

सुनील कुमार
प्रधान कार्यकारी निदेशक मानक विद्युत

Sunil Kumar
Principal Executive Director Stds. Electrical



सत्यमेव जयते

भारत सरकार – रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
मानक नगर, लखनऊ – 226011

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D.O.No.EL.8.5.10.1

Dt: 02.09.2021

प्रिय श्री जैन,

Sub: PCDO for the month of August, 2021.

1.0 HIGHLIGHTS

Nil

2.0 DEVELOPMENTAL ACTIVITIES

- 2.1** Prototype test scheme & QAP of M/s Hind Rectifiers for development of Computer/Microprocessor controlled air brake system for 3-phase electric locomotives has been provisionally approved and e-mailed on 04.08.2021.
- 2.2** M/s Medha submitted Internal Test Report (ITR) for 2x130 KVA SIV which has been scrutinized & observations advised to firm vide letter No.EL/1.2.9.1/SIV/Medha dated 10.08.2021.
- 2.3** M/s Escorts Ltd. has been considered for Capability assessment for development of EP Assist brake system for 3-Phase electric locomotive application compatible with EP assisted brake system on coaches and accordingly advised vide letter No.EL/3.2.19/3-Phase/EP assist/Escorts dated 10.08.2021.
- 2.4** M/s Hind Rectifiers Ltd. had been considered for Capability assessment for development of EP Assist brake system for 3-Phase electric locomotive application compatible with EP assisted brake system on coaches. CCA has been planned on 6th & 7th Sept'2021 and advised to firm accordingly vide letter No.EL/3.2.19/3-Phase/EP assist/Hind dated 24.08.2021.
- 2.5** Deficiency letter regarding fresh online registration for Main Compressor (Oil Lubricated) for Electric Locomotives (1745 LPM Capacity) of M/s Kirloskar has been issued vide letter No.EL/3.2.15/3-Phase/Kirloskar dated 24.08.2021.
- 2.6** After joint inspection in WAP-7 Locomotive on 23.07.2021 at ELS/CNB regarding identification of location/pockets for assembly/sub-assemblies of EP assisted brake system as per proposal of M/s FTRTIL & M/s KBIL, same were advised to CLW for their confirmation. CLW vide their letter No.ELDD/3608 dtd. 05.08.2021 has confirmed the same and advised to both the firms to submit design documents expeditiously to RDSO and process for prototype inspection. RDSO vide letter No.EL/3.2.19/3-Phase/EP assist

dated 16.08.2021, has advised to M/s FTRTIL & M/s KBIL to develop prototype unit and offer the same with ITR for witness the prototype inspection.

