

Vehicle: All Technical Service Bulletins

Technical Service Bulletin # 06-00-89-054

Date: 061130

Warranty - Claims Submission

Bulletin No.: 06-00-89-054

Date: November 30, 2006

WARRANTY ADMINISTRATION

Subject:
Warranty Claims Submission - Importance of GM Part Numbers and Date Coded Parts

Models:
2007 and Prior GM Passenger Cars and Light Duty Trucks
2003-2007 HUMMER H2, H3
2005-2007 Saab 9-7X

GM Part Numbers

All parts used on GM vehicles are assigned a GM part number. Additionally, most of the parts used in the manufacturing of GM vehicles are marked with GM part numbers directly on the part. This allows for easy verification of Genuine GM parts whether stocked at the warehouse, installed on a vehicle, or being returned for warranty claims. Running changes are also sometimes necessary during a model year resulting in additional part number changes mid-year.

Date Coded Parts and Identification Marks

Many of the parts used on powertrain, chassis, electrical and interior assemblies are marked and date coded in a variety of ways. You may find stickers, bar codes, embossed clock faces, number stampings and riveted tags among many other methods on the parts you possess. While many of these components are supplied to General Motors, almost all suppliers track these identifications as a method of quality assurance and containment if ever an issue arises about a specific part.

Date Code Example



The sample picture is from a 2.4L 4 cylinder front engine cover. On this part, the date code appears as a "clock" wheel.

On the first day for each month of production, the casting dye is pulled. Using a center punch, an operator manually punches another point on the date code wheel. To decode, you simply count the number of center punches, or impression, in the dial of the clock and you have the month.

The example picture has eight impressions, or center punch marks, on the wheel. The year is cast into the center of the dial or clock face. Therefore, the example is identified as being from August 2006. This date along with the part number, and many different identifiers cast into the parts, are used to track variations with multiple dies or production locations. When these marks are on the exterior surfaces when installed, they give GM dealers a powerful advantage when used for inspection purposes.

When the above information is tied to the correct VIN of the vehicle, along with a complete and detailed repair order, it becomes an effective tool to

isolate parts with a given concern. This all depends on your dealership and care you take in regards to returned parts.

Warranty Claims Submittal and Accompanying Returned Parts Guidelines

It is vital that the exact part(s) replaced during a warranty repair be returned when requested. These parts must be the specific ones associated with the repair order requested and must carry the proper date codes for the production run of the vehicle or component. Substitute parts are not acceptable. This information is used during warranty part reviews and is tracked to determine possible problems with a specific production run. The more precisely that GM can isolate a production time frame that is causing customer concerns, the quicker and more effectively we can target a solution.

Warranty Debits

Parts that are returned out of date range for the specified vehicle on the repair order will first be cross-checked under the vehicle warranty system for past replacements. If a past replacement is noted the warranty data will be recorded as such and the claim will be processed. Parts returned out of date range for the vehicle repaired may be debited back to the dealer.

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Disclaimer Technical Service Bulletin # **06-00-89-050**

Date: **061122**

Warranty - DTC's Required On Repair Orders

Bulletin No.: 06-00-89-050

Date: November 22, 2006

INFORMATION

Subject:

Diagnostic Trouble Codes (DTCs) Required On Repair Orders

Models:

2003-2007 Passenger Cars and Trucks (Including Saturn and Saab)

2003-2007 HUMMER H2, H3

Dealers are required to record ANY and ALL diagnostic trouble codes (DTCs) on the repair order (R.O.), per the Service Policies and Procedures Manual, Section 1.6.2. This information is needed by Engineering to facilitate the root cause diagnosis of the electronic control module.

Technicians are required to provide enough detail so that the DTC that is most likely to have caused the condition can be clearly identified by the dealership Warranty Administrator. The warranty claim must be submitted with the DTC in the OBD II field of the claim.

FAILURE TO COMPLY WITH THIS REQUIREMENT COULD LEAD TO THE REJECTION OR DEBIT OF THE WARRANTY CLAIM.

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Disclaimer Technical Service Bulletin # **03-06-04-012A**

Date: **050810**

Electrical - Harness Connection Inspection

Bulletin No.: 03-06-04-012A

Date: August 10, 2005

ADVANCED SERVICE INFORMATION

Subject:

Inspection of All Related Wiring Harness Connections When Diagnosing Miscellaneous DTCs, Intermittent Driveability Concerns, Hard Start, No

Start, Incorrect Gauges, Inoperative Air Conditioning Systems, Service Engine Soon Lamps Illuminated, 4WD Lamp Illuminated, Instrument Panel Gauges Inoperative, Cruise Inoperative

Models:

2006 and Prior Cars and Light Duty Trucks
 2003-2006 HUMMER H2
 2006 HUMMER H3
 2005-2006 Saab 9-7X

Supersede:

This bulletin is being revised to add models, model years and additional information. Please discard Corporate Bulletin Number 03-06-04-012 (Section 06 - Engine/Propulsion System).

When servicing a vehicle for any type of customer concern, the following steps are imperative. Inspect and ensure the integrity of all related wiring harness connectors. If the wiring harness connectors are not properly put together or engaged before they are locked together, numerous types of intermittent conditions may occur, which may include any of the symptoms listed above and possibly others.

The first step in any type of electrical diagnosis is a visual and physical inspection of the wiring harness connectors for integrity. Many times, the vehicle may be repaired just by disconnecting and reconnecting the connectors. As with all repairs to wiring harness connectors and terminals, a pull test of the terminals within the connector should be performed. A pull test is performed by inserting the proper size terminal test tool (not a paper clip) into the terminal to determine whether or not the terminal is making good contact, or whether the terminal has been damaged from the prior improper connection or lack of connection.

Note:

Most terminals used in current module connectors (ECM, BCM, EBTCM and the like) are small 0.64 mm sq. terminals and can be damaged by probing with the wrong tool.

The J 3561 6-64A or B probe has been designed for these terminals that may be both a round or square design.

For example, if the Connector C2 of the engine wiring harness to the Powertrain Control Module (PCM), for the 2.2L equipped Cavalier or Sunfire is not properly seated into the PCM:

- ^ The cam lock lever may close, however improperly.
- ^ The cam lock lever may even snap out of position.
- ^ The vehicle may have an intermittent condition with any one of the components which are controlled or monitored by the PCM.

THE CAM LOCK LEVER IS DESIGNED TO PULL (OR ASSIST) THE CONNECTOR INTO ITS FINAL POSITION ONCE IT HAS BEEN PRESSED STRAIGHT INTO THE PCM HEADER PAST THE INITIAL DETENT, ALLOWING THE LEVER TO BE MOVED INTO THE LOCKED POSITION. It is not only a retainer but an assist during the connection process. When the wiring harness connector is properly connected to the PCM, a snap will be heard when the connector is in position to be fully seated. The cam lock lever may then be closed. The cam lock lever will then do its designated job as both an assist and ensuring the connector does not come apart due to vibration or other types of conditions found in vehicles as they travel down the highway.

Remember, if a terminal (metal) or the connector (plastic) is damaged, they should be replaced. DO NOT replace the complete wiring harness assembly. Some harnesses are now on order restriction since most harness damage can be repaired.

Terminals and terminal removal tools are in the J 38125 Terminal Repair Kit and pigtailed or complete connectors can be obtained through normal parts ordering procedures OR from GMSPO and Saab PDC along with tape or conduit.

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Disclaimer Technical Service Bulletin # **06-08-45-004**

Date: **060502**

Electrical - Instrument Panel & General Wiring Repair

Bulletin No.: 06-08-45-004

Date: May 02, 2006

INFORMATION

Subject:
Instrument Panel (I/P), Body and General Wiring Harness Repair

Models:
2007 and Prior GM Cars and Trucks
2003-2007 HUMMER H2
2006-2007 HUMMER H3

Important:

A part restriction has been implemented on all Body and I/P harnesses and is being administered by the PQC. If a body or I/P harness replacement is required, it can take 12-28 weeks for a harness to be built and delivered to a dealer. The dealer technician is expected to repair any harness damage as the first and best choice before replacing a harness.

In an effort to standardize repair practices, General Motors is requiring that all wiring harnesses be repaired instead of replaced. If there is a question concerning which connector and/or terminal you are working on, refer to the information in the appropriate Connector End Views in SI. The Instruction Manual J 38125-620, which is sent with each new update of the J 38125 Terminal Repair Kit, also has terminal crimping and terminal remove information.

Important:

There are some parts in the J 38125 Terminal Repair Kit (i.e. SIR connector CPAs and heat shrink tube (used in high heat area pigtail replacement) and some TPAs that are not available from GMSPO. It is vitally important that each update to the J 38125 Terminal Repair Kit be done as soon as it arrives at the dealer.

Utilize the Terminal Repair Kit (J 38125) to achieve an effective wiring repair. The Terminal Repair Kit has been an essential tool for all GM Dealers since 1987. Replacement terminals and tools for this kit are available through SPX/Kent Moore. Refer to Corporate Bulletin Number 06-08-45-001 for more information.

The Instruction Manual J 38125-620, which is sent with each new update to the J 38125 Terminal Repair Kit, also has terminal crimping and terminal removal information.

U.S. Dealers Only - Training courses (including Tech Assists, Emerging Issues, Web, IDL and Hands-on) are available through the GM Training website. Refer to Resources and then Training Materials for a complete list of available courses.

Canadian Dealers Only - Refer to the Training section of GM infoNet for a complete list of available courses and a copy of the J 38125 Terminal Repair Kit Instruction Manual.

Wiring repair information is also available in Service Information (SI). The Wiring Repair section contains information for the following types of wiring repairs:

- Testing for intermittent conditions and poor conditions
- Flat wire repairs
- GMLAN wiring repairs
- High temperature wiring repairs
- Splicing copper wire using splice clips
- Splicing copper wire using splice sleeves
- Splicing twisted or shielded cable
- Splicing inline harness diodes

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Disclaimer Technical Service Bulletin # 01-01-39-003A

Date: 030714

A/C - Catastrophic Compressor Failure Debris Removal

Bulletin No.: 01-01-39-003A

Date: July 14, 2003

INFORMATION

Subject:

J 44551 A/C Suction Screen Kit Repair Recommendations and Procedures After Catastrophic Compressor Failures

Models:

1997-2004 Passenger Cars and Light Duty Trucks

2003-2004 HUMMER H2

with Delphi HD6, HU6 and HT6 Compressors

Supersede:

This bulletin is being revised to update model years and add the HUMMER H2. Please discard Corporate Bulletin Number 01-01-39-003 (Section 01 - HVAC).

GM Service Operations and Delphi Thermal Systems have worked with GM dealers over the past three years to develop the tools and procedures to increase your success rate on repairing vehicle A/C systems that experience catastrophic compressor failures.

After a catastrophic compressor failure, it is extremely important to eliminate and/or contain the debris that causes repeat repairs. The debris generated from a catastrophic compressor failure is discharged into the compressor suction line, the discharge line, the condenser and the liquid line. The use of the J 44551 Suction Screen Kit DOES NOT replace the need for liquid line filters as described in the vehicle specific Service Manual. Liquid line filters should be used whenever possible (after a catastrophic compressor failure) to protect the expansion device (orifice tube or TXV) from debris.

Analysis of failed replacement compressors show the debris discharged into the INLET side of the compressor (suction line) is often pulled into the replacement compressor. It is important to keep this debris out of the new compressor to avoid repeat compressor failure. The J 44551 Suction Screen Kit is designed to help protect the NEW (replacement) compressor from ingesting debris that was sent into the SUCTION side of the system during a compressor failure.

The J 44551 kit supplies your dealership with the right tools and supplies to cover the Delphi HD6, HU6 and HT6 compressors for most GM applications. Delphi V5 and V7 compressors already have this screen installed in the suction port of the compressor and do not need an additional screen installed.

Service Procedure

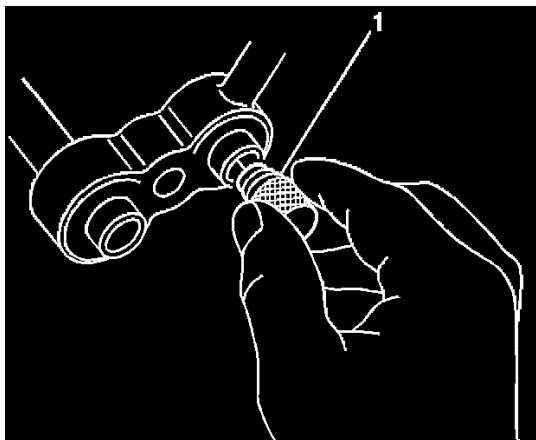
Tools Required

J 44551 Suction Screen Kit

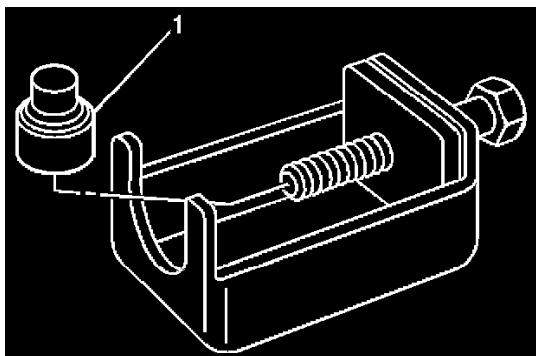
The J 44551 Suction Screen Kit contains three different screen sizes. It is important to select the correct size screen that will press fit into the suction port of the compressor hose assembly. The screen should not be installed loose inside the hose assembly.

Installation Procedure

1. Evacuate the air conditioning system completely using the applicable recovery equipment.
2. Remove the bolt that attaches the manifold of the muffler assembly hose to the air conditioning compressor.



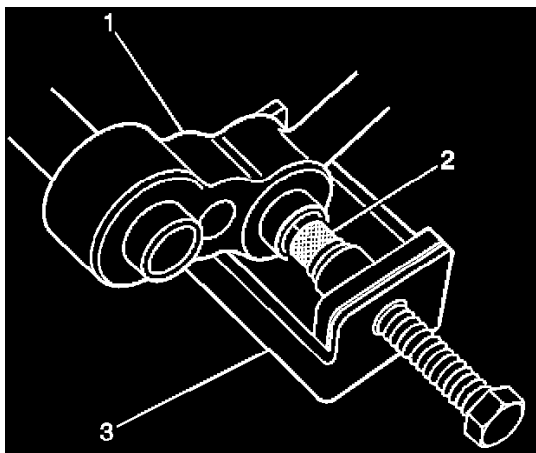
3. Use the Suction Port Sizing Tool (1) in order to determine the appropriate size filter screen.



4. Install the proper Installation Mandrel (1) on the threaded portion of the Installation Tool.

5. Using the Installation Tool, place the manifold into the fixture of the tool.

- 5.1. Lubricate the applicable filter screen with refrigerant lubricant.
- 5.2. Ensure that you are on the suction side of the air conditioning manifold.
- 5.3. Place the filter screen straight into the bore before proceeding.



- 5.4 Using a 9/16 in wrench, turn the bolt of the Installation Tool (3) clockwise, pressing the filter screen (2) into the bore.

The filter screen must be flush with or slightly below the bore.

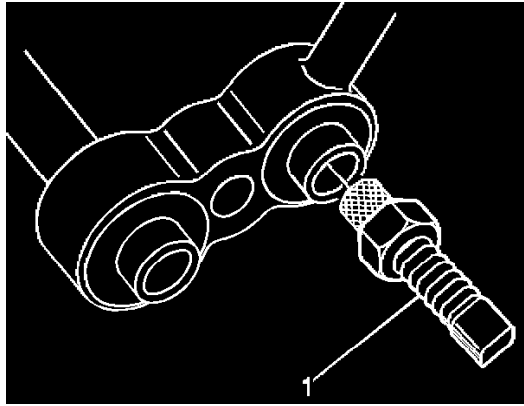
6. Reinstall the manifold (1) on the rear of the air conditioning compressor. Make sure to tighten to the correct specifications.

Important:

Be sure to clean the appropriate surface before applying the Notification Label.

7. Included in the kit is a bright yellow Notification Label with the following message: **ATTENTION!** Suction Line Screen Installed. It is very important that you apply this label to the manifold, the suction line, or some other appropriate, highly visible location.

Removal Procedure



1. Using the appropriate Removal Tool (1), place the Removal Tool (1) into the bore of the filter screen.
2. Turn the Removal Tool one turn clockwise, or until tight.
3. Turn the nut clockwise to remove the filter screen using the appropriate size wrench.
 - ^ 11/16 in wrench for size A filter screen
 - ^ 3/4 in wrench for size B filter screen
 - ^ 7/8 in wrench for size C filter screen

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Disclaimer Technical Service Bulletin # **03-01-39-008**

Date: **030625**

A/C - System Changes/Synchronization

Bulletin No.: 03-01-39-008

Date: June 25, 2003

INFORMATION

Subject:

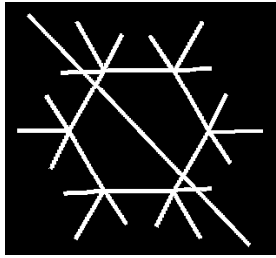
Changes in A/C Compressor On/Off Instrument Panel Display Symbol from 2003 to 2004 Model Year and Synchronizing the Driver and Passenger Set Temperatures

Models:

2003-2004 Cadillac Escalade, Escalade ESV, Escalade EXT
 2003-2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe
 2003-2004 GMC Denali, Denali XL, Sierra, Sierra Denali, Yukon, Yukon XL
 2003-2004 HUMMER H2
 with Dual Zone Automatic Climate Control (RPO CJ2)

This bulletin is being issued to clarify the operation of the A/C compressor and to explain the driver and passenger set temperature operation on vehicles equipped with dual zone automatic climate control systems (RPO CJ2).

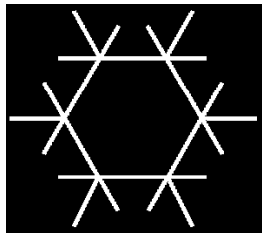
Operation of A/C Compressor 2003 A/C OFF Indicator



On 2003 model year vehicles, a snowflake with a slash through it is shown on the display when the A/C has been turned off (by a press of the A/C button). The A/C can be turned on by pressing the AUTO button or pressing the A/C button again. This will remove the indicator from the display.

Some customers may comment about poor A/C performance after they've pressed the A/C button and see what appears to be the snowflake illuminated on the display. What has actually happened, though, is that they have disabled the operation of the A/C compressor and the snowflake symbol, upon closer inspection, has a slash through it.

2004 A/C ON Indicator



On 2004 model year vehicles, the indicator will change to a snowflake (without the slash) and it will be illuminated whenever the A/C compressor operation is enabled.

Driver and Passenger Set Temperature Operation

The display of driver and passenger set temperature may also cause confusion. It is possible to set the left temperature control to full cold and the right temperature control to full hot with little indication on the display that the two temperatures are set differently.

If the driver set temperature is set to 16°C (60°F) and the passenger set temperature is set to 32°C (90°F), the display will show the passenger set temperature for only five seconds. After that time, the display will show only the driver set temperature and a small arrow pointing left. The arrow is very important because it is the only indicator that the left and right temperatures are not equal. When both the driver and passenger set temperatures are equal, the display will have arrows pointing both left and right.

With different set temperatures, it is possible to have the left temperature door flowing air through the evaporator and the right temperature door flowing air through the heater core. This may cause the overall passenger compartment temperature to not be cooled or heated as well as the customer might expect.

In order to synchronize the driver and passenger temperatures, follow these steps:

- ^ Set the driver and passenger set temperatures to the desired temperatures, OR
- ^ Push and hold the AUTO button for at least four seconds to make both driver and passenger set temperatures set to the driver's set temperature. Both set temperatures can be controlled by the left temperature control knob when the zones are linked in this manner. Turning the passenger set temperature knob will "unlink" the zones again.

