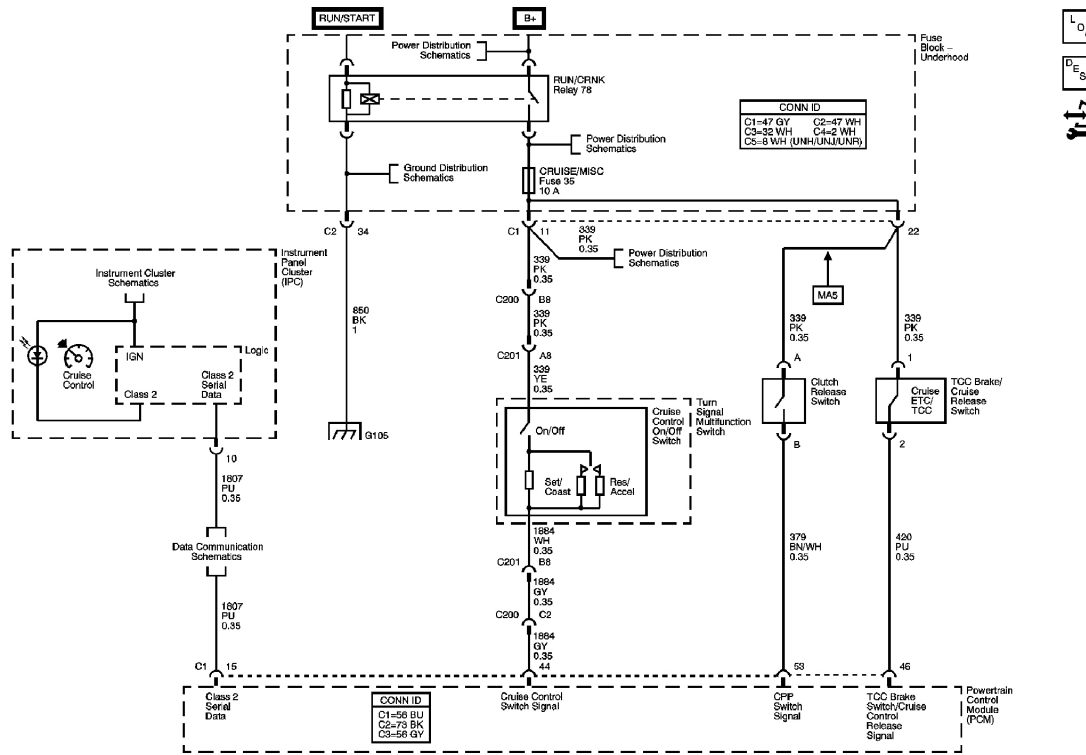


2007 ACCESSORIES & EQUIPMENT

Cruise Control - H3

SCHEMATIC AND ROUTING DIAGRAMS

CRUISE CONTROL SCHEMATICS



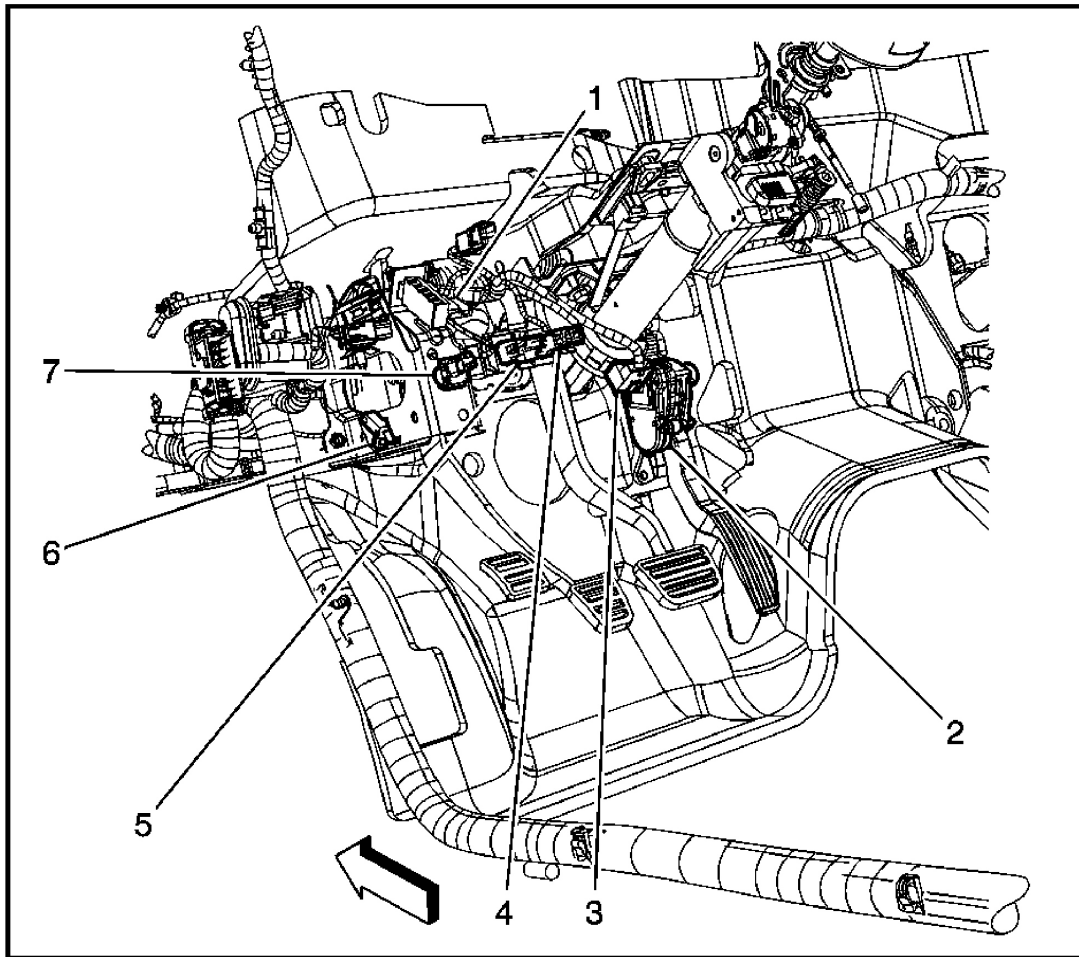
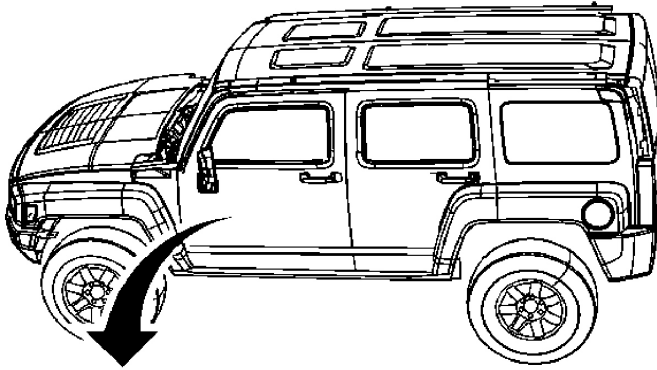
**Fig. 1: Cruise Control Schematic**  
 Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

CRUISE CONTROL COMPONENT VIEWS

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**Fig. 2: View Of Components On Lower Left Side Of I/P**  
Courtesy of GENERAL MOTORS CORP.

**Callouts For Fig. 2**

Callout	Component Name
1	Clutch Start Switch (MA5)

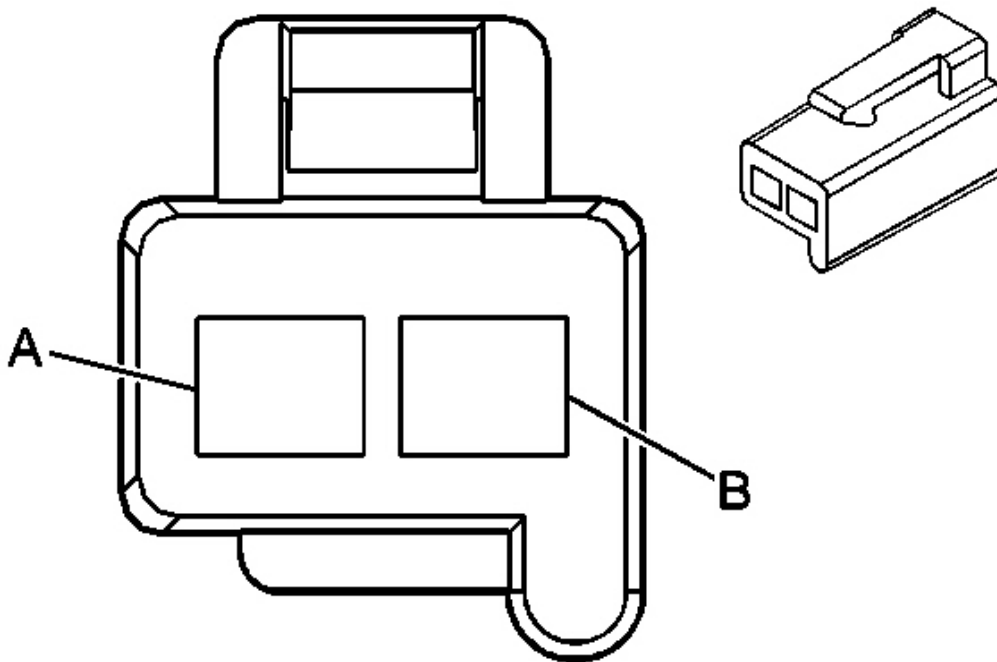
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2	Accelerator Pedal Position (APP) Sensor
3	Steering Wheel Position Sensor (JL4)
4	TCC Brake/Cruise Release Switch
5	Stop Lamp Switch
6	Park Brake Switch
7	Clutch Release Switch (MA5)

### CRUISE CONTROL CONNECTOR END VIEWS

#### Clutch Release Switch



**Fig. 3: Clutch Release Switch Connector End View**  
Courtesy of GENERAL MOTORS CORP.

#### Clutch Release Switch Connector Parts Information

##### Connector Part Information

- OEM: 12041433

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- Service: 12126463
- Description: 2-Way F Metri-Pack 280 Series (BK)