- 2.7** Design Documents submitted by M/s Medha, Servo Drive Pvt. Ltd. of twin beam LED head light for train set has been scrutinized and found in order. Provisional clearance communicated to PS&EMU Directorate vide note No.EL/6.11.1 (Train Set) dated 03.08.2021.
- 2.8** Design Documents submitted by M/s Medha, Servo Drive Pvt. Ltd. of Flasher light of train set has been scrutinized. Provisional clearance communicated to PS&EMU Directorate vide note No.EL/6.4.7/5 (Train Set) dated 11.08.2021.
- 2.9** Design Documents submitted by M/s Medha Servo Drive Pvt. Ltd. of Marker light cum tail light of train set has been scrutinized. The observations/comments communicated to PS&EMU Directorate vide note No.EL/6.4.7/5 (Train Set) dated 10.08.2021.
- 2.10** Design Documents submitted by M/s Titagarh of Marker light cum tail light for 3-phase propulsion equipment for On-board MEMUs has been scrutinized. The observations/comments communicated to PS&EMU Directorate vide note No.EL/6.4.7/5 dated 05.08.2021.
- 2.11** Internal test report submitted by M/s Nu-Cork Products Pvt. Ltd. (ID No.1261 dated 11.12.2020) for fresh vendor registration for manufacturing and supply of Elastic Ring for three phase electric locomotive has been scrutinized. Same has been communicated to firm vide this office letter No.EL/3.1.35/12 (Nu-Cork) dated 04.08.2021.
- 2.12** Technical proposal and scope of supply Submitted by M/s Cummins India Ltd. Pune for Traction engine and Traction electrics for Diesel Electric Tower car for comments. The same has been scrutinized and communicated to TI Directorate vide note No.EL/4.2.13 (Drive System of Tower Wagon/Cummins) dated 12.08.2021.
- 2.13** Internal test report submitted by M/s SKF India Ltd. for manufacturing and supply of Gear Case Bearing of WAP-5 Locomotive was scrutinized and found satisfactory.
- 2.14** Design document of Traction Converter for Train Set to be supplied by M/s Medha has been scrutinized and comments have been given to PS & EMU Dte. vide this office note No.EL/11.5.5/1/Train Set/Medha dated 27.08.2021.
- 2.15** A reminder letter to CLW for providing Data of WAG9HH of all make for inclusion in Electric loco data book has been sent vide this office letter No. EL/3.1.35/37 dated 23.08.2021.
- 2.16** A note to Research Directorate to include Predictive maintenance of Electric Locomotives in TMIR has been sent vide this office note No.RDSO-EL/0/TPS(PMEL)/1/2021-O/o PED/SE/RDSO dated 25.08.2021.
- 2.17** ECoR has been requested to communicate the Railway Board sanction obtained by them for operation of single/double/triple headed WAG 9H locos vide this office letter No.EL/3.1.35/4 dated 18.08.2021.
- 2.18** M/s Siemens has been advised to submit the test program for signal interference (EMI/EMC) trial of 6000HP loco No.33062 WAG 9HC provided with their make

propulsion equipment vide this office letter No.EL/3.31.35/17 (Siemens) dated 16.08.2021.

- 2.19** A letter to SCR to provide necessary coordination and association with RFI test of WAG9HH locomotive No.90001 submitted by M/s Medha to be conducted from 03.08.2021 to 05.08.2021 has been sent vide this office letter no EL/3.1.35/37 dated 02.08.2021.
- 2.20** A letter to SER to provide necessary coordination and association with RFI test of WAG9HH locomotive No.90002 submitted by M/s Siemens to be conducted from 11.08.2021 to 13.08.2021 has been sent vide this office letter No.EL/3.1.35/37 dated 02.08.2021.
- 2.21** A note to Testing Dte. for adhesion, rating & performance trial of WAG9HH fitted with up gradation kit of M/s BHEL over SER has been again sent vide this office note No.EL/3.1.35/4/WAG9HH dated 03.08.2021.
- 2.22** A reminder letter to CLW on submission of test plan for EMI/EMC for WAG9HH locomotive (BHEL) has been sent vide this office letter No.EL/3.1.35/37 dated 05.08.2021.
- 2.23** A virtual meeting held on 13.08.2021 with RDSO and OEMs of battery to discuss the battery requirement viz. size, rating & type etc. for Electric Hybrid (Electric + Battery) locomotive to haul a load of 6000t at a speed of 10kmph in line with RDSO letter No.EL/3.1.28(DML), dated 10.08.2021. Further, required documents as discussed during meeting has been sent through email to understand the working of locomotive(s) vide this office letter No.EL/3.1.28 (DML), dated 16.08.2021.
- 2.24** RDSO vide letter No.EL/0.1.3/3,dated 06.08.2021 has communicated the provisional approval of the layout/drawing for fitment of On-board Equipment of TCAS on various classes of Electric locomotives and auto-regression circuit diagram of conventional Electric locomotives to Zonal Railways.
- 2.25** Clearance to M/s SEIL make VCB type 22CB to be supplied by M/s Medha for Train Set Project has been accorded vide this office note No.EL/3.2.1/Train-Set dated 06.08.2021.
- 2.26** Clearance to M/s Patra & Chandra make earthing switch Type PCE.VES.25.4 for VCB for Train Set project has been accorded vide this office note No.EL/3.2.1/Train-Set dated 25.08.2021.
- 2.27** Comments on Technical data of M/s Siemens make Surge Arresters to be supplied by M/s Medha under Train Set project have been given to PS&EMU Dte. vide note No.EL/3.2.1/Train-Set dated 30.08.2021.
- 2.28** Design document of control and fire survival cable for Trainset 44 rake (16 car) received vide ED/PS & EMU Dte. note No.EL/1.3.17.1/Trainset/WTa-515/Medha, dated 16.07.2021 have been scrutinized & comments on same have been given vide this office letter No.EL/8.1.25.1/Trainset/Medha, dated 28.07.2021.
- 2.29** Design document of power cable for Trainset 44 rake (16 car) received vide ED/PS & EMU Dte. note No.EL/1.3.17.1/Trainset/WTa-515/Medha, dated 06.08.2021 have been

