Antitheft and Alarm Systems: Testing and Inspection Procedures

Radio Unlock Information (Radio Displays "LOC")

UNLOCKING VEHICLE RADIO WITHOUT CUSTOMER UNLOCK CODE

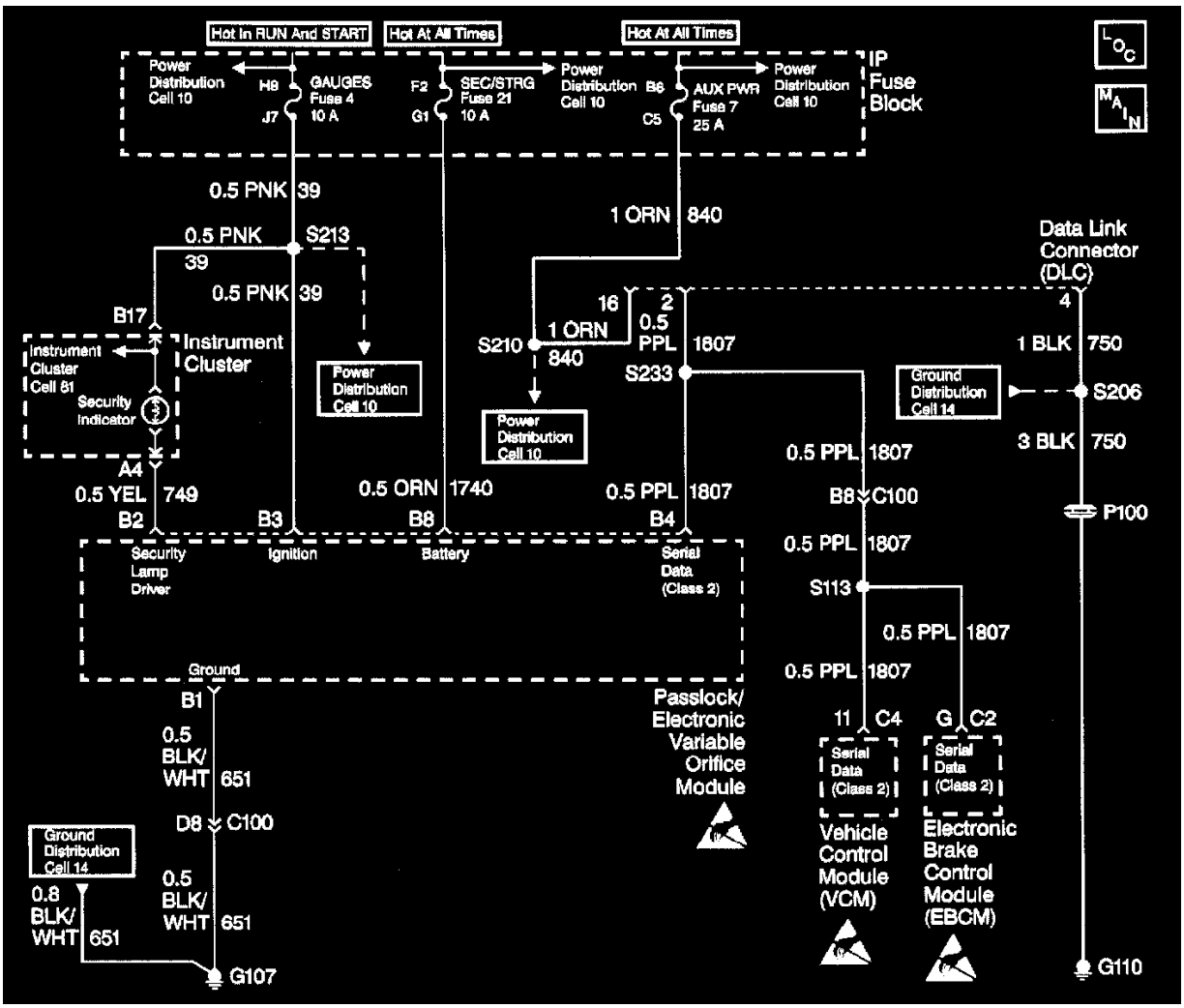
VEHICLES WITH THEFTLOCK OR DELCO-LOC RADIOS ONLY

If the security system is activated and the radio is disconnected from battery power, the radio will display "LOC". The radio will not turn on until the correct unlocking code is entered. If the customer code is lost or unavailable, contact your local GM dealership or an authorized Delco radio service center for additional assistance.

A Diagnostic System Check - Theft Deterrent

Step	Action	Value(s)	Yes	No
1	Connect a scan tool to the data link connector. Can the scan tool be powered up?	—	Go to *Step 2*	Go to *Step 6*
2	Turn the ignition switch to the LOCK position. Is the SECURITY telltale on?	—	Go to *SECURITY Indicator Always On or Flashing*	Go to *Step 3*
3	1. Set the parking brake. 2. Reconnect any connectors or components previously disconnected. 3. Turn the ignition switch to the RUN position. 4. Monitor the SECURITY telltale for 10 seconds. Did the SECURITY telltale turn on?	—	Go to *Step 4*	Go to *SECURITY Indicator Inoperative*
4	Did the SECURITY telltale turn on and remain on for more than 6 seconds?	—	Go to *Step 7*	Go to *Step 5*
5	Does the SECURITY telltale flash?	—	Go to *Step 7*	Go to *Step 9*
6	Refer to *A Diagnostic System Check - Data Link Communications* at Diagnostic Aids Under Diagrams. Is the repair complete?	—	Go to *Step 1*	—
7	Using the scan tool, test for current and history Passlock DTC(s). Does the scan tool display "No Communication with Vehicle..."?	—	Go to *SECURITY Indicator Always On or Flashing*	Go to *Step 8*
8	Is there any current Passlock DTC or a history B2958 DTC present?	—	Go to *Diagnostic Trouble Code (DTC) Displaying*	Go to *SECURITY Indicator Always On or Flashing*
9	Attempt to start the vehicle. Does the engine crank fast enough to start the vehicle?	—	Go to *Step 10*	Go to *Step 13*
10	Using the scan tool, monitor the "passlock code" from the Passlock Data List. Does the scan tool read "Passlock Code Open"?	—	Go to *Engine Cranks But Does Not Start*	Go to *Step 11*
11	Does the engine start and run?	—	System OK	Go to *Step 12*
12	Refer to *A Powertrain On Board Diagnostic (OBD) System Check* in Computers and Control Systems - 4.3L. Is the repair complete?	—	Go to *Step 1*	—
13	Refer to *Starting System Check* in Starting and Charging. Is the repair complete?	—	Go to *Step 1*	—

Diagnostic Trouble Code Chart



wiring Schematic

CIRCUIT DESCRIPTION

The Passlock system is designed to prevent engine operation if the correct key is not used to start the vehicle. The ignition key turns the lock cylinder, cylinder rotation produces an analog voltage code in the Passlock sensor.

