TECHlink
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Sunroof System

This information applies to the sunroof system available in the Colorado and Canyon pickup trucks.

Controls

The power sunroof system is a press-and-hold style system, with no control module involved. The power sunroof motor is controlled by the sunroof switch through the open and close motor control circuits.

Ignition voltage is supplied to the sunroof switch through the retained accessory power (RAP) relay from the Sunroof 20A fuse in the underhood fuse block. While the sunroof switch is in an inactive state, both switch contacts are closed to the sunroof switch ground circuit. When an open or close button is pressed on the sunroof switch, its switch contact is closed to the voltage supply circuit.

The motor is bi-directional, and the direction of motor rotation is determined by which of the motor control circuits is switched to positive voltage while the other remains grounded.

Operation

The glass travels from closed to vent to full open position, and can be stopped in any position by releasing the sunroof switch. As the glass reaches the open or closed limits, mechanical hard stops inhibit the travel. The mechanical hard stops stall the motor into an over-current condition, as an internal motor device opens. Operation will resume once the over-current condition is removed, by releasing the sunroof switch.

The glass travel for a regular cab is restricted by panel stops inserted into the guides.

The panel cannot extend beyond the rear edge of the cab into the bed area. The extended cab and crew cab do not have these panel stops.

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Techline News

Cadillac ECM Reprogramming

When reprogramming the engine control module on a 2004-2005 Cadillac SRX, XLR, and STS with LH2 4.6L V8 engine, the following points may be helpful:

1. The battery must be fully charged during reprogramming. Battery voltage must be above 12 volts. Turn off electrical accessories that may drain the battery during reprogramming, such as automatic headlamps, daytime running lamps, interior lights, HVAC system, engine cooling fan, radio, etc.
2. Ambient and coolant temperature during reprogramming should be above 41° F (5° C). If coolant temperature is below this, the vehicle will go into reduced power mode on startup, due to insufficient throttle learn.
3. A P2119 DTC may set after reprogramming due to low system voltage.
4. If the VIN is not properly entered into the ECM, a P0315 will continue to set until the ECM VIN matches BCM.
5. Any time an ECM, crank sensor, crankshaft and/or engine are replaced, a crankshaft position variation learn procedure must be performed.
6. After performing a crankshaft position variation learn procedure, the ECM must do a proper power-down to store the values, or a P0315 will continue to set until values are stored.

Refer to Service Programming System in SI for more information on reprogramming the ECM and performing the crankshaft position variation learn procedure.

- Thanks to Dave Dickey

TECHlink GM

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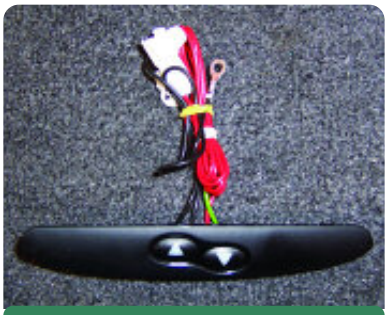
The sunroof can be operated manually with the sun roof emergency crank/sunroof key. The key and instructions can be found in the owner's manual supplement in the glove box.

Other Items of Interest

The sunroof system ground is in the vicinity of the motor, with a self-tapping screw securing the ring terminal to the front header.

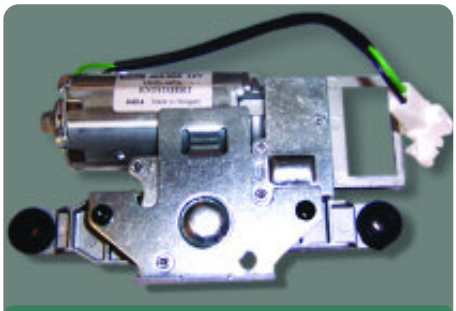
The in-line connector supplying the ignition voltage to the sunroof switch is located behind the left A-pillar trim.

- Thanks to Tony Martin



Sunroof switch and bezel

Mechanical hard stops limit travel.



Bi-directional motor

Connector behind A-pillar trim

Air Bag Module

TIP: This information applies to all vehicles, although it is prompted by warranty data from Sunfire, Cavalier, Grand Am, Alero and Malibu Classic.

Extra attention is needed if a vehicle comes in for service with the air bag telltale illuminated. After reading diagnostic trouble codes and finding that air bag loop faults and/or sensor faults are current, take the time necessary to troubleshoot the wiring fully. Replacing the SDM will not correct the fault in many situations. A detailed check of continuity for the faulted lines is necessary.

TIP: Check all wiring connections before removing and replacing the SDM.

- Thanks to Tom Nguyen

Dexron VI Followup

As a followup to the Dexron VI article in the February TechLink, here are the current part numbers.

