

**Government of India**  
**Ministry of Railways**  
**Research, Designs & Standards Organisation**  
**Manak Nagar, Lucknow - 226 011**

No.EL/3.2.1/2

Dated 14.6.1982.

**MODIFICATION SHEET NO. RDSO/WAM4/126**

**Provision of additional insulation to auto transformer winding leads leading towards tap changer at the anchoring location of parmali wood cleats.**

**1. OBJECT OF MODIFICATION:**

Railways have reported few cases of insulation failure of the high voltage taped leads of auto transformer winding of main loco transformer type BOT 3460, leading towards the tap changer at the anchoring location of parmali woods cleats. This resulted in overheating and short circuiting between the leads.

During investigation it was observed that the high voltage auto transformer taping leads are just loosely passing through the grooves of the parmali wood cleats, without any cushioning effect at the anchoring location. This is every possibility of damage to the insulation of the leads due to rubbing with the cleats on account loose anchoring under vibration condition in service.

In view of the above it has been decided to provide additional insulation to the leads at the anchoring location of the cleats as per enclosed drawing No. SK. EL. 3489.

**2. WORK TO BE CARRIED OUT:**

- (i) Two additional layers of press, paper insulation will be wrapped around each layer of the bunch leads passing through the grooves of the cleats as per drawings No. SK EL. 3489.
- (ii) 4.75 mm press board sheet will be provided between two layers of each bunch of leads as separator.
- (iii) The leads and insulating paper paper will be suitably fastened by cotton tape and suit a blynchored with cleat to avoid insulation damage on account of rubbing.

**3. APPLICATION:**

On all the locos fitted with type BOT 3460 and HETT 3900 transformers.

**4. MATERIAL REQUIRED**

- Insulating blue press paper of 0.4mm thick x150 mm wide
- Insulating crepe paper tape of 0.2mm thick x25 mm wide
- Insulating spacers 4.75 mm thick x60 mm wide x70 mm. long.
- Insulating spacers 4.75 mm thick x60 mm wide x60 mm long.

**5. MATERIAL SURPLUS:**

Nil.

**6. Reference:-**

- i) BHEL drawing No. G 6100037.
- ii) Minutes of the meeting held between RDSO and BHEL in Jan,81 and circulated wide this office letter No. EL/3.2.1/2 dated-17/2/81.
- iii) This modification has been introduced by BHEL from transformer serial No. 2000846 onwards.

**7. MODIFICATION DRAWING**

RDSO-SK. EL.-3489.

**8. AGENCY FOR IMPLEMENTATION:**

All sheds and shops holding WAM4, WAG4, WAP1 locomotive.

**9. As per enclosed list.**



Enclosed: SK. EL.3489  
mailing list.

(K VISWA KUMAR)  
for Director General/Elect.

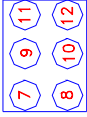
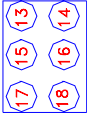
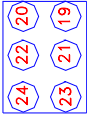
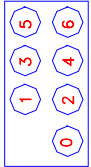
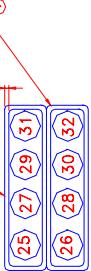
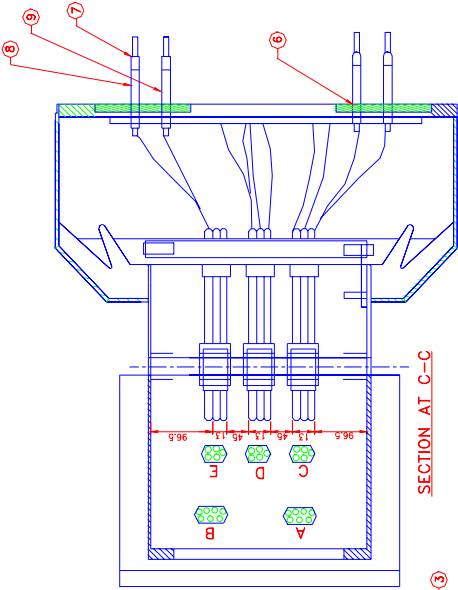
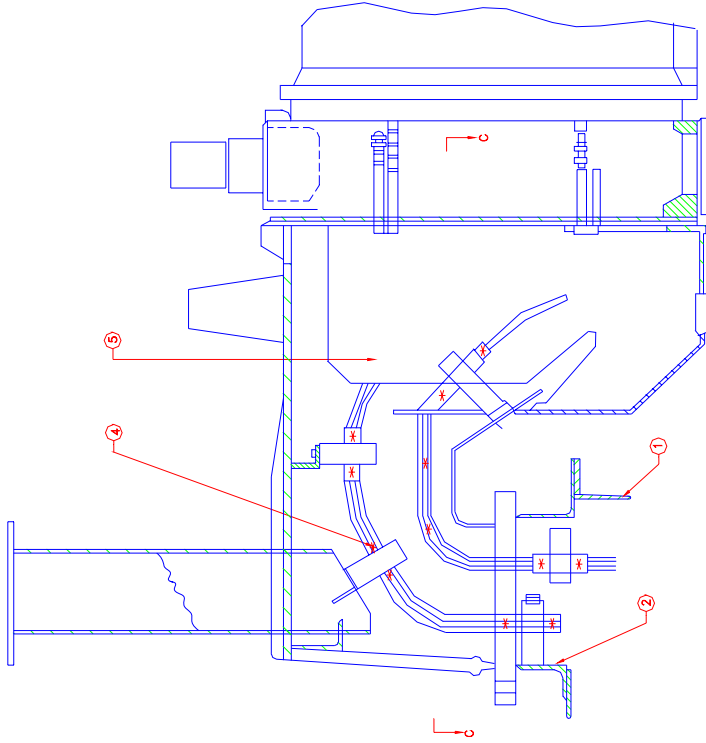
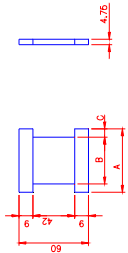


TABLE OF DIMENSIONS			
ITEM NO.	A	B	C
10	60	40	10
4	70	54	8

(10) (4)



\* THE LEADS AND PAPER TO BE SUITABLY FASTENED  
COTTON TAPE SUITABLY ANCHORED WITH CLEATS

10	SPACER 4.5 Tm. x 60x60 LONG	SOLID DARK RB SH
9	INSULATING TUBE 14.5 (INCHES) LONG	RESIN BONDED
8	INSULATING TUBE 14.5 (INCHES) LONG	RESIN BONDED
7	PLUG	PAPER BOARD
6	CORD 1.8 DIA	8 PLY TWIN
5	TAPE 2 THICK 25xLONG	CERE PAPER
4	SPACER 4.75 THICK 60x70 LONG	
3	INSULATION .4 THICK x150xLONG	PLUE PRESS PAPER
2	TANK COVER	
1	OIL TANK	

PART NO.	DISCRIPTION	QTY	MATERIAL /SPEC.
REF :- 6	BHEL INS DRG.NO. 6100037	SCALE:- MTS	APPROVED:- FOR D.C.

PROVION OF EXTRA INSULATION FOR  
AUTO TRANSFORMER TAPPING LEADS

RDSO.ELEC.DTE. SK.EL.-3489

