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सत्यमेव जयते

Government of India
Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW-226011

No. EL/3.2.19/3-Phase

Date 08.05.2018

M/s. Faiveley Transport Rail Technologies India Limited,
P.B. No. 69, Harita, HOSUR,
Tamil Nadu- 635 109

M/s. Knorr-Bremse India Pvt. Ltd. 51/4 KM Stone, Village & P.O. Bhagola, Delhi Mathura Road
(NH-2),Palwal-121102
(HARYANA)

Sub: Minutes of Meeting held at RDSO on 03.05.2018 to discuss the Agenda issues related to Brake System of 3-pahse locomotives.

Please find attached the Minutes of Meeting held at RDSO on 03.05.2018 to discuss the Agenda issues related to Brake System of 3-pahse locomotives for your kind information and necessary action please.

8/5/18
(असीम कुमार)
कृते महानिदेशक / विद्युत

Encl: MOM 06 Pages
Copy:

- Secretary (Electrical), Railway Board, Rail Bhawan, New Delhi-110001
  (Kind attn.: Shri A. K. Goswami, DEE/RS/RB) for kind information please.
- All Principal Chief Electrical Engineer
  - For kind information and necessary action please.

8/5/18
(असीम कुमार)
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Encl: MOM 06 Pages

Minutes of Meeting held at RDSO on 03.05.2018 to discuss the Agenda issues related to Brake System of 3-pahse locomotives

The issues discussed during meeting are as below:

1.0 RELIABILITY ISSUES OF E-70 Brake system (M/s. FTRTIL)

1.1 Non application of auto brake in service zone of DBC (except emergency position) raised by SER:

(i) M/s FTRTIL investigated and reported various reasons of failure related to bad workmanship during manufacturing of electronics cards like wiring/soldering, loose connection, breakage of strands of a wire etc. M/s FTRTIL has taken improvement measures in their existing vendor M/s Triphase and also they are trying to develop another source (M/s Avalon) for manufacturing of Electronic cards.

(ii) M/s FTRTIL is carrying one round of field check of all E-70 brake panels electronic cards for any loose connection, breakage of strands in wires, setting of card in rack etc. One loco set cards and 23 electronic racks out of 84 locos checked so far in SER. Progress are poor and firm is advised to gear up their service engineers. Firm stated they have posted one more engineer at TATA to look after SER based locos issues.

(iii) Moreover M/s FTRTIL has developed "System Operated Automatic Emergency Brake' (SOAEB) for E70 system to address this issue as a fail- safe measure. In case when BP is not dropped by A9 in service zone, then penalty brake will be activated through SOAEB. They have installed one SOAEB unit each in Loco 31658/WAG-9 of ELS/TATA and in Loco 30366/WAP-7 of ELS/RPM as a trial. ZRs are requested to furnish performance. After satisfactory performance the decision for provision of SOAEB may be taken for all E-70 fitted locos.

1.2 Provision of Modified push rod in DBC:

M/s FTRTIL stated that they have redesigned release valve spindle (modified push rod) to address this issue. They have supplied modified push rod to ELS/AQ-75nos., ELS/RPM-75, ELS/LGD-75, ELS/BIA-60, ELS/BSL-22, ELS/GZB-60, ELS/TKD-50, ELS/BRC-50 & E. Rly -100 as up to 09.04.18. M/s FTRTIL has to provide modified push rod to all shed in full quantity.

1.3 Air leakage from Panels:

CR and WCR reported failure cases of panel on account of air leakage before reaching the overhauling period (9years). Investigation report submitted by firm revealed that premature leakage are due to ingress of moisture & dust. Firm insisted that ZRs should maintain the air dryers properly. However, a quality audit should be jointly conducted in CR and WCR to address this issue.

E-70 issues reported by Sheds:

1.4 Delayed release of loco brake with PVEF paddle switch:

The present timing is about 50 seconds. This requires to be addressed and made on par with other existing brake systems.

