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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
Executive Director Standards Electrical/Co-ord

D.O.No.EL.8.5.10.1

Date:10.10.2017

Subject: PCDO for the month of September, 2017

1.0 HIGHLIGHTS

Design review/comments on test report of motor heat run for screw compressor, TCN REV 2, revised operational context description Rev. 3, Validation Details for screw compressor and contactor circuit breaker relay isolator cables Documents as per Procurement cum Maintenance of Electric Locomotive Factory at Madhepura issued vide letter no. EL/3.1.35/24 dtd. 08.09.17, 11.09.17, 18.09.17, 20.09.17 and 27.09.2017 respectively.

2.0 DEV ELOPMENTAL WORKS:

- 2.1 The on board fitment trial of 1750 lpm capacity oil free compressor model BURAN 22 has been carried out at ELS/RPM and found to be in order. Firm has been advised to re submit the GA drawing along with mounting arrangement of oil free compressor model BURAN 22.
- 2.2 M/s Faiveley transport Rail technologies and M/s ELGI equipment ltd are approved for 1750 lpm oil free compressor and included in list of RDSO vendors directory for development order for 1750 lpm oil free compressor.

- 2.3 Vide letter no. EL/11.5.5/6/AAL dtd. 07.09.17, test protocol No. AAL 2x500/001 (Rev. 2) to establish the adequacy of modified design of the upgraded hotel load converter at 960V input for WAP-7 loco had been provisionally approved and tests conducted.
- 2.3 Company name has been changed from FAG Bearings India Limited to Schaeffler India Limited for item CRU-150 for WAG9/WAP7 locomotives vide this office letter no. EL/3.2/108/3.ph dated 07.09.2017.

3.0 RELIABILITY IMPROVEMENT:

- 3.1 Special Maintenance Instruction No. RDSO/2017/EL/SMI/0314 (Rev '0') dated 29.09.2017 for Use of Dial Snap Gauges for measurement of shaft diameter of traction motor for Electric Locomotives has been prepared and issued vide letter no. EL/2.2.13 dated 29.09.2017. It is expected that implementation of this SMI will improve reliability of traction motor bearings.
- 3.2 Technical Circular No.RDSO/2017/ EL/ TC/0138, Rev- '0' dated 22.09.2017 for maintenance of electric locomotives in diesel sheds has been prepared and issued vide letter no. EL/3.6.4/2(Part) dated 22.09.2017.
- 3.3 A meeting was conducted on 18.08.2017 at RDSO with M/s. FTRTIL on reliability related issues of E 70 brake system of 3 phase electric locomotive and to reduce the failures action plan has been drawn. The minutes of meeting has been issued vide RDSO letter no EL/3.2.19/ 3 phase dated -22.09.2017.
- 3.4 A meeting was conducted on 06.09.2017 at ELS/HWH/ER with M/s. KBIL on reliability related issues of CCB brake system of 3 phase electric locomotive The minutes of meeting has been issued vide RDSO letter no EL/3.2.19/ 3 phase (CCB) dated -25.09..2017. & same has been uploaded in RDSO website.
- 3.5 A meeting was conducted on 29.08.2017 at RDSO with M/s. Fluid Control Pvt. Ltd on failure of pneumatic pipe connection to harmonic filter/ hotel load converter due to leakage during service in 3 phase electric locomotive. This was discussed in 38th MSG also. The minutes of meeting has been issued vide RDSO letter no EL/3.2.19/ 3 phase dated -18.09.2017
- 3.6 A Special Maintenance instruction bearing serial no RDSO/2017/EL/SMI/ 0313 , Rev 0 dated 30.08.2017 on procedure of pneumatic tube connection to electro-pneumatic contactor of harmonic filter/hotel load converter of 3 phase locomotive has been issued vide RDSO letter no EL/3.2.19/ 3 phase dated 30.08.2017 & same has been uploaded on RDSO website.

