

2004 ACCESSORIES & EQUIPMENT

Cruise Control - SRX

SCHEMATIC AND ROUTING DIAGRAMS

CRUISE CONTROL SCHEMATIC ICONS

Cruise Control Schematic Icons

Icon	Icon Definition
	CAUTION: When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Refer to SIR Disabling and Enabling Zones. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.

CRUISE CONTROL SCHEMATICS

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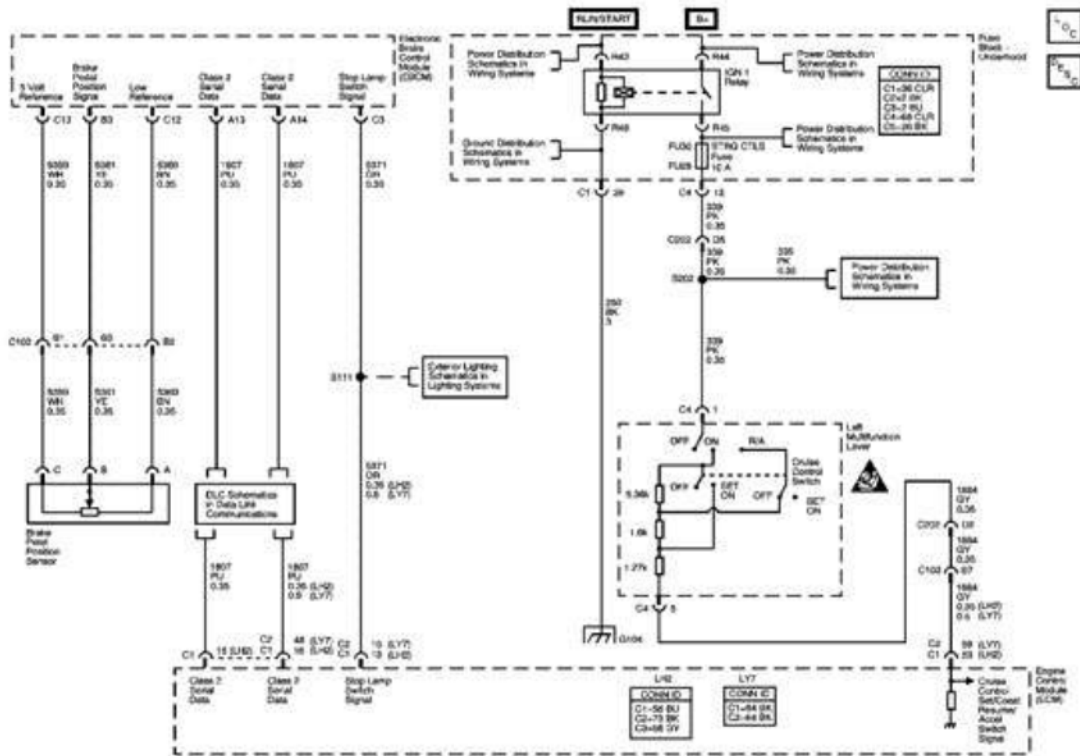


Fig. 1: Cruise Control Schematics
Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

CRUISE CONTROL COMPONENT VIEWS

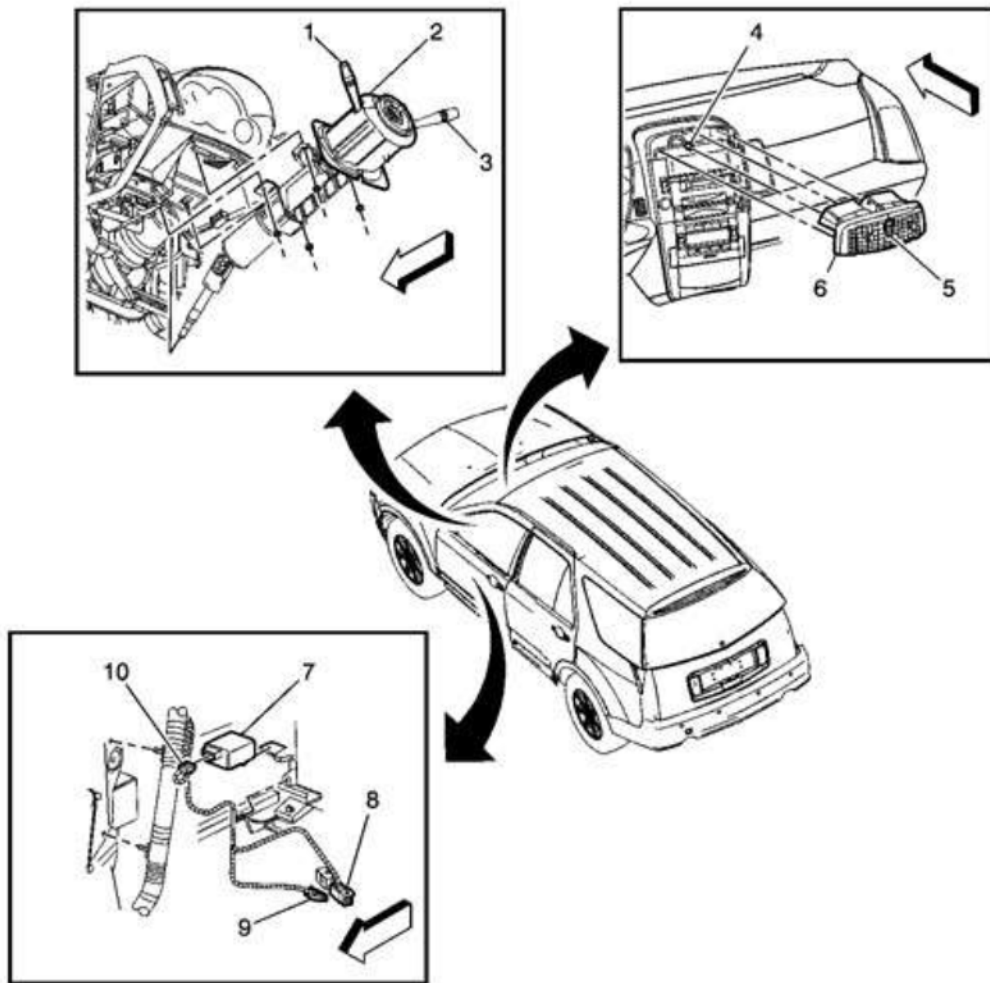


Fig. 2: Lighting Switches & Flasher Module Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 2

