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अनुसंधान अभिकल्प और मानक संगठन  
लखनऊ-226 011  
Government of India - Ministry of Railways  
Research Designs & Standards Organization  
LUCKNOW - 226 011

**Om Prakash Kesari**  
**Executive Director Standards Electrical/Co-ord**

D.O.No.EL.8.5.10.1

Date: 07.02.2017

*Dear Shri A. K. Kapoor,*

**Subject: PCDO for the month of January, 2017**

## **1.0 HIGHLIGHTS**

### **1.1 Modification Sheet for 'C' clearance in MSU assembly**

Modification in drawing of supporting ring to achieve adequate 'C' Clearance in MSU assembly of 6FRA-6068 TM in WAG9/ WAP7 class of locomotives has been prepared and issued to all concerned for implementation vide letter No. EL/1.3.10/3 dated 09.01.2017. This has been issued after thorough investigation of failures of breakage of bolts. After proper maintenance of 'C' clearance reliability of MSU is likely to improve further.

### **1.2 Software modifications in GTO and IGBT based converters**

A technical report no. RDSO/2017/EL/RM/0179 of Jan. 17 has been issued in which history of software modifications in GTO and IGBT based converters and VCUs has been compiled. Further, the nomenclature for software versions in IGBT based converters has been standardized for easy identification.

### **1.3 Revision of periodicity of maintenance schedule**

In compliance to Railway Board letter no. 92/Elect(TRS)/138/5 Pt dated 26.12.2016 wherein Board has approved the revision of periodicity of maintenance schedule of WCAG1, WCM6 and WAP1(TAOchi) locomotives, the periodicity of maintenance schedule of WCAG1, WCM6 and WAP1(TAOchi) locomotives has been revised and communicated to Zonal Railways vide letter no. EL/3.6.1 dated 03.01.2017. This will facilitate streamline maintenance schedules across various types of locomotives.



## **2.0 RELIABILITY IMPROVEMENT**

### **2.1 Reliability of GTO & IGBT based 3-phase locos**

A meeting was held with RDSO, CLW, Zonal Railways and Firms on 06.01.2017 at RDSO on Reliability of GTO & IGBT based 3-phase locos. MOM is issued vide letter no. EL/11.5.5/5 dated 19.01.2017. Close monitoring on action plan is being done.

### **2.2 Standardization of properties of composition brake block**

A meeting has been conducted at Electrical Directorate on 19.01.2017 alongwith M&C and MP directorates for development of composition and standardization of properties of composition brake block for diesel and electric locomotives with manufacturers of composite brake blocks.

### **2.3 Meeting regarding 12000 HP electric locomotives**

A meeting was held at RDSO with MELPL on 11 and 12 Jan. 2017. A meeting was held on 23 and 24 Jan. 2017 regarding 12000 HP electric locomotives to be manufactured at Madhepura. The MOM is issued vide letter no. EL/3.1.35/24 on 27.01.2017.

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

### **3.1 Prototype testing of assembly components**

Prototype testing of 6 sets of assembly components (Set of stator chamber and associated components) of traction motor type 6 FRA 6068 manufactured by M/s BHEL, Bhopal as per CLW specification No. 4TMS.096.059 Alt-5 & 4TMS.096.068, Rev.1 Alt 4 was carried out at firm premises jointly by RDSO & CLW. Test results have been examined and found to be in order. Based on the satisfactory type test results, 6 sets of assembly components (Set of stator chamber and associated components) of 6FRA 6068 traction motor have been cleared for fitment and field trial for a period of 6 months vide RDSO letter No. EL/3.2.182/SC/BHEL dated 31.01.2017.

## **4.0 SPECIFICATION/STR**

### **4.1 Final draft specification for thin walled flexible Elastomeric cable**

Final draft specification no. ELRS/SPEC/ELC/0019, Rev.'3' along with reasoned document for thin walled flexible Elastomeric cable with copper conductors for working voltage i) upto 750 V and ii) Above 750 V upto 1.8/3.0 kV (for Tap Changer Electric Locomotives and AC/DC EMU, BG AC EMU/MEMU/Coaching stock) has been uploaded on RDSO website for 15 days for comments from cable manufacturers.