The Passlock/EVO module receives this voltage code and is compared to the last learned voltage code. If the codes match, the Passlock/EVO module sends a class 2 message to the VCM, enabling the fuel injectors.

DIAGNOSTIC AIDS

You must perform the Diagnostic System Check prior to diagnosing any symptom or any Diagnostic Trouble Code table. Diagnose the DTCs in the order specified in the Passlock System "Displaying Diagnostic Trouble Codes" List. Failure to do so may result in the following conditions:

^ Extended diagnostic time
^ Incorrect diagnosis
^ Incorrect parts replacement

If a Passlock/EVO module, a passlock sensor, or the VCM have been replaced, perform the learn procedure before following the Diagnostic System Check.

Engine Cranks But Does Not Start

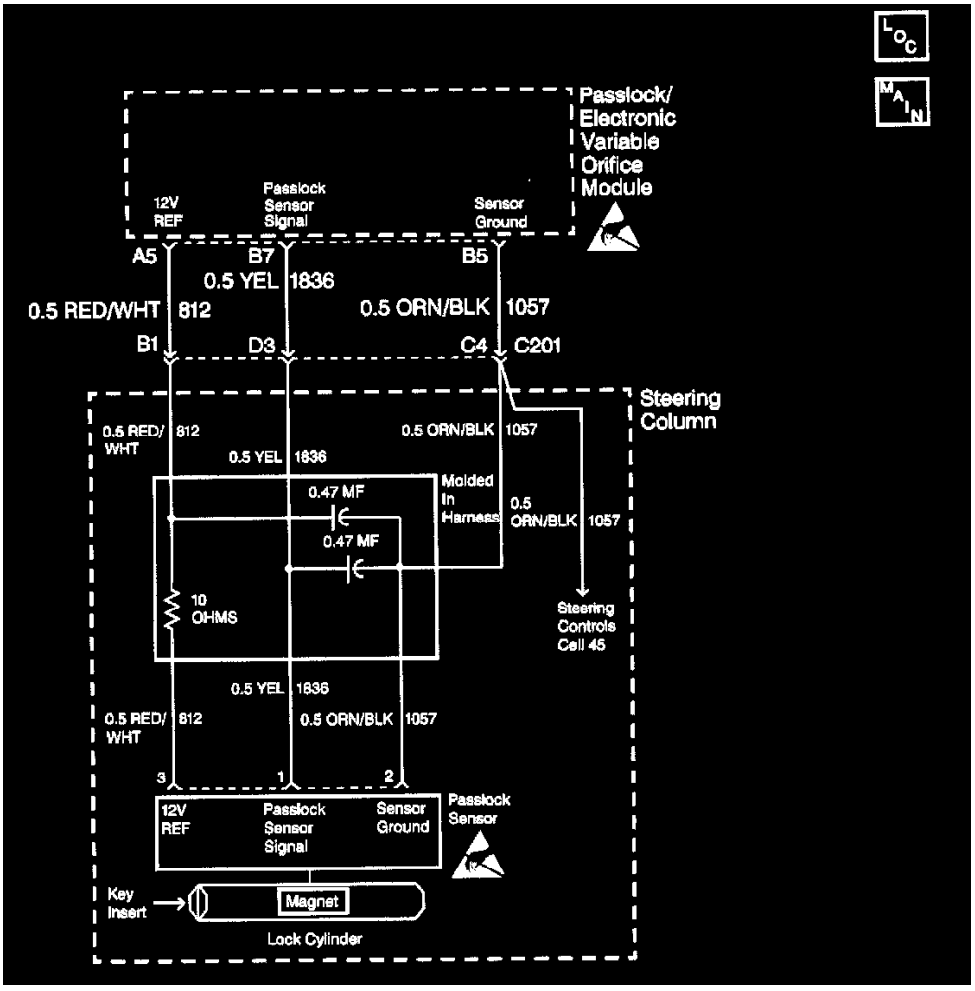
Step	Action	Value(s)	Yes	No
1	Did you perform the VTD Diagnostic System Check?	—	Go to *Step 2*	Go to *A Diagnostic System Check - Theft Deterrent*
2	1. Set the parking brake. 2. Rotate the ignition switch from OFF to crank to the ON position. 3. Use a *J 39200* digital multimeter (DMM) in order to measure the voltage from the Passlock/EVO module connector terminal B7 to ground. Is the voltage within the specified range?	4.9–5.0 V	Go to *Step 3*	Go to *Step 7*
3	Use a *J 39200* DMM in order to measure the voltage from the Passlock/EVO module connector terminal A5 to ground. Is the voltage within the specified range?	9–16 V	Go to *Step 4*	Go to *DTC B2947 Security System Sensor Power CKT Low*
4	Use a *J 39200* DMM in order to measure the voltage between the Passlock module connector terminal A5 and terminal B5. Is the voltage within the specified range?	9–16 V	Go to *Step 5*	Go to *Step 8*
5	1. Turn the ignition switch OFF. 2. Disconnect the Passlock/EVO module connector.Refer to *Theft Deterrent Module Replacement.* 3. Disconnect connector C201 at the base of the steering column. 4. Use a *J 39200* DMM in order to test for resistance between the following connectors: • Connector C201 terminal B1 and the Passlock module connector terminal A5 • Connector C201 terminal D3 and the Passlock module connector terminal B7 • Connector C201 terminal C4 and the Passlock module connector terminal B5 Is the resistance within the specified range on all 3 circuits?	0–5Ω	Go to *Step 6*	Go to *Step 11*