1.5 Malfunctioning of pressure switch (make Eaton):

ELS/GZB reported loco failures due to its malfunctioning of pressure switches.

1.6 Brake Electronics failures:

Power supply cards and control cards are failing resulting in loco failures. Supply/replacement of these Cards are not being done in time by firm. M/s FTRTIL was advised to look into the matter for needful.

1.7 Failure of Potentiometer of DBC:

ELS/TKD reported failures of Potentiometers. There is requirement of suitable training by M/s FTRTIL for maintenance of Potentiometers. M/s FTRTIL is advised to arrange the same for needful action.

8/5/18

1.8 Poor quality of spares:

Maintenance kit particularly rubber items were found of improper quality as reported by ELS/AQ. (Items like Gasket of C3W distributor valve, diaphragm of SA9).

2.0 RELIABILITY ISSUES OF CCB Brake system (M/s. KBIL)

2.1 Failure of Unloader Valve:

KBIL has provided modified Unloader Valve to all sheds. Till date 409 out 544 locos with CCB have been provided with new ULV's as per availability of the Locos. Sheds reported satisfactory performance so far.

2.2 Moisture drainage arrangement in Panto reservoir.

(i) Till date 470 locos out of 544 Locos have been provided with drain arrangement from test point at brake panel as per availability of locos.

(ii) M/s KBIL has developed drain arrangement at the bottom location of Aux. reservoir. Same has been provisionally approved for providing in new 50 no. of Locos by CLW. After satisfactory performance, this arrangement will be regularized. Firm stated that they have supplied 70 units of moisture drainage arrangement to CLW, but CLW did not confirm. CLW was advised to prepare joint note with M/s KBIL regarding supply of moisture drain arrangement.

(iii) ELS/GMO has used an Air Dryer in Aux pneumatic circuit after the baby compressor on trial basis in one loco 31700/WAG9. The Air Dryer used is the same which is used in DJ pneumatic circuit of conventional loco. The performance is to be monitored by shed and the details may be sent to RDSO.

2.3 Higher brake application time in locomotive fitted with CCB Brake system (Through SA-9):

Till date, new software in all 523 locos (WAP-7 & WAG-9) having CCB have been completed.
(Item closed)

2.4 Provision of strainer in BP circuit of CCB:

Till date strainer has been provided in 531 locos out of 544 locos as per availability of Locos. Sheds reported that during inspections foreign particles are being observed and failures due to entry of foreign particles have stopped. Sheds were advised to clean the strainer-in every schedule.

2.5 Failure of Emergency Exhaust Valve (NB-11):

(i) Railways reported heavy air leakage from NB-11 due to entry of foreign particles during emergency application of brakes.

RDSO issued MS 0465 Rev '0' dated 18.10.17 wherein:-

a. Trap Chambers are to be provided in BP pipeline both side.
b. Existing NB-11 are to be replaced by EEV of FTIL make or of similar design. M/s KBIL has also developed EEV of similar design.

(ii) Zonal Railways raised query that modified NB11 should be provided by OEM. It was agreed by M/s KBIL to provide 100 loco sets of modified NB-11. During the meeting it was decided to supply

modified emergency exhaust valve as under:

Sheds	Quantity loco set	Sheds	Quantity loco set
GZB	27	TATA	04
TKD	20	LGD	14
AQ	03	LDH	02
NKJ	10	GMO	10
SRC	10	**TOTAL**	**100**

2.6 Failure of MPIO electronic module:

M/s KBIL submitted root cause analysis of MPIO failures as burning of Resistors. M/s KBIL recommended to disconnect the MPIO load resistors no. 3 & 4 (connectors J-15 & J-16). Trial of this modification was done in 2 locos each of ELS/ GZB, LGD, AQ, BRC & TATA for a period of three months. After satisfactory performance from railways, approval was accorded for disconnection of resistors in all existing locos as well as in new supplies to CLW. This modification is completed in 292 locos out 544 Locos.

