2002 ACCESSORIES & EQUIPMENT

Cruise Control - Corvette

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Electronic Throttle Control Module Retaining Screws	1.9 N·m	17 lb in
Negative Battery Cable Bolt	15 N·m	11 lb ft

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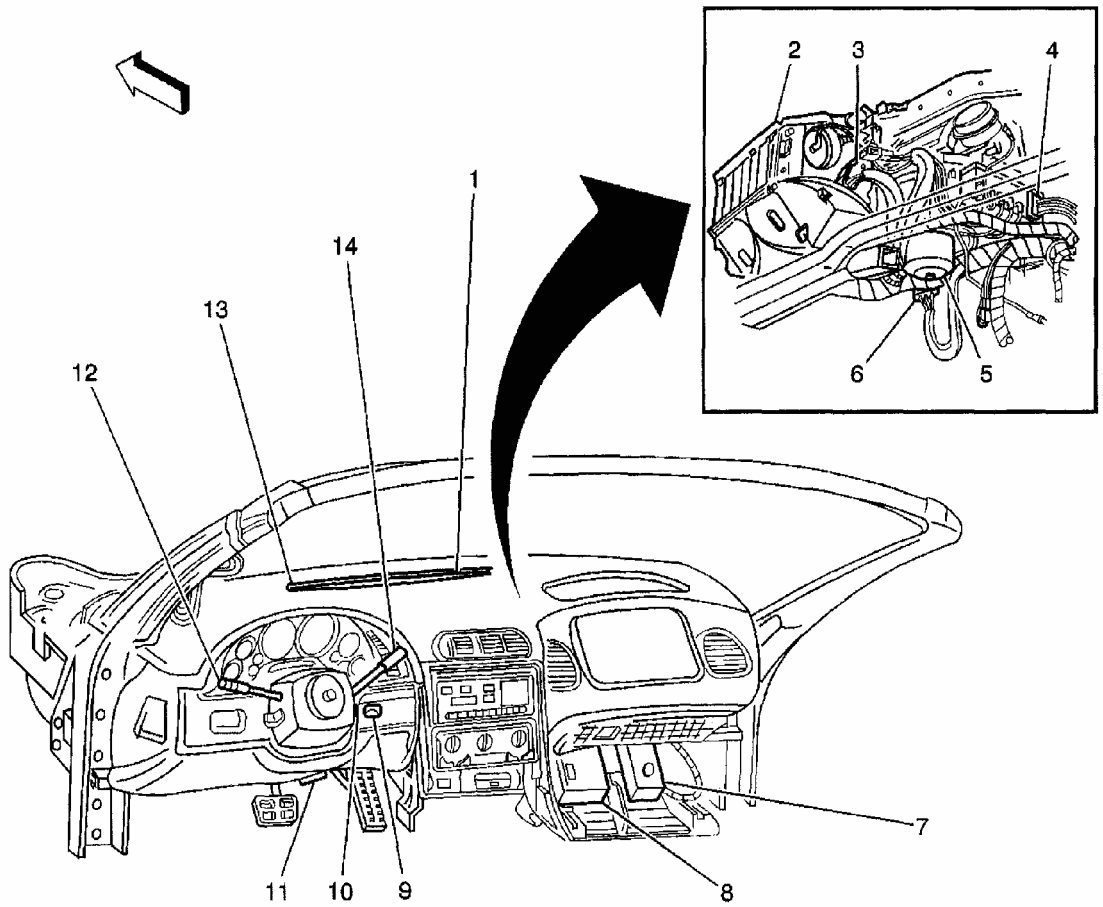
Fig. 1: Fastener Tightening Specifications
Courtesy of GENERAL MOTORS CORP.

SCHEMATIC AND ROUTING DIAGRAMS

Refer to **CRUISE CONTROL** .

COMPONENT LOCATOR

CRUISE CONTROL COMPONENT VIEWS



(1) Sunload Sensor
(2) HVAC Module Assembly
(3) Air Temperature Actuator (C60)
(4) Vacuum Control Assembly (CJ2)
(5) Blower Motor
(6) Blower Motor Control Processor
(7) Fuse Block-IP
(8) Body Control Module (BCM)
(9) Ignition Switch
(10) Telescoping Actuator Switch
(11) Data Link Connector (DLC)
(12) Multifunction Turn Signal Lever
(13) Ambient Light Sensor
(14) Windshield Wiper/Washer Switch

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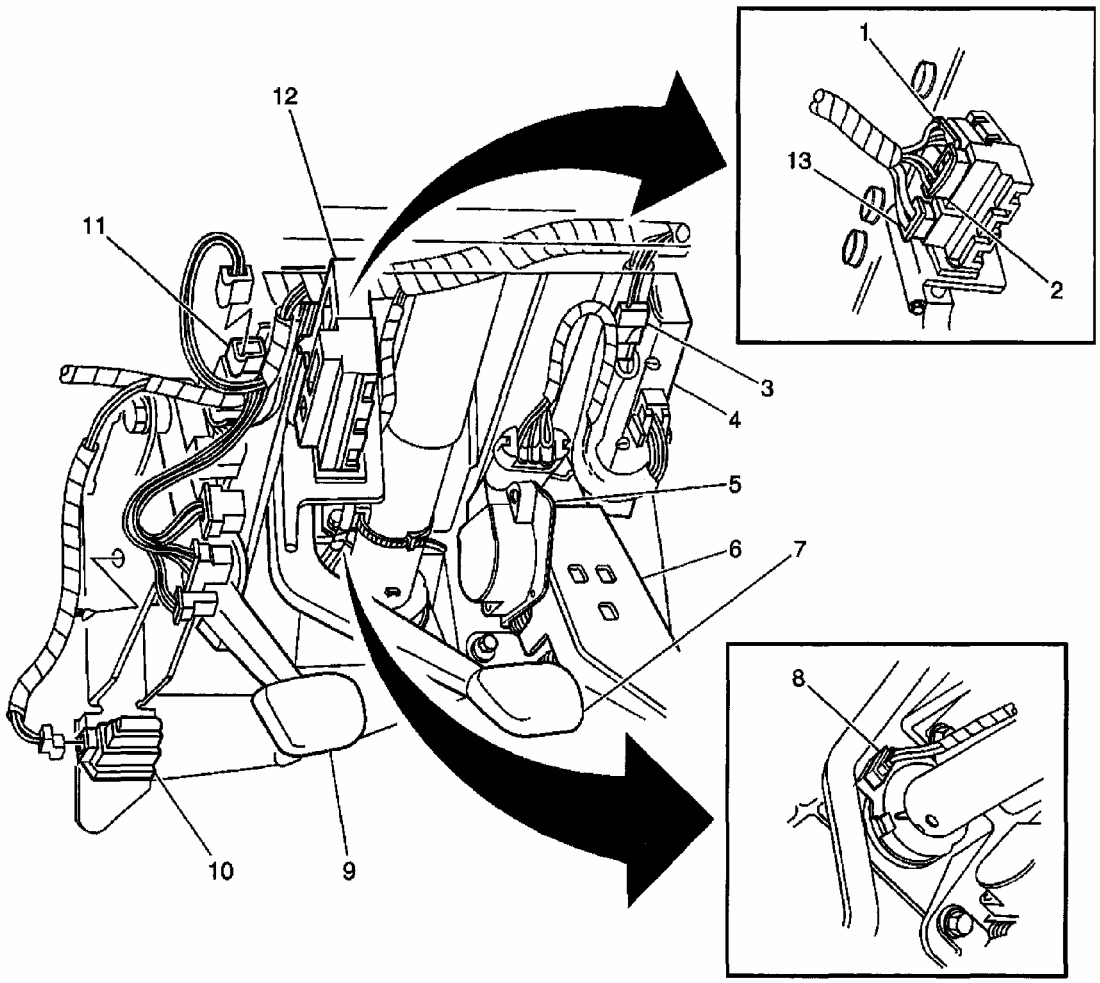
Fig. 2: Instrument Panel
Courtesy of GENERAL MOTORS CORP.



(1) Stop Lamp Switch C1
(2) Stop Lamp Switch C3
(3) C213
(4) Bose Signal Processor
(5) Accelerator Pedal Position (APP) Sensor
(6) Accelerator Pedal
(7) Brake Pedal
(8) Steering Wheel Position Sensor
(9) Clutch Pedal (MM6)
(10) Clutch Pedal Position Switch (MM6)
(11) Cruise Control Release Switch
(12) Stop Lamp Switch
(13) Stop Lamp Switch Connector C2

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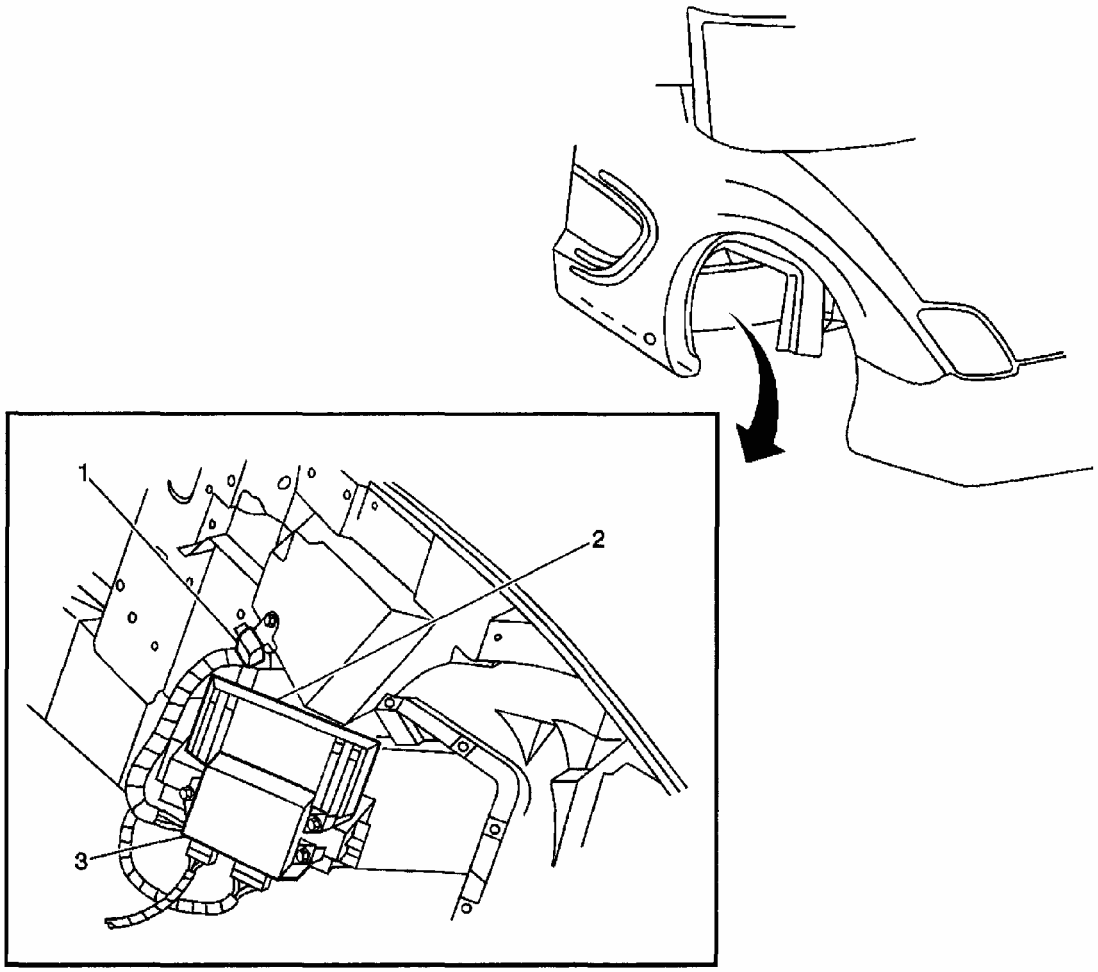
Fig. 3: Under Side of the Dash - Left
Courtesy of GENERAL MOTORS CORP.