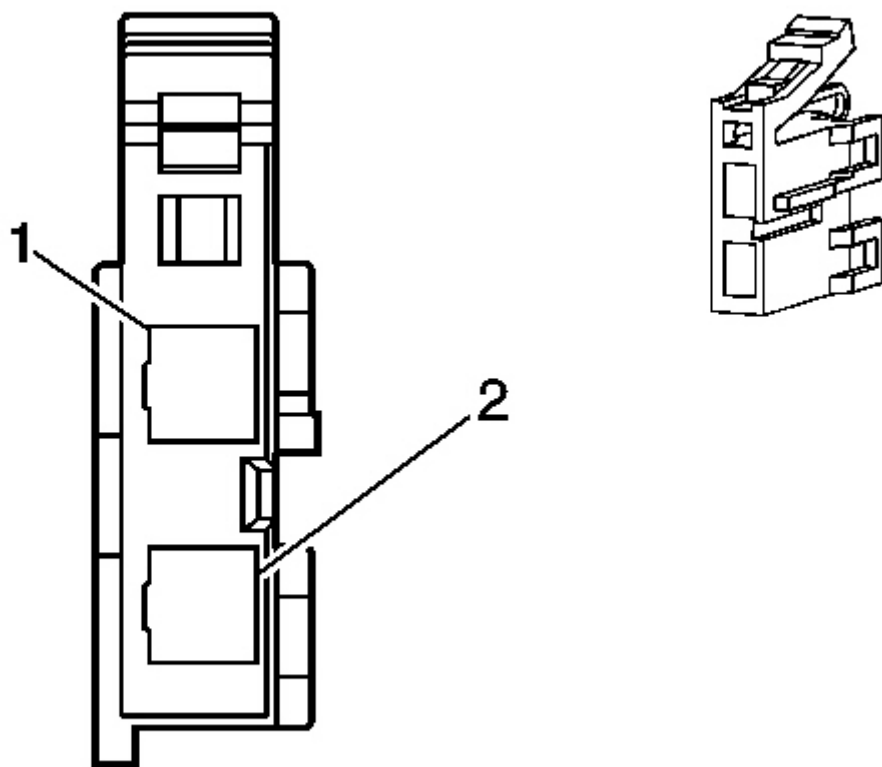
#### Terminal Part Information

- Terminal/Tray: 12034046/2
- Core/Insulation Crimp: E/A
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

#### Clutch Release Switch Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	PK	339	Ignition 1 Voltage
B	BN/WH	379	CPP Switch Signal

TCC Brake/Cruise Release Switch



**Fig. 4: TCC Brake/Cruise Release Switch Connector End View**  
Courtesy of GENERAL MOTORS CORP.

### **TCC Brake/Cruise Release Switch Connector Parts Information**

#### **Connector Part Information**

- OEM: 7123-6024-40
- Service: 80946651
- Description: 2-Way F 58 M-Type (GY)

#### **Terminal Part Information**

- Terminal/Tray: 7116-2875/10
- Core/Insulation Crimp: E/B
- Release Tool/Test Probe: 12094430/J-35616-42 (RD)

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#### TCC Brake/Cruise Release Switch Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	PK	339	Ignition 1 Voltage
2	PU	420	TCC Brake Switch/Cruise Control Release Signal

#### DIAGNOSTIC INFORMATION AND PROCEDURES

##### DIAGNOSTIC CODE INDEX

##### DIAGNOSTIC CODE INDEX

DTC	Description
<b>DTC P0564</b>	Cruise Control Multi-Function Switch Circuit
<b>DTC P1574</b>	Stop Lamp Switch Circuit

##### DIAGNOSTIC STARTING POINT - CRUISE CONTROL

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

- The identification of the control modules which command the system
- The ability of the control modules 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.

##### SCAN TOOL DATA LIST

##### Scan Tool Data List - Powertrain (PCM)

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
<b>Ignition ON/Engine Idling at Normal Operating Temperature/Vehicle is in Park or Neutral/Cruise On/Off Switch is Turned Off</b>			
Cruise Control Active	Cruise Control Data	Yes/No	No
Cruise Disengage (1 - 8) History	Cruise Control Data	Last reason for cruise control disengagement	Varies

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Cruise On/Off Switch	Cruise Control Data	On/Off	Off
Cruise Release Clutch/TCC Pedal Switches	Cruise Control Data	Applied/Released	Released
Cruise Resume/Accel. Switch	Cruise Control Data	On/Off	Off
Cruise Set/Coast Switch	Cruise Control Data	On/Off	Off
Engine Speed	Cruise Control Data	RPM	Varies
Ignition 1 Signal	Cruise Control Data	Volts	12 to 16 Volts
Reduced Engine Power	Cruise Control Data	Active/Inactive	Inactive
Traction Control Signal	Cruise Control Data	Active/Inactive	Inactive
Vehicle Speed Sensor	Cruise Control Data	km/h (mph)	0 km/h (0 mph)

#### 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.

#### **Cruise Control Active**

The scan tool displays Yes or No. The powertrain control module (PCM) determines the current status of cruise control operation. An active cruise control system is displayed as Yes.

#### **Cruise Disengage (1 - 8) History**

The scan tool displays the last 8 reasons why the cruise control system was disengaged. Refer to the Scan Tool Data Definitions (Disengaged History) for descriptions.

#### **Cruise On/Off Switch**

The scan tool displays On or Off. The PCM monitors the cruise control set/coast and resume/accelerate switch signal circuit. A closed switch is displayed as On.

**Cruise Release Clutch/TCC Pedal Switches**

The scan tool displays Applied or Released. The PCM monitors the signal circuit of the torque converter clutch (TCC)/cruise control release switch. A closed switch is displayed as Released.

**Cruise Resume/Accel. Switch**

The scan tool displays On or Off. The PCM monitors the cruise control set/coast and resume/accelerate switch signal circuit. A closed switch is displayed as On.

**Cruise Set/Coast Switch**

The scan tool displays On or Off. The PCM monitors the cruise control set/coast and resume/accelerate switch signal circuit. A closed switch is displayed as On. The cruise control On/Off switch must be switched On in order to correctly view the Cruise Set/Coast Switch parameter.

**Engine Speed**

The scan tool displays 0 to 9,999 RPM. The PCM monitors the crankshaft position (CKP) signal circuit in order to determine the engine RPM.

**Ignition 1 Signal**

The scan tool displays 6 Volts to 18 Volts. The PCM monitors the Ignition 1 signal circuit in order to determine the system voltage.

**Reduced Engine Power**

The scan tool displays Active or Inactive. When the PCM detects that an overheated engine condition exists, the scan tool displays Active.

**Traction Control Signal**

The scan tool displays Active or Inactive. When the PCM detects that the traction control is active, the scan tool displays Active.

**Vehicle Speed Sensor**

The scan tool displays 0 to 150 km/h (93.2 mph). The PCM monitors the vehicle speed sensor signal circuit in order to calculate the vehicle speed for display.



**SCAN TOOL DATA DEFINITIONS (DISENGAGE HISTORY)**

The Cruise Control Scan Tool Definitions - Disengage History is a common list for all of the available cruise control disengagement definitions available on the scan tool. The cruise control system equipped on the vehicle determines which cruise control disengagement parameters are available on the scan tool.

One of the following conditions must be present in order for a disengagement parameter to appear:

- The cruise control system is active and disengagement is requested.
- The engagement of the cruise control system is requested while a fault is present.

**Accel Rate**

The powertrain control module (PCM)/engine control module (ECM) detects that the vehicle acceleration is greater than the calibrated cruise control threshold.

**Bad Sequence**

The PCM/ECM detects that a cruise control software execution error is present.

**Brake**

The PCM/ECM detects that the stop lamps have been activated or the PCM/ECM detects that a stop lamp pedal activation had not occurred before the cruise control system was requested.

**Cancel**

The PCM/ECM detects that the cruise control cancel switch has been activated.

**CC Sw. Position**

The PCM/ECM detects that the acceleration mode is active without the activation of the Accel. switch.

**Clutch**

The PCM/ECM detects that the clutch pedal switch has been activated.

**Clutch Switch**

The PCM/ECM detects that the clutch pedal switch has been activated.

### **Cruise Off**

The PCM/ECM detects that the cruise On/Off switch was turned to OFF when the cruise control system was enabled.

### **Coast Low Speed**

The PCM/ECM detects that the Set/Coast switch is activated until the vehicle speed is below 37 km/h (23 mph).

### **Coast Disengage**

When the PCM/ECM detects that the cruise set/coast signal is active and the throttle blade fully closes the cruise control system will disengage until the PCM/ECM detects that the set/coast signal is inactive. The cruise control system will then engage and set with the new vehicle speed.

### **Decel Rate**

The PCM/ECM detects that the vehicle deceleration is greater than the calibrated cruise control threshold.

### **DTC Set**

The PCM/ECM detects that a DTC has been set which affects the cruise control operation.

### **Engine Run Time**

The PCM/ECM detects that the cruise control system has been requested and the engine run time counter is not active.

### **Engine Speed**

The PCM/ECM detects that the engine speed is less than or greater than a calibrated RPM.

### **ETC**

The PCM/ECM detects a fault within the throttle actuator control (TAC) system.

### **First Gear**

While the cruise control system is active, the PCM/ECM detects that the transmission is in Drive 1.

### **High Accel.**

The PCM/ECM detects that the vehicle acceleration is greater than the calibrated cruise control threshold.

### **High Decel.**

The PCM/ECM detects that the vehicle deceleration is greater than the calibrated cruise control threshold.

### **High Speed**

The PCM/ECM detects that the vehicle speed is greater than the calibrated amount.

### **Illegal Mode**

The PCM/ECM detects that the acceleration mode is active without the activation of the Accel. switch.

### **Injector Disable**

The PCM/ECM detects that the engine is overspeed and that the fuel shutoff has been activated.

### **Low Speed**

The PCM/ECM detects that the vehicle speed is less than 37 km/h (23 mph) while the cruise control system was enabled.

### **Low Voltage**

The PCM/ECM detects that the ignition voltage is below 9 volts.

### **Manual/Neutral**

The PCM/ECM detects that transmission is in Neutral, Reverse or Park.

### **Memory Corrupt**

An internal PCM/ECM memory fault is detected.

### **MPH Limit**

The PCM/ECM detects a that the vehicle is overspeed and that the fuel shutoff has been activated.

### **No History**

This parameter is displayed when a new PCM/ECM has been installed.

### **None**

This parameter is displayed when a new PCM/ECM has been installed.

### **Off**

The PCM/ECM detects that the cruise On/Off switch was turned to OFF when the cruise control system was enabled.

### **Over Set Speed**

This parameter is displayed when the current vehicle speed is greater than the set vehicle speed by more than a calibrated amount.

### **Over Speed**

This parameter is displayed when the current vehicle speed is greater than the set vehicle speed by more than a calibrated amount.