2.7 Use of borosilicate filters in place of existing paper type filters:

(i) Trail of borosilicate filters in place of existing paper type filters is in progress. Moreover, Railways are requested to use and monitor the performance and send feedback for any abnormality.
(ii) It has been decided in meeting with ZRs and OEM to start regular cut in for borosilicate filters as they are of same cost with better performance.
(iii) M/s KBIL agreed to supply borosilicate filters to ZRs in place of paper filters.

2.8 Failure of Feed valve leading to FP pressure more than 6 Kg/cm2:

Firm reported that they have improved the rubber seal of check valve provided inside the feed valve and replaced the check valve nylon body to aluminum body material. In the new design check valve aluminum body vulcanized with improved rubber material. Firm fitted this improved feed valve in ELS/RPM-01Loco & ELS/KYN-02 Locos on 12/13.03.18 for field trial period of 03 months. SR and CR are requested to furnish performance report.

2.9 De-activation of PVEF/Bail-off during emergency brake application:

M/s KBIL stated to resolve through software by Aug'2018. Apart from this the firm have tried a hardware solution in ELS/Tata for which firm has to submit their proposal.

2.10 Pneumatic supply to ULVS from MR1 in place of existing Aux panel of CCB and HF contactor to be taken before overflow valve:

M/s KBIL apprised that they are remapping this in new supply and will submit necessary details to RDSO for examination and needful action.

2.11 Problem of moisture in Aux reservoir.

M/s KBIL mentioned that they are in progress to find solution to the problem. They apprised that regarding AC-CV and CV failures, they will carry out improvement in valves. They have also planned to provide an Air Dryer for Aux. circuit.

3.0 Other improvement/ development issues:

3.1 Reduction of BC pressure in WAP7 locos:

(i) As per MOM 19.12.16 M/s FTIL has to submit the detailed technical design for reducing BC pressure to RDSO with adjustable arrangement in view of use of composite brake block M/s FTRTIL has to expedite further and submit suitable proposal in this regard on priority.

(ii) M/s KBIL vide letter dated 20.04.18 has requested to nominate a loco to upload the modified software. RDSO has advised WCR for nomination of one WAP-7 Loco of ELS/TKD for Application/ Release timings and EBD trials.

3.2 Operation in PTDC mode:

(i) M/s FTRTIL is also advised to develop PTDC mode for E-70 brake system

(ii) RDSO advised M/s KBIL to implement the scheme proposed by ELS/LGD for speed enhancement in PTDC mode along with safety features. Firm has to coordinate with ELS/LGD in this regard.

3.3 Validation or development of brake system as per new RDSO specification – 0126

(i) M/s FTRTIL stated to offer inspection of prototype unit in Oct'2018.

(ii) M/s KBIL stated to offer inspection of prototype unit in Aug' 2018.

4.0 Supply Position to CLW:

(i) CLW expressed that over all supply per month from M/s FTRTIL & M/s KBIL is satisfactory. However there are the monthly variations.

(ii) M/s FTRTL and KBIL indicated that they can supply 30 loco sets per month after getting confirm POs from CLW.

(iii) Supply position for last 04 months was intimated by CLW as under:

Month	M/s FTRTIL	M/s KBIL
Dec'2017	40	04
Jan'2018	10	21
Feb'2018	11	22
Mar'2018	19	32
Total	80	79

From above supply position, it is clear that both the firms together are able to supply to CLW as per requirement. Firms requested that CLW should place orders timely so that supply can be maintained by them.

5.0 Supply of spares to Zonal Railways:

(i) Sheds reported delay in supplies from M/s FTRTIL. Firm was advised to resolve all the issues of supplies as early as possible.

(ii) M/s FTRTIL explained that delay on supply of some spares is due to inspection by RDSO. It is advised that ZRs may consider inspections of spares from RITES or consignee rather than RDSO to expedite the matter.