88861003	1 quart container	DEXRON® -VI GM Vehicle Care
88861037	1 quart container	DEXRON® -VI AC Delco
88861004 in Canada	1 liter container	DEXRON® -VI AC Delco

GM began factory-fill of the new transmission fluid on April 4, starting with the new Hydra-Matic 6L80.

DEXRON®-VI will be available at GM authorized dealerships and service centers in Summer 2005.

- Thanks to Susan Leach

GM TECHlink

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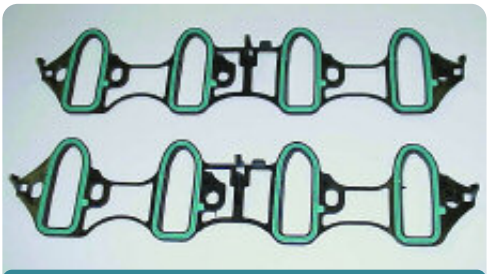
Upper Manifold Gasket Leak



New gaskets

This information applies specifically to the 5.3L L59 (E85 capable), as well as the other Gen 3 and Gen 4 engines.

If a leak between the upper manifold and gasket causes a DTC P0300 to set, do not replace the entire upper manifold assembly, upper plenum and gaskets.

A new gasket made of FNK material (GM SPO p/n 89017589) has been released. The new gasket material is teal green in color; the original gaskets are orange.

The service kit containing the new gasket was released in October 2004. A small quantity of the old gasket kit, p/n 17113557, which contains two p/n 17122608 (orange) gaskets, remains in the system.

Use only the 89017589 gasket (teal green) for repairs on the L59 engine, and do not replace the upper manifold unless it measures outside of the service manual specifications or is damaged.

The 17113557 gasket (orange) can be used on the other engines. Once the 17113557 has been exhausted, only the 89017589 will be available for all engines.

Proper Method of Measuring Intake Manifold

SI states, "An intake manifold with warpage in excess of 3 mm (0.118 in) over a 200 mm (7.87 in) area is warped and should be replaced."

The 200 mm distance will cover two intake ports, not the entire distance of the four intake ports on one bank.

It is incorrect to place a straight edge across the entire length of the upper manifold, along all four intake runners, and then replace the manifold when all the runners are not adjacent to the straight edge.

Unless there is visible physical damage to the upper manifold, or it measures outside of the service manual specification of greater than 3 mm over 200 mm, it should not be replaced.

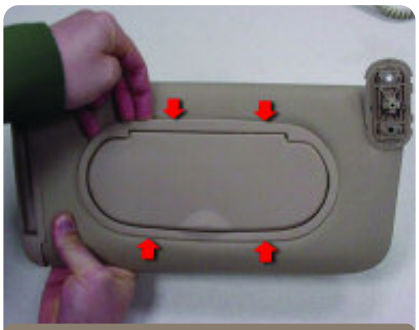
Sunshade Vanity Mirror Replacement

This information pertains to the 2004-2005 Chevy Malibu, Malibu Maxx, and Pontiac G6.

Customers may comment that the vanity mirror cover breaks during normal operation. Replace the vanity mirror assembly rather than the entire sunshade assembly.

The following procedure may be completed inside the vehicle for non-lighted sunshades. For lighted vanities, remove the sunshade from the vehicle. Refer to the Sunshade Replacement procedure in SI.

Insert finger tips or a plastic trim tool tool at the tab locations to disengage the vanity mirror assembly from the sunshade assembly.

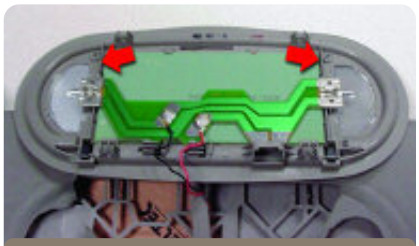


Disengaging mirror assembly at tab locations

For sunshade assemblies with non-lighted vanities, snap the new vanity assembly into the sunshade assembly.

For lighted vanities, transfer the circuit board to the new vanity mirror assembly.

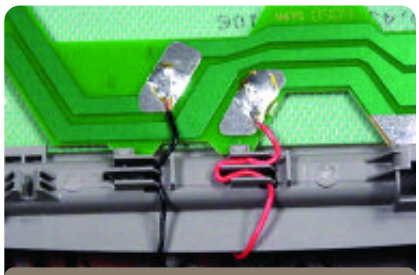
Remove the circuit board from the vanity assembly.



Circuit board retaining tabs

TIP: Slightly flex the vanity mirror assembly to release the circuit board from the retaining tabs.

Install the circuit board to the new vanity assembly and route the wire leads through the wire guides.



Wire routing

Snap the vanity mirror assembly into the sunshade assembly and install sunshade to the vehicle.

Parts will be available from GMSPO. Watch for an upcoming service bulletin.