(1) Secondary Air Injection (AIR) Solenoid
(2) Powertrain Control Module (PCM)
(3) Throttle Actuator Control (TAC) Module

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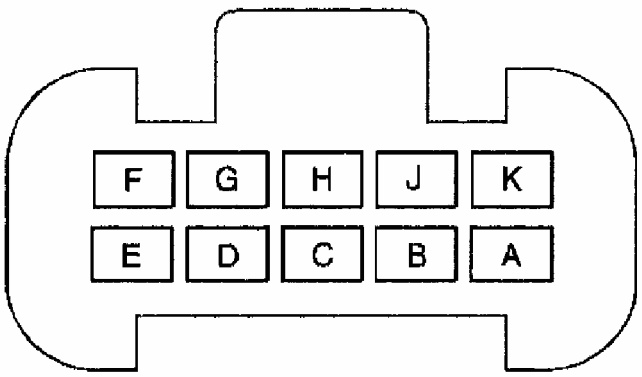
Fig. 4: RH Wheel Well
Courtesy of GENERAL MOTORS CORP.

CRUISE CONTROL CONNECTOR END VIEWS



Connector Part Information	• TAC Module Connector C1 • 10 Pin Connector		
Pin	**Wire Color**	**Circuit No.**	**Function**
A	GRY	1273	Low Reference
B	PPL	1272	Low Reference
C	LT BLU	1162	APP Sensor 2 Signal
D	TAN	1274	5 Volt Reference
E	YEL/BLK	1275	5 Volt Reference
F	DK BLU	1161	APP Sensor 1 Signal
G	LT BLU	1276	5 Volt Reference
H	—	—	Not Used
J	BRN	1271	Low Reference
K	DK GRN	1163	APP Sensor 3 Signal

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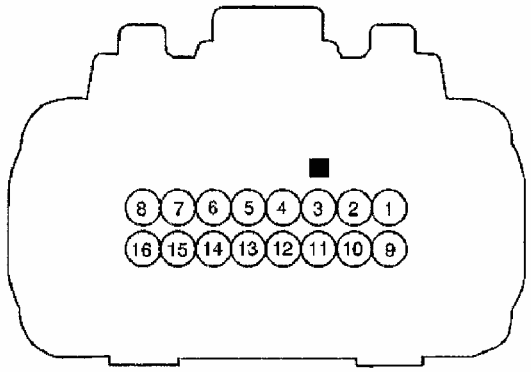
Fig. 5: Throttle Actuator Control (TAC) Module C1
Courtesy of GENERAL MOTORS CORP.



Connector Part Information		• TAC Module Connector C2 • 16 Pin Connector	
Pin	**Wire Color**	**Circuit No.**	**Function**
1	DK BLU	417	TP Sensor 1 Signal
2	DK GRN/ WHT	485	5 Volt Reference
3	PPL	486	Low Reference
4	DK BLU	84	Cruise Control Set/Coast Switch Signal
5	GRY/BLK	87	Cruise Control Resume/Accel Switch Signal
6	LT BLU	20	Stop lamp Supply Voltage
7	PNK	539	Ignition 1 Voltage
8	BRN	582	TAC Motor Control - 2
9	YEL/BLK	487	5 Volt Reference
10	WHT	484	Low Reference
11	PNK	427	TP Sensor 2 Signal
12	TAN	800	UART Serial Data Primary
13	ORN/BLK	1061	UART Serial Data Secondary
14	GRY	397	Cruise Control On Signal
15	BLK/WHT	451	Ground
16	YEL	581	TAC Motor Control - 1

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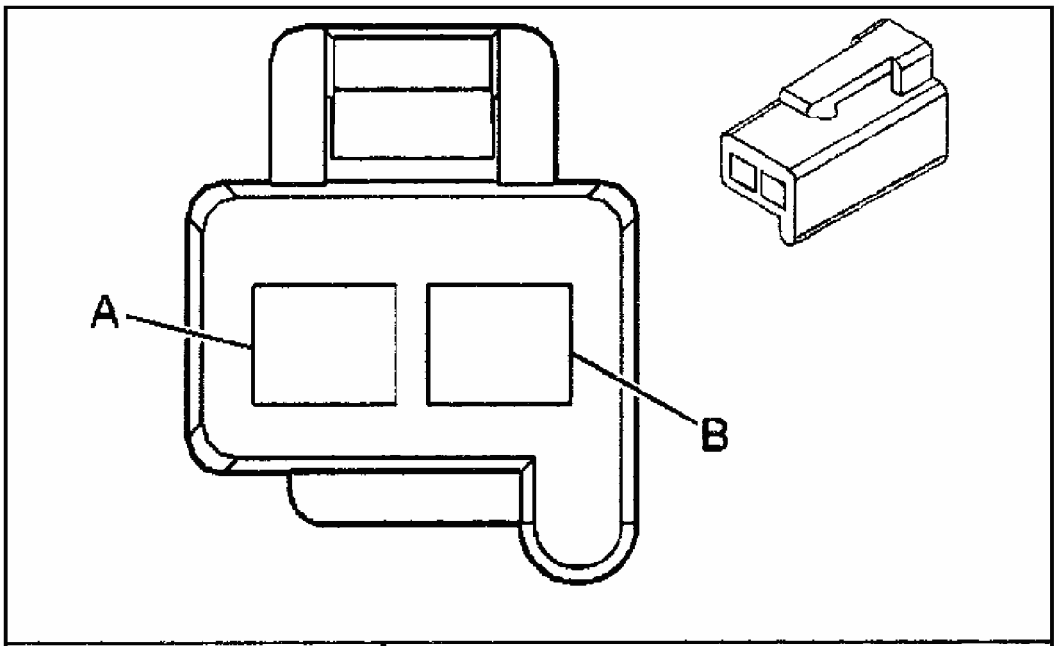
Fig. 6: Throttle Actuator Control (TAC) Module C2
Courtesy of GENERAL MOTORS CORP.



Connector Part Information	• 12041433 • 2-Way F Metri-Pack 280 Series (BLK)		
Pin	Wire Color	Circuit No.	Function
A	GRY	48	CPP Switch Signal
B	PNK	339	Ignition 1 Voltage

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Fig. 7: Clutch Pedal Position (CPP) Switch
Courtesy of GENERAL MOTORS CORP.

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - CRUISE CONTROL

Begin the system diagnosis with **Diagnostic System Check - Cruise Control** . The Diagnostic System Check will provide the following information:

- The identification of the control module(s) which command the system
- The ability of the control module(s) to communicate through the serial data circuit
- The identification of any stored diagnostic trouble codes (DTCs) and their status

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

DIAGNOSTIC SYSTEM CHECK - CRUISE CONTROL

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2. Lack of communication may be due to a partial malfunction of the class 2 serial data circuit or due to a total malfunction of the class 2 serial data circuit. The specified procedure will determine the particular condition.

4. The presence of DTCs which begin with "U" indicate some other module is not communicating. The specified procedure will compile all the available information before tests are performed.

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to *Step 2*	Go to *Scan Tool Does Not Power Up* in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the following systems: • The powertrain control module • The body control module Does the scan tool communicate with these systems?	Go to *Step 3*	Go to *Scan Tool Does Not Communicate with Class 2 Device* in Data Link Communications
3	1. Select the powertrain control module display DTCs function on the scan tool. 2. Select the body control module display DTCs function on the scan tool. Does the scan tool display any DTCs?	Go to *Step 4*	Go to *Symptoms - Cruise Control*
4	Does the scan tool display any DTCs which begin with a "U"?	Go to *Scan Tool Does Not Communicate with Class 2 Device* in Data Link Communications	Go to *Step 5*
5	Does the scan tool display DTC B0605?	Go to *Diagnostic Trouble Code (DTC) List* in Body Control System	Go to *Step 6*
6	Does the scan tool display DTC P0562 or P0563?	Go to *Diagnostic System Check - Engine Controls*	Go to *Diagnostic Trouble Code Definitions*

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Fig. 8: Diagnostic System Check - Cruise Control
Courtesy of GENERAL MOTORS CORP.

SCAN TOOL OUTPUT CONTROLS

Scan Tool Output Control	Additional Menu Selection(s)	Description
Cruise Control Active	Cruise Inhibit	Displays Active/ Inactive. This output is the current status of the cruise control enable signal circuit.
Cruise Control Inhibit Signal Command	Cruise Inhibit	Displays ON/OFF. This output indicates if the PCM is commanding the cruise control module to inhibit (turn off) cruise control operation.

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Fig. 9: Scan Tool Output Controls
Courtesy of GENERAL MOTORS CORP.