6.0 AMC related issues of Brake System:

(i) Technical Scope of work for AMC has been issued by RDSO in SMI-298. Firms stated that SMI which may be followed for AMC of brake systems. Both the firms (M/s FTRTIL & M/s KBIL) agreed that they can carry out AMC with a price of 5 to 7 % of total cost if AMC is carried out as per SMI issued by RDSO.

(ii) It was pointed out by firms/Railways that overhauling requirement is based on the service life of Brake System. So, this may be separated from regular AMC. Firms agreed to quote the charge for major overhaul separately.

7.0 Interfacing loco brake system for 3-phase loco with DPWCS

(i) OEMs of brake systems (M/s Knorr and M/s Faivley) proposed for interfacing the brake system with DPWCS by placing a converter box in between DPWCS and brake system. However, the converter box will be treated as a part of brake system and DPWCS may be interfaced as per the requirement.

(ii) The physical interfacing shall be provided in brake system through the RS 485 or Ethernet. The OEM of DPWCS should ensure compatibility with any of them.

(iii) The standard protocol for interfacing the brake system and DPWCS shall be defined and same shall be mentioned in the DPWCS specification.

(iv) CLW has written a letter to Railway Board for changing the existing bandwidth (406-407 MHz) to new bandwidth (424-430MHz) as per the WPC's letter. All the firms were advised to take a note of this and design accordingly.

(v) M/s BEL expressed the interest to design an indigenous standard radio equipment for DPWCS use and stated that their prototype will be ready by September end.

(vi) In 3-phase loco M/s ARC is ready to display the standard display through DDU of 3-phase loco but the other firms expressed their inability to show the standard display in DDU. So, both the options of separate screen of display or display integrated with DDU will be allowed. However, it is desired that to achieve the interoperability a common standard display (DIU) protocol has to be finalized.

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Members present:

SN	Name (S/Shri)	Designation	Railway
1	O.P. Kesari	PED/SE/ RDSO	RDSO
2	A.K Shukla	ED/SE/ RDSO	RDSO
3	Aseem Kumar	DSE (PS & SC)	RDSO
4	Ashish Kumar Maddhesiya	SEE/CLW	CLW
5	Pawan Kumar Jayant	DEE/TRS/AQ	CR
6	Saurabh Rathour	AEE/RS/GMO	ECR
7	M.K. Gupta	AEE/RS/GZB	NR
8	M.L . Chaurasia	AEE/TRS/TKD	WCR
9	Mahendra Pal	JE/RDSO	RDSO
9	R. K. Mittal	SSE/TRS/TKD	WCR
10	Prateek Sahu	SSE/TRS/NKJ	WCR
11	Lokesh Kumar	SSE/TRS/GZB	NR
12	M. Jagsadeesh	SSE/TRS/LGD	NR
13	Naresh P Waghmore	SSE/TRS/AQ	CR
14	K. Bera	SSE/TRS/TATA	SER
15	Pankaj Kumar	SSE/TRS/GMO	NCR
16	Ramprakash	Tech /TKD	WCR
17	Rajiv Agarwal	Chief GM	KBIL
18	G.K.Gupta	GM Marketing	KBIL
19	Avinash Kumar	Chief. Manager/ Mktg & service	KBIL
20	C.M. Sawakar	Sr. Manager/ Mktg & service	KBIL
21	M Ajay	Dir/Faivley	FTRTIL
22	V Chandrasekhar	VP/Engg	FTRTIL
23	Prasant Choudhary	DGM/Service	FTRTIL
24	Milind Basle	AGM/Sales	FTRTIL
25	S. Kali	Asst. Manager/Sales	FTRTIL
26	R. Santhanakrishnan	Senior Software Manager	GE
27	Pratima Soni	Senior engineer	Lotus Wireless
28	Vikas Arora	Engineer	BEL Punchkula
29	Surekh Naik	CMD	ARC
30	V.Sadashivam	Director Technical	ARC