scrutinized & comments on same have been given vide this office letter No.EL/8.1.25.1/Trainset/Medha, dated 13.08.2021.

- 2.30** Field Trial of End of Train Telemetry (EoTT) System of M/s PPS provided on Loco No.32266 WAG9 HC has been conducted from 01.08.2021 to 03.08.2021 from Goods Yard Kanpur to Tundla (via DFC Route) and from Tundla to Goods Yard Kanpur (via main route). Observations are recorded in Joint note dt. 03.08.2021 by RDSO, BLW, ELS/CNB & RSO of NCR for compliance. Non-complied points during field trial & prototype testing have been communicated to M/s PPS vide RDSO vide letter No.EL/4.2.15/EoTT/PPs dated 10.08.2021 for arranging the remaining type test.
- 2.31** M/s Medha had submitted revised design document of EoTT system with document ID MET384/DD/Feb2021, Rev. 05 dated 12.08.2021 and Type & Routine Test Protocol ID TP/EoTT/01 Rev. 02 dated 12.08.2021. The design document has been examined and provisionally approved vide letter No.EL/4.2.15/EoTT/Medha dated 12.08.2021 subject to compliance of observations contained in the letter.
- 2.32** Based on comments/suggestions received from stake holders of EoTT, revised draft General guidelines for fixed type repeater along with Reasoned document has been prepared and circulated vide letter No.EL/4.2.15/EoTT dated 12.08.2021 to all concerned and requested them to furnish their valuable comments on revised draft General guidelines of Fixed/Track-side Repeater so that same can be finalized by RDSO.
- 2.33** M/s Siemens vide their letter No.RDSO-EoTT-27072021 dated 27.07.2021 & 11.08.2021, has submitted the modified Type Test & Routine Test Protocol of EoTT system document No.TP/EOTT/01 Rev No.01 dated 24.07.2021 along with Annexure A, B & C for prototype testing. Submitted modified Type Test & Routine Test Protocol of EoTT system has been examined and provisionally approved vide RDSO's letter No.EL/4.2.15/EoTT/Siemens dated 12.08.2021 for prototype testing.
- 2.34** M/s Lotus wireless vide their letter No.LWT/RDSO/21-22/02 dated 30.07.2021 had submitted revised design document of EoTT system with document No.LWT/RD/014/SDD, V1.2 dated 29.07.2021. Comments on revised documents has been communicated vide RDSO's letter No.EL/4.2.15/EoTT/Lotus dated 23.08.2021.
- 2.35** Display screen is an interface between Driver & EoTT system, hence it has been decided to standardize display of various indications/parameters among the EoTTs of various makes to facilitate Loco Pilot in train operation. Keeping in view the above facts, a display format (including symbols for various indication/parameters) have been prepared and issued to all stake holders of EoTT for comments vide RDSO's letter No.EL/4.2.15/EoTT dated 23.08.2021.
- 2.36** Field Trial of End of Train Telemetry (EoTT) System of M/s Tata Advanced Systems provided in two WAG9 locomotives 41074 & 41075 coupled in MU formation has been conducted from 18.08.2021 to 19.08.2021 from BNDM to KMPD and from ROXY to

DMF. Observations are recorded in Joint note dt. 27.08.2021 by RDSO, ELS/BNDM & M/s Tata Advanced Systems for submitting compliance.

