

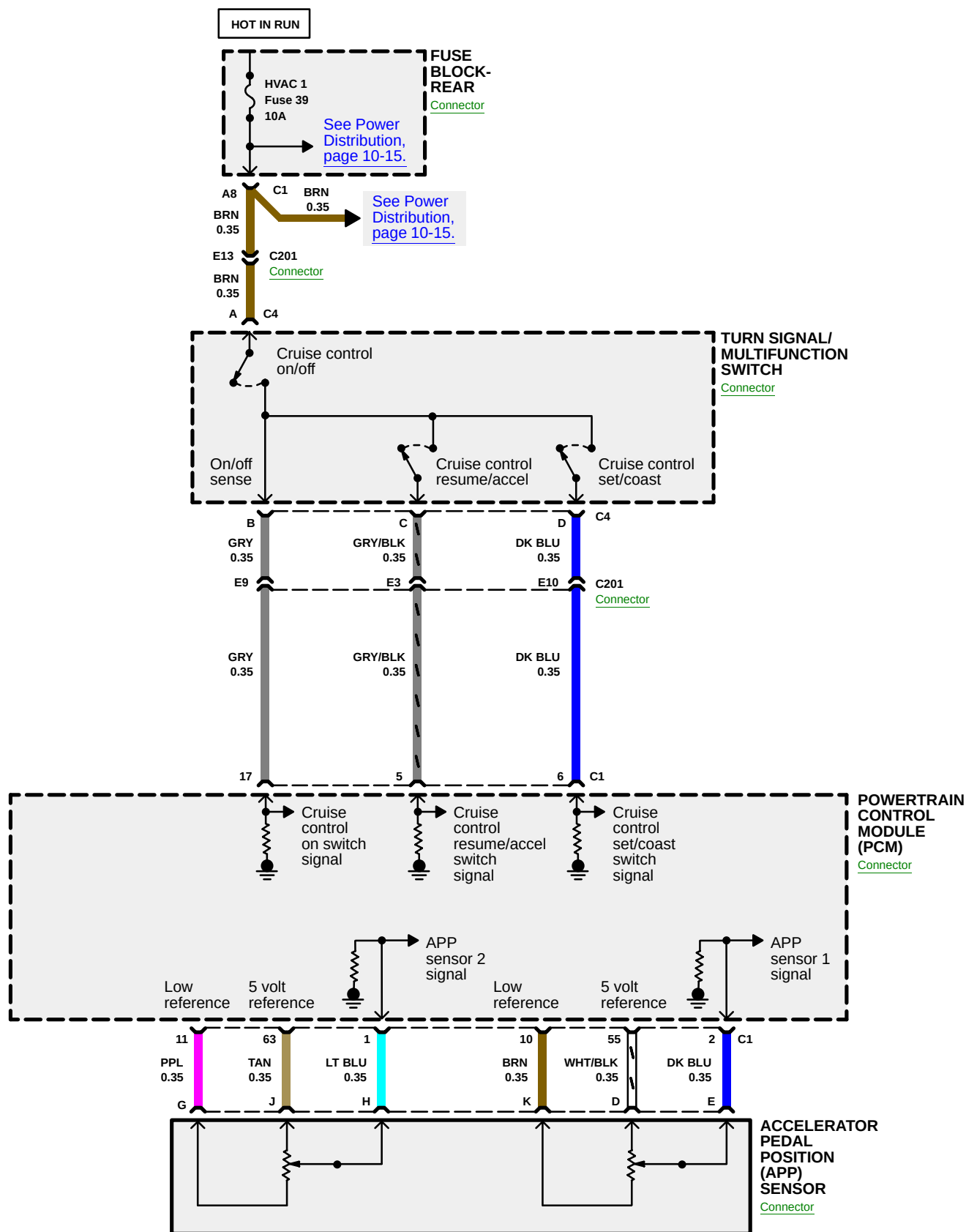
CRUISE CONTROL

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- Accelerator Pedal Position (APP) Sensor (4.2L)
- Accelerator Pedal Position (APP) Sensor (5.3L)
- Electronic Brake Control Module (EBCM)
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- Throttle Actuator Control (TAC) Module (5.3L)
- Throttle Body (4.2L)
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- Turn Signal/Multifunction Switch