Callout	Component Name
1	Turn Signal/Multifunction Switch
2	Steering Column
3	Windshield Wiper/Washer Switch
4	Hazard Switch Connector
5	Hazard Switch
6	I/P Air Deflector - Center
7	Turn Signal/Hazard Flasher Module

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8	Data Link Connector (DLC)
9	Park Brake Switch Connector
10	Turn Signal/Hazard Flasher Module Connector

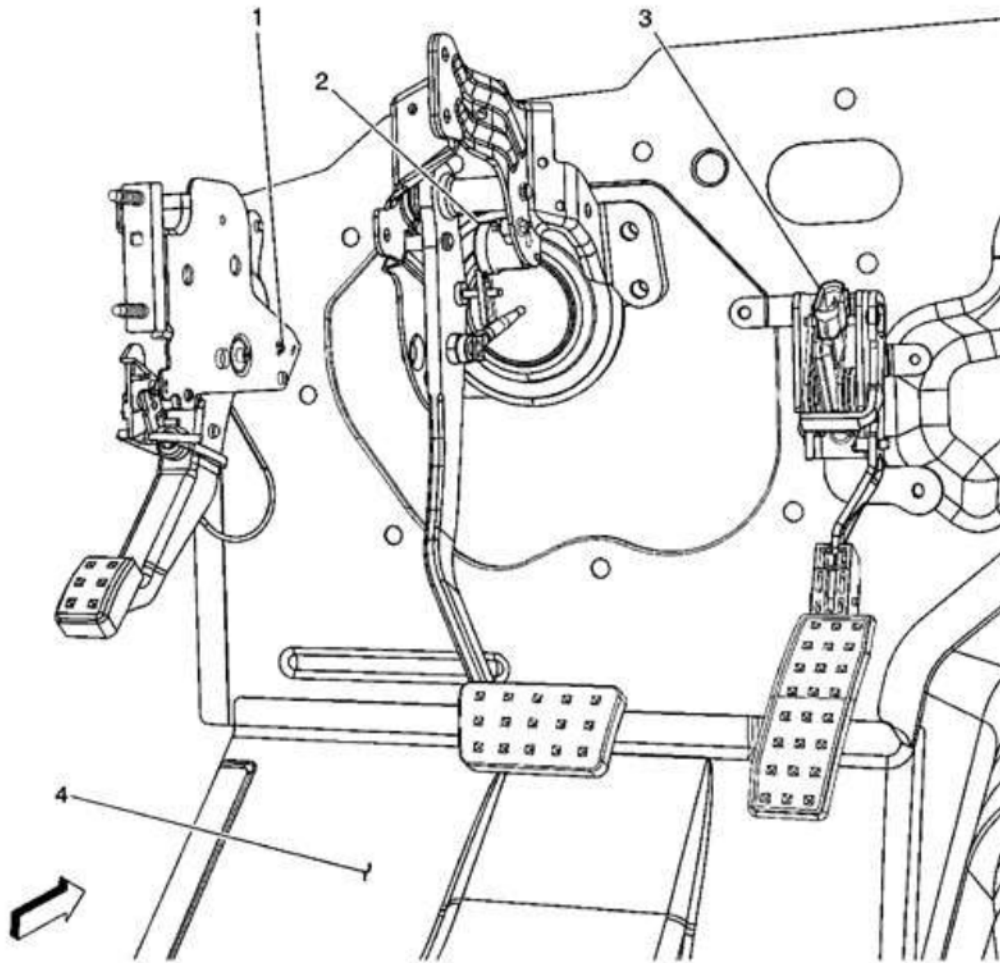


Fig. 3: Pedal Switches & Sensors Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 3

Callout	Component Name
1	Park Brake Switch
2	Brake Pedal Position Sensor
3	Accelerator Pedal Position (APP) Sensor
4	Left Front Floor Panel

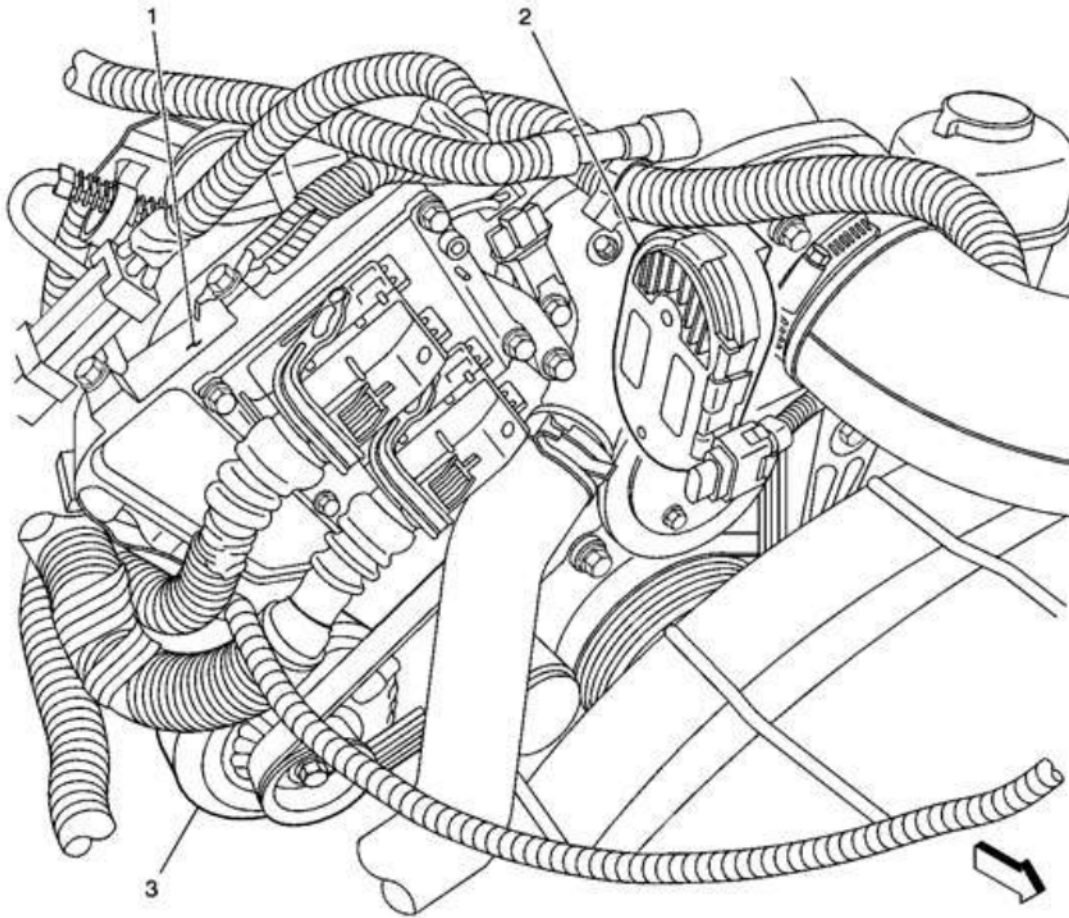


Fig. 4: Front Of Engine (LY7) Component View
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 4

