

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

No. EL/3.2.10/Gen

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SPECIAL MAINTENANCE INSTRUCTION NO. RDSO/ELRS/SMI/173

**MEASURES TO IMPROVE RELIABILITY OF INTERLOCKS IN
CONTROL EQUIPMENTS**

1. OBJECT

- 1.1** Investigations on the problems of interlock/contacts in control equipments of electric locomotive show that there are two main causes of concern i.e. inadequate contact force and presence of foreign particles between contact faces resulting open circuit, bad contacts and even sometimes welding of contacts. The problem can be over come/minimised by adopting improved maintenance measures.
- 1.2** This SMI defines the measures which are to be taken by railways to minimise these problems.

2. INSTRUCTIONS

- 2.1** To ensure that all relay or interlock assembly of any equipment provided on the locomotives is with covers in good condition.
- 2.2** All openings in covers, specially relay covers to be sealed properly.
- 2.3** Relay covers to be opened only in the relay testing room. For this purpose spare relays to be made available in the sheds so that it is ensured that defective relays in the locomotive are replaced by healthy ones and the defective ones are attended to in the relay test room.
- 2.4** The relay room should be air conditioned or at least pressurised with filtered air.
- 2.5** As far as possible, use of chamois leather, cloth, emery paper, gaud paper etc. should be avoided for cleaning/dressing of contacts. Only contact burnishing tools and cleaning agent dispensers should be used for cleaning contacts. The burnishing tool should also be dipped in degreasing fluid before. contacts should not be touched by hands. While using degreasing dispenser, the relay should be held in such a way that the fluid falls free and out of the relay. The cleaning fluid should be such that it evaporates fully at room temp. without any residue. Relay cover should be replaced and tightened in position as soon as the fluid evaporates fully.
- 2.6** Contact force should be adjusted to higher specification limit periodically. If required special tools for this purpose should be obtained from the manufacturers.
- 2.7** The staff dealing with maintenance and over hauling of relays and other interlock assembly should be trained for correct procedure and handling.

2.8 In auxiliary switch assembly of CLW make line contactors, a clearance of at least 1.0 mm between the moving contact leaf and plastic casing should be ensured.

2.9 Whenever Possible, programme switches like HVMT, HPH, HBA etc should be mounted upside down so as to minimise dust deposition on the contacts.

3.0 INSTRUCTION OF DRAWING

Nil.

4.0 APPLICATION

Interlocks of control equipments and relays fitted on all electric locomotives and EMUs.


5.0 AGENCY FOR IMPLEMENTATION

All electric loco sheds and POH shops. All EMU car sheds.

6.0 DISTRIBUTION

As per mailing list.

Encl: mailing list.


(R.N.LAL)
for Director General (Elect.)