3.0 RELIABILITY IMPROVEMENT:

- 3.1** Modification sheet No.RDSO/2021/EL/MS/0483 Rev-0 dated 25.08.2021 for Vertical Damper Fixing Arrangement of WAP-7/WAG-9 Electric Locomotives has been issued.
- 3.2** M/s AAL has been advised to submit investigation report for the failures of PCB Cards especially GDU card in M/s AAL make Aux. Converter and improve reliability of locomotive vide this office letter No.EL/3.1.35/17 (AAL) dated 10.08.2021.
- 3.3** M/s BHEL has been advised to submit investigation report along with action plan for different failures of M/s BHEL make propulsion system equipment in ELS/AQ based locos to improve reliability of locomotive vide this office letter No.EL/3.1.35/17 (BHEL) dated 10.08.2021.
- 3.4** Minutes of Meeting held with M/s BTIPL on 17.06.2021 through Video Conference to discuss the reliability issues of M/s BTIPL make propulsion system fitted in IGBT based 3-phase electric locomotive has been issued and circulated vide this office letter No.EL/11.5.5/21 dated 04.08.2021.
- 3.5** Minutes of Meetings held with M/s ABB on 27.05.2021 & 20.07.2021 through Video Conference to discuss the reliability issues of M/s ABB make propulsion system fitted in IGBT based 3-phase electric locomotive has been issued and circulated vide this office letter No.EL/11.5.5/21 dated 04.08.2021.
- 3.6** A letter to NR on OHE voltage and current fluctuation test to be conducted by M/s MELPL on SBB TSS of NR for necessary assistance has been sent vide this office letter No.EL/3.1.35/24 dated 17.08.2021.
- 3.7** A web based meeting through video conferencing on reliability of M/s HAPG make Lightning Arrester was convened by RDSO on 16.08.2021, Minutes of which circulated vide this office letter No.EL/2.2.23 dated 31.08.2021.

4.0 SPECIFICATION/STR

- 4.1** A draft modification sheet to 'ensure continuity of HOG converter's feed to the train from working loco to through dead loco in WAP 7 locomotives' has been issued vide this office letter No.EL/11.5.5/6 dated 30.08.2021.
- 4.2** RDSO has uploaded the draft amendment No.06 to the specification No.E-10/3/09(Motor) for auxiliary motors of 3-phase Electric Locomotives on RDSO website for suggestion/comments besides sending to OEMs/prospective vendors vide this office letter No.EL/3.2.176/1, dated 09.08.2021.
- 4.3** Technical Circular No.RDSO/2010/EL/TC/0102, Rev.01 dated 16.09.2016 for overhauling and rehabilitation/ reconditioning kits for N-32 Tap Changer has been

revised and circulated to Zonal Railways vide this office letter No.EL/3.2.30 dated 06.08.2021.

5.0 PROTOTYPE TESTING/QUALITY AUDIT

- 5.1** Prototype testing of M/s Tribhuvan Enterprises make 6531 & 7775 kVA, 3-phase Locomotive Main Transformer has been witnessed jointly with CLW at their works at Deokali Road, Faizabad from 17.08.2021 to 22.08.2021.
- 5.2** Type testing of M/s JST make 2880kVA transformer for underslung EMU was witnessed at CPRI, Bhopal from 09.08.2021 to 14.08.2021.

