

Government of India  
Ministry of Railways  
Research Design & Standard Organisation  
Manak Nagar, Lucknow – 226 011

EL\ 1.2.9.1.

Date –29.01.2003.

Modification Sheet No. ELRS/ MS / 0322

Chief Electrical Engineer

- Eastern Railway, Fairlie Place, Kolkata – 700 001.
- Northern Railway, Boroda House, New Delhi-110001.
- Central Railway, Mumbai CST, 400001
- Western Railway, Churchgate, Mumbai-400 020.
- Chittaranjan Locomotive Works, Chittaranjan-713331.

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1. Title:

Modification of RC damping panel on the locomotive provided with Static converter of air brake/ dual brake ac Electric locomotives.

2. Background :

Static inverters so far developed by M/s. Siemens, M/s. AAL are provided with half control rectifier and therefore require higher input voltage for which two coils (a0-a1 & a7-a8) of the tertiary windings (2x150 KVA, 415 volts) of the transformer are connected in series.

The RC damping panel being supplied by the VCB manufacturers as a part of the equipment consists of THREE RC networks, (the ohmic value of each resistance being 4.7 ohms and value of each Capacitor as 25 micro farad) and they have been connected in parallel across the tertiary winding of transformer (a0 –a1) when working with conventional Arno converter. The rated voltage of these capacitors is 560 volts.

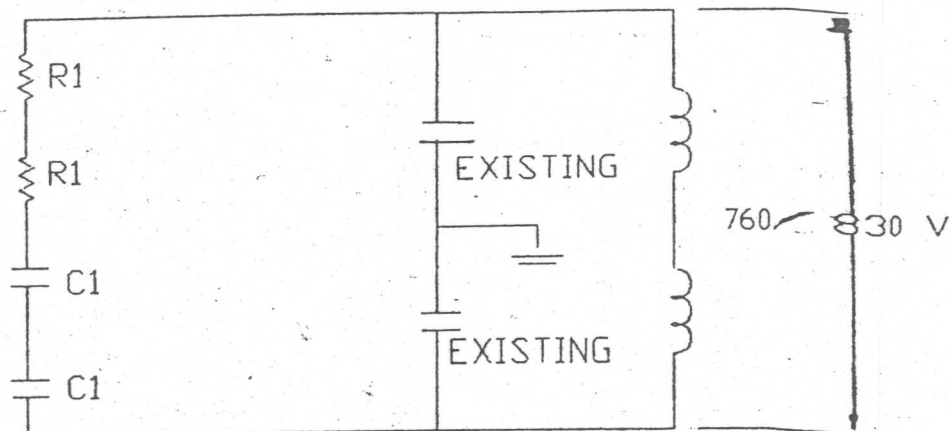
Now with static inverter since input voltage is higher i.e.830, it is necessary to connect two existing RC networks in series across the series connected coils of tertiary winding (a7-a8). This will suffice the requirements of surge suppressor. The third branch of the RC network may be removed or kept disconnected.

The capacitors CAPTFWA1 and CAPTFWA2 with their center point earthed will also be connected across the series connected coils of tertiary winding (a7-a8).

3. Object :

- 3.1 To maintain the rated voltage of the snubber capacitors upto 560 V.
- 3.2 increase in life and reliability of VCB.

STATUS	ALT.	REF. NO.	DESCRIPTION	APP. BY	DATE



(MODIFIED CIRCUIT)

(R1) RESISTANCE 4.7 OHMS 380 WATT

(C1) CAPACITORS 25 MICRO FARAD 560 V

REF NO.	PART NO.	DESCRIPTION	DETAIL DRG. NO.	NOS.	MATL	SPEC
REF:-		SCALE:- NTS		APPROVED BY:- <i>[Signature]</i> Per DG.		
MODIFIED SURGE ARRESTER ARRANGEMENT				FIRST ISSUED:- 30.01.03		
				SUPERSEDES:-		
RDSO ELEC DTE		SKEL-4667		SUPERSEDED BY:-		

MS/0322

Dt.	30.01.03
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4. Work to be carried out :

- a) To connect two existing RC networks (the ohmic value of each resistance being  $4.7 \Omega$  380 Watt and value of each capacitors as  $25 \mu f$  560 Volt) in series across the series connected coils of tertiary windings (a7-a8).

5. Application to class of locomotives :

All WAG-5 and WAG-7 locomotives provided with Static converter supplied by M/s AAL and M/s Siemens Ltd.

6. Material Released :

- a) The third branch of the RC network if available may be removed or kept disconnected.

- Reference: 1. CELE Western Railway's D.O. EL- 91/7/19 dated 04.12.2002 and 16.1.2003.  
2. DG/ Electrical letter no 1.2.9.1 dated 22.1.2003.

7. Modified Drawing : Drg.no-- SKEL-4667

8. Agency Implementation :

Electric loco shed having Static Converter fitted locomotive.

10. Distribution :

The loco sheds in which Static converter provided locomotive exists.

ELS/CNB, ELS/TKD, ELS/MUS, ELS/AJZ

Enclosure : 1. Drawing 01 sheet.

(S.S. Joshi)

for Director General Elect.

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