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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:18/10/2017

Chief Electrical Engineers,

1. Central Railway, Mumbai CST- 400 001.
2. Eastern Railway, Fairlie Place, Calcutta- 700 001
3. Northern Railway, Baroda House, New Delhi-110 001
4. Southern Railway, Park Town, Chennai-600 003
5. South Central Railway, Rail Nilayam, Secunderabad -500 071
6. South Eastern Railway, Garden Reach, Calcutta-700 043
7. Western Railway, Churchgate, Mumbai-400 020
8. East Cost Railway, Chandrashekharpur, Bhubaneswar- 751 016.
9. North Central Railway, Subedarganj, Allahabad-211 001.
10. East Central Railway, Hazipur-844101 (Bihar)
11. West Central Railway, Jabalpur-482068
12. South East Central Railway, Bilaspur-495004
13. North Eastern Railway, Gorakhpur- 273012
14. Chittaranjan Locomotive works, Chittaranjan-713 331
15. Diesel Locomotive Works, Varanasi- 221004

Sub: Modification Sheet No. RDSO/2017/EL/MS/0465 Rev.'0' Dated 18.10.2017

Modification in three phase electric locomotives for:

- a. Provision of Trap Chamber for collecting coal/dust particles coming from BP Train Pipe during emergency brake application.
- b. Replacing KBIL make 'NB-11 valve' (size 01") of CCB system with FTRTIL make 'Emergency Exhaust valve' (size 1 1/4 ") of E-70 system or similar design Emergency exhaust valve.

Has been issued.

The aforesaid modification sheets are available on RDSO's website.

Encl: NIL

Copy to:-

Secretary (Electric Traction), Railway Board, Rail Bhavan, New Delhi-110 001
(Kind attention: Shri A K Goswami, DEE/RS/RB)

Encl: NIL

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18/10/2017
(Aseem Kumar)
for Director General/Elect.

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for Director General/Elect.

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सत्यमेव जयते

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

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EL/3.2.19/3-Phase/CCB

Date-18.10.2017

Principal Chief Electrical Engineer,

- Central Railway, Mumbai CST- 400 001.
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- East Cost Railway, Chandrashekharpur, Bhubaneswar- 751 016.
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Modification Sheet No. RDSO/2017/EL/MS/0465 (Rev. '0') dated 18.10.2017

- 1.0 Title:** Modification in three phase electric locomotives for:
- a. Provision of Trap Chamber for collecting coal/dust particles coming from BP Train Pipe during emergency brake application.
 - b. Replacing KBIL make 'NB-11 valve' (size 01") of CCB system with FTRTIL make 'Emergency Exhaust valve' (size 1^{1/4}") of E-70 system or similar design Emergency exhaust valve.
- 2.0 Object:**
- 2.1 To avoid on line failures of 3 phase locomotives on account of heavy air leakage from exhaust port of NB-11, BPCP and 821 Vent valves of CCB brake system and Emergency exhaust valve (EEV) of E70 brake system due to entry of foreign particles (stone, coal and iron pieces/dust etc.) inside the valves during application of emergency brakes by Loco pilots.
- 3.0 Brief History:**
- 3.1 Failures have been reported by Zonal Railways due to heavy air leakage from exhaust port of NB-11& BPCP unit leading to punctuality loss of mail/express trains. In this connection a strainer in BPCP unit of CCB system was proposed as per the decision taken during meeting held at ELS/HWH on 06.09.2017. The MOM circulated vide letter of even no. dated 25.09.17. This has controlled the failures of BPCP unit. However, failures are still taking place due to leakage from

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NB-11 due to the cases of sticking up because of ingress of dust/dirt. Such leakages are taking place due to sticking of dirt/dust particles between valve seat and base of the valve. Investigation revealed that solid particles like coal/iron/stone pieces of size 01mm to 12mm are carried through Train BP pipe line during emergency brake application.