### **Over Speed Tap**

This parameter is displayed when the Set/Coast switch is briefly applied while the current vehicle speed is greater than the set vehicle speed by more than a calibrated amount.

### **Pedal Initialize**

The PCM/ECM detects that a stop lamp pedal activation had not occurred before the cruise control system was requested.

### **PCM Error**

The PCM/ECM detects that a cruise control software execution error is present.

### **PCM Inhibit**

The PCM/ECM detects a RAM corruption associated to the cruise control system.

### **Pedal > Cruise**

The PCM/ECM detects that the accelerator pedal overrides the set vehicle speed for approximately 60 seconds.

### **Serial Data**

A fault in the serial data circuit from the cruise control switch to the platform module is detected.

### **S/C On, CC Off**

When the PCM/ECM detects that the cruise set/coast signal is active and the throttle blade fully closes the cruise control system will disengage until the PCM/ECM detects that the set/coast signal is inactive. The cruise control system will then engage and set with the new vehicle speed.

### **S/C On - Speed High**

This parameter is displayed when the Set/Coast switch is briefly applied while the current vehicle speed is greater than the set vehicle speed by more than a calibrated amount.

### **Stop Lamp Switch**

The PCM/ECM detects that the stop lamps have been activated.

### **TAC Inhibit**

The PCM/ECM detects a fault within the TAC system.

### **Traction**

The PCM/ECM detects that the traction control system had been activated. It is also possible that a tire with low air pressure can also set this disengagement reason.

### **Traction Loss**

The PCM/ECM detects that the traction control system had been activated. It is also possible that a tire with low air pressure can also set this disengagement reason.

### **Two Commands**

The PCM/ECM detects that the Set/Coast switch and the Resume/Accel switch are active at the same time.

### **Two CC Commands**

The PCM/ECM detects that the Set/Coast switch and the Resume/Accel switch are active at the same time.

### **Under Speed**

The PCM/ECM detects that the vehicle speed is less than the cruise memory speed by more than a calibrated amount.

### **Under Set Speed**

The PCM/ECM detects that the vehicle speed is less than the cruise memory speed by more than a calibrated amount.

## **DTC P0564**

### **Circuit Description**

The cruise control switch is an input to the powertrain control module (PCM). The PCM monitors the cruise control set/coast and resume/accelerate switch signal circuit in order to detect when a cruise control function has been requested. The PCM detects a specific voltage signal on the cruise control set/coast and resume/accelerate switch signal circuit when a cruise control function switch is activated, with each switch having a different predetermined voltage value.

### **DTC Descriptor**

This diagnostic procedure supports the following DTC:

DTC P0564 Cruise Control Multi-Function Switch Circuit

### **Conditions for Running the DTC**

- The ignition is ON.

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- The cruise control on/off switch is ON.

#### Conditions for Setting the DTC

This DTC sets when the PCM detects an invalid voltage signal on the cruise control set/coast and resume/accelerate switch signal circuit for greater than 1.5 seconds.

The PCM runs this diagnostic every 0.05 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 Control System is disabled.

#### Conditions for Clearing the 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 DTC.

#### Diagnostic Aids

For an intermittent condition, refer to **Testing for Intermittent Conditions and Poor Connections** .

#### DTC P0564

Step	Action	Values	Yes	No
<b>Schematic Reference: Cruise Control Schematics</b> <b>Connector End View Reference: Master Electrical Component List</b>				
1	Did you perform the Diagnostic System Check - Vehicle?	-	Go to Step 2	Go to <b><u>Diagnostic System Check - Vehicle</u></b>
	1. Turn ON the ignition, with the engine OFF.			

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2	<p>2. With a DMM, measure the voltage of the ignition 1 voltage circuit at the back of C204.</p> <p>Does the voltage measure at the specified value?</p>	B+		
3	<p><b>IMPORTANT:</b> The cruise control on/off switch must be turned ON in order to correctly view the set/coast switch resistance value with the DMM.</p> <p>1. Turn OFF the ignition. 2. Disconnect C204. 3. With a DMM, measure the resistance of the cruise control switch between the ignition 1 voltage circuit and the cruise control set/coast and resume/accelerate switch signal circuit. 4. Individually activate and hold the cruise control function switches while measuring the resistance of the cruise control function switches.</p> <p>Does the cruise control function switch resistance values measure within the specified values?</p>	<p>Off = O.L. On = 7.8 K ohms - 8.6 K ohms Resume = 2.7 K ohms - 3.0 K ohms Set = 1.2 K ohms - 1.3 K ohms</p>		
4	<p>Test the cruise control set/coast and resume/accelerate switch signal circuit between the cruise control switch and the powertrain control module (PCM) for the following:</p> <ul style="list-style-type: none"> <li>• A high resistance</li> <li>• A short to voltage</li> <li>• A short to ground</li> </ul>	-		



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	Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> . Did you find and correct the condition?		Go to <b>Step 10</b>	Go to <b>Step 6</b>
5	Inspect for poor connections at the harness connector of the cruise control switch. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> . Did you find and correct the condition?	-	Go to <b>Step 10</b>	Go to <b>Step 8</b>
6	Inspect for poor connections at the harness connector of the PCM. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> . Did you find and correct the condition?	-	Go to <b>Step 10</b>	Go to <b>Step 9</b>
7	Repair the high resistance in the ignition 1 voltage circuit. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> . Did you complete the repair?	-	Go to <b>Step 10</b>	-
8	Replace the cruise control switch. Refer to <b><u>Turn Signal Multifunction Switch Replacement</u></b> . Did you complete the replacement?	-	Go to <b>Step 10</b>	-
9	Replace the PCM. Refer to <b><u>Control Module References</u></b> for replacement, setup and programming. Did you complete the replacement?	-	Go to <b>Step 10</b>	-
10	<ol style="list-style-type: none"> <li>1. Use the scan tool in order to clear the DTCs.</li> <li>2. Operate the vehicle within the Conditions for Running the DTC.</li> </ol>	-		

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Does the DTC reset?		Go to <b>Step 2</b>	System OK
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#### DTC P1574

##### Circuit Description

This diagnostic test functions on the assumption that a sudden decrease in vehicle speed is caused by a brake pedal application. When the powertrain control module (PCM) detects that there is a 4.2 km/h (2.6 mph) or greater decrease in vehicle speed within 0.25 seconds and a transition of the torque converter clutch (TCC) brake/cruise release switch without a transition of the stop lamp switch, the PCM sets DTC P1574.

##### DTC Descriptor

This diagnostic procedure supports the following DTC:

#### DTC P1574 Stop Lamp Switch Circuit

##### Conditions for Running the DTC

- DTCs P0502, P0503, P0719 and P0724 are not set.
- The engine speed is greater than 700 RPM.
- The Traction Control System (TCS) or the Antilock Brake System (ABS) are not active and have not failed.
- The vehicle speed is greater than 48 km/h (30 mph) in order to enable the diagnostic.
- The diagnostic will disable when the wheel speed is less than 16 km/h (10 mph).

##### Conditions for Setting the DTC

- The vehicle speed decreases by at least 4.2 km/h (2.6 mph) within 0.25 seconds.
- The PCM detects a TCC brake/cruise release switch transition.
- The PCM does not detect a stop lamp switch transition.

##### Action Taken When the DTC Sets

- The PCM sets the stop lamp switch status to released.
- The PCM disables the operation of the Cruise Control System.

##### Conditions for Clearing the DTC

- A history DTC will clear after 40 malfunction free warm-up cycles, if failures are not

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reported by this or any other emission related diagnostic.

- The PCM receives a clear code command from the scan tool.

#### Diagnostic Aids

- Inspect for proper adjustment of the TCC brake/cruise release switch. Refer to **Cruise Release Switch Adjustment**.
- Refer to **Exterior Lighting Systems Description and Operation** in order to avoid a misdiagnosis.
- For an intermittent condition, refer to **Testing for Intermittent Conditions and Poor Connections** .

#### DTC P1574

Step	Action	Yes	No
<b>Schematic Reference : <u>Cruise Control Schematics</u></b>			
<b>Connector End View Reference: <u>Cruise Control Connector End Views</u></b>			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <b><u>Diagnostic System Check - Vehicle</u></b>
2	Do the stop lamps operate properly?	Go to <b>Step 3</b>	Go to <b><u>Stop Lamps Inoperative</u></b> or <b><u>Stop Lamps Always On</u></b>
3	Test the stop lamp switch signal circuit for an open or the high resistance. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> . Did you find and complete the repair?	Go to <b>Step 6</b>	Go to <b>Step 4</b>
4	Inspect for poor connections at the harness connector of the powertrain control module (PCM). Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> . Did you find and correct the condition?	Go to <b>Step 6</b>	Go to <b>Step 5</b>
5	Replace the PCM. Refer to <b><u>Control Module References</u></b> for replacement, setup and programming.		

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	Did you complete the replacement?	Go to <b>Step 6</b>	-
6	<ol style="list-style-type: none"><li>1. Use the scan tool in order to clear the DTCs.</li><li>2. Operate the vehicle within the Conditions for Running the DTC.</li></ol>		
	Does the DTC reset?	Go to <b>Step 2</b>	System OK

### SYMPTOMS - CRUISE CONTROL

Perform the **Diagnostic System Check - Vehicle** before using the Symptom Tables in order to verify that all of the following are true:

- There are no DTCs set.
- The control modules can communicate via the serial data link.

Review the system description and 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 System. 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 Conditions and Poor Connections** .

#### Symptom List

Refer to **Cruise Control Inoperative/Malfunctioning** in order to diagnose a symptom.

### CRUISE CONTROL INOPERATIVE/MALFUNCTIONING

#### Diagnostic Aids

Perform the following in order to avoid a misdiagnosis:

- Ensure that the following cruise control switches are not stuck in the engaged position:
  - On/off switch
  - Set/coast switch
  - Resume/accel switch
- Inspect for proper operation of the stop lamps. Refer to **Exterior Lighting Systems Description and Operation** .
- Inspect for proper adjustment of the TCC brake/cruise release switch. Refer to **Cruise Release Switch Adjustment**.
- Inspect for proper adjustment of the clutch release switch. Refer to **Clutch Pedal Cruise Control Release Switch Adjustment**.
- Inspect for proper operation of the clutch pedal.
- For an intermittent condition, refer to **Testing for Intermittent Conditions and Poor Connections** .

