

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RESEARCH, DESIGNS & STANDARDS ORGANISATION

MANAK NAGAR,
LUCKNOW- 226 011

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SPECIAL MAINTENANCE INSTRUCTIONS NO. RDSO/ELRS/SMT/202 (REV.1)

- 1.0 Title :
Modified Trouble shooting Instructions for 'Tripping through QOP' cases.
- 2.0 Object :
RDSO had issued SMT No. 195 advising trouble shooting instructions for 'tripping through QOP cases'. Same was discussed in details with Railways during 25th MSG (Elec. Loco) meeting held at Secunderabad on 5th & 6th March '98. During the discussions, Railways had requested RDSO to restore the instructions for isolation of the defective traction motor by driver from positive side, as field experience shows that it helps in good number of cases. Rest of the instructions to be retained. Hence revised instructions adding this feature, are issued.
- 3.0 Instructions :
 - 3.1 All earlier instructions on this subject including SMT No. RDSO/SMT/202 (Rev.0) dated 5.5.98 stand superseded by this SMT.
 - 3.2 The loco DC power circuit is a floating electrical circuit, that is nowhere connected to earth. As such, one earth anywhere in the circuit does not harm. But in case, second earth fault takes place, there will be heavy circulating current without any protection and therefore, it will result in fire. The precaution needed is to isolate the first earth fault, before second earth fault occurs.
 - 3.3 The QOP circuit is connected to the negative bus through battery. Isolation of faulty traction motor from positive bus through HMCS, will not prevent current flow through QOP, as QOP circuit will be completed through negative bus. It is therefore essential to isolate the earth point

from both positive & negative buses & restoration of QOP in circuit. Isolation through HMCS will help only in the cases where earth resistance is less than 167 ohms with HMCS on '1' but more than 167 ohms with HMCS on '2', '3' or '4'.

3.4 Some Railways have proposed to provide line contactors on negative side of the traction motor in the power circuit. Same is not to be followed.

4.0 Revised instructions for 'Tripping through QOP' cases will be as follows ;

4.1 For Driver :

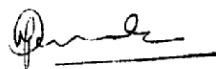
- a) If the loco trips through QOP, close DJ and resume traction.
- b) In case of loco trips again through QOP, try to identify the defective traction motor circuit by rotating respective HMCS switch to position '2', '3' & '4'.
- c) In case DJ tripping through 'QOP' stops on either of the above three HMCS positions then leave HMCS switch on that position, work the train and inform the TLC at the first possible opportunity.
- d) After step (c), driver to continue the journey. In case, tripping is experienced through 'QOP' again enroute, then put HMCS switch back to position '1' and HQOP in 'OFF' position. Work the train keeping a watch on smoke emission from motors/HT compartment. In case there is a smoke emission from any of the motors/HT compartment then fail the locomotive.
- e) While following the step (b) above, if defective traction motor circuit could not be identified then follow step (d) above straight away and inform the TLC at the first possible opportunity.

4.2 For Shed Staff:

- a) It is necessary to isolate the defective traction motor circuit from both Armature as well as Field that is from positive and negative side at the earliest opportunity either at the end of journey or in between. Such isolation should be done by skilled staff by disconnecting and taping the battery positive connection from the concerned line contactor's electro magnetic coil and either disconnecting the concerned negative link in the 'BA' panel or lifting the concerned reverser tip.

- b) After isolation of defective traction motor circuit as in (a) above, HMCS should be put on position corresponding to the isolation of defective traction motor and HQOP should be put to 'ON'.
- 5.0 The clear out entries of the work done by maintenance staff above in step (4.2) should be made in locomotive log book and locomotive should be directed to home shed working a train.
- 6.0 The driver may be suitably instructed to follow normal QOP trouble shooting instructions as described above in step (4.1) in case he experiences 'QOP' trouble again in some other circuit.
- 7.0 In case earth fault is found either in the positive or negative bus and the same could not be attended then the locomotive should be sent dead with both reversers in neutral position to the nearest shed/ home shed as decided by T.C.
- 8.0 Application :
All AC Electric Locomotives manufactured by CIW and BHEL.
- 9.0 Instruction Drawing :
Nil
10. Agency of Implementation :
Electric Loco Sheds/Workshops

Encl: Nil


(O.H.Panda)
for Director General/Elect.

DISTRIBUTION

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