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Date: June 17, 2004

TECHNICAL

Subject:
HVAC System Cannot be Controlled or Defaults to Defrost Mode (Repair HVAC Actuator Harness)

Models:
2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2005 GMC Sierra, Yukon, Yukon XL

Condition

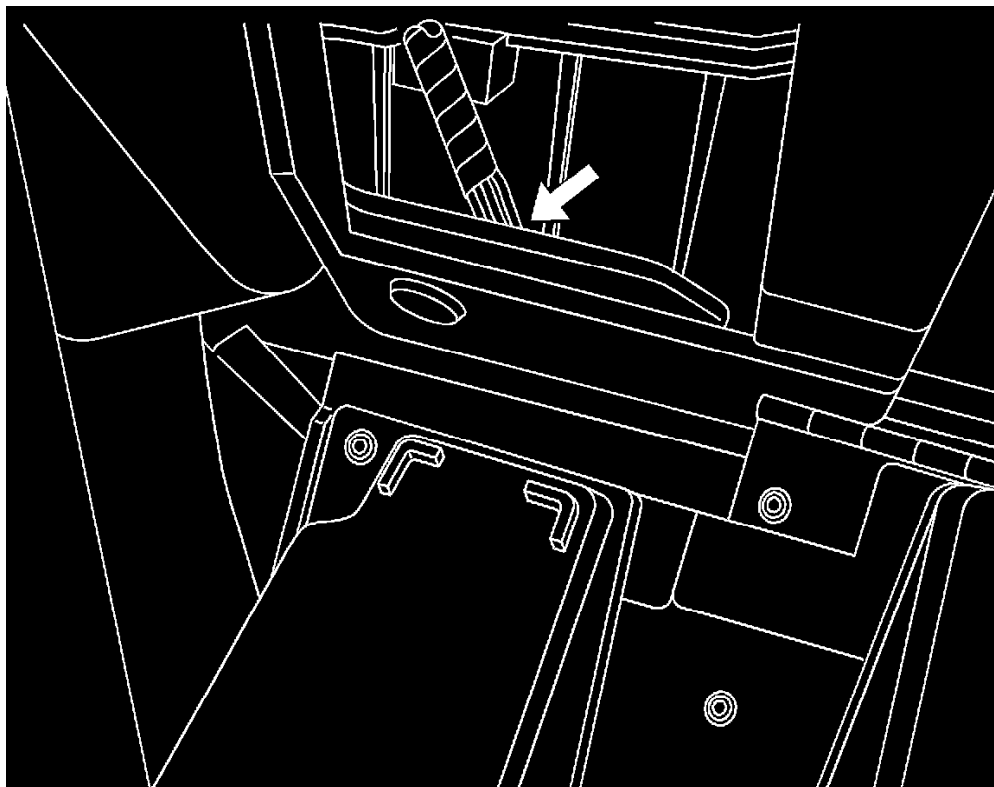
^ Some customers may comment that they cannot control the HVAC (heating, ventilation and air conditioning) system. Others may comment that the HVAC system defaults to the Defrost mode.

^ Technicians may find that the following diagnostic trouble codes have set:

- ^ B0229 Recirculation Actuator
- ^ B0414 Left Air Temperature Actuator
- ^ B0424 Right Air Temperature Actuator
- ^ B3770 Mode Actuator Cause

The HVAC actuator harness may contact a sharp edge on the instrument panel support brace, causing a rub through condition and a ground out of the actuator control and/or feedback circuits.

Correction



Locate the HVAC actuator harness contact point shown by the arrow in the above illustration. The illustration is of the instrument panel with the instrument panel compartment door opened and folded downward. The actuator harness is located in the left side of the opening in the instrument panel.

Technicians are to inspect the HVAC actuator harness for contact with the instrument panel support brace. Repair any damage to the actuator harness wiring and install protective plastic conduit over the harness. Install friction tape over the sharp edge of the instrument panel brace. Clear the diagnostic


trouble codes and verify proper HVAC system operation.

Warranty Information

Labor Operation	Description	Labor Time
N6642	Wiring And/Or Connector - HVAC System – Repair Or Replace	Use applicable labor operation time.

For vehicles repaired under warranty, use the table.

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Disclaimer
 Technical Service Bulletin # 01-01-38-006D

Date: 040901

A/C - R-134a System Flushing Procedures

File In Section: 01 - HVAC

Bulletin No.: 01-01-38-006D

Date: September, 2004

INFORMATION

Subject:
 Contaminated R-134a A/C Systems - Air Conditioning System Flushing Procedures and Universal In-Line A/C Filter Installation

Models:
 1993-2005 Passenger Cars and Light Duty Trucks

with Air Conditioning

This bulletin is being revised to update the parts information. Please discard Corporate Bulletin Number 01-01-38-006C (Section 01 - HVAC).

GM Service Operations has worked with GM dealers to develop tools and procedures to properly flush A/C (air conditioning) systems. The recommended flushing procedure uses liquid R-134a refrigerant to perform the system flush and is the only GM approved method for system flushing. The use of alternate methods that utilize solvents has proven to be detrimental to A/C system performance and durability. Every General Motors dealer has received a J 43600 ACR 2000 Air Conditioning Service Center that has built-in A/C system flushing capabilities. Every General Motors dealer has also received a J 45268 Flush Adapter Kit to utilize the flushing capability of the J 43600 ACR 2000.

This bulletin contains a general outline of the procedure and when to perform A/C system flushing. Vehicle specific flushing information is contained in the HVAC section of SI.

A/C system flushing should NOT be routinely performed when a system failure is encountered. System flushing takes a considerable amount of time to perform and is NOT necessary on most system failures. System flushing requires prior authorization by the GM Area Service Manager (the District Service Manager in Canada) and should be performed only when one of the following conditions is found:

- ^ A desiccant bag failure.
- ^ A gross overcharge of A/C system lubricant.

^ The A/C system lubricant is contaminated.

^ A catastrophic compressor failure causing oil contamination.

A/C system flushing will remove some of the metal particles during a flush, but flushing is not completely effective in removing all metallic debris. System flushing should not be considered if removal of metallic debris is the only objective. GM Service Operations continues to strongly recommend the use of a Liquid Line Filter and a Suction Screen to control this type of system contamination and avoid repeat failures.

A/C System Flushing Procedure

Tools Required

- ^ J 43600 ACR 2000 Air Conditioning Service Center
- ^ J 45268 A/C Flush Adapter Kit J 41447 R-134a Tracer Dye or equivalent
- ^ J 41459 A/C Tracer Dye Injector or equivalent
- ^ J 42220 Universal 12V Leak Detection Lamp or equivalent
- ^ J 39400 Halogen Leak Detector or equivalent
- ^ J 44551 A/C Suction Screen Kit
- ^ J 45037 Oil Injector kit
- ^ J 45037-46 GM Universal Compressor PAG Oil (packaged as 6, 8 oz tubes)

A warm engine compartment or higher ambient temperatures as well as air flow across the heat exchangers (evaporator, accumulator and condenser) speed the refrigerant recovery time during the A/C flush procedure. Whenever possible, warm the engine prior to A/C system flushing. An external fan blowing across the condenser and running the A/C blower motor while the engine is running may be used to speed up refrigerant recovery.

Front Only A/C Systems

1. Recover the refrigerant from the vehicle.
2. Remove the expansion device (orifice tube or TXV (Thermostatic Expansion Valve)).
3. Connect the A/C lines with the orifice tube removed or install the appropriate TXV Adapter from the J 45268 A/C Flush Adapter Kit.
4. Disconnect the A/C compressor manifold (never flush through a compressor).
5. Inspect the end of the suction hose for a suction screen. Remove the suction screen using the screen remover in the J 44551 A/C Suction Screen Kit, if installed.
6. Install the appropriate A/C compressor hose assembly flush adapter(s) from kit J 45268.
7. Configure the flush adapter and hose for either a forward flush or reverse flush. Refer to the Flushing Configuration section of this bulletin.

Front/Rear (Dual Circuit) A/C Systems

Each circuit of a front/rear A/C system must be flushed separately. Flow to one circuit must be blocked with the use of a blocked orifice tube or blocked TXV. The front circuit should always be flushed first.

Front Circuit

1. Recover the refrigerant from the vehicle.
2. Remove the expansion device (orifice tube or TXV) from the front circuit.
3. Re-connect the A/C lines with the orifice tube removed or install the appropriate non-blocked (open) TXV Adapter from kit J 45268.

Important:

A blocked orifice tube is not supplied with the J 45268 Adapter kit. A blocked orifice can be made as follows: Cut the orifice tube frame and screen.

Remove enough of the frame and screen to access the end of the brass orifice tube. Seal the tube by pinching off the end of the orifice tube.

4. Remove the expansion device (orifice tube or TXV) from the rear circuit and install a plugged expansion device (orifice tube or TXV) into the rear circuit.
5. Disconnect the A/C compressor manifold.
6. Inspect the end of the suction hose for a suction screen. Remove the suction screen using the screen remover in the J 44551 A/C Suction Screen Kit, if installed.
7. Install the appropriate A/C compressor hose assembly flush adapter(s) from kit J 45268.
8. Configure the flush adapter and hose for either a forward flush or a reverse flush. Refer to the Flushing Configuration section of this bulletin.
9. Perform the flush of the front system by following the instructions supplied with the J 43600 ACR 2000.
10. Replace the plugged expansion device (orifice tube or TXV) in the rear circuit with an open expansion device (orifice tube or TXV).
11. Replace the open expansion device (TXV or orifice tube) in the front circuit with a plugged expansion device (orifice tube or TXV).
12. Flush the rear system by following the instructions supplied with the J 43600 ACR 2000.

Flushing Configuration - Forward Flush

Forward flushing (the same flow as normal system operation) is recommended for contaminated refrigerant and/or A/C system lubricant.

Important:

Install a new filter inside the J 45268-1 for every flush. Service the filter with GM P/N 5651802 (use P/N 729832 in Canada). Remove and discard the check valve from the filter.

Important:

Check that the J 43600 ACR 2000 has a sufficient refrigerant charge prior to the start of the flushing procedure. The J 43600 ACR 2000 must have at least 7 pounds (3.18 kgs) of refrigerant available for charging in the machine's internal storage vessel.

Important:

Always close the valve on the J 43600 ACR 2000 external refrigerant tank before starting the flushing procedure.

Follow these steps to perform the forward flush:

1. Connect the J 45268-1 flush filter adapter to the suction port of the A/C compressor hose assembly flush adapter.
2. Connect the blue hose from the J 43600 ACR 2000 to the J 45268-1 flush filter adapter.
3. Connect the red hose from the J 43600 ACR 2000 to the discharge port of the A/C compressor hose assembly flush adapter.
4. Follow the instructions supplied with the J 43600 ACR 2000 and flush the A/C system.

Flushing Configuration - Reverse Flush

Reverse flushing (the opposite flow of normal operation) is recommended for a desiccant bag failure. Always replace the accumulator after the reverse flushing procedure is complete.

Important:

Install a new filter inside the J 45268-1 for every flush. Service the filter with P/N 5651802 (in Canada, P/N 729832). Remove and discard the check valve from the filter.

Important:

Check that the J 43600 ACR 2000 has a sufficient charge prior to the start of the flushing procedure. The J 43600 ACR 2000 must have at least 7 pounds (3.18 kgs) of refrigerant available in the machine's internal storage vessel.

Important:

Always close the valve on the J 43600 external refrigerant tank before starting the flushing procedure.

Follow these steps to perform the reverse flush:

1. Connect the J 45268-1 flush filter adapter to the discharge port of the A/C compressor hose assembly flush adapter.
2. Connect the blue hose from the J 45268-1 flush filter adapter.
3. Connect the red hose to the suction port of the A/C compressor hose assembly flush adapter.
4. Follow the instructions supplied with the J 43600 ACR 2000 and flush the A/C system.

After Flushing Is Complete

Important:

Flushing will remove all the A/C system lubricant and leak detection dye from the A/C system. After a catastrophic compressor failure, it is extremely important to eliminate and/or contain the debris that may cause repeat repairs. The debris generated from a catastrophic compressor failure will be discharged into the compressor suction line, discharge line, condenser and liquid line. The use of the J 44551 Suction Screen kit DOES NOT replace the need for liquid line filters as described in the vehicle specific Service Information. A liquid line filter should be installed whenever possible, after a catastrophic compressor failure, to protect the expansion device (orifice tube or TXV) in both the front and rear systems from debris.

The J 44551 supplies your dealership with the right tools and supplies to cover the Delphi HD6, HU6 and HT6 compressors, as well as most non-Delphi compressors, for most GM applications. Delphi V5 and V7 compressors already have this screen installed in the suction port of the compressor and do not need an additional screen installed.

The J 44551 Suction Screen Kit contains three different screen sizes. Additional screen sizes are being developed. It is important to select the correct size screen that will press fit into the suction port of the compressor hose assembly. The screen should not be installed loose inside the hose assembly.

1. Insert the J 44551-6 sizing tool into the suction hose to select the correct size suction screen.
2. Insert the suction screen into the compressor end of the suction hose.
3. Select and install the correct mandrel to the J 44551-5.
4. Install the J 44551-5 screen installation tool over the end of the suction hose and the suction screen.

Important:

Correct placement of the J 44551 is critical.

5. Tighten the forcing screw of the J 44551-5. The suction screen is fully installed when the screen is flush with the end of the suction hose fitting.
6. Remove the J 44551-5 suction screen tool from the suction hose.
7. Install the J 44551-1 Suction Screen Notification Label.
8. Remove the A/C compressor.
9. Remove the A/C compressor drain plug, if equipped. Drain the A/C system lubricant from the compressor into a clean, graduated cylinder. Rotate the compressor input shaft to assist in draining the A/C system lubricant from the compressor. Measure and record the amount of A/C system lubricant removed.
10. Install the A/C compressor drain plug, if equipped.
11. Install the A/C compressor.
12. Remove the blocked orifice tube or TXV adapter (front/rear systems only).
13. Install a new orifice tube or remove the TXV adapter.
 - ^ Inspect the original TXV for debris.
 - ^ Clean or replace the original TXV as needed.
 - ^ For front/rear systems, be sure both expansion devices (orifice tubes or TXVs) are installed.

Important:

Even after a system flush, control devices are subject to contamination and malfunction. To insure long term reliability the installation of the newly redesigned in-line A/C filter before an orifice tube or rear TXV is recommended.

- ^ Install the in-line filter on front A/C systems before the orifice tube.
 - ^ Install the in-line filter on front/rear A/C systems before the "Y" in the evaporator tube.
 - ^ Do not allow metal burrs to enter the evaporator tube during cutting or when removing the burrs.
 - ^ Because of limited space in the engine compartment, it may be necessary to remove the system's existing orifice tube and install the orifice in the in-line filter.
14. Install a Universal In-line A/C Filter, P/N 89016656 (AC Delco P/N 15-10413). Refer to the instruction sheet included with the filter for detailed installation instructions. Re-install the suction screen if it was previously removed.
 15. Look up the required amount of A/C system lubricant for the vehicle being worked on. Refer to the System Capacities table in the appropriate section of SI. Remember that after a system flush there is no lubricant in the A/C system.
 16. Install the proper amount of Synthetic Lubricant (Universal Refrigerant Oil), P/N 12378526 (in Canada, P/N 88900060), into the A/C system using the J 45037 Oil Injector.
 17. Add one bottle of J 41447 R-134a Tracer Dye, GM P/N 12346303 (in Canada, P/N 10953458), or the equivalent, using the J 41459 dye injector (or the equivalent).
 18. Evacuate the A/C system.
 19. Recharge the A/C system to the proper charge level specified for that vehicle's A/C system.
 20. Verify proper A/C system operation.
 21. Leak test all connections using the J 44220 Universal 12V Leak Detection Lamp, the J 39400-A Leak Detector or equivalents. Remember that the A/C system must operate for several minutes before leak dye will show a leak if one is present.

Part Number	Description	Qty
5651802 (US) 729832 (Canada)	Filter/Carburetor Fuel Inlet	1 Required Per Flush (packaged individually)
89016656 (*AC Delco Part # 15-10413)	Universal In-Line A/C Filter	1 (packaged individually)
12378526 (US) 88900060 (Canada)	Lubricant, Synthetic (Universal Refrigerant Oil)	As Required (packaged 6, 8 oz tubes per case)
12346303 (US) 10953458 (Canada)	R-134a Tracer Dye	1 Per Vehicle (packaged 12 bottles per case)
12356150 (US) 10953485 (Canada)	R-134a Refrigerant	As Required (packaged as a 30 lb. cylinder)

Parts are currently available from GMSP0.

*This filter is *also available* through your local A/C Delco distributor.

Parts Information

Warranty Information

GM has not established a specific labor operation for system flushing. When system flushing is necessary during the warranty period, submit additional labor hours with the labor operation used for the system repair.

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Disclaimer Technical Service Bulletin # **03-08-44-018C**

Date: **060109**

A/C/Audio System - Rear A/C, Audio Inoperative

Bulletin No.: 03-08-44-018C

Date: January 09, 2006

TECHNICAL

Subject:
Rear Seat Audio (RSA) and/or Rear HVAC Inoperative (Replace RSA Module)

Models:
2003-2006 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2006 Chevrolet Avalanche, Silverado Crew Cab, Suburban, Tahoe
2003-2006 GMC Sierra Crew Cab, Sierra Denali, Yukon, Yukon XL, Yukon Denali, Yukon Denali XL
2003-2006 HUMMER H2

with Rear Seat Radio Control (RPO UK6)

Supercede:

This bulletin is being revised to add 2006 model year vehicles. Please discard Advanced SI Resolution Bulletin Number 03-08-44-018B (Section 08 - Body and Accessories).

Condition

Some customers may comment that the Rear Seat Audio (RSA) or the rear HVAC controls are inoperative. The display will be blank and there is no communication to the RSA/HVAC module.

Cause

A microcontroller was found to lock up causing an "ALDL No ALDL" communication condition. This required the cycling of power by disconnecting/reconnecting the RSA module.

Correction

Replace the RSA module to correct this condition. The RSA module has been updated to eliminate the "HVAC No ALDL" communication concern.

Part Number	Description
10358082	Control Asm, AM/FM Stereo (Vehicles equipped with RPO CJ3) Vehicles equipped with RPO CJ2 Without Rear HVAC)
10358083	Control Asm, Heater and A/C (Vehicles equipped with RPO CJ2 with Rear HVAC)

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
R0862	Head, Rear Compartment Audio Control – Replace	0.2 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **02-06-04-015A**

Date: **060307**

Starting System - Engine No Start/No Crank Condition

Bulletin No.: 02-06-04-015A

Date: March 07, 2006

TECHNICAL

Subject:

Intermittent No Crank, No Start (Clean Battery Side Terminal Stripped Threads, Replace Battery Cable Bolt)

Models:

2001-2007 GM Passenger Cars and Light-Duty Trucks (Including Saturn)

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

with Side-Mounted Battery Terminals

Supersede:

This bulletin is being revised to update the models and provide a new labor operation number for this repair. Please discard Corporate Bulletin Numbers 02-06-04-015 and 03-06-03-006A (Section 06 - Engine/Propulsion System).

Condition

Some customers may comment on an intermittent no crank, no start condition.

Cause

This condition may be due to poor battery cable connections. Cross-threaded/stripped battery cable bolts inside the battery side post terminals may cause poor battery cable connections.

Correction

To avoid replacing the battery , do the following steps:

^ Clean the threads in the battery side post terminals using a 3/8" (# 16) NC bottom tap.

^ Replace the battery cable bolt.

The battery cable bolt is serviced separately from the cable and is available from your Parts Department. Be sure to use the correct bolt.

Warranty Information

Labor Operation	Description	Labor Time
N9551*	Repair Battery Side Post Terminal Threads and Replace Cable Bolt	0.5 hr
*This is a unique labor operation for bulletin use only. It will not be published in the Labor Time Guide.		


For vehicles repaired under warranty, use the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason	Location Code	Warranty Type	Repair/Action Code	Labor Time
3111303	Repair Battery Side Post Terminal Threads and Replace Cable Bolt	31113	63	0	01	05	0.5 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # NHTSA04V045000

Date: 040201

Recall 04V045000: Possible Hydro-Boost Defect

DEFECT: Certain sport utility vehicles, pickup trucks, and passenger vans fail to comply with the requirements of Federal Motor Vehicle Safety Standard No. 135, "Passenger Car Brake Systems." Some of these vehicles were produced with an out-of-specification brake hydro-boost housing relief valve bore. Consequently, the valve O-ring seal may fracture. Steering efforts may be slightly increased while braking or parking. Under certain driving conditions, a fractured seal may also require an increase in the applied brake pedal effort to achieve the same vehicle deceleration.

REMEDY: Dealers are to replace the hydro-boost relief valve. The manufacturer has reported that owner notification is expected to begin during the second quarter of 2004. Owners may contact Cadillac at 1-866-982-2339; Chevrolet at 1-800-630-2438; GMC at 1-866-996-9463; or Hummer at 1-866-486-6376. Technical Service Bulletin # 04-05-23-006

Date: 040801

Brakes - Revised Rear Brake Pad Replacement

File In Section: 05 - Brakes

Bulletin No.: 04-05-23-006

Date: August, 2004

SERVICE MANUAL UPDATE

Subject:
Revised Brake Pads Replacement-Rear

Models:
2000-2004 Chevrolet Suburban-2WD, Tahoe-2WD
2002-2004 Chevrolet Avalanche-2WD
2000-2004 GMC Yukon-2WD, Yukon Denali-2WD, Yukon XL-2WD

This bulletin is being issued to revise Step 2 of the Brake Pads Replacement-Rear procedure in the Disc Brakes sub-section of the Service Manual. Please replace the current information in the Service Manual with the following information.