Chart 1 Of 3

Step	Action	Value(s)	Yes	No
6	1. Insure the Passlock sensor composite tip (3/10x4/10 inch) is mounted flush in the center of the lock cylinder housing closest to the steering wheel. 2. Insure the magnet at the center of the lock cylinder outer edge (1/10 x 3/10) inch is tightly fitted and supported by a composite piece on the side. 3. Insure that lock cylinder magnet is not demagnetized and is capable of pulling a pocket screw driver placed on a bench from a minimum distance of 1/10 inch, if not replace ignition lock cylinder (and magnet) assembly • With Tilt Wheel, refer to *Ignition Lock Cylinder Replacement - On Vehicle* in Steering Wheel and Column - Tilt. • With Standard Wheel, refer to *Ignition Lock Cylinder Replacement - On Vehicle* in Steering Wheel and Column - Standard. If all the above are OK, Replace the Passlock sensor in the electronic column lock module assembly. • With Tilt Wheel – To disassemble the lock module assembly, refer to *Electronic Column Lock Module - Disassemble - Off Vehicle* in Steering Wheel and Column - Tilt. – To assemble the lock module assembly, refer to *Electronic Column Lock Module - Assemble - Off Vehicle* in Steering Wheel and Column - Tilt. • With Standard Wheel – To disassemble the lock module assembly, refer to *Electronic Column Lock Module - Disassemble - Off Vehicle* in Steering Wheel and Column - Standard. – To assemble the lock module assembly, refer to *Electronic Column Lock Module - Assemble - Off Vehicle* in Steering Wheel and Column - Standard. Is the repair complete?	—	Go to *Step 12*	—
7	1. Turn the ignition switch OFF. 2. Disconnect the Passlock/EVO module connector. Refer to *Theft Deterrent Module Replacement.* 3. Turn the ignition switch ON. 4. Use a *J 39200* DMM in order to test for voltage from the Passlock/EVO module connector terminal B7 to ground. Is the voltage above the specified value?	1.0 volt	Go to *Step 9*	Go to *Step 8*
8	1. Turn the ignition switch OFF. 2. Replace the Passlock/EVO module. Is the repair complete?	—	Go to *Step 12*	—
9	1. Disconnect the C201 connector at the base of the steering column. 2. Use a *J 39200* in order to test for voltage from the Passlock/EVO module connector terminal B7 to ground. Is the voltage above the specified value?	1.0 volt	Go to *Step 10*	Go to *Step 06*
10	Repair the short to battery in CKT 1836. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—

Step	Action	Value(s)	Yes	No
11	Repair the open in the appropriate circuit from the following list: • CKT 812 • CKT 1836 • CKT 1057 Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
12	1. Reconnect all the previously disconnected connectors and the components. 2. Turn the ignition switch ON. 3. Connect the scan tool. 4. Clear the DTCs. 5. Perform one of the following Passlock reprogramming procedures: • *PASSLOCK Reprogramming Seed and Key* • *PASSLOCK Reprogramming Auto Learn* Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—

Chart 3 Of 3



Wiring Schematic

CIRCUIT DESCRIPTION

The Passlock/EVO module will read an analog voltage from the Passlock sensor. Based on an internal reference the Passlock/EVO module will determine it the measured voltage is open, shorted to ground, a valid code, or a tamper code. There are 10 possible valid code combinations. The Passlock/EVO module will only accept the last learned valid code.

DIAGNOSTIC AIDS

Prior to cranking, if a problem developed to prevent the Passlock sensor signal from reporting to the Passlock/EVO module, the vehicle will not start and DTC B2958 will not be set. In this case, the scan tool will still read "Passlock Code Open" after cranking.

- ^ When replacing the Passlock sensor, all the sensor components; the lock, the sensor, the filter, and the harness, are included as a replacement part and must be replaced.
- ^ Use the scan tool in order to test the Passlock data voltage and the Passlock code.
- ^ Perform a visual inspection of the wiring and the connectors.
- ^ Inspect the Passlock sensor harness for an intermittent or poor connections (including the in-line connector). Refer to **Intermittents and Poor Connections**. See: Computer Diagnosis/Intermittents and Poor Connections

TEST DESCRIPTION

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

2. This step determines if the Passlock data terminal has an open condition or a short to battery.
3. This step determines if the Passlock sensor power is available at the Passlock/EVO module. If CKT 812 is shorted to ground, DTC B2947 will set. Diagnosing and repairing DTC B2947 may eliminate the engine cranking but not starting condition.
4. This step tests the Passlock sensor ground.
5. This step tests for an open in any of the Passlock sensor line.
7. This step tests for a short to battery on the Passlock sensor signal line.
9. This step isolates the problem between the Pass lock sensor and CKT 1836.

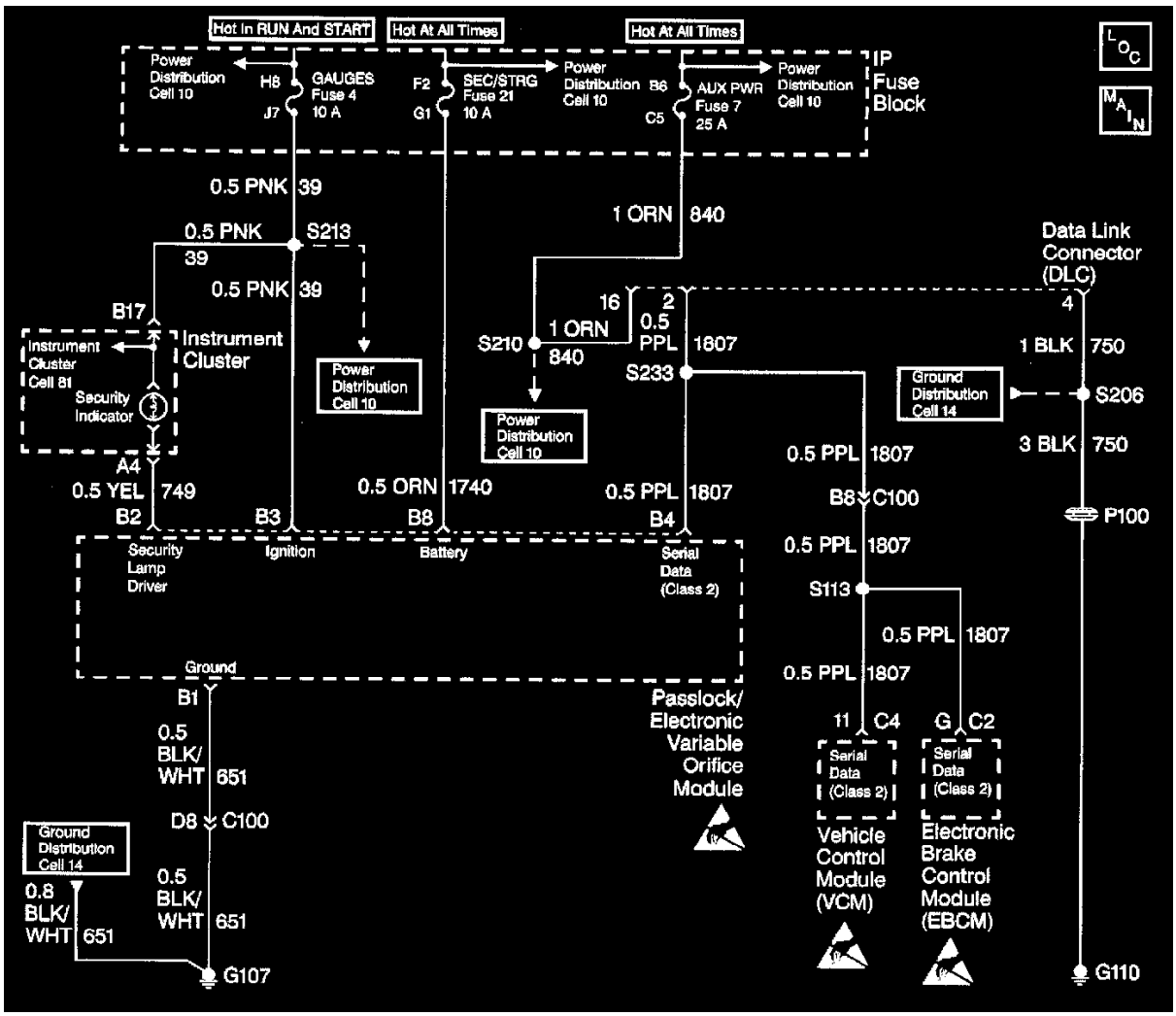
SECURITY Indicator Always on or Flashing