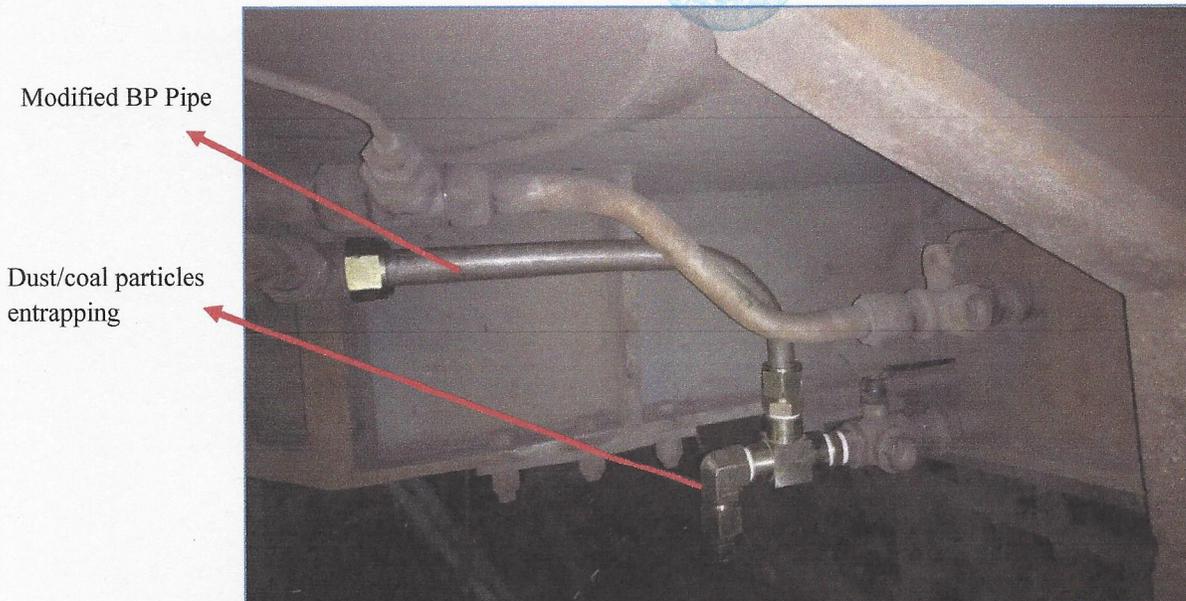
4.0 Modification Proposed:

4.1 To address this problem two solutions (in addition to provision of strainer in BPCP pneumatic circuit) are proposed are as under:

(1) Modified arrangement to trap coal/dust particles:-



Photograph -1. Existing BP pipe line arrangement without trap chamber arrangement.



Photograph-2. Modified BP pipe line with trap Camber arrangement.

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(2) Replacement of existing NB-11 valve with FTRTIL design EEV or similar design EEV