Callout	Component Name
1	Engine Control Module (ECM)
2	Throttle Actuator Control (TAC) Module
3	Generator

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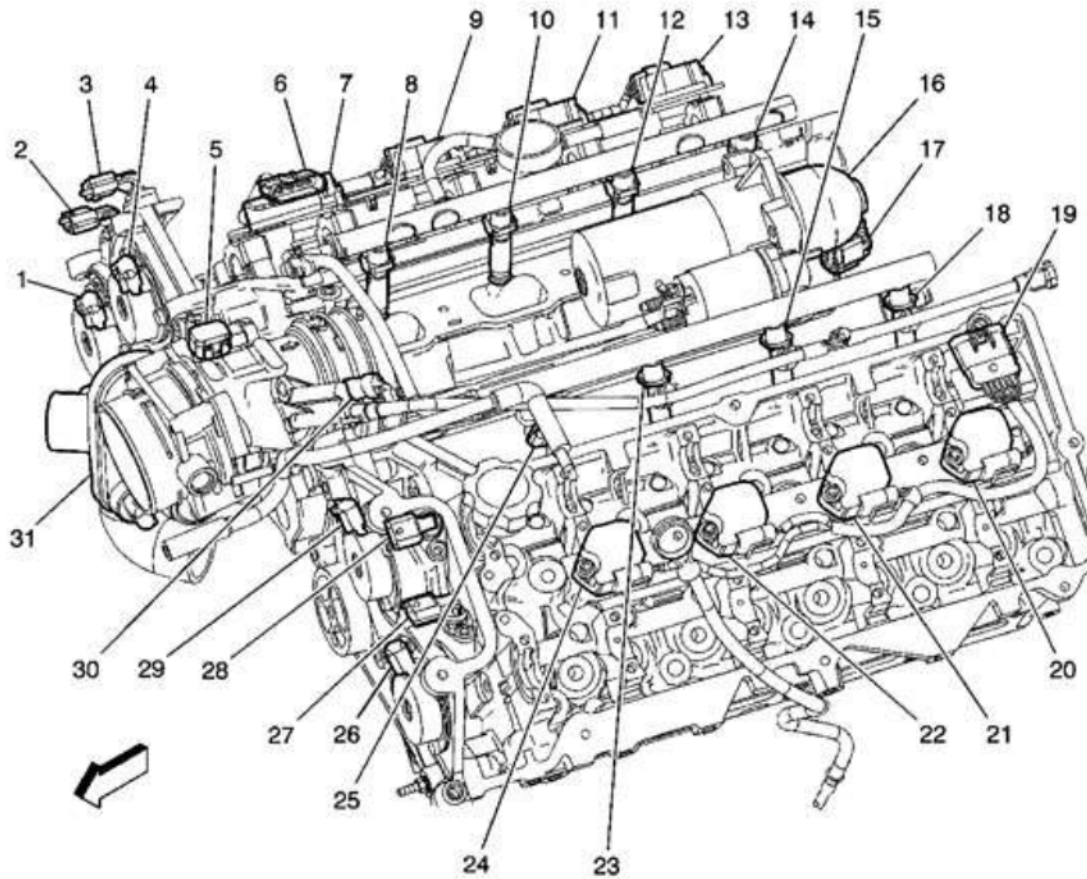


Fig. 5: Top Of Engine (LH2) Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 5

Callout	Component Name
1	Camshaft Position (CMP) Actuator Solenoid Exhaust - Bank 1
2	CMP Sensor Exhaust - Bank 1
3	CMP Sensor Intake - Bank 1
4	CMP Actuator Solenoid Intake - Bank 1
5	Manifold Absolute Pressure (MAP) Sensor
6	C140
7	Ignition Coil - Module 1
8	Fuel Injector 1
9	Ignition Coil - Module 3
10	Fuel Injector 3
11	Ignition Coil - Module 5

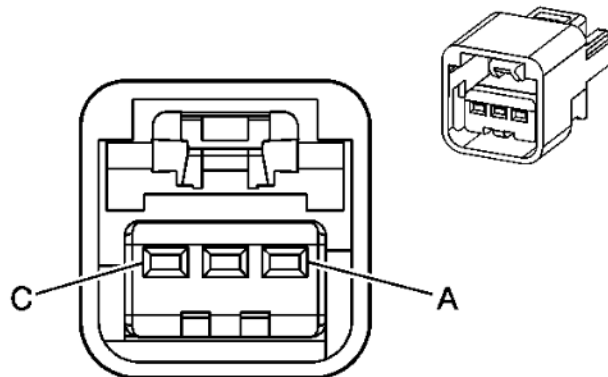
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12	Fuel Injector 5
13	Ignition Coil - Module 7
14	Fuel Injector 7
15	Fuel Injector 6
16	Starter
17	C102
18	Fuel Injector 8
19	C139
20	Ignition Coil - Module 8
21	Ignition Coil - Module 6
22	Ignition Coil - Module 4
23	Fuel Injector 4
24	Ignition Coil - Module 2
25	Fuel Injector 2
26	CMP Actuator Solenoid Exhaust - Bank 2
27	CMP Sensor Exhaust - Bank 2
28	CMP Sensor Intake - Bank 2
29	CMP Actuator Solenoid Intake - Bank 2
30	Evaporative Emission (EVAP) Canister Purge Valve
31	Throttle Actuator Control (TAC) Module

