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GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RESEARCH, DESIGNS & STANDARDS ORGANISATION

No. EL/3.2.19 (G) **Dated 01.11.2012**

Chief Electrical Engineer,
- Central Railway, Mumbai CST- 400 001.
- Eastern Railway, Fairlie Place, Kolkata- 700 001
- East Cost Railway, Chandrashekharpur, Bhubaneswar- 751 016.
- Northern Railway, Baroda House, New Delhi-110 001
- North Central Railway, Hasting Road, Allahabad-211 001.
- Southern Railway, Park Town, Chennai-600 003
- South Central Railway, Rail Nilayam, Secunderabad –500 071
- South Eastern Railway, Garden Reach, Kolkata -700 043
- Western Railway, Churchgate, Mumbai–400 020
- West Central Railway, Jabalpur-482001
- South East Central Railway, Bilaspur-495004
- East Central Railway, Hazipur-844101 (Bihar)
- Chittaranjan Locomotive Works, Chittaranjan- 713 331

Modification Sheet No. RDSO/2012/EL/MS/ 0418 Rev. '0'

1.0 Title :

Modification on relocation of BP & FP Angle cock in WAP-1/4 class of Electric Locomotives.

2.0 Object :

To avoid locomotive failure on line due to damage of BP angle cock & extension pipe during cattle run over.

3.0 Existing Arrangement:

i) In the existing pneumatic brake system for conventional WAP-1/4 class of electric locomotive, Brake Pipe (BP) & Feed Pipe (FP) angle cocks are provided in front of buffer beam towards Assistant Loco Pilot (ALP) side with BP angle cock on top and FP angle cock on bottom side.

ii) Railways reported that failures of electric locomotives due to breakage of Brake Pipe extension pipe during cattle run over (CRO).

iii) RDSO has issued modification Sheet No. ELRS/MS/0270/Rev.'0' dated 08.11.1999 to standardize location of BP & FP isolating cocks in

O/C

Electric locomotives & protection brackets have been recommended to avoid breakage of angle cock.

iv) Though cases of breakage of angle cock have reduced due to provision of protection brackets but few failures have taken place due to breakage of BP extension pipe & BP angle cock. For diagonal connection of BP hose pipe of locomotive with load BP hose pipe, additional extension pipe is required with BP angle cock of WAP-1/4 class of Electric Locomotives. BP extension pipe which is inherently a weak member gets damaged during CRO resulting in loco failure.

4. Modified Arrangement :

The existing arrangement of different type of locomotives including 3-phase Electric locomotives and diesel locomotives has been examined in detail and study of existing arrangement of location of BP & FP angle cocks revealed that in the diesel locomotives type WDP-4 & WDG-4, FP & BP angle cocks are provided towards the right side of CBC with FP angle cock is on top and BP angle cock on bottom side.

Similar arrangement has already been made in 3-phase Electrical locomotives i.e. FP angle cock on top and BP angle cock below the FP cock and there is no extension pipe with BP angle cock.

Southern Railways has also suggested the similar arrangement like 3-phase electric locomotives. By this arrangement need of BP extension pipe, which is inherent weak member and gets damage during CRO, has been dispensed with.

Therefore the breakage of the BP angle cock & extension pipe can be minimized by relocating the BP angle cock. To eliminate the extension pipe, BP angle cock is to be shifted below the FP angle cock at ALP side keeping FP angle cock at the same location.

5. Work to be carried out:

- Remove BP hose, BP extension pipe & BP angle cock.
- Unclamped the BP pipe & safety brackets.
- Disconnect the BP pipe line after additional isolating cock.
- Re-route the existing BP pipe line below the FP angle cock just above cattle guard at a location where vacuum pipe was connected as shown in drawing enclosed.
- Properly clamp the BP pipe line if additional holding clamp is required.
- Reconnect the BP angle cock. The existing opening in buffer beam & cattle guard for vacuum pipe is to be utilized for re-connecting BP angle cock as shown in drawing enclosed.
- Reconnect the BP hose pipe. Ensure fitment of re-located BP hose pipe on dummy hose pipe bracket on cattle guard.
- Properly stenciled the BP angle cock location. Ensure proper colour coding of BP angle it should be **'Green'** and stenciled as BP.

- ❖ Ensure there should not be any infringement with CBC coupler operation and also ensure diagonal connection of BP hose pipe with stock and with existing as well as with modified locomotives.
- ❖ The safety bracket for protection of BP angle cock, against damage in case of external hitting due to cattle run over is to be provided as recommended vide modification Sheet No. ELRS/MS/0270/Rev.'0' dated 08.11.1999.
- ❖ Though FP angle cock will remain at same location but ensure FP angle cock is to be painted **'White'** and stenciled 'FP'.

6. Application to class of locomotives:

WAP-1/4 Class of Electric Locomotives.

7. Material required:

Elbow pipe joints & Pipe of 32mm dia. as per requirement.

8. Material rendered surplus:

BP extension pipe.

9. Reference:

Item No. 11 of XXXIV Maintenance Study Group meeting on Modification to be done in WAP-4 locomotive to minimize loco failure because of breakage of BP/FP isolating cocks and BP extension pipe due to CRO.

10. Modification drawing:

Drawing no. SKEL 4884 Alt. '0' enclosed.