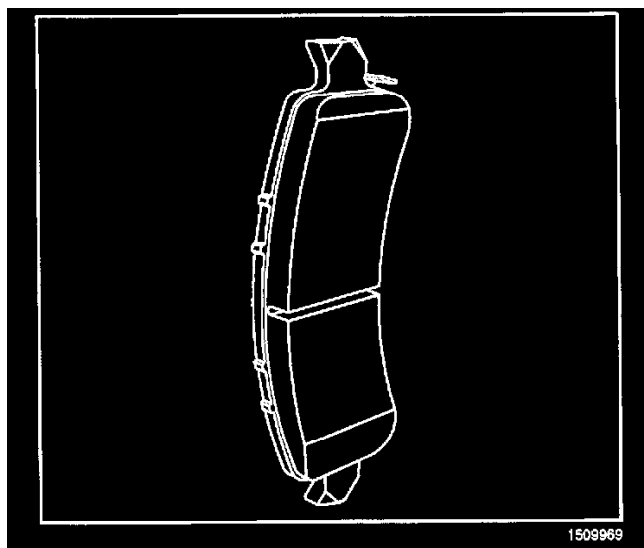
The following information has been updated within SI. If you are using a paper version of this Service Manual, please make a reference to this bulletin on the affected page.

The following documents have been updated in SI:

^ Document ID # 710680-Brake Pads Replacement-Rear (Except 15 Series Pickup)

^ Document ID # 745244-Brake Pads Replacement-Rear

Step 2 of the Installation procedure has been revised to as follows:



Important:

The orientation of the rear brake pads is critical for proper pad wear.

- When working on a 2WD 1500 UTILITY, install the inboard rear pad to the brake caliper bracket with the LONGER pad end chamfer facing down. For all other utilities, install the brake pads to the brake caliper.

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Brakes - Revised Rear Brake Pad Replacement Procedure

Bulletin No.: 04-05-23-006

Date: August 02, 2004

SERVICE MANUAL UPDATE

Subject:

Revised Brake Pads Replacement-Rear

Models:

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2002-2004 Chevrolet Avalanche-2WD

2000-2004 GMC Yukon-2WD, Yukon Denali-2WD, Yukon XL-2WD

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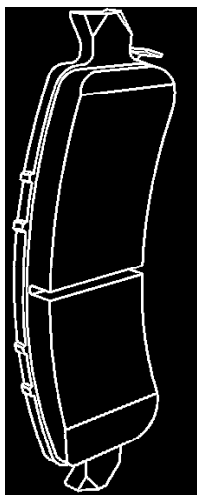
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Disclaimer Technical Service Bulletin # 03-00-89-021

Date: 030730

Instruments - DIC Perceived Fuel Economy Settings

Bulletin No.: 03-00-89-021

Date: July 30, 2003

INFORMATION

Subject:

New Vehicle Pre-Delivery Inspection - Perceived Fuel Economy and Driver Information Center (DIC) Settings

Models:

2003-2004 Passenger Cars and Trucks

2003-2004 HUMMER H2

with Driver Information Center (DIC)

The customer's initial perception of vehicle fuel economy, based upon the information displayed on the Driver Information Center (DIC), may contribute to poor ratings for fuel economy in various automotive surveys. The way the vehicle is handled during the build and shipping process may leave inaccurate values in the history of the DIC.

During the pre-delivery inspection, the dealership must reset the "average fuel economy" setting.

Reset the average fuel economy setting according to the information in the appropriate Owner's Manual. Once reset, the average fuel economy will then be calculated starting from that point.

The data used to determine fuel range is an average of recent driving conditions. This setting cannot be reset. However, as the customer's driving conditions change, the data will be gradually updated to reflect more accurate readings.

If a customer inquires about fuel economy, and the fuel consumption information is not on the price sticker, do not exaggerate the vehicle's capabilities. In either case, stress that fuel economy performance is highly dependent upon driving habits and vehicle usage.

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Disclaimer Technical Service Bulletin # **01-01-38-013A**

Date: **031029**

A/C - Unnecessary Compressor Replacement

Bulletin No.: 01-01-38-013A

Date: October 29, 2003

INFORMATION

Subject:

Diagnostic Information To Consider Before Air Conditioning Compressor Replacement

Models:

1993-2004 Passenger Cars and Light Duty Trucks

Supersede:

This bulletin is being revised to add the 2004 model year and add information for clarification. Please discard Corporate Bulletin Number 01-01-38-013 (Section 01 - HVAC).

A recently completed analysis of air conditioning (A/C) compressors that had been replaced for noise, vibration and insufficient cooling concerns has indicated a high number of "no trouble found" results. Further studies have shown that the root cause of the customer concerns that might lead to a compressor replacement was often a state of refrigerant charge issue or in another area or system of the vehicle. The A/C system refrigerant charge level, either high or low, has been found to be a major contributor to unnecessary compressor replacement. The ability of the ACR 2000 Refrigerant Recycling/Recharging Tool to recover and measure the weight of the A/C system refrigerant charge will help the technician make a more accurate diagnosis of a charge level concern prior to any component replacement.

A thorough visual inspection should always be performed before any tests or repairs are done. Doing so may find an obvious problem that will save time and eliminate the need for extensive diagnosis. Some additional items, as listed below, should be considered before a compressor is replaced for

noise, vibration or insufficient cooling concerns.

- ^ The compressor mounting bolts, brackets or braces may be loose or missing.
- ^ The compressor drive belt may be frayed, loose or misaligned.
- ^ The A/C refrigerant lines may be grounding out on body, chassis or engine components. This may allow noise and vibration to be transmitted into the passenger compartment.
- ^ The air flow through the condenser may be insufficient.
- The condenser fins may be bent or filled with debris.
- The space between the condenser and radiator may be filled with leaves or debris.
- The cooling fans may be inoperative or not performing as designed.
- The installation of aftermarket accessories may alter or restrict the air flow through the condenser.
- ^ Inspect for missing or mispositioned air deflectors, baffles, seals and shrouds.
- ^ The compressor cycling switch may not be operating correctly. This may allow the evaporator core to freeze up or the compressor may not stay engaged long enough for proper system pressures to develop.
- ^ The air flow through the evaporator core may be restricted.
- The cabin filter may be plugged.
- The evaporator core may be covered with debris.
- The cowl air inlet leaf screen may be plugged.
- ^ The A/C system may be overcharged or undercharged with refrigerant. The A/C system charge weight can be measured with the ACR 2000 after a refrigerant recovery is done.
- ^ The A/C system may have an improper amount or incorrect type of refrigerant oil. Only GM approved refrigerant oils should be used.
- ^ An A/C system sealer is not approved for use in GM vehicles.
- ^ The vehicle's refrigerant may be contaminated or contain an excessive amount of air. The vehicle's A/C system may have been charged with an unapproved refrigerant. The refrigerant identifier on the ACR 2000 should alert the technician to these conditions.
- ^ The orifice tube or thermostatic expansion valve (TXV) may be restricted, plugged or inoperative.
- ^ The capillary bulb on the TXV must be properly positioned so that the valve will provide proper refrigerant flow.
- ^ The desiccant bag in the accumulator may have failed, allowing debris to circulate in the A/C system.
- ^ The A/C system charge weight may have been changed. Components with an updated design may have been released. A check for service bulletins applicable to the vehicle being worked on should always be done.
- ^ A check for diagnostic trouble codes in all the control modules on the vehicle should be done. Some trouble codes will disable compressor operation after they have set. They must be repaired and cleared before compressor operation is allowed.
- ^ Verify that the engine is not operating with a low unstable idle, and that the engine is operating within the compressor engagement parameters (for example; the engine may be overheating or it may be too cold for compressor engagement).
- ^ The diagnostic procedures in the HVAC section of the Service Manual should be performed as written to prevent the misdiagnosis of a customer concern. The HVAC Diagnostic System Check and the A/C System Performance Test are written for a specific model only. They are not generic charts. They follow a logical order with detailed instructions on how to perform each step.
- ^ The Technical Assistance Center may be contacted for additional help and the latest information on any unusual concerns.

When a thorough HVAC system diagnosis indicates that the compressor should be replaced, follow the procedure in the appropriate Service Manual. The oil balance instructions are an important part of the replacement procedure. The correct refrigerant oil, as listed in the Service Manual, must be used in the new compressor. It is recommended that a suction screen filter be installed on Delphi Harrison compressors that do not already have one. The

suction screen filter is not approved for use on compressors from other manufacturers. Refer to Corporate Bulletin Number 01-01-39-003A for more information on A/C suction screen kit repair recommendations and procedures. If the compressor has had a catastrophic internal failure, an inline filter may be required to capture the large amount of debris that may be found to be circulating in the A/C system. In addition, the A/C system may require flushing. Refer to Corporate Bulletin Number 01-01-38-006B for more information on flushing procedures and recommendations.

The addition of fluorescent refrigerant leak dye to the A/C system is recommended if the vehicle does not have it installed already. Some vehicles have leak dye installed at the assembly plant and this will be indicated on the A/C charge label. Refer to Corporate Bulletin Number 00-01-38-009B for more information. If leak dye has been added during a previous repair and has been in the vehicle for more than three years, it is recommended that additional dye be added. Finally, a leak check of the entire A/C system should be performed before the vehicle is returned to the customer.

Important:

For all GM paid repairs, the charge summary printout from the ACR 2000 is still required to be attached to the shop copy of the repair order. The warranty code must be submitted in the warranty claim information in the comment field. This code provides valuable information about the repair to General Motors for product quality improvement.

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Disclaimer Technical Service Bulletin # **03-01-38-019A**

Date: **040901**

A/C - Underhood Rattle Noise on Hard Acceleration

File In Section: 01 - HVAC

Bulletin No.: 03-01-38~019A

Date: September, 2004

TECHNICAL

Subject:

Underhood Rattle Noise Heard On Acceleration (Check A/C System Performance and Compressor Operation)

Models:

2003-2004 Cadillac CTS

2002-2004 Cadillac Escalade, Escalade EXT

2003-2004 Cadillac Escalade ESV

2002-2004 Chevrolet Avalanche, Express, Silverado, Suburban, Tahoe

2002-2004 GMC Denali, Denali XL, Savana, Sierra, Yukon, Yukon XL

2002-2004 Commercial Upfitter Chassis Vehicles

with Air Conditioning (A/C)

This bulletin is being revised to update the service procedure and parts information. Please discard Corporate Bulletin Number 03-01-38-019 (Section 01 - HVAC).

Condition

Some customers may comment about an underhood rattle noise heard on acceleration or a sudden loss of A/C system performance.

Cause

This condition may be caused by liquid slugging of the A/C compressor. This condition may cause an internal failure in the A/C compressor. The serpentine belt tensioner and serpentine belt may also be damaged.

Correction

Technicians are to check the A/C system performance and compressor operation using the following repair procedure:

1. Open the hood and inspect the A/C compressor for damage and to see if the compressor is seized. Verify that the serpentine belt is not damaged or missing. If the A/C compressor is seized, proceed to Step 5.

2. Perform the A/C System Performance test. Refer to the Heating, Ventilation and Air Conditioning (HVAC) section of SI. Correct any performance concerns or refrigerant leaks that are found.
3. Inspect the vehicle for other possible sources of A/C compressor noise or performance concerns. Refer to Corporate Bulletin Number 01-01-38-013 for more information.
4. After all other possible sources of A/C compressor noise or performance concerns have been eliminated, only then should the A/C compressor be replaced.
5. Remove the A/C compressor. Refer to the A/C Compressor Replacement procedure in the HVAC section of SI.
6. Inspect the transmission cooler lines for damage due to contact from the serpentine belt. Replace the transmission cooler lines if necessary.
7. Install an inline A/C system filter. Refer to Corporate Bulletin Number 01-01-38-006C for more information about A/C system flushing and filter installation procedures. An A/C system flush is not to be done unless prior authorization is given by the GM Area Service Manager (in Canada, the District Service Manager).
8. Install an A/C Suction Screen. Refer to Corporate Bulletin Number 01-01-39-003A for more information about A/C suction screen repair recommendations and procedures.
9. Install a new A/C compressor. Refer to the Compressor Replacement procedure in the HVAC section of SI.
10. Install a new orifice tube for the front A/C system. Refer to the Expansion (Orifice) Tube Replacement procedure in SI.
11. If the vehicle is a 2003 model year Chevrolet Express or GMC Savana van, the vehicle may require a new accumulator. Refer to Corporate Bulletin Number 03-01-38-016 for more information. This bulletin refers to an updated design accumulator that may improve the performance of the A/C system.
12. Install a new serpentine belt tensioner and serpentine belt if they have been damaged due to A/C system slugging or an A/C compressor seizure. The serpentine belt tensioner may have broken stop tabs and/or a missing front cap.
13. Verify proper operation of the A/C system.

Part Number	Description	Qty
89016656 (*A/C Delco Part # 15-10413)	Universal In-Line A/C Filter	1

Parts are currently available from GMSPO.
*This filter may also be purchased through your local A/C Delco distributor.

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
D4440	Compressor Assembly – Replace	Use published labor operation time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 05-06-02-001

Date: 050224

Cooling System - Aluminum Radiator/Heater Core Info.

Information on Aluminum Heater Core and/or Radiator Replacement # 05-06-02-001 - (Feb 24, 2005)

Models:

2005 and Prior Passenger Cars and Light Duty Trucks

2005 and Prior Saturn Vehicles

This bulletin is being revised to add model years and enhance the content. Please discard Corporate Bulletin Number 73-62-13A (Section 06 - Engine Cooling).

Important:

2004-05 Chevrolet Aveo (Pontiac Wave, Canada Only) does not use DEX-COOL(R) Refer to the flushing procedure explained later in this bulletin.

The following information should be utilized when servicing aluminum heater core and/or radiators on repeat visits. A replacement may be necessary because erosion, corrosion, or insufficient inhibitor levels may cause damage to the heater core, radiator or water pump. A coolant check should be performed whenever a heater core, radiator, or water pump is replaced. The following procedures/inspections should be done to verify proper coolant effectiveness.

Caution:

To avoid being burned, do not remove the radiator cap or surge tank cap while the engine is hot. The cooling system will release scalding fluid and steam under pressure if the radiator cap or surge tank cap is removed while the engine and radiator are still hot.

Important:

If the vehicle's coolant is low, drained out, or the customer has repeatedly added coolant or water to the system, then the system should be completely flushed using the procedure explained later in this bulletin.

Technician Diagnosis

^ Verify coolant concentration. A 50% coolant/water solution ensures proper freeze and corrosion protection. Inhibitor levels cannot be easily measured in the field, but can be indirectly done by the measurement of coolant concentration. This must be done by using a Refractometer J 23688 (Fahrenheit scale) or J 26568 (centigrade scale), or equivalent, coolant tester. The Refractometer uses a minimal amount of coolant that can be taken from the coolant recovery reservoir, radiator or the engine block. Inexpensive gravity float testers (floating balls) will not completely analyze the coolant concentration fully and should not be used. The concentration levels should be between 50% and 65% coolant concentrate. This mixture will have a freeze point protection of -34 degrees Fahrenheit (-37 degrees Celsius). If the concentration is below 50%, the cooling system must be flushed.

^ Inspect the coolant flow restrictor if the vehicle is equipped with one. Refer to Service Information (SI) and/or the appropriate Service Manual for component location and condition for operation.

^ Verify that no electrolysis is present in the cooling system. This electrolysis test can be performed before or after the system has been repaired. Use a digital voltmeter set to 12 volts. Attach one test lead to the negative battery post and insert the other test lead into the radiator coolant, making sure the lead does not touch the filler neck or core. Any voltage reading over 0.3 volts indicates that stray current is finding its way into the coolant. Electrolysis is often an intermittent condition that occurs when a device or accessory that is mounted to the radiator is energized. This type of current could be caused from a poorly grounded cooling fan or some other accessory and can be verified by watching the volt meter and turning on and off various accessories or engage the starter motor. Before using one of the following flush procedures, the coolant recovery reservoir must be removed, drained, cleaned and reinstalled before refilling the system.

Notice:

^ Using coolant other than DEX-COOL(R) may cause premature engine, heater core or radiator corrosion. In addition, the engine coolant may require changing sooner, at 30,000 miles (50,000 km) or 24 months, whichever occurs first. Any repairs would not be covered by your warranty. Always use DEX-COOL(R) (silicate free) coolant in your vehicle.

^ If you use an improper coolant mixture, your engine could overheat and be badly damaged. The repair cost would not be covered by your warranty. Too much water in the mixture can freeze and crack the engine, radiator, heater core and other parts.

Flushing Procedures using DEX-COOL(R)

Important:

The following procedure recommends refilling the system with DEX-COOL(R) P/N 12346290 (in Canada, use P/N 10953464), GM specification 6277M. This coolant is orange in color and has a service interval of 5 years or 240,000 km (150,000 mi). However, when used on vehicles built prior to the introduction of DEX-COOL(R), maintenance intervals will remain the same as specified in the Owner's Manual.

^ If available, use the approved cooling system flush and fill machine (available through the GM Dealer Equipment Program) following the manufacturer's operating instructions.

^ If approved cooling system flush and fill machine is not available, drain the coolant and dispose of properly following the draining procedures in the

appropriate Service Manual. Refill the system using clear, drinkable water and run the vehicle until the thermostat opens. Repeat and run the vehicle three (3) times to totally remove the old coolant or until the drained coolant is almost clear. Once the system is completely flushed, refill the cooling system to a 50%-60% concentration with DEX-COOL(R), P/N 12346290 (in Canada, use P/N 10953464), GM specification 6277M, following the refill procedures in the appropriate Service Manual. If a Service Manual is not available, fill half the capacity of the system with 100% DEX-COOL(R), P/N 12346290 (in Canada, use P/N 10953464), GM specification 6277M. Then slowly add clear, drinkable water (preferably distilled) to the system until the level of the coolant mixture has reached the base of the radiator neck. Wait two (2) minutes and reverify the coolant level. If necessary, add clean water to restore the coolant to the appropriate level.

Once the system is refilled, reverify the coolant concentration using a Refractometer J 23688 (Fahrenheit scale) or J 26568 (centigrade scale) coolant tester, or equivalent. The concentration levels should be between 50% and 65%.

Flushing Procedure using Conventional Silicated (Green Colored) Coolant

Important:

2004-2005 Chevrolet Aveo (Pontiac Wave, Canada Only) does not use DEX-COOL(R). The Aveo and Wave are filled with conventional, silicated engine coolant that is blue in color. Silicated coolants are typically green in color and are required to be drained, flushed and refilled every 30,000 miles (48,000 km). The Aveo and Wave are to be serviced with conventional, silicated coolant. Use P/N 12378560 (1 gal) (in Canada, use P/N 993089 (4L). Refer to the Owner's Manual or Service Information (SI) for further information on OEM coolant.

Important:

Do not mix the OEM orange colored DEX-COOL(R) coolant with green colored coolant when adding coolant to the system or when servicing the vehicle's cooling system. Mixing the orange and green colored coolants will produce a brown coolant which may be a customer dissatisfier and will not extend the service interval to that of DEX-COOL(R). Conventional silicated coolants offered by GM Service and Parts Operations are green in color.

^ If available, use the approved cooling system flush and fill machine (available through the GM Dealer Equipment Program) following the manufacturer's operating instructions.

^ If approved cooling systems flush and fill machine is not available, drain coolant and dispose of properly following the draining procedures in appropriate Service Manual. Refill the system using clear, drinkable water and run vehicle until thermostat opens. Repeat and run vehicle three (3) times to totally remove old coolant or until drained coolant is almost clear. Once the system is completely flushed, refill the cooling system to a 50%-60% concentration with a good quality ethylene glycol base engine coolant, GM P/N 12378560, 1 gal (in Canada, use P/N 993089 4L), conforming to GM specification 1825M, or recycled coolant conforming to GM specification 1825M, following the refill procedures in the appropriate Service Manual. If a Service Manual is not available, fill half the capacity of the system with 100% good quality ethylene glycol base (green colored) engine coolant, GM P/N 12378560 1 gal., (in Canada, use P/N 993089 1L) conforming to GM specification 1825M. Then slowly add clear, drinkable water (preferably distilled) to system until the level of the coolant mixture has reached the base of the radiator neck. Wait two (2) minutes and recheck coolant level. If necessary, add clean water to restore coolant to the appropriate level.

^ Once the system is refilled, recheck the coolant concentration using a Refractometer J 23688 (Fahrenheit scale) or J 26568 (centigrade scale) coolant tester, or equivalent. Concentration levels should be between 50% and 65%.

Part Number	Description
12346290 (in Canada, 10953464)	Coolant, Extended Life (DEX-COOL®)
12378560 (in Canada, 993089)	Coolant, Conventional (Green Colored) 1 gal. (in Canada 1 L)

Parts are currently available from GMSPO.

