ELECTRO-MOTIVE DIVISION • GENERAL MOTORS CORPORATION
SERVICE DEPARTMENT
MAINTENANCE INSTRUCTION

EXTENDED RANGE DYNAMIC BRAKE OCP RELAY SETTING PROCEDURE 6-AXLE LOCOMOTIVES

The OCP relay used on 6 axle SD or F type locomotives equipped with extended range dynamic brakes can be calibrated by using stall current through the traction motors to obtain current through the OCP relay. This procedure will shorten the calibrating time considerably.

The use of stall current for testing and calibrating must be approved by the railroad due to the safety aspect - possible locomotive moving while testing. The traction motor current level and duration must be kept to an absolute minimum during testing.

The graph in Fig. 1 must be used for calibrating the OCP relay. A current level of 300 amps is the absolute minimum for making the setting. The procedure is as follows:

1. Remove ASX2 wire (AS22 wire - SD35) from OCP-K terminal.
2. Connect MG set and 0-1500 V DC voltmeter negative leads to OCP-K.
3. Connect MG set and 0-1500 V DC meter positive leads to RE92C-Bottom (A52 wire) for 45 series; to RE92B-Top for-SD(P) 40; or to RE66B-Top for SD(P)35; RE19C (A52 wire) on SD39.
4. Use PA and NA source at terminal boards at the No. 2 electrical cabinet for MG set input or else use battery switch.
5. Connect a 5000 ohm 25 watt rheostat in series with the TRP panel. On SD(P)35's without a TRP connect the 5000 ohm rheostat in series with the PLS No. 3 terminal.
6. Connect a 0-100 millivolt meter leads to the indicating ammeter shunt.
7. Connect a jumper from OCP-C to a convenient PA. Connect a test light from OCP-D to a convenient NA.
8. To obtain current through the OCP relay one of the following methods may be used:

a. Six Motor Stall Current – The method of loading the locomotive against its brakes to obtain current through the OCP relay may be used, providing the following is observed:

Railroad rules permit use of stall current for testing.

The locomotive being tested should be coupled to another unit with all air brakes set hard to prevent movement.

Time period with stall current through motors must be kept to an absolute minimum.

Only competent railroad personnel use this method.

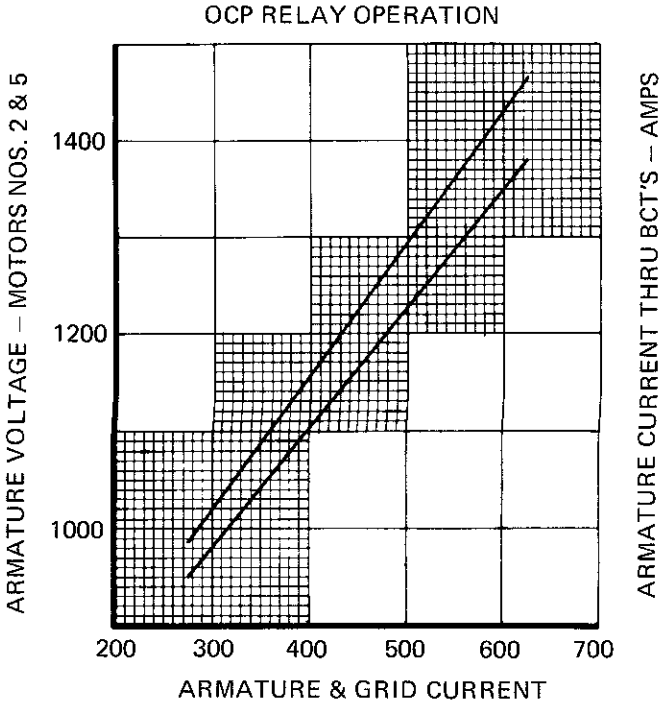

Fig. 1

b. Two Motor Stall Current — Isolate unit first.

40 And 45 Series — Remove the arc chutes from the S14 and S36 power contactors and place insulating material between the main contacts. On IDAC equipped units remove the ALG1 wire from WSC-1. On non-IDAC equipped units remove the AL1 wire from TB68A7.

SD39 Series — Jumper from PA source to PR-F2 to pick up SP25. Jumper from ELD A/Right to ELD B/Right. Remove ALG1 wire from WSC-1.

SD(P)35 Series — Remove the wires from SP25 coil positive and connect a jumper from PA source to SP25 coil positive. Remove the ML6 wire from BR-H1 terminal. Jumper from GR-H to SF coil positive and from SF coil positive to BFA coil positive.

With the above set ups only two motors will have stall current. The locomotive air brakes must be set hard to prevent any movement.

c. The procedures for obtaining current through the BCT's as described in the Locomotive Service Manual for 39, 40, and 45 series or M.I. 6849 for SD(P)35 can be used in place of stall current.

d. A welding machine can also be used as a current source providing it has a capacity of 300 amps or higher. The minimum current for setting OCP is 300 amps.

9. With use of stall current, set locomotive up for power operation, set air brakes hard, and control current through the OCP with the throttle and rheostat. Obtain 400 amps through the OCP relay. Run MG set voltage up until OCP picks up (test light comes on) and observe voltage and current. Adjust OCP to pick up with limits as given on Fig. 1. If the MG set will not put out a high enough voltage to pick up OCP at 400 amps reduce current, however, 300 amps is minimum current value.

10. Return locomotive to normal by doing the following. Isolate unit.

a. Remove all meters.

b. Remove the 5000 ohm rheostat.

c. Remove test light.

d. Remove following jumpers (if used).

(1) From PA to PR-F2 (SD39).

(2) From ELD-A/Right to ELD-B/Right (SD39).

(3) From PA to SP25 coil and reconnect wires to coil (SD35).

(4) From GR-H to SF coil and from SF coil to BFA coil (SD35).

e. Remove insulating material from any power contactors that were blocked.

f. Reconnect the following wires (if removed).

(1) ALG1 to WSC-1 (39, 40, 45 series).

(2) AL1 to TB68A7 (40 and 45 series).

(3) ML6 to BR-H1 (35 series).