**Cruise Control Inoperative/Malfunctioning**

Step	Action	Values	Yes	No
<b>Schematic Reference: <u>Cruise Control Schematics</u></b>				
<b>Connector End View Reference: <u>Master Electrical Component List</u></b>				
1	Did you perform the Diagnostic System Check - Vehicle?	-		Go to <b><u>Diagnostic System Check - Vehicle</u></b>
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. Turn the cruise control On/Off switch Off. 4. With the scan tool, observe the following cruise control parameters in the Cruise Control Data list: <ul style="list-style-type: none"> <li>• Cruise On/Off Switch</li> <li>• Cruise Resume/Accel Switch</li> </ul>	-		Go to Step 2

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	<ul style="list-style-type: none"> <li>• Cruise Set/Coast Switch</li> </ul> <p>Do all of the parameters listed above display Off?</p>		Go to <b>Step 3</b>	Go to <b>Step 13</b>
3	<ol style="list-style-type: none"> <li>1. With the scan tool, observe the Cruise On/Off Switch parameter.</li> <li>2. Turn the cruise On/Off switch ON.</li> </ol> <p>Does the Cruise On/Off Switch parameter display On?</p>	-	Go to <b>Step 4</b>	Go to <b>Step 11</b>
4	<ol style="list-style-type: none"> <li>1. With the scan tool, observe the Cruise Set/Coast Switch parameter.</li> <li>2. Press and hold the set/coast switch.</li> </ol> <p>Does the Cruise Set/Coast Switch parameter display On?</p>	-	Go to <b>Step 5</b>	Go to <b>Step 12</b>
5	<ol style="list-style-type: none"> <li>1. With the scan tool, observe the Cruise Resume/Accel Switch parameter.</li> <li>2. Press and hold the resume/accel switch.</li> </ol> <p>Does the Cruise Resume/Accel Switch parameter display On?</p>	-	Go to <b>Step 6</b>	Go to <b>Step 12</b>
6	Do the stop lamps operate properly?	-	Go to <b>Step 7</b>	Go to <b><u>Stop Lamps Inoperative</u></b> or Go to <b><u>Stop Lamps Always On</u></b>
	Test the stop lamp supply voltage circuit for an open or for a high resistance. Refer to <b><u>Circuit Testing</u></b>			

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7	and to <b>Wiring Repairs</b> . Did you find and correct the condition?	-	Go to <b>Step 25</b>	Go to <b>Step 8</b>
8	Is the vehicle equipped with a manual transmission?	-	Go to <b>Step 9</b>	Go to <b>Step 20</b>
9	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the clutch release switch.</li> <li>3. With a DMM, measure the resistance of the clutch pedal position (CPP) switch between the ignition 1 voltage circuit and the CPP switch signal circuit.</li> </ol> <p>Does the resistance measure between the specified values?</p>	10-15 ohms	Go to <b>Step 10</b>	Go to <b>Step 18</b>
10	<ol style="list-style-type: none"> <li>1. Depress and hold down the clutch pedal.</li> <li>2. With a DMM, measure the resistance of the CPP switch between the ignition 1 voltage circuit and the CPP switch signal circuit.</li> </ol> <p>Does the resistance measure at the specified value?</p>	O.L.	Go to <b>Step 14</b>	Go to <b>Step 18</b>
11	Connect a DMM between the ignition 1 voltage circuit at the back of C204 and a good ground. Does the voltage measure at the specified value?	B+	Go to <b>Step 12</b>	Go to <b>Step 21</b>
	<p><b>IMPORTANT:</b> The cruise control On/Off switch must be turned ON in order to correctly view the set/coast resistance value with the DMM.</p> <ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> </ol>			

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12	<ol style="list-style-type: none"> <li>2. Disconnect C204.</li> <li>3. With a DMM, measure the resistance of the cruise control switch between the ignition 1 voltage circuit and the cruise control set/coast and resume/accelerate switch signal circuit.</li> <li>4. Individually activate and hold the cruise control function switches while measuring the resistance of the cruise control function switches.</li> </ol>	<p>Off = O.L.                  On = 7.8 K ohms - 8.6 K ohms                  Resume = 2.7 K ohms - 3.0 K ohms                  Set = 1.2 K ohms - 1.3 K ohms</p>	<p>Go to <b>Step 17</b></p>	<p>Go to <b>Step 19</b></p>
13	<p><b>IMPORTANT:</b>                  The cruise control On/Off switch must be turned ON in order to correctly view the set coast resistance value with the DMM.</p> <ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect C204.</li> <li>3. With a DMM, measure the resistance of the cruise control switch between the ignition 1 voltage circuit and the cruise control set/coast and resume/accelerate switch signal circuit.</li> <li>4. Individually activate and hold the cruise control function switches while measuring the resistance of the cruise control function switches.</li> </ol>	<p>Off = O.L.                  On = 7.8 K ohms - 8.6 K ohms                  Resume = 2.7 K ohms - 3.0 K ohms                  Set = 1.2 K ohms - 1.3 K ohms</p>	<p>Go to <b>Step</b></p>	
	<p>Do the resistance values measure at</p>			



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	the specified values?		<b>16</b>	Go to <b>Step 19</b>
14	<ol style="list-style-type: none"> <li>1. Turn ON the ignition, with the engine OFF.</li> <li>2. Connect a test lamp between the ignition 1 voltage circuit and a good ground.</li> </ol>	-		
	Does the test lamp illuminate?		<b>Go to Step 15</b>	<b>Go to Step 21</b>
15	<p>Test the clutch switch signal circuit for the following:</p> <ul style="list-style-type: none"> <li>• An open</li> <li>• A short to voltage</li> <li>• A short to ground</li> <li>• A high resistance</li> </ul> <p>Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> .</p> <p>Did you find and correct the condition?</p>	-		
			<b>Go to Step 25</b>	<b>Go to Step 20</b>
16	<p>Test the cruise control set/coast and resume/accelerate switch signal circuit for a short to voltage. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> .</p> <p>Did you find and correct the condition?</p>	-		
			<b>Go to Step 25</b>	<b>Go to Step 20</b>
17	<p>Test the cruise control set/coast and resume/accelerate switch signal circuit for the following:</p> <ul style="list-style-type: none"> <li>• An open</li> <li>• A high resistance</li> <li>• A short to ground</li> </ul> <p>Refer to <b><u>Circuit Testing</u></b> and</p>	-		

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	<p><b><u>Wiring Repairs</u></b> . Did you find and correct the condition?</p>		Go to <b>Step 25</b>	Go to <b>Step 20</b>
18	<p>Inspect for poor connections at the harness connector of the clutch switch. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> . Did you find and correct the condition?</p>	-	Go to <b>Step 25</b>	Go to <b>Step 22</b>
19	<p>Inspect for poor connections at the harness connector of the cruise control switch. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> . Did you find and correct the condition?</p>	-	Go to <b>Step 25</b>	Go to <b>Step 23</b>
20	<p>Inspect for poor connections at the harness connector of the powertrain control module (PCM). Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> . Did you find and correct the condition?</p>	-	Go to <b>Step 25</b>	Go to <b>Step 24</b>
21	<p>Repair the following in the ignition 1 voltage circuit:</p> <ul style="list-style-type: none"> <li>• An open</li> <li>• A high resistance</li> <li>• A short to ground</li> </ul> <p>Refer to <b><u>Wiring Repairs</u></b> . Did you complete the repair?</p>	-	Go to <b>Step 25</b>	-
	Replace the clutch release switch.			

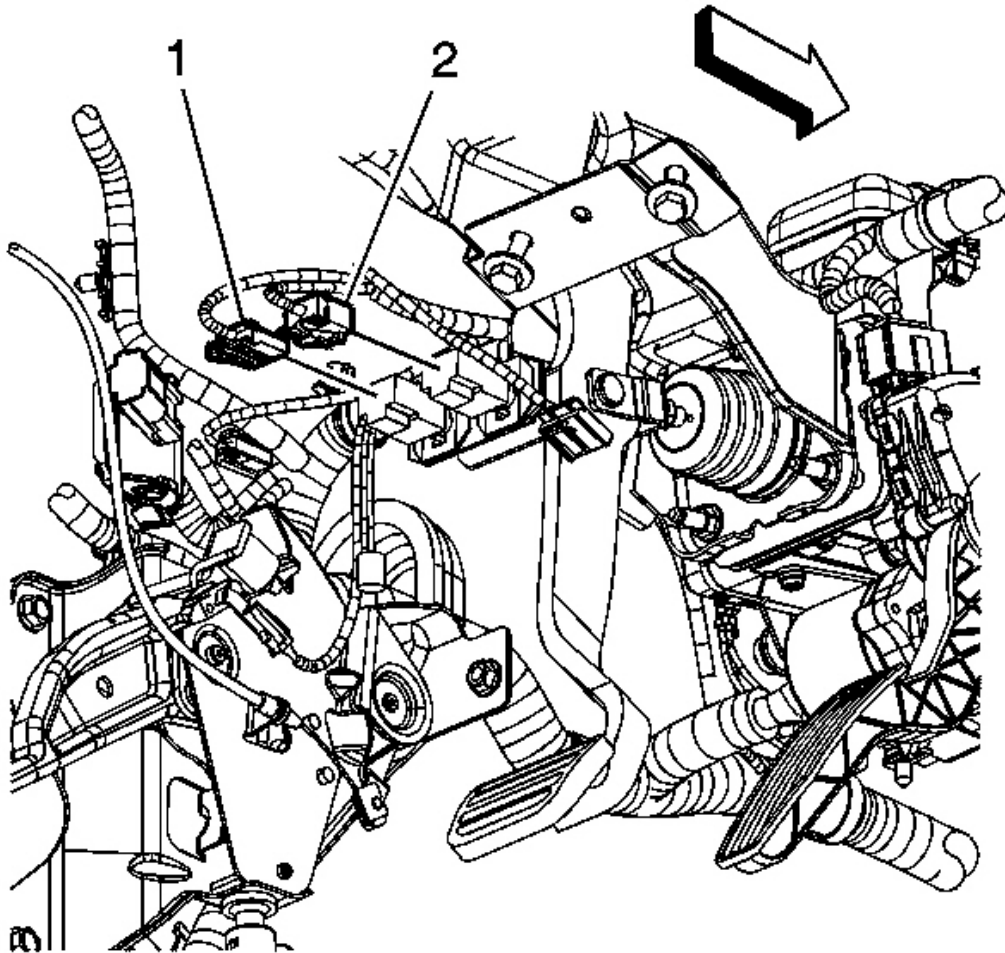
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### 2007 ACCESSORIES & EQUIPMENT Cruise Control - H3