Step	Action	Value(s)	Yes	No
1	Did you perform the Passlock System Check?	—	Go to *Step 2*	Go to *A Diagnostic System Check - Theft Deterrent*
2	Did the SECURITY telltale turn on with the ignition off?	—	Go to *Step 16*	Go to *Step 3*
3	1. Turn the ignition switch to the LOCK position. 2. Disconnect the Passlock/EVO module. Refer to *Theft Deterrent Module Replacement.* 3. Turn the ignition switch to the ON position. Did the security indicator turn off?	—	Go to *Step 6*	Go to *Step 4*
4	1. Disconnect the Instrument Cluster connector. Refer to *IP Cluster Replacement* in Instrument Panel, Gauges and Console. 2. Using the *J 39200*, measure the resistance from connector terminal B2 of the Passlock/EVO module to ground. Is the resistance within the specified value?	OL (Infinite)	Go to *Step 18*	Go to *Step 5*
5	Repair the short to ground in circuit 749. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
6	Using the *J 39200*, measure the resistance from connector terminal B4 of the Passlock/EVO module to connector terminal 2 of the data link connector (DLC). Is the resistance within the specified value?	0–5 Ω	Go to *Step 8*	Go to *Step 7*
7	Repair the open in circuit 1807 between Splice S233 and terminal B4 of the Passlock/EVO module. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
8	Test the Security Fuse. Is the Security fuse open?	—	Go to *Step 9*	Go to *Step 12*
9	1. Turn the ignition switch to the OFF position. 2. Reconnect the Passlock/EVO module. 3. Replace the SEC/STRG fuse. 4. Turn the Ignition switch to the ON position. Is the SEC/STRG fuse open?	—	Go to *Step 10*	Go to *A Diagnostic System Check - Theft Deterrent*
10	1. Turn the Ignition switch to the OFF position. 2. Disconnect the Passlock/EVO module connector. Refer to *Theft Deterrent Module Replacement.* 3. Using the *J 39200*, measure the resistance from connector terminal B8 of the Passlock/EVO module to ground. Is the resistance within the specified value?	OL (Infinite)	Go to *Step 17*	Go to *Step 11*
11	1. Repair the short to ground in circuit 1740. 2. Replace the SEC/STRG fuse. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
12	Using the *J 39200*, measure the voltage from connector terminal B3 of the Passlock/EVO module to ground. Is the voltage within the specified value?	9–16 V	Go to *Step 14*	Go to *Step 13*
13	Repair the open in circuit 39 between S213 and connector terminal B3 of the Passlock/EVO module. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—

Chart 1 Of 2

Step	Action	Value(s)	Yes	No
14	Using the *J 39200*, measure the voltage from connector terminal B8 of the Passlock/EVO Module to ground. Is the voltage within the specified value?	9–16 V	Go to *Step 17*	Go to *Step 15*
15	Repair the open in circuit 1740. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
16	Repair the short to battery in circuit 749. Is the repair complete?	—	Go to *Step 17*	—
17	Replace the Passlock/EVO module. Is the repair complete?	—	Go to *Step 19*	—
18	Replace the Instrument Cluster. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
19	1. Reconnect all previously disconnected connectors and components. 2. Ensure that the ignition switch is in the ON position. 3. Replace any open fuses. 4. Connect the scan tool. 5. Clear Passlock DTCs, if any. 6. Perform one of the following Passlock reprogramming procedures: • Seed and Key (10 minutes) Refer to *PASSLOCK Reprogramming Seed and Key.* • Auto learn (30 minutes) Refer to *PASSLOCK Reprogramming Auto Learn.* Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—

Chart 2 Of 2



Wiring Schematic

CIRCUIT DESCRIPTION

The Security Indicator Always On or Flashing check is designed to find out the reason the Security indicator is staying on or flashing. However, the Theft Deterrent System Diagnostic System Check must always be the starting point for all Passlock system troubleshooting.

The Diagnostics in this table are designed to troubleshoot non DTC troubles. For example Battery power, Ignition 1 input, and shorted or open SECURITY indicator circuit.

DIAGNOSTIC AIDS

- ^ Perform a visual check of the wiring and connectors.
- ^ Refer to **Intermittents and Poor Connections**. See: Computer Diagnosis/Intermittents and Poor Connections

TEST DESCRIPTION

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

3. This step will determine if the Passlock/EVO module or the harness is causing the Security Indicator to stay on.
4. This step determines if there is a short to ground in CKT 749.
6. This step tests for an open in the class 2 line between Passlock terminal B4 and Splice S233.
9. This step verifies if the security fuse randomly opened.
10. This step tests for a short to ground in CKT 1740.
12. This step tests for Ignition voltage at B3
14. This step tests for battery input to the Passlock/EVO module.

