Fax : (0522)-2452581
Telephone: (0522)-2465737
Telegram : 'RAILMANAK', Lucknow
E-mail : dsetplgroup@gmail.com

सत्यमेवजयते

भारतसरकार–रेलमंत्रालय
अनुसंधानअभिकल्पऔरमानकसंगठन
लखनऊ– 226011
Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW – 226011

No. EL/3.2.19/ 3-Phase (CCB)

Dated 13.11.2017

Chief Electrical Engineer,

1. Central Railway, Mumbai CST-400 001.
2. Northern Railway, Baroda House, New Delhi-110001.
3. North Central Railway, Subedarganj, Allahabad- 211001
4. North Eastern Railway, Gorakhpur-273 001
5. Eastern Railway, Fairlie Place, Kolkata -700 001.
6. East Central Railway, Hazipur-844101.
7. East Coast Railway, Chandrashekharpur, Bhubaneshwar-751016.
8. Southern Railway, Park Town, Chennai-600 003.
9. South Central Railway, Secunderabad-500 371.
10. South Eastern Railway, Garden Reach, Kolkata -700 043.
11. South East Central Railway, Bilaspur-495004
12. Western Railway, Churchgate, Mumbai-400 020.
13. West Central Railway, Jabalpur-482001.
14. Chittaranjan Locomotive Works, Chittaranjan-713331 (WB)

Sub: Minutes of Meeting held at RDSO on 01.11.2017 to discuss reliability related issues of CCB brake systems provided in three phase electric locomotives.

A meeting was held at RDSO on 01.11.2017 between RDSO officials and representatives of M/s KBIL to discuss reliability issues of CCB brake systems highlighted during meeting held at Railway Board on 24.10.2017. In this regard minutes of meeting has been issued and uploaded on RDSO's website (Under head "Important Letters/Documents") for kind information and necessary action.

13/11/2017

(Aseem Kumar)
For Director General/Elect

Encl: Nil

Copy to:

1. Secretary (Electrical), Railway Board, Rail Bhawan, New Delhi-110001
   (Kind Attention Shri A K Goswami, DEE/RS/RB) -For kind information please.
2. M/s. Knorr-Bremse India Pvt. Ltd. 51/4 KM Stone, Village & P.O. Bhagola, Delhi Mathura Road (NH-2), Palwal-121102 (HARYANA)
   (Kind Attn: Sh. Avinash Kumar, Chief Manager)- for kind information and necessary action.

13/11/2017

(Aseem Kumar)
For Director General/Elect

Encl: NIL

Minutes of Meeting held at RDSO on 01.11.17 with M/s KBIL on issues of CCB Brake System.

Members present:

RDSO		M/s KBIL	
Designation	**Name**	**Designation**	**Name**
Director/Elect./RDSO/LKO	Sri Aseem Kumar	Chief Manager/KBIL	Sri AvinashKumar
JE/Elect/RDSO/LKO	Sri V K Gupta	Sr. Manager Service/KBIL	Sri C.M.Sawakar
JE/Elect/RDSO/LKO	Sri M. Pal	Div. Manager/KBIL	Sri Yogesh Kumar

Important reliability related issues highlighted during meeting held at Railway Board on 24.10.2017 with M/s KBIL are further discussed and furnished below:-

1) **Unloader Valves**:- The firm is supplying new type of Unloader Valves similar to FTRTIL make which are undergoing field trials. The firm has submitted drawing of the same to RDSO for approval. Status of provision of new type unloader valves in locomotives should be furnished by M/s KBIL on day to day basis as being done for upgradation of new software and strainer for BPCP. ZRs are requested to furnish the performance of new unloader valves, so that approval may be accorded.

2) **Installation of upgraded Software in WAP5 Locos:**

Firm has requested this office to permit installation of the new software "Release 2081-170727-04A" against the old software "Release-2 Revision-A" with the following improvements:

I) Independent BC application timings set considering from handle movement in WAP-5 locos as done in WAG9 & WAP7 locomotives.

II) Booting time in CCB system is reduced to about 20 seconds from 40-60 seconds. This will help in resolving the wrong fault logging (Brake Electronic failed fault) by DDS during power-up as the booting time is minimum for CCB booting.

III) CCB heath signal will be healthy even when Auto handle in Emergency position and no penalties and cab mismatch is present. This will help in resolving the wrong fault logging (Brake Electronic failed fault) by DDS.

2.1) The installation of upgraded software has been permitted vide this office letter of even no dated 02.11.2017 in two-two WAP-5 locos in ELS/GZB & ELS/BRCY for trial purpose. Based on joint trial reports indicating above improvements, the installation of new software may be considered in all WAP-5 locos.

3) **MPIO Electronic card Failures**:-For the failures of MPIO electronic cards, M/s KBIL stated that burning of a resistance in the card is the root cause of failure of MPIO card. As per

Firm's root cause analysis done, at times if PVEF is kept pressed for the longer durations, one of the resistor inside the MPIO was getting burnt or short-circuited. If resistor is getting short circuited then it will cause MPIO to malfunction resulting into Loco failure, but no failure if resistor just gets burnt(opencircuit).Firm has got it further investigated by OEM M/s NYAB and recommendation is to do away with this resistor. As per firm NYAB has issued ECN and firm will cut-in same from next OE supplies to CLW. Firm will do implementation in field immediately and will complete within 6 months (based on Loco availability in the shed) as this modification will require removal of MPIO from the rack.
To disconnect the culprit resistance firm has to take approval from RDSO based on feedback from NYAB. Status of this modification should be furnished by M/s KBIL on day to day basis.