22	Refer to <b><u>Clutch Pedal Cruise Control Release Switch Replacement</u></b> . Did you complete the replacement?	-	Go to <b>Step 25</b>	-
23	Replace the cruise control switch. Refer to <b><u>Turn Signal Multifunction Switch Replacement</u></b> . Did you complete the replacement?	-	Go to <b>Step 25</b>	-
24	Replace the PCM. Refer to <b><u>Control Module References</u></b> for replacement, setup and programming. Did you complete the replacement?	-	Go to <b>Step 25</b>	-
25	Operate the vehicle within the conditions for cruise control operation. Does the cruise control system operate properly?	-	System OK	Go to <b>Step 2</b>

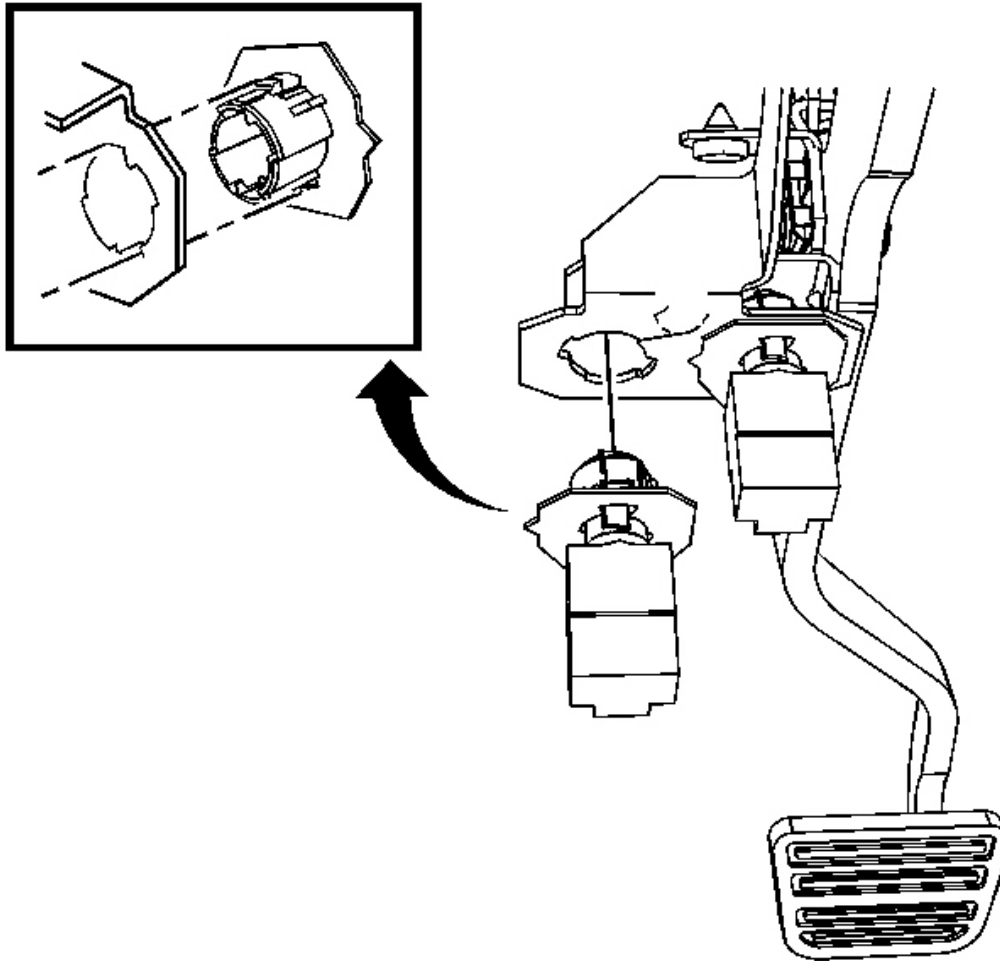
## REPAIR INSTRUCTIONS

### CRUISE RELEASE SWITCH ADJUSTMENT



**Fig. 5: Locating Cruise Control Release Switch Electrical Connector**  
**Courtesy of GENERAL MOTORS CORP.**

1. Disconnect the cruise control release switch electrical connector (1).

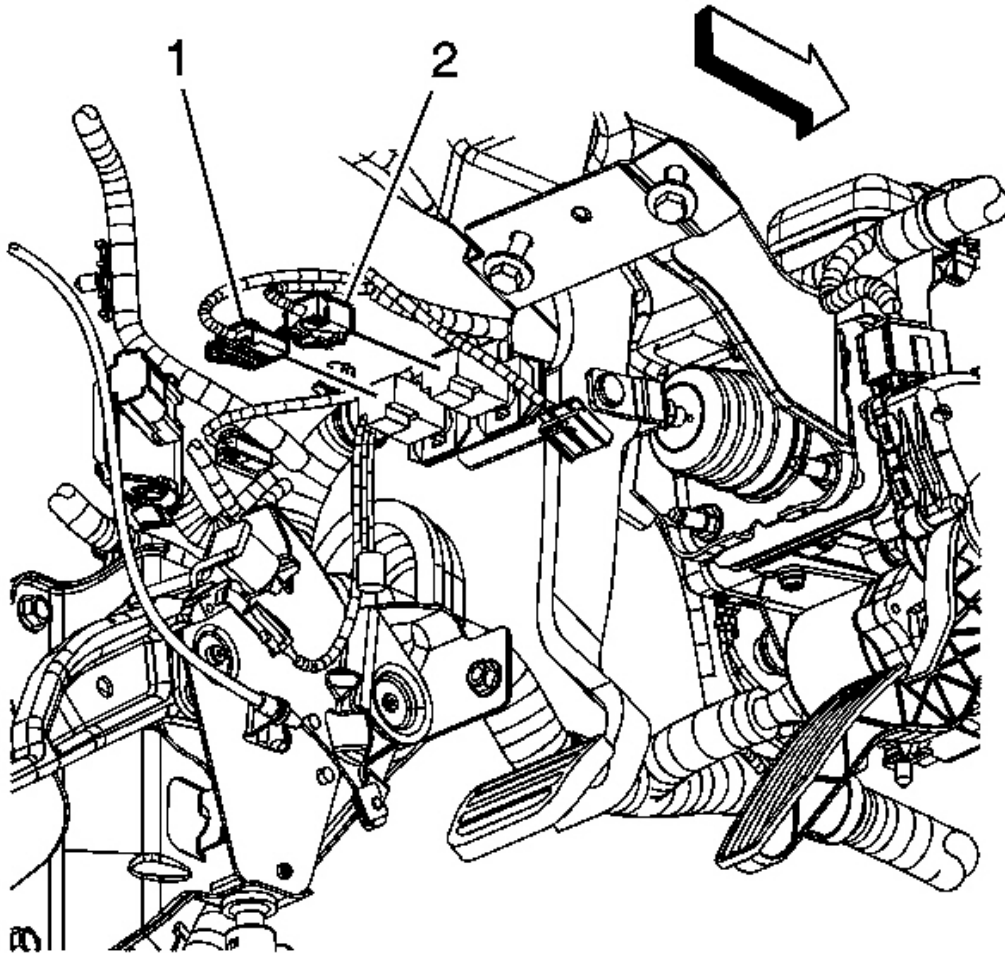


**Fig. 6: Identifying Cruise Release Switch**  
**Courtesy of GENERAL MOTORS CORP.**

2. Rotate the cruise release switch counterclockwise, allowing the retainer to release.
3. Pull the brake pedal rearward to full stop.
4. While holding the brake pedal in position rearward, push the switch inward fully until the switch body contacts the brake pedal arm.

At this point the plunger in the switch should be pushed in.

5. Rotate the switch clockwise until a "click" is heard.

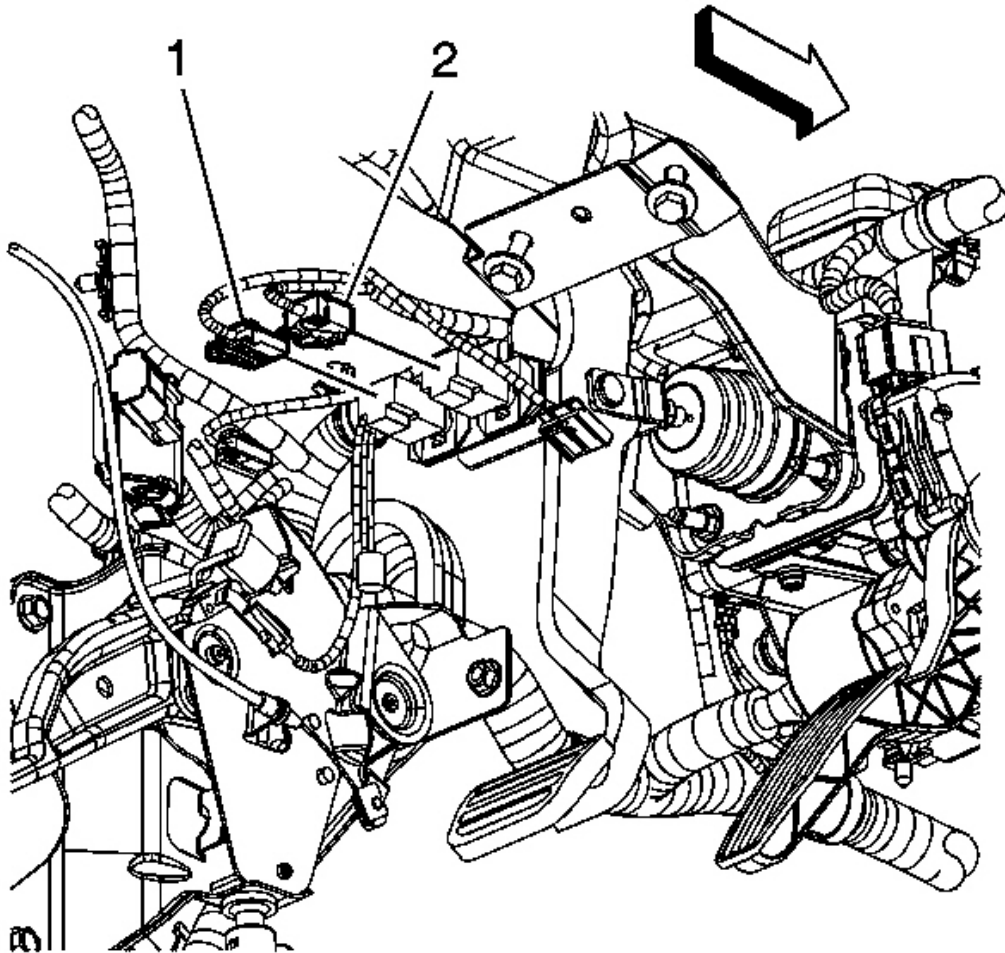


**Fig. 7: Locating Cruise Control Release Switch Electrical Connector**  
**Courtesy of GENERAL MOTORS CORP.**

6. Connect the cruise control release switch electrical connector (1).
7. The switch is properly adjusted when there is 7 mm (0.28 in) clearance between the end of the barrel and the striker plate.

