Bus Bias And Termination

The voltage network used by the CCD data bus to transmit messages requires both bias and termination. At least one electronic control module on the data bus must provide a voltage source for the CCD data bus network known as bus bias, and there must
be at least one bus termination point for the data bus circuit to be complete. However, while bias and termination are both required for data bus operation, they both do not have to be within the same electronic control module. The CCD data bus is biased to approximately 2.5 volts. With each of the electronic control modules wired in parallel to the data bus, all modules utilize the same bus bias. Therefore, based upon vehicle options, the data bus can accommodate two or twenty electronic control modules without affecting bus voltage.

The power supplied to the data bus is known as bus biasing. Bus bias is provided through a series circuit. To properly bias the data bus circuits, a 5 volt supply is provided through a 13 kilohm resistor to the Bus (–) circuit (Fig. 6). Voltage from the Bus (–) circuit flows through a 120 ohm termination resistor to the Bus (+) circuit. The Bus (+) circuit is grounded through another 13 kilohm resistor. While at least one termination resistor is required for the system to operate, most Chrysler systems use two. The second termination resistor serves as a backup (Fig. 7). The termination resistor provides a path for the bus bias voltage. Without a termination point, voltage biasing would not occur. Voltage would go to 5 volts on one bus wire and 0 volts on the other bus wire. The voltage drop through the termination resistor creates 2.51 volts on Bus (–), and 2.49 volts on Bus (+). The voltage difference between the two circuits is 0.02 volts. When the data bus voltage differential is a steady 0.02 volts, the CCD system is considered "idle." When no input is received from any module and the ignition switch is in the Off position for a pre-programmed length of time, the bus data becomes inactive or enters the "sleep mode." Electronic control modules that provide bus bias can be programmed to "wake up" the data bus and become active upon receiving any predetermined input or when the ignition switch is turned to the On position.