Metro) dated 21.08.2018.
- 6.3 Motorette test report no. RD: 26:15:97, for traction motors type TM3701BY/BX of air conditioned rakes for Metro Railway Kolkata submitted by M/s BHEL had been examined and its acceptance had been communicated to PS&EMU Directorate vide Electrical Directorate's note no. EL/4.3.42 (Metro) dated 24.08.2018.
- 6.4 To overcome the problem of ingress of gear case oil into TM, RDSO vide letter no. EL/3.2.182 dated 20.08.2018 had advised South Eastern Railway that ELS/TATA to collect 5 loco sets(30 TM sets) of assembly components of 6FRA6068 TM with original ABB dimensions from CLW and provide them in kit form in five WAP7 locomotives for trial whose performance will be monitored by CLW &TATA shed.

- 6.5 To overcome the problem of ingress of gear case oil into TM, RDSO vide letter no. EL/3.2.182 dated 30.08.2018 had advised Northern Railway that ELS/GZB to collect 5 loco sets (30 TM sets) of assembly components of 6FRA6068 TM with original ABB dimensions from CLW and provide them in kit form in five WAP7 locomotives for trial whose performance will be monitored by CLW & GZB shed.

*with best regards,*

Yours sincerely,

डॉ. म. प्रकाश 10/9/18  
(Om Prakash Kesari)

**Shri Ghanshyam Singh,  
Member Traction,  
Railway Board, Rail Bhavan,  
New Delhi-110 001**

Copy to-

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|------------------------------------|---|----------------------|
| 1. Additional Member (Electrical), | ) |                      |
| Railway Board, Rail Bhawan,        | ) | For kind information |
| New Delhi.                         | ) |                      |
| 2. Secy to DG/RDSO                 | ) |                      |

डॉ. म. प्रकाश 10/9/18  
(Om Prakash Kesari)  
For Director General/Electrical



## Annexure- I

		Replacement of EPROM after 6 years of service		Create low pressure zone by providing Baffle plates		Blocking leak holes in the Machine Room		Reed relay modification		Cab redundancy modification	
<u>Railway</u>	<u>Shed</u>	<u>No. of Locos to be done</u>	<u>Cumulative up to date</u>	<u>No. of Locos to be done</u>	<u>Cumulative up to date</u>	<u>No. of Locos to be done</u>	<u>Cumulative up to date</u>	<u>No. of Locos to be done</u>	<u>Cumulative up to date</u>	<u>No. of Locos to be done</u>	<u>Cumulative up to date</u>
CR	AQ	100	53	175	175	175	175	169	169	169	73
CR	KYN	0	0	64	155	64	155	64	155	64	181
ECOR	WAT	0	0	0	140	0	140	0	140	0	133
ECR	GMO	69	43	157	157	157	157	157	120	157	60
ER	HHW	3	3	25	25	25	25	25	32	25	25
NCR	CNB	0	0	13	13	13	13	0	0	13	13
NR	GZB	90	65	86	86	166	166	142	142	87	87
NR	LDH	0	0	21	21	21	21	21	21	21	0
SCR	LGD	86	24	176	176	176	176	161	161	161	158
SECR	BIA	14	17	114	274	114	299	102	222	114	215
SER	TATA	4	0	152	200	152	211	152	173	152	120
SR	RPM	0	0	56	56	56	56	56	56	56	55
WCR	TKD	39	35	143	144	143	144	143	144	143	71
WR	BRC	2	2	90	90	90	90	83	83	22	22
<b>Grand</b>	<b>TTL</b>	<b>407</b>	<b>242</b>	<b>1272</b>	<b>1712</b>	<b>1352</b>	<b>1828</b>	<b>1275</b>	<b>1618</b>	<b>1184</b>	<b>1213</b>

## Annexure-II

### Status of un-modified motor support (TM-1 & 2 locations) in WAP7 & WAG9/9H three phase locomotives

Rly	Shed	TM location	WAP	WAG9/9H	Tot	Action plan	PDC
CR	AQ	1,2&3	28	214	242	For 242 bogies for TM 1 & 2 position retendered, LOA awarded to M/s Ashika commercial pvt ltd Kolkata on 25.01.2018. 34 bogies completed. For TM 3 position not being changed.	Mar'19
		3			71		
CR	KYN	ALL	0	21	21	16 bogies have been modified by M/s. AnupMalleables, Jharkhand.	Sep'18
ER	HWH	ALL	0	0	0	All modified	N/A
ECR	GMO	ALL	0	49+198*	247	Tender awarded to M/s. Ved, Kanpur. Work started in Jan.2018. 90 bogies have been modified.	Mar'19
ECoR	WAT	1,2&3	0	12*	12	7 no. modified by M/s Ved. Only 5 bogies remaining.	Sep'18
NR	GZB	ALL	143	0	143	16 bogies modified M/s. Ved, Kanpur.	Jan'19
NR	LDH	ALL	0	0	0	All modified	N/A
NCR	CNB	ALL	0	0	0	All modified	N/A
SR	RPM	1 & 2	49	0	49	41 bogies modified by M/s Ved Kanpur.	Oct'18
		3	69		69	48 bogies modified.	
SCR	LGD	1&2	68	161	229	88 bogies have been modified by M/s. Ved, Kanpur.	Jan'19
		3	84	206	290	Modification work to be done during POH. But not being done by POH shops.	
SER	TATA	1,2&3	0	40	40	All bogies have been modified by M/s. AnupMalleables, Jharkhand.	NA
		3	0	66	66	21 no. bogies have been modified by M/s Ved, Kanpur. For 49 bogies case file under finance vetting.	
SECR	BIA	1,2&3	16	58	74	37 nos. modified by M/s. AnupMalleables, Jharkhand.	Dec'18
WR	BRC	ALL	0	0	0	All modified	N/A
WCR	TKD	1, 2 & 3	39	77	116	Modified PO issued to M/s. AnupMalleables, Jharkhand for 116 bogies for all three locations on 13.02.2018. 16 bogies completed. For 20 bogies for only TM 3 position tender opened 2 times but could not be finalized.	Mar'19
		3			20		



### Annexure- III

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	15	13	02	0
2	AQ	156	64	92	0
3	KYN	67	0	67	0
4	GMO	179	0	179	0
5	WAT	140	Locos to be checked as per MS 455		0
6	LDH	21	21	0	0
7	CNB	13	9	4	0
8	LGD	112	20	92	0
9	KZJ	31	28	3	0
10	TATA	152	1	151	0
11	BIA	95	31	64	0
12	TKD	80	52	27	1
13	NKJ	25	Locos to be checked as per MS 455		0
14	BNDM	34			0

Inspection position, of RDSO, Cell BPL& JHS- Aug-18

Sr.No.	Item Name	No. of Items
1.	Pinion 17 Teeth	90
2.	Ecc (BG)	11
3.	IGBT Based 3 Phase Propulsion system( JHS loco)	2
4.	Traction Motor Complete 4907 (GR 18:65)	65
5.	Control Panel for Traction	3
6.	Main Field Coil assly.	96
7.	Traction Alternator 9901	3
8.	Gear 90 Teeth	30
9.	C1001 TM (GR 18:74)	16
10.	Armature for TM 4907	47
11.	TM 6FRA 6068	115
12.	AFR	115
13.	Thyrite Resister	115
14.	Isolating Switch	115
15.	Rehab. Traction Alternator 7362	10
16.	Complete Stator 6FRA 6068	5
17.	Compole& Coil assly.	200
18.	3Phase loco Transformer 7775	6
19.	ACEMU 1050 KVA Transformer	12