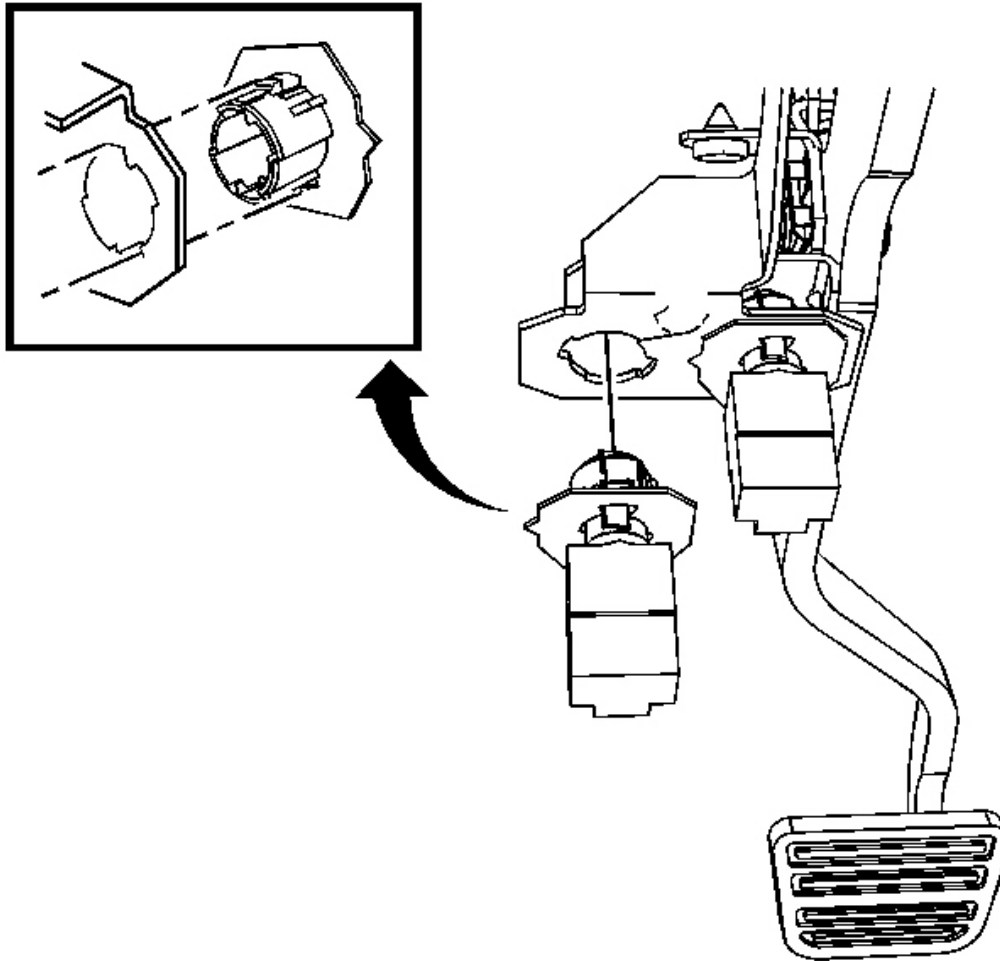
## **CRUISE RELEASE SWITCH REPLACEMENT**

### **Removal Procedure**



**Fig. 8: Locating Cruise Control Release Switch Electrical Connector**  
**Courtesy of GENERAL MOTORS CORP.**

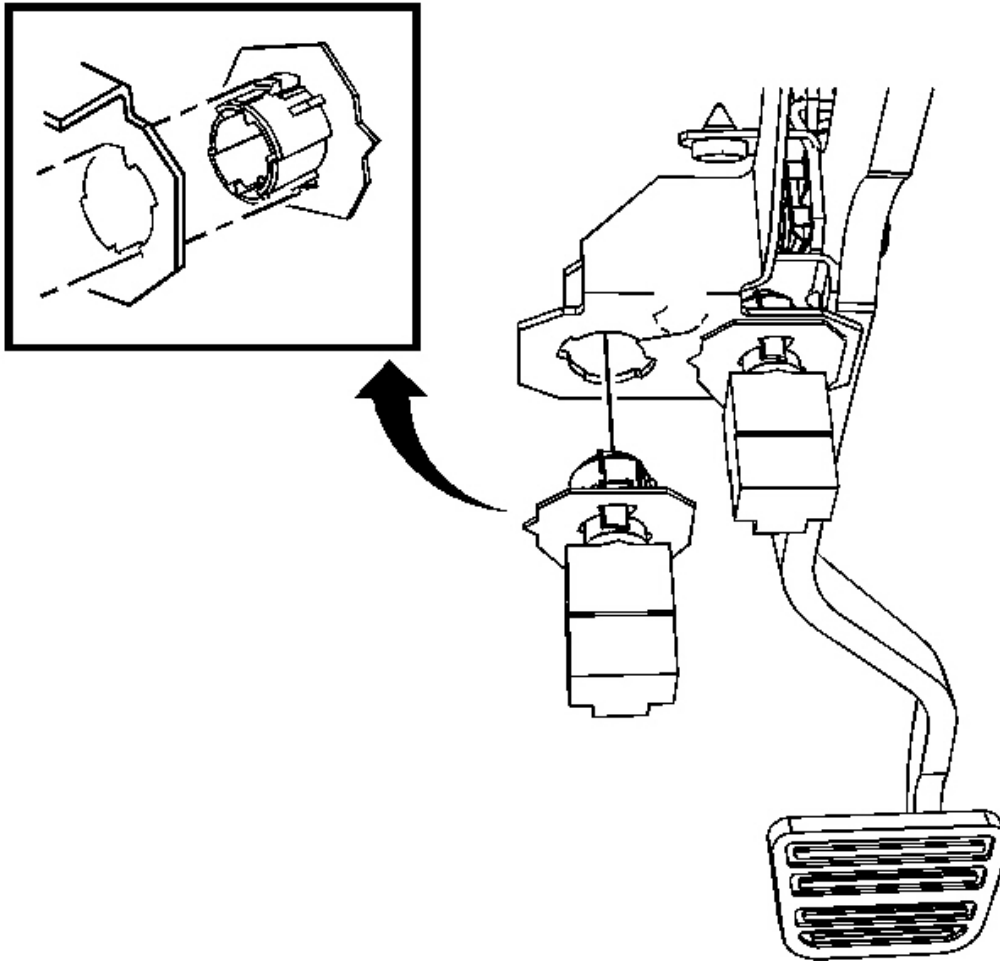
1. Disconnect the cruise control release switch electrical connector (1).



**Fig. 9: Identifying Cruise Release Switch**  
**Courtesy of GENERAL MOTORS CORP.**

2. Complete the following in order to remove the cruise release switch from the brake pedal bracket:
  1. Rotate the switch counterclockwise.
  2. Pull the switch from the retainer.
  3. Push the locking tabs inward to release the retainer.