- Thanks to Joel Ebner

Programmable Truck Radios

This information applies to 2003-2005 C/K Trucks and Utilities and 2004-2005 S/T Trucks and Utilities. Service programming of the radio on these vehicles requires the part number of the radio and the appropriate RPO codes. You can reduce time in programming replacement radios on these vehicles by following these steps.

1. Before installing a replacement radio, obtain the GM part number from the label on the radio.
2. Verify that your Tech 2 has the latest software version.
3. Using the Tech 2, "Request Info" from the radio that is going to be programmed. Always follow proper procedures and precautions.
4. Before entering TIS2000, enter your VIN into GM VIS to obtain the RPO codes of the radio and speaker configuration for this vehicle. (For example, verify if the vehicle was built with UQ3, UQ5, or UQ7 speakers, with or without Y91/Y92.)

TIP: This will allow you to make the correct calibration selections in TIS2000. Selecting the incorrect calibrations for your vehicle configuration can damage the radio and lead to unnecessary delays in repair time.

5. When replacing or installing a NEW radio, you must select "Replace and Program Module" from the TIS menu.
6. Program the vehicle as usual.

TIP: If you are a valid GM dealer and require assistance with this procedure, please contact the Techline Customer Support Center (TCSC).

- Thanks to Abby Slagor

Tire Pressure Monitor

A Tire Pressure Monitor (TPM) system was added to certain GMC and Chevrolet full-size utility trucks for model year 2004 and continues for 2005. The same style system will be rolled out on additional vehicles in 2006. To help you understand this system, a Know-How video was prepared:

Course 10290.04D
Understanding TPM Systems for GM Trucks
March 2005 Emerging Issues

Here are some highlights. For details, refer to the video. A proper understanding of the system, its components, and its operation will help you properly diagnose operating conditions. You will learn to determine when parts replacement and reprogramming are or are not required to remedy the condition.

TPM System Components

The main TPM system components are:

- DIC
- Passenger Door Module (PDM)
- Instrument Panel Cluster
- 4 pressure sensors
- Serial data circuit

Tire Pressure Sensor Operation

The tire pressure sensors are incorporated into the valve stem of each road wheel. The pressure sensor transmits a radio frequency message which is received by a module in the vehicle.

When the vehicle is stationary, the sensor's internal roll switch is open, which puts the sensor into **stationary mode**. The sensor samples tire pressure once every 30 seconds and transmits once every 60 minutes.

When the vehicle is moving, centrifugal force closes the sensor's internal roll switch, which puts the sensor into **drive mode**. The sensor samples tire pressure every 20 seconds and transmits every 60 seconds.

Passenger Door Module (PDM) Operation

The PDM is the receiver in the full-size utility truck. The receiver module varies by vehicle platform. The PDM receives each sensor's RF (radio frequency) transmission and translates the data into:

- sensor presence
- sensor mode
- tire pressure.

TIP: If the vehicle is equipped with RPO UK3, the PDM sends tire pressure and tire location data over the serial data circuit to the DIC, where they can be selected and displayed.

In addition to the display of tire pressures, the DIC in full-size utility trucks can also display two system messages – "Check Tire Pressure" and "Check Tire Monitor". Here are the important differences.

"Check Tire Pressure" message – If a sensor detects a 1.6 psi (11 kPa) change in pressure, it transmits in re-measure mode. If the system detects a significant loss of tire pressure in any tire, the Check Tire Pressure message is displayed on the DIC and the low tire pressure indicator is illuminated on the IPC.

TIP: A "Check Tire Pressure" message will not set system codes. This is normal operation of the system. The purpose of this message is to alert the driver to check and adjust tire pressure.

TIP: Both the message and indicator can be cleared by adjusting the tire pressure to the recommended pressure.

"Service Tire Monitor" message – If the PDM detects a malfunction in the TPM system, it will cause the DIC to display the Service Tire Monitor message.

TIP: The "Service Tire Monitor" message is not a normal system operation. DTCs should be set when this message is displayed.

Tire Pressure Sensor Relearn

DIAGNOSTIC TIPS:

- Try to determine from the customer which message has been displayed. This is especially important when you cannot find TPM system related DTCs stored.
- Always check and adjust the tire pressures COLD. As a rule of thumb, tire pressure will change one psi for every 10° F (6.9 kPa for every 5.6° C).
- Always use a known accurate tire pressure gauge.
- Always 'relearn' the system before replacing a suspect sensor.

Tech 2 Readouts

The Tech 2 can be used for Tire Pressure monitoring information and functions:

- Display tire sensor IDs
- Display tire sensor mode
- Display tire pressure
- Initiate the TPM Learn procedure
- Set up or change tire pressure placard value for the vehicle
- Set up a Passenger Door Module for TPM operation. A service PDM does not come ready for use with TPM. This function must be enabled when a replacement PDM is installed.