4) **Abnormal sound from compressor non-return valve(NRV):** Abnormal sound from NRV which are provided in under frame between MR 2 & 3 and MR 3 & 4 in locos having CCB was being observed during testing and train service on line. The problem was studied by ELS/GZB and it was found that a Teflon sheet of 2.00 mm is provided inside the NRV, which was creating abnormal sound during operation. This abnormal sound, continuously generated from under frame during working was creating confusion to LP to distinguish whether it was from Bogie or by NRV & loco becomes repeatedly under repair on this account.

   To overcome the problem, ELS/GZB has replaced the existing 2.00 mm Teflon sheet with 4.00 mm Teflon sheet, which is being used in conventional loco's NRVs. After providing the 4.00 mm Teflon sheet, the problem of abnormal sound has been rectified.

   All ELSs are requested to provide 4.0 mm Teflon sheet in NRVs and furnish the status. M/s KBIL is advised to ensure the provision of 4.0mm Teflon sheet in place of 2.0mm Teflon sheet in new supplies.

5) **Delay in BC pressure (through SA9) release from 0.4 to 0.2 Kg/CM^2:**ELS/HWH has reported that brake cylinder pressure release time with SA9 from 0.4 kg/cm^2 to 0.2 kg/cm^2 is 4 to 5 seconds. However Independent Brake release time from full to 0.4 kg/cm^2 in within limit. Due to delay in release of BC pressure up to 0.2 kg/cm^2, traction is not allowed by VCU.

   Firm is advised to study this problem and provide solution. ZRs are requested to reiterate instructions to loco pilots that traction should be taken after BC pressure comes to zero.

6) **PVEF/Bail-off to be inoperative during emergency brake application**:-In order to keep PVEF/Bail-off inoperative during emergency application position of A9, the signal to CCB should be low. M/s KBIL has already committed during meeting at RDSO on 21.08.2017 that it will be implemented through software modification by NYAB within a period of 6

months. As discussed during meeting held at Railway Board on 24.10.2017, M/s KBIL is advised to remove the function of Bail-off Ring provided on SA9 handle.

7) **Moisture drain arrangement in Auxiliary reservoir**:-M/s KBIL has made & submitted the provision of Moisture draining arrangement and it has been permitted to provide in 50 new locos at CLW. For the existing locos M/s KBIL is advised to furnish status of provision of drainage made form test point on brake panel on day to day basis as being done for new software and BPCP strainer.

8) **NB11 failures** : To address the issue of heavy air leakage form NB11 due to ingress of dust/coal particle in the valves, the modification sheet No. RDSO/2017/EL/MS/0465 Rev.'0' dated 18.10.2017 has been issued vide letter of even no dated 18.10.2017. Firm has developed new improved NB11 valve and two units of this has been provided in one loco at ELS/TKD on trial basis. Approval for the drawing of new type of NB11 valve will be accorded after successful trial.

9) **Trouble shooting guidelines:** Recently failures of 20CP & 16Cp occurred where LP could not trouble shoot according to existing TSD. For trouble shooting of such type failures M/s KBIL is advised to made simple and brief TS guidelines for LPs instead of existing TSD containing long list of fault codes. These may be provided in both the cabs of electric locomotives by the sheds.

10) **Training of LPs and loco inspectors:** Firm is advised to submit training schedule at various Zonal Training Centers tobe imparted to LPs and LIs.

11) **Proposal of ELS/LGD for provision of additional reservoir in WAP7 loco:** ELS/LGD/SCR has proposed the provision of additional reservoir (450 Lts) to cater the problem of MR pressure drop when locos are hauling the trains of LHB coaches having CTDS & air suspension springs.

The trial and testing parameters with additional reservoir by ELS/LGD revealed that percentage duty cycle of compressor has slightly increased in comparison to existing arrangement. Also, "ON" duration of compressors have increased. Hence, it may require to study the effect on CPs and air dryer and accordingly overhauling may be reviewed if required.This problem is not reported in WAP-5 locos though reservoir capacity of WAP5 is 960 Litres (240x4) which is lesser than that of WAP7 i.e. 1140 Litres (450x2+240).

12) **Modification in pneumatic circuit of unloader valve, SR1-2& Harmonic filter contractor**: ELS/LGD/SCR proposed to rectify the pneumatic pipe line for unloader valve form MR1 in place of existing pneumatic pipe line from auxiliary reservoir. This proposal of unloader valve circuit was studied earlier and was not agreed by RDSO. Already the firm has taken

measures to improve the unloader valve (mentioned in para1) and the modification proposed will involve work in CCB panel and valves, brazing in additional pipeline and machining work which can be source of failures in future.

ELS/LGD also proposed that pneumatic pipeline of SR1, SR2 &Harmonic filter contractor comingfrom MR2 i.e. through 'U' port should be connected from MR1 pipeline. However, as per latest approved piping diagram "TA35177/11-WAG9SACHNR-02"-for WAG9 and"TA35177/11-WAP5 SACHNR 02"forWAP5 w.e.f. 12.12.2013 the 'U' port of CCB panel is connected to MR1 and 'W' port of CCB panel is connected to MR2. So SR1, SR2 & HF contractor supply is already from MR1. ZRs are requested to verify this modification done by M/s KBIL and status may be furnished.

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