Parts Information

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
J 3100	Radiator Assembly - Replace	Use Published Labor Operation Times
J 3260	Reservoir, Radiator Coolant - Replace	Use Published Labor Operation Times
J 3523	Cord, Engine Coolant Heater - Replace	Use Published Labor Operation Times
J 3524	Heater, Engine Coolant - Replace	Use Published Labor Operation Times
J 3540	Cooling System - Flush	Use Published Labor Operation Times

Warranty Information

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Disclaimer Technical Service Bulletin # **03-02-34-001A**

Date: **031006**

Steering - New Inner Tie Rod Service Parts

Bulletin No.: 03-02-34-001A

Date: October 06, 2003

INFORMATION

Subject:

Inner Tie Rod Released for Service

Models:

2002-2004 Cadillac Escalade, Escalade EXT 1500 Series
 2003 Cadillac Escalade ESV 1500 Series
 1999-2004 Chevrolet Silverado 4WD 1500 Series
 2000-2004 Chevrolet Suburban, Tahoe 1500 Series Models
 2002-2004 Chevrolet Avalanche 1500 Series Models
 1999-2004 GMC Sierra 4WD 1500 Series Models
 2000-2004 GMC Yukon, Yukon XL, Yukon Denali 1500 Series Models
 2003-2004 HUMMER H2

Supercede:

This bulletin is being revised to correct the model information. Please discard Corporate Bulletin Number 03-02-34-001 (Section 02 - Steering).

This bulletin is being issued to inform dealers that the inner tie rod can now be serviced separately on vehicles that use steering linkage relay rod kit, P/N 12471375 or P/N 89040375. In cases where only the inner tie rod is required, use P/N 26059210 and follow the Tie Rod Replacement - Inner procedure in the Steering Linkage (Non-Rack and Pinion) subsection.

Parts are currently available from GMSPO.

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Disclaimer Technical Service Bulletin # **06-01-38-003**

Date: **060427**

A/C - Ticking Noise From Instrument Panel/DTC's Set

Bulletin No.: 06-01-38-003

Date: April 27, 2006

TECHNICAL

Subject:

Intermittent Ticking Noise from I/P, Poor A/C Performance, HVAC DTCs B0229, B0414, B0424, B3770 (Reprogram HVAC Control Module)

Models:

2004-2006 Cadillac Escalade Models

2004-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe

2004-2006 GMC Sierra Models, Yukon Models

with Air Conditioning (RPOs CJ2, CJ3)

Condition

Some customers may comment on one or more of the following concerns:

- ^ Intermittent ticking/clicking noise from the instrument panel.
- ^ Recirculation mode does not work or Air Conditioning (A/C) system performance is poor during high ambient temperatures.
- ^ Unable to control the driver side temperature.
- ^ Unable to control the passenger side temperature.
- ^ Unable to change the front system modes.

Cause

This condition may be caused by the Heating, Ventilation and Air Conditioning (HVAC) actuators that may hunt for the correct commanded position. This cycling may cause a clicking or ticking noise.

An overtravel of the HVAC system control doors may cause one or more of the concerns listed above. If an overtravel occurs, a Diagnostic Trouble Code (DTC) will be set, and the door will go to a preset default position. When a system door defaults, that door will stay at the default position until the DTC is cleared. After the DTC is cleared, the door will operate properly until the overtravel condition re-occurs.

System Door	Overtravel DTC
Air inlet door (recirculation door)	B0229
Left temperature door	B0414
Right temperature door	B0424
Front system mode door	B3770

The table lists the HVAC system doors and the DTC associated with it.

Correction

Technicians are to perform the normal diagnostic procedures in SI for these concerns. If diagnostics show that the HVAC system door(s) travel below 5 counts (out of the lower range) or above 250 counts (out of the upper range), then update the software calibrations in the HVAC control module. The new calibrations were made available to dealerships as part of TIS2000 incremental satellite update version 2.5, which was broadcast to dealers in February 2006.


The new calibrations have been updated to compensate for the actuator overtravel condition, the actuator hunting and the ticking/clicking noises. The new calibrations effectively eliminate the codes listed above, the default position of the doors associated with the DTCs and opens up the feedback position value. The new calibrations should not be used unless the vehicle has one or more of the customer concerns listed above or a DTC listed above has been set. The new calibrations will not correct any other DTC or NC system performance concern.

Warranty Information

Labor Operation	Description	Labor Time
D4707	HVAC Control Head Module or Assembly Reprogramming with SPS	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **05-08-61-005**

Date: **050429**

Body/Frame - Revised Crossmember/Body Bolt Service

Bulletin No.: 05-08-61-005

Date: April 29, 2005

SERVICE MANUAL UPDATE

Subject:
Revised Crossmember/Body Mount Bolt Installation Information

- Models:
- 1999-2005 Cadillac Full-Size Pickup and Utility Models
 - 1999-2005 Chevrolet Full-Size Pickup and Utility Models
 - 1999-2005 GMC Full-Size Pickup and Utility Models

This bulletin is being issued to revise all repair procedures that include reinstalling the front engine crossmember-to-frame bolts or any body mount bolts in the Frame and Underbody sub-section of the Service Manual. Please replace the current information in the Service Manual with the following information.

The following information has been updated within SI. If you are using a paper version of this Service Manual, please make a reference to this bulletin on the affected page.

Before reinstalling front engine crossmember-to-frame bolts or any body mount bolts, you must do the following:

1. Remove all traces of the original thread locking material.
2. Clean the threads of the bolt with denatured alcohol, or equivalent, and allow to dry.
3. Apply Thread locker, P/N 12345493, (Canadian P/N 10953488).

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Disclaimer Technical Service Bulletin # 03-03-08-002B

Date: 051130

Suspension - Rattles/Squeaks From Front of Vehicle

Bulletin No.: 03-03-08-002B

Date: November 30, 2005

TECHNICAL

Subject:

Rattle/Squeak from Front of Vehicle (Replace Lower Portion of Upper Insulator Assembly)

Models:

2002-2005 Cadillac Escalade, Escalade EXT
2003-2005 Cadillac Escalade ESV
2000-2005 Chevrolet Silverado, Suburban, Tahoe
2002-2005 Chevrolet Avalanche
2000-2005 GMC Sierra, Yukon, Yukon XL

Supercede:

This bulletin is being revised to update the correction and parts information. Please discard Corporate Bulletin Number 03-03-08-002A (Section 03 - Suspension).

Condition

Some customers may comment on a rattle or squeak type noise coming from the front of the vehicle.

Cause

The front shock absorber plastic pilot ring may be wearing out, causing the shock to misalign in the insulator.

Correction

DO NOT replace the shock. Replace the lower portion, P/N 15834275 , of the upper insulator assembly using the procedure listed below. This new insulator has a taller plastic pilot ring that is attached to the metal sleeve to aid in the proper alignment of the insulators.

1. Remove the front shock absorber. Refer to the Shock Absorber Replacement procedure in the Front Suspension sub-section of the Service Manual.
2. Remove the lower portion of the upper insulator from the shock and discard.
3. Install the new lower portion of the upper insulator to the shock.

Important:

Be sure to center the shock in the frame bracket and tighten the upper mounting nut when the vehicle is on the ground.

4. Install the front shock absorber. Refer to the Shock Absorber Replacement procedure in the Front Suspension sub-section of the Service Manual.

Part Number	Description
15834275	Insulator Asm. – Frt. S/ABS (Lower Part of Upper Insulator)

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
E3800/ E3801	Shock Absorber, Front – Replace (Right/Left)	Use published labor operation time
E3807	Shock Absorber, Front – Replace (Both)	

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 99-08-51-007C

Date: 060619

Wheels - Aluminum Wheel Refinishing Recommendations

Bulletin No.: 99-08-51-007C

Date: June 19, 2006

INFORMATION

Subject:

Refinishing Aluminum Wheels

Models:

2007 and Prior Passenger Cars and Trucks (Including Saturn)

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

Supercede:

This bulletin is being revised to add additional models and model years. Please discard Corporate Bulletin Number 99-08-51-007B (Section 08 - Body and Accessories).

This bulletin updates General Motor's position on refinishing aluminum wheels. GM does not endorse any repairs that involve welding, bending, straightening or re-machining. Only cosmetic refinishing of the wheel's coatings, using recommended procedures, is allowed.

Evaluating Damage

In evaluating damage, it is the GM Dealer's responsibility to inspect the wheel for corrosion, scrapes, gouges, etc. The Dealer must insure that such

damage is not deeper than what can be sanded or polished off. The wheel must be inspected for cracks. If cracks are found, discard the wheel. Any wheels with bent rim flanges must not be repaired or refinished. Wheels that have been refinished by an outside company must be returned to the same vehicle. The Dealer must record the wheel ID stamp or the cast date on the wheel in order to assure this requirement. Refer to Refinisher's Responsibility - Outside Company later in this bulletin.

Aluminum Wheel Refinishing Recommendations

^ Chrome-plated aluminum wheels

Re-plating these wheels is not recommended.

^ Polished aluminum wheels

These wheels have a polyester or acrylic clearcoat on them. If the clearcoat is damaged, refinishing is possible. However, the required refinishing process cannot be performed in the dealer environment. Refer to Refinisher's Responsibility - Outside Company later in this bulletin.

^ Painted aluminum wheels

These wheels are painted using a primer, color coat, and clearcoat procedure. If the paint is damaged, refinishing is possible. As with polished wheels, all original coatings must be removed first. Media blasting is recommended. Refer to GM Aluminum Refinishing Bulletin # 53-17-03A for the re-painting of this type of wheel.

^ Bright, machined aluminum wheels

These wheels have a polyester or acrylic clearcoat on them. In some cases, the recessed "pocket" areas of the wheel may be painted. Surface refinishing is possible. The wheel must be totally stripped by media blasting or other suitable means. The wheel should be resurfaced by using a sanding process rather than a machining process. This allows the least amount of material to be removed.

Important:

Do not use any re-machining process that removes aluminum. This could affect the dimensions and function of the wheel.

Painting is an option to re-clearcoating polished and bright machined aluminum wheels. Paint will better mask any surface imperfections and is somewhat more durable than clearcoat alone. GM recommends using Corsican SILVER WAEQ9283 for a fine "aluminum-like" look or Sparkle SILVER WA9967 for a very bright look. As an option, the body color may also be used. When using any of the painting options, it is recommended that all four wheels be refinished in order to maintain color uniformity. Refer to GM Aluminum Refinishing Bulletin # 53-17-03A for specific procedures and product recommendations.

Refinisher's Responsibility - Outside Company

Important:

Some outside companies are offering wheel refinishing services. One such company, Transwheel Corporation (800-892-3733), provides this service within GM guidelines. Other companies may also exist. Such refinished wheels will be permanently marked by the refinisher and are warranted by the refinisher. Any process that re-machines or otherwise re-manufactures the wheel should not be used.

A refinisher's responsibility includes inspecting for cracks using the Zyglo system or the equivalent. Any cracked wheels must not be refinished. No welding, hammering or reforming of any kind is allowed. The wheel ID must be recorded and follow the wheel throughout the process in order to assure that the same wheel is returned. A plastic media blast may be used for clean up of the wheel. Hand and/or lathe sanding of the machined surface and the wheel window is allowed. Material removal, though, must be kept to a minimum. Re-machining of the wheel is not allowed. Paint and/or clear coat must not be present on the following surfaces: the nut chamfers, the wheel mounting surfaces and the wheel pilot hole. The refinisher must permanently ID stamp the wheel and warrant the painted/clearcoated surfaces for a minimum of one year or the remainder of, the new vehicle warranty, whichever is longer.

Important:

Whenever a wheel is refinished, the mounting surface and the wheel nut contact surfaces must not be painted or clearcoated. Coating these surfaces could affect the wheel nut torque.

When re-mounting a tire on an aluminum wheel, coated balance weights must be used in order to reduce the chance of future cosmetic damage.

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Disclaimer Technical Service Bulletin # **04-03-16-003**Date: **041130****Tires - Go Flat Slowly/Low Tire Lamp ON**

Bulletin No.: 04-03-16-003

Date: November 30, 2004

TECHNICAL

Subject:

Tire Slowly Loses Air, Low Tire Pressure Warning Light On, Check Tire Pressure Message Displayed (Replace Tire Pressure Sensor Grommet)

Models:

2004-2005 Cadillac Escalade, Escalade ESV, Escalade EXT

2004-2005 Chevrolet Suburban, Tahoe

2004-2005 GMC Yukon, Yukon Denali, Yukon XL

with Tire Pressure Monitoring System (RPO UJ6)

Condition

Some customers may comment on a tire that slowly loses air. Also, the Low Tire Pressure Warning light may be illuminated and a Check Tire Pressure message may be displayed on the DIC.

Cause

If the air loss is determined to be from the valve stem area, then the condition may be caused by the tire pressure sensor sealing grommet. The sealing grommet is serviced separately from the sensor. Sensor replacement is not required to correct this condition.

Correction

Note:

Tire pressure sensing systems rely on an electronic sensor/transmitters that are located in the drop center of the wheel. Proper care must be taken during tire mounting and dismounting to avoid sensor damage. When performing tire services, be sure to identify those wheel/tire assemblies that have a sensor located in the drop center of the wheel.

Proper tools and techniques will help avoid damage to the sensor and the wheel. If you rely on other providers for tire service, select those who can identify and service TPM equipped wheel/tires without causing unnecessary and expensive damage.

Replace the tire pressure sensor sealing grommet with P/N 25754190, following the Tire Pressure Sensor Grommet Replacement procedure in the Tire Pressure Monitoring sub-section of the Service Manual.

Part Number	Description
25754190	Grommet, Tire Valve Stem (Tire Pressure Sensor)

Parts Information

Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
E0719	Washer (Grommet), Tire Pressure Warning Sensor – Replace	Use published labor operation time

For vehicles repaired under warranty, use the table.
 Technical Service Bulletin # **05-03-08-006**

Date: **050412**

Suspension - Revised Stabilizer Link Service/Torque

Bulletin No.: 05-03-08-006

Date: April 12, 2005

SERVICE MANUAL UPDATE

Subject:
 Revised Stabilizer Shaft Link Replacement Procedure and Fastener Tightening Specifications

Models:
 1999-2005 Chevrolet and GMC Full Size Pickup and Utility Models
 2003-2005 HUMMER H2

This bulletin is being issued to revise the Stabilizer Shaft Link Replacement Procedure and Fastener Tightening Specifications in the Front Suspension sub-section of the Service Manual. Please replace the current information in the Service Manual with the following information.

The following information has been updated within SI. If you are using a paper version of this Service Manual, please make a reference to this bulletin on the affected page.

The following revision affects both the Fastener Tightening Specifications and the Stabilizer Shaft Link Replacement procedure.

Pickup and Utility Models : Stabilizer Shaft Link Nuts - 10 Nm (89 lb in)

Continue tightening the nut until 2 to 4 threads protrude above the nut.

H2 : Stabilizer Shaft Link Nuts - 14 Nm (124 lb in)

Continue tightening the nut until 2 to 4 threads protrude above the nut.

The following Notice has been added to the Stabilizer Shaft Link Replacement procedure.

Note:

To avoid stabilizer shaft damage due to loss of clamp load, the threads of the link bolt must protrude 2 to 4 threads above the nut after the specified torque is achieved.

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Disclaimer Technical Service Bulletin # **01-03-10-009A**Date: **040727**

Wheels - Plastic Wheel Nut Covers Loose/Missing

Bulletin No.: 01-03-10-009A

Date: July 27, 2004

TECHNICAL

Subject:
 Plastic Wheel Nut Covers Missing and/or Loose (Replace Missing Covers and Add Sealant to All Covers)

Models:
 2005 and All Prior Passenger Cars (Except All Cadillac Models and Pontiac GTO)

with Plastic Wheel Nut Covers

Supercede:
 This bulletin is being revised to add additional models years. Please discard Corporate Bulletin Number 01-03-10-009.

Condition
 Some customers may comment that the plastic wheel nut covers are missing and/or loose.

Correction

Important:

- ^ DO NOT USE a silicone-based adhesive.
- ^ Do not apply the *permatex(R) around the threads in a circular pattern.
- ^ Apply a single bead across the threads approximately 10 mm (0.4 in) in length, 5 mm (0.2 in) in height and 5 mm (0.2 in) in width.

Replace any missing plastic wheel nut covers with the appropriate covers and apply Permatex(R) # 2 Form A Gasket Sealant(R) to the threads of all the plastic wheel nut covers. Tighten finger tight plus a 1/4 turn with a hand wrench.

*We believe this source and their products to be reliable. There may be additional manufacturers of such material.

General Motors does not endorse, indicate any preference for or assume any responsibility for the products from this firm or for any other such items which may be available from other sources.

Permatex(R) # 2 Form A Gasket Sealant(R) part numbers (available at your local parts supplier)

- ^ P/N 80009 (2A/2AR) - 44 ml (1.5 oz) tube boxed
- ^ P/N 80015 (2AR) - 44 ml (1.5 oz) tube carded
- ^ P/N 80010 (2B/2BR) - 89 ml (3 oz) tube boxed
- ^ P/N 80016 (2BR) - 89 ml (3 oz) tube carded
- ^ P/N 80011 (2C) - 325 ml (11 oz) tube boxed

Warranty Information

Labor Operation	Description	Labor Time
E0050	Replace Cover(s) and Apply Sealant to All Covers	0.2 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **03-08-98-002A**

Date: **041011**

Body - Squeeze Type Resistance Spot Welding/Equipment

Info - Squeeze Type Resistance Spot Welding/Equipment #03-08-98-002A - (Oct 11, 2004)

Squeeze Type Resistance Spot Welding/Equipment

2005 and Prior Passenger Cars and Trucks

2005 and Prior HUMMER H2

This bulletin is being revised to add the 2005 model year and include new equipment offerings. Please discard Corporate Bulletin Number 03-08-98-002 (Section 08 - Body and Accessories).

This bulletin provides guidelines for repair shops that wish to use squeeze type resistance spot welding (or simply, spot welding) as an alternative to MIG plug welding when performing collision repair procedures. The process of spot welding for attaching body panels and components has been around for many years and is similar to the production welding process used in assembly plants. Spot welding may be applicable in similar situations that are currently MIG plug welded.

The following are some of the benefits of spot welding:

- Less heat or burn damage
- Less damage to corrosion protection
- Drilling of holes not required
- Replication of the production weld appearance

Applicable components for this technology may be panels or components with flanges that are accessible with arms and tips supplied by the equipment manufacturer. Welds from this equipment should be applied on a one-for-one basis, next to the production welds.

Here are some of the important factors in proper welding with this equipment.

Important: Proper use and safety training for each user of the equipment is a must.

- Use equipment from companies that are able to produce welds that meet industry standards for size and strength. Equipment most likely to meet those standards at this time would be "inverter" technology and include the following suppliers (other suppliers may have comparable equipment):
 - Pro Spot (PR2000)
 - Elektron (M100)
 - Blackhawk (WEL700)
 - Car-O-Liner (CR500) For specific information about this and other equipment, call GM Dealer Equipment at 1-800-GM-TOOLS (1-800-468-6657).
- Ensure that the building power source is capable of meeting the equipment manufacturer's power requirement specifications. For example, fuse **60 amp, 208-230 V** single or 3-phase, using supply wire of sufficient gage to carry the current load. Consult with a qualified electrician for wiring assistance.
- Prepare and perform sample welds for destructive testing made from similar materials. Perform this operation for each vehicle repaired and prior to actual repair.
- Proper equipment maintenance
- Proper weld tip alignment and maintenance
- Ensure that metal flanges are clean and conform to each other

A more complete description of these practices and standards can be found in the following publications:

- SAE J-2667, Surface Vehicles Recommended Practice, <http://www.sae.org>
- AWS D8.7-88, Recommended Practices Automotive Weld Quality - Resistance Spot Welding, <http://www.aws.com>
- AWS D8.9-97, Recommended Practices for Test Methods for Evaluating the Resistance Spot Welding Behavior of Automotive Sheet Steels, <http://www.aws.com>

Technical Service Bulletin # **04-08-98-001**

Date: **040526**

Body - Metal Panel Bonding Additional Material

Info - Additional Material and Source for Metal Panel Bonding Adhesives #04-08-98-001 - (May 26,2004)

Additional Material and Source for Metal Panel Bonding Adhesives

2004 and Prior Passenger Cars and Trucks

2004 and Prior HUMMER H2

Recently, General Motors reviewed an additional source and material for the bonding of certain exterior metal panels when performing collision repairs.

The 3M Corporation has introduced a new epoxy adhesive. 3M P/N 8116 has been recognized as meeting the performance guideline requirements of GM 6449G Specification for Metal Panel Bonding Adhesives.

Manufacturer and Part Number	Description
GM P/N 12378566 (US)	Fast Set Panel Bonding Adhesive
GM P/N 88901674 (Canada)	
Lord Fusor P/N 110B/111B	
GM P/N 12378567 (US)	Medium Set Panel Bonding Adhesive
GM P/N 88901675 (Canada)	
Lord Fusor P/N 108B/109B	
3M P/N 8116	Panel Bonding Adhesive

The addition of this product to the materials recognized for this performance capability increases the number to four, thus providing options for material selection when repairing vehicles using the metal panel bonding process. Those recognized materials now included.