- 3.7 In terms of 38th MSG decision a technical circular bearing TC no RDSO/2017/EL/TC/0139/Rev 0 dated 22.09..2017 on procedure of dew point depression temperature measurement of compressed air passing through heat less regenerative twin tower type air dryer has been issued vide RDSO letter no EL/3.2.19/ 1 dated 22.09.2017 & same has been uploaded on RDSO website.
- 3.8 A modification sheet bearing serial no RDSO/2017/EL/MS//0462/Rev 0 dated 08.09..2017 on provision of disc type coupling in main compressor of 1000 LPM capacity in place of resilient coupling has been issued vide RDSO letter no EL/3.2.15/ Main dated 08.09.2017 & same has been uploaded on RDSO website.
- 3.9 A modification sheet bearing serial no RDSO/2017/EL/MS//0463/Rev 0 dated 08.09..2017 was issued on provision of trap chamber for collecting coal/dust particles coming from BP pipe in A 9 – BP circuit in conventional locomotive. The modification sheet has been issued vide RDSO letter no EL/3.2.19/ G dated 08.09.2017 & same has been uploaded on RDSO website.
- 3.10 Vide letter no. EL/11.5.5/1/IGBT/BT dtd. 25.09.17, in order to improve reliability of 3-phase electric locomotive modified software Release 217T01BT in WAP7 and Release 317T01BT had been approved for uploading in all locomotives equipped with BTIPL make IGBT based traction converters.
- 3.11 Vide letter no. EL/3.1.35/17 (BHEL) dtd. 25.9.17, approval of the application software version-373 for IGBT based traction converter had been given to BHEL to upload in all locomotives equipped with BHEL make IGBT traction converters.
- 3.12 A Special Maintenance Instruction (SMI) No. RDSO/2017/EL/SMI/0309, Rev. '0' for procedure for assembly of Aluminum Gear Case and Crown gear coupling in WAP5 Electric Locomotive has been prepared & issued to all zonal Railways on 22.09.2017 vide this office letter No. EL/3.1.35/23.
- 3.13 A Special Maintenance Instruction (SMI) No. RDSO/2017/EL/SMI/0310, Rev. '0' for procedure for Crown gear coupling in WAP5 Electric Locomotive has been prepared & issued to all zonal Railways on 22.09.2017 vide this office letter No. EL/3.1.35/22.
- 3.14 A meeting was held at RDSO on 22.09.2017 regarding development of specification of fog light for electric locomotives. The minutes of meeting regarding development of specification of fog light for electric locomotives has been issued to zonal Railways/firm on 22.09.2017 vide this office letter No. EL/6.11.1(Fog-Light).
- 3.15 A meeting was held at RDSO on 25.09.2017 regarding failure of Elastic ring in 3-phase electric locomotives. The minutes of meeting regarding failure of Elastic ring

in 3-phase electric locomotives has been issued to zonal Railways/firm on 26.09.2017 vide this office letter No. EL/3.1.35/12.

4.0 SPECIFICATION/STR:

- 4.1 Vide letter no. EL/3.1.35/2(Elect) dtd 25.09.17, a modification sheet for provision of Auxiliary interlock for monitoring of A2-B2 segment of Harmonic filter ON (8.1)/adoption (8.2) Contactor in GTO/IGBT locomotives (MS No. RDSO/2017/EL/MS/0464 Rev.'0') had been issued.
- 4.2 Draft SMI regarding water jet facility in Electric loco shed/workshop was prepared & emailed to Railways for comments/suggestions vide letter no. EL/3.6.4/2 dated 26.09.2017 besides posting on RDSO website.
- 4.3 Technical Circular for arresting the chattering of contactor K0,K1 & K2 in WAG7 locos fitted with air conditioning system bearing No. RDSO/2017/EL/TC/0140 Rev '0' issued on 26/09/2017 and sent to Railways vide letter no. EL/3.1.3 dated 26.09.2017.
- 4.4 Draft Specification and Functional Requirement Specification(FRS) for development of LED based Fog Light for Electric Locomotive has been prepared and uploaded on 25.09.2017 at RDSO website for comments from industries and zonal railways.
- 4.5 Draft Specification and Functional Requirement Specification (FRS) for development of Twin beam head light for Electric Locomotive has been prepared and uploaded on 26.09.2017 at RDSO website for comments from industries and zonal railways.