SCAN TOOL DATA LIST

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Engine Idling/Radiator Hose Hot/Closed Throttle/Park or Neutral/Closed Loop/No Switches Turned On			
APP Average	Cruise Control	Counts	Varies
APP Indicated Angle	Cruise Control	Percentage	Varies
CC Brake Switch (Manual Transmission Only)	Cruise Control	Applied/Released	Released
Clutch Switch (Manual Transmission Only)	Cruise Control	Depressed/Released	Released
Cruise Disengage History 1-8	Cruise Control	List 1-8	List begins with most recent
Cruise Requested	Cruise Control	Yes/No	No
Cruise Resume/Accel	Cruise Control	On/Off	Off
Cruise Set Coast	Cruise Control	On/Off	Off
Cruise Switch	Cruise Control	On/Off	Off
Extended Brake Travel Switch	Cruise Control	Applied/Released	Released
PRND Position	Cruise Control	Transaxle Gear Selector Position	Park
Reduced Engine Power	Cruise Control	Active/Inactive	Inactive
Stop Lamp Switch	Cruise Control	Applied/Released	Released
TAC/PCM Communication	Cruise Control	OK/Fault	OK
TCC/CC Brake Switch	Cruise Control	Applied/Released	Released
TCC Enable Solenoid	Cruise Control	Enabled/Disabled	Disabled
TP Desired Angle	Cruise Control	Percentage	3–10%
TP Indicated Angle	Cruise Control	Percentage	3–9%
Traction Control	Cruise Control	Active/Inactive	Active
Transmission Range	Cruise Control	Transaxle Gear Position	Park/Neutral
Vehicle Speed	Cruise Control	km/h/mph	0 km/h or 0 mph

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Fig. 10: PCM Scan Tool Data List
Courtesy of GENERAL MOTORS CORP.

SCAN TOOL DATA DEFINITIONS (CRUISE CONTROL)

The Scan Tool Data Definitions contains a brief description of all cruise control related parameters available on the scan tool. All of the parameters listed will appear in PCM Cruise Control data list. In some cases, the parameter may appear more than once or in more than one data list in order to group certain related parameters together.

APP Average: The scan tool displays 0-125 counts. The TAC Module takes the voltages from the 3 APP Sensors, averages the readings and converts the readings into counts. The

scan tool displays the average. The average is different on every vehicle.

APP Indicated Angle: The scan tool displays 0-100 percent. The scan tool displays the Accelerator Pedal Position in percentage. When the APP is at rest, the display shows 0 percent. When the APP is fully depressed, the display shows 100 percent.

CC Brake Switch: The scan tool displays Applied or Released (manual transmission). This parameter indicates the state of the TCC/CC brake switch circuit input. Open indicates 0 voltage input (brake switch open, brake pedal applied). Closed indicates a B+ voltage input (brake switch closed, brake pedal released). When you apply the vehicle brakes, the scan tool displays Applied. The torque converter clutch and cruise control disengages. When you release the vehicle brakes, the scan tool displays Released. This allows the cruise control to be resumed and the torque converter clutch to engage.

Clutch Switch: The scan tool displays Depressed or Released. When the vehicle clutch pedal is depressed the scan tool display shows Depressed, and the cruise control will disengage. When the vehicle clutch pedal is released, the scan tool displays Released, and the cruise control can be resumed.

Cruise Disengage History 1-8: The Scan tool displays the last 8 cruise control disengages in order from 1 to 8. There are 20 possible causes for the cruise control to disengage. Refer to **Scan Tool Data Definitions (Cruise Control)** or **Scan Tool Data Definitions (Disengaged History)** for descriptions.

Cruise Requested: The scan tool displays Yes or No. When the Cruise control switch is in the on position and the Set/Coast switch is activated the scan tool displays YES. When the cruise control switch is in the ON position and the Set/Coast switch is released the scan tool displays NO.

Cruise Resume/Accel: The scan tool displays On or Off. When the Cruise control switch is in the on position and the Resume/Accel switch is activated, the scan tool displays ON. When the Resume/Accel switch is released the scan tool displays OFF.

Cruise Set/Coast: The scan tool displays On or Off. When the Cruise control switch is in the on position and the Set/Coast switch is activated, the scan tool displays ON. When the Set/Coast switch is released the scan tool displays OFF.

Cruise Switch: The scan tool displays On or Off. When you activate the cruise control switch, the scan tool displays ON. The switch, when in the ON position, sends a signal voltage to the Throttle Actuator Control (TAC) Module. This allows all other functions of the Cruise Control. When you turn off the cruise control switch, the scan tool displays OFF.

Extended Travel Brake Switch: The scan tool displays Applied or Released. This parameter indicates the state of the extended travel brake switch. This switch is normally closed with the brake pedal released. Scan tool displays Released with the brake pedal

released. Scan tool displays Applied with the brake pedal applied approximately greater than 40 percent.

PRND Position: The scan tool displays which position the gear shift lever is in.

Reduced Engine Power: The scan tool displays Active or Inactive. The scan tool displays Active when the PCM receives a signal from the TAC module that a throttle actuator control system fault is occurring. The PCM limits the engine power.

Stop Lamp Switch: The scan tool displays Applied or Released. When the brake pedal is depressed, the scan tool displays applied and the stop lamps go on. When the brake pedal is at rest, the scan tool displays Released and the stop lamps go off.

TAC/PCM Communication: The scan tool displays OK or Fault. If the communication between the TAC Module and the PCM is interrupted the scan tool displays Fault. The scan tool displays OK under the normal operating conditions.

TCC/CC Brake Switch: The scan tool displays Applied or Released. This parameter indicates the state of the TCC/CC brake switch circuit input. Open indicates 0 voltage input (brake switch open, brake pedal applied). Closed indicates a B+ voltage input (brake switch closed, brake pedal released). When you apply the vehicle brakes, the scan tool displays Applied. The torque converter clutch and cruise control disengages. When you release the vehicle brakes, the scan tool displays Released. This allows the cruise control to be resumed and the torque converter clutch to engage.

TCC Enable Solenoid: The scan tool displays Enabled or Disabled. When the PCM applies a voltage to the TCC Enable solenoid the scan tool displays Enabled.

TP Desired Angle: The scan tool displays 0-100 percent. The PCM indicates the desired throttle angle commanded by the vehicle operator.

TP Indicated Angle: The scan tool displays 0-100 percent. The TP Indicated Angle displays in percentage the amount of throttle opening.

Traction Control: The scan tool displays Active or Inactive (if equipped). The scan tool displays active if the PCM receives a signal from the Electronic Brake and Traction control Module (EBTCM) requesting torque reduction during a traction control maneuver.

Transmission Range: Scan tool displays the transaxle gear position.

Vehicle Speed: The scan tool displays km/h and mph. The vehicle speed sensor signal is converted into km/h and mph for display.

SCAN TOOL DATA DEFINITIONS (DISENGAGED HISTORY)

Brake Switches: The TAC module detects one of the brake switches active (TCC Brake Switch/Cruise Control Brake Switch or Stop Lamp Switch).

Pedal Initialization: The PCM does not detect the brake or clutch switches active during an ignition cycle.

Clutch Switch: The TAC module detects the clutch switch active.

S/C (Set/Coast) On, CC (Cruise Control) Off: The TAC module detects the Cruise Set/Coast signal is ON. When the switch is pushed (Cruise Coast Mode), this parameter will be displayed. If a fault is present with the Cruise Set/Coast signal circuit, this parameter will be displayed.

Coast Speed Low: The Set/Coast switch is pushed and held until vehicle speed drops below 32 km/h (20 mph). Vehicle speed below 32 km/h (20 mph) will disable the cruise system.

TAC Inhibit: The TAC module has detected that an Electronic Throttle Control fault is active.

Accel (Acceleration) Rate: The vehicle acceleration is greater than the expected acceleration rate which is calculated by the PCM.

Decel (Deceleration) Rate: The vehicle deceleration is greater than the expected deceleration rate which is calculated by the PCM.

High Speed: The PCM detects that the vehicle speed is greater than 265 km/h (165 mph).

CC (Cruise Control) Switch Position: The TAC module will not allow cruise with the current position of the cruise switches.

Low Speed: The PCM detects that the vehicle speed is less than 39 km/h (24 mph) when cruise enable is attempted.

No History: The No History parameter is displayed when a battery disconnect occurs.

Cruise Off: The TAC module does not detect that the cruise enable switch is active.

Over Set Speed: The TAC module detects that the vehicle speed is greater than the cruise memory speed by more than a predetermined amount or, the vehicle speed is greater than a predetermined value during a transient maneuver, such as, Resume, Accel, Tap-up or Tap-downs etc.

S/C On-Speed High: This parameter is displayed when the Set/Coast switch is applied (tap down vehicle speed) and the vehicle speed is greater than the cruise memory speed by more than a predetermined value. For example, if the cruise control system is set to maintain a

vehicle speed of 48 km/h (30 mph) then the vehicle is accelerated to 80 km/h (50 mph) and you depress the Set/Coast again, the S/C On-Speed High message appears in the Cruise Control Disengage History.

PCM Inhibit: The PCM detects one of the following conditions:

- The transmission is not in gear.
- The Engine Coolant Over Temperature-Fuel Disabled mode is active.
- The TAC module detects a Resume/Accel switch fault.
- The TAC module detects a Set/Coast switch fault.
- The PCM detects a Vehicle Speed sensor fault.
- A brake or clutch switch fault is detected.
- An internal PCM fault is detected.

Two CC Commands: The TAC module detects the Set/Coast and Resume/Accel switches are active at the same time.

PCM Error: An internal PCM fault is detected.

Traction Loss: The TAC module detects the vehicle is in a Traction Control event.

Under Set Speed: The TAC module detects that the vehicle speed is less than the cruise memory speed by more than a predetermined amount or, the vehicle speed is less than a predetermined value during a transient maneuver, such as, Resume, Accel, Tap-up or Tap-downs etc.

DIAGNOSTIC TROUBLE CODE (DTC) LIST

DTC	Diagnostic Procedure	Module(s)
BXXXX	*Diagnostic Trouble Code (DTC) List* in Body Control System	BCM
CXXXX	*Diagnostic Trouble Code (DTC) List* in Antilock Brake System	EBCM
P0502	*DTC P0502*	PCM
P0503	*DTC P0503*	PCM
P0562	*DTC P0562*	PCM
P0563	*DTC P0563*	PCM
P0567	*DTC P0567*	PCM
P0568	*DTC P0568*	PCM
P0571	*DTC P0571*	PCM
P0704	*DTC P0704*	PCM
P1574	*DTC P1574*	PCM
PXXXX	*Diagnostic Trouble Code (DTC) List*	PCM

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Fig. 11: Diagnostic Trouble Code (DTC) List
Courtesy of GENERAL MOTORS CORP.

DTC P0567

Circuit Description

The Cruise Resume/Accel switch is an input to the throttle actuator control (TAC) Module. This cruise control information is supplied to the PCM via serial data. This allows the PCM and TAC module to control and hold a requested speed. The Cruise Resume/Accel switch sends an ignition positive voltage signal to the TAC module when the switch is applied. This DTC sets if the TAC module senses a voltage on the Resume/Accelerate switch signal circuit when voltage is not expected

Conditions for Running the DTC

The cruise control switch is ON.