As always, follow the manufacturer's directions for application and curing times. Do not intermix products between different manufacturers. **Technical Service Bulletin # 04-08-64-003A** Date: **040225**

Body - Front/Rear Door Power Windows Inoperative

Bulletin No.: 04-08-64-003A

Date: February 25, 2004

INFORMATION

Subject:

Power Window Motor Now Available Separately From The Power Window Regulator Assembly

Models:

2000-2004 Cadillac Escalade
 2002-2004 Cadillac Escalade EXT
 2003-2004 Cadillac Escalade ESV
 1999-2004 Chevrolet Silverado
 2000-2004 Chevrolet Suburban, Tahoe
 2002-2004 Chevrolet Avalanche
 1999-2004 GMC Sierra
 2000-2004 GMC Yukon, Yukon XL

with Power Windows (RPO A31)

Supersedes:

This bulletin is being revised to update information about window regulator availability. Please discard Corporate Bulletin Number 04-08-64-003 (Section 08 - Body and Accessories).

This Service Bulletin is intended to inform technicians that the power window motor is now available separately from the power window regulator assembly for both the front and rear doors on the vehicles listed above. A failure of the power window motor in a front door should be repaired by the replacement of the power window motor only. Regulator failures will require the replacement of the window motor/regulator assembly. For power window motor replacement instructions, refer to the applicable Window Regulator Motor Replacement procedure in SI.

Important:

The replacement of the complete front door power window regulator assembly, due to a power window motor failure, should not be performed as a warranty repair.

The rear power window motors are also available separately from the power window regulator assembly. The rear power window regulator assembly is not available without the power window motor. If diagnosis leads to a power window motor failure in a rear door, but the power window regulator still works, the entire power window regulator assembly should not be replaced as a warranty repair. Replace either the power window motor or the power window regulator. If diagnosis leads to a power window regulator failure in a rear door, but the power window motor still works, the entire power window regulator assembly will have to be replaced.

Parts Information

Part Number	Description	Qty
88981018	Power Window Motor Kit, Left Front Door	1
88981019	Power Window Motor Kit, Right Front Door	1
88937199	Power Window Motor Kit, Left Rear Door	1
88937200	Power Window Motor Kit, Right Rear Door	1

The front window motor part numbers shown are applicable to vehicles from the 1999 to 2004 model years. The rear window motor part numbers shown are applicable to vehicles from the 2000 to 2004 model years.

Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
N3314	Motor-Door Window-Right Front-Replace	Use published labor operation time
N3315	Motor-Door Window-Left Front-Replace	
N3324	Motor-Door Window-Right Rear-Replace	
N3325	Motor-Door Window-Left Rear-Replace	

For vehicles repaired under warranty, use the table.

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Disclaimer Technical Service Bulletin # **03-08-64-037B**

Date: **040615**

Body - Power Window Motor Noisy/Inoperative

Bulletin No.: 03-08-64-037B

Date: June 15, 2004

INFORMATION

Subject:
Diagnostic Information For Front Power Window Noisy or Inoperative

Models:
2003-2004 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2004 GMC Sierra, Sierra Denali, Yukon, Yukon XL, Yukon Denali, Yukon Denali XL

Supercede:

This bulletin is being revised to close the engineering investigation and provide possible causes of the concern. Please discard Corporate Bulletin Number 03-08-64-037A (Section 08 - Body and Accessories).

Due to the high number of window regulators being replaced for the front power window being noisy or inoperative and the returned parts indicating No Trouble Found, an engineering investigation was launched.

The engineering investigation has revealed two probable causes for the power windows being noisy or inoperative.

- ^ There may be loose regulator bolts. This would primarily lead to a noise condition.
- ^ The regulator may not be positioned correctly. This could lead to a noise condition as well as causing the window to bind.

ATTEMPT THE FOLLOWING REPAIRS PRIOR TO REPLACING THE WINDOW REGULATOR.

- ^ Loose Regulator Bolts

Tighten

Tighten the bolts to 9 N.m (80 lb in).

- ^ Regulator Positioning - verify that the regulator is positioned correctly. If binding, loosen the bolts and adjust.

Tighten

Tighten the bolts to 9 N.m (80 lb in).

If neither of the above corrects the concern, proceed with published diagnostics found in SI.

Warranty Information

Labor Operation	Description	Labor Time
C9710	Regulator, Window – Adjust	0.6 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **05-08-64-038**

Date: **051121**

Body - Rubbing/Scratching When Operating Windows

Bulletin No.: 05-08-64-038

Date: November 21, 2005

TECHNICAL

Subject:

Rubbing or Scratching Noise When Front Driver or Front Passenger Power Windows Are Activated (Install New Anti-Noise Sleeve on Window Regulator Support)

Models:

2002-2005 Cadillac Escalade, Escalade EXT

2003-2005 Cadillac ESV

1999-2005 Chevrolet Silverado

2000-2005 Chevrolet Suburban, Tahoe

2002-2005 Chevrolet Avalanche

1999-2005 GMC Sierra

2000-2005 GMC Yukon, Yukon XL

Condition

Some customers may comment on a rubbing or scratching noise when the front driver or front passenger power windows are activated.

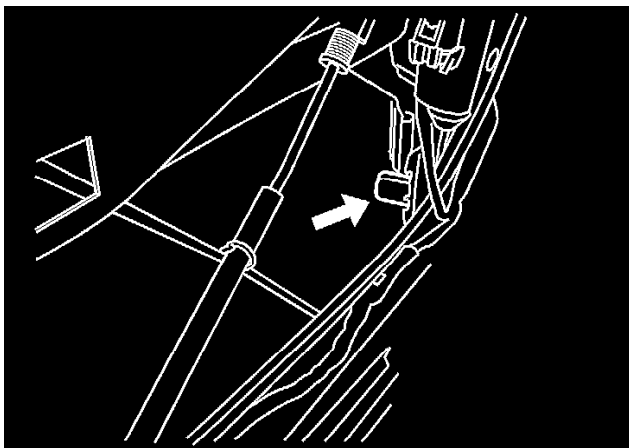
Cause

The rubber anti-noise sleeve on the window regulator support may wear through, allowing the window regulator to come in contact with the glass.

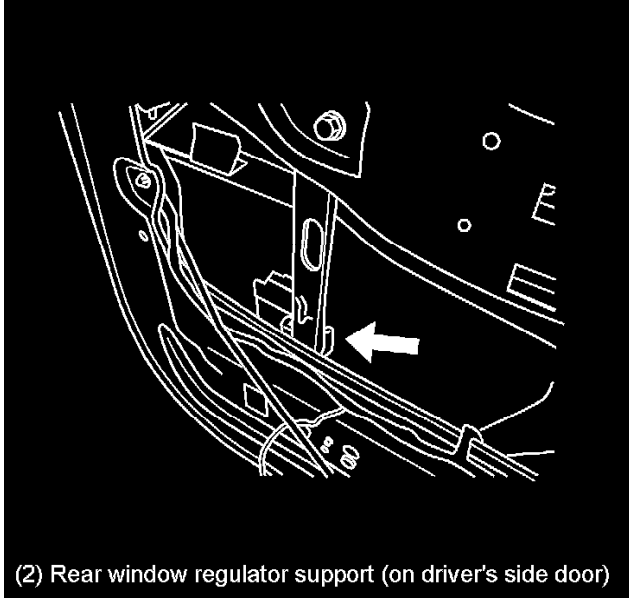
Correction

Inspect the rubber anti-noise sleeves on the window regulator support. If either or both are worn, damaged or missing, replace both sleeves (front and rear) with new polypropylene sleeves, P/N 19120848. Do NOT replace the entire window regulator assembly.

1. Make sure that the window is closed (glass all the way at the top). Tape the glass to the door header to support the glass.
2. Remove the door trim upper extension panel. Refer to Trim Panel Replacement - Upper Extension for the appropriate model and model year in SI.
3. Remove the door trim panel. Refer to Trim Panel Replacement - Side Front Door for the appropriate model and model year in SI.
4. Remove the inside door handle. Refer to Door Handle Replacement - Inside for the appropriate model and model year in SI.
5. Remove water deflector. Refer to Water Deflector Replacement - Front Door for the appropriate model and model year in SI.
6. Loosen the retaining bolts that hold the window glass to the window regulator assembly. Do NOT remove the bolts.
7. Reconnect the door electrical harness. Use the window switch to lower the regulator so that the window regulator support that the glass rests on is accessible through the access hole.
8. Disconnect the door electrical harness and set the door interior trim piece aside.



(1) Front window regulator support (on driver's side door)



(2) Rear window regulator support (on driver's side door)

9. Inspect the window regulator supports (both front and rear supports).
 - ^ If the rubber anti-noise sleeves are present and NOT damaged or worn, continue with diagnosis of the customer concern. Squeaks may also occur at the cable/pulley assembly, rail, and/or motor and gearbox housing.
 - ^ If the rubber anti-noise sleeves are damaged or missing, replace the sleeves with new polypropylene sleeves, P/N 19120848.
10. Reconnect the door electrical harness. Use the window switch to raise the regulator so that glass support is fully supporting the window glass.
11. Tighten the retaining bolts that hold the window glass to the window regulator assembly.

Tighten

Tighten the bolts to 12 N.m (106 lb in).
12. Install the water deflector. Refer to Water Deflector Replacement - Front Door for the appropriate model and model year in SI.
13. Install the inside door handle. Refer to Door Handle Replacement - Inside for the appropriate model and model year in SI.
14. Install the door trim panel. Refer to Trim Panel Replacement - Side Front Door for the appropriate model and model year in SI.
15. Install the door trim upper extension panel. Refer to Trim Panel Replacement - Upper Extension for the appropriate model and model year in SI.
16. Verify that the customer concern has been eliminated.

Part Number	Description	Qty
19120848	Polypropylene Anti-Noise Sleeve	2 per door

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
B9771	Window Regulator Anti-Noise Sleeve – Replace	0.4 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 05-08-64-029B

Date: 060216

Body - Window Regulator Replacement

Bulletin No.: 05-08-64-029B

Date: February 16, 2006

INFORMATION

Subject:

Power Window Regulator Now Available Separately From Motor

Models:

2002-2006 Cadillac Escalade, Escalade EXT

2003-2006 Cadillac Escalade ESV

2000-2006 Chevrolet Silverado, Suburban, Tahoe

2002-2006 Chevrolet Avalanche

2000-2006 GMC Sierra, Yukon Denali, Yukon XL

Supersede:

This bulletin is being revised to add the service procedure. Please discard Corporate Bulletin Number 05-08-64-029A (Section 08 - Body and Accessories). This bulletin is being issued to inform technicians that when performing a repair to the power window system, it is no longer necessary to replace the complete window regulator assembly. GMSPO has released the power window regulator for the left and right front doors separately from the motor.

Window Regulator Motor Replacement - Front Door

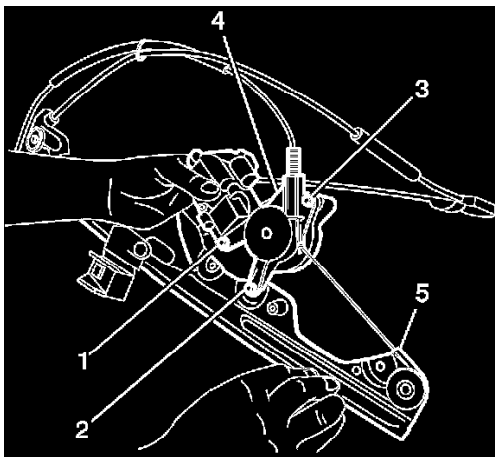
Removal Procedure

1. Raise the window.

If the window motor is inoperable, remove the window to gain access to the window motor retaining screws. Refer to Window Replacement -

Front Door.

2. Remove the power window module. Refer to Module Replacement - Front Power Window.

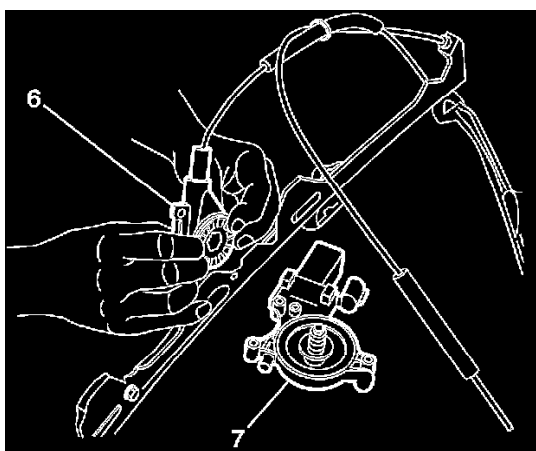


3. With the window regulator on the bench, remove fasteners one (1) and two (2) which will disconnect the drive housing and motor (4) from the rail (5).

Important:

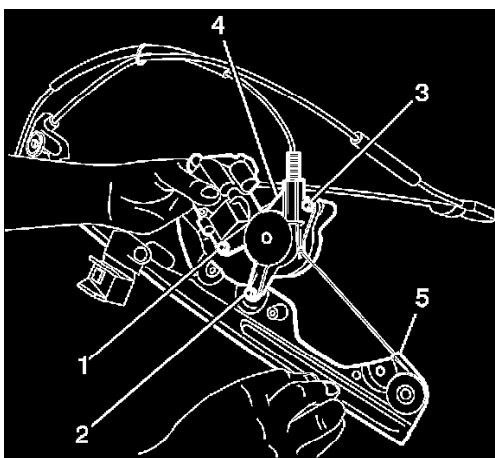
Do not allow cable gear/spool to come out of the housing. As the motor slides out of the gear/spool, hold the gear/spool into the housing with your fingers. The spool will unwind if it comes out of the housing.

4. Holding the motor and housing together, remove fastener three (3).



5. Slide the motor partially out of the gear/spool allowing finger access to the gear spool (6). Hold the gear/spool into the housing and remove the motor (7).

Installation Procedure



1. Install motor by aligning gear teeth and mounting points simultaneously, pushing the motor into the gear/spool and installing the motor to housing fastener first (3).
2. Slide the motor and housing assembly (4) onto the rail (5) and install the fastener number two (2).

Note:

Refer to Fastener Notice.

3. Rotate the motor and housing assembly to align the attachment point for attachment number one (1) and install the fastener.

Tighten

Tighten the bolts to 5 N.m (44 lb in).

4. Install the power window module. Refer to Module Replacement - Front Power Window.
5. Install the window if removed. Refer to Window Replacement - Front Door.

Important:

The Window Regulator Motor Replacement - Rear Door procedure remains unchanged.

Part Number	Description
19120846	Regulator Asm, Frt S/D WDO-LH
19120847	Regulator Asm, Frt S/D WDO-RH


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
C0182	Regulator, Front Door Window-Right Power – R&R or Replace	Use Published Labor Operation Time
C0183	Regulator, Front Door Window-Left Power – R&R or Replace	

For vehicles repaired under warranty, use the table.

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Disclaimer
 Technical Service Bulletin # 03-07-30-056

Date: 031105

A/T - 4L60-E Oil Pump Identification
 Bulletin No.: 03-07-30-056

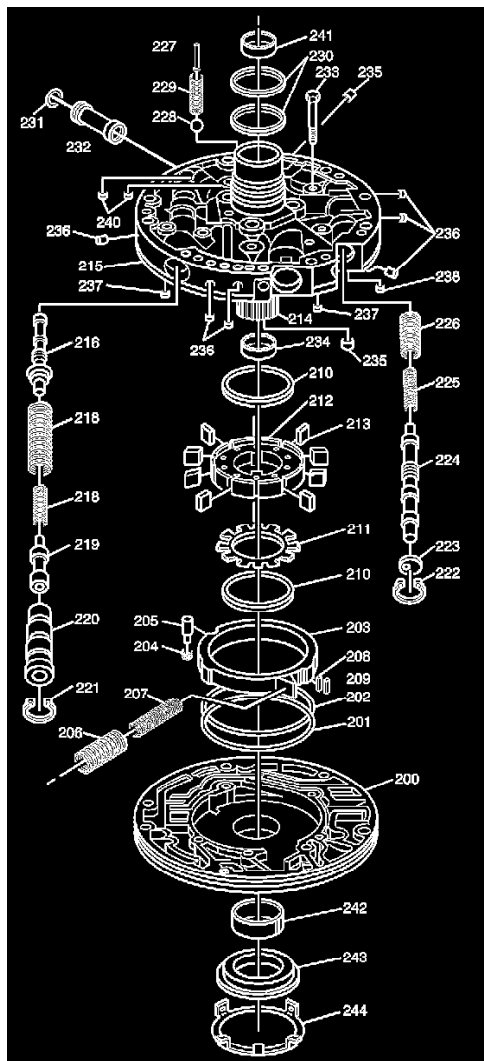
Date: November 05, 2003

INFORMATION

Subject:
4L60-E Automatic Transmission Oil Pump First And Second Design Identification

Models:

1997-2002 Chevrolet Camaro
1997-2002 Pontiac Firebird
2002-2004 Cadillac Escalade, Escalade EXT
1997-1999 Chevrolet C/K Full Size Pickup
1997-2004 Chevrolet Astro, Blazer, Corvette, Express, S-10, Suburban
1999-2004 Chevrolet Silverado
2000-2004 Chevrolet Tahoe
2002-2004 Chevrolet Avalanche, TrailBlazer
2004 Chevrolet Colorado, SSR
1997-1999 GMC Suburban
1997-2001 GMC Jimmy
1997-2004 GMC Envoy, Safari, Savana, Sierra, Sonoma
1999-2004 GMC Denali
2000-2004 GMC Yukon, Yukon XL
2004 GMC Canyon
1997-2004 Oldsmobile Bravada
2003-2004 HUMMER H2
with 4L60-E Automatic Transmission (RPOs M30, M32, M33)



The purpose of this bulletin is to identify the correct oil pump rotor (212) and slide (203) usage for the two different transmission oil pump designs.

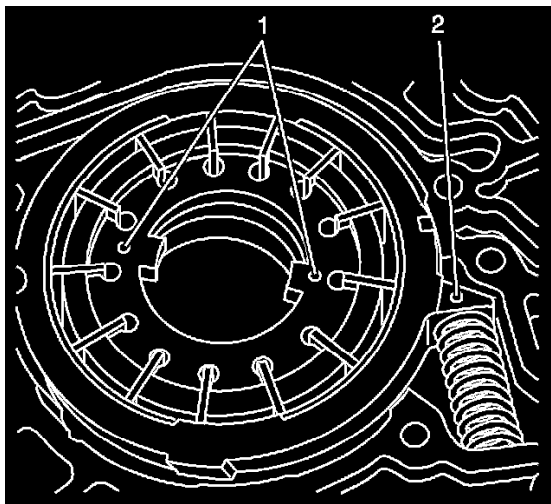
Manufacturing of the first design oil pump rotor (212) and slide (203) ended November 30, 2000.

Manufacturing of the second design oil pump rotor (212) and slide (203) began December 1, 2000.

Important:

It is critical that the first and second design oil pump rotors and slides do not become intermixed. Do not use first design pump components with second design pump components. If the pump components from either design are intermixed, pump efficiency will be affected resulting in less than optimal pump performance.

The first design oil pump rotor (212) and slide (203) DO NOT have any identification markings.



The second design oil pump rotor (212) and slide (203) are identified with dimples (circular depression) as shown above.

The rotor (212) has two dimples adjacent to the rotor drive tangs (1).

The slide (203) has one dimple located on the spring tab (2).

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Disclaimer Technical Service Bulletin # **04-07-30-006**

Date: **040211**

A/T - 4L65E, 4L60E, 4L60, 200-4R Oil Pump Spring

Bulletin No.: 04-07-30-006

Date: February 11, 2004

INFORMATION

Subject:

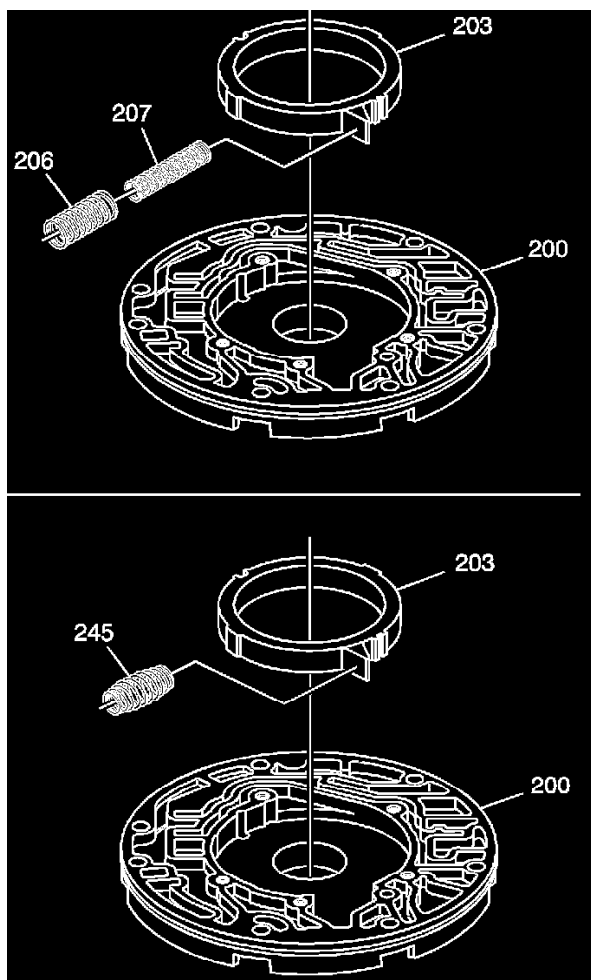
4L65-E, 4L60-E, 4L60 and 200-4R Automatic Transmission Oil Pump Spring First and Second Design Identification

Models:

2004 and Prior Passenger Cars and Light Duty Trucks

2003-2004 HUMMER H2

with 4L65-E, 4L60-E, 4L60 or 200-4R Automatic Transmission



The purpose of this bulletin is to identify the oil pump spring usage for the two different pump designs. Manufacturing of the first design oil pump springs ended December 15, 2003. Manufacturing of the second design oil pump spring began December 16, 2003

The first design oil pump springs (206) and (207) DO NOT have any identification markings. The first design springs (206) and (207) use an inner and outer spring, two springs.

