

संजीव स्वरूप  
प्रधान कार्यकारी निदेशक मानक विद्युत

**Sanjiv Swarup**

Principal Executive Director Stds. Electrical



सत्यमेव जयते

भारत सरकार – रेल मंत्रालय  
अनुसंधान अभिकल्प और मानक संगठन

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Government of India - Ministry of Railways  
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D.O.No.EL.8.5.10.1

Dt: 03.02.2020

*Dear Sri Tiwariji,*

**Sub: PCDO for the month of Jan, 2020.**

**1.0 HIGHLIGHTS**

Statutory Inspection of 1676 mm gauge 6120 HP (4560 kW), 6 Axle, IGBT based 3-phase drive Electric Passenger (Co-Co) Locomotive WAP7HS (Co-Co electric locomotive converted from WAP7 loco) having maximum axle load 18.08+/-2%, 160kmph (test speed 180kmph) manufactured by CLW, Chittaranjan was carried out by CCRS at Delhi on 17.01.2020.0

**2.0 RELIABILITY IMPROVEMENT**

- 2.1 A meeting has been held at the works of BHEL/EDN at Bengaluru on 27.01.2020 to discuss the reliability issues of M/s BHEL make propulsion system provided in three phase locomotives.
- 2.2 Minutes of Meeting (MOM) on reliability of IGBT based propulsion equipment provided in three phase locomotives held at ELS/BIA on 13.12.2019 with M/s ABB was issued vide letter No. EL/11.5.5/21 dated 06.01.2020.
- 2.3 A Meeting on reliability improvement of IGBT based propulsion equipments was held at RDSO on 17.12.2019. M/s BTIPL, M/s CGL & M/s Medha participated in the meeting. Minutes of Meeting (MOM) was issued vide letter No.EL/11.5.5.21 dated 06.01.2020.
- 2.4 A Meeting on "Axle lock incidences on 3-Ph Electric Locomotives" was conducted on 10/11.01.2020 at SER HQ and ELS/SRC where axle lock cases were discussed. Meeting was attended by Zonal Railways/PUs and Railway Board officials. Minutes of Meeting having action plan to reduce the axle lock cases has been issued vide letter No. EL/2.2.13 dated 24.01.2020 for implementation by the PUs/ZRs and TM manufacturers.
- 2.5 FEA (Finite Analysis Report) of solid end Plate (5mm & 6mm) for stator & rotor of 3-Phase Traction Motors as per RDSO Drg No.SKEL:4889 & 4890 submitted by CLW vide letter No.CLW/TM/7053 dated 21.12.2019 has been examined by RDSO and the necessary comments were sent to CLW vide this office letter No.EL/3.2.182 dated 07.01.2020.

**3.0 DEVELOPMENTAL ACTIVITIES**

- 3.1 Vide RDSO letter No.EL/3.2.19/3-Phase/EP Assist/FTRIL dtd. 26.12.19, M/s Faiveley Transport has been advised to submit clarifications for the minor deficiencies noticed in the documents submitted by the firm for fresh vendor application for manufacturing and supply of EP assist brake system for 3-phase locomotive. Clarification submitted by the firm.



- 3.2 Vide RDSO letter No.EL/2.2.1/High Reach dated 27.12.2020, MoM on performance of High Reach Pantograph type WBL-85HR has been issued to PCEE/WR and M/s Schunk Metal & Carbon (India) Pvt. Ltd.
- 3.3 Vide RDSO letter No.EL/3.2.19/3-Phase/CCB dated 13.01.2020, the revised scope of supply (BOM) document No.TA35177/1/2019/KBIL/WAG-9/WAP-7/DPWCS/Rev.'0' (Total items-52) against CLW tender No.70190028A dtd. 02.09.19 for WAG-9HC/WAP-7 class of locomotives as per CLW spec. No.CLW/MS/3/01 Alt.'16 of M/s Knorr-Bremse India Pvt. Ltd. for Computer Controlled Brake System has been examined and generally found to be in order with revised set of configuration of Brake control system including drivers vigilance control device. In revised scope of supply (BOM), firm has deleted 03 items of parking brake and added 02 items for DPWCS as per CLW's P.O. requirements. The document has been provisionally approved for supply against CLW tender No.70190028A dtd. 02.09.19.
- 3.4 Vide RDSO letter No.EL/3.2.19/3-Phase (Hind) dated 23.01.2020, RDSO has advised the discrepancies in re-submitted design document for development of Computer/microprocessor controlled air Brake System for three phase electric locomotives of M/s Hind Rectifier Ltd. as per RDSO spec. No.RDSO/2017/EL/SPEC/0126, Rev. '0'.
- 3.5 Vide RDSO letter No.EL/3.2.19/3-Phase (CRRC) dated 23.01.2020, RDSO has advised the discrepancies in re-submitted document of Brake System for three phase electric locomotives of M/s CRRC ZELC (India) Private Limited as per RDSO spec. No.RDSO/2017/EL/SPEC/0126, Rev.'0'.
- 3.6 M/s Siemens Limited has submitted ITR and prototype test protocol of 2x130 KVA SIV and have been scrutinized. RDSO vide letter No.EL/1.2.9.1/Siemens dtd. 23.01.2020 has advised the discrepancies to the firm.
- 3.7 RDSO vide letter No.EL/1.2.9.1/Medha dtd. 23.01.2020, after scrutiny of design, drawings & BOM for 2x130 KVA SIV of M/s Medha Servo Drives Pvt. Ltd. has been advised of the deficiencies.
- 3.8 Electrical scheme bearing No.3 719 90 05 130 Rev.00 title Schematic Diagram for WAG7 Locomotive (modular crew friendly type with regenerative features) with regenerative features submitted by BHEL vide letter No.LME/WAG-7-REGEN/C010 dated 01/08/2019 have been examined and provisionally approved vide this office letter No.EL/3.1.22/4 dated 03/01/2020.
- 3.9 The revised equipment layout of WAG7 regenerative loco bearing No.0 719 00 05 001 Rev '01' title 'Equipment Mounting Arrgt. with Compact Compressor' & 0 719 00 05 002 Rev '01' title 'Equipment Mounting Arrgt. with Large Compressor' submitted vide letter No.LME/WAG-7 REGEN/C010 dated 11/01/2020 have been examined and provisionally approved vide this office letter No.EL/3.1.22/4 dated 03/01/2020.