Conditions for Setting the DTC

The TAC module detects the Resume/Accel switch is ON for longer than 90 seconds.

Action Taken When the DTC Sets

- The PCM stores the DTC information into memory when the diagnostic runs and fails.
- The malfunction indicator lamp (MIL) will not illuminate.
- The PCM records the operating conditions at the time the diagnostic fails. The PCM stores this information in the Failure Records.
- The cruise is disabled.

Conditions for Clearing the MIL/DTC

- A last test failed, or the current DTC, clears when the diagnostic runs and does not fail.
- A history DTC clears after 40 consecutive warm-up cycles, if failures are not reported by this or any other emission related diagnostic.
- Use a scan tool in order to clear the MIL/DTC.

Diagnostic Aids

Important:

- Remove any debris from the TAC module connector surfaces before servicing the TAC module. Inspect the TAC module connector gaskets when diagnosing/replacing the module. Ensure that the gaskets are installed correctly.
- For any test that requires probing the PCM or a component harness connector, use the Connector Test Adapter Kit **J 35616-A.** Using this kit prevents damage to the harness/component terminals. Refer to **USING CONNECTOR TEST ADAPTERS** .
- Inspect for a resume/accel switch stuck in the engage position or the signal circuit is

shorted to voltage.

- For an intermittent, refer to **TESTING FOR INTERMITTENT AND POOR CONNECTIONS** . .

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2. This step determines if condition is present.
3. This step determines if the switch is at fault.
4. This steps determines if the circuit is shorted to a voltage.

Step	Action	Yes	No
Schematic Reference: *Cruise Control Schematics*			
1	Did you perform A Diagnostic System Check - Cruise Control?	Go to *Step 2*	Go to *Diagnostic System Check - Cruise Control*
2	**Important:** If DTC P1518 is also set, diagnose P1518 first. 1. Install the scan tool. 2. Turn ON the ignition leaving the engine OFF. 3. Turn OFF the cruise control switch. Does the scan tool parameter indicate that the Cruise Resume/Accel switch is ON?	Go to *Step 3*	Go to Diagnostic Aids
3	1. Turn OFF the ignition. 2. Disconnect the appropriate TAC module harness connector. 3. Turn ON the ignition, with the engine OFF. 4. Monitor the cruise control Resume/Accelerate switch parameter in the PCM data list. Does the scan tool indicate that the cruise control Resume/ Accelerate switch is ON?	Go to *Step 6*	Go to *Step 4*
4	Test the cruise control Resume/Accelerate switch signal circuit for a short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 9*	Go to *Step 5*
5	Inspect for poor connections at the harness connector of the cruise control switch. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 8*	Go to *Step 7*
6	Inspect for poor connections at the harness connector of the TAC module. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 9*	Go to *Step 8*
7	Replace the cruise control switch. Refer to *Multifunction Turn Signal Lever Replacement - On Vehicle*. Did you complete the repair?	Go to *Step 9*	—
8	Replace the TAC module. Refer to *Throttle Actuator Control Module*. Did you complete the repair?	Go to *Step 9*	—
9	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to *Step 2*	System OK

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Fig. 12: DTC P0567
Courtesy of GENERAL MOTORS CORP.

DTC P0568

Circuit Description

The cruise control Set/Coast switch is an input to the throttle actuator control (TAC) module. The cruise control information is supplied to the PCM via serial data. This input allows the PCM and TAC module to control and hold a requested speed. The cruise control Set/Coast switch sends a ignition positive voltage signal to the TAC module when the momentary switch is applied. This DTC sets if the TAC module senses a voltage on the Set/Coast switch signal circuit when the voltage is not expected.

Conditions for Running the DTC

The Cruise switch is ON.

Conditions for Setting the DTC

The TAC module detects the Set/Coast switch is ON for longer than 90 seconds.

Action Taken When the DTC Sets

- The PCM stores the DTC information into memory when the diagnostic runs and fails.
- The malfunction indicator lamp (MIL) will not illuminate.
- The PCM records the operating conditions at the time the diagnostic fails. The PCM stores this information in the Failure Records.
- The cruise is disabled.

Conditions for Clearing the MIL/DTC

- A last test failed, or the current DTC, clears when the diagnostic runs and does not fail.
- A history DTC clears after 40 consecutive warm-up cycles, if failures are not reported by this or any other emission related diagnostic.
- Use a scan tool in order to clear the MIL/DTC.

Diagnostic Aids

Important:

- Remove any debris from the TAC module connector surfaces before servicing the TAC module. Inspect the TAC module connector gaskets when diagnosing/replacing the module. Ensure that the gaskets are installed correctly.
- For any test that requires probing the PCM or a component harness connector, use the Connector Test Adapter Kit **J 35616-A.** Using this kit prevents damage to the harness/component terminals. Refer to **USING CONNECTOR TEST ADAPTERS** .
- Inspect for a set/coast switch stuck in the engaged position or the signal circuit is

shorted to voltage.

- For an intermittent, refer to **TESTING FOR INTERMITTENT AND POOR CONNECTIONS** .

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2. This step determines if condition is present.

Step	Action	Yes	No
Schematic Reference: *Cruise Control Schematics*			
1	Did you perform A Diagnostic System Check - Cruise Control?	Go to *Step 2*	Go to *Diagnostic System Check - Cruise Control*
2	**Important:** If DTC P1518 is also set, diagnose P1518 first. 1. Install a scan tool. 2. Turn ON the ignition with the engine OFF. 3. Turn OFF the cruise control switch. 4. Observe the cruise control Set/Coast switch parameter in the PCM data list. Does the scan tool parameter indicate that the cruise control Set/Coast switch is ON?	Go to *Step 3*	Go to Diagnostic Aids
3	1. Turn OFF the ignition. 2. Disconnect the appropriate TAC module harness connector. 3. Turn On the ignition with the engine OFF. 4. Monitor the cruise control Set/Coast switch parameter with a scan tool. Does the scan tool indicate that the Cruise Set/Coast switch is ON?	Go to *Step 6*	Go to *Step 4*
4	Test the cruise control ON switch signal circuit for a short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 9*	Go to *Step 5*
5	Inspect for poor connections at the harness connector of the cruise control switch. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 9*	Go to *Step 7*
6	Inspect for poor connections at the harness connector of the TAC module. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 9*	Go to *Step 8*
7	Replace the cruise control switch. Refer to *Multifunction Turn Signal Lever Replacement - On Vehicle*. Did you complete the repair?	Go to *Step 9*	—
8	Replace the TAC module. Refer to *Throttle Actuator Control (TAC) Module Replacement*. Did you complete the repair?	Go to *Step 9*	—
9	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to *Step 2*	System OK

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Fig. 13: DTC P0568
Courtesy of GENERAL MOTORS CORP.

DTC P0571

Circuit Description

The TCC Brake switch is a normally closed switch. When the TCC Brake switch is closed, (brake pedal released) the PCM senses ignition voltage on the TCC Brake switch signal circuit.

If the PCM senses a voltage on the TCC Brake switch signal circuit when the TCC Brake switch should be open, this DTC sets.

Conditions for Running the DTC

- The engine speed is greater than 700 RPM.
- The engine operates for greater than 2 seconds.
- The wheel speed is greater than 48 km/h (30 mph) in order to enable the diagnostic. The diagnostic disables when the wheel speed is below 16 km/h (10 mph).

Conditions for Setting the DTC

- The PCM detects voltage on the TCC Brake switch circuit when the TCC Brake switch should be open.
- All above conditions are present for 1.5 seconds.

Action Taken When the DTC Sets

- The PCM stores the DTC information into memory when the diagnostic runs and fails.
- The malfunction indicator lamp (MIL) will not illuminate.
- The PCM records the operating conditions at the time the diagnostic fails. The PCM stores this information in the Failure Records.

Conditions for Clearing the DTC

- A last test failed, or current DTC, clears when the diagnostic runs and does not fail.
- A history DTC will clear after 40 consecutive warm-up cycles, if no failures are reported by this or any other non-emission related diagnostic.
- Use a scan tool in order to clear the DTC.

Diagnostic Aids

Important:

- Remove any debris from the PCM connector surfaces before servicing the PCM. Inspect the PCM connector gaskets when diagnosing/replacing the modules. Ensure that the gaskets are installed correctly. The gaskets prevent contaminate intrusion into

the PCM.

- For any test that requires probing the PCM or a component harness connector, use the Connector Test Adapter Kit **J 35616-A.** Using this kit prevents damage to the harness/component terminals. Refer to **USING CONNECTOR TEST ADAPTERS** .
- Test drive the vehicle if a switch or circuit condition cannot be located. An intermittent condition may be duplicated during a test drive.
- For the TCC Brake switch adjustment refer to **BRAKELIGHT/CRUISE CONTROL SWITCH ADJUSTMENT** .
- For an intermittent, refer to **TESTING FOR INTERMITTENT AND POOR CONNECTIONS** .

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2. This step determines if the fault is present.

Step	Action	Yes	No
Schematic Reference: *Cruise Control Schematics*			
1	Did you perform A Diagnostic System Check - Cruise Control?	Go to *Step 2*	Go to *Diagnostic System Check - Cruise Control*
2	1. Connect a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. Monitor the TCC Brake switch parameter in the PCM data list. Does the brake switch parameter indicate Applied?	Go to *Step 3*	Go to Diagnostic Aids
3	1. Turn OFF the ignition. 2. Disconnect the TCC Brake switch. 3. Turn ON the ignition, with the engine OFF. 4. Observe the TCC Brake switch parameter in the PCM data list. Does the TCC Brake switch parameter indicate Released?	Go to *Step 5*	Go to *Step 4*
4	Test the TCC Brake switch signal circuit for a short to voltage. Did you find and correct the condition?	Go to *Step 10*	Go to *Step 7*
5	Inspect the TCC Brake switch for proper adjustment. Refer to *Brakelight/Cruise Control Switch Adjustment*. Did you find and correct the condition?	Go to *Step 10*	Go to *Step 6*
6	Inspect for poor connections at the harness connector of the TCC Brake switch. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 10*	Go to *Step 8*
7	Inspect for poor connections at the harness connector of the PCM. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 10*	Go to *Step 9*
8	Replace the TCC Brake switch. Refer to *Stop Lamp Switch Replacement*. Did you complete the repair?	Go to *Step 10*	—
9	**Important:** Program the replacement PCM. Refer to *Powertrain Control Module*. Replace the PCM. Refer to *Powertrain Control Module*. Is the action complete?	Go to *Step 10*	—
10	1. Use a scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to *Step 2*	System OK

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Fig. 14: DTC P0571
Courtesy of GENERAL MOTORS CORP.

