



MAINTENANCE INSTRUCTION

CHECKING AND SETTING SHUNTING SW1500

INTRODUCTION

The purpose of this procedure is to check and set the shunting on the SW1500 locomotive with a D32 generator. This will be done using the resistance in the battery field circuit by energizing either singly or in pairs AVC, BVC, and CVC. By doing this, the battery field current will be controlled, and as a result so will the main generator short circuited current be controlled.

By using the resistance designed into the battery field circuit there will be no need to use a carbon pile or some other external resistance, thereby greatly simplifying the test procedure.

DRAWINGS REQUIRED: Applicable Locomotive Wiring Diagram

Applicable Charts and Graphs

EQUIPMENT REQUIRED

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| 1. (2000-3000) amp 50 MV shunt. | 5. Millivoltmeter (0-50) MV. |
| 2. MG set. | 6. (0-1000) voltmeter. |
| 3. One jumper wire. | 7. Two test lights. |
| 4. Use two X1-1100/24 cables. | |

PRELIMINARY SETUP

OBJECTIVE	OPERATION
1. In order to monitor main generator current.	Remove generator shunt panel. In its place use a (2000-3000) amp 50 MV shunt. Put a (0-50) MV voltmeter across the shunt at the meter terminals.
2. In order to isolate the output of the MG set from the main generator.	Remove GN6 and GS6 wires from FSR1-M and RE2A-B respectively.
3. To simulate main generator voltage across the pickup and dropout resistors.	Connect the positive output of the MG set to RE2A-B and the negative output to FSR1-M.
4. How to exercise control of main generator current by controlling BF current.	In order to control battery field current and thus control main generator current use battery field resistance (A1-A2), (B1-B2), (C1-C2), (D1-D2) and RE18 (A, B, C) which is in parallel with LR. Utilize the RE-BF by energizing AVC or CVC; and thus by either raising or lowering the resistance in series with BF, control BF current.

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| 5. In order to utilize (RE-BF) disable (BVC). | Remove (12C) wire from SCC-H2. |
| 6. How to keep BF energized. | Cut either No. 1 or No. 2 truck out; or, jumper from P1-E to P2-F. |
| 7. How to get a maximum resistance from LR, and; therefore, more readily keep BF current in the range desired for the test. | Jumper BF-GH to energize ORS which keeps LR in minimum field, and; therefore, have maximum (approximately 12 ohms) LR resistance. |
| 8. How to prevent the unit from attempting to make a step of shunt, and how to get an indication of the above mentioned. | Disconnect wire 6J from FSR1-D. To get an indication of FSR1 pickup connect a test lamp between FSR1-D and battery negative. Disconnect wire 6R from FSR2-D. To get an indication of FSR2 pickup connect a test lamp between FSR2-D and battery negative. |
| 9. How to prevent a false indication of shunting. | Remove wire GPD1 from CA10. |

TEST PROCEDURE

1. Start the engine.
2. Connect input of MG set across the battery switch.

WARNING: Do not short the main generator before starting the engine.

3. Short the main generator by jumpering from the GS side of the equipment bus to the GN side of the shunt panel. Use two 1100/24 cables.
4. Position the selector switch in "AUTO" but leave the reverser centered. For further protection against the unit moving remove MK wire from GS-B.

NOTE: Adjust MG set voltage to 800 volts for at least five minutes to allow resistors to warm up.

5. Check FSR1 pickup.
 - a. Disable CVC so it won't pick up, by doing this there will be enough resistance in the battery field circuit to get the desired battery field current and as a result the desired main generator current.
 - b. Position the throttle in No. 6 position to give approximately 1000 amps.
 - c. Battery field current should be about (14.50-15.00) amps.
 - d. Slowly raise MG set voltage until FSR1 picks up.
 - e. Plot on Charts and Graphs, and adjust slider on RE2C if necessary.
6. Check FSR1 dropout.
 - a. Pick up FSR1 as described in Step 5 (a-d) inclusive at the same amperage.
 - b. Slowly lower MG set voltage until FSR1 drops out.
 - c. Plot on charts and graphs, and adjust the slider on RE2B if necessary.
7. Check FSR2 pickup.
 - a. Pick up FSR2 as described in Step 5 (a-d) inclusive at the same amperage.
 - b. Plot on Charts and Graphs and adjust the slider on RE6C if necessary.

8. Check FSR2 dropout.

- a. Pick up FSR2 as described in Step 5 (a–d) inclusive at the same amperage.
- b. Slowly lower MG set voltage until FSR2 drops out.
- c. Plot on Charts and Graphs and adjust the slider on RE6B if necessary.

9. Check FSR1 and FSR2 at another point.

- a. Disable CVC so it won't pick up; by doing this there will be enough resistance in the battery field circuit to get the desired battery field current and as a result the desired main generator amperage.
- b. Position throttle in No. 3 position to give above 600-650 amps.
- c. Battery field current should be 9-9.5 amps.
- d. Follow procedure outlined in Steps 5, 6, 7, and 8.

NOTE: Return all circuits to normal before placing unit in service.