#### **4.2 Final draft STR for thin walled flexible Elastomeric cable**

Final draft STR no. RDSO/2017/EL/STR/XXXX, Rev'0' along with reasoned document for thin walled flexible Elastomeric cable with copper conductor(E-beam Irradiated curing process) for Tap Changer Electric Locomotive, 3-phase Electric Locomotive, EMU, MEMU and coaching stock has been uploaded on RDSO website for 15 days for comments from cable manufacturers.

#### **4.3 Final draft STR for single bottle VCB**

Final draft STR no. RDSO/2016/EL/STR/00..., Rev'0' along with reasoned document for manufacturing/ repairing/ rehabilitation of single bottle VCB for Electric locomotives/EMU/MEMU has been uploaded on RDSO website for 15 days for comments from VCB manufacturers.

#### **4.4 Revision of technical specification Traction Motor for 25 kV AC BG EMUs**

Revision '1' of technical specification No. RDSO/PE/SPEC/D/0047 of High Horse Power Traction Motor for 25 kV AC BG EMUs & MEMUs has been issued on 12.01.2017.

### **5.0 DEVELOPMENTAL ACTIVITIES**

#### **5.1 Dry type DC Link capacitors**

M/s Vishay make dry type DC Link capacitors has been allowed to use in M/s BHEL make IGBT traction converter vide letter no. EL/11.5.5/1/IGBT/BHEL dtd. 03.01.17.

#### **5.2 Main Contactor and pre-Charging Contactor for Hotel Load Converter**

M/s Medha requested for approval of M/s Schaltbau make Input Main Contactor (Type 1215/11) and pre-Charging Contactor (Type 1115/02) as an alternate source for IGBT based Hotel Load Converter for WAP-7 locos. In view of the above, limited approvals of 10 loco sets has been accorded for 2x500 kVA hotel load converter (WAP-7) vide letter no. EL/11.5.5/5/Medha dtd. 09.01.17.

#### **5.3 Capacitors for IGBT traction converter**

Vide letter no. EL/3.1.35/17/BHEL dated 12.01.2017, M/s BHEL have been allowed to use M/s ICAR make capacitors in their IGBT make traction converter for 30 loco sets to be supplied against current CLW P.O. no. 70/17/114/0875 dtd. 10.11.16.

#### **5.4 Factory Acceptance test of WAP -4 Cab simulator**

Factory Acceptance test of WAP -4 Cab simulator for Tatanagar ELTC, SER was carried out by RDSO representative from 07.01.2017 to 11.01.2017 at the works of M/s KBIL, Survey no. 276, Village Mann, Hinjewadi, Phase II, Taluka Mulshi, Pune. Test results are under scrutiny.



**5.5 Horizontal band of retro- reflective/fluorescent paint/tape on Locomotives**

In compliance to CRS/Southern Circle, Bangalore recommendation on Enquiry Report of Side-collision of Train No. 12623 with 43121 in Chennai Central-Arakkonam Jn. Of Southern Railway on 05.05.2016 that "The coaches and locomotives exterior should have a horizontal band of retro- reflective/fluorescent paint/tape throughout the body on either side to make it visible from a long distance in case infringing/crossing the track", a dimensional drawing of horizontal band of retro- reflective/fluorescent paint/tape on electric locomotives has been sent to Railways vide letter no. EL/0.1.3/Driver dated 25.01.2017 for comments.

**5.6 Fitment scheme for Real-time Train Information System (RTIS)**

In compliance to Railway Board letter no. 2016/Elect (TRS)/225/Misc. dated 24.01.2017, Fitment scheme for Real-time Train Information System (RTIS) on conventional electric locomotives was communicated to Centre for Railway Information System (CRIS) vide letter no. EL/3.1.28 dated 31.01.2017.