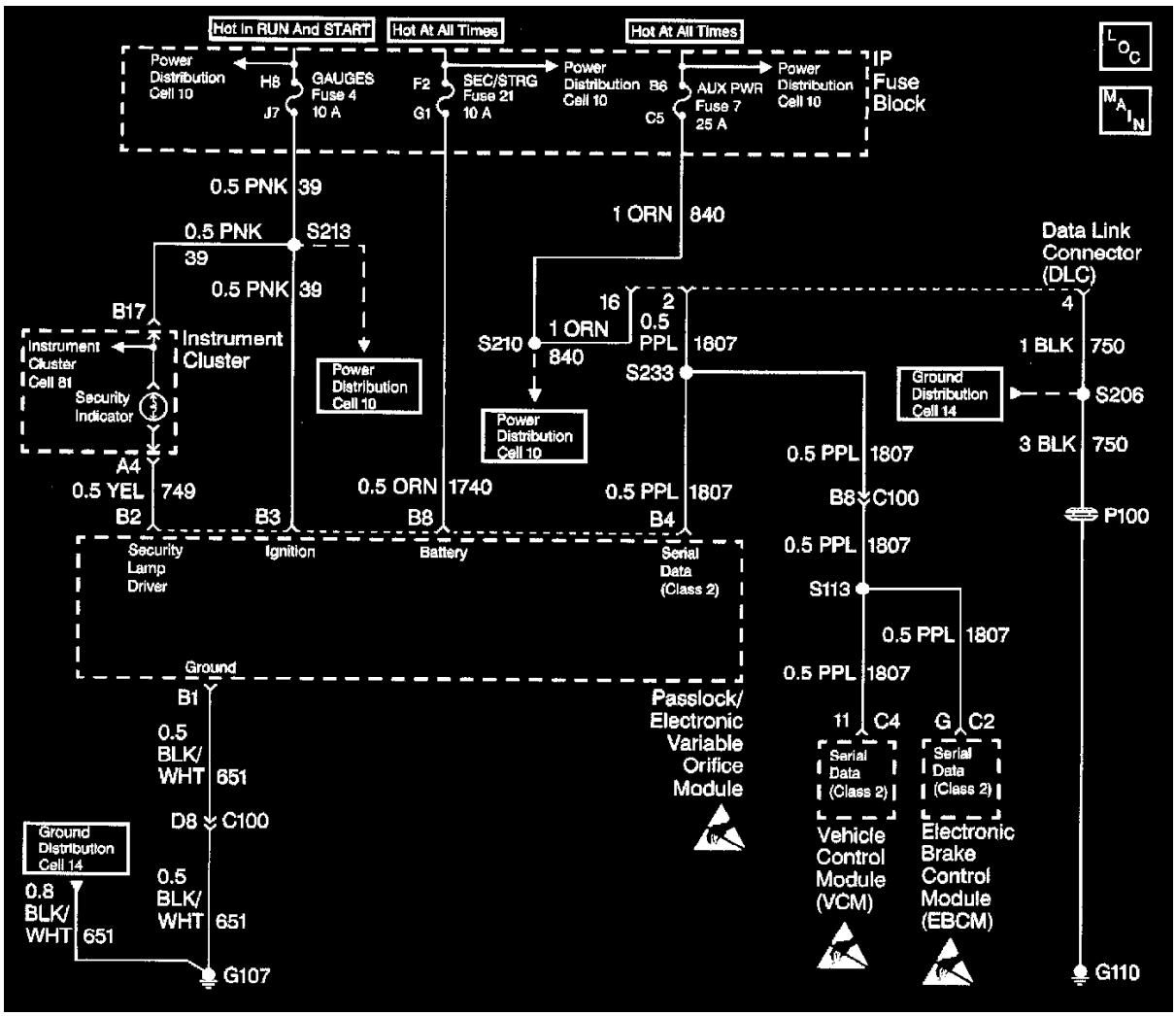
SECURITY Indicator Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Passlock Diagnostic System Check?	—	Go to *Step 2*	Go to *A Diagnostic System Check - Theft Deterrent*
2	1. Ensure that the ignition switch is still in the RUN position. 2. Observe the instrument cluster. Is the Brake warning telltale or the Check Gauges telltale on?	—	Go to *Step 3*	Go to *Step 11*
3	1. Turn the ignition switch to the OFF position. 2. Disconnect the instrument cluster connector. Refer to *IP Cluster Replacement* in Instrument Panel, Gauges and Console. 3. Test the SECURITY indicator bulb. Is the bulb open?	—	Go to *Step 4*	Go to *Step 5*
4	Replace the SECURITY indicator bulb. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
5	1. Turn the ignition switch to the LOCK position. 2. Using the *J 39200*, measure the resistance from connector terminal B2 of the Passlock/EVO module to terminal A4 of the instrument cluster. Is the resistance within the specified value?	0–5 Ω	Go to *Step 7*	Go to *Step 6*
6	Repair the open in circuit 749. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
7	1. Disconnect the Passlock/EVO module connector. Refer to *Theft Deterrent Module Replacement*. 2. Turn the ignition switch to the ON position. 3. Using the *J 39200*, measure the resistance from connector terminal B2 of the Passlock/EVO module to ground. Is the voltage within the specified value?	9–16 V	Go to *Step 8*	Go to *Step 9*
8	Repair short to ignition in circuit 749. Is the repair complete?	—	Go to *Step 19*	—
9	Using the *J 39200*, measure the resistance from connector terminal B1 of the Passlock/EVO module to ground. Is the resistance within the specified value?	0–5 Ω	Go to *Step 17*	Go to *Step 10*
10	Repair the open in circuit 651 between connector terminal B1 of the Passlock/EVO module and G107. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
11	Test the gauges fuse. Is the gauges fuse open?	—	Go to *Step 12*	Go to *Step 15*
12	1. Turn the ignition switch to the OFF position. 2. Replace the gauges fuse. 3. Turn the ignition switch to the ON position. Did the gauges fuse open?	—	Go to *Step 13*	Go to *A Diagnostic System Check - Theft Deterrent*

Chart 1 Of 2

Step	Action	Value(s)	Yes	No
13	1. Turn the ignition switch to the LOCK position. 2. Disconnect the Passlock/EVO module. Refer to *Theft Deterrent Module Replacement.* 3. Replace the gauges fuse. 4. Turn the ignition switch to the ON position. Did the gauges fuse open?	—	Go to *Step 14*	Go to *Step 19*
14	1. Repair the short to ground in circuit 39. 2. Replace the gauges fuse. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
15	1. Turn the ignition switch to the LOCK position. 2. Disconnect the instrument cluster connector. Refer to *IP Cluster Replacement* in Instrument Panel, Gauges and Console. 3. Turn the ignition switch to the ON position. 4. Using the *J 39200*, measure voltage from connector terminal B17 of the instrument cluster to ground. Is the voltage within the specified value?	9–16 V	Go to *Step 18*	Go to *Step 16*
16	Repair the open in circuit 39. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
17	1. Reinstall the Security indicator bulb. 2. Reconnect the instrument cluster connector. 3. Connect a fused jumper between terminal B2 of the Passlock/EVO module and ground. 4. Ensure that the ignition switch is still in the ON position. Did the Security telltale turn on?	—	Go to *Step 19*	Go to *Step 18*
18	Replace the instrument cluster. Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—
19	Replace the Passlock module. Is the repair complete?	—	Go to *Step 20*	—
20	1. Reconnect all previously disconnected connectors and components. 2. Ensure that the ignition switch is in the ON position. 3. Replace any open fuses. 4. Connect the scan tool. 5. Clear Passlock DTCs, if any. 6. Perform one of the following Passlock reprogramming procedures: • Seed and Key (10 minutes). Refer to *PASSLOCK Reprogramming Seed and Key.* • Auto Learn (30 minutes). Refer to *PASSLOCK Reprogramming Auto Learn.* Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—

