

Communications Network

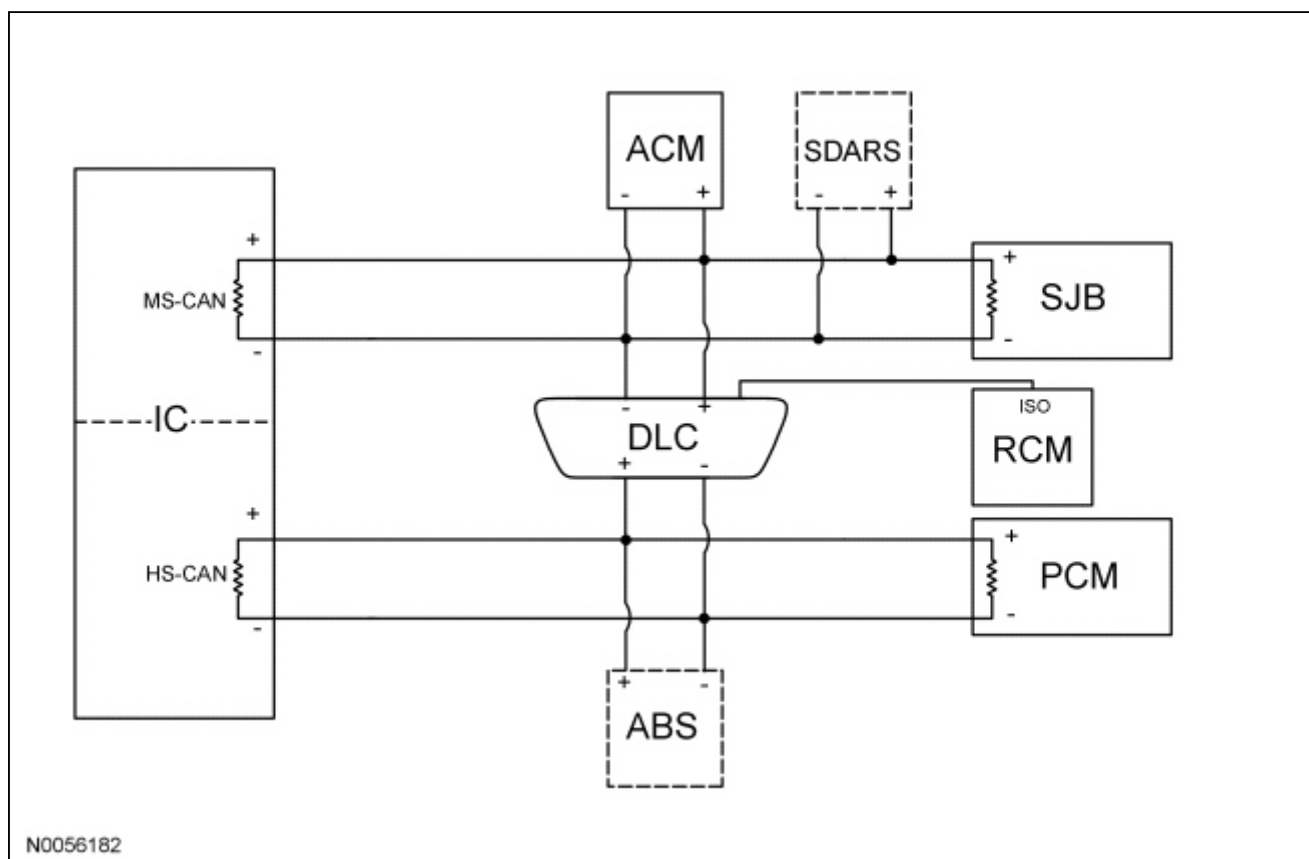
NOTE: The Smart Junction Box (SJB) is also known as the Generic Electronic Module (GEM).

Vehicle communication utilizes the International Standards Organization (ISO) 9141 network, the Medium Speed Controller Area Network (MS-CAN), and the High Speed Controller Area Network (HS-CAN). Information is sent to and from individual control modules that each control specific functions. All 3 networks are connected to the Data Link Connector (DLC). This makes diagnosis and testing of these systems easier by allowing one scan tool to be able to diagnose and control any module on the 3 networks from one connector. The [DLC](#) can be found under the instrument panel between the steering column and the Audio Control Module (ACM).

The 3 module communication networks are:

- ISO 9141
- Medium Speed Controller Area Network (MS-CAN)
- High Speed Controller Area Network (HS-CAN)

Network Topology



Module Name	Network Type	Termination Module
ABS module (if equipped)	HS-CAN	No
Audio Control Module (ACM)	MS-CAN	No
Instrument Cluster (IC) (gateway module)	HS-CAN	Yes
	MS-CAN	Yes
PCM	HS-CAN	Yes
Restraints Control Module (RCM)	ISO 9141	N/A

Satellite Digital Audio Receiver System (SDARS) module (if equipped)	MS-CAN	No
Smart Junction Box (SJB)	MS-CAN	Yes

International Standards Organization (ISO) 9141 Network Operation

The ISO 9141 communication network is a single wire network, used for diagnostic purposes only.

The ISO 9141 communication network is used for the following module:

- [RCM](#)

Medium Speed Controller Area Network (MS-CAN) Operation

The [MS-CAN](#) communicates using bussed messages. The [MS-CAN](#) has an unshielded twisted pair cable, data bus (+) and data bus (-) circuits. In addition to scan tool communication, this network allows sharing of information between all modules on the network.

The [MS-CAN](#) is a medium speed communication network used for the following modules:

- [IC](#)
- [ACM](#)
- [SJB](#)
- [SDARS](#) module (if equipped)

High Speed Controller Area Network (HS-CAN) Operation

The [HS-CAN](#) uses an unshielded twisted pair cable, data bus (+) and data bus (-) circuits. In addition to scan tool communication, this network allows sharing of information between all modules on the network.

The [HS-CAN](#) is a high speed communication network used for the following modules:

- [IC](#)
- PCM
- ABS module (if equipped)

Network Termination

The [CAN](#) uses a network termination circuit to improve communication reliability. The network termination of the [CAN](#) bus takes place inside the termination modules by termination resistors. Termination modules are located at either end of the bus network. As network messages are broadcast in the form of voltage signals, the network voltage signals are stabilized by the termination resistors. Each termination module has a 120 ohm resistor across the positive and negative bus connection in the termination module. With 2 termination modules on each network, and the 120 ohm resistors located in a parallel circuit configuration, the total network impedance (total resistance) is 60 ohms.

Network termination improves bus message reliability by:

- stabilizing bus voltage.
- eliminating electrical interference.

Gateway Module

The [IC](#) is the gateway module, translating [HS-CAN](#) to [MS-CAN](#) and vice versa. This information allows a message to be distributed throughout both networks. The [IC](#) is the only module on this vehicle that has this ability.
