

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS  
RESEARCH DESIGN AND STANDARDS ORGANISATION

No. RL/3.1.3

Manak Nagar Lucknow-226011  
Dated: 21.9.84

MODIFICATION SHEET NO. WAM4/135

MODIFIED MID-POINT EARTHING SCHEME FOR WAM4 LOCOMOTIVES

1. OBJECT:

1.1 RDSO had vide letter No. RL/3.1.3 dt. 28.1.82 recommended adoption of mid-point earthing scheme as per CLW's modification sheet No. CLW/WAM4/107 dated 30.12.81.

1.2 The above recommended scheme has following drawbacks:

- The QOP is not sensitive to faults occurring at points where two Traction Motor armatures are connected in series on a 2S-3P locomotives.
- The QOP relay being power operated, is insensitive at lower notches.
- There is no facility of checking relay operation during LT testing.

1.3 This modification sheet suggests an improved version of mid-point earthing which is simple, eliminates most of the drawbacks referred in para 1.2.

The basic scheme as shown in RDSO Sketch No. SKEL-3750, consists of utilising LLCV battery with the mid-point earthing scheme. With this provision the battery voltage is made available for QR operation during L.T. testing and detection of earth faults during entire range of loco operation. The system is also more sensitive than the conventionally used QOP system.

2. WORK TO BE CARRIED OUT:

The power circuit of WAM4 locos is to be modified in line with RDSO Dwg. No. SKEL-3750.

3. APPLICATION TO THE CLASS OF LOCOMOTIVES:

All WAM4 locos (except those provided with Hitachi ES 1050 motors)

4. MATERIAL REQUIRED:

- (1) 3.2 k $\Omega$  100 Watt resistances - 8 Nos.
- (2) 1/2"  $\times$  1/4" grade cable - as required.
- (3) 1/2"  $\times$  1/4" grade cable - as required.

.....2/-

5. MATERIAL RENDERED SURPLUS:

Resistor RPQOP - 150  $\Omega$  75W - 1 No.

6. REFERENCE

CLW modification Sheet No. CLW/WAM/107 dt. 30.12.81  
Rly. Bd.'s letter No. 83/Elec(TRS)/440/17 dt. 11.11.83.

7. MODIFICATION DRAWINGS

RDSC Drg. No. SKEL-3750.

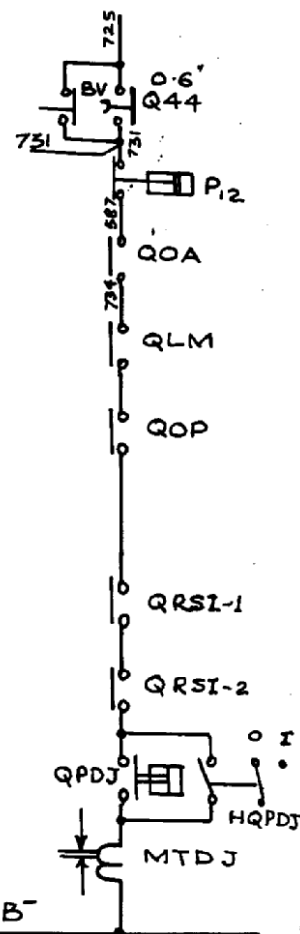
8. AGENCY FOR MODIFICATION

All POC Shops, Electric Loco Sheds maintaining  
WAM locomotives.

9. DISTRIBUTION

As per attached mailing list.

DA: Drg. No. SKEL-3750. (H.K. Johri) 21 9 84.  
for Director General/Elect.



MOUNTING ARRANGEMENT SIMILAR TO  
CLW DRG NO. CLW.3W 2 009-238/A

REF: <sup>MODIFICATION</sup> SHEET NO. / 135		SCALE: N.T.S.	APP. BY: <i>[Signature]</i>
MODIFIED MID-POINT EARTHING SCHEME			
R.D.S.O. ELEC. DTE		SKEL-3750	

19-5-82

Thanks

Therapy