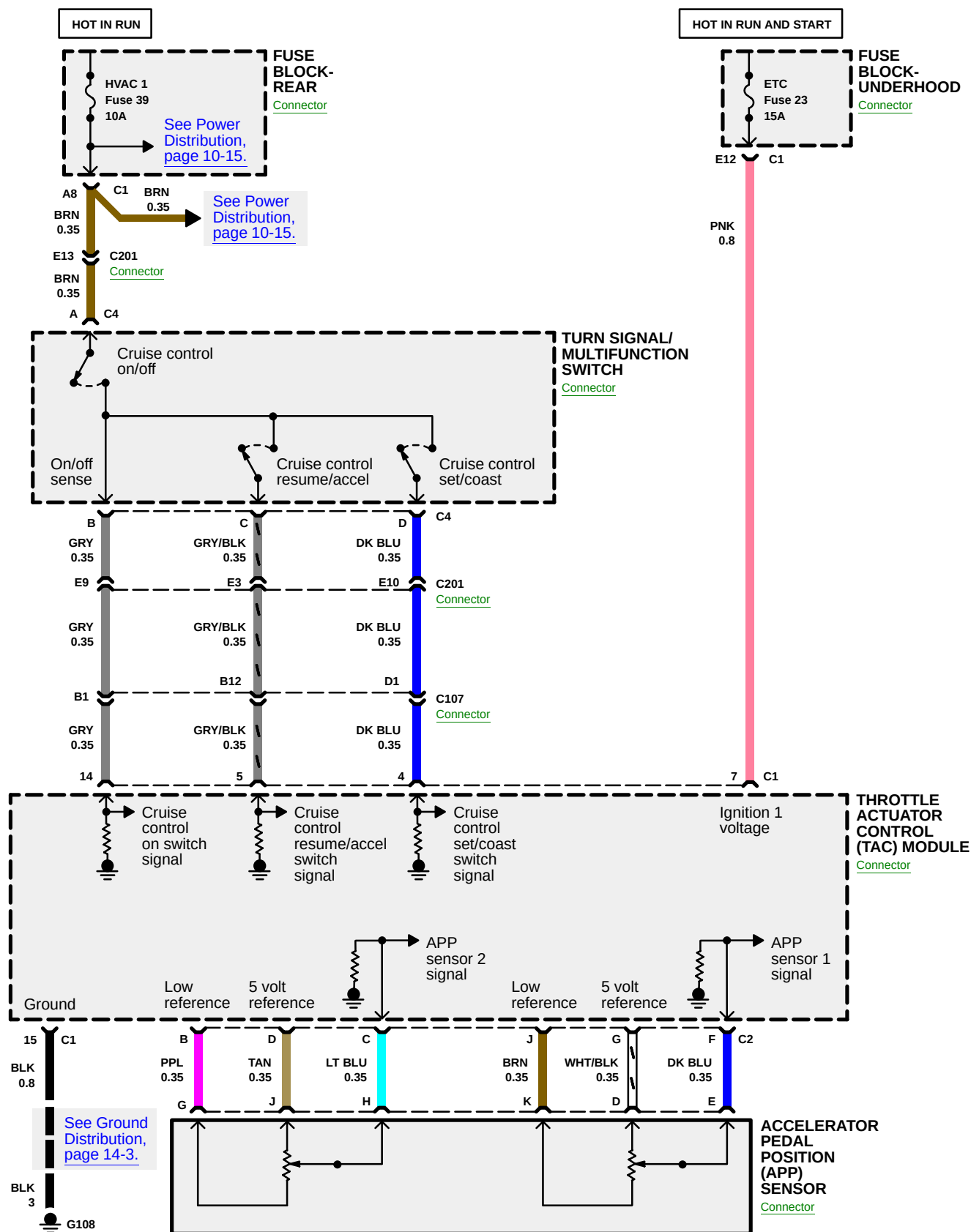
CRUISE CONTROL: 4.2L

Circuit Schematic

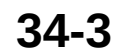


CRUISE CONTROL: 5.3L

Circuit Schematic



Circuit Schematic



CRUISE CONTROL: 5.3L

Circuit Operation

Cruise control is a speed control system that maintains a desired vehicle speed under normal driving conditions at vehicle speeds above 40 km/h (25 mph). Steep grades may cause variations in the selected vehicle speeds.

The following are the main components of the cruise control system:

- The powertrain control module (PCM)
- The On/Off switch
- The Resume/Accel switch
- The Set/Coast switch
- The TCC brake switch
- The stop lamp switch
- The throttle actuator control (TAC) motor
- The vehicle speed sensor

Cruise Control Engaged

The cruise control system will engage and adjust the vehicle speed based on the activation of the following cruise control switches:

- On/Off
- Resume/Accel.
- Set/Coast

The cruise control switches are located on the multifunction/turn signal lever.

The PCM monitors the signal circuits of the cruise control switches in order to determine when to capture and maintain the selected vehicle speed. The PCM uses the TAC motor in order to control the vehicle speed. For further information on the TAC system, refer to Throttle Actuator Control (TAC) System Description in Engine Controls-4.2 L.