The second design oil pump spring (245) is identified with tapered ends on the spring (245) as shown above. The second design spring (245) is a single spring.

When servicing either (first design or second design) oil pump body, use the new single oil pump spring (245) with tapered ends.

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Disclaimer Technical Service Bulletin # **04-07-30-023**

Date: **040512**

A/T - 4L60-E/4L65-E New Pump/Seal/Case/Service

Bulletin No.: 04-07-30-023

Date: May 12, 2004

INFORMATION

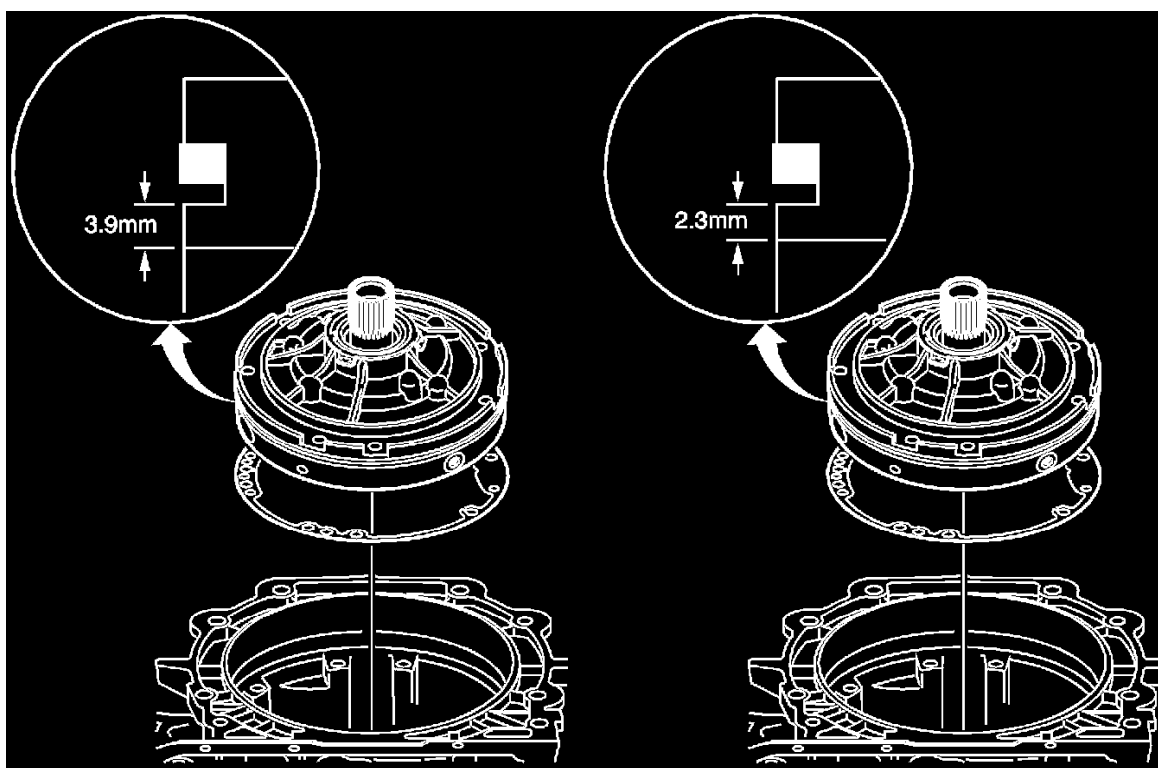
Subject:
Oil Pump Assembly Seal and Transmission Case Change

Models:

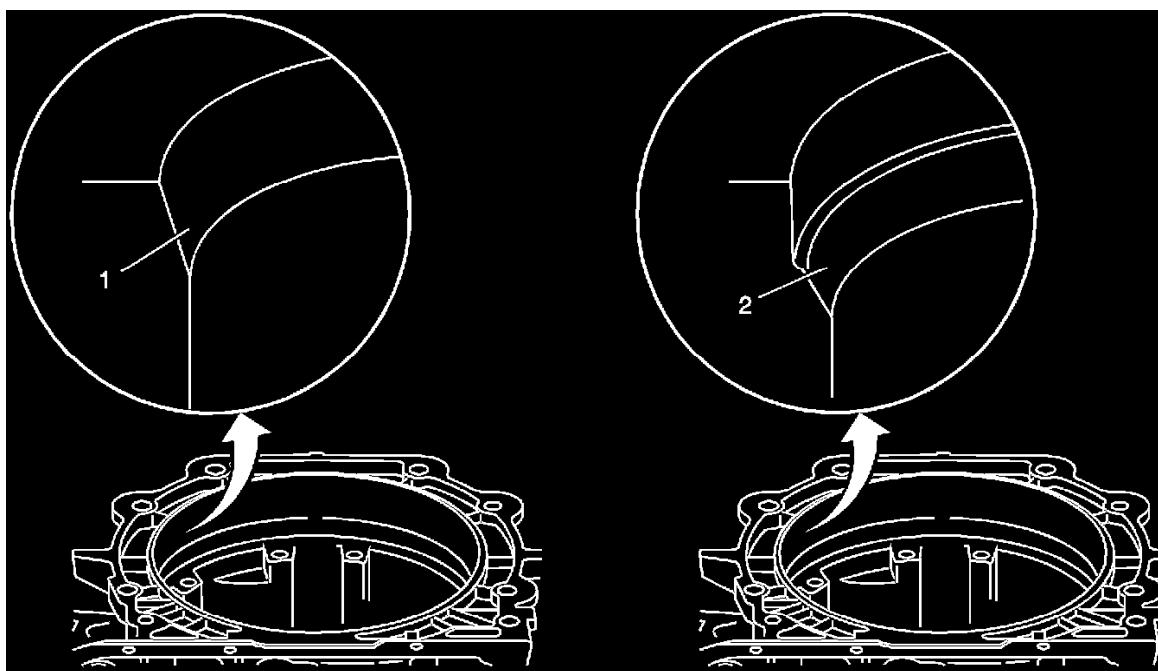
2002-2004 Cars and Light Duty Trucks

with 4L60-E or 4L65-E Automatic Transmissions (RPOs M30, M32 or M33)

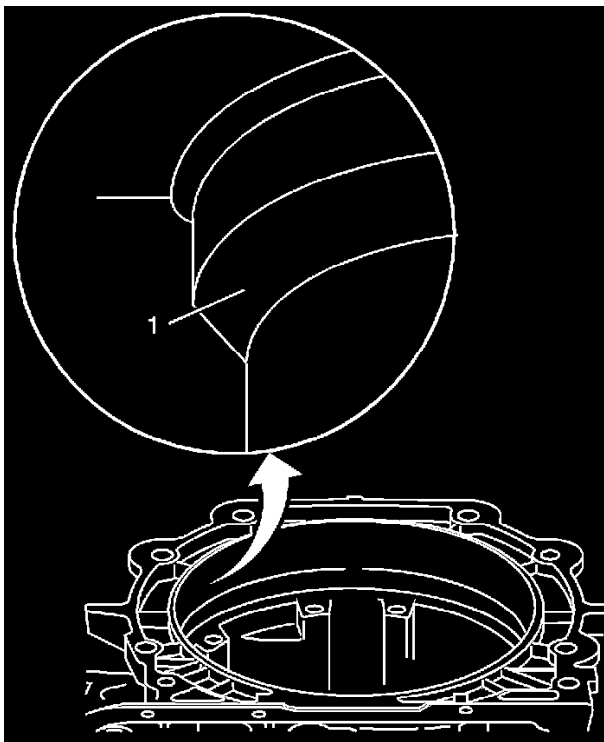
An improved oil pump to case seal design has been made to the 4L60-E/4L65-E transmission. The new design affects the oil pump, the oil pump seal, the transmission pan bolts and the transmission case. The complete design was implemented in three phases.



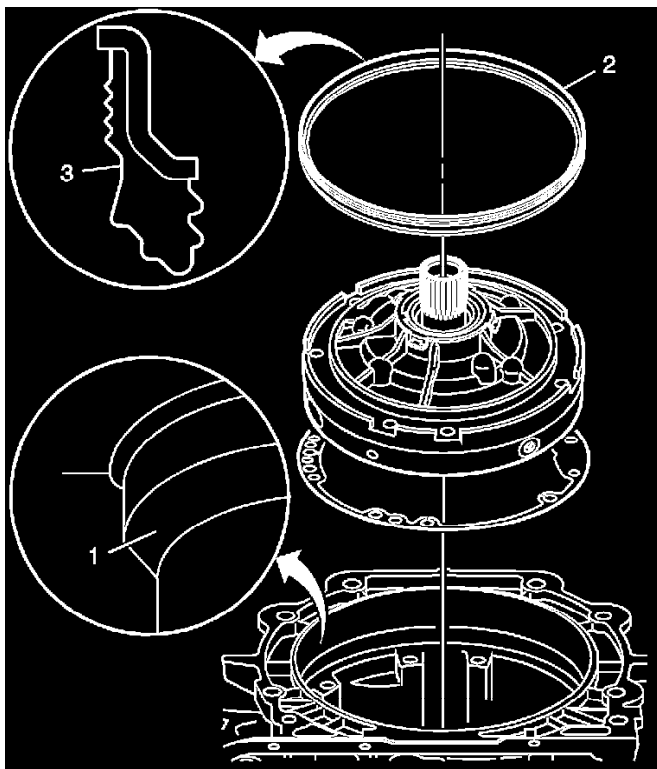
The first phase, beginning in September 2002, relocated the machining of the oil pump 0-ring seal groove in the pump body. The 0-ring seal groove moved 1.6 mm (0.62 in) inward on the pump body in order to place the sealing surface deeper into the case bore. The relocated pump body groove can be identified by measuring the groove location. Pump bodies that measure 2.3 mm (0.09 in) from the machined surface to the groove opening have the relocated 0-ring seal groove. Pump bodies that measure 3.9 mm (0.15 in) are prior to September 2002 design.



The first phase also machined a case chamfer leading into the pump bore (2). The chamfer is designed to help eliminate possible 0-ring seal damage during pump installation.

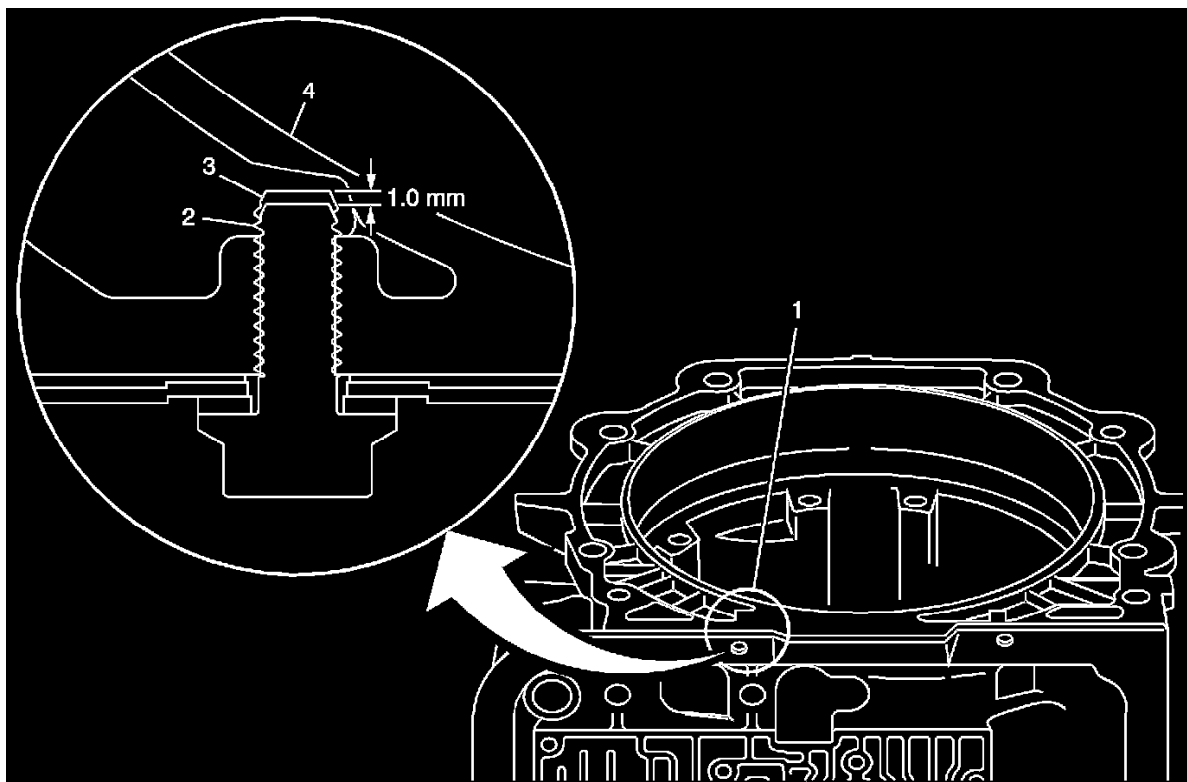


Phase two modified the case casting and the chamfer into the pump bore. The casting change left additional material in the surrounding pump bore to allow deeper bore machining in order to create the necessary sealing surface for a new pump seal design. The leading surface into the pump bore was also machined with a modified chamfer (1).



Phase three will eliminate the oil pump body O-ring seal groove and the O-ring seal. Beginning March 2004, a new stamped carrier molded rubber seal (2) will be used to seal the pump assembly to the transmission case.

The pump sealing surface is now the outer diameter of the pump and the inner diameter (1) of the transmission case bore. Unlike the current O-ring seal, which is installed on the oil pump body, the new seal is installed after the pump assembly is properly positioned and torqued in place. Seating the seal is accomplished when the torque converter housing is installed, which presses the seal (3) into position between the pump and the case bore (1).



As a result of the modified casting and the deeper pump bore machining, the area between the oil pan mounting surface and the pump bore has decreased. Because of the reduced material in this area (1) it is necessary to use the shorter oil pan attaching bolts (2). Early pan bolts (3), before November 2002, should not be used with the modified case design, since they are 1.0 mm (0.39 in) longer and could deform the chamfer surface (4).

Service Information

When Servicing transmissions with the new seal design, use the following precautions:

- ^ The outer diameter of the pump assembly and case bore must be clean and free of burrs or raised surfaces. Be aware of sharp edges that could damage the seal during installation.
- ^ The seal should be clean and dry before installation. It does not require lubrication for installation.
- ^ The seal should be inspected prior to installation for obvious damage.
- ^ It is preferable to hand-start the seal positioning the seal evenly around the case bore before installing the torque converter housing.
- ^ The seal can be easily removed by prying it out, typical of a pressed-on seal.
- ^ The seal may be reused, however a thorough inspection must be performed. Inspect the seal for the following conditions:
 - ^ Distortion of the metal carrier or separation from the rubber seal.
 - ^ A cut, deformed, or damaged seal.
- ^ Refer to the appropriate unit repair information in SI for seal removal and installation procedures.

Parts Interchangeability Information

Design Level				
Component	Case Prior to July 2002	Phase One Case Machined Case Chamfer, After January 2003	Phase Two Case Modified Case Casting, After November 2003	Phase Three Case and Seal New Seal and Case, After March 2004
Pump Body P/N 24230111 Without O-ring seal groove	DO NOT USE	DO NOT USE	DO NOT USE	Use
Pump Body P/N 24230110 With Relocated O-ring seal groove	May Use	Use	Use	Do Not Use
O-ring Seal P/N 24210605	Use	Use	Use	Do Not Use
New Stamped Rubber Seal P/N 24226315	Do Not Use	Do Not Use	Do Not Use	Use
Transmission Pan Bolt P/N 8657000 M8X1.25X18.9 (Before 1/04)	Use	Use	Do Not Use	Do Not Use
Transmission Pan Bolt P/N 24226008 M8X1.25X17.9 (After 1/04)	May Use	May Use	May Use	Use

In order to properly service the different designs, it is necessary to correctly identify and select corresponding parts for each level. This table provides a summary of the part usage for the different design levels.

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Disclaimer Technical Service Bulletin # 03-07-30-027

Date: 030601

A/T - Oil Cooler Flushing Frequently Asked Questions

File In Section: 07 - Transmission/Transaxle

Bulletin No.: 03-07-30-027

Date: June, 2003

INFORMATION

Subject:

Most Frequently Asked Questions and Answers for J 45096 TransFlow Transmission Oil Cooling System Flushing Machine

Models:

2004 and Prior Passenger Cars and Light Duty Trucks with Automatic Transmission/Transaxle

2004 and Prior HUMMER H2

This bulletin is issued to help answer the most frequently asked questions and concerns about essential tool J 45096.

Q: Why doesn't the machine work below 18°C (65°F)?

A: The flow characteristics of ATF at temperatures below 18°C (65°F) does not provide accurate flow test results with the electronics used in the J 45096.

Q: Why didn't the unit come with a tank heater?

A: The vast majority of dealerships do not require a heater to keep the ATF above 18°C (65°F). As a result, the heater was deleted as a cost-savings measure. A tank heater, J 45096-10, is currently available from Kent-Moore if your dealership requires it. Refer to Corporate Bulletin Number 03-07-30-002A for suggestions on warming the ATF without using a heater blanket.

Q: Why does the machine fail new oil coolers?

A: Several reasons have been found. The most likely reason is the air pressure at the air hose connected to the J 45096 is less than 586 kPa (85 psi). Other reasons include a twisted hose inside the J 45096 at the bulkhead as a result of the nut turning when the waste or supply hose was installed, the internal pressure regulator was improperly set at the factory or a problem with the cooler lines on the vehicle. Perform the J 45096 self-test as described on pages 9 and 10 of the Operation Manual. If a problem is still detected, refer to Troubleshooting on page 19 of the Operation Manual. If a problem still persists, contact Kent-Moore Customer Service at 1-800-345-2233.

Q: What is the difference between steel and aluminum oil coolers?

A: The aluminum oil cooler tube is slightly thinner in construction than the steel oil cooler tube, which affects the oil flow rate. The fitting that is protruding out of the radiator tank easily identifies the aluminum oil cooler. Refer to the Quick Reference card provided with the J 45096 in order to identify the proper flow rate for the aluminum oil cooler.

Q: Why can't I use TransFlow for Allison transmission cooling Systems?

A: Validation of TransFlow is currently under development for light duty trucks equipped with the Allison automatic transmission. TransFlow is based on the existing MINIMUM flow rate specification through the transmission oil cooling system. The Allison transmission oil cooling system only has MAXIMUM oil flow rates specified and J 45096 does not have the capability to test the transmission oil cooling system at the maximum oil flow rate specification.

Q: Why doesn't GM publish a specification for auxiliary transmission oil coolers?

A: The auxiliary oil cooler used with GM vehicles does not contain an internal turbulator plate like the radiator tank oil cooler does. Therefore, there is no internal restriction that would affect the flow rate through the oil cooling system so a specification for auxiliary oil cooler is not required. Keep in mind, kinks and damage to the auxiliary cooler and lines can affect the flow rate through the system.

Q: Why did GM drop the labor time for transmission repairs?

A: The labor for flushing and flow testing the transmission oil cooling system is included with the R&R labor of the "K" labor operations that require transmission removal. The time required to use the J 45096 to perform the flush and flow test is much less than that of the J 35944-A. The warranty labor savings allowed GM to provide the J 45096 at no cost to dealerships.

Q: Why didn't the machine come with the adapters to hook up to the car?

A: The J 45096 was designed to use the previously released essential cooler line adapters for the J 35944-A. All adapters are listed on page 17 of the Operation Manual and can be ordered from Kent-Moore at 1-800-345-2233.

Q: How do I connect the J 45096 to a Catera, Prizm or a Vibe?

A: These vehicles, along with many other models, only require barbed fittings to connect to the rubber cooler hose. These fittings are commercially available and already found in many shops.

Q: Why didn't I receive an Operation Manual with the machine?

A: The Operation Manual was packaged in the upper portion of the shipping carton. If the shipping carton was lifted off the base without opening the top of the carton, the Operation Manual could have been discarded with the carton. Replacement Operation Manual packages can be obtained from Kent-Moore Customer Service at 1-800-345-2233.