When to Perform a Tire Pressure Relearn

The tire pressure sensor relearn procedure must be performed after every PDM replacement, every sensor replacement, and every tire rotation. Once the TPM learn mode has been enabled, each of the sensors' unique ID codes can be learned into the PDM's memory. There are two ways to excite the sensors and enter the learn mode.

Pressure Change Method – This is performed by increasing or decreasing the air pressure in each tire by a specified amount, which forces the sensors to transmit in re-measure mode.

TIP: This method can be reviewed in SI and can also be viewed on the GM Common Training Website.

J-46079 TPM Diagnostic Tool Method – Turn the ignition ON with the engine OFF, and set the parking brake. Place the PDM in TPM learn mode by cycling the parking lamps ON and OFF 4 times within 4 seconds. The horn will chirp and the low tire pressure indicator will begin to flash. This indicates the learn mode has been enabled.

Proceed in this order: left front, right front, right rear, left rear. Starting with the left front tire, hold the antenna of the J-46079 against the tire sidewall close to the wheel rim at the valve stem, and momentarily press the activate button.

After the horn chirps, repeat the procedure for the other three wheels. After all of the sensors have been learned, exit the learn mode by turning the ignition OFF.

TIP: Before starting this procedure, ensure that no TPM equipped vehicle nearby is having its sensors relearned simultaneously, or its tire pressures adjusted. It is possible for the PDM to learn a stray learn or re-measure mode transmission from another vehicle's sensors.

TIP: When a sensor is changed or relearned, the vehicle must be driven above 20 mph (32 km/h) for the DIC to update.

Sensor Color

In early 2005, sensor part numbers and colors were changed. The 2004 and some early 2005 trucks have a blue color sensor, and most 2005 trucks have a beige color sensor. If you find an early 2005 truck with blue sensors, it is not necessary to replace them with beige ones.

- Thanks to David Roland and Ken Beish

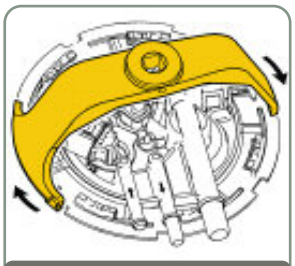
Tool Tip

Here's a tip regarding your J-46079 TPM Diagnostic Tool.

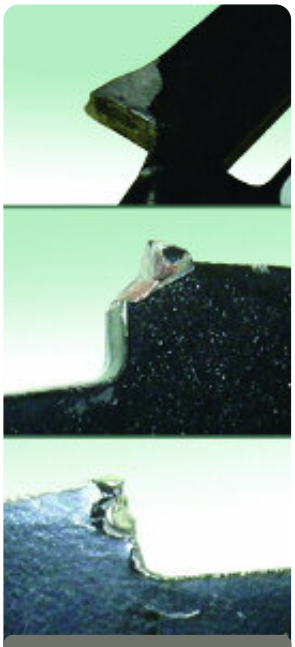
When the internal battery is fresh (fully charged), the indicator is "full," or all dark. When the battery is depleted, the indicator shows "empty," or all light.

When the battery is low enough to show empty, the tool may perform some functions, but not others. For instance, it may perform the Simulate function, but not the Learn function. If you cannot get a vehicle to learn, don't assume the sensors are bad. The tool may just need a fresh battery.

Fuel Pump Module Lock Ring



J-45722



Typical damaged lock rings

At the start of the 2004 model year, a new 130mm corporate fuel pump module lock ring was introduced on numerous vehicle programs. In the future, this fuel pump module lock ring will become standard for all vehicles requiring a 130mm (5.1 inch) opening for the fuel pump module.

During the engineering development of this lock ring, a J-45722 tool was created to remove and install the lock ring. The tool is necessary because of the increased installation forces required to install the ring.

TIP: Never use any tool other the J-45722 to remove or install the 130mm lock ring. Never use impact tools with J-45722.

If improper tools such as screwdrivers, chisels, drifts, hammers, or prybars are used in removal and installation, the lock ring will be damaged, possibly degrading the fuel pump module sealing. Damage to the ring may also crate sharp edges that may, in turn, damage the fuel tank. Damage to the tank and sealing degradation can result in customer comebacks and dissatisfaction.

On some vehicles, the lock ring is captured on the fuel pump module by line connections or swaged-on lines. In these cases, the lock ring cannot be removed from the module and cannot be serviced individually. Some examples of this are the 2004-06 Chevrolet Malibu and MAXX, and the 2005-06 Pontiac G6. If the lock ring on one of these applications is damaged, the entire fuel pump module assembly must be replaced.