5.0 PROTOTYPE TESTING/QUALITY AUDIT:

- 5.1 Consistency test on M/s BTIPL make traction Converter had been completed and clearance given vide letter no. EL/11.5.5/1/IGBT/BT dated 18-09-2017.
- 5.2 Partial prototype testing of M/s Huber+Suhner make Thin walled flexible Elastomeric Cable with copper conductors for Tap Changer Electric locomotives, AC-DC EMUs, BG AC EMUs & MEMU/ Coaching stock as per RDSO specification no. ELRS/SPEC/ELC/0019, Rev.'3' has been carried out on 13th and 14th Sept. 2017 at M/s ERDA, Vadodara.
- 5.3 Partial prototype testing of M/s Universal Cable make Thin walled flexible Elastomeric Cable with copper conductors chemical curing process for Tap

Changer Electric locomotives, AC-DC EMUs, BG AC EMUs & MEMU/ Coaching stock as per RDSO specification no. ELRS/SPEC/ELC/0019, Rev.'3' has been carried out from 23rd Sept. to 25th Sept. 2017 at M/s Universal Cable's Satna Works.

- 5.4 Partial prototype testing of M/s High-Volt make 1250 KVA traction transformer for AC-DC Siemens EMU rakes as per WR specification no. CEE(RS)/EMU/Tech. Specs/2014-15/01 dated 17.09.2014 to be supplied against Western Railway's P.O. no. 09145020175213 dated 28.02.2017 has been carried out at M/s High-Volt's works and at M/s ERDA, Savli unit, Vadodara from 19th to 25th Sept. 2017.

6.0 OTHER ACTIVITIES:

- 6.1 Draft technical specification No. RDSO/PE/SPEC/D/EMU/0190–2017 (Rev.0) for the procurement of three phase propulsion & control equipment for AC EMU under MUTP-III project has been examined. Comments have been given vide RDSO note No. No. EL/3.2.182/MRVC-III dated 14.09.2017 to PS & EMU Directorate.

- 6.2 Design document of traction motor Doc. No. TEC-KME-RDMT-S001-01, Version 1 including 9 attachments having doc. nos. TEC-KME-RDMT-S001-01_Attachement 1 to TEC-KME-RDMT-S001-01_Attachement 9 submitted by M/s Zhuzhou CRRC TEC for Kolkata Metro as per RDSO specification No. RDSO/PE/SPEC/EMU/0182, Rev.1 against ICF PO No. 08/15/1466/1119/F dated 25.02.2017 has been examined. Comments have been given vide RDSO note no. EL/3.2.182/K. Metro/Zhuzhou dated 25.09.2017.

- 6.3 Test procedure doc. no. KD-SEA-445-023 Rev.15 of traction Motor type SEA-445 of Dalian Project for IGBT based 3-phase drive propulsion for Metro Railway, Kolkata submitted by M/s Toshiba had been examined and provisionally approved vide note No.EL/3.2.182/KM/30(Dalian) dated 28.09.2017

6.4 Rejection of registration of application

The registration of application to computer controlled brake system of M/s Stone India Ltd. has been rejected as firm has not taken any initiative for development of COBS as well as manufacture and supply of the item since August 2014. The application of registration above subject item has been rejected vide RDSO letter no EL/3.2.19/ 3 phase (SIL) dated 27.09.2017 .

- 6.5 The registration of application to Pantograph type WBL-23.03 of M/s Schunk metal & carbon India Pvt. Ltd. has been rejected as DC section, is not required. Hence the registration of application to Pantograph for DC section has been rejected vide RDSO letter no EL/2.2.1/ MRVC dated 27.09.2017.
- 6.6 The registration of application to 180 KVA SIV of M/s Crompton Greaves. Ltd. has been rejected as no further correspondence has been received from May 2016 onwards. Hence the application of above subject item has been rejected vide RDSO letter no EL/1.2.9.1 / CGL dated 27.09.2017
- 6.7 The registration of application to 180 KVA SIV of M/s Signatron has been rejected as no further correspondence has been received from Oct 2016 onwards. Hence the registration of application for development of 180 KVA SIV has been rejected vide RDSO letter no EL/1.2.9.1 / CGL dated 27.09.2017.
- 6.8 The registration of application for repair / rehabilitation of Forced Cooled Roof Mounted DBR of M/s. Saini Electrical & Engineering Works has been rejected as no further correspondence received from firm from Jan 2016 onwards. Hence the registration of application for development of Forced cooled roof mounted DBR has been rejected vide RDSO letter no EL/1.2.9.1 / Saini dated 27.09.2017
- 6.9 ADE/SE&AM & SSE/SE&AM visited ELS/CNB along with DSIG/RDSO & team for indentifying the space in various electric locomotives for fitment of on-board TCAS/TPWS subsystems.
- 6.10 Schaeffler KG/Germany, Romania Italy (Brand Name: FAG) has been corrected as Schaeffler/Europe (Brand Name: FAG) vide letter no. EL/2.2.48 (FAG) dated 27/09/2017.
- 6.11 Train Simulation Studies were done to determine the section running time between NZM-BDTS for Rajdhani train (with single & double WAP5).The test results were furnished to Railway Board.