Q: Why can't I re-use the transmission fluid I use for flushing?

A: The very fine metal and clutch material debris from the transmission failure in the ATF causes failures with the hall effect speed sensors that are used to measure the flow rate. To avoid costly repairs, expensive filters, regular maintenance and problems caused by a partially restricted filter, the filter was not included.

Q: What do I do if I need service on my machine?

A: Call Kent-Moore Customer Service at 1-800-345-2233. The J 45096 has a one-year warranty.

Q: Can I flush and flow engine oil coolers?

A: The engine oil cooler flow rates, the appropriate adapters and an acceptable procedure are currently under development.

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Disclaimer Technical Service Bulletin # **01-07-30-010B**

Date: **051001**

A/T - Torque Converter Replacement

Bulletin No.: 01-07-30-010B

Date: October 11, 2005

INFORMATION

Subject:

Automatic Transmission/Transaxle Torque Converter Replacement

Models:

All 2006 and Prior GM Passenger Cars and Trucks

2003-2006 HUMMER H2

2006 HUMMER H3

2006 and Prior Saturn Cars and Light Duty Trucks (Except VTi Equipped Vehicles (RPO M16 and M75)

2005-2006 Saab 9-7X

with ALL Automatic Transmissions and Transaxles

Supercede:

This bulletin is being revised to add additional model years and include the HUMMER H3, Saturn and Saab models. Please discard Corporate Bulletin Number 01-07-30-ObA (Section 07 - Transmission/Transaxle).

The purpose of this bulletin is to help technicians determine when a torque converter should be replaced. Below is a list of general guidelines to follow.

The converter should NOT be replaced if the following apply:

^ DTC P0742 - TCC stuck on is set. This code is almost always the result of a controls condition (i.e. stuck TCC solenoid/valve). Experience has shown that this code rarely indicates a mechanical concern within the torque converter.

^ The fluid has an odor or is discolored but no evidence of metal contamination.

^ Fine metal particles (traces of metal flakes/gray color to fluid) are found in the converter. This is not harmful to the torque converter.

^ The vehicle has been exposed to high mileage.

^ A small amount of wear appears on the hub where the oil pump drive gear mates to the converter (RWD only). A certain amount of such wear is normal for both the hub and oil pump gear. Neither the converter nor the front pump assembly should be replaced.

The torque converter should be replaced under any of the following conditions:

^ The vehicle has TCC shudder and/or no TCC apply. First complete all electrical and hydraulic diagnosis and check for proper engine operation. The

converter clutch may be damaged. Also, the converter bushing and/or internal O-ring may be damaged.


- ^ Evidence of damage to the oil pump assembly, pump shaft, turbine shaft, drive sprocket support and bearing, or metal chips/debris in the converter.
- ^ Metal chips/debris are found in the converter or when flushing the cooler and the cooler lines.
- ^ External leaks in the hub weld area, lug weld or closure weld.
- ^ Converter pilot is broken, damaged, or fits poorly into the crankshaft.
- ^ The converter hub is scored or damaged.
- ^ The transmission oil is contaminated with engine coolant, engine oil or water.

If excessive end play is found after measuring the converter for proper end play (refer to Service Manual).

- ^ If metal chips/debris are found in the fluid filter, or on the magnet, and no internal parts in the unit are worn or damaged. This indicates that the material came from the converter.
- ^ The converter has an unbalanced condition which results in a vibration that cannot be corrected by following Converter Vibration Procedures.
- ^ Blue converter or dark circular ring between lugs. This condition will also require a complete cleaning of the cooler and a check for adequate flow through the cooler.
- ^ Converter bearing noise determined by noise from the bell housing area in Drive or Reverse at idle. The noise is gone in Neutral and Park.

If silicon from the viscous clutch is found in the lower pan (4T80-E ONLY).

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Disclaimer Technical Service Bulletin # **04-06-04-051B**

Date: **060104**

Fuel System - Fuel Injector Maintenance Cleaning

Bulletin No.: 04-06-04-051B

Date: January 04, 2006

INFORMATION

Subject:
Maintenance Cleaning of Fuel Injectors

Models:
2006 and Prior All General Motors Passenger Cars and Trucks
2003-2006 HUMMER H2
2006 HUMMER H3

Supercede:

This bulletin is being revised to add models and model years and update the name and part number of GM Fuel System Treatment. Please discard Corporate Bulletin Number 04-06-04-051A (Section 06 - Engine/Propulsion System).

General Motors is aware that some companies are marketing tools, equipment and programs to support fuel injector cleaning as a preventative maintenance procedure. General Motors does not endorse, support or acknowledge the need for fuel injector cleaning as a preventative maintenance procedure. Fuel injector cleaning is approved only when performed as directed by a published GM driveability or DTC diagnostic service procedure.

Due to variation in fuel quality in different areas of the country, the only preventative maintenance currently endorsed by GM regarding its gasoline engine fuel systems is the addition of GM Fuel System Treatment PLUS, P/N 88861011 (for U.S. ACDelco(R), use P/N 88861013) (in Canada, P/N 88861012), added to a tank of fuel at each oil change. Refer to Corporate Bulletin Number 03-06-04-030A for proper cleaning instructions.

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Disclaimer Technical Service Bulletin # **05-06-04-063**

Date: **051012**

Engine Controls - MIL ON/Rough Idle/Misfire/DTC's Set

Bulletin No.: 05-06-04-063

Date: October 12, 2005

TECHNICAL

Subject:

LM7, L59 or L33 Engines with Cold Start Rough or Incorrect Idle, Misfire, Malfunction Indicator Lamp (MIL) or Flashing Requiring O2 Sensor Replacement (Reprogram PCM)

Models:

2004-2005 Cadillac Escalade
2004-2005 Chevrolet Avalanche, Silverado 1500, Suburban, Tahoe
2005 Chevrolet Silverado Hybrid (HP2)
2004-2005 GMC Sierra 1500, Yukon, Yukon XL
2005 GMC Sierra Hybrid (PH2)

with Vortec 5300 5.3L V-8 Engine (VINs T, Z, B - RPOs LM7, L59, L33)

Condition

Some customers may comment on a Malfunction Indicator Lamp (MIL) On or that the MIL is flashing. An actual engine misfire may or may not be felt along with an incorrect idle speed. Typically this occurs during cold winter months, on cold engine starts. Some vehicles may have been previously serviced for the same condition. Technicians may also find the following DTCs stored with the Tech 2(R) P0131, P0133, P0134, P0137, P0138, P0140, P0151, P0153, P0154, P0157, P1133, which may be in conjunction with P0171, P0174, P0300 and P1138.

Cause

Water shock occurs when water droplets are present in the exhaust. The water in the exhaust contacts the sensor element inside the H02 sensor, causing the H02 sensor element to crack.

Correction

Upon diagnostic investigation, the technician may find that the H02 sensor requires replacement. In addition to replacing the affected H02 sensor, these vehicles should also be reflashed with the latest PCM calibration. An updated PCM calibration will be available to dealerships as part of TIS 2000 incremental satellite update 11.0 (NAO version 25.010) or greater. Always, make sure your Tech 2 is updated with the latest software version.

Important:

If a DTC P0420 or P0430 is stored along with DTC(s) P0300, the catalytic converter diagnostics in Service Information (SI) must be followed to determine if the catalytic converters are operating properly.

Warranty Information

Labor Operation	Description	Labor Time
J6354	Module, Powertrain Control – Engine Reprogramming	Use Published Labor Time
J6372	Sensor, Oxygen (Engine Control) – Replace	
J6380	Sensor, Oxygen (Catalyst Monitoring) – Replace	

For vehicles repaired under warranty, use the table.

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Disclaimer

Technical Service Bulletin # 03-05-25-007C

Date: 060516

Brakes - Low Speed ABS Activation/No DTC's Set

Bulletin No.: 03-05-25-007C

Date: May 16, 2006

TECHNICAL

Subject:

Antilock Brake (ABS) Activation At Low Speeds (Clean Wheel Speed Sensor Mounting Surface)

Models:

2002-2006 Cadillac Escalade, Escalade EXT
 2003-2006 Cadillac Escalade ESV
 1999-2006 Chevrolet Silverado
 2001-2006 Chevrolet Suburban, Tahoe
 2002-2006 Chevrolet Avalanche
 2003-2006 Chevrolet Express
 1999-2006 GMC Sierra
 2001-2006 GMC Yukon, Yukon Denali, Yukon XL, Yukon Denali XL
 2003-2006 GMC Savana
 2003-2006 HUMMER H2

Supersede:

This bulletin is being revised to provide additional warranty information. Please discard Corporate Bulletin Number 03-05-25-007B (Section 05 - Brakes).

Condition

Some customers may comment on ABS activation at low speeds, usually below 8 km/h (5 mph). Upon investigation, the technician will find no DTCs set.

Cause

The cause of this condition may be an increased air gap between the wheel speed sensor and the hub reluctor ring due to rust and debris built up on the

sensor mounting surface.

Correction

Measure AC voltage and clean the wheel speed sensor mounting surfaces.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in the General Information sub-section of the Service Manual.
2. Disconnect both the front wheel speed sensor connectors at the frame and harness.
3. Place a Digital Volt Meter (DVM) across the terminals of each wheel speed sensor connector.
4. Rotate the wheel clockwise approximately one revolution per second. The minimum reading should be at least 350 ACmV's. If the reading is less than 350 ACmV's, remove the wheel speed sensor. Refer to the applicable Wheel Speed Sensor Replacement procedure in the ABS sub-section of the Service Manual.
5. Plug the wheel speed sensor bore in order to prevent debris from falling into the hub during service.
6. Clean the wheel speed sensor mounting surface using a wire brush, sand paper, emery cloth, scotch brite, or other suitable material. Be sure to thoroughly clean the wheel speed sensor surface. There should be no rust or corrosion.
7. Check the sensor head to determine if it has been warped/distorted due to the corrosion build up or other causes. Check the mounting surface on the sensor head for flatness by placing it on the edge of a metal machinists scale or other suitable straight edge to measure the flatness. Check the sensor for flatness in multiple (minimum 3) positions/directions. If the sensor head is distorted, replace the sensor.
8. Apply (spray) two thin coats of the specified rust penetrating lubricant (corrosion inhibitor) to the complete sensor mounting surface on the bearing hub. Allow to dry for 3-5 minutes between coats. Use ONLY Rust Penetrating Lubricant, P/N 89022217 (Canadian P/N 89022218).
9. When the corrosion inhibitor is dry to the touch (about 10 minutes), apply a thin layer of bearing grease to the hub surface and sensor 0-ring prior to sensor installation. Use ONLY Wheel Bearing Lubricant, P/N 01051344 (Canadian P/N 993037).
10. Install either the original sensor or a new one in the hub. Ensure that the sensor is seated flush against the hub. Refer to the applicable Wheel Speed Sensor Replacement procedure in the ABS sub-section of the Service Manual.
11. Place the DVM across the sensor terminals and recheck the voltage while rotating the wheel. The voltage should now read at least 350 ACmV's.

Part Number	Description	Qty
89022217 (Canadian P/N 89022218) (Package of 2 cans)	Rust Penetrating Lubricant (Each can will service 50+ vehicles)	1
01051344 (Canadian P/N 993037) (Package of 12 tubs)	Wheel Bearing Lubrication – Tub (Each tub will service 25+ vehicles)	1

Place unused material on dealer shelf for future use.

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
H9714* (1500 Series)	Front Wheel Speed Sensor Inspect and Clean (Both Sides)	1.2 hrs
H9714* (Single Wheels 2500/3500)	Front Wheel Speed Sensor Inspect and Clean (Both Sides)	1.5 hrs
H9714* (Dual Wheels 3500)	Front Wheel Speed Sensor Inspect and Clean (Both Sides)	2.0 hrs

* This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 03-05-25-005

Date: 030820

Brakes/Traction Control - Service Stability Displayed

Bulletin No.: 03-05-25-005

Date: August 20, 2003

TECHNICAL

Subject:

Service Stability Message and DTCs C0455 or C0550 Set (Update Vehicle Stability Enhancement System (VSES) Module Software)

Models:

2003-2004 Cadillac Escalade, Escalade ESV, Escalade EXT

2003-2004 Chevrolet Suburban, Tahoe

2003-2004 GMC Denali, Denali XL, Yukon, Yukon XL

with Vehicle Stability Enhancement System (RPO JL4)

Condition

Some customers may comment on one or more of the following concerns:

- ^ The Service Stability message may be displayed on the DIC (Driver Information Center).
- ^ The vehicle lighting systems may dim noticeably.
- ^ The VSES motor may come on unexpectedly.
- ^ The brake and Anti-Lock Brake System (ABS) telltales may come on and chime. This concern is most common in cold weather.

Technicians may find Diagnostic Trouble Code (DTC) C0455 and/or C0550 set.
Correction


Technicians are to update the VSES module with new software. The new software will be available in TIS version 6.5 scheduled for release on June 15, 2003. All 2004 model year trucks built prior to June 16, 2003 will also need the VSES module software update.

Warranty Information

Labor Operation	Description	Labor Time
N8520	ABS Module-Reprogram*	0.4 hr
*This labor operation is for use only with this bulletin. This number will not be published in the Labor Time Guide.		

For vehicles repaired under warranty, use the table.

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Disclaimer
Technical Service Bulletin # **04-08-49-006C**

Date: **050105**

ABS/TCS - Service Stability Message/DTC C0550 Set
Bulletin No.: 04-08-49-006C

Date: January 05, 2005

TECHNICAL

Subject:
Service Stability Message Displayed, DTC C0550 Set (Reprogram EBCM)

Models:
2004-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
2004-2005 Chevrolet Avalanche, Suburban, Tahoe
2004-2005 GMC Yukon, Yukon Denali, Yukon XL

Supercede:

This bulletin is being revised to correct the Subject line. Please discard Corporate Bulletin Number 04-08-49-006B (Section 08 - Body and Accessories).

Condition

Some customers may comment that while driving downhill and making a turn, the Service Stability message will display in the Driver Information Center (DIC). This will occur prior to ABS activation and once stopped, the message will go off.

Upon investigation, the technician may find DTC C0550 stored in history.

Cause

The cause of this condition may be that the "Long Accel Gain" parameters in the EBCM are sensitive to certain driving conditions.

Correction

Technicians are to reprogram the EBCM with an updated software calibration. This new service calibration was released with TIS satellite data update version 9.5 available September 20, 2004. As always, make sure your TECH 2(R) is updated with the latest software version.

Warranty Information

Labor Operation	Description	Labor Time
H2504*	EBCM – Reprogram	0.4 hr

*This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 05-05-25-008

Date: 051005

ABS - 'Service Stabilitrak(R)' Message/DTC C0455 Set

Bulletin No.: 05-05-25-008

Date: October 05, 2005

TECHNICAL

Subject:

Service Stabilitrak(R) Message or Intermittent Stabilitrak(R) Activation During Normal Driving, Diagnostic Trouble Code (DTC) C0455 (Inspect/Repair Steering Wheel Position Sensor (SWPS) Connector and Reprogram Electronic Brake Control Module (EBCM))

Models:

2004-2006 Cadillac Escalade Models
2004-2006 Chevrolet Avalanche, Suburban, Tahoe
2004-2006 GMC Yukon Models

with Control, Active Brake (RPO JL4)

Condition

Some customers may comment on a Service Stabilitrak(R) message or intermittent Stabilitrak(R) activation during normal driving.

When interrogating with the Tech 2(R), the technician may find a DTC C0455.

Cause

There are multiple possible causes for this issue. This bulletin will address the two most likely causes.

^ A bent terminal or poor connection at the SWPS may be one possible cause.

^ The vehicle stability enhancement system (VSES) electronic brake control module (EBCM) calibration may be the other possible cause.

Correction

1. Remove the SWPS connector located at the base of the STRG column.
2. Inspect the SWPS connector terminals for bent or loose terminals.
3. Inspect the SWPS terminals for bent or loose terminals.

Important:

DO NOT replace the SWPS or connector if bent or loose terminals are found.


4. If either the SWPS terminals or SWPS connector terminals are bent or loose, repair the terminals.
5. Reprogram the VSES EBCM with TIS version 9.0 released on 9/04/05 or later.

Warranty Information

Labor Operation	Description	Labor Time
N6628	Wiring And/Or Connector - Steering/Suspension/Ride Control – Repair Or Replace	Use Current Published Labor Time
H9708	EBCM – Reprogram	0.4 hr

For vehicles repaired under warranty, use the table.

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 Technical Service Bulletin # **05-05-25-003B**

Date: **060222**

TCS/ABS - Service Stability Message/Multiple DTC's Set

Bulletin No.: 05-05-25-003B

Date: February 22, 2006

TECHNICAL

Subject:
 Service Stability Message On, Diagnostic Trouble Code (DTC) C0131, C0196, C0290 and/or C0292 Set (Inspect/Replace Yaw Rate Sensor/Lateral Accelerometer and Reprogram Electronic Brake Control Module (EBCM))

Models:
 2004-2006 Cadillac Escalade Models
 2004-2006 Chevrolet Avalanche, Suburban, Tahoe
 2004-2006 GMC Yukon Models

with Control, Active Brake (RPO JL4)

Supercede:

This bulletin is being revised to update model years. Please discard Corporate Bulletin Number 05-05-25-003A (Section OS - Brakes).

Condition

Some customers may comment on a Service Stability Message on the Drivers Information Center (DIC).

Diagnosis with a scan tool may indicate a DTC C0131, C0196, C0290 and/or C0292 is set.

Cause

There are two possible causes for this issue. Both possible causes are listed below:

- ^ An internal fault within the yaw rate sensor/lateral accelerometer, P/N 15189628, may be the first possible cause.
- ^ The vehicle stability enhancement system (VSES) electronic brake traction control module (EBCM) calibration may be the second possible cause.

DTC Diagnostic Information

- ^ DTC C0131
- ^ DTC C0196
- ^ DTC C0290 or C0292 (w/JL4)

Correction

Follow the procedure below to inspect the part number on the yaw rate sensor/lateral accelerometer.

1. Inspect the part number on the yaw rate sensor/lateral accelerometer.
2. Remove the passenger seat from the vehicle in order to gain access to the sensor. Refer to Seat Replacement - Front Bucket in Seats.
3. Pull the carpet back in order to gain access to the sensor.

Important:

^ OLD yaw rate sensors/lateral accelerometers have a part number on the sensor bracket of P/N 15189628.

IMPROVED yaw rate sensors/lateral accelerometers have a part number on the sensor bracket of P/N 15220053.

4. Inspect the yaw rate sensor/lateral accelerometer part number located on the sensor bracket.

^ OLD yaw rate sensors/lateral accelerometers have a part number of P/N 15189628.

^ IMPROVED yaw rate sensors/lateral accelerometers have a part number of P/N 15220053.

Important:

Replace the yaw rate sensor/lateral accelerometer, P/N 15189628, with new sensor, P/N 15220053

5. Remove the nuts retaining the yaw rate sensor/lateral accelerometer to the vehicle.
6. Disconnect the electrical connector from the yaw rate sensor/lateral accelerometer.
7. Remove the yaw rate sensor/lateral accelerometer from the vehicle.
8. Install the new yaw rate sensor/lateral accelerometer, P/N 15220053, to the vehicle.

Note:

Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

9. Install the nuts retaining the yaw rate sensor/lateral accelerometer to the vehicle.

Tighten

Tighten the nuts to 10 N.m (89 lb in).

Important:

The yaw rate reference reset procedure must be performed when replacing the yaw rate sensor/lateral accelerometer.

- 10. Perform the YAW rate reference table reset procedure. Refer to Yaw Rate Reference Table Reset Procedure.
- 11. Connect the electrical connector to the yaw rate sensor/lateral accelerometer.
- 12. Install the carpet.
- 13. Install the passenger seat to the vehicle. Refer to Seat Replacement - Front Bucket in Seats.

Important:

Failure to reprogram the EBCM may result in a repeat repair.

- 14. Reprogram the EBCM (referred to as the VSES Module in SPS) with the most current VSES software available through SPS. Refer to Service Programming System (SPS).

Part Number	Description	Qty
15220053	Sensor, Yaw/Lateral Accelerometer	1


Parts Information

Labor Operation	Description	Labor Time
H2582	Sensor, Yaw Rate – Replace	Use Published Labor Operation Time
H9708	Electronic Brake Control Module Reprogram with SPS	0.4 hr

Warranty Information

For vehicles repaired under warranty, use the table.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Technical Service Bulletin # 03-05-24-001A

Date: 050321

Brakes - Wheel Cylinder Inspection Guidelines

Bulletin No.: 03-05-24-001A

Date: March 21, 2005

INFORMATION

Subject:
Service Information Regarding Rear Brake Drum Wheel Cylinder Inspections

Models:
2005 and Prior GM Passenger Cars and Trucks
2005 and Prior Saturn Vehicles

with Rear Drum Brakes

Supercede:

This bulletin is being revised add model years and include all GM vehicles. Please discard Corporate Bulletin Number 03-05-24-001 (Section 03 - Suspension).