11. Agency of implementation:

- ➢ All the Electric Loco Sheds during AOH & POH schedule.
- ➢ POH workshops during POH schedule of Locomotives.
- ➢ CLW in all newly manufactured WAP-4 locomotives.

(A.K.Goswami)
for Director General/Elect.

Encl: SKEL Drg. No. SKEL 4884 Alt. '0'

DISTRIBUTION

Copy to : As per Standard Mailing List No. EL/M/0019, Ver. '2'

(A.K.Goswami)
for Director General/Elect.

Encl: SKEL 4884 Alt. '0'

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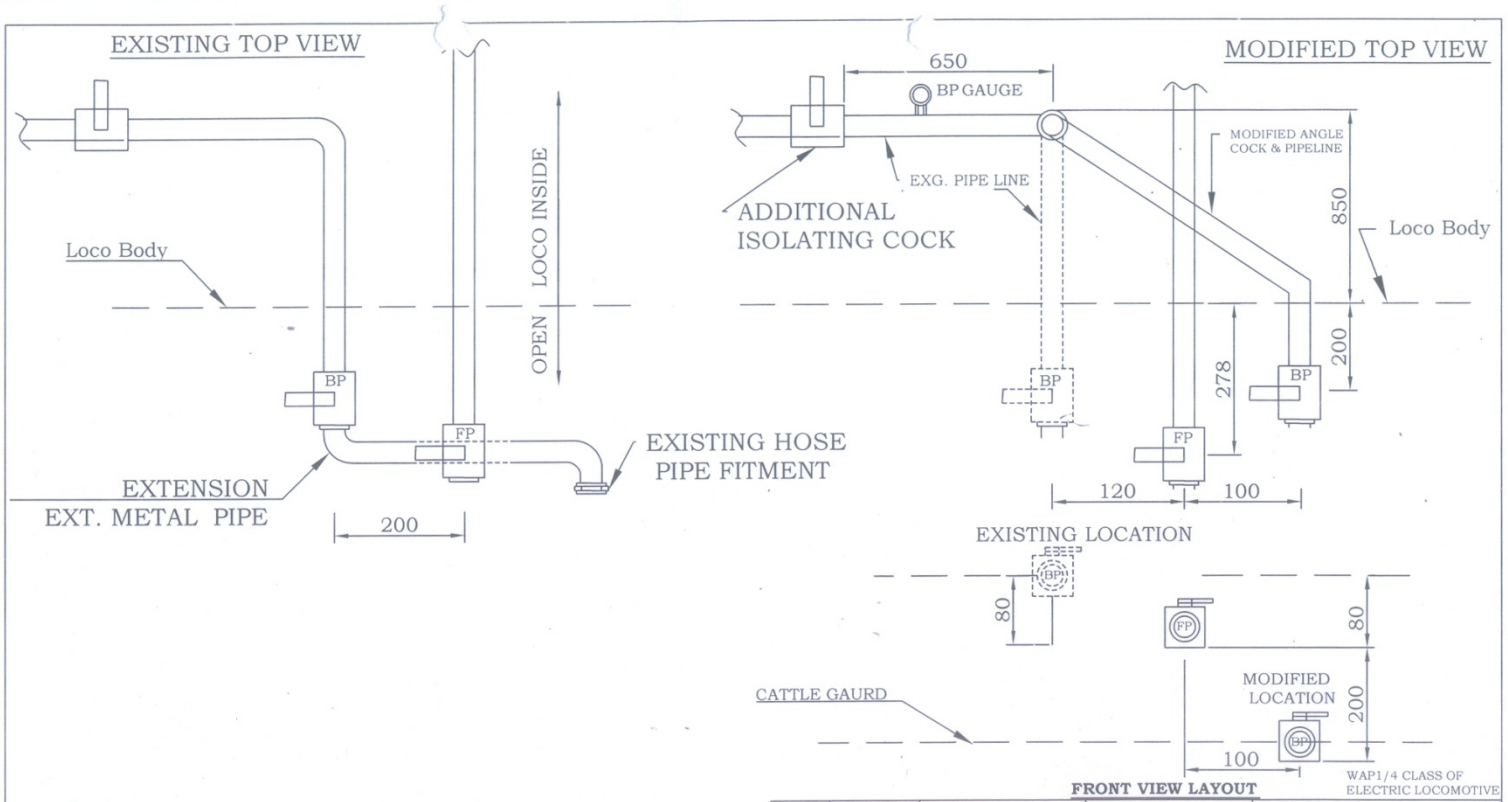

NOTE:

1. ALL DIMENSIONS ARE IN MM.
2. EXISTING ARRANGEMENT IS SHOWN IN DASHED LINE.
3. THE COLOUR OF BP & FP ANGLE COCK SHALL BE GREEN & WHITE RESPECTIVELY.

Sl.No.	PART NO.	DESCRIPTION	QUANTITY	MATERIAL SPECIFICATION

REF: RDSO/2012/EL/MS/0418 Rev. '0' | SCALE: NTS | APPD.BY (FOR DG)

REPOSITIONING OF BP ANGLE COCK IN WAP-1/4 LOCOS

FIRST ISSUED

SUPERSEDES

SUPERSEDED BY

RDSO ELECT. DTE

SKEL 4884 Rev. '0'

REVISION	DATE	DESCRIPTION

DT	25.10.12
D	V K YADAV
C	M C MAHANT