Existing
NB-11



Photograph-3. Existing NB-11 valve in CCB brake system of M/s KBIL

FTIL EEV/
Modified
design NB-11

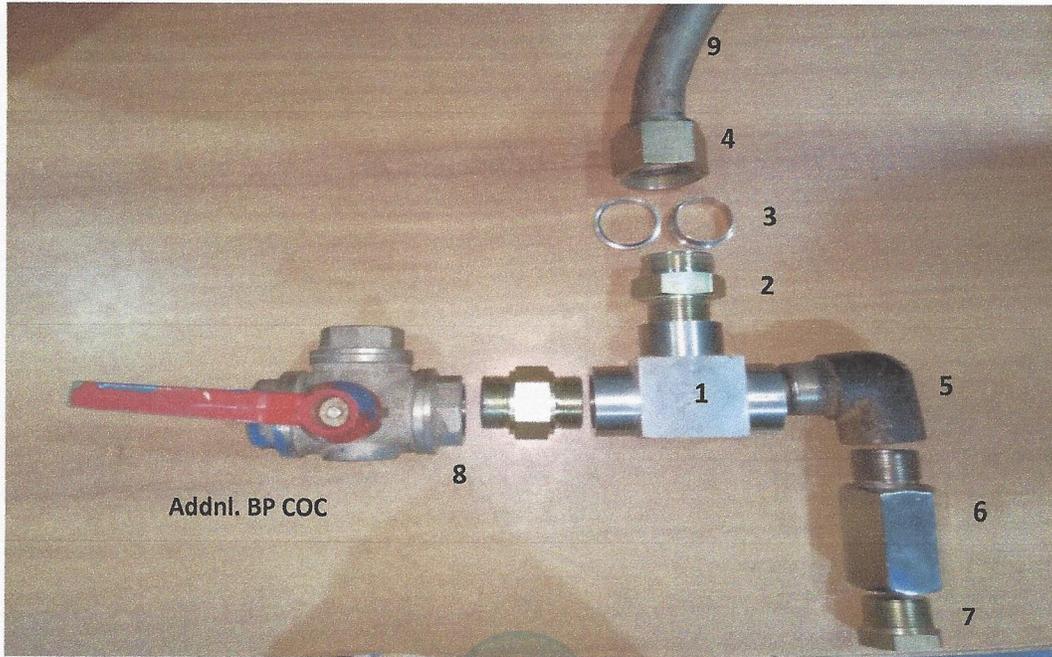


Photograph-4. Provision of FTIL make EEV/ mod. Design NB-11 in CCB locos

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5.0 Material Required:

5.1) Material required for trap chamber modification

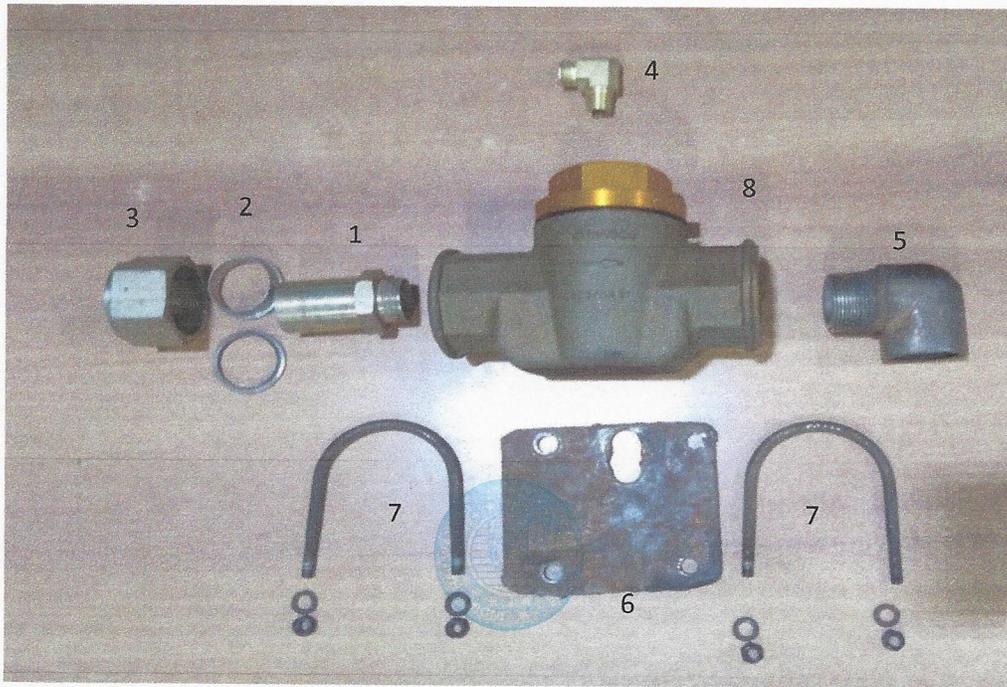


Photograph -5 . FTIL make EEV

SN	Description	Material & Spec	Qty per cab/loco
1	1/4" Female Tee (Flu idcontrol part no 20 TFRP)	Stainless Steel ASTM:316	1no/2nos
2	38mm Tube OD x 1/4" Reducing adopter (F.C pt no 24-20 SCM RX)	Carbon Steel ASTM:106-A Gr-1018	1no/2nos
3	38mm Tube OD(1/2") SS double ferrule. F.C pt no. FRONT 24FF, BACK 24FB	Stainless Steel ASTM:316	1 Set/2Sets
4	38mm Tube OD (1/2") Nut F.C pt no 24 SN	Carbon Steel ASTM:106-A Gr-1018	1no/2nos
5	1/4" x 1/4" male & female elbow (Male thread length 25 mm)	Carbon Steel ASTM:106-A Gr-1018	1no/2nos
6	1/4" Male & Female Hexagonal Socket. Size: Tot.length:125 mm, Male Thread length: 25 mm (BSPP), Hex. thickness: 54mm, Female thread 50mm.	Stainless Steel ASTM:316	1no/2nos
7	1/4" Male Hex. Dummy size: Tot.Length:30 mm, Male Thread length: 20 mm(BSPP), Hex. Length: 10mm ,Hex.	Carbon Steel ASTM:106-A	1 no/2nos

	thickness: 54mm	Gr-1018	
8	1 1/4" X 1 1/4" MALE Nipple (BSPP X BSPT) size: Tot.length:58 mm, Male Thread length: 18mm X 25 mm, Hex. Length: 15mm, Hex. thickness: 54mm.	Carbon Steel ASTM:106-A Gr-1018	1 no/2nos
9	Stainless steel Seam less tube OD: 38 mm , ID: 31 mm.	Stainless Steel ASTM:A-269 TP304	1.5 mtr/ 3.0mtr

5.2) Material required for provision of FTIL make 1 1/4" emergency exhaust valve in place of existing NB- 11 valve.



Photograph- 6. FTRTIL make 1 1/4" EEV

SN	Description	Material & Spec	Qty per cab/loco
1	38mm Tube OD x 1 1/4" Reducing adopter (F.C pt no 24-20 SCM RX)	Carbon Steel ASTM:106-A Gr-1018	1no/2nos
2	38mm Tube OD(1 1/2') SS double ferrule. F.C pt no. FRONT 24FF, BACK 24FB	Stainless Steel ASTM:316	1 set/ 2 sets
3	38mm Tube OD (1 1/2') Nut F.C pt no 24 SN	Carbon Steel ASTM:106-A Gr-1018	1no/2nos
4	Tube OD 12mm x 3/8" Male elbow F.C pt no. SEM-12-6-N	Carbon Steel ASTM:106-A Gr-1018	1no/2nos
5	1 1/4" X 1 1/4" Male Elbow(BSPT), Thread length 25 mm.	Carbon Steel ASTM:106-A	1no/2nos

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		Gr-1018	
6	L shape MS Base fixing plate Size: 190x150 x 4mm	Steel IS:2062	1no/2nos
7	U Clamp with nut, spring and flat washer (Zink coated) Size: 110 x 90 x 8 mm	Steel IS:2062	2no/4nos
8	1 ¼" emergency exhaust valve of E-70 design or similar design valve	---	01 no. / 2no.'s

6.0 Work to be carried out:-

- 1) Trap chamber modification to be done as per the enclosed drawing similar to that done in conventional electric locomotives vide RDSO Mod. No. RDSO/2017/EL/MS/0463 Rev'0' dt: 08-9-17. For this a T-joint is to be provided after additional BP cut out cock. The trap chamber/dummy to be connected on other side of the T-joint and the BP pipe line to be connected vertically at about angle of 90 to 120 degree. The arrangement of trap chamber is shown in photograph (2) under para No.6. This arrangement should be made in both cabs and applicable to all 3phase locos.

Trap chamber is to be opened during every IC/TOH/IOH/POH schedules for cleaning or replacement (if required).

- 2) The existing NB-11 valve (01" size) to be replaced with FTRTIL E70 design Emergency exhaust valve or similar design valve (1¼ " size) in CCB locos as shown in the photograph (4) under para no.6.0. This arrangement should be made in both cabs and applicable to locos fitted with CCB brake system. The valve should be should be fitted in such a way that inlet of pilot pressure should enter from top (vertically) into the valve as shown in photograph no-6.

7.0 Material rendered surplus:-

Existing NB-11 valve of CCB brake system.