Chart 2 Of 2



Wiring Schematic

CIRCUIT DESCRIPTION

The Security Indicator Inoperative check is designed to find out the reason the Security indicator is not illuminating. However, the Theft Deterrent System Diagnostic System Check must always be the starting point for all Passlock system troubleshooting.

The diagnostics in this table are designed to troubleshoot non DTC troubles. For example battery power, ignition 1 input, ground, and shorted or open SECURITY indicator circuit.

DIAGNOSTIC AIDS

- Perform a visual inspection of the wiring and the connectors.
- Refer to **Intermittents and Poor Connections**. See: Computer Diagnosis/Intermittents and Poor Connections

TEST DESCRIPTION

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

2. This step determines if there is power available to the instrument cluster.
5. This step tests for continuity in circuit 749.
7. This step tests for a short to battery in circuit 749.
9. This step tests for an open in circuit 651.
12. This step verifies if the gauges fuse randomly opened.
13. This step determines if there is a short to ground in the Passlock/EVO module.
15. This step tests for voltage at the battery side of the Security indicator.

With Scan Tool

The procedure for reading diagnostic trouble code(s) is to use a diagnostic scan tool. Read Diagnostic Trouble Codes Using a Tech 2 or Other Scan Tool.

When reading DTC(s), follow instructions supplied by tool manufacturer.

Without Scan Tool

A scan tool must be used to retrieve DTCs from the PCM/VCM memory. DTCs can no longer be retrieved by grounding terminals "A" to "B" at the Data Link Connector **(DLC).** This also eliminates the PCM/VCM function of flashing Code 12. The use of a Tech 2 scan tool or equivalent will be needed to obtain both current and history DTCs.

^ Refer to **Tools and Equipment** for O.E.M. scan tool description. See: Powertrain Management/Tools and Equipment

With Diagnostic Scan Tool

To clear Diagnostic Trouble Codes (DTCs), use the diagnostic scan tool "clear DTCs" or "clear info" function.

When clearing DTCs follow instructions supplied by the tool manufacturer.

Without Diagnostic Scan Tool

To clear Diagnostic Trouble Codes (DTCs), use the diagnostic scan tool "clear DTCs" or "clear info" function.

When clearing DTCs follow instructions supplied by the tool manufacturer.

When a scan tool is not available, DTCs can also be cleared by disconnecting one of the following sources for at least thirty (30) seconds:

Caution: To prevent system damage, the ignition key must be "OFF" when disconnecting or reconnecting battery power.

^ The power source to the control module. Examples: fuse, pigtail at battery PCM/VCM connectors etc.

^ The negative battery cable. (Disconnecting the negative battery cable may result in the loss of other on-board memory data, such as preset radio tuning).

Scan Tool Diagnostics

NOTE: Do not use a scan tool that displays faulty data. Report the scan tool problem to the manufacturer. Use of a faulty scan tool can result in misdiagnosis and unnecessary parts replacement. This scan tool provides the following capabilities:

^ Read the data list.
^ Read the current ant history trouble codes.
^ Clear the diagnostic trouble codes (DTC) after a repair is completed.

Ensure that the scan tool has current software before attempting repairs with the vehicle. Refer to the scan tool users guide for additional information and operating instructions.

The scan tool data displays specific module information pertinent to the system. The scan tool data display contains scan tool values from a properly operating system. Use this data as a reference after you have ensured that no DTCs are set and the Passlock(TM) system check procedure is performed.

Only the parameters listed in the typical scan tool data display are referenced in the service manual for use in diagnosis. If all of the values are within the typical range described, refer to **Intermittents and Poor Connections**. See: Computer Diagnosis/Intermittents and Poor Connections

Scan Tool Data Definitions

The scan tool readings of the Passlock TM system assist in diagnosing a problem.
The typical scan tool data definitions represent general information displayed on the scan tool regarding the following information:

^ Passlock(TM) system functions
^ Ignition inputs
^ Basic Passlock(TM) operating conditions

The following data messages and the menu headings are displayed on the scan tool:

Module Information
Module Part Number - Range: 16XXXXXX: This information refers to the part number assigned to the Passlock(TM)/EVO Module currently in the vehicle.

Manufacturers Enable Counter - Range:
0-255: This information refers to the actual value for the Manufacturer's Enable Counter (MEC) in the Passlock TM/EVO Module. This information is for assembly plant use only.

Data List
Ignition 1 - Range: ACTIVE/IN ACTIVE: The Passlock(TM)/EVO Module uses this data in order to determine the position of the ignition

switch. When the ignition switch is in the RUN or CRANK position, ACTIVE is displayed. When the ignition switch is not in the RUN or CRANK position, INACTIVE is displayed.

Battery Voltage - Range: 9.0-16.0 Volts: The voltage value displayed refers to the battery system voltage measured by the Passlock(TM) Module on CKT 1740.

Passlock TM Power - Range: ACTIVE/INACTIVE: The Passlock(TM)/EVO Module supplies 12 volts and a ground to the Passlock(TM) Sensor. The Passlock(TM) power is active whenever the battery voltage and ignition 1 are present.