- 3.10 Statutory Inspection of WAP-7 HS locomotive manufactured by CLW, Chittaranjan was carried out by CCRS at Delhi on 17-01-2020 in the presence of RDSO/CLW & Northern Railway officials.
- 3.11 The Quality Assurance Plan (QAP) of WAG9H locomotive manufactured at BHEL submitted vide letter No.LME/WAG-9H/C10 dated 09/12/2019 have been cleared vide this office letter No.EL/3.1.22/4 dated 03/01/2020.
- 3.12 Comments on Design documents and internal type test report of M/s Siemens Make LA type 3EB4-101-7DS42-0D against Kolkata Metro Project has been given to PS & EMU Dte. vide this Dte. Note No.EL/3.2.1/ Metro dated 13.01.2020.
- 3.13 Comments on Design documents and routine & type test plan on M/s JST make 2880 kVA Transformer for Under-slung EMU duly offering prototype test to RDSO to be supplied by M/s Medha against ICF PO No.08/18/5062/5101/F dated 31.08.2018 have been given for compliance to PS & EMU Dte. vide this Dte. Note No.EL/3.2.1/ Under-slung EMU/ Medha dated 20.01.2020.
- 3.14 Prototype testing of twin beam LED head light manufactured by M/s Ensav Devices Pvt. Ltd. Palghar, Vasai- 401208 (Maharashtra) for Electric Locomotives has been done and the item has been cleared for field trial vide letter No.EL/6.11.1 (Ensav) dated 27.01.2020.
- 3.15 Capability cum capacity assessment of M/s MTC India Rubber Components Pvt. Ltd., Bangalore has been carried out on 27.01.2020 and 28.01.2020 for development of Spheriblocs for three phase electric locomotives as per RDSO's Specification No.RDSO/2007/EL/SPEC/0051 (Rev.02) and STR No.RDSO/2008/EL/STR/0050 (Rev-01).
- 4.0 PROTOTYPE TESTING/QUALITY AUDIT**
- 4.1 Cases of abnormal sparking were reported by WR in current collection with High Reach Pantographs (HRPT). RDSO has examined the issue and carried out Current collection test in CLDY-VG section of WR with 7.0 Kg, 8Kg & 10Kg force in Knee-Leading and Knee-Trailing configuration of Pantographs. Sparking was observed in Knee-Leading configuration with all values of static force and hardly any sparking was recorded in Knee-trailing configuration with 8Kg static contact force. In this regard, a meeting was conducted on 24.01.2020 at RDSO and all the firms (M/s Schunk, M/s Faively & M/s Contransys) were advised to arrange measurement of contact force through instrumentation. The matter is being further pursued with the firms.
- 4.2 WAG12B locomotive Oscillation Trial at maximum speed of 132 km/h, EBD, Rating performance at 120 km/h has completed on 22.01.2020.
- 4.3 Type test clearance of regeneration braking converter of M/s MEDHA make for WAG7 locomotive has been given vide letter No.EL/11.5.5/1/RGEB/Medha on 20.01.2020.



- 4.4 Prototype test results of regenerative braking power converter, cooling unit (Heat Exchanger), Magnetic unit (Inductor) of Regenerative Braking system has been examined & found to be in order. Dispatch Clearance has been given to M/s Medha for regenerative braking system for First unit on WAG7 Electric Locomotives against Bhusawal LOA No.ELW/BSL/Tender/2017-18/60 dated 12.04.2018 vide letter No.EL/3.2.19/RB/Medha dated 17.01.2020.