Ignition positive voltage is supplied from the 10 ampere HVAC 1 fuse to the cruise control switch via the ignition 3 voltage circuit. When the normally open cruise control On/Off switch is turned On, the switch closes and the PCM detects a high signal voltage on the cruise control on switch signal circuit. When the normally open Set/Coast switch is pressed, the switch closes and the PCM detects a high signal voltage on the cruise control set/coast switch signal circuit. To engage the cruise control system, turn the On/Off switch On and momentarily press the Set/Coast switch. The PCM will confirm that the cruise control enable criteria has been achieved. The PCM will engage the cruise control system and record the selected vehicle speed. The PCM sends a class 2 message to the instrument panel

cluster in order to illuminate the cruise control indicator. Pressing the accelerator pedal, while the cruise control system is engaged, will allow the driver to override the cruise control system in order to accelerate the vehicle beyond the current set vehicle speed. When the accelerator pedal is released, the vehicle will decelerate and resume the current set vehicle speed. The driver can also override the current set vehicle speed via the Set/Coast switch and the Resume/Accel switch. When the cruise control system is engaged, pressing and holding the Set/Coast switch will allow the vehicle to decelerate from the current set vehicle speed without deactivating the cruise control system. When the Set/Coast switch is released, the PCM will record the vehicle speed and maintain the vehicle speed as the new set vehicle speed. When the cruise control system is engaged, momentarily pressing the Set/Coast switch will allow the vehicle to decelerate at 1 MPH increments for each time that the Set/Coast is momentarily pressed, with a minimum vehicle speed of 23 MPH. When the normally open Resume/Accel switch is activated, the switch closes and the PCM detects a high signal voltage on the cruise control resume/accel switch signal circuit. Activating and holding the Resume/Accel switch, when the cruise control system is engaged, will allow the vehicle to accelerate to a greater vehicle speed than the current set vehicle speed. When the Resume/Accel switch is released, the PCM will record the vehicle speed and maintain the vehicle speed as the new set vehicle speed. When the cruise control system is engaged, momentarily activating the Resume/Accel switch will allow the vehicle to accelerate at 1 MPH increments for each time that the Resume/Accel switch is momentarily activated, with the maximum acceleration total of 10 MPH over the current set vehicle speed . Momentarily activating the Resume/Accel switch, after the cruise control system has been disengaged by pressing the brake pedal, will recall the previous set vehicle speed that is recorded in the PCM.

CRUISE CONTROL: 5.3L

Circuit Operation

Cruise Control Disengaged

The PCM disengages the cruise control operation based on the signals from the following switches:

- The On/Off switch
- The TCC brake switch
- The stop lamp switch

The TCC brake switch and the stop lamp switch are incorporated into an assembly and are mounted to the brake pedal bracket. Pressing the brake pedal while the cruise control is engaged will disengage the cruise control system. The PCM monitors the TCC brake switch/cruise control release signal circuit and the stoplamp switch signal circuit. When the brake pedal is pressed, the normally closed TCC brake switch opens and the normally open stoplamp switch closes. The PCM detects a low signal voltage on the TCC brake switch/cruise control release signal circuit and detects a high signal voltage on the stop lamp switch signal circuit. The cruise control system will disengage when the cruise control On/Off switch is turned Off. The vehicle speed stored in the memory of the PCM will be erased when the cruise control On/Off switch is turned to Off, or the ignition switch is turned off.

The cruise control system will disengage when the PCM detects that the driver has the accelerator pedal override active for approximately 60 seconds. When the cruise control system is disengaged, the PCM sends a class 2 message to the IPC in order to deactivate the cruise control indicator.

Cruise Control Inhibited

The PCM inhibits the cruise control operation when any of the following conditions exist:

- A cruise control system related DTC has been set.
- The vehicle speed is less than 40 km/h (25 mph).
- The vehicle is in PARK, REVERSE, NEUTRAL, or 1st gear.

- The engine RPM low.
- The engine RPM is high.
- The vehicle speed is to high.
- The system voltage is not between 6 volts and 16 volts.
- The antilock brake system/traction control system is active for more than 2 seconds.

Cruise control is a speed control system that maintains a desired vehicle speed under normal driving conditions at vehicle speeds above 40 km/h (25 mph). Steep grades may cause variations in the selected vehicle speeds.

The following are the main components of the cruise control system:

- The powertrain control module (PCM)
- The On/Off switch
- The Resume/Accel switch
- The Set/Coast switch
- The TCC/brake switch
- The stop lamp switch
- The throttle actuator control (TAC) module
- The vehicle speed sensor

CRUISE CONTROL: 5.3L

Circuit Operation

Cruise Control Engaged

The TAC module monitors the signal circuits of the following cruise control switches:

- On/Off
- Resume/Accel
- Set/Coast

The PCM will engage and adjust vehicle speed based on the information received from the TAC module via the UART serial data link. For further information on the TAC system, refer to Throttle Actuator Control (TAC) System Description in Engine Controls--5.3 L.