DTC P0704

Circuit Description

The clutch switch is a normally closed switch. The powertrain control module (PCM) receives an ignition voltage on the clutch switch circuit when the clutch switch is closed. The PCM receives 0 voltage on the clutch switch circuit when the clutch switch is open.

This DTC determines if the transmission clutch switch has failed by monitoring for a clutch switch transition within a range from 0-38 km/h (0-24 mph).

Conditions for Running the DTC

No active vehicle speed sensor (VSS) DTCs

Conditions for Setting the DTC

- Vehicle speed goes from 0 to more than 38 km/h (24 mph) and back to 0 km/h (mph) for 2 seconds without the PCM detecting a clutch transition.
- This occurs 7 times before the diagnostic reports a fault.

Action Taken When the DTC Sets

- The PCM stores the DTC information into memory when the diagnostic runs and fails.
- The malfunction indicator lamp (MIL) will not illuminate.
- The PCM records the operating conditions at the time the diagnostic fails. The PCM stores this information in the Failure Records.

Conditions for Clearing the DTC

- A last test failed, or current DTC, clears when the diagnostic runs and does not fail.
- A history DTC will clear after 40 consecutive warm-up cycles, if no failures are reported by this or any other non-emission related diagnostic.
- Use a scan tool in order to clear the DTC.

Diagnostic Aids

Important: Remove any debris from the PCM connector surfaces before servicing the PCM. Inspect the PCM connector gaskets when diagnosing or replacing the PCM. Ensure that the gaskets are installed correctly. The gaskets prevent water intrusion into the PCM.

The following may cause an intermittent:

- Poor connections-Refer to **TESTING FOR INTERMITTENT AND POOR CONNECTIONS** .
- Corrosion
- Misrouted harness
- Rubbed through wire insulation
- Broken wire inside the insulation

The vehicle may need to be driven to locate an intermittent condition. Monitor the clutch switch parameter on the scan tool. If the parameter changes state while driving, inspect for proper connections.

Using Freeze Frame and Failure Records data may aid in locating an intermittent condition.

If you cannot duplicate the DTC, the information included in the Freeze Frame and Failure Records data can aid in determining how many miles since the DTC set. The Fail Counter and Pass Counter can also aid determining how many ignition cycles the diagnostic reported a pass or a fail. Operate the vehicle within the same Freeze Frame conditions, such as RPM, load, vehicle speed, temperature etc., that you observed. This will isolate when the DTC failed. For an intermittent, refer to **TESTING FOR INTERMITTENT AND POOR CONNECTIONS** .

Test Description

The number below refers to the step number on the diagnostic table.

3. This step determines if the fault is present.

Step	Action	Yes	No
1	Did you perform A Diagnostic System Check - Cruise Control?	Go to *Step 2*	Go to *Diagnostic System Check - Cruise Control*
2	1. Turn OFF the ignition. 2. Disconnect the appropriate PCM harness connector. 3. Turn ON the ignition, with the engine OFF. 4. Probe the CPP switch signal circuit with a test lamp connected to a good ground. Does the test lamp illuminate?	Go to *Step 3*	Go to *Step 4*
3	1. Press the clutch pedal. 2. Observe the test lamp. Does the test lamp illuminate?	Go to *Step 6*	Go to *Step 9*
4	1. Turn OFF the ignition. 2. Disconnect the CPP switch harness connector. 3. Turn On the ignition, with the engine OFF. 4. Probe the ignition positive voltage circuit of the clutch pedal position switch harness connector with a test lamp connected to a good ground. Does the test lamp illuminate?	Go to *Step 5*	Go to *Step 7*
5	Test the CPP switch signal circuit for a open or high resistance or short to ground. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 12*	Go to *Step 8*
6	Test the CPP signal circuit for a short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 12*	Go to *Step 8*
7	Repair the open, high resistance or short to ground in the CPP switch ignition positive voltage circuit. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 12*	—
8	Inspect for poor connection at the harness connector of the CPP switch. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 12*	Go to *Step 10*
9	Inspect for poor connection at the harness connector of the PCM. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 12*	Go to *Step 11*
10	Replace the CPP switch. Refer to *Clutch Pedal Position Switch*. Did you complete the replacement?	Go to *Step 12*	—
11	**Important:** The PCM must be reprogrammed after replacement. Replace the PCM. Refer to *Powertrain Control Module*. Did you complete the replacement?	—	Go to *Step 12*
12	Operate the vehicle with in the condition for cruise control operation. Does the DTC reset?	Go to *Step 2*	System OK

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Fig. 15: DTC P0704
Courtesy of GENERAL MOTORS CORP.

DTC P1574

Circuit Description

This diagnostic test functions on the assumption that, sudden decrease in a non-drive, wheel speed must be caused by a brake application. Non-drive wheel speed and stop lamp switch status are supplied to the PCM through serial data from the Electronic Brake Control Module (EBCM). If there is a 4 km/h (2.5 mph) greater decrease of non-drive wheel speed in 0.4

seconds and a transition of the TCC or extended travel contacts of the TCC brake switch without a transition of the stop lamp brake switch, DTC P1574 is set.

Conditions for Running the DTC

- DTCs P0502, P0503, P0719, P0724, P1575 and P1602 not set.
- Traction control and anti-lock brake systems have not failed.
- Traction control and anti-lock brake systems are not active.
- Non-drive wheel speed goes above 32 km/h (20 mph) and then does not go below 6 km/h (4 mph).

Conditions for Setting the DTC

A 4 km/h (2.5 mph) or greater decrease in non-drive wheel speed in 0.4 second and extended travel brake switch or TCC brake switch indicating brakes applied and no transition noticed in the stop lamp contacts of the stop lamp switch.

Action Taken When the DTC Sets

PCM will set the stop lamp switch status to not applied.

- The Malfunction Indicator Lamp (MIL) will not illuminate.
- No message will be displayed.

Conditions for Clearing the DTC

- A History DTC will clear after forty consecutive warm-up cycles with no failures of any non-emission related diagnostic test.
- A Last Test Failed (current) DTC will clear when the diagnostic runs and does not fail.
- Use a scan tool to clear DTCs.
- Interrupting PCM battery voltage may or may not clear DTCs. This practice is not recommended.

Diagnostic Aids

DTC P1574 indicates the stop lamp switch signal to the EBCM or the EBCM's ability to send the stop lamp switch signal to the PCM has failed. Refer to ABS/TCS DTC's for diagnosis of the stop lamp switch signal and the EBCM.

Step	Action	Yes	No
1	Did you perform the Cruise Control Diagnostic System Check?	Go to *Step 2*	Go to *Diagnostic System Check - Cruise Control*
2	1. Connect the scan tool. 2. Turn ON the ignition, with the engine OFF. 3. Retrieve the DTCs from the EBCM. Are there any DTCs that begin with a "C" also set?	Go to *Diagnostic Trouble Code Definitions*	Go to *Step 3*
3	Repair the short to voltage on the stop lamp switch signal circuit. Did you find and correct the condition?	Go to *Step 4*	—
4	1. Use the scan tool to clear the DTC (s). 2. Operate the vehicle within the conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to *Step 2*	System OK

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Fig. 16: DTC P1574
Courtesy of GENERAL MOTORS CORP.

SYMPTOMS - CRUISE CONTROL

Important: The following steps must be completed before using the symptom tables.

1. Perform **Diagnostic System Check - Cruise Control** before using the Symptom Tables in order to verify that all of the following are true:
   - There are no DTCs set.
   - The control module(s) can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to **Cruise Control Description and Operation** .

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Cruise Control. Refer to **CHECKING AFTERMARKET ACCESSORIES** .
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **TESTING FOR INTERMITTENT AND POOR CONNECTIONS** .

Symptom List

To diagnose the symptom, refer to **Cruise Control Inoperative/Malfunctioning** .

CRUISE CONTROL INOPERATIVE/MALFUNCTIONING

Diagnostic Aids

Important: Perform the following in order to avoid misdiagnosis.

- Inspect for proper operation of brake lamps and clutch switch, if equipped.
- Inspect for proper operation of the transmission range switch.
- EMI on the speed sensor signal circuit may cause erratic cruise control operation.

Conditions for Enabling Cruise Control

The vehicle speed is greater than 40 km/h (25 mph).

Step	Action	Yes	No
Schematic Reference: *Cruise Control Schematics*			
1	Did you perform A Diagnostic System Check - Cruise Control?	Go to *Step 2*	Go to *Diagnostic System Check - Cruise Control*
2	1. Connect a scan tool. 2. Monitor the Cruise On switch parameter in the powertrain control module (PCM) data list. 3. Turn ON the cruise control switch. Did the scan tool parameter change state?	Go to *Step 3*	Go to *Step 9*
3	1. Observe the cruise control Set/Coast parameter in the PCM data list. 2. Press the cruise control Set button. Did the cruise control Set/Coast parameter change state?	Go to *Step 4*	Go to *Step 14*
4	1. Observe the cruise control Resume/Accelerate parameter in the PCM data list. 2. Press the Resume/Accelerate switch. Did the cruise control Resume Accelerate parameter change state?	Go to *Step 5*	Go to *Step 15*
5	1. Observe the stop lamp switch parameter in the PCM data list. 2. Press the brake pedal. Did the stop lamp switch parameter change state?	Go to *Step 6*	Go to *Step 10*
6	1. Observe the TCC/Brake switch parameter in the PCM data list. 2. Press the brake pedal. Did the cruise release switch parameter change state?	Go to *Step 7*	Go to *Step*
7	Is the vehicle equipped with a manual transmission?	Go to *Step 8*	Go to *Step 29*
8	1. Observe the clutch pedal position (CPP) switch parameter in the PCM data list. 2. Press the clutch pedal. Did the CPP switch parameter change state?	Go to *Step 29*	Go to *Step 12*
9	1. Turn OFF the ignition. 2. Disconnect the multifunction turn signal lever. 3. Turn ON the ignition, with the engine OFF. 4. Probe the multifunction turn signal lever ignition positive voltage circuit with a test lamp connected to a good ground. Did the test lamp illuminate?	Go to *Step 13*	Go to *Step 21*
10	1. Turn OFF the ignition. 2. Disconnect the stop lamp switch harness connector. 3. Turn ON the ignition, with the engine OFF. 4. Probe the stop lamp battery positive voltage circuit with a test lamp connected to a good ground. Did the test lamp illuminate?	Go to *Step 16*	Go to *Step 22*

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Fig. 17: Cruise Control Inoperative/Malfunctioning (1 Of 3)
Courtesy of GENERAL MOTORS CORP.