Inspection of replaced lock rings at the Warranty Parts Center indicates that numerous 130mm lock rings are being damaged and destroyed by improper installation and removal methods.

Measuring for warpage

When removing the lock ring, it is important to inspect it for damage due to improper removal or installation procedures. If damage is found, install a new lock ring (or the fuel pump module in captured-ring applications). Don't replace the lock ring unless it shows damage at the tool notches or distortion greater than the 0.41mm specification.

On applications where it is possible to remove the lock ring from the fuel pump module, place the ring on a flat surface and measure for flatness. Measure even if damage is not readily visible.

1. Place the lock ring on a flat surface. Measure the clearance between the lock ring and the flat surface using a feeler gage at 7 points.
2. If the warpage is less than 0.41 mm (0.016 in), the lock ring does not require replacement.
3. If the warpage is greater than 0.41 mm (0.016 in) the lock ring must be replaced.

TIP: Some lock rings were manufactured with DO NOT REUSE stamped into them. These lock rings may be reused if they are not damaged or warped.

- Thanks to David MacGillis and Ken Billette

Distorted Rear Fascia

On a 2000-05 Cadillac DeVille, a distorted or warped rear fascia may appear after the vehicle has been exposed to high ambient temperatures. This condition is more prevalent on darker colors. To correct, replace the rear fascia and follow the repair procedures outlined in Bulletin 02-08-62-002B, issued on March 10, 2005.

- Thanks to Bill Denton

Opening Trunk without Lock Cylinder Part 2

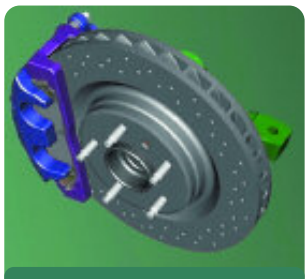
An article in the March TechLink discussed how to open the rear compartment lid of vehicles that don't have an external lock cylinder, in case of a fault that prevents using the remote keyless entry or interior switch. Here's some additional information.

In the 2004 - 05 Pontiac GTO, there is a secondary trunk release handle located under the passenger side rear seat head restraint. To access this handle, lift the head restraint and pull the yellow ring. The vehicle must not moving.

- Thanks to Art Spong and Ken Haneline

Cross-Drilled Rotors

Cross-drilled brake rotors are being used on the 2005 1/2 Pontiac Grand Prix GXP, and available on the 2005 Chevrolet C6 Corvette and the upcoming Cadillac XLR-V.



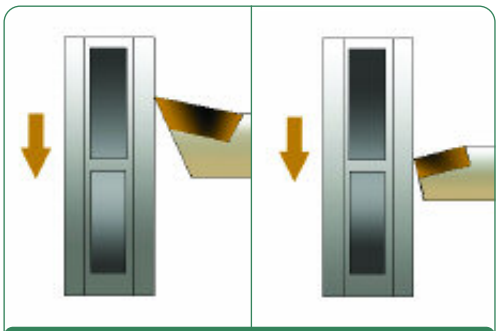
Cross-drilled brake rotor

If required, these brake rotors can be machined on a lathe in a similar manner to standard rotors.

TIP: When cutting rotors, use positive rake tooling on the lathe. Positive rake tooling requires less cutting pressure, reduces chatter, and improves surface finish. When setting up the brake lathe, be sure to use a vibration dampener/silencer.

Using SI procedures, apply a non-directional finish to the rotor surface after machining by using a sanding block and 150-grit aluminum oxide sandpaper.

- Thanks to Fred Tebbets and Rob Coultes



Positive rake / Negative rake

A/C System Break-in Process

Follow the recommended break-in process mentioned in bulletin 05-01-38-002 to avoid premature A/C compressor wear in the 2005 Vibe A/C system.

Lack of proper lubrication to the new A/C compressor may cause premature wear or failure in certain conditions on some vehicles in new vehicle inventory.

This condition is caused by refrigerant system oil migration (causing compressor wash-out), which occurs on brand new vehicles that have not had the A/C system on for an extended period of time (typically greater than 100 days). For vehicles in this category, the A/C system should not be run until the A/C compressor oil circulation procedure has been performed.

This condition is not a quality problem that can be fixed simply by the replacement of the compressor or by the addition of refrigerant oil to the system. It is a condition caused by the vehicles sitting outside, in the sun, for extended periods of time. This thermal cycling causes the oil in the A/C compressor to migrate to the other A/C system components. Furthermore, this condition does not occur on any A/C components stored in parts inventory, such as A/C compressors. Continue to use all service components for this vehicle as normally instructed.

A/C System Oil Circulation Procedure

Do not add additional refrigerant oil to the A/C system.

Perform A/C system operation to ensure proper lubrication of the A/C compressor during the initial vehicle storage period.