**5.7 Indigenously developed Buchholz Relay**

Presently Buchholz Relay (Imported) being used in 25 KV BG AC EMU/MEMUs transformer is of M/s P & B Weir, UK make. Prototype test of Buchholz Relay type 2DE/VO indigenously developed by M/s Yogya has been done and cleared vide this office letter no. EL/4.3.35 dated 24.01.2017 for 05 sets of 25 KV BG AC EMU/MEMU transformers for field trial for a period of one year.

**5.8 Diode type OSD 550 N 43 SQ of M/s Ruttonsha**

Zonal Railways have been advised for use of Diode type OSD 550 N 43 SQ manufactured by M/s Ruttonsha International Rectifier Limited, Baroda on regular basis in RSI block.

**5.9 Development of Crown Gear Coupling**

Capability cum capacity assessment has been carried out for development of Crown Gear Coupling (Hurth coupling) as per RDSO's Specification No. RDSO/2010/EL/SPEC/0107, Rev.1 & Drawing no. IA011-00234, Alt.4 of M/s. Perfect Gears, Mumbai along with tie up firms on 28.12.2016 & 11.01.2017 to 13.01.2017.

**6.0 OTHER ACTIVITIES**

**6.1 Design document clearance of traction motor of M/s Toshiba for Metro**

Design document & Type test procedure of traction motor of M/s Toshiba for IGBT based 3 phase drive propulsion of Metro Railway, Kolkata submitted by M/s Dalian Locomotive, China against contract specification No. RDSO/PE/SPEC/EMU/0030-2003(Rev.1) of April 2009 has been examined. Comments have been given vide RDSO note No. EL/3.2.182/KM/30(Dalian) date.24.01.2017.



## 6.2 Evaluation of documents of M/s Alstom

Technical description Doc. No. NHD0000266331, Rev.'0' and drawing of Traction motor type 6FRA4567E submitted by M/s Alstom against contract specification No. RDSO/2006/EL/SPEC/0044, Rev '13' for Madhepura project has been examined. Comments have been given vide RDSO note No. EL/3.2.182/Madhepura dated 19.01.2017

*with regards,*

Yours sincerely,

*Om Prakash Kesari 07/2/17*  
(Om Prakash Kesari)

**Shri A. K. Kapoor**  
**Member Traction,**  
**Railway Board, Rail Bhawan,**  
**New Delhi - 110001**

Copy to-

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

For kind information

*Om Prakash Kesari 07/2/17*  
(Om Prakash Kesari)  
For Director General/Electrical



		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	
Railway	Shed	No. of Locos to be done	Cumulative up to date	No. of Locos to be done	Cumulative up to date	No. of Locos to be done	Cumulative up to date	No. of Locos to be done	Cumulative up to date	No. of Locos to be done	Cumulative up to date
CR	AQ	90	52	166	160	166	166	166	166	166	31
CR	KYN	0	0	64	64	64	64	64	64	64	25
ECOR	WAT	0	0	33	33	32	33	33	30	33	25
ECR	GMO	69	37	145	139	145	145	145	103	145	42
ER	HWH	3	3	25	25	25	25	25	32	25	25
NCR	CNB	0	0	8	8	8	0	0	0	8	8
NR	GZB	90	45	85	85	141	99	124	124	87	52
NR	LDH	0	0	0	0	0	0	0	0	0	0
SCR	LGD	86	22	174	174	174	159	159	159	159	135
SECR	BIA	10	3	71	46	71	64	64	18	71	31
SER	TATA	2	0	76	65	76	70	70	38	76	29
SR	RPM	0	0	51	51	51	51	51	51	51	50
WCR	TKD	30	28	110	110	110	110	110	110	110	51
WR	BRC	2	2	76	68	76	76	75	75	22	22
Grand	TTL	382	192	1084	1028	1140	1097	1086	970	1017	526