Step	Action	Yes	No
11	1. Turn OFF the ignition. 2. Disconnect the TCC/Brake switch harness connector. 3. Turn ON the ignition, with the engine OFF. 4. Probe the TCC/Brake switch ignition positive voltage circuit with a test lamp connected to a good ground. Did the test lamp illuminate?	Go to *Step 18*	Go to *Step 23*
12	1. Turn OFF the ignition. 2. Disconnect the clutch pedal position (CPP) switch. 3. Turn ON the ignition, with the engine OFF. 4. Probe the CPP switch ignition positive voltage circuit with a test lamp connected to a good ground. Did the test lamp illuminate?	Go to *Step 20*	Go to *Step 24*
13	Test the cruise control ON switch signal circuit for a open, high resistance, short to ground or short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 28*
14	Test the cruise control Set/Coast signal circuit for a open, high resistance, short to ground or short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 28*
15	Test the cruise control Resume/Accelerate signal circuit for a open, high resistance, short to ground or short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 28*
16	Test the stop lamp switch signal circuit for a open, high resistance, short to ground or short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 17*
17	Check the stop lamp switch for proper adjustment. Refer to *Brakelight/Cruise Control Switch Adjustment*. Is the stop lamp switch adjusted properly?	Go to *Step 25*	Go to *Step 25*
18	Test the TCC/Brake switch signal circuit for a open, high resistance, short to ground or short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 19*
19	Check the TCC/Brake switch for proper adjustment. Refer to *Brakelight/Cruise Control Switch Adjustment*. Is the TCC/Brake switch adjusted properly?	Go to *Step 26*	Go to *Step 26*
20	Test the CPP switch signal circuit for a open, high resistance, short to ground or short to voltage. Refer to *Circuit Testing* and *Wiring Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 27*
21	Repair the open, high resistance or short to ground in the multifunction turn signal lever ignition positive voltage circuit. Refer to *Wiring Repairs*. Did you complete the repair?	Go to *Step 35*	—
22	Repair the open, high resistance or short to ground in the stop lamp switch battery positive voltage circuit. Refer to *Wiring Repairs*. Did you complete the repair?	Go to *Step 35*	—
23	Repair the open, high resistance or short to ground in the TCC/Brake switch battery positive voltage circuit. Refer to *Wiring Repairs*. Did you complete the repair?	Go to *Step 35*	—

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Fig. 18: Cruise Control Inoperative/Malfunctioning (2 Of 3)
Courtesy of GENERAL MOTORS CORP.

Step	Action	Yes	No
24	Repair the open, high resistance or short to ground in the CPP switch battery positive voltage circuit. Refer to *Wiring Repairs*. Did you complete the repair?	Go to *Step 35*	—
25	Inspect for poor connections at the harness connector of the stop lamp switch. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 30*
26	Inspect for poor connections at the harness connector of the TCC/Brake switch. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 31*
27	Inspect for poor connections at the harness connector of the CPP switch. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 32*
28	Inspect for poor connections at the harness connector of the multifunction turn signal lever. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 33*
29	Inspect for poor connections at the harness connector of the PCM. Refer to *Testing for Intermittent and Poor Connections* and *Connector Repairs*. Did you find and correct the condition?	Go to *Step 35*	Go to *Step 34*
30	Replace the stop lamp switch. Refer to *Stop Lamp Switch Replacement*. Did you complete the replacement?	Go to *Step 35*	—
31	Replace the TCC/Brake switch. Refer to *Stop Lamp Switch Replacement*. Did you complete the replacement?	Go to *Step 35*	—
32	Replace the CPP switch. Refer to *Clutch Pedal Position Switch*. Did you complete the replacement?	Go to *Step 35*	—
33	Replace the multifunction turn signal lever. Refer to *Multifunction Turn Signal Lever Replacement - On Vehicle*. Did you complete the replacement?	Go to *Step 35*	—
34	**Important:** The PCM must be reprogrammed after replacement. Refer to *Powertrain Control Module*. Replace the PCM. Refer to *Powertrain Control Module*. Did you complete the replacement?	Go to *Step 35*	—
35	Operate the vehicle within the conditions for cruise control operation. Does the cruise control system operate properly?	System OK	Go to *Step 2*

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Fig. 19: Cruise Control Inoperative/Malfunctioning (3 Of 3)
Courtesy of GENERAL MOTORS CORP.

REPAIR INSTRUCTIONS

CRUISE RELEASE SWITCH ADJUSTMENT

1. Remove the left I/P lower insulator panel. Refer to **CLOSEOUT/INSULATOR PANEL REPLACEMENT - LEFT** .
2. Ensure that the cruise control release switch is fully seated to the cruise control release switch bracket.

Push the switch down toward the switch bracket, audible clicks will be heard while pushing the switch.

3. Adjust the cruise control release switch.

   Grasp the clutch pedal and pull fully rearward against the pedal stop; audible clicks may be heard as the switch moves into the adjusted position.