Perform the following sequence to ensure proper lubrication of the A/C compressor during new vehicle extended periods of inoperation. It is required that this procedure be performed early in the morning when the vehicle is cold and the ambient temperature is moderate – approximately 50°F (10°C).

1. Make sure the air conditioning (A/C button) is off.
2. Put the mode selector in vent mode.
3. Start the vehicle and let engine RPM idle down to slow idle (1000 RPM or less).
4. Adjust the HVAC blower setting to high.
5. Turn on the A/C and allow the system to run for 90 seconds. This gradual A/C system operation period will allow refrigerant oil to return to the A/C compressor during critical initial break-in period.
6. Perform A/C system performance check.

IMPORTANT: The A/C system on this vehicle will not operate when the ambient temperature is below 35° F (2° C).

It is recommended that vehicles be started and the A/C system operated (for at least 90 seconds) once per month to ensure proper A/C system function until the vehicles are delivered or until the vehicle is driven on a regular basis. Normal operation of the A/C system by the vehicle owner will allow for sufficient compressor break-in and the oil circulation procedure should no longer be required.

- Thanks to Jeff Strausser

ABS and Brake Lights

On the 2005 Chevrolet Equinox, the ABS and the brake lights may be on with no codes set. The vehicle may not have come in for this concern. The ABS and brake lights may have come on after clearing codes in another module for an unrelated concern. When the Tech 2 is used, it will show the EBTCM is commanding the lights on. The condition occurs because the BCM is no longer broadcasting VIN digits 2-9 on the high speed bus.

1. Disconnect the battery cables from the battery and touch the cables together for 30 seconds, then reconnect the cables.
2. Check to see if the ABS and brake lights are off, and no codes are set. Check that you can read the whole VIN using the Tech 2.
3. If the ABS and brake lights are still on with NO codes set, follow the flow chart for ABS Active Indicator Always On (SI document 1318351).

- Thanks to Ron Erman and Angelo Girolamo

Emblem Coming Off Grille

Owners of some 2004-05 Buick Rainiers may comment that the Buick emblem on the grille has come off and is missing.

The clips may not be retaining the emblem to the grille mounting surface.

Replace the emblem by aligning the retaining tabs with the slot in the grille and apply pressure to the emblem, p/n 89045663, described as a Emblem Assembly – Radiator Grill. Parts are available from GMSPO.

This is covered in detail in bulletin 05-08-111-001 or SI document 1580217.

- Thanks to Doug Daugherty

2005 Gasoline Engine Oil Requirements – Additions

2005 GM gasoline engines require the use of an engine oil that has the American Petroleum Institute (API) Starburst AND states that it meets GM Standard GM 6094M (non-synthetic) or GM4718M (synthetic). Failure to use the recommended engine oil can result in engine damage not covered by warranty.

In the March issue, TechLink published a list of engine oil brands that meet GM Standard GM 6094M and 4718M. This list has be updated through April 12, 2005 and may be viewed in the TechLink Reference Guide at http://service.gm.com.

TIP: This list will be updated in the future as required, and will continue to be displayed in the TechLink Reference Guide.

- Thanks to Matt Snider, GM Powertrain

Synthetic Oil Question

We recently received this e-mail from Mike McQuoid, at Norman Gale Pontiac GMC, Cedar Knolls, NJ:

"In the March 2005 issue of TechLink, there is a list of motor oils approved by GM for use in gasoline engines. I'm curious why so many "full synthetic" oils are listed in the "non-synthetic" list and not in the synthetic list."

Here's the answer from GM Powertrain:

"GM4718M is General Motors' High Performance engine oil specification. Oils which meet GM4718M tend to be made from synthetic base stocks, so it is often referred to as a "synthetic" specification.

"However, not all oils, synthetic or otherwise, are capable of meeting the stringent requirements of GM4718M. Only the oils listed on the GM4718M Registered Products sheet have proven their performance to the specification."

- Thanks to Matt Snider, GM Powertrain

OnStar Personal Calling Inoperative

Some owners of the 2005 STS may comment that OnStar personal calling with Navigation Radio RPO YQ4 does not work when using the voice recognition button on the Steering Wheel Controls (SWC). Personal calling will work from the white dot button on the Inside Rear View Mirror (ISRVM). 2005 Cadillac STS equipped with Navigation Radio RPO YQ4 have Bluetooth phone capabilities. When pressing the voice recognition button on the steering wheel controls and saying "phone," "telephone" or "dial," the system will attempt to connect to the Bluetooth phone.