CRUISE CONTROL CONNECTOR END VIEWS

Brake Pedal Position Sensor Terminal Identification



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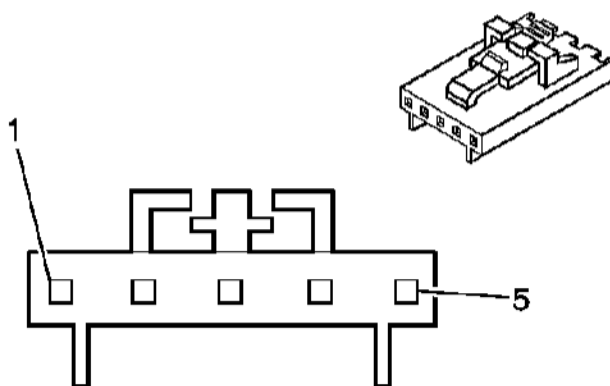
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Connector Part Information

- 15332132
- 3-Way F GT 150 Series (BK)

Pin	Wire Color	Circuit No.	Function
A	BN	5360	Low Reference
B	YE	5361	Brake Pedal Position Signal
C	WH	5359	5-Volt Reference

Turn Signal/Multifunction Switch C4 Terminal Identification



Connector Part Information

- HCMW5B-05-K
- 5-Way M (BK)

Pin	Wire Color	Circuit No.	Function
1	PK	339	Ignition 1 Voltage
2	L-BU	187	Rear Fog Lamp Switch Signal (T79)
3	BK	350	Ground
4	OG	192	Front Fog Lamp Switch Signal
5	GY/BK	1884	Cruise Control Set/Coast and Resume/Accelerate Switch Signal

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - CRUISE CONTROL

Begin the cruise control system diagnosis with the Diagnostic System Check. Refer to the [Diagnostic System Check - Cruise Control](#) .

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.

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 malfunction in the GMLAN or the class 2 serial data circuit. The specified procedure will determine the particular condition.

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

Diagnostic System Check - Cruise Control

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to Step 2	Go to <u>Scan Tool Does Not Power Up</u> in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the following modules: • Engine Control Module (ECM) • Electronic Brake Control Module (EBCM) Does the scan tool communicate with the modules listed above?	Go to Step 3	Go to <u>Data Link References</u> in Data Link Communications
	IMPORTANT: The engine may start during the following step.		

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3	Turn the engine OFF as soon as you have observed the Crank power mode. 1. With a scan tool, access the Class 2 Power Mode in the Diagnostic Circuit Check. 2. Rotate the ignition switch through all positions while observing the System Power Mode parameter. Does the System Power Mode parameter reading match the ignition switch position for all switch positions?	Go to Step 4	Go to <u>Power Mode Mismatch</u> in Body Control System
4	Select the DTCs function on the scan tool for the following modules: • ECM • EBCM Does the scan tool display any DTCs for the modules listed above?	Go to Step 5	Go to <u>Symptoms - Cruise Control</u>
5	Does the scan tool display any DTCs which begin with a "U"?	Go to <u>Diagnostic Trouble Code (DTC) List</u> in Data Link Communications	Go to Step 6
6	Does the scan tool display DTC P0560, P0562, P0563, P0615, P0616, P0617, P0625, P0626, P1668, P2500 or P2501?	Go to <u>Diagnostic Trouble Code (DTC) List</u> in Engine Electrical	Go to <u>Diagnostic Trouble Code (DTC) List</u>

SCAN TOOL DATA LIST (3.6L)

Powertrain Control Module (PCM) - 3.6L (LY7)

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition ON/Engine Idling at Normal Operating Temperature/Vehicle is in Park or Neutral/Cruise On/Off Switch is Turned Off			

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Cruise Control Active	Cruise/Traction Data	Yes/No	No
Cruise Disengage (1 - 8) History	Cruise/Traction Data	Last reason for cruise control disengagement	Varies
Cruise Inhibited	Cruise/Traction Data	Yes/No	Yes
Cruise Inhibit Reason	Cruise/Traction Data	Reason	Varies
Cruise On/Off Switch	Cruise/Traction Data	On/Off	Off
Cruise Resume/Accel. Switch	Cruise/Traction Data	On/Off	Off
Cruise Set/Coast Switch	Cruise/Traction Data	On/Off	Off
Engine Speed	Cruise/Traction Data	RPM	650
Initial Brake Apply Signal	Cruise/Traction Data	Applied/Released	Released
Stoplamp Pedal Switch	Cruise/Traction Data	Applied/Released	Released
Traction Control Status	Cruise/Traction Data	Active/Inactive	Active
Vehicle Speed Sensor	Cruise/Traction Data	km/h (mph)	0

SCAN TOOL DATA LIST (4.6L)

Powertrain Control Module (PCM) - 4.6L (LH2)

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition ON/Engine Idling at Normal Operating Temperature/Vehicle is in Park or Neutral/Cruise On/Off Switch is Turned Off			
Cruise Control Active	Cruise/Traction Data	Yes/No	No
Cruise Control Switch	Cruise/Traction Data	On, Off, Set, Resume, Error	Off
	Cruise/Traction		

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Cruise Disengage (1-8) History	Data	Reason	Varies
Cruise Inhibit Reason	Cruise/Traction Data	Reason	Varies
Cruise Inhibit Signal Command	Cruise/Traction Data	On/Off	Off
Engine Speed	Cruise/Traction Data	RPM	650
Initial Brake Apply Signal	Cruise/Traction Data	Applied/Released	Released
Stoplamp Pedal Switch	Cruise/Traction Data	Applied/Released	Released
Vehicle Speed Sensor	Cruise/Traction Data	km/h (mph)	0

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 engine control module (ECM) determines the current status of cruise control operation. An active cruise control system is displayed as Yes.

Cruise Control Switch

The scan tool displays On, Off, Set, Resume, or Error. The ECM monitors the signal circuit of the cruise control switch.

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 Inhibited

The scan tool displays Yes or No. The ECM determines when the conditions for inhibiting the cruise control system exists. An inhibited cruise control system is displayed as Yes.

Cruise Inhibit Reason

The scan tool displays the reason that the cruise control is inhibited as detected by the ECM.

Cruise Inhibit Signal Command

The scan tool displays On or Off. The ECM determines when the conditions for inhibiting the cruise control system exists. An inhibited cruise control system is displayed as On.

Cruise On/Off Switch

The scan tool displays On or Off. The ECM monitors the signal circuit of the cruise control switch. A closed switch is displayed as On.

Cruise Resume/Accel. Switch

The scan tool displays On or Off. The ECM the monitors the cruise control set/coast and resume accel 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 Resume/Accel. Switch parameter.

Cruise Set/Coast Switch

The scan tool displays On or Off. The ECM the monitors the cruise control set/coast and resume accel 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 ECM monitors the crankshaft position (CKP) signal circuit in order to determine the engine RPM.

