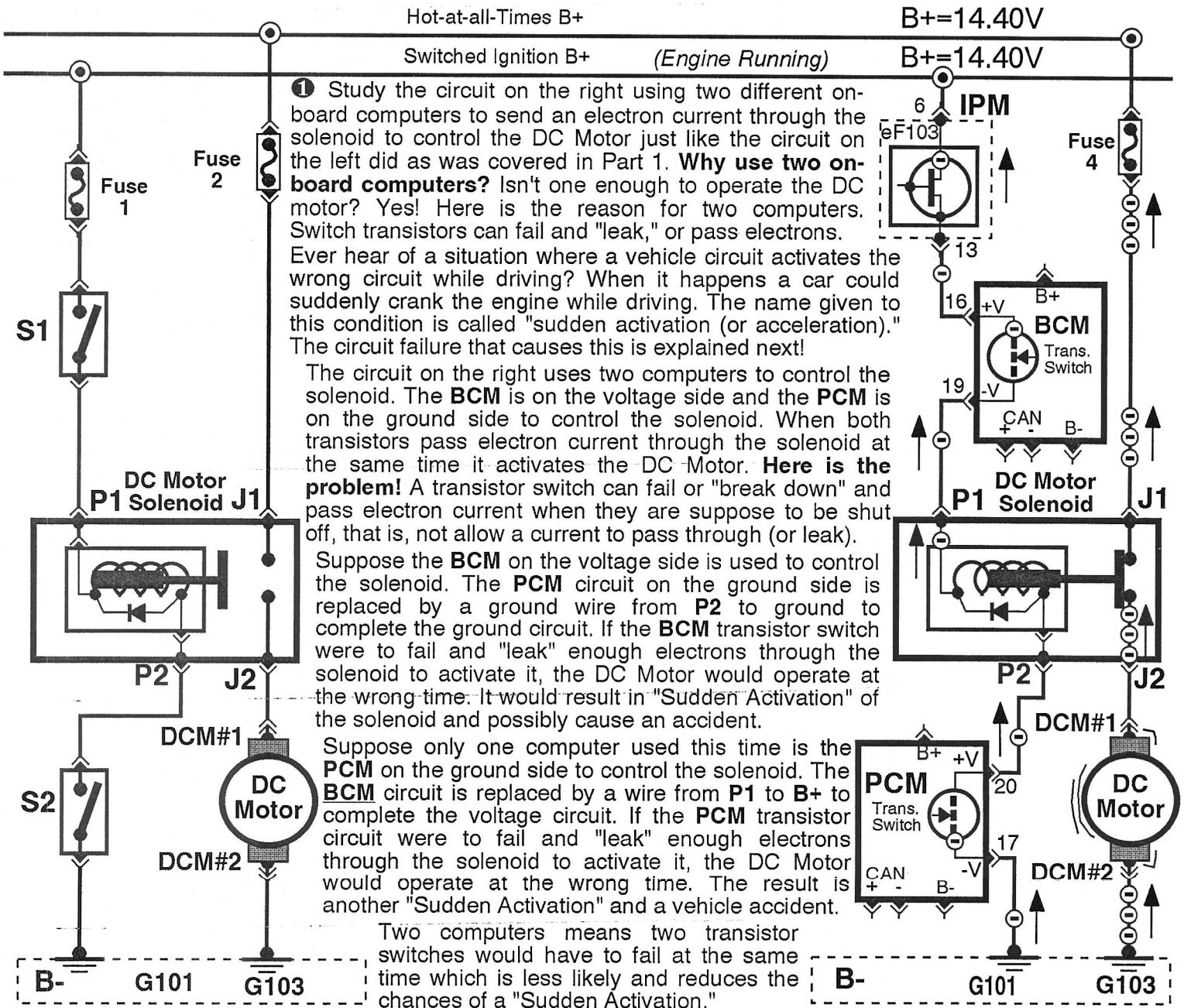


A Circuit is a Circuit - 2nd Part of 2



② Transistor Switch Circuits:

Computers control when a circuit is turned ON/OFF. This is a function of a computer's program which can be changed by re-flashing a computer. Transistor switches do the work but are very fragile. High charging voltage can create enough heat to destroy them. Static electricity can spike a transistor destroying it. Unplugging a computer while turned ON creates voltage spikes and surges that kill transistors. Restoring operation requires the damaged computer be replaced. Next, trace the voltages through the circuit to learn what voltages should be on computer pins to activate the DC Motor.

③ Testing Voltages in the BCM and PCM circuits:

Motor is working and electrons $\ominus$ are flowing in the circuit. The circuit on the right operates the same as the circuit on the left. A transistor replaces a mechanical switch. Voltage readings shown may differ slightly with make and model. Follow each of the voltage readings.

- **B+** during engine RUN is 14.4V. Check voltage at these pins:
- **BCM pin 16** is about 14.1V (eF103 drops 0.3V with B+ to BCM)
- **BCM pin 19** is about 13.6V (transistor switch device drops 0.5V)
- **P1** is "approximately" 13.6V
- **P2** is 0.6V (coil load drops 13.0V)

④ Continue Testing the circuit:

- **PCM pin 20** is 0.6V
 - **PCM pin 17** is 0.10V (transistor switches drop about 0.5V)
- G101 is at 0.10 to 0.05V, a good ground-circuit Vd. The major Vd in the circuit is the coil, the Load. Voltage readings down the circuit indicate good transistor switches. Each drops about 0.50V. Higher when defective and are spotted right away. Replace that computer. Tracing voltages through a computer controlled circuit reveals problems just like the circuit on the left. More training. Study our 60 Lesson Course on-line at training.veejer.com.

Figure 11-2026 "A Circuit is a Circuit - 2nd Part of 2"