6.0 OTHER ITEMS

- 6.1** Reply of Electrical Directorate/RDSO to NER has been given vide letter No.EL/3.1.28, dated 24.08.2021 regarding 'Current limit restriction imposed for regular operation of High Tractive Effort Locomotive on account of strength of bridges' in line with NER letter No.L/55/TRS/JSC/147, dated 05.08.2021.
- 6.2** RDSO vide letter No.EL/3.2.176/2, dated 24.08.2021 requested CLW to furnish the current status of trial of Oil Cooling Unit with modified hub material of impeller and improved bearing size 6313 in place of 6312 of motor before considering any amendment to governing specification(s) in line with MOM held at RDSO on 14.03.2018 & 20.08.2018.
- 6.3** RDSO vide letter No.EL/0.1.3/3, dated 26.08.2021 advised NCR to confirm availability of close circuit in the section equipped with MTRC regarding installation of cab radio on electric locomotives (GSM-R equipment).
- 6.4** Technical proposal of traction motor for Diesel Electric Tower Car (DETC) of M/s Cummins India Pvt Ltd, Pune against Western Railway P.O No.09205003100399, dated 29.01.2021 has been submitted by Traction Installation Directorate. Submitted design document of traction motor has been examined as per ICF specification No.ICF/MD/SPEC/300 Rev.00 CS-2 and observations have been communicated to TI Directorate vide this office note No.EL/3.2.182(TI/OHE/TENDER) dated 10.08.2021.
- 6.5** PS & EMU Directorate vide note No.EL/MRS/3-Phase dated 28.07.2021 has forwarded the pre-bid queries for specification No.0182 for comments. The pre-bid queries pertaining to traction motor has been examined & comments communicated vide note No.EL/0.3.1 (DSE-3) dated 10.08.2021.
- 6.6** Draft specification No.4TMS.096.053 Rev.3 for set of stator and rotor stamping for 3-Ph Traction Motors submitted by CLW has been examined and found to be generally in order. Accordingly, revised specification has been cleared for procurement of rotor/stator stampings for 3-ph traction motors after conducting necessary prototype testing in limited quantity as per set norms of CLW vide letter No.EL/3.2.182 dated 26.08.2021.

- 6.7** Technical proposal of traction motor for Diesel Electric Tower Car(DETC) of M/s Hind Rectifier against DMW's P.O No.02192667100131, dated 15.01.2021 has been submitted by Traction Installation Directorate. Submitted design document of traction motor has been examined as per ICF specification No.ICF/MD/SPEC/300 Rev.00 CS-2 and observations have been communicated to TI Directorate vide this office note No.EL/3.2.172/TI/DETC/HR) dated 30.08.2021.
- 6.8** Technical proposal of traction motor for Diesel Electric Tower Car (DETC) of M/s Cummins India Pvt Ltd, Pune against DMW P.O No.02204285100039, dated 05.01.2021 has been submitted by Traction Installation Directorate. Submitted design document of traction motor has been examined as per ICF specification No.ICF/MD/SPEC/300 Rev.00 CS-2 and observations have been communicated to TI Directorate vide this office note No.EL/3.2.182(TI/OHE/TENDER) dated 30.08.2021.

Encl: Annexure I, II & III

सादर,

Yours sincerely,

(Sunil Kumar)

**Shri Rahul Jain,
Member Traction & Rolling Stock,
Railway Board, Rail Bhavan,
New Delhi - 110 001**

Copy for kind information to-
Additional Member (Traction), Railway Board, Rail Bhawan, New Delhi.

**(Sunil Kumar)
Pr.Exe.Dir.Stds. Electrical**

Status of Un-modified Motor Support in WAP-7 & WAG-9/9H Three Phase Locomotives

| Rly | Shed | TM location | WAP7 | WAG9H | Total no. of bogies | Balance to be modified | PDC |
|------|------|-------------|------|-------|---------------------|------------------------|----------|
| CR | AQ | 3 | 30 | 257 | 287 | 131 | March'22 |
| | KYN | 3 | 0 | 29 | 58 | 6 | Sep' 21 |
| SCR | KZJ | 3/4 | 0 | 200 | 200 | 20 | Sep'21 |
| SECR | BIA | 3/4 | 0 | 57 | 114 | 14 | Dec'21 |

Note: Following sheds have already modified motor support in all locations of bogies.