Passlock(TM) Data Voltage - Range: 0-5 Volts:
The Passlock(TM) data voltage displayed indicates the return voltage from the Passlock(TM) sensor to the Passlock(TM)/EVO Module. The Passlock TM/EVO Module also determines if the voltage received is a valid voltage window or an invalid voltage window. The Passlock TM/EVO Module has 10 valid voltage windows, an OPEN voltage window, a TAMPER voltage window, and a SHORTENED voltage window. The value displayed on the scan tool will be within **0.0-5.0 volts**. The Passlock TM/EVO Module converts this analog voltage to a class 2 serial data password. The password is then sent to the VCM. The VCM must receive the same password that was learned in the last learn procedure. If the VCM does not receive a valid password from the Passlock TM/EVO Module, the VCM will not enable the fuel injection system. Refer to **PASSLOCK Reprogramming Auto Learn**. See: Service and Repair

Passlock(TM) State - Displays: IGNITION OFF/NORMAL DECISION/LEARNED PASSLOCK/TAMPER/MONITOR PASSLOCK/FAIL ENABLED/FAIL ENABLED DEC/SEED KEY LRN PEND/SEEDKEY LEARN/AUTO LRN PEND/AUTO LEARN:
The display refers to the state of the Passlock(TM) system.

Passlock(TM) Code - Range: OPEN/SHORT/TAMPER/NUMERIC: The Passlock TM code displayed indicates the internal Passlock TM sensor resistance value. The Passlock(TM)/EVO Module determines if the Passlock TM code received is valid or invalid. The Passlock TM/EVO Module has 10 valid Passlock(TM) codes, an OPEN Passlock TM code, a TAMPER Passlock TM code, and a SHORT Passlock TM code. The scan tool will display any valid Passlock(TM) code as a numeric value. The value displayed on the scan tool should be within 1-10 (i.e. valid code 7), SHORT, TAMPER or OPEN.

Tamper Timer - Range: 0-600 Seconds: Use the tamper timer as part of the interactive procedure in order to allow the Passlock TM/EVO Module to display the time remaining when in the tamper mode. The tamper timer starts when the ignition switch is turned to the RUN position and the Passlock(TM) Module receives a Passlock(TM) data voltage that is different from the last learned Passlock TM data voltage. The tamper timer has a lockout timer of **10 minutes**. The vehicle must remain in the tamper mode even if the ignition switch is turned from the RUN position to the OFF position during the **10 minutes** period, however the timer will reset to 0 and will start a new count.

Auto Learn Timer - Range: 0-600 Seconds: Use the auto learn timer as part of the interactive procedure in order to allow the Passlock TM/EVO Module to learn valid Passlock TM data from the Passlock TM sensor. The learn procedure consists of 3 consecutive lockout cycles of approximately **10 minutes** each totaling **30 minutes**. The auto learn timer does not display the time in which the VCM is in the lockout mode.

Security Lamp Feedback- Range: 0-16 Volts: The security lamp feedback voltage normally is close to **12 volts** when the security lamp is OFF and close to **0 volt** when the security lamp is ON. This reading shows the voltage on the security lamp driver.

Security Lamp State - Displays: ON/OFF/FLASHING: The security lamp will turn ON steady for **5 seconds** and then turn OFF when the ignition switch is turned from the OFF position to the RUN position. The security telltale should have 3 states: OFF, ON STEADY and FLASHING. The security telltale will stay ON STEADY (after the bulb check) if any DTC is stored in the Passlock TM Module; if the Passlock TM/EVO Module loses battery, ignition, or both while ignition is still supplied to the security lamp; or the security lamp driver is shorted to ground. The security telltale will flash for approximately **10 minutes** to indicate that the Passlock TM/EVO Module is in lockout Tamper mode during which the fuel delivery will be defaulted to Disable. The Passlock TM system requires 3 consecutive lockout cycles to complete the **30 minute** Auto Learn procedure for a changed component, refer to PASSLOCK Reprogramming Auto Learn to perform this task. Another option is the **10 minute** Seed and Key procedure, refer to **PASSLOCK Reprogramming Seed and Key** to perform this task. See: Service and Repair

Ignition Switch in the RUN position/Vehicle in PARK		
Scan Tool Parameter	**Units Displayed**	**Typical Data Value**
Manufacturers Enable Counter	0–255	0
Module Part Number	NUMERIC	16XXXXXX (Varies with Vehicle)

Module Information

Ignition Switch in the RUN position/Vehicle in PARK		
Scan Tool Parameter	**Units Displayed**	**Typical Data Value**
Passlock™ Data Voltage	Volts	0.86-4.28 Volts - Typical
Passlock™ State	Ignition OFF/Normal Decision/Learn Passlock™/Tamper/Monitor Passlock™/Fail Enabled/Fail Enabled Dec/Seedkey Lrn Pend/Seedkey Learn/Auto Lrn Pend/Auto Learn	Monitor Passlock™
Passlock™ Code	Open/Short/Tamper/Numeric	Valid Code XX
Security Lamp Feedback	Volts	0.0-16.0 Volts (Varies)
Battery Voltage	Volts	9.0-16.0 Volts (Varies)
Ignition 1	ACTIVE/INACTIVE	ACTIVE
Passlock™ Power	ACTIVE/INACTIVE	ACTIVE
Tamper Timer	SECONDS	0-600 Seconds
Auto Learn Timer	SECONDS	0-600 Seconds
Security Lamp State	ON/OFF/FLASHING	OFF

Passlock/EVO Module Data

Ignition Switch in the RUN position/Vehicle in PARK		
Scan Tool Parameter	**Units Displayed**	**Typical Data Value**
VTD Fuel Disable	ACTIVE/INACTIVE	INACTIVE

Vehicle Control Module Data

DTC Order of Diagnosis

Diagnostic Trouble Code	Description	Action
U1016 Current	Loss of Class 2 Communication with VCM	*A Diagnostic System Check - Data Link Communications* in Data Link Communications
U1255 Current	Class 2 Communication Malfunction	*A Diagnostic System Check - Data Link Communications* in Data Link Communications
C0559 Current	EEPROM Checksum Error	*DTC C0559 EEPROM Checksum Error*
B2947 Current	Security System Sensor Power Circuit Low	*DTC B2947 Security System Sensor Power CKT Low*
B3033 Current	Security System Indicates Tamper	*DTC B3033 Security System Indicates Tamper*
B2960 Current	Security System Sensor Data Incorrect But Valid	*DTC B2960 Sec Sys Sensor Data Incorrect but Valid*
B2957 Current	Security System Sensor Data Circuit Low	*DTC B2957 Security System Sensor Data Circuit Low*
B2958 Current or History	Security System Sensor Data Circuit High	*DTC B2958 Security System Sensor Data Circuit High*
B2948 Current	Security System Sensor Power Circuit High	*DTC B2948 Security System Sensor Power CKT High*
B3031 CUrrent	Security System Controller in Learn Mode	*DTC B3031 Security System Controller in Learn Mode*
B0688 Current	Security System Indicator Circuit High	*DTC B0688 Security System Indicator Circuit High*

Diagnostic Trouble Code (DTC) Displaying

The DTCs listed are in order of importance. Diagnose the DTCs in the same order.

