

# ELECTRICAL SEQUENCE TESTS

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FOR SLPS PCC 1743

**THIS TEST IS TO BE PERFORMED WITH THE CAR DISCONNECTED FROM THE 600 VDC POWER SOURCE.**

1. Initial Setup
  - 600 VDC Disconnected
  - Battery Off
  - Control Handle: Any position, Reverser Contacts Isolated
  - Reverser Control: Handle out Position
  - Brake Off
  - Doors closed or Bypass Switch closed
  - Terminal 3 of ABR jumpered to ABR body (Optional)
2. Battery and MG Switch On, Deadman down
  - B1, B2, C2, FS1 closed
  - KM Arm at A Position

Power pedal down (and brake pedal up, deadman down), LB1 picks, which completes LB2 circuit. 600V from secondary contact on LB1 picks up C1. C2 picks up if power pedal is down far enough. All other contactors are out.

Arm moves A->B under control of the ABR. When it reaches B, B3 picks up and then sticks in via its own NO contact and the 8 ohm current-limiting resistor. B3 has no effect on the power circuit at this time since B1 contactor is open. However, it pilots LB3 which picks up here.

3. Press Control Power Pedal Slowly until fully depressed
  - B1, B2, C2, FS1 open
  - LB1 closes
  - LB2 closes
  - C1 closes
  - C2 closes
  - KM Arm starts moving toward B Position
  - FS1, FS2 close
  - FS3 closes at 23<sup>rd</sup> bar
  - FS4 closes at 46<sup>th</sup> bar
  - B3 and LB3 close at 130<sup>th</sup> bar
  - KM Arm reverses direction back from B to A Position

With C1 up, LB3 is what controls the direction of KM arm movement. It now moves B->A. B3 remains picked up as does LB3. The FS1-4 contactors pick up at various points as the arm goes back towards A, applying increasing levels of field shunting to boost speed.

*Let us assume the car reaches full speed. The arm is resting at A and C1, C2, LB1, LB2, LB3, B3 and FS1-4 are all picked up.*

4. Release Power Pedal (Coasting)
  - KM is at A position
  - C1, C2, LB1 and LB2 open
  - B1, B2, close
  - LB3 opens
  - B3 opens when the KM arm reaches 130.

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When the power pedal is released LB1 stays closed for a split second. This is part of the "cushioned power release" circuit. C2 opens first, which causes C1 to open, which causes LB1 to open and finally LB2.

Opening of LB1 and LB2 prove that power is released. Now the dynamic brake contactors B1 and B2 can close. This also causes LB3 to open. B3 is still closed. Control of the KM arm direction is now via B3 because C1 is open and B1 is closed. With B3 closed, the arm moves A->B under control of the ABR.

I will ignore the difference between coasting and braking cycles since they are almost the same (FS1 is in during coasting, and the ABR rate is reduced to 20-25A).