Initial Brake Apply Signal

The scan tool displays Applied or Released. The EBCM monitors the signal circuit of the brake pedal position sensor. When the ECM receives a class 2 serial data message from the EBCM indicating that the brake pedal has been applied, the scan tool displays Applied.

Reduced Engine Power

The scan tool displays Active or Inactive. When the ECM determines that a throttle actuator control system malfunction exists, the scan tool displays Active.

Stoplamp Pedal Switch

The scan tool displays Applied or Released. The ECM monitors the stop lamp switch signal circuit. An open switch is displayed as Applied.

Traction Control Status

The scan tool displays Active or Inactive. When the ECM receives a class 2 signal from the Electronic Brake Control Module (EBCM) requesting a traction control related function, the scan tool displays Active.

Vehicle Speed Sensor

The scan tool displays 0 to 150 km/h (93.2 mph). The ECM 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

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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

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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.

DIAGNOSTIC TROUBLE CODE (DTC) LIST

Diagnostic Trouble Code (DTC) List

DTC	Diagnostic Procedure	Module(s)
CXXXX	<u>Diagnostic Trouble Code (DTC) List</u> in Antilock Brake System	EBCM
PXXXX	• <u>Scan Tool Data List</u> in Engine Controls - 3.6L (LY7) • <u>Diagnostic Trouble Code (DTC) List</u> in Engine Controls - 4.6L (LH2)	ECM/TCM
P0564	<u>DTC P0564</u>	ECM
P0571	<u>DTC P0571</u>	ECM
P0572	<u>DTC P0572</u>	EBCM
P0573	<u>DTC P0573</u>	EBCM
P0581	<u>DTC P0581</u>	ECM
P0703	<u>DTC P0703</u>	TCM

DTC P0564**Circuit Description**

The cruise control switch is an input to the engine control module (ECM). The ECM 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 ECM 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.

Conditions for Running the DTC

- The ignition is ON.
- The cruise control on/off switch is ON.

Conditions for Setting the DTC

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

The ECM runs this diagnostic every 0.05 seconds.

Action Taken When the DTC Sets

- The ECM stores the DTC information into memory when the diagnostic runs and fails.

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- The malfunction indicator lamp (MIL) will not illuminate.
- The ECM records the operating conditions at the time the diagnostic fails. The ECM stores this information in the Failure Records.
- The cruise control 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

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

DTC P0564

Step	Action	Values	Yes	No
Schematic Reference : <u>Cruise Control Schematics</u> Connector End View Reference: <u>Cruise Control Connector End Views</u> , <u>Engine Control Module (ECM) Connector End Views</u> in Engine Controls-3.6L (LY7), or to <u>Engine Control Module (ECM) Connector End Views</u> in Engine Controls-4.6L (LH2)				
1	Did you perform the Cruise Control Diagnostic System Check?	-	Go to Step 2	Go to <u>Diagnostic System Check - Cruise Control</u>
2	1. Turn OFF the ignition. 2. Disconnect C4 of the multifunction switch. 3. Turn ON the ignition, with the engine OFF. 4. With a DMM, measure the voltage of the ignition 1 voltage circuit. Does the voltage measure at the specified	B+		

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	value?		Go to Step 3	Go to Step 7
3	IMPORTANT: The cruise control on/off switch must be turned ON in order to correctly view the set/coast resistance value with the DMM. 1. Turn OFF the ignition. 2. 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. 3. Individually activate and hold the cruise control function switches while measuring the resistance of the cruise control function switches. Do the cruise control function switch resistance values measure between the specified values?	Off = O.L. On = 7.8 K ohm to 8.6 K ohm Resume = 2.7 K ohm to 3.0 K ohm Set = 1.2 K ohm to 1.3 K ohm		
4	Test the cruise control set/coast and resume/accelerate switch signal circuit for a high resistance, for a short to voltage, or for a short to ground between the multifunction switch and the ECM. Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Did you find and correct the condition?	-	Go to Step 10	Go to Step 6
5	Inspect for poor connections at the harness connector of the multifunction switch. Refer to Testing for Intermittent Conditions and Poor Connections and to Connector Repairs in Wiring Systems. Did you find and correct the condition?	-	Go to Step 10	Go to Step 8
6	Inspect for poor connections at the harness connector of the ECM. Refer to Testing for Intermittent Conditions and Poor Connections and to Connector Repairs	-		

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	in Wiring Systems. Did you find and correct the condition?		Go to Step 10	Go to Step 9
7	Repair the high resistance in the ignition 1 voltage circuit. Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Did you complete the repair?	-	Go to Step 10	-
8	Replace the cruise control switch. Refer to Multifunction, Turn Signal Switch Replacement in Steering Wheel and Column. Did you complete the replacement?	-	Go to Step 10	-
9	IMPORTANT: Program the replacement ECM. Replace the ECM. Refer to Engine Control Module (ECM) Replacement in Engine Controls-3.6L (LY7) or to Engine Control Module (ECM) Replacement in Engine Controls-4.6L (LH2). Did you complete the replacement?	-	Go to Step 10	-
10	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC. Does the DTC reset?	-	Go to Step 2	System OK

DTC P0571

Circuit Description

The stop lamp switch signal circuit is a direct hardwire input to the engine control module (ECM) from the electronic brake control module (EBCM). The ECM monitors the stop lamp switch signal circuit in order to detect when the brake pedal has been applied. When the brake pedal is pressed, the EBCM sends a class 2 serial data message to the ECM indicating that the brake pedal has been applied. The EBCM also sends a high voltage signal on the stop lamp switch signal circuit to the ECM. This DTC will set if the class 2 serial data message and the voltage signal on the stop lamp switch signal circuit do not match.

Conditions for Running the DTC

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- 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.

Conditions for Setting the DTC

- The ECM detects that there is a 8.3 km/h (5.1 mph) or greater decrease in vehicle speed within 1 second.
- The ECM detects that the class 2 serial data message and the voltage signal on the stop lamp switch signal circuit do not match for 10 consecutive times that this diagnostic is run.
- The above condition is present for greater than 2 seconds.

Action Taken When the DTC Sets

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

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

In order to avoid a misdiagnosis, inspect for proper operation of the stop lamps. Refer to **Exterior Lighting Systems Description and Operation** in Lighting Systems.