4. Install the left I/P lower insulator panel. Refer to **CLOSEOUT/INSULATOR PANEL REPLACEMENT - LEFT** .

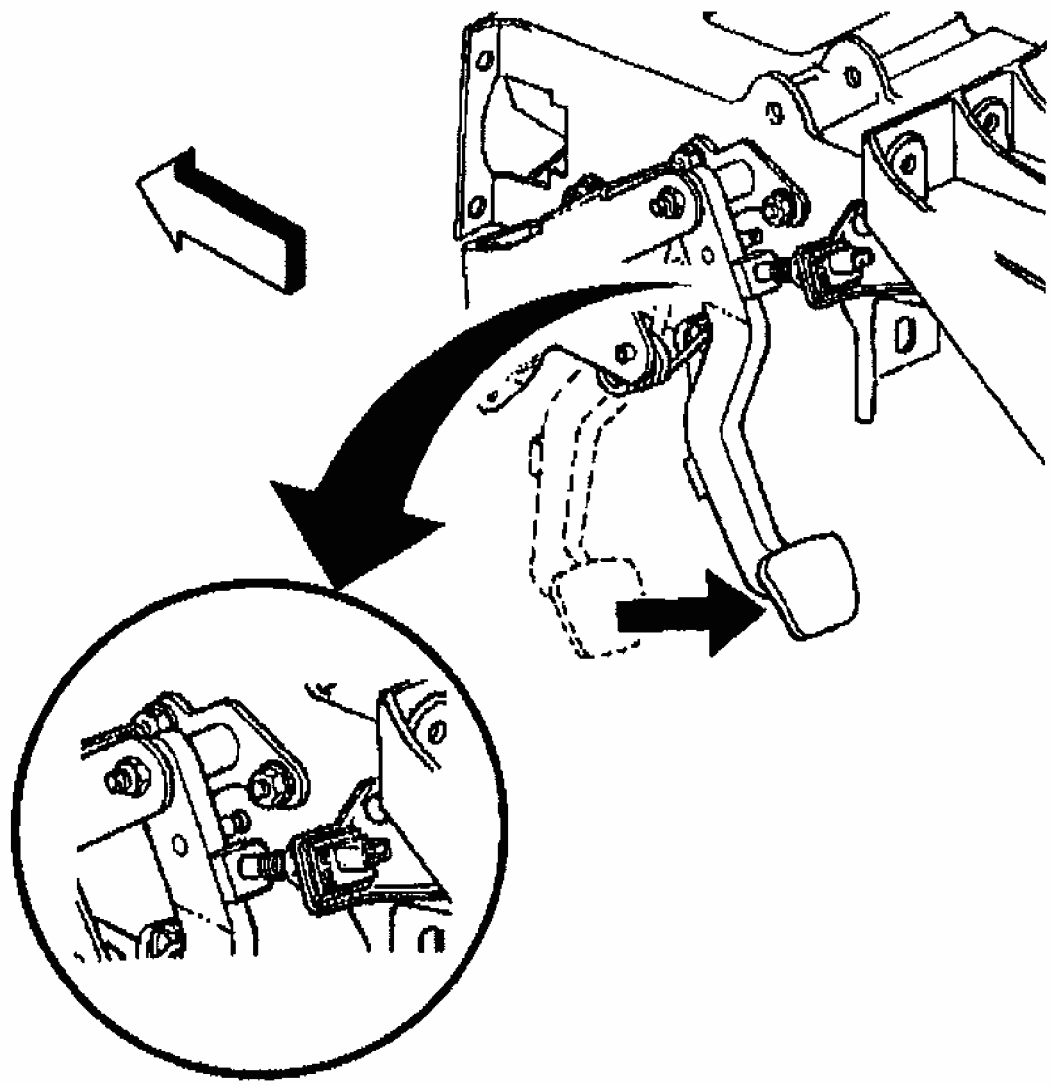

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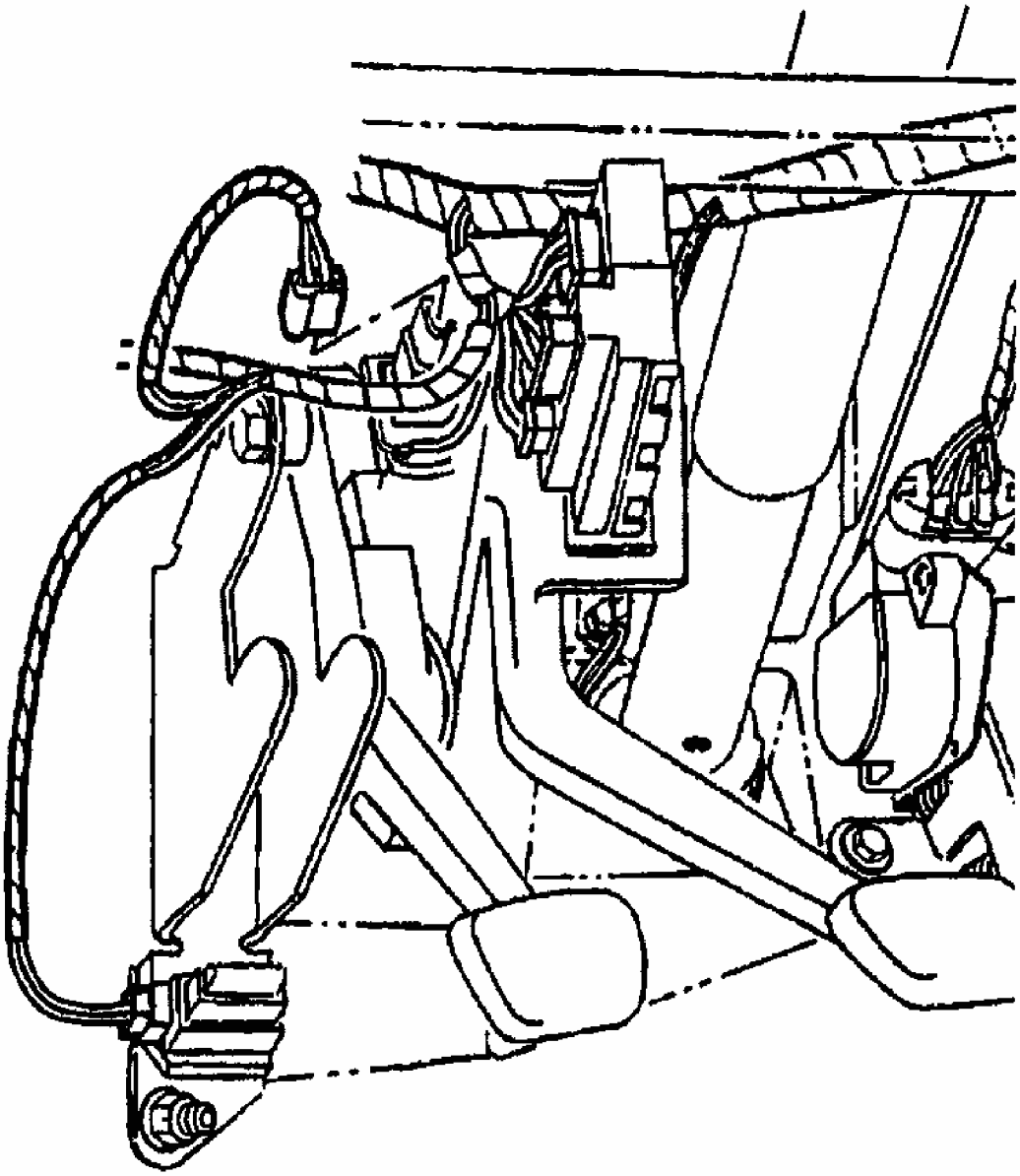
Fig. 20: Adjusting Cruise Release Switch
Courtesy of GENERAL MOTORS CORP.

CRUISE RELEASE SWITCH REPLACEMENT

Removal Procedure

1. Remove the left I/P lower insulator panel. Refer to **CLOSEOUT/INSULATOR PANEL REPLACEMENT - LEFT** .
2. Disconnect the cruise control release switch electrical connector.



G01733311

Fig. 21: Disconnecting Cruise Release Switch Connector

Courtesy of GENERAL MOTORS CORP.

3. Remove the cruise control release switch from the cruise control release switch bracket.

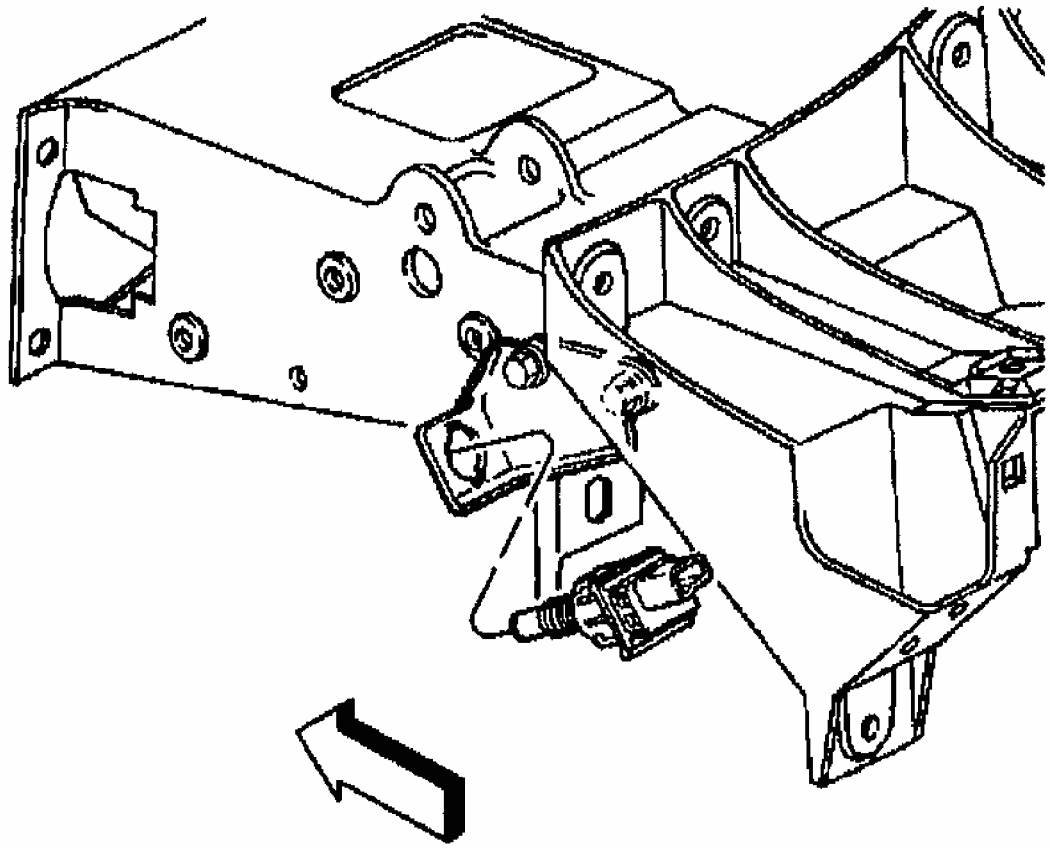


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Fig. 22: Removing Cruise Release Switch
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Install the cruise control release switch to the switch bracket.

   Fully seat the switch to the bracket. Audible clicks will be heard while pushing the switch.

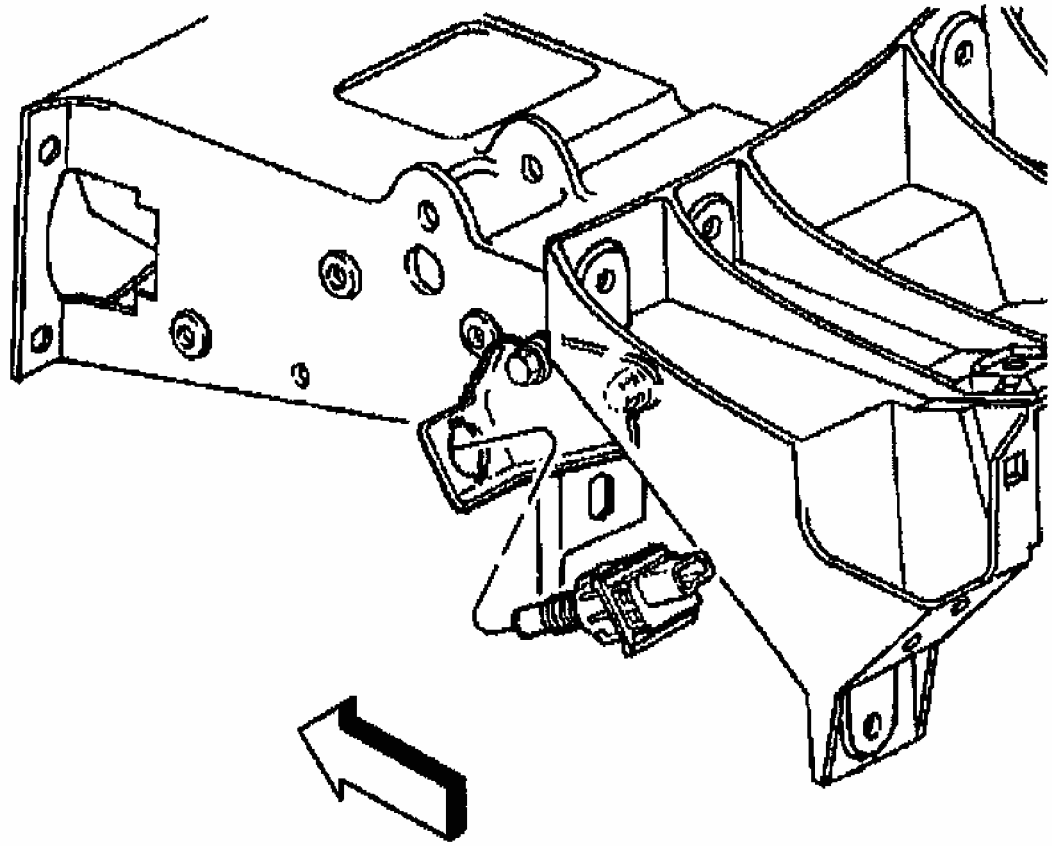

Fig. 23: Installing Cruise Release Switch
Courtesy of GENERAL MOTORS CORP.