In order to connect to OnStar personal calling using the SWC voice recognition button, the owner must say "OnStar" and then "dial"

- Thanks to Roger Jantz

Power Folding Top (Retractable Hardtop)

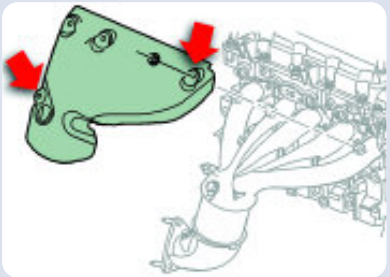
If the power folding top of the 2004-05 Cadillac XLR will not function, perform the following.

1. Start the engine and try the top again. This ensures the vehicle's battery is sufficiently charged.
2. While depressing the folding top button in the desired direction, look at the Driver Information Center (DIC) for a message. If a message is displayed, see DIC Warnings and Messages on page 3-61 in the owner's manual for more information.

   TIP: Most messages relating to top operation are displayed only while the folding top button is depressed.
3. If no messages are displayed and the folding top will not operate, perform the Power Window Initialize on page 2-17 of the owner's manual. The folding top system must know the window position to operate. The position information can be lost if the vehicle has had a battery disconnect or a run down battery. After performing this procedure, try the top again.
4. It the top doesn't operate, confirm that the hydraulic fluid bypass valve, located above the pump motor, is in the operating position (turned clockwise).
5. If the folding top will still not operate, see SI for additional diagnosis

- Thanks to Paul Radzwilowicz

Exhaust Manifold Shield Noise



Owners of some 2004-05 Chevrolet Colorado and GMC Canyon vehicles with the 3.5L engine may experience a buzz noise while the engine is under load between 2200 and 2800 RPM. The noise sounds like it is coming from the engine compartment (may sound like it is coming from the air cleaner area) or the exhaust system.

Inspect the exhaust manifold for a loose exhaust heat shield. Inspect all fastener positions, with emphasis on the nut above the O2 sensor and the nut on the No. 1 exhaust tube.

Make sure the shield itself is not in direct contact with the manifold other than at the fastener positions. Reposition the shield if necessary to avoid contact.

- Thanks to Dino Poulos

Torque Converter Assembly Design Change

There is a 4T80E Transmission Torque Converter Assembly Design Change in 2005 Cadillac Deville and Pontiac Bonneville.

Vehicles with the VIN listed below are built with automatic transmissions that have a new broadcast code and transmission assembly part number. These transmissions are built with an Electronically Controlled Capacity Clutch (ECCC or EC3), a new upper control valve body assembly, a new upper control valve body spacer plate, and a new powertrain control module calibration.They will not have a viscous fluid converter.

VIN	Model	Transmission Serial Number
5U189285	GXP	616MMNH0152
5U189290	DeVille	616ABNH014H
5U189292	DeVille	616ABNH014F
5U189298	DHS	616ABNH014G
5U189300	DeVille	616ABNH014J
5U189305	DeVille	616ABNH0146
5U189309	DeVille	616ABNH0145
5U189313	GXP	616MMNH0154
5U189316	DeVille	616ABNH0140
5U189319	DeVille	616ABNH013Z
5U189321	DeVille	616ABNH0149
5U189322	DeVille	616ABNH0134
5U189326	DeVille	616ABHN0143
5U189328	DHS	616ABNH0144
5U189331	DeVille	616ABNH0147
5U189333	DHS	616ABNH0148
5U189334	DeVille	616ABNHO148
5U189342	DTS	616MMNH0151
5U189356	DTS	616MMNH0155
5U189363	GXP	616MMNH0153
5U210345	DeVille	615ABNH013Q
5U210348	DeVille	615ABNH013T
5U210344	DeVille	615ABNH013P
5U210340	DeVille	615ABNH013S
5U210341	DeVille	615ABNH013R

Use the current MY 2005 service information and diagnostic procedures for transmission service requirements. All warranty labor codes and time allowances remain the same.

IMPORTANT: When ordering parts for these vehicles, the vehicle VIN, the transmission broadcast code and the transmission assembly part number must be used. Remanufactured torque converter part number for transmission code 5ABN, 3.11 axle ratio is 12491371.

Remanufactured torque converter part number for transmission code 5 MMN, 3.71 axle ratio is 12491372.