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

DTC P0571

Step	Action	Yes	No
Schematic Reference: <u>Cruise Control Schematics</u> Connector End View Reference: <u>Engine Control Module (ECM) Connector End</u>			

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Views in Engine Controls - 3.6L (LY7)

1	Did you perform the Cruise Control Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Cruise Control</u>
2	Do the stop lamps operate properly?	Go to Step 3	Go to <u>Stop Lamps Inoperative or Stop Lamps Always On</u> in Lighting Systems
3	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With the scan tool, observe the Stoplamp Pedal Switch parameter in the powertrain control module (PCM) Cruise/Traction data list. 4. Press and hold the brake pedal. Does the Stoplamp Pedal Switch parameter display Applied?	Go to Step 5	Go to Step 4
4	Test the stop lamp switch signal circuit for an open or for a high resistance between the electronic brake control module (EBCM) and the engine control module (ECM). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 6
5	Inspect for poor connections at the harness connector of the EBCM. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. 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 ECM. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in		

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	Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 8
7	IMPORTANT: The brake pedal position (BPP) sensor must be calibrated after the replacement of the EBCM. Refer to <u>Brake Pedal Position Sensor Calibration Description and Operation</u> in Lighting Systems. Replace the EBCM. Refer to <u>Electronic Brake Control Module Replacement</u> in Antilock Brake System.Did you complete the replacement?	Go to Step 9	-
8	IMPORTANT: Program the replacement ECM. Replace the ECM. Refer to <u>Engine Control Module (ECM) Replacement</u> in Engine Controls - 3.6L (LY7).Did you complete the replacement?	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. Does the DTC reset?	Go to Step 2	System OK

DTC P0581

Circuit Description

The cruise control switch is an input to the engine control module (ECM). The ECM 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 ECM 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.

Conditions for Running the DTC

- The ignition is ON.
- The cruise control ON/OFF switch is ON.

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Conditions for Setting the DTC

This DTC sets when the ECM detects that the voltage on the cruise control set/coast and resume/accelerate switch signal circuit is greater than 3.5 volts for greater than 1.5 seconds.

The ECM runs this diagnostic every 0.05 seconds.

Action Taken When the DTC Sets

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

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

DTC P0581

Step	Action	Values	Yes	No
Schematic Reference : <u>Cruise Control Schematics</u> Connector End View Reference: <u>Cruise Control Connector End Views</u> or to <u>Engine Control Module (ECM) Connector End Views</u> in Engine Controls - 3.6L (LY7)				
1	Did you perform the Cruise Control Diagnostic System Check?	-	Go to Step 2	Go to <u>Diagnostic System Check - Cruise Control</u>
	1. Turn OFF the ignition. 2. Disconnect C4 of the cruise control			

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2	switch. 3. Turn ON the ignition, with the engine OFF. 4. With a DMM, measure the voltage of the cruise control set/coast and resume/accelerate switch signal circuit between C4 and the engine control module (ECM). Does the voltage measure at or greater than the specified value?	3.5 V		
			Go to Step 3	Go to Step 4
3	Test the cruise control set/coast and resume/accelerate switch signal circuit for a short to voltage between C4 and the ECM. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-		
			Go to Step 9	Go to Step 6
4	Test the cruise control set/coast and resume/accelerate switch signal circuit for a short to voltage between C4 and the cruise control switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. 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 <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. 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 ECM. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	-		
			Go to Step 9	Go to Step 8
	Replace the cruise control switch. Refer to <u>Multifunction, Turn Signal Switch</u>			

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7	Replacement in Steering Wheel and Column. Did you complete the replacement?	-	Go to Step 9	-
8	IMPORTANT: Program the replacement ECM. Replace the ECM. Refer to Engine Control Module (ECM) Replacement in Engine Controls - 3.6L (LY7). Did you complete the replacement?	-	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. Does the DTC reset?	-	Go to Step 2	System OK

DTC P0703

Circuit Description

The electronic brake control module (EBCM) monitors the brake pedal position sensor. When the brake pedal is applied, the EBCM detects a predetermined voltage signal. The EBCM sends a class 2 serial data message to the transmission control module (TCM) indicating the status of the stop lamps.

Conditions for Running the DTC

The ignition is ON.

Conditions for Setting the DTC

- The TCM receives an invalid brake pedal status class 2 serial data message from the EBCM.
- This diagnostic runs continuously.

Action Taken When the DTC Sets

- The cruise control system is disabled.
- The TCM stores the DTC information into memory when the diagnostic runs and fails.
- The malfunction indicator lamp (MIL) will not illuminate.

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- The TCM records the operating conditions at the time the diagnostic fails. The TCM stores this information in the Failure Records.

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 the scan tool in order to clear the DTC.

Diagnostic Aids

- If an EBCM has been replaced, the brake pedal position (BPP) sensor must be calibrated. Refer to **Brake Pedal Position Sensor Calibration Description and Operation** in Lighting System.
- This DTC may be stored as a history DTC without affecting the operation of the module. If stored only as a history DTC and not retrieved as a current DTC, do not replace the module.
- For an intermittent condition, refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Test Description

The numbers below refer to the step numbers located in the diagnostic table.

2: This step is performed in order to confirm that DTC P0703 is current within the TCM.

3: This step is performed in order to correct a BPP sensor that must be calibrated, possibly due to an EBCM replacement or for a BPP sensor that is out of adjustment.

DTC P0703

Step	Action	Yes	No
Schematic Reference: <u>Cruise Control Schematics</u> Connector End View Reference: <u>Cruise Control Connector End Views</u> or to <u>ABS Connector End Views</u> in Antilock Brake System			
1	IMPORTANT: Repair all DTCs related to the stop lamps and to the brake system before performing this table. Did you perform the Cruise Control Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Cruise Control</u>
	Is DTC P0703 current in the transmission		Go to Diagnostic

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2	control module (TCM)?	Go to Step 3	Aids
3	1. Perform the BPP sensor calibration procedure. Refer to <u>Brake Pedal Position Sensor Calibration Description and Operation</u> in Lighting Systems. 2. Use the scan tool in order to clear the DTCs. 3. Operate the vehicle within the Conditions for Running the DTC. Does the DTC reset?	Go to Step 4	System OK
4	Inspect for poor connections at the harness connector of the electronic brake control module (EBCM). Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 6	Go to Step 5
5	IMPORTANT: The BPP sensor must be calibrated after replacement. Refer to <u>Brake Pedal Position Sensor Calibration Description and Operation</u> in Lighting Systems. Replace the EBCM. Refer to <u>Electronic Brake Control Module Replacement</u> in Antilock Brake System. Did you complete the replacement?	Go to Step 6	-
6	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC. Does the DTC reset?	Go to Step 2	System OK

SYMPTOMS - CRUISE CONTROL

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

1. Before using the symptom diagnostic table, perform the **Diagnostic System Check - Cruise Control** in order to verify the following conditions:
 - There are no DTCs set.
 - The module can communicate via the serial data link.
2. Review the system operation in order to understand the system functions. Refer to **Cruise Control Description and Operation** .