**5.0 OTHER ITEMS:**

- 5.1 Test reports for Prototype testing of 3-phase asynchronous traction motor type YQ-190-28 for Kolkata Metro project manufactured by M/s Zhuzhou CRRC, China has been scrutinized and comments/clarification have been sought through PS & EMU Directorate vide note No.EL/3.2.182/K. Metro/Zhuzhou dated 16.01.2020.

*With Regards'*


Encl: Annexure I ,II & III

Yours sincerely,

  
3/2/2020  
(Sanjiv Swarup)

**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.

  
3/2/2020  
(Sanjiv Swarup)  
Pr.Exe.Dir.Stds. Electrical



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

Position on: 21.01.2020

Rly	Shed	TM location	WAP7	WAG9H	Total no. of bogies	Balance to be modified	PDC
CR	AQ	1,2	28	204	232	45	Mar'20
		3	30	257	287	276	
	BSL	1,2	0	0	0	0	
		3	0	8	8	8	
	KYN	1,2	0	0	0	Nil	
		3	0	96	96	96	
		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	NA
		3	84	206	290	240	June.' 20
	KZJ	1,2	0	0	0	Nil	
		3	0	85	170	26	
SER	TATA	1,2	0	0	0	Nil	June.'20
		3	0	49	36	13	

**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, TKD, GMO.

## 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	26	14	0	12
2	AQ	158	63(22TBU/PBU+41BL)	95	8
3	KYN	69	16	53	0
4	GMO	177	0	177	0
5	WAT	142	14.5	122.5	5
6	LDH	96	22	0	74
7	CNB	79	12	0	67
8	LGD	111(7-WAG9HC)	27	76	8 (7-WAG9HC)
9	KZJ	85	31	14	40
10	TATA	152	1	151	0
11	BIA	102	31	66	5
12	TKD	103	82	0	21
13	NKJ	55	20	14	19
14	BNDM	29	15	14	0
<b>Total</b>		<b>1384</b>	<b>348.5</b>	<b>782.5</b>	<b>249</b>



## Population of High Reach Pantograph upto Jan.'20

RLY	Shed	Rev.1										Rev.2										Rev 2 Total	Total Shed wise (Rev1+2)
		WAG- 5	WAG- 7	WAG- 9	WAP- 5	WAP- 7	WAP- 1	WAP- 4	Shop Floor	Rev 1 Total	WAG- 5	WAG- 7	WAG- 9	WAP- 5	WAP- 7	WAP- 1	WAP- 4	WCAM- 3	WCAG- 1	Shop Floor			
CR	AQ	0	0	14	0	0	0	0	6	20	0	0	14	0	4	0	0	0	0	0	18	38	
CR	KYN	0	0	1	0	0	0	0	0	1	0	0	29	0	1	0	0	1	1	0	32	33	
CR	BSL	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	1	14	14	
NR	LDH	0	6	0	0	0	0	0	3	9	0	1	34	0	0	0	1	0	0	0	36	45	
NR	GZB	0	0	0	0	0	0	0	0	0	0	0	0	31	2	0	0	0	0	8	41	41	
NR	KIGY	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
NCR	JHS	1	17	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	18	
NCR	CNB	0	12	34	0	0	0	0	10	56	0	0	0	0	0	0	0	0	0	0	0	56	
ER	ASN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ER	HWH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ECR	GMO	0	0	0	0	0	0	0	0	0	0	1	29	0	0	0	0	0	0	0	30	30	
ECR	MGS	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	3	
ECOR	ANGL	0	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	
ECOR	VSKP	0	0	3	0	0	0	0	3	6	0	0	1	0	0	0	0	0	0	3	4	10	
SCR	KZJ	0	0	0	0	0	0	0	0	0	0	2	34	0	0	0	0	0	0	3	39	39	
SCR	LGD	0	0	8	0	0	0	0	2	10	0	0	14	0	0	0	0	0	0	1	15	25	
SCR	BZA	0	1	0	0	0	0	0	2	3	0	5	0	0	0	0	0	0	0	0	5	8	
SER	BKSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SER	BNDM	0	0	10	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	10	
SER	SRC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SER	TATA	0	2	6	0	0	0	0	3	11	0	0	8	0	0	0	0	0	0	0	8	19	
SECR	BIA	0	0	8	0	2	0	0	14	24	0	0	0	0	3	0	0	0	0	0	3	27	
SR	AJJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SR	ED	0	3	0	0	0	0	0	0	3	0	4	0	0	0	0	0	0	0	0	4	7	
SR	RPM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WCR	ET	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	
WCR	NKJ	0	0	0	0	0	0	0	0	0	0	5	4	0	0	0	0	0	0	1	10	10	
WCR	TKD	0	0	0	0	0	0	0	2	2	0	0	41	0	7	0	0	0	0	7	55	57	
WR	BL	0	0	0	0	0	0	0	0	0	0	51	0	0	0	0	0	0	0	0	51	51	
WR	BRC	0	0	0	0	0	0	0	0	0	0	0	0	43	38	0	9	0	0	93	183	183	
IR	TOTAL	1	45	84	0	2	0	0	45	177	0	72	221	74	55	0	10	1	1	121	555	732	