

**Government of India  
Ministry of Railways  
Research, Designs & Standard Organisation  
Manak Nagar, Lucknow-226011**

No. EL/3.2.19

Dated 29.07.99

**Modification Sheet No. ELRS/MS/0262**

**1.0 Title :** Improvement measures to improve the reliability of air dryers.

**2.0 Object :**

During XXVI MSG meeting held at Bangalore, Southern Railways had reported that air dryers wherever provided by CLW in Electric Locomotives are non functional due to following reasons;

- i) Non-functioning auto of drain valves.
- ii) Failure to build up 10 kg/cm<sup>2</sup> pressure with single compressor when air dryer is in circuit.
- iii) Air loss due to purging operation even when compressors are in 'Cut out' state.
- iv) Lack of technical know how and availability of spares.

To sort out the above issues, discussions were held with M/s SAB-WABCO and modifications advised were got implemented on one WAP4 locomotive No. 22268 based at Jhansi Shed. After the implementation of modifications, problems described above at (i) to (iii) were found solved.

**3.0 Work to be carried out :**

- (i) The size of orifice in the air dryer which supplies air for regeneration is to be reduced from 0.11 inch to 0.067 inch. This is to be achieved by replacing the existing orifice by a new orifice.
- (ii) The control circuit of the air dryer is to be modified so that purging operation takes place only when compressors are in service. This will require laying of a new control cable between the RGCP and the junction box of air dryer.

(iii) The frequency of operation of auto drain valves should be reduced by taking actions as follows:

- (a) The control supply going from RGCP to 'VEAD' valve should be disconnected.
- (b) The 'VEAD' valve should be given the control supply through the timer set at '2 minutes' provided in the air dryer control card. This will also require laying of a new control cable.

Care is to be taken for (ii) & (iii) above, to ensure that new control cables are routed through proper conduits and are clamped securely.

(iv) Only one 'D1' type auto drain valve of original WABCO design should be used in place of two auto drain valves of 'Salem' design which are presently provided as per enclosed pipe line layout.

**Note :** All the above modifications will be carried out by M/s. SAB-WABCO in all the locomotives provided with D&M make of air dryers with the assistance of the shed.

(i) The preventive maintenance of M/s. D&M make of air dryers and procurement of spares should be carried out strictly as per their 'Maintenance Instructions' catalogue No. A695 supplied by CLW to all the sheds.

#### **4.0 Application to class of Locomotives :**

All WAP4 class of Electric Locomotives provided with M/s. D & M make (or M/s Gram & White make) of air dryers.

#### **5.0 Material Required :**

- (i) One no. of orifice of size 0.067 inch (To be supplied by M/s SAB-WABCO)
- (ii) One no. 'D1' type auto drain valve with associated pipe line and pipe fittings. (To be arranged by the sheds.)

**Note :** Till the time 'D1' type auto drain valve is arranged, existing 'salem' design of auto drain valve can be used)

- (iii) Required length of control cable with conduits and clamping arrangement.

**6.0 Material Rendered Surplus:**

Two nos. `salem' design of auto drain valves.

**7.0 Reference :**

Discussions held on the performance of air  
dryers in the XXVIth MSG  
meeting held at Bangalore, Southern Railway.

**8.0 Modification Drg.:**

Arrangement of auto drain valve as per enclosed Annexure-I.