Yours sincerely,

(Om Prakash Kesari)

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

Copy to-

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

(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	169	169	169	169	169	169	169	73
CR	KYN	0	0	64	155	64	155	64	155	64	181
ECoR	WAT	0	0	33	33	33	32	33	30	33	25
ECR	GM O	69	43	155	155	155	155	155	120	155	60
ER	HW H	3	3	25	25	25	25	25	32	25	25
NCR	CNB	0	0	8	8	8	8	0	0	8	8
NR	GZB	90	45	86	86	151	151	124	124	87	87
NR	LDH	0	0	0	0	0	0	0	0	0	0
SCR	LGD	86	24	176	176	176	176	161	161	161	158
SECR	BIA	10	3	71	46	71	71	64	18	71	31
SER	TAT A	2	0	76	65	76	76	70	38	76	29
SR	RP M	0	0	56	56	56	56	56	56	56	55
WCR	TKD	30	30	115	115	115	115	115	115	115	56
WR	BRC	2	2	74	71	74	74	73	73	14	14
Grand	TTL	392	203	1108	1160	1173	1263	1109	1091	1034	802

Annexure-II

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

Rly	Shed	TM location	WAP 7	WAG9/9H	Total	Action plan	PDC
CR	AQ	1,2&3	28	214	242	Tender opened for 242 bogies for TM1 & 2 position but rates quoted are very high. Two round negotiation done but rates are still high.	Sept'18
		3			71		
CR	KYN	ALL	0	21	21	Tender Opened on 12.06.2017. But get discharged. Retendered. Opened on 24.08.17 under brief note vetting.	Sept'18
ER	HWH	ALL	12	0	12	PO already placed. Plan to modify 04 bogies per week.	Sept.'17
ECR	GMO	ALL	0	198*	198	Tender opened on 29.06.17. Rates are 40% higher.	March' 18
ECoR	WAT	1,2&3	0	12*	12	Tender opened. One round negotiation done, rates are still high. 2 nd round negotiation will be done.	March'18
		3	0	10	10		
NR	GZB	ALL	143	0	143	Tender opened on 09.07.17. Nobody participated. Under retendering will open on 11.09.17.	1.5 years after issue of LOA
NR	LDH	ALL	0	0	0	All modified	N/A
NCR	CNB	ALL	0	0	0	All modified	N/A
SR	RPM	1,2&3	50	0	50	Tender opened. And two round of negotiation done but Rates are still 36% higher. One more round of negotiation will be done on 11.09.17.	Aug'18
		3	17		17		
SCR	LGD	1&2	68	161	229	Modification work at TM 1&2 position for 86 bogies tender opened on 04.05.2017 and for 142 bogies tender opened on 22.05.17 and two round negotiation done rates are still 30% high43we.	Jan'19(for TM 1&2 position)
		3	84	206	290	Modification work to be done during POH.	
SER	TATA	1,2&3	0	40*	40	Tender Opened on 29.06.2017 for 40 bogies for location 1, 2 & 3. Rates are 42% higher, under negotiation.	July'18
		3	0	70	70	Planned through HQ store. PO for 21 nos. placed.	
SECR	BIA	1,2&3	16	58	74	Tender opened on 02.06.2017. 2 nd round negotiation held on 29.08.17.	Dec'17
		1&2	0	0	0	All modified.	
WR	BRC	ALL	0	0	0	All modified	N/A
WCR	TKD	1&2	37	73*	110	Tender Opened on 30.05.2017 for 116 nos bogies for all 3 positions. Tender discharged due to higher rates. Retendered opened on 05.09.17.	Jan'19
		3	46	73	119		

*Trade Bogies: ACPL/ABB(GMO-39, WAT-2, TKD-2, TATA-4)