8.0 Modification drawing:-

A sketch is enclosed as Annexure-1

9.0 Application to class of locomotives:-

- 1) Provision of Trap chamber in BP train pipe line applicable to all 3phase locomotives.
- 2) Replacing existing NB-11 valve with E-70 design or similar design Emergency exhaust valve is applicable to 3phase locomotives provided with CCB brake system.

10.0 Agency for implementation:-

- 1) CLW/DLW
- 2) All Electric loco sheds holding 3phase locomotives.
POH/MTR Workshops

11.0 Reference:

South Central Railways' Letter No. No.C/E.221/pneumatic-3-phase (CCB)/Vol-1 Date: 03.10.17.

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12.0 Additional information:

During every inspection including trip inspections, raise the BP & FP pressure from one cab and then open the BP & FP angle cocks immediately to let out the pressurized air (outward blowing). Repeat the same exercise from the other cab. While carrying out the above exercise, BP/FP rubber hose pipe should be held firmly away from the body as a safety precaution.

18/10/2018

(Aseem Kumar)

for Director General/Elect.

Copy to:-

1. Secretary (Electric Traction), Railway Board, Rail Bhavan, New Delhi-110 001
2. Sr. DEE (TRS), All Electric Loco Sheds,

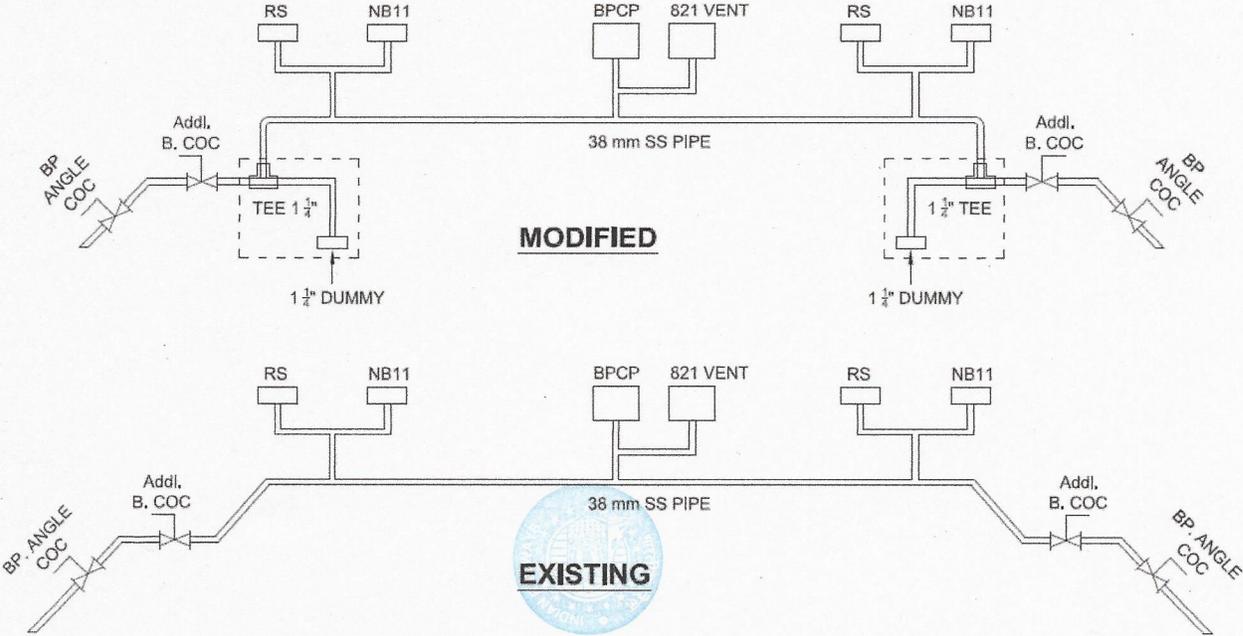
18/10/2018

(Aseem Kumar)

for Director General/Elect.



Annexure to Modification Sheet No. RDSO/2017/EL/MS/0465 Rev '0' dated 18.10.2017



PROVISION OF TRAP CHAMBER IN BP CIRCUIT
IN 3 PHASE LOCOS WITH CCB VERSION

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