

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RESEARCH DESIGNS AND STANDARDS ORGANISATION

Manak Nagar, Lucknow-226011.

No.EL/3.2.53/C2

22nd Oct., 1980.

SPECIAL MAINTENANCE INSTRUCTION NO.RDSO/EL.RS/SMI/74

MAINTENANCE INSTRUCTIONS FOR ENSURING COMPLETE
SHAPACTION FOR SIEMENS SWITCH TYPE K 138 (16 AMP)
FOR LOCO APPLICATION.

1. Object:

Railways have reported unsatisfactory performance of Siemens make programme switches. The problems mainly reported on these switches are:

- 1.1 Sluggish operation of the switching mechanism.
- 1.2 Mal-operation of the contacts
- 1.3 Burning of switch and auxiliary motors due to single phasing.

The object of this SMI is to overcome the ^{above.} defects.

2. Observations:

Investigations have revealed that the operating handle can be left at intermediate position which can result in above defects. The bakelite indicating knob is found to grip the panel body.

- 2.1 The switches for loco application supplied by M/s. Siemens have following features:

- 2.1.1 For fixing the switch to the panel in vertical plane 2.0 mm thick rectangular plate is rivetted to the front bracket.
- 2.1.2 1.0 mm thick anodised aluminium indicating plate is provided over the panel for indicating the position of the handle.
- 2.1.3 1.5 mm thick bakelite washer is provided over the top portion of the spindle and behind the bakelite indicating knob. This ensures adequate clearance between the rotating knob and the panel surface in the loco.
- 2.1.4 The switches are identified by the code nos. given on the name plate of the each switch after the letter LBO and order no.

..... 2/-

- 3.2 Check for the presence of the washer by opening the indicating knob. In case it is available, remove the washer carefully and bond the same as per clause 3.3. If washer is not available, bond a new washer (clause 3.1) to the knob as per clause 3.3.
- 3.3 Roughen the surface of the washer with a fine emery paper. Apply a thin coat of epoxy adhesive (viz. araldite) over the roughened surface of the washer and the bottom face of the indicating knob. Stick them together in position and allow to set undisturbed for 24 hrs. approx. During setting the knob should be kept on a levelled surface to prevent any displacement of the washer.
- 3.4 Remove the aluminium indicating plate. Increase the diameter of the circular cutout portion to 54.0 mm. Eliminate the sharp edges with a smooth file. This will prevent rubbing of the bakelite indicating knob with the aluminium indicating plate. After cleaning the contact surfaces stick the indicating plate at the mounting location over the switch panel with epoxy adhesive and allow it to set.
- 3.5 After cleaning and testing mount the switch in position. Fix the operating handle. After tightening, check for axial play of the spindle. This shall be within 1 mm and can be seen at the rear bracket of the switch. Ensure clear gap between the switch panel and bakelite indicating plate. Check for free movement of the operating handle, and correct operation of the switch.
- 3.6 All the sheds are requested to indicate correct type and order no. while placing indents for procurements as explained in para 2.1. This will ensure use of correct type of switch recommended for loco application.
4. Reference: Nil.
5. Application:
All Siemens make programme switches type K 138 (16 Amps.).
6. Agency for implementation:
Railway Electric Loco Sheds for existing locos. ECU sheds for existing EMUs. M/s. Siemens and CLW to ensure correct supply as explained in para 2.1 for all the current and future supplies.

.....4/-

7. Periodicity of implementation:

During AOH and whenever unsatisfactory performance is reported.

8. Distribution:

As per list attached.

(Signature)
(T.V.S. SASTRI)

DA: As above.

for Director General/Elec.