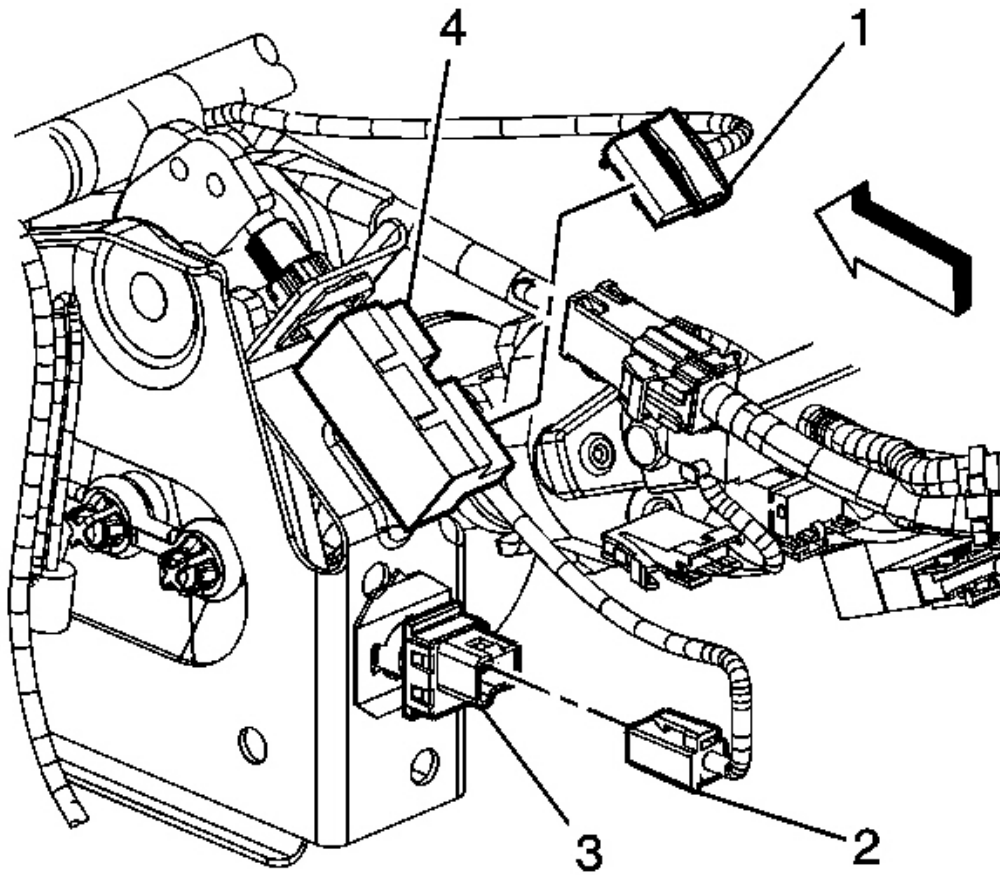




**Fig. 10: Identifying Cruise Release Switch**  
Courtesy of GENERAL MOTORS CORP.

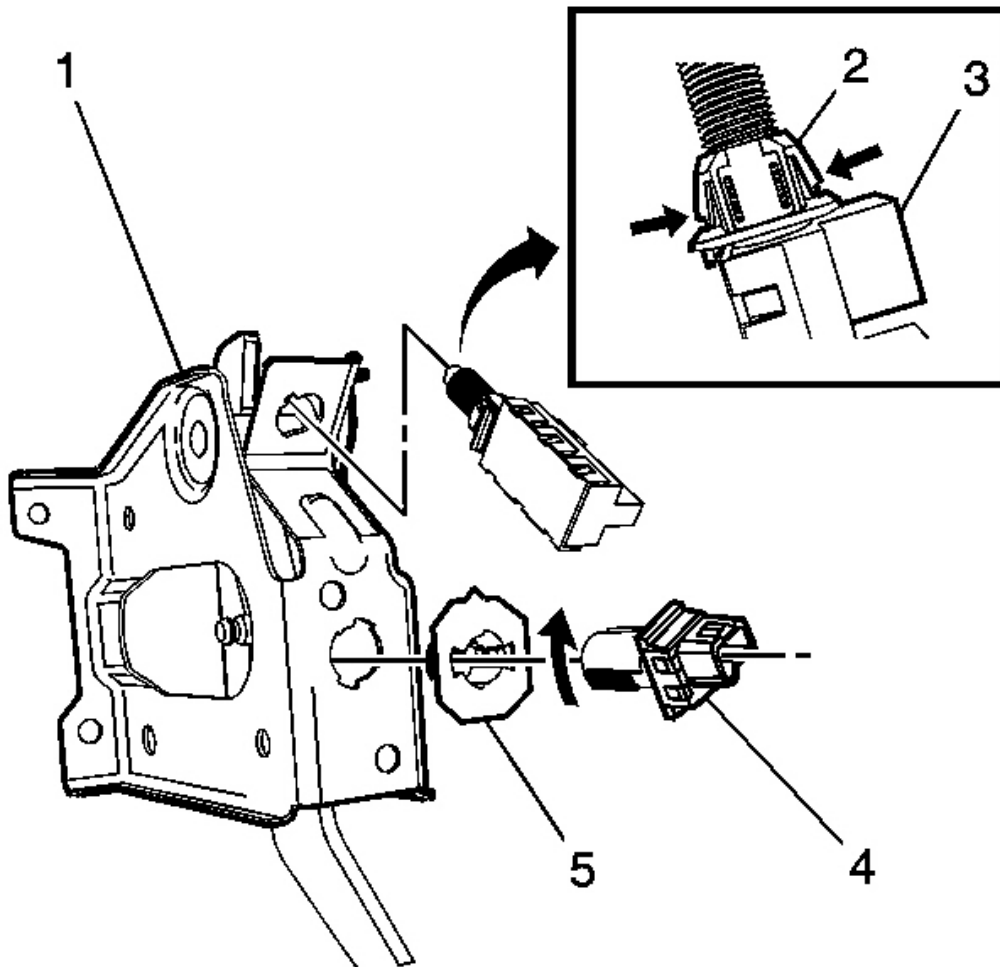
Adjust the cruise control release switch. Refer to **Cruise Release Switch Adjustment**.

**CLUTCH PEDAL CRUISE CONTROL RELEASE SWITCH ADJUSTMENT**



**Fig. 11: Identifying Clutch Pedal Cruise Control Release Switch**  
**Courtesy of GENERAL MOTORS CORP.**

1. Disconnect the clutch release switch electrical connector (2).

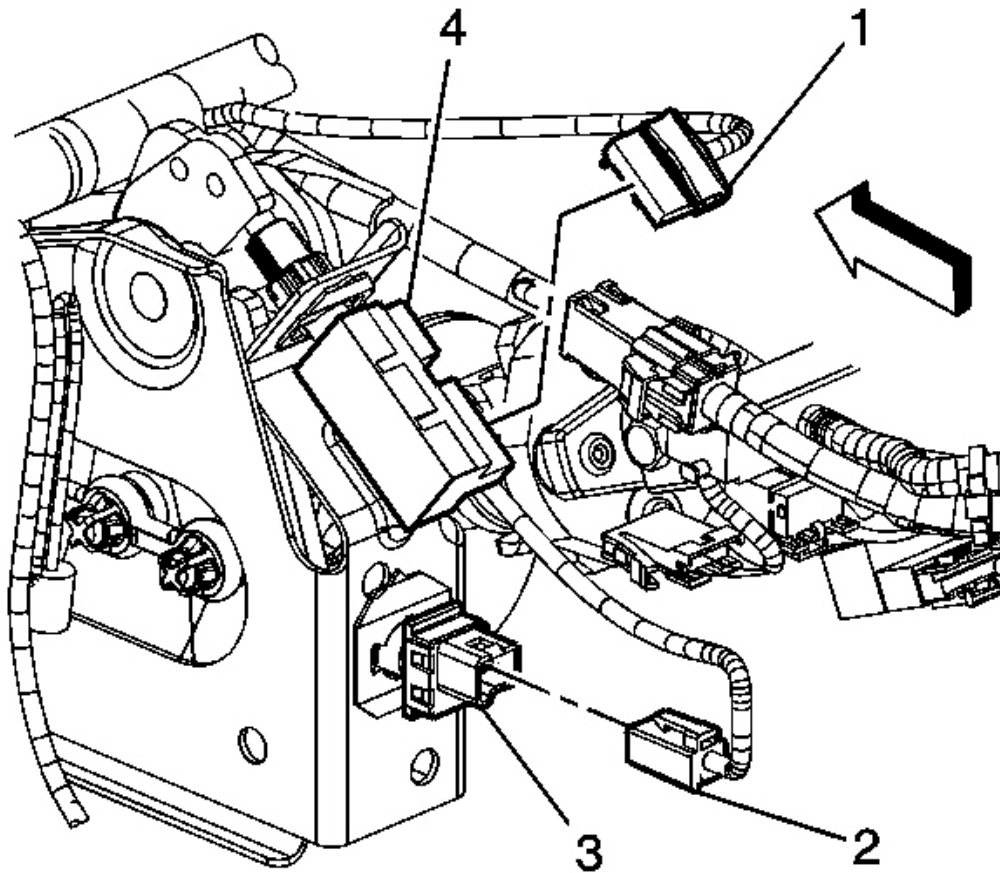


**Fig. 12: Exploded View Of Clutch Release Switch**  
Courtesy of GENERAL MOTORS CORP.

2. Rotate the clutch release switch (4) counterclockwise, allowing the retainer (5) to release.
3. Pull the clutch pedal to full stop.
4. While holding the clutch pedal at full stop, push the switch (4) inward fully until the switch body contacts the clutch pedal arm.

At this point the plunger in the switch (4) should be pushed in.