The cruise control switches are located on the multifunction/turn signal lever.

Ignition positive voltage is supplied from the 10 ampere CRUISE fuse to the cruise control switch via the ignition 3 voltage circuit. When the normally open cruise control On/Off switch is turned On, the switch closes and the TAC module detects a high signal voltage on the cruise control on switch signal circuit. When the normally open Set/Coast switch is pressed, the switch closes and the TAC module detects a high signal voltage on the cruise control set/coast switch signal circuit. To engage the cruise control system, turn the On/Off switch On and momentarily press the Set/Coast switch. The TAC sends a UART message to the PCM, in order to confirm that the cruise control enable criteria has been met. The PCM will engage the cruise control system and record the selected vehicle speed. The PCM sends a class 2 message to the instrument panel cluster in order to illuminate the cruise control indicator. Pressing the accelerator pedal, while the cruise control system is engaged, will allow the driver to override the cruise control system in order to accelerate the vehicle beyond the current set vehicle speed. When the

accelerator pedal is released, the vehicle will decelerate and resume the current set vehicle speed. The driver can also override the current set vehicle speed via the Set/Coast switch and the Resume/Accel switch. When the cruise control system is engaged, pressing and holding the Set/Coast switch will allow the vehicle to decelerate from the current set vehicle speed without deactivating the cruise control system. When the Set/Coast switch is released, the PCM will record the vehicle speed and maintain the vehicle speed as the new set vehicle speed. When the cruise control system is engaged, momentarily pressing the Set/Coast switch will allow the vehicle to decelerate at 1 MPH increments for each time that the Set/Coast is momentarily pressed, with a minimum vehicle speed of 23 MPH. When the normally open Resume/Accel switch is activated, the switch closes and the TAC module detects a high signal voltage on the cruise control resume/accel switch signal circuit. Activating and holding the Resume/Accel switch, when the cruise control system is engaged, will allow the vehicle to accelerate to a greater vehicle speed than the current set vehicle speed. When the Resume/Accel switch is released, the PCM will record the vehicle speed and maintain the vehicle speed as the new set vehicle speed. When the cruise control system is engaged, momentarily activating the Resume/Accel switch will allow the vehicle to accelerate at 1 MPH increments for each time that the Resume/Accel switch is momentarily activated, with the maximum acceleration total of 10 MPH over the current set vehicle speed . Momentarily activating the Resume/Accel switch, after the cruise control system has been disengaged by pressing the brake pedal, will recall the previous set vehicle speed that is recorded in the PCM.

CRUISE CONTROL: 5.3L

Circuit Operation

Cruise Control Disengaged

The PCM disengages the cruise control operation based on the information received from the TAC module. The TAC module monitors the signal circuits of the following switches:

- The On/Off switch
- The TCC/brake switch
- The stop lamp switch

The TCC brake switch and the stop lamp switch are incorporated into an assembly and are mounted to the brake pedal bracket. Pressing the brake pedal while the cruise control is engaged will disengage the cruise control system. The TAC module monitors the stop lamp switch signal circuit and the PCM monitors the TCC brake switch/cruise control release signal circuit. When the brake pedal is pressed, the normally closed TCC brake switch opens and the normally open stoplamp switch closes. The TAC module detects a high signal voltage on the stop lamp switch signal circuit and the PCM detects a low signal voltage on the TCC brake switch/cruise control release signal circuit. The TAC module sends a UART message to the PCM indicating the status of the stop lamp switch. The cruise control system will disengage when the cruise control On/Off switch is turned Off. The vehicle speed stored in the memory of the PCM will be erased when the cruise

control On/Off switch is turned to Off, or the ignition switch is turned off.

The cruise control system will disengage when the PCM detects that the driver has the accelerator pedal override active for approximately 60 seconds. When the cruise control system is disengaged, the PCM sends a class 2 message to the IPC in order to deactivate the cruise control indicator.

Cruise Control Inhibited

The PCM inhibits the cruise control operation when any of the following conditions exist:

- A cruise control system related DTC has been set.
- The vehicle speed is less than 40 km/h (25 mph).
- The vehicle is in PARK, REVERSE, NEUTRAL, or 1st gear.
- The engine RPM low.
- The engine RPM is high.
- The vehicle speed is too high.
- The system voltage is not between 6 volts and 16 volts.
- The antilock brake system/traction control system is active for more than 2 seconds.

CRUISE CONTROL

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(Refer to Section 201 for photographs.)

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