

SAE J1939 Control Data Link

The system's **control signals** are sent via this link.

The J1939 link is very fast, operating at 250,000 bits per second. This operating speed allows the system to function more effectively and adapt quickly to changing conditions and vehicle requirements.

The link complies with SAE standards, and consists of two twisted wires: a green wire (CAN_H), and a yellow wire (CAN_L). The twisted wire set [0.89 twists per 25.4 mm (1 inch) or 33 twists per meter (3.28 feet)] is used to protect the link from electrical interference.



CAUTION

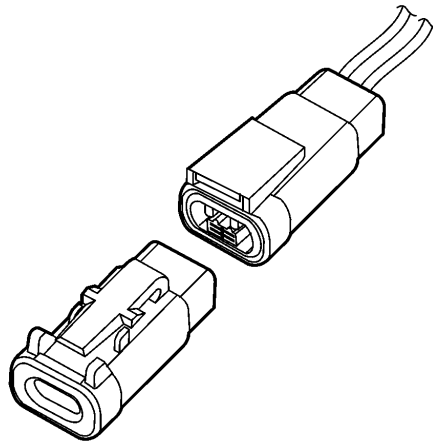
No modifications or connections should be made to wires CAN_H (yellow), or CAN_L (green). These wires carry the high-speed communications between the electronic systems in the vehicle. **Any modification, connection to, or damage to these wires can result in the failure of the vehicle's electronic systems.**

Terminating Resistor

Terminating resistors are wired into each end of the J1939 data link. One is located near the Fuse/Relay Center in the cab and the other near the ECM. On Volvo engines, the terminating resistor at the ECM end is located inside the ECM.

Only two terminating resistors are used in a vehicle. Never install three in one truck. If more than two terminating resistors exist in the J1939 circuit, damage to the ECU electronics can occur over time. You can easily check to see if you have two resistors by measuring the resistance between circuits CAN_H and CAN_L, at the diagnostic connector, with the ignition OFF. The correct resistance is 50 - 70Ω.

The purpose of these resistors is to prevent data link signal reflections. They must remain connected for the system to function properly.



W3005518

Fig. 4 J1939 Terminating Resistor

SAE J1587/1708 Information Data Link

Information and diagnostic signals are sent via this link. The link also functions as a “backup” should the J1939 control data link fail to function for any reason.

SAE J1708 is a standard that specifies hardware and a databus speed of 9600 bits per second. SAE J1587 is a protocol that provides a standard method for exchanging information between microprocessors.

The J1587 link consists of two wires [(SAE J1708 (A)) and (SAE J1708 (B))] that are twisted 1 twist per 25.4 mm (1 inch) or 40 twists per meter (3.28 feet). The twisted-pair wires are to protect the link against electrical interference.



CAUTION

If a circuit must be added to the electrical system, and will carry high currents or frequencies, route it in a location **AWAY** from wires (SAE J1708 (A)) and (SAE J1708 (B)) to prevent mutual inductance from interfering with data link functions.



CAUTION

Wires (SAE J1708 (A)) and (SAE J1708 (B)) **MUST NOT** be cut or spliced for any connections. These wires are used for the transmission of data for diagnostic messages and gauges. Modifying this circuit can cause these functions to fail.