5. Rotate the switch (4) clockwise until a "click" is heard.

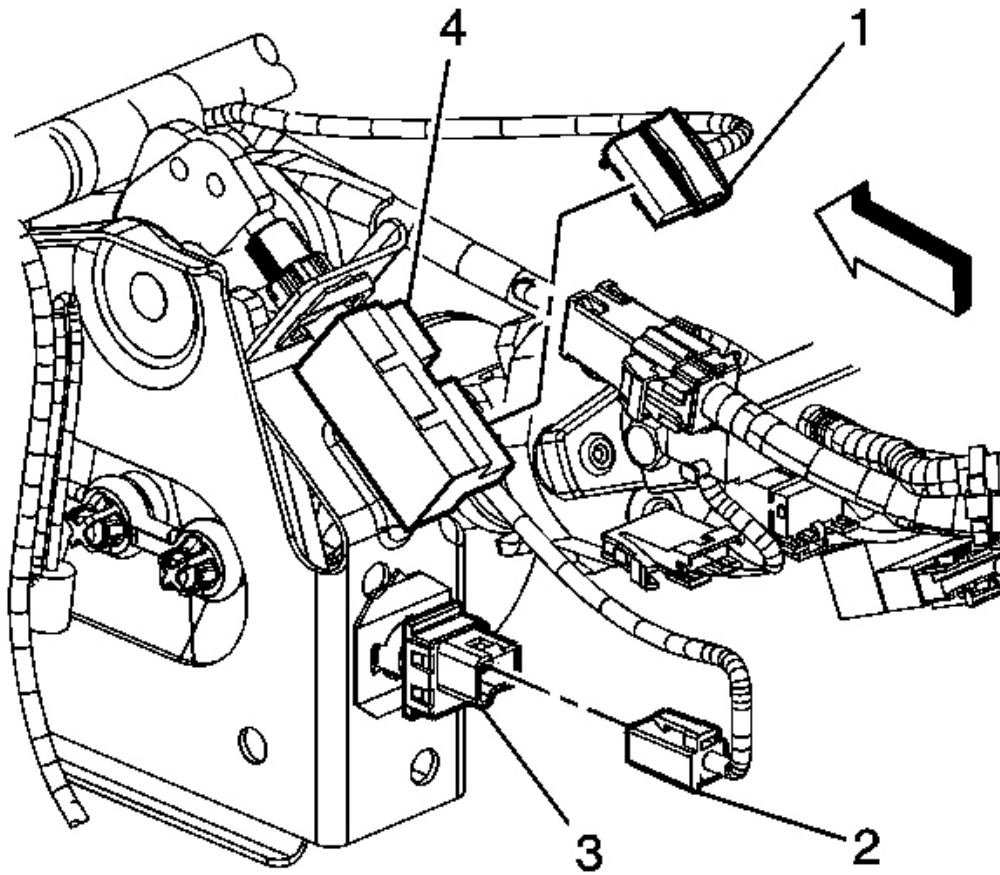


**Fig. 13: Identifying Clutch Pedal Cruise Control Release Switch**  
**Courtesy of GENERAL MOTORS CORP.**

6. Connect the clutch release switch electrical connector (2).

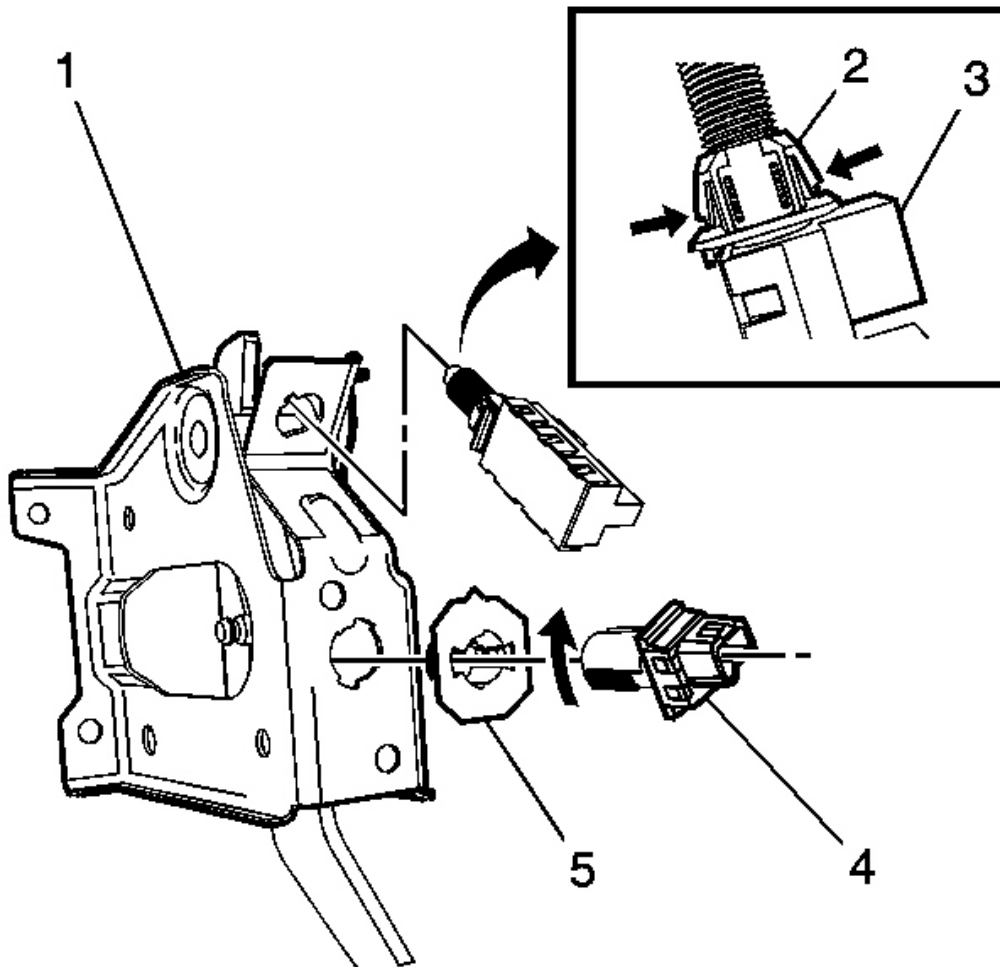
### **CLUTCH PEDAL CRUISE CONTROL RELEASE SWITCH REPLACEMENT**

#### **Removal Procedure**



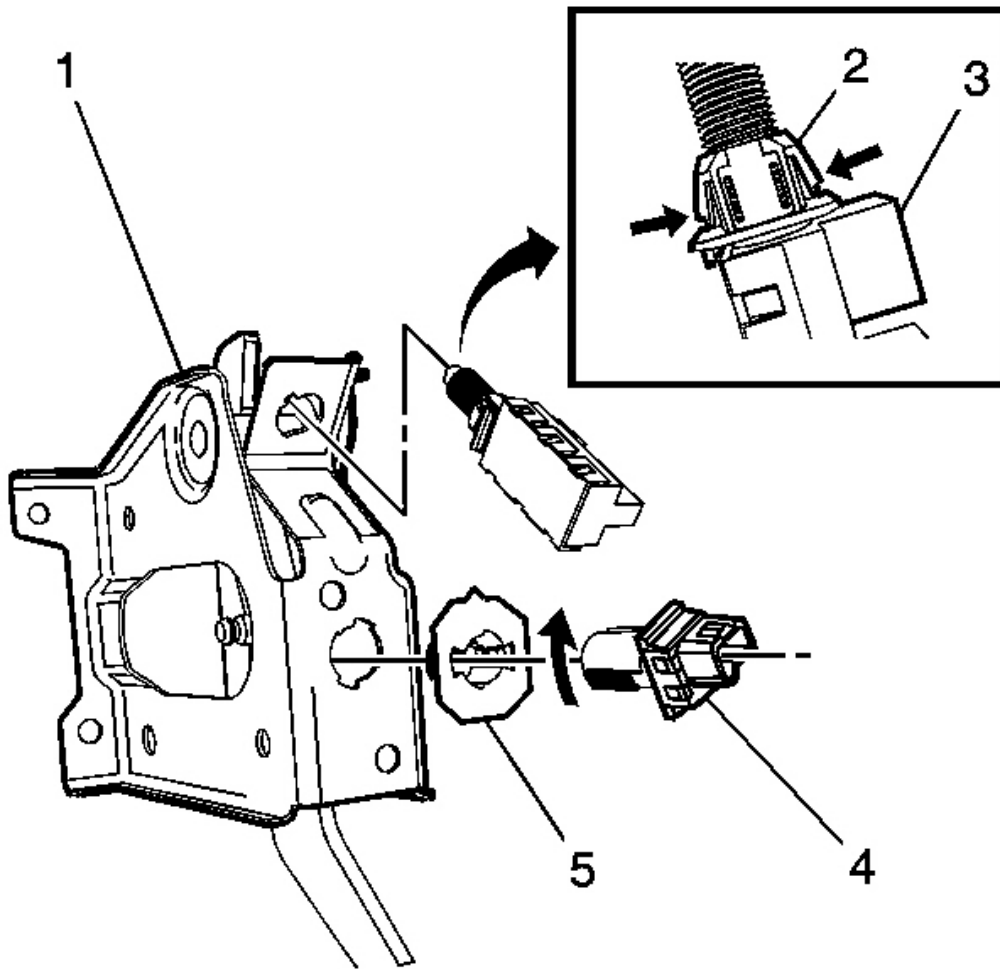
**Fig. 14: Identifying Clutch Pedal Cruise Control Release Switch**  
Courtesy of GENERAL MOTORS CORP.

1. Disconnect the clutch release switch electrical connector (2).



**Fig. 15: Exploded View Of Clutch Release Switch**  
**Courtesy of GENERAL MOTORS CORP.**

2. Complete the following in order to remove the clutch release switch (4) from the clutch pedal bracket (1):
  1. Rotate the switch (4) counterclockwise.
  2. Pull the switch (4) from the retainer (5).
  3. Push the locking tabs inward to release the retainer (5).



**Fig. 16: Exploded View Of Clutch Release Switch**  
Courtesy of GENERAL MOTORS CORP.

1. Slide only the clutch release switch retainer (5) into the clutch pedal bracket (1), until the locking tabs are fully engaged.
2. Adjust the clutch release switch. Refer to **Clutch Pedal Cruise Control Release Switch Adjustment**.

## 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 at 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 clutch release switch, if equipped with a manual transmission
- The cruise control switch
- The powertrain control module (PCM)
- The stop lamp switch
- The torque converter clutch (TCC) brake/cruise release switch
- The throttle actuator control (TAC) motor
- The vehicle speed sensor (VSS)

#### **Cruise Control Engaged**

The Cruise Control System will engage and adjust vehicle speeds, based on the activation of the following cruise control switches:

- The on/off switch
- The resume/accel switch
- The set/coast switch

The powertrain control module (PCM) monitors the cruise control set/coast and resume/accel switch signal circuit in order to determine when to capture and maintain the vehicle speed. The PCM monitors the vehicle speed sensor signal circuit in order to determine the vehicle speed. The PCM uses the throttle actuator control (TAC) motor in order to control the vehicle speed. For further information on the TAC System, refer to **Throttle Actuator Control (TAC) System Description** .

Ignition voltage is supplied to the cruise control switch from the 10 ampere CRUISE fuse via the ignition 1 voltage circuit. The cruise control switches are arranged in a resistive ladder, with each cruise control function switch having a different resistance value. The PCM detects a specific voltage value that is associated with the cruise control function switch being activated. When the normally open cruise control On/Off switch is turned ON, the switch closes and the PCM detects a predetermined voltage signal on the cruise control switch signal circuit indicating that the On/Off switch is active. Similarly, when the normally open set/coast switch or the normally open resume/accel switch are activated, the PCM detects the pre determined voltage signal on the cruise control set/coast and resume/accel switch signal circuit. To engage the Cruise Control



System, press the cruise On/Off switch ON and momentarily press the set/coast switch. The PCM will confirm that the cruise control criteria has been met. The PCM will record the vehicle speed and send a class 2 message to the instrument panel cluster (IPC) in order to illuminate the cruise control indicator. The set/coast switch and the resume/accel switch will remain inactive when the PCM has not received the predetermined voltage signal from the On/Off switch. 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 1.6 km/h (1 mph) increments for each time that the set/coast switch is momentarily pressed, with a minimum vehicle speed of 37 km/h (23 mph). 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 1.6 km/h (1 mph) increments for each time that the resume/accel switch is momentarily activated, with the maximum acceleration total of 16 km/h (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 Disengaged**

The powertrain control module (PCM) disengages the cruise control operation based on the signals from the following switches:

- The stop lamp switch
- The torque converter clutch (TCC) brake/cruise release switch
- The clutch release switch, if equipped
- The cruise control On/Off switch

The TCC brake/cruise release switch and the stop lamp switch are mounted on the brake pedal bracket. When the brake pedal is applied, the normally closed TCC brake/cruise release switch opens and the normally open stop lamp switch closes. The PCM detects a low signal voltage on the TCC brake/cruise release switch signal circuit and a high signal voltage on the stop lamp

switch signal circuit. When the clutch pedal is applied, the normally closed clutch release switch opens and the PCM detects zero voltage on the climate control panel (CCP) switch signal circuit. The vehicle speed stored in the memory of the PCM will be erased when the cruise control On/Off button is turned OFF or the ignition switch is turned OFF.

The Cruise Control System will disengage when the PCM detects that a driver override function has been active for approximately 60 seconds.

When the Cruise Control System is disengaged, the PCM sends a class 2 message to the instrument panel cluster (IPC) in order to deactivate the cruise control indicator.

#### **Cruise Control Inhibited**

The powertrain control module (PCM) inhibits the cruise control operation when any of the following conditions exist:

- A cruise control related DTC has been set.
- The vehicle speed is less than 40.2 km/h (25 mph).
- The vehicle is in PARK, REVERSE, NEUTRAL or 1st gear.
- The engine RPM is too low.
- The engine RPM is too high, with fuel cut off.
- The vehicle speed is too high, with fuel cut off.
- The system voltage is not between 9 volts and 16 volts.
- The Traction Control System (TCS) is active for more than 2 seconds.