Visual/Physical Inspection

- Inspect for aftermarket devices which can affect the operation of the cruise control system. Refer to **Checking Aftermarket Accessories** in Wiring Systems.
- Inspect the accessible system components or the visible system components for obvious damage or for obvious conditions which can 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** in Wiring Systems.

Symptom List

Refer to **Cruise Control Inoperative/Malfunctioning (3.6L)** or **Cruise Control Inoperative/Malfunctioning (4.6L)** in order to diagnose the system.

CRUISE CONTROL INOPERATIVE/MALFUNCTIONING (3.6L)

Diagnostic Aids

Perform the following in order to avoid 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** in Lighting Systems.
- Electromagnetic interference (EMI) on the speed sensor signal circuit may cause erratic cruise control operation.
- For an intermittent condition, refer to **Testing for Intermittent Conditions and Poor**

Connections in Wiring Systems.

Cruise Control Inoperative/Malfunctioning (3.6L)

Step	Action	Yes	No
Schematic Reference: <u>Cruise Control Schematics</u> Connector End View Reference: <u>Engine Control Module (ECM) Connector End Views</u> in Engine Controls - 3.6L (LY7)			
1	Did you perform the Cruise Control Diagnostic System Check?	Go to Step 2	Go to <u>Diagnostic System Check - Cruise Control</u>
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/Traction Data list: • Cruise Resume/Accel Switch • Cruise Set/Coast Switch Do any of the parameters listed above display ON?	Go to Step 5	Go to Step 3
3	1. Turn the cruise control switch ON. 2. With the scan tool, observe the Cruise Set/Coast Switch parameter. 3. Press and hold the set/coast switch. Does the Cruise Set/Coast Switch parameter display On?	Go to Step 4	Go to Step 6
4	1. With the scan tool, observe the Cruise Resume/Accel Switch parameter. 2. Press and hold the resume/accel switch. Does the Cruise Resume/Accel Switch parameter display On?	Go to Diagnostic Aids	Go to Step 9

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5	1. Turn OFF the ignition. 2. Disconnect C4 of the multifunction switch. 3. Turn ON the ignition, with the engine OFF. 4. With the scan tool, observe the following cruise control parameters: • Cruise Resume/Accel Switch • Cruise Set/Coast Switch Do any of the parameters listed above display On?	Go to Step 7	Go to Step 9
6	1. Turn OFF the ignition. 2. Disconnect C4 of the multifunction switch. 3. Turn ON the ignition, with the engine OFF. 4. Connect a test lamp between the ignition 1 voltage circuit and a good ground. Does the test lamp illuminate?	Go to Step 8	Go to Step 11
7	Test the cruise control set/coast and resume/accel switch signal circuit for a short to voltage. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 14	Go to Step 10
8	Test the cruise control set/coast and resume/accel switch signal circuit for an open, for a short to ground, for a short to voltage, or for a high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 14	Go to Step 9
9	Inspect for poor connections at C4 of the multifunction switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 14	Go to Step 12
	Inspect for poor connections at the harness		

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10	connector of the engine control module (ECM). Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 14	Go to Step 13
11	Repair the open, the short to ground, or the high resistance in the ignition 1 voltage circuit. Refer to <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 14	-
12	Replace the cruise control switch. Refer to <u>Multifunction, Turn Signal Switch Replacement</u> in Steering Wheel and Column. Did you complete the replacement?	Go to Step 14	-
13	IMPORTANT: Program the replacement ECM. Replace the ECM. Refer to <u>Engine Control Module (ECM) Replacement</u> in Engine Controls - 3.6L (LY7). Did you complete the replacement?	Go to Step 14	-
14	Operate the cruise control system in order to verify the repair. Does the cruise control system operate properly?	System OK	Go to Step 2

CRUISE CONTROL INOPERATIVE/MALFUNCTIONING (4.6L)

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** in Lighting Systems.
- EMI on the speed sensor signal circuit may cause erratic cruise control operation.

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

Cruise Control Inoperative/Malfunctioning (4.6L)

Step	Action	Values	Yes	No
Schematic Reference: <u>Cruise Control Schematics</u> Connector End View Reference: <u>Engine Control Module (ECM) Connector End Views</u> in Engine Controls - 4.6L (LH2)				
1	Did you perform the Cruise Control Diagnostic System Check?	-	Go to Step 2	Go to <u>Diagnostic System Check - Cruise Control</u>
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 Cruise Control Switch parameter in the Cruise/Traction Data list. Does the Cruise Control Switch parameter display Off?	-	Go to Step 3	Go to Step 8
3	1. With the scan tool, observe the Cruise Control Switch parameter. 2. Turn the cruise On/Off switch ON. Does the Cruise Control Switch parameter display On?	-	Go to Step 4	Go to Step 9
4	1. With the scan tool, observe the Cruise Control Switch parameter. 2. Press the set/coast switch. Does the Cruise Control Switch parameter display Set?	-	Go to Step 5	Go to Step 10

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5	1. With the scan tool, observe the Cruise Control Switch parameter. 2. Press the resume/accel switch. Does the Cruise Control Switch parameter display Resume?	-	Go to Step 6	Go to Step 10
6	Do the stop lamps operate properly?	-	Go to Step 7	Go to <u>Stop Lamps Always On</u> or to <u>Stop Lamps Inoperative</u> in Lighting Systems
7	1. With the scan tool, observe the Stoplamp Pedal Switch parameter. 2. Press and hold the brake pedal. Does the Stoplamp Pedal Switch parameter display Applied?	-	Go to Diagnostic Aids	Go to Step 12
8	1. Turn OFF the ignition. 2. Disconnect the cruise control switch. 3. Turn ON the ignition, with the engine OFF. 4. Observe the Cruise Control Switch parameter in the Cruise/Traction Data list. Does the Cruise Control Switch parameter display Off?	-	Go to Step 15	Go to Step 13
9	1. Turn OFF the ignition. 2. Disconnect the cruise control switch. 3. Connect a test lamp between the ignition 1 voltage circuit and a good ground. Does the test lamp illuminate?	-	Go to Step 11	Go to Step 17