This bulletin provides information on proper inspection of rear drum brake wheel cylinders.

Important:

It is not recommended that dust boots be removed during inspection processes as dirt and debris could contaminate the wheel cylinder bore causing premature wear of the wheel cylinder. In addition, most bores should look damp and some lubricant may drip out from under the boot as a result of lubricant being present.

All rear drum brake wheel cylinders are assembled with a lubricant to aid in assembly, provide an anti-corrosion coating to the cylinder bore, and lubricate internal rubber components. As a result of this lubrication process, it is not uncommon for some amount of lubricant to accumulate at the ends of the cylinder under the dust boot.

Over time, the lubricant may work its way to the outside of the boot and cause an area of the boot to look damp. Evidence of a damp area on the boot does not indicate a leak in the cylinder. However, if there is excessive wetness (i.e. drips) coming from the boot area of the wheel cylinder, it could indicate a brake hydraulic fluid leak requiring wheel cylinder replacement. (Refer to the Wheel Cylinder Replacement procedures in the appropriate Service Manual.)

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Disclaimer Technical Service Bulletin # **04004**

Date: **040601**

Recall - Brake Hydroboost Relief Valve Seal Defect

File In Section: Product Recalls

Bulletin No.: 04004

Date: June 2004

F/CMVSS NONCOMPLIANCE RECALL

SUBJECT:
BRAKE HYDRO-BOOST RELIEF VALVE SEAL FRACTURE

MODELS:
2003-2004 CADILLAC ESCALADE, ESCALADE EXT, ESCALADE ESV
2003-2004 CHEVROLET SILVERADO, AVALANCHE, SUBURBAN, EXPRESS
2004 CHEVROLET TAHOE
2003-2004 GMC SIERRA, YUKON, YUKON XL, SAVANA

CONDITION

General Motors has decided that certain 2003 and 2004 model year Cadillac Escalade, Escalade EXT and Escalade ESV; Chevrolet Silverado,

Avalanche, Suburban, and Express; GMC Sierra, Yukon, Yukon XL, and Savana; and 2004 model year Chevrolet Tahoe vehicles fail to conform to either Federal/Canada Motor Vehicle Safety Standard 105, "Hydraulic and Electric Brake System", or Standard 135, "Light Vehicle Brake Systems". These vehicles may have a relief valve bore within the brake hydro-boost module that is not to specification. An out-of-specification bore could result in fracture of the relief valve O-ring seal within the module. If this happens, during braking applications the driver may be able to hear an engine compartment noise similar to the sound that occurs when the steering wheel is turned to a full stop position. The driver could also experience a slight increase in steering efforts while braking and parking. Under certain driving conditions, a fractured seal may require a slight increase in the applied brake pedal effort to achieve the same vehicle deceleration rate as prior to the seal fracture. If this were to occur, it could result in a vehicle crash without prior warning.

CORRECTION

Dealers are to inspect the hydro-boost module, and replace the relief valve, if necessary.

VEHICLES INVOLVED

YEAR	DIVISION	MODEL	FROM	THROUGH
2003	Cadillac	Escalade	3R302814	3R320163
2004	Cadillac	Escalade	4R100129	4R104745
2003	Cadillac	Escalade ESV	3G299104	3G324791
2004	Cadillac	Escalade ESV	4G100051	4G100053
2003	Cadillac	Escalade EXT	3G300225	3G324703
2004	Cadillac	Escalade EXT	4G100044	4G100048
2003	Chevrolet	Avalanche	3G301959	3G324088
2004	Chevrolet	Avalanche	4G100025	4G100065
2003	Chevrolet	Express	31216183	31238955
2004	Chevrolet	Express	41100063	41103650
2003	Chevrolet	Silverado	3E346100	3E376199
			3F192149	3F259060
			3M110513	3M112077
			3Z338002	3Z361763
2004	Chevrolet	Silverado	4E100021	4E100126
			4F100026	4F100566
			4M100006	4M100017
			4Z100115	4Z101176
2003	Chevrolet	Suburban	3G285873	3G324561
			3R302840	3R319989
2004	Chevrolet	Suburban	4G100033	4G100074
			4J100031	4J100106
			4R100153	4R104727
2004	Chevrolet	Tahoe	4J100021	4J100103
			4R100130	4R104749
2003	GMC	Savana	31217178	31905189
2004	GMC	Savana	41100065	41103637
2003	GMC	Sierra	3E346103	3E376203
			3F232315	3F259040
			3Z338024	3Z359268
2004	GMC	Sierra	4E100026	4E100127
			4F100025	4F100561
			4Z100032	4Z101101
2003	GMC	Yukon	3J308169	3J335135
2004	GMC	Yukon	4J100061	4J100105
			4R100128	4R104746
2003	GMC	Yukon XL	3G290353	3G324315
			3J309243	3J335111
			3R302820	3R319538

YEAR	DIVISION	MODEL	FROM	THROUGH
2004	GMC	Yukon XL	4G100026	4G100070
			4J100065	4J100104
			4R100133	4R104750

Involved are certain 2003 and 2004 model year Cadillac Escalade, Escalade EXT and Escalade ESV; Chevrolet Silverado, Avalanche, Suburban, and Express; GMC Sierra, Yukon, Yukon XL, and Savana; and 2004 model year Chevrolet Tahoe vehicles built within the VIN breakpoints shown.

IMPORTANT:

Dealers should confirm vehicle eligibility through GMVIS (GM Vehicle Inquiry System) prior to beginning recall repairs. [Not all vehicles within the above breakpoints may be involved.]

For U.S.: For dealers with involved vehicles, a Campaign Initiation Detail Report containing the complete Vehicle Identification Number, customer name and address data has been prepared and will be loaded to the GM DealerWorld, Recall Information website. The customer name and address data furnished will enable dealers to follow up with customers involved in this recall.

For Canada & IPC: Computer listings containing the complete Vehicle Identification Number, customer name and address data of involved vehicles have been prepared, and are being furnished to involved dealers. The customer name and address data will enable dealers to follow up with customers involved in this recall. Any dealer not receiving a computer listing with the recall bulletin has no involved vehicles currently assigned.

These dealer listings may contain customer names and addresses obtained from Motor Vehicle Registration Records. The use of such motor vehicle registration data for any other purpose is a violation of law in several states/provinces/countries. Accordingly, you are urged to limit the use of this listing to the follow-up necessary to complete this recall.

Part Number	Description	Quantity/Vehicle
10398682	VALVE KIT, P/B BOOS CONT	1 (If Req'd)

PARTS INFORMATION

Parts required to complete this recall are to be obtained from General Motors Service Parts Operations (GMSPO). Please refer to your "involved vehicles listing" before ordering parts.

Normal orders should be placed on a DRO = Daily Replenishment Order. In an emergency situation, parts should be ordered on a CSO = Customer Special Order.

Important

It is estimated that only 20% of involved vehicles will require Valve Kit Repair. Please order parts accordingly.

COURTESY TRANSPORTATION

The General Motors Courtesy Transportation program is intended to minimize customer inconvenience when a vehicle requires a repair that is covered by the New Vehicle Limited Warranty. The availability of courtesy transportation to customers whose vehicles are within the warranty coverage period and involved in a product recall is very important in maintaining customer satisfaction. Dealers are to ensure that these customers understand that shuttle service or some other form of courtesy transportation is available and will be provided at no charge. Dealers should refer to the General Motors Service Policies and Procedures Manual for Courtesy Transportation guidelines.

REPAIR PERFORMED	PART COUNT	PART NO.	PARTS ALLOW	CC-FC	LABOR OP	* LABOR HOURS	NET ITEM
Inspection Only - No Further Action Required	N/A	N/A	N/A	MA-96	V1109	0.2	N/A
Inspection #1: Inspect For Color & Stamped Number							
Add: Inspection #2 - Hyd. Brake Booster						0.1	
Inspect & Replace Hydro-Boost Relief Valve (inc. all inspections)	1	---	**	MA-96	V1110	0.4	***
Courtesy Transportation	N/A	N/A	N/A	MA-96	****	N/A	*****

* For Program Administrative Allowance, add 0.1 hours to the "Labor Hours".

** The "Parts Allowance" should be the sum total of the current GMSPO Dealer net price plus applicable Mark-Up or Landed Cost Mark-Up (for IPC) for the power brake booster assembly needed to complete the repair.

*** The amount identified in the "Net Item" column should represent the sum total of the current GMSPO Dealer net price plus applicable Mark-Up or Landed Cost Mark-Up (for IPC) for the actual amount of power steering fluid, if needed, to perform the required repairs.

**** Submit courtesy transportation using normal labor operations for courtesy transportation as indicated in the GM Service Policies and Procedures Manual.

***** The amount identified in the "Net Item" column should represent the actual dollar amount for courtesy transportation.

Refer to the General Motors WINS Claims Processing Manual for details on Product Recall Claim Submission.

CLAIM INFORMATION

CUSTOMER NOTIFICATION - For US and CANADA

General Motors will notify customers of this recall on their vehicle (see copy of customer letter shown in this bulletin).

CUSTOMER NOTIFICATION - For IPC

Letters will be sent to known owners of record located within areas covered by the US National Traffic and Motor Vehicle Safety Act. For owners outside these areas, dealers should notify customers using the sample letter.

DEALER RECALL RESPONSIBILITY - For US and IPC (US States, Territories, and Possessions)

The US National Traffic and Motor Vehicle Safety Act provides that each vehicle that is subject to a recall of this type must be adequately repaired within a reasonable time after the customer has tendered it for repair. A failure to repair within sixty days after tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within a reasonable time, the customer may be entitled to an identical or reasonably equivalent vehicle at no charge or to a refund of the purchase price less a reasonable allowance for depreciation. To avoid having to provide these burdensome remedies, every effort must be made to promptly schedule an appointment with each customer and to repair their vehicle as soon as possible. In the recall notification letters, customers are told how to contact the US National Highway Traffic Safety Administration if the recall is not completed within a reasonable time.

This bulletin is notice to you that the new motor vehicles included in this recall may not comply with the standard identified above. Under Title 49, Section 30112 of the United States Code, it is illegal for a dealer to sell a new motor vehicle which the dealer knows does not comply with an applicable Federal Motor Vehicle Safety Standard. As a consequence, if you sell any of these motor vehicles without first performing the recall correction, your dealership may be subject to a civil penalty for each such sale.

DEALER RECALL RESPONSIBILITY - ALL

All unsold new vehicles in dealers' possession and subject to this recall must be held and inspected/repaired per the service procedure of this recall bulletin before customers take possession of these vehicles.

Dealers are to service all vehicles subject to this recall at no charge to customers, regardless of mileage, age of vehicle, or ownership, from this time forward.

Customers who have recently purchased vehicles sold from your vehicle inventory, and for which there is no customer information indicated on the dealer listing, are to be contacted by the dealer. Arrangements are to be made to make the required correction according to the instructions contained in this bulletin. A copy of the customer letter is shown in this bulletin for your use in contacting customers. Recall follow-up cards should not be used for this purpose, since the customer may not as yet have received the notification letter.

In summary, whenever a vehicle subject to this recall enters your vehicle inventory, or is in your dealership for service in the future, you must take the steps necessary to be sure the recall correction has been made before selling or releasing the vehicle.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Service Procedure

The following procedure provides instructions for inspecting, and if necessary, replacing the hydraulic brake booster relief valve.

1. Open the hood.

Important

You may notice that there is a blue epoxy-type material in the center of the relief valve described in the next step. This material will be found in both the original and replacement relief valves.

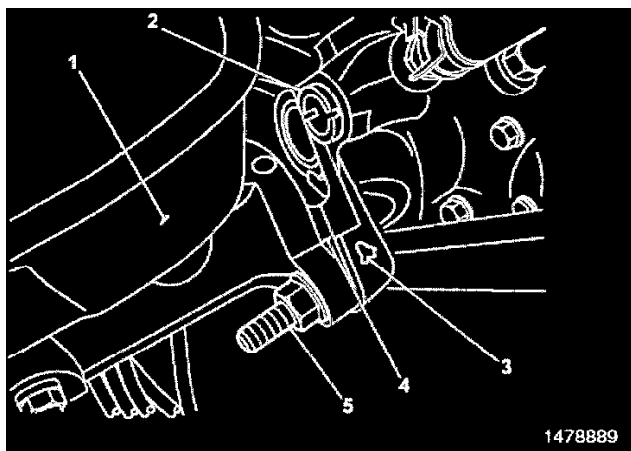
2. Locate the relief valve (2) on the hydraulic brake booster. The valve is located in the front of the brake booster directly behind the master cylinder reservoir (1).

^ If the color of the relief valve is metallic yellow or has a brass appearance, then further action is required.

^ If the color of the relief valve is silver or aluminum, continue to the next step.

Important

If present, the stamped number being described in the next step would be on the mounting surface for the master cylinder on the hydraulic brake booster. The number may be difficult to see if there is any corrosion on the unpainted surface. As a result, it may be necessary to clean the surface with a piece of emery or sandpaper.



3. Inspect the hydraulic brake booster at the location shown (4) for a stamped number. The location (4) is the same surface that the master cylinder mounts on, just above the outboard mounting bolt and nut (5). Also inspect for a paint mark (3) near the master cylinder outboard mounting bolt (5). If a stamped number is found it will be a 1, 2, 3, or 4. If a paint mark is found, it will be yellow, pink, or white.

^ If a yellow, pink, or white paint mark IS visible, no further inspection or repairs are required. Disregard any stamped number found when a yellow, pink, or white paint mark is visible.

^ If there are NO paint marks and there IS a stamped number 2, 3, or 4 visible, no further inspection or repairs are required.

- ^ If there are NO paint marks and there IS a stamped number 1 visible, then proceed to the next step.
- ^ If there are NO paint marks and there are NO stamped numbers visible, then proceed to the next step.

Caution

Care should be taken when working around the accumulator since it contains high-pressure compressed gas and hydraulic fluid.

4. With the ignition in the OFF position, pump the brake pedal a minimum of ten times.
5. On van models, remove the two bolts that attach the diagonal brace between the left front fender and radiator support. Remove the brace and the water deflector that is attached to it.
6. On all models, remove the two nuts that attach the master cylinder to the hydraulic brake booster. A 13 mm wrench installed on the bolt head may be required to prevent the bolt from spinning.

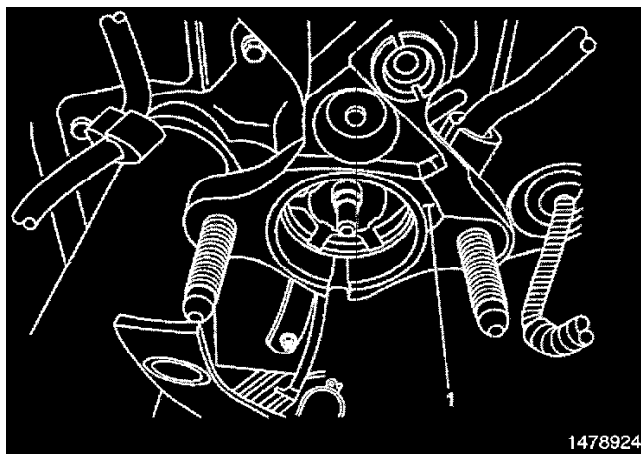
Important

On full size pickups and utilities, the bracket that attaches the brake combination valve will need to be removed from the mounting bolts at the same time that the master cylinder is removed and repositioned in the next step.

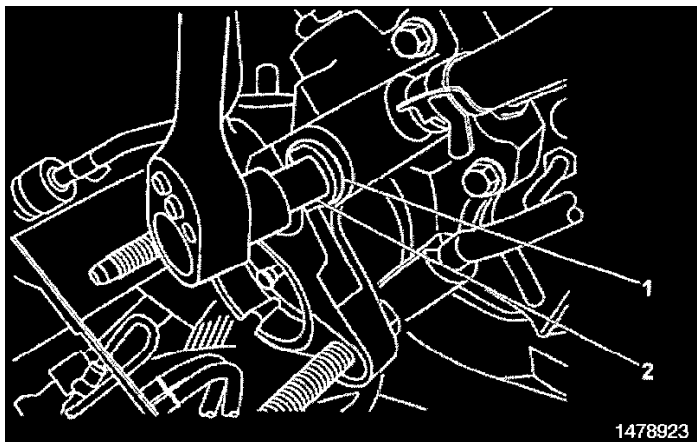
Notice

When repositioning the master cylinder in the next step, use care not to pinch, kink, or damage the brake hoses or pipes.

7. Remove and reposition the master cylinder away from the hydraulic brake booster so that the machined surface on the front of the booster where the master cylinder was mounted is visible.



8. Inspect the machined surface that was covered by the master cylinder on the front of the hydraulic brake booster at the location (1) shown for a stamped number. The stamped number will be a number 1, 2, 3, or 4.
 - ^ If a stamped number 1 is visible, then the relief valve must be replaced. Proceed to the next step.
 - ^ If a stamped number 2, 3, or 4 is visible, then no further action is required. Proceed to Step 14 and reinstall the master cylinder.
 - ^ If no stamped number is visible, then no further action is required. Proceed to Step 14 and reinstall the master cylinder.
9. Cover the master cylinder with a clean shop towel in order to protect it from fluids or cleaners. Also, place a shop towel under the hydraulic brake booster to absorb any fluid that may leak out of the unit when the relief valve is removed in the next step.



1478923

- Using the tool (2) included with the new relief valve, unscrew the original relief valve (1) from the hydraulic brake booster.

Notice

DO NOT blow compressed air into the bore or use any commercially available cleaners to flush the valve bore in the next step. This could damage the booster or master cylinder.

- Inspect the two O-rings on the original valve for signs of damage. If an O-ring is missing, broken, or damaged, inspect the bore in the hydraulic brake booster for any pieces or debris using a non-metallic type tool or a clean "lint-free" towel.

Important

A torque wrench must be used when tightening the valve in the next step. In addition, a 3/8 inch drive to 1/4 inch drive adapter will be needed if your torque wrench is a 3/8 inch drive.

Important

After tightening the NEW relief valve in the next step, a small gap may exist between the head on the valve and the hydraulic brake booster. This condition is normal.

- Insert the NEW relief valve into the bore.

Tighten

Tighten to 17 Nm (13 lb ft).

- Using a clean shop towel, clean up any fluid that may have leaked out of the hydraulic brake booster when removing the original valve.

- Position the master cylinder (and brake combination valve mounting bracket on full size pickups and utilities) on the mounting bolts on the hydraulic brake booster.

- With the master cylinder mounted flush to the booster, install the nuts.

Tighten

Tighten the nuts to 33 N.m (24 lb ft).

- On van models, install the diagonal brace with the water deflector attached to it between the left fender and the radiator. Install the two bolts.

Tighten

Tighten bolts to 25 N.m (18 lb ft).

- Start the engine and verify the hydraulic brake booster operation.

- Turn the engine OFF and check the power steering fluid reservoir. Add fluid if necessary.

- Close the hood.

June 2004

Dear General Motors Customer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act. Federal regulation requires that any vehicle lessor receiving this recall notice must forward a copy of this notice to the lessee within ten days.

Reason For This Recall: General Motors has decided that certain 2003 and 2004 model year Cadillac Escalade, Escalade EXT and Escalade ESV; Chevrolet Silverado, Avalanche, Suburban, and Express; GMC Sierra, Yukon, Yukon XL, and Savana; HUMMER H2; and 2004 model year Chevrolet Tahoe vehicles fail to conform to either Federal/Canada Motor Vehicle Safety Standard 105, "Hydraulic and Electric Brake System", or Standard 135, "Light Vehicle Brake Systems". These vehicles may have a relief valve bore within the brake hydro-boost module that is not to specification. An out-of-specification bore could result in fracture of the relief valve o-ring seal within the module. If this happens, during braking applications the driver may be able to hear an engine compartment noise similar to the sound that occurs when the steering wheel is turned to a full stop position. The driver could also experience a slight increase in steering efforts while braking and parking. Under certain driving conditions, a fractured seal may require a slight increase in the applied brake pedal effort to achieve the same vehicle deceleration rate as prior to the seal fracture. If this were to occur, it could result in a vehicle crash without prior warning.

What Will Be Done: Your GM dealer will inspect the hydro-boost module, and replace the relief valve if necessary. This service will be performed for you at **no charge**.

How Long Will The Repair Take? This inspection and correction, if necessary, will take approximately 20 to 25 minutes. However, due to service scheduling requirements, your dealer may need your vehicle for a longer period of time.

Contacting Your Dealer: To limit any possible inconvenience, we recommend that you contact your GM dealer as soon as possible to schedule an appointment for this repair. By scheduling an appointment, your dealer can ensure that the necessary parts will be available on your scheduled appointment date. Should your dealer be unable to schedule a service date within a reasonable time, you should contact the appropriate Customer Assistance Center at the listed number below. The Customer Assistance Centers hours of operation are from 8:00 AM – 11:00 PM