Intermittents and Poor Connections

Faulty electrical connection or faulty wiring cause most intermittent faults. Damage to the Passlock(TM) Module itself is rarely the cause of such a problem. For a detailed explanation on how to locate and repair an intermittent condition, refer to **Intermittents and Poor Connections Diagnosis** in Wiring Systems.

DTC Order of Diagnosis

Diagnostic Trouble Code	Description	Action
U1016 Current	Loss of Class 2 Communication with VCM	*A Diagnostic System Check - Data Link Communications* in Data Link Communications
U1255 Current	Class 2 Communication Malfunction	*A Diagnostic System Check - Data Link Communications* in Data Link Communications
C0559 Current	EEPROM Checksum Error	*DTC C0559 EEPROM Checksum Error*
B2947 Current	Security System Sensor Power Circuit Low	*DTC B2947 Security System Sensor Power CKT Low*
B3033 Current	Security System Indicates Tamper	*DTC B3033 Security System Indicates Tamper*
B2960 Current	Security System Sensor Data Incorrect But Valid	*DTC B2960 Sec Sys Sensor Data Incorrect but Valid*
B2957 Current	Security System Sensor Data Circuit Low	*DTC B2957 Security System Sensor Data Circuit Low*
B2958 Current or History	Security System Sensor Data Circuit High	*DTC B2958 Security System Sensor Data Circuit High*
B2948 Current	Security System Sensor Power Circuit High	*DTC B2948 Security System Sensor Power CKT High*
B3031 CUrrent	Security System Controller in Learn Mode	*DTC B3031 Security System Controller in Learn Mode*
B0688 Current	Security System Indicator Circuit High	*DTC B0688 Security System Indicator Circuit High*

Diagnostic Trouble Code (DTC) Displaying

The DTCs listed are in order of importance. Diagnose the DTCs in the same order.

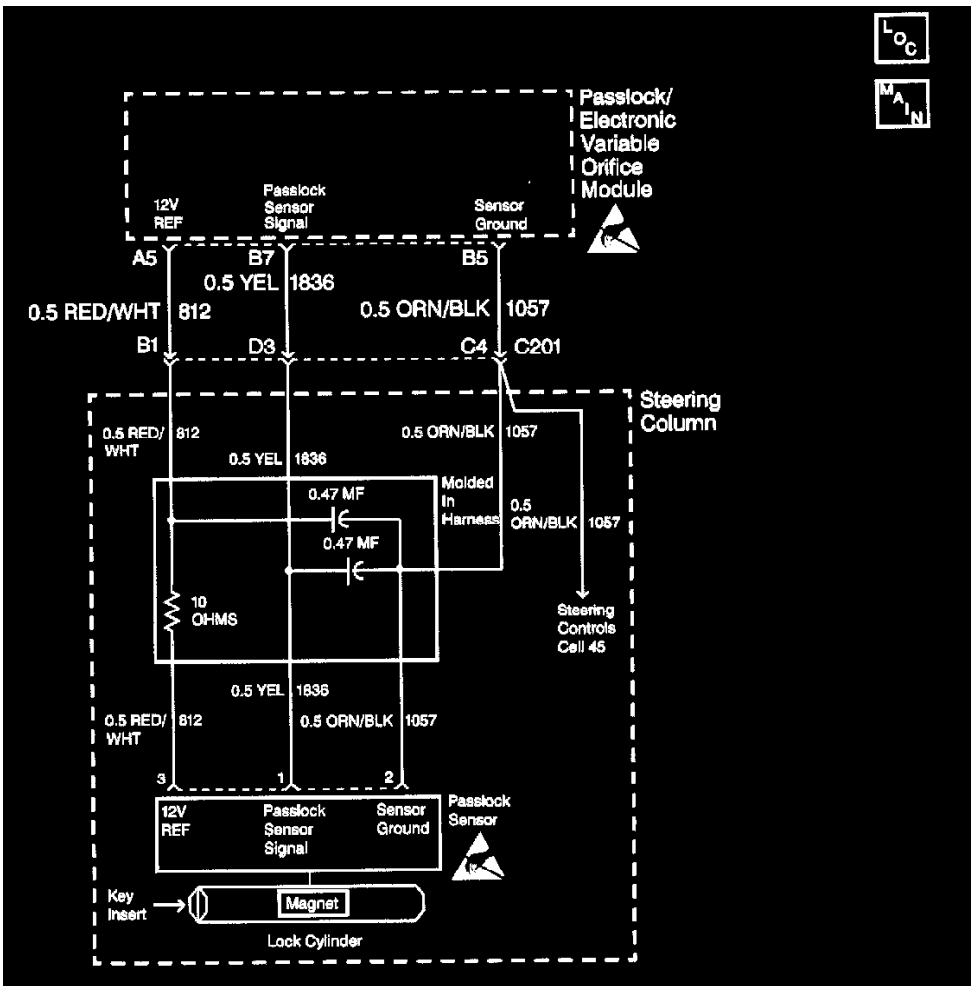
B Code Charts

All B code charts can be found under Computers and Control Systems. See: Powertrain Management/Computers and Control Systems/Testing and Inspection/Diagnostic Trouble Code Tests and Associated Procedures/B Code Charts

DTC C0559 EEPROM Checksum Error

Step	Action	Value(s)	Yes	No
1	Did you perform the VTD diagnostic system check?	—	Go to *Step 2*	Go to *A Diagnostic System Check - Theft Deterrent*
2	1. Turn the ignition switch to the OFF position. 2. Replace the Passlock/EVO module. Is the repair complete?	—	Go to *Step 3*	—
3	1. Reconnect all previously disconnected connectors and components. 2. Turn the ignition switch ON. 3. Connect the scan tool. 4. Clear the DTCs. 5. Perform 1 of the following Passlock reprogramming procedures: • *PASSLOCK Reprogramming Seed and Key* • *PASSLOCK Reprogramming Auto Learn* Is the repair complete?	—	Go to *A Diagnostic System Check - Theft Deterrent*	—

Diagnostic Trouble Code Chart



Wiring Schematic

CIRCUIT DESCRIPTION

This DTC indicates a Passlock/EVO module internal memory failure.

CONDITIONS FOR SETTING THE DTC

All of the following conditions must be met:

^ The ignition switch is ON.

^ An internal error detection diagnostic found a failure in the module memory.

DIAGNOSTIC AIDS

The memory portion of the Passlock/EVO module is not replaceable. If DTC C0559 is set, the Passlock/EVO module must be replaced.