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10	IMPORTANT: The cruise control on/off switch must be turned ON in order to correctly view the set/coast resistance value with the DMM. 1. Turn OFF the ignition. 2. Disconnect the cruise control switch. 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. Do the cruise control function switch resistance values measure between the specified values?	Off = O.L. On = 7.8 K ohm to 8.6 K ohm Resume = 2.7 K ohm to 3.0 K ohm Set = 1.2 K ohm to 1.3 K ohm	Go to Step 14	Go to Step 15
11	IMPORTANT: The cruise control on/off switch must be turned ON in order to correctly view the set/coast resistance value with the DMM. 1. Turn OFF the ignition. 2. 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. 3. Individually activate and hold the cruise control function switches while measuring the resistance of the cruise control function switches. Do the cruise control function switch	Off = O.L. On = 7.8 K ohm to 8.6 K ohm Resume = 2.7 K ohm to 3.0 K ohm Set = 1.2 K		

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	resistance values measure between the specified values?	ohm to 1.3 K ohm	Go to Step 16	Go to Step 15
12	Test the stop lamp switch signal circuit for an open or for a high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 16
13	Test the cruise control set/coast and resume/accelerate switch signal circuit for a short to voltage. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 16
14	Test the cruise control set/coast and resume/accelerate switch signal circuit for an open, for a short to voltage, for a short to ground, or for a high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 16
15	Inspect for poor connections at the harness connector of the cruise control switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 18
16	Inspect for poor connections at the harness connector of the engine control module (ECM). Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 19
17	Repair the open, the short to ground, or the high resistance in the ignition 1 voltage circuit. Refer to <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	-	Go to Step 20	-

18	Replace the cruise control switch. Refer to <u>Steering Wheel Control Switch Assembly Replacement</u> in Steering Wheel and Column. Did you complete the replacement?	-	Go to Step 20	-
19	IMPORTANT: Program the replacement ECM. Replace the ECM. Refer to <u>Engine Control Module (ECM) Replacement</u> in Engine Controls - 4.6L (LH2). Did you complete the replacement?	-	Go to Step 20	-
20	Operate the vehicle with in the conditions for cruise control operation. Does the cruise control system operate properly?	-	System OK	Go to Step 2

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 accelerator pedal
- The brake pedal position sensor
- The electronic brake control module (EBCM)
- The On/Off switch
- The engine control module (ECM)
- The resume/increase switch
- The set/decrease switch
- The throttle actuator control (TAC) motor
- The vehicle speed sensor

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

- On/Off
- Resume/Increase
- Set/Decrease

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

The engine control module (ECM) monitors the signal circuit of the cruise control switches. The ECM uses the cruise control set/coast and resume/accelerate switch signal circuit in order to determine when to capture and maintain the vehicle speed. The ECM monitors the vehicle speed signal circuit in order to determine the desired vehicle speed. The ECM uses the TAC motor in order to maintain the vehicle speed. For further review of the TAC system, refer to **Throttle Actuator Control (TAC) System Description** in Engine Controls - 3.6L (LY7) or to **Throttle Actuator Control (TAC) System Description** in Engine Controls - 4.6L (LH2).

Ignition voltage is supplied from the 10-ampere STRG CTLS fuse to the cruise control switch via the ignition 1 voltage signal circuit. The cruise control function switches are arranged in a resistive ladder design, with each cruise control function switch having a different resistance value. The ECM 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 ECM detects a predetermined voltage signal on the cruise control set/coast and resume/accel switch signal circuit indicating that the On/Off switch is active. Similarly, when the resume/increase switch or the set/decrease switch are activated, the ECM detects the predetermined voltage signal on the cruise control set/coast and resume/accel switch signal circuit. To engage the cruise control system, turn the cruise control system ON by activating the cruise On/Off button ON and momentarily activating the set/decrease switch. The ECM will engage the cruise control system and record the vehicle speed. The ECM sends a class 2 message to the instrument panel cluster (IPC) in order to activate the cruise control indicator. The set/decrease switch or the resume/increase switch will remain inactive when the ECM 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 override the current set vehicle speed via the set/decrease switch and the resume/increase switch. When the cruise control system is engaged, activating and holding the set/decrease switch will allow the vehicle to decelerate from the current set vehicle speed without deactivating the cruise control system. When the set/decrease switch is released, the vehicle will maintain the current vehicle speed. When the cruise control system is engaged, momentarily

activating the set/decrease switch will activate the cruise control tap down function. The tap down function will allow the vehicle to decelerate at 1.6 km/h (1 mph) increments for each time that the set/decrease switch is activated. The minimum vehicle speed for the tap down function is 37 km/h (23 mph). Activating and holding the Resume/Increase 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/increase switch is released, the vehicle will maintain the current vehicle speed. When the cruise control system is engaged, momentarily activating the resume/increase switch will activate the cruise control tap up function. The tap up function will allow the vehicle to accelerate at 1.6 km/h (1 mph) increments for each time that the resume/increase switch is pressed. The tap up function will only accelerate the vehicle a total of 16 km/h (10 mph) over the current set vehicle speed. Momentarily activating the resume/increase switch will recall the previous set vehicle speed, after the cruise control system is disengaged by pressing the brake pedal.

Cruise Control Disengaged

The ECM disengages the cruise control operation based on the signals from one of the following:

- The brake pedal position sensor
- The On/Off switch

The brake pedal position sensor is mounted on the brake pedal bracket. Pressing the brake pedal while the cruise control is engaged will disengage the cruise control system. The EBCM monitors the brake pedal position sensor. When the brake pedal is pressed, the EBCM sends a class 2 message to the ECM indicating that the status of the brake pedal position sensor. The ECM also detects a high voltage signal on the stop lamp switch signal circuit from the EBCM. For further information on the brake pedal position sensor, refer to **Exterior Lighting Systems Description and Operation** in Lighting Systems.

When the cruise control On/Off switch is turned OFF, the cruise control system will disengage.

The cruise control system will disengage when the ECM detects that a driver override function has been active for approximately 60 seconds.

The vehicle speed stored in the memory of the ECM will be erased when the Off button is activated, or the ignition switch is turned OFF.

When the cruise control system is disengaged, the ECM sends a class 2 message to the IPC in order to turn OFF the cruise control indicator.

Cruise Control Inhibited

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

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