- Thanks to Ronald Mitchell

Car Issues – Fix It Right the First Time (new issues in **bold**)

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2003-2004	**CTS – DTC C0450 or C1241 Set, Service Steering System Message On**	**Replace only VES solenoid.**	**Don't replace entire steering gear.**	**03-02-36-001A**
2003-2004	**Cavalier, Sunfire – Difficult to Adjust HVAC Control Head Mode Dial**	**Replace foam which delaminated from mode door and is causing bind.**	**Don't replace HVAC control head, module or cables unless damaged.**	**03-01-38-005B**
2002-2003	**Impala – Snap/Clunk When Window is Rolled to Full Up Position**	**Replace glass run channel with revised P/N.**	**Don't replace front door window regulator, door glass or align door glass.**	**03-08-64-034**
2003-2004	**Cavalier, Sunfire – Noisy A/C Compressor**	**Inspect for ground-out conditions that can cause A/C compressor noise complaints.**	**Don't replace A/C compressor for excessive noise without inspecting for ground-outs.**	**03-01-38-012A**
2005	Equinox LT/LS (AWD Only) – Moan, Bind or Growl Coming from Rear during Low Speed Parking Lot Turns	Replace RDM coupling (clutch pack) with proper sealers. Fill with Versatrak fluid.	Don't replace complete rear drive module.	04-04-20-004
2005	Cobalt/Pursuit (Built Before January 17, 2005) – Fuel Gauge May Not Go Completely to Full	Recalibrate ECM with updated calibration, version 1.75.	Don't replace fuel module, fuel level sensor assembly or fuel gauge.	05-08-49-002A
2002-2005	Cars and Trucks – Multiple Driveability Symptoms/Clogged Fuel Injectors	Clean fuel injectors as described in Bulletin.	Don't replace fuel injectors.	03-06-04-030A
2004	Grand Prix – Steering, Suspension or Cradle Click Noise	Install new two-piece sleeve and spacer to steering gear mounts.	Don't replace steering gear or cradle.	03-02-32-048A
2000-2003	Century, Regal, Lumina, Impala, Monte Carlo, Grand Prix, Intrigue with 3.8L L36 Engine – Coolant Leak	Replace upper intake manifold gasket only.	Don't replace upper intake manifold assembly for coolant leak.	03-06-01-016
1999-2004	All Cars and Trucks – Brake Warranty, Service and Procedures	Issue One: Refinish brake rotor. Issue Two: Measure for LRO	Issue One: Don't replace brake rotors. Issue Two: Don't measure for LRO	00-05-22-002D

Truck Issues – Fix It Right the First Time (new issues in **bold**)

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2003-2005	**Full Size Pickups and Utilities – Rear Seat Audio and/or Rear HVAC Controls Inoperative**	**Replace RSA.**	**Don't replace console.**	**03-08-44-018B**
2004-2005	**Midsize and Fullsize Pickups and Utilities – CD Issues**	**Load new software calibration.**	**Don't exchange or replace radio.**	**04-08-44-020A**
2002-2005	Tahoe, Suburban, All Yukons, All Escalades, Avalanche, H2 – Exhaust Pop/Ping Noise	Replace heat shield.	Don't replace exhaust system.	03-06-05-008B
2003-2005	Full Size Pickups and Utilities – Snap/Popping Noise from Front of Vehicle	Use procedure in Service Bulletin.	Don't replace crossmember.	03-08-61-002D
2004	Tahoe, Suburban, Silverado, Yukon, Yukon XL, Sierra, Escalade, Escalade EXT, Escalade ESV, H2 – Passenger Door Module and RKE Inoperative	Re-flash passenger door module.	Don't replace passenger door module.	04-08-52-005
2001-2003	Fullsize Pickups – Injector Replacement for High Flow Rates	Use Corporate Bulletin Number 04-06-04-007A for injectors with high fuel return rates. Use Special Policy 04039 for all 01-02 vehicles.	Don't replace 8 injectors for any complaint other than high fuel return rates. All other injector failures are fix as failed.	Special Policy 04039
2004-2005	All Cars and Trucks – State-of-Charge Upon Delivery of a New Vehicle	Check battery's state-of-charge per revised PDI procedure using J42000 or J42000-EU.	Don't remove and replace battery.	02-06-03-009A
2002-2004	Fullsize and Midsize Pickups and Utilities – Labor Operation Assignments for Control Module Reprogramming	When submitting claims for reprogramming an electronic module, use the correct labor operation that reflects the module being programmed.	Don't use K5364, which is for reprogramming a transmission control module (TCM), when reprogramming a TCCM.	02-04-21-006D 02-06-04-057D
2002-2004	Chevrolet Avalanche and Cadillac Escalade EXT – Cargo Covers and Cladding Faded or Stained	Thoroughly clean, dry and treat components with "Armor-dillo."	Don't replace cargo covers.	04-08-111-001B
2001-2004	Fullsize Pickups and Utilities – Servicing Wide Load Mirrors (RPO DPF)	Replace individual parts as needed.	Don't replace complete mirror assembly.	03-08-64-028

Know-How Broadcasts for June

10290.06D Emerging Issues	June 09, 2005, 9:00 AM, 12:30 PM, and 3:00 PM Eastern Time
New Model Features and Technology Close-Up seminars	Stay tuned! These programs will return soon. Check the Service Know-How section of the GM Training website (www.gmtraining.com) for more details.

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– Thanks to Tracy Rozman