2. Connect the cruise control release switch electrical connector.

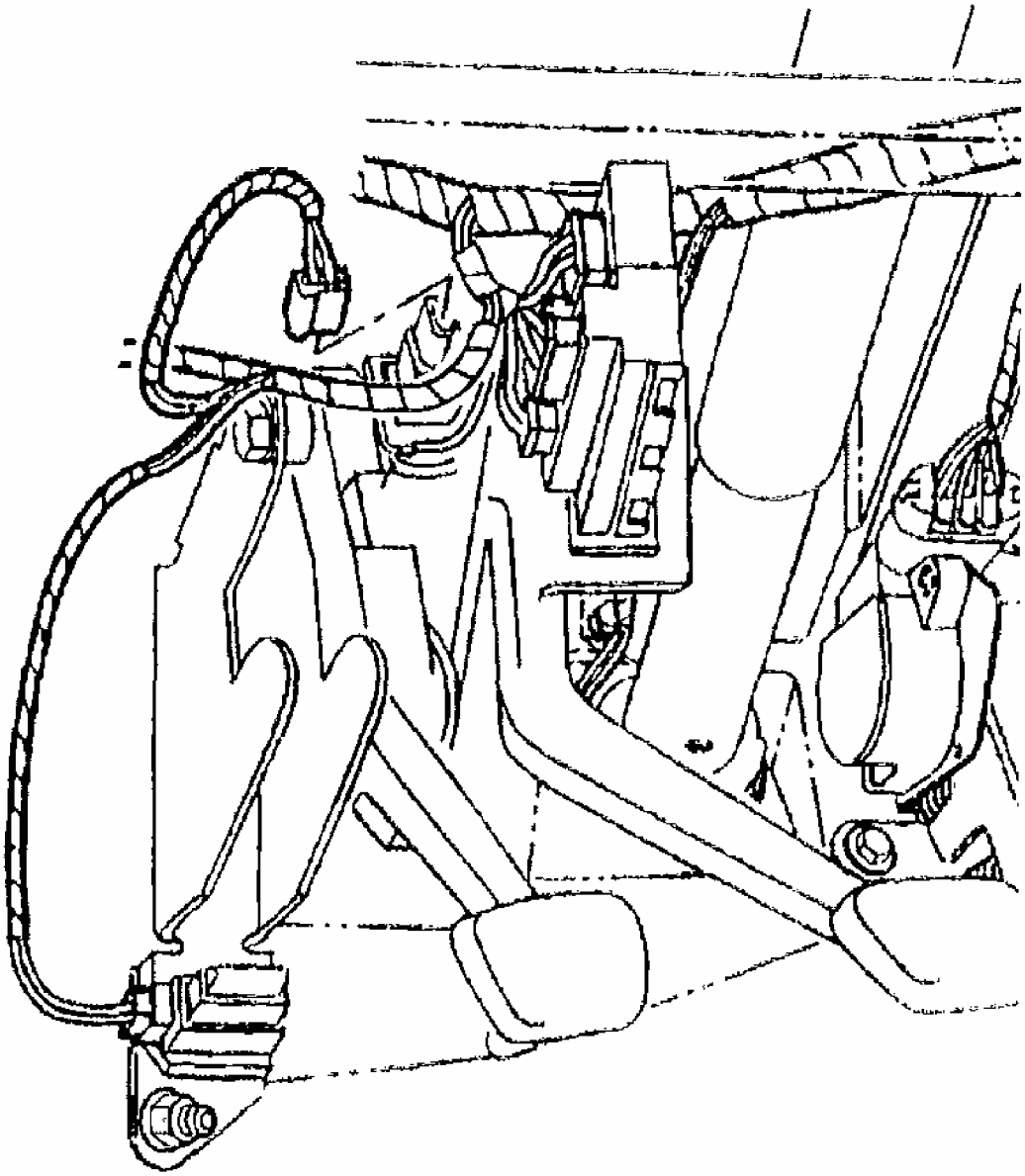

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Fig. 24: Connecting Cruise Release Switch Connector
Courtesy of GENERAL MOTORS CORP.

3. Adjust the cruise control release switch.

   Grasp the clutch pedal and pull fully rearward against the pedal stop. Audible clicks may be heard as the switch moves into the adjusted position.

4. Install the left I/P lower insulator panel. Refer to **CLOSEOUT/INSULATOR PANEL**

REPLACEMENT - LEFT .

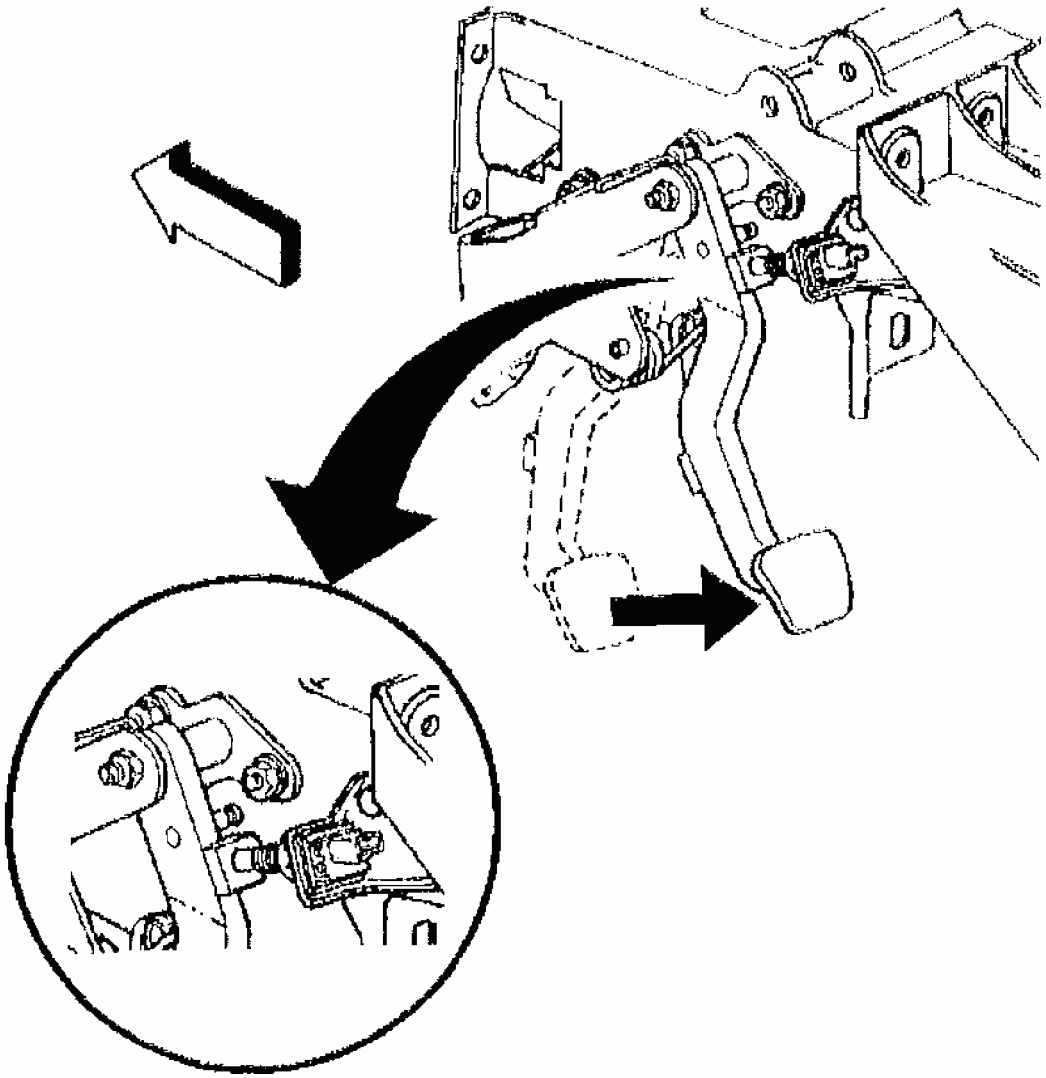

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Fig. 25: Adjusting Cruise Release Switch
Courtesy of GENERAL MOTORS CORP.

DESCRIPTION AND OPERATION

CRUISE CONTROL DESCRIPTION AND OPERATION

Cruise control is a speed control system that maintains a desired vehicle speed under normal driving conditions. However, steep grades may cause variations in the selected speeds. The electronic cruise control system has the capability to CRUISE, COAST, RESUME SPEED, ACCELERATE, and TAP-UP or TAP-DOWN.

The main parts of the cruise control system are:

- The Throttle Actuator Control (TAC) Module
- The function control switches
- The stoplamp switch assembly
- The TCC Brake switch assembly
- The clutch pedal position sensor (CPP) if equipped

The cruise control system uses the TAC module to maintain the desired vehicle cruise speed and operation. The TAC and the powertrain control module (PCM) communicate together to vary the throttle opening in each different cruise control mode. The PCM monitors vehicle speed and operates the throttle actuator. The throttle actuator operates in response to the TAC module, to maintain the desired cruise speed. The throttle actuator motor moves the throttle blade. The PCM assembly contains a low speed limit which will prevent system engagement below a minimum speed of 40 km/h (25 mph). The TAC or PCM module assembly are not serviceable.

The operation of the TAC module is through the function control switches located on the multifunction turn signal lever. The cruise control function control switches includes the ON/OFF, SET/COAST, R/A. The switch assembly provides driver control of the cruise control system.

The stop lamp switch, TCC Brake switch or CPP switch if equipped, is used to disengage the cruise control. A cruise control release switch circuit and a stop lamp switch circuit are used. The stop lamp, TCC Brake and CPP switches are mounted to the brake pedal bracket. To disengage the system the driver presses the brake pedal or clutch pedal, if equipped. The speed of the vehicle at brake actuation will be stored in the memory of the TAC module.

With cruise control, the vehicle can maintain a speed of about 40 km/h (25 mph) or more without keeping your foot on the accelerator. When the driver turns off the cruise control ON/OFF switch or ignition switch, the cruise control turns off. The vehicle speed stored in the memory of the TAC module will be lost.

Ignition positive voltage is supplied from the throttle control fuse, to the TAC module. The TAC module is grounded to G106. When the cruise control ON/OFF switch is on, ignition positive voltage is applied to the cruise on switch signal terminal of the TAC module. If the driver has not pressed the brake pedal or clutch pedal if equipped, ignition positive voltage is supplied through the switches, to the cruise control brake pedal switch signal and clutch signal, if equipped, terminals of the PCM. Cruise control is canceled when the driver presses either the brake pedal or clutch pedal, if equipped. The stop lamp switch closes, applying battery positive voltage to the stop lamp signal circuit of the TAC module. Voltage is also removed from the brake pedal signal circuit and the clutch switch signal circuit, if equipped, at the PCM. When pressing the SET/COAST button on the multifunction turn signal lever, ignition positive voltage is applied to the set/coast switch signal terminal of the TAC

module. When pressing the R/A on the control switch, ignition positive voltage is applied to the resume/accelerate switch signal terminal of the TAC module.

When the cruise switch is in the ON position, and the driver presses the SET/COAST button, the TAC module notifies the PCM that the cruise control is requested. The PCM then checks to see that the cruise control enable criteria is met. If the cruise control criteria has been met the PCM sends a class 2 message to the instrument panel cluster (IPC) to illuminate the cruise light, if equipped.

The PCM will inhibit cruise control:

- When vehicle speed is less than 40 km/h (25 mph).
- When in PARK, REVERSE, NEUTRAL, or 1st gear.
- With low engine RPM
- With high engine RPM e.g. fuel cut off.
- When vehicle speed is to high
- When an over or under charged battery voltage condition exists
- Antilock brake system/traction control system is active for more than 2 seconds
- A 10 km/h (6 mph) or more decrease in non-drive wheel speed in 0.4 seconds with out seeing the extended brake travel contacts of the TCC/Brake switch transition.

If the PCM determines that any of the cruise control inhibit conditions are present, the PCM will disengage the cruise control. The PCM accomplishes this through data communication with the TAC module. If the PCM disables the cruise control for an inhibiting event it will record the reason for disengagement in the Disengage Definition data file.