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सत्यमेव जयते

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अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226011
Government of India-Ministry of Railways
Research Design & Standards Organisation
Lucknow - 226011

S.No. 1799 S.No. 1778

No.EL/3.2.19 Dated 6.02.2001

Chief Electrical Engineer.
-Central Railway, Mumbai CST- 400 001.
-Eastern Railway, Fairlie Place, Calcutta- 700 001
-East Central Railway, Chandrashekharpur, Bhubaneshwar- 751 001.
-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 –500 371
-South Eastern Railway,Garden Reach,Calcutta-700 043
-South Western Railway, Bangalore - 560 046
-Western Railway, Churchgate, Mumbai –400 020
-West Central Railway, Jabalpur.
-New Zone Railway, Bilaspur.
-Chittaranjan Locomotive Works, Chittaranjan- 713 331

35822

MODIFICATION SHEET No. ELRS/MS/ 0304/2001 , Rev. '0'

1.0 Title :

Replacement of existing ½" pipe line connected from MR3 reservoir through air flow measuring valve to port no. 1 of additional C2 relay valve and connected from port no. 3 of additional C2 relay valve to through and through brake pipe in Electric Locomotives with ¾" pipe line.

2.0 Object :

2.1 During RDSO trials of circuit for automatic switching 'ON' of flasher light under train parting/emergency braking conditions at Ghaziabad Yard in Electric as well as Diesel Locomotives, it was observed that brakes releasing time of Electric Locos after full automatic service brake application on 58 BOX'N' train, were comparatively more as compared to time taken by Diesel Locomotives. Subsequently 7.5 mm leak hole test was carried out on Electric as well as Diesel Locomotives and it was found that BP pressure drop in case of Electric Locomotives was in the range of 0.75 – 0.8 kg/cm^2 in one minute as compared to 0.3 to 0.4 kg/cm^2 in one minute in Diesel Locomotives. As Diesel Locos' air compressor capacity with engine running on idle is around 2500-2600 ltrs. per minute which is more or less same as that of a Locomotive with 3 x

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O/C -

1000 lpm compressors having an efficiency in the range of 85 to 90 % running, the performance of both type of locomotives during brake release as well as compressor capacity test was expected to be in the same range. During subsequent investigations, carried out by RDSO, it came to the notice that BP charging pipe connected from MR3 reservoir through air flow measuring valve to additional C2 relay valve as well as from additional C2 relay valve to through and through BP pipe was of ¾" in case of Diesel Locos while it was of ½" in case of Electric Locos. A survey was also carried out by RDSO on different types of locomotives manufactured by CLW at different times and it was found that size of the pipe used for brake pipe charging circuit coming from MR3 has been of ½" size in most of the cases. In some cases, though pipe line size connecting MR3 to air flow measuring valve was ¾" and from air flow measuring valve to additional C2 relay valve also pipe line size was ¾", but at the inlet port no. 1 of additional C2, a reducer from ¾" to ½" was used to connect it to additional C2 relay valve's pipe bracket. In RDSO's pneumatic circuit drawings for various locomotives, the pipe line for brake pipe charging circuit has been clearly shown as ¾".

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2.2 Railways have been reporting in the past regarding the difficulties being experienced in WAP4 class of Electric Locomotives in meeting 7.5 mm leak hole test criteria for compressor capacity test set by RDSO.

2.3 To quantify the gains of ¾" pipe line over ½" pipe line for brake pipe charging circuit, trials were conducted on one WAG7 Locomotive at Kanpur Shed after replacing the existing ½"pipe line in BP pipe charging circuit by ¾" pipe line. The trials' results have clearly shown improvements in the range of 0.2 to 0.3 kg/cm^2/minute in case of 7.5 mm leak hole test. Identical observations have been reported by Southern Railway after changing the pipe line in WAP4 Locomotive and conducting 7.5 mm leak hole test. Therefore, a decision was taken in CEE's' conference recently held at Railway Board, New Delhi to issue necessary instructions to all Railways as well as CLW regarding changing of existing pipe line for brake pipe charging circuit with correct size pipe line.

3.0 Work to be carried out :

3.1 Existing pipe line connecting MR3 reservoir to air flow measuring valve and air flow measuring valve to port no.1 of additional C2 relay valve to be replaced with ¾" pipe line

3.2 Existing ½" pipe line connecting port no. 3 of additional C2 relay valve to 1-1 4" through and through BP pipe in case of WAG7 locomotives and 1" through and through BP pipe in case of WAP1/WAP4 locomotives to be replaced with ¾" pipe line.

3.3 The pipe line size connected to port no. 1 and 3 of C2 relay valve for brake circuit of Electric Locomotive will remain as ½".

The schematic details are shown in the enclosed annexure.

4.0 Application to the class of Locomotives:

All AC Electric Locomotives.

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5.0 Material Required :

1. ¾" pipe line of required length as per CLW's Specification.
2. C2W Relay Valve as per following details :

S. N.	Description	WABCO Part No.	SIL Part No.	SAB WABCO Part No.
1.	C2W Relay Valve with ¾" hole in the base plate corresponding to port no. 1 &3 (with 6mm choke in exhaust)	579991	30301723	505001300

NOTE : It is hereby clarified that relay valve for C2 as well as additional C2 application basically remains the same. It is the base plate which has been provided with ½" holes corresponding to port no. 1 & 3 for C2 relay valve and with ¾" hole corresponding to port no. 1 & 3 for additional C2 relay valve.

6.0 Material Rendered Surplus :

One no. base plate with ½" hole corresponding to port no. 1 & 3 of C2 relay valve which can be subsequently used for C2 relay valve application for loco brake circuit.

7.0 Reference :

i) Trials conducted by RDSO in the Gaziabad Yard for checking the functioning of automatic working of flasher light with Electric and Diesel Locomotives. / SMO. 1767

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S.No

ii) Clarification received from M/s. SAB WABCO vide their letter No. SWIL/R&D dated 12.01.2001 and from M/s. IL vide their letter No. Nil dated 4.1.2001. 1753 S.No. ~~1732~~ 1731 S.No. ~~1729~~A

iii) Southern Railway's letter No. J.A RS ED Valve date 11.12.2000.

iv) Trials conducted by RDSO at Electric Loco Shed Kanpur. S.No ~~1746~~ 1754

8.0 **Modification Drawing:**

Enclosed as annexure.

9.0 **Agency for Implementation :**

CLW – for newly manufactured locomotives .
Workshops & Electric Loco Shed - during major schedules (AOH/IOH).
POH Shops – during POH schedule of Electric Locomotives.

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Encl: As above

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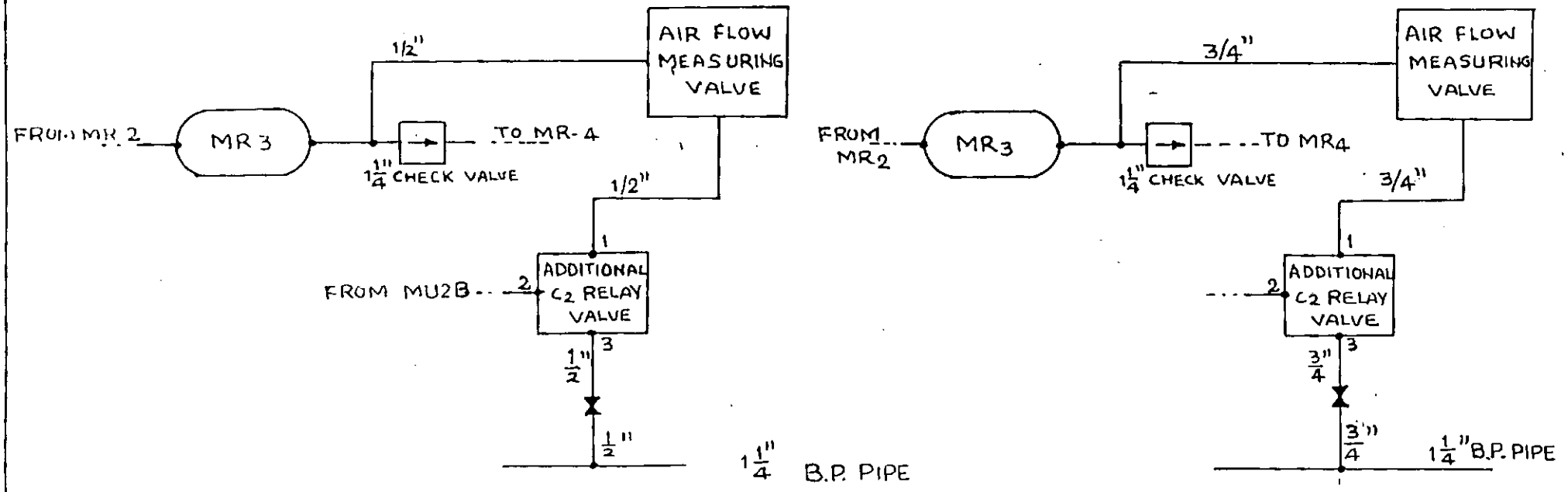
ANNEXURE



SCHEMATIC SHOWING CHANGES REQUIRED IN BRAKE PIPE CHARGING PIPE LINE

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Encl of - MOD. SHEET No. ELRS/MS/0304 -2001, Rev.'0'