HWH, WAT, LDH, CNB, BRC, ED, BNDM, SRC, ET, NKJ, RPM, TKD, BSL, GZB, GMO, LGD.

Status of Modified/Un-modified Brake Lever of WAG-9/9H Three Phase 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 | 30 | 13 | 0 | 17 |
| 2 | AQ | 161 | 92 | 58 | 9 |
| 3 | KYN | 29 | 18 | 5 | 6 |
| 4 | GMO | 239 | 03 | 162 | 74 |
| 5 | WAT | 185 | 22 | 108 | 55 |
| 6 | LDH | 129 | 22 | 0 | 107 |
| 7 | CNB | 95 | 12 | 0 | 83 |
| 8 | LGD | 130 | 28 | 50 | 52 |
| 9 | KZJ | 100 | 38 | 14 | 48 |
| 10 | TATA | 133 | 0 | 113 | 20 |
| 11 | BIA | 95 | 40 | 55 | 0 |
| 12 | TKD | 103 | 82 | 0 | 21 |
| 13 | NKJ | 08 | 03 | 01 | 04 |
| 14 | BNDM | 82 | 0 | 19 | 63 |

Position of Provision of 2 High Reach Pantograph in electric locomotives as on 30.08.2021

| RLY | She d | Cumulative position. How many locos with type of loco and its number provided with 2 HRPTs so far | Population of HRPTs |
|-----|----------|--|---------------------|
| CR | AQ | 28 WAG-9 32005, 31264, 32032, 32052, 31114, 31116, 32073, 31271, 31276, 31981, 31110, 32374, 31280, 31027, 31270, 31277, 31439, 31273, 31484, 31359, 31076, 31464, 31224, 31278, 31259, 31104, 31111, 31115 | 58 |
| CR | KYN | 16 WAG9 (32262, 32242, 31584, 31450, 32194, 31382, 31648, 32107) | 17 |
| CR | BSL | 23 WAG9 (31560, 31406, 31738, 31642, 31403, 31516, 32401, 31402, 31404, 31405, 32432, 32273, 32429, 31645, 32274, 32377, 32270, 41043, 32278, 31769, 32381, 32355, 41047) | 47 |
| NR | LDH | 23 WAG9 (32142, 32387, 32455, 31665, 32166, 32286, 32315, 32263, 32246, 32317, 32436, 32454, 32585, 32283, 32252, 32397, 32584, 32261, 32680, 32186, 32383, 32193, 32313) 3 WAG-7 (24590, 24583, 24580) | 50 |
| NR | TKD /D | 10 WAP1 (22024, 22028, 22029, 22036, 22039, 22040, 22049, 22050, 22056, 22076) 1 WAP4 (22345) | 33 |
| NR | GZB | 20 WAP5 (30001, 30011, 30018, 30021, 30022, 30024, 30030, 30043, 30098, 30100, 30132, 30133, 30135, 30146, 30149, 30163, 30164, 30165, 30187, 30188) 08 WAP7 (30747, 37054, 37264, 37314, 37378, 39006, 39039, 39097) | 56 |
| NR | KJG Y | 4 WAG-9 (32805, 32714, 32804, 32803) | 8 |
| NCR | JHS | 6 WAP-4 (22055, 22227 Both side HRPT Rev-02) (22282, 22308, 22315, 22579 Both side HRPTs Rev-01) 04 WAG-7 (24525, 24527 Both side HRPTs Rev-02) (24508, 27568 Both side HRPTs Rev-01) | 26 |
| NCR | CNB | 25 WAG9 (32265, 32394, 32233, 32229, 32433, 32291, 32308, 32268, 32338, 32645, 32266, 32346, 32244, 32446, 32256, 32309, 32255, 32448, 32550, 32287.)-Both side HRPTs Rev-2 (32549, 32318, 32307, 32545, 32398-PT2 HRPTs Rev-1) | 50 |
| ER | ASN | 0 | 0 |
| ER | HW H | 0 | 0 |
| ER | BW N | 16 WAG9 (31619, 31416, 32515, 32563, 32516, 32560, 31418, 31409, 32557, 32451, 34015, 34011, 32450, 32562, 31551, 32449) | 33 |
| ECR | GM O | In 17 WAG9 Locomotive both side high reach Pantograph provided. (1. 32289, 2. 32339, 3. 32652, 4. 31853, 5. 31473, 6. 31859, 7. 31857, 8. 31509, 9. 31533, 10. 31488, 11. 31413, 12. 31834, 13. 31508 14. 31489, 15. 31546, 16. 31532, 17. 31467) | 35 |
| ECR | MGS | 3(WAG7-27038, 27032, 27057) | 6 |

| | | | |
|-------|------|---|-----|
| ECR | BJU | 5 WAG-9 (32334,32444, 32445,32457,32340) | 10 |
| ECOR | ANGL | 0 | 2 |
| ECOR | VSKP | 4 WAG-9 (31625, 31623, 32693, 31987) at both sides. | 8 |
| SCR | KZJ | 23 WAG-9 (34001, 34002, 32542,32247, 32458, 32325, 32718, 32280, 32408, 32410,32649, 32389 GY,32279,32520,32461, 32282,32456, 32044 GY, 32695 32720,32322,32323) (32066 GY HRPTs Provided by ELS/LGD) | 46 |
| SCR | LGD | 11 WAG9 (31143, 32367, 32418, 32413, 32363,32798,31618,31444,32928,41079,32354) | 24 |
| SCR | BZA | 04 WAG-7 (28249,28424,-on loco) 28464,28255(PT2)-shop floor) | 7 |
| SER | BKSC | 2 WAG-9 - 32755, 32672 | 11 |
| SER | BNDM | 4 WAG9-32655,32681,32653,32700 | 11 |
| SER | SRC | 0 | 2 |
| SER | TATA | 08 WAG9 (32324, 32647, 32582, 31432, 31716, 31899, 31425, 31603) | 20 |
| SER | ROU | 03 WAG9 (32597,32281,32302) | 29 |
| SECR | BIA | 10 WAG-9H (32688, 31844,31806,32679,32757,32807, 32807, 31886,) | 32 |
| SR | AJJ | 0 | 0 |
| SR | ED | 6 WAG7 (27460 , 27486 , 28027,27491 , 27471, 27492) | 12 |
| SR | RPM | 0 | 0 |
| WCR | ET | 3 WAG 9 (31943,32468,32070) | 10 |
| WCR | NKJ | 4nos WAG-9 (32027,32031,32290,32223) | 10 |
| WCR | TKD | 29 WAG9 (31170,31181,31183,31186,31196,31210,31297,31415,31471,31503,31607,31610,31614,31634,31807,32170,32251,32264,32294,32295,32303,32321,32331,32332,32335,32654,32656,32773,32775) | 60 |
| WR | BL | 13 WAG-7 (28727, , 28752, 24691,28726,24689,28640,28619,28649 and 10 WAG-9- 31575,32431,31453,31384,31981,32005,32032,32052,32073,32374) | 79 |
| WR | BRC | 1 WAP-5 (30185) 29 WAP-7 (30470, 30473, 30474, 30480, 30526, 30527, 30531, 30569, 30574, 30585, 30598, 30634, 30637, 30719, 30759, 30761, 30767, 37111, 37126, 37128, 37163, 37164, 37175, 37302, 37303, 39018, 39027, 39065, 39103) | 122 |
| TOTAL | IR | WAG9=258 WAP7=37 WAP5= 21 WAG7=33 WAP4=7 WAP1=10 | 914 |