**9.0 Agency for Implementation :**

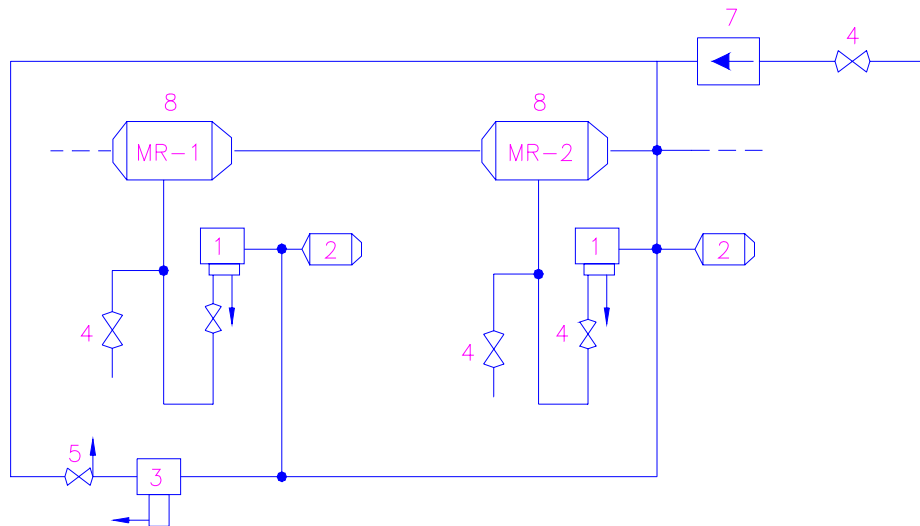
- (i) All Electric Loco Sheds holding WAP4 class of locomotives fitted with air dryers.
- (ii) CLW for all newly manufactured locomotives being fitted with air dryers.

**10.0 Distribution :**

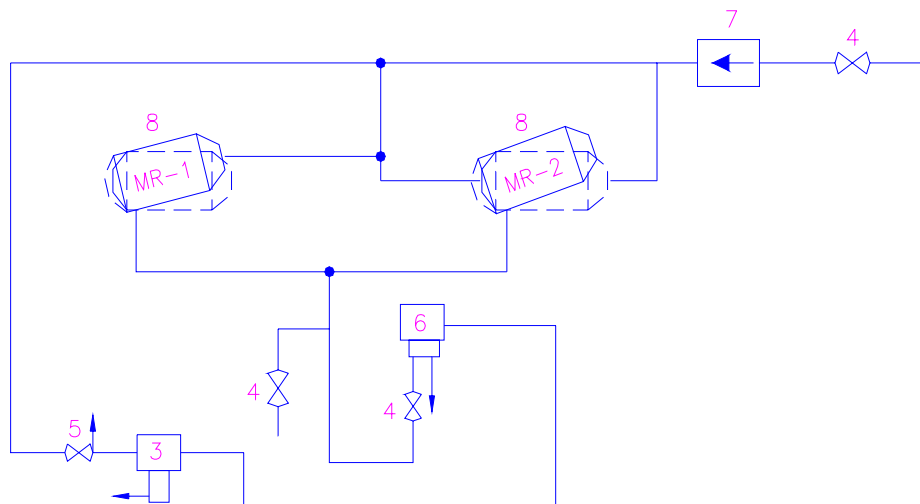
As per enclosed list.

**Encl: As above**

  
**(O.H. Pande)**  
**for Director General/Elect.**



PRESENT ARRANGEMENT OF AUTO DRAIN VALVE



MODIFIED ARRANGEMENT OF AUTO DRAIN VALVE

1. AUTO DRAIN VALVE OF SALEM TYPE.
2. TIMING CHAMBER FOR AUTO DRAIN VALVE.
3. VEAD VALVE TO BE ACTIVATED BY RGCP.
4. 1/2" DRAIN COCK.
5. 3/8" CDC WITH VENT.
6. AUTO DRAIN VALVE 'D.1' TYPE TO BE ACTIVATED BY TIMER PROVIDED IN CONTROL. CARD OF AIR DRER.
7. 3/8" AIR STRAINER
8. MAIN RESERVOIR

NOTE:—

TILING ARRANGMENT OF MR 1 & MR 2 IN MODIFIED ARRANGEMENT TO BE FOLLOWED BY WORKSHOPS DURING POH AND CLW IN NEWLY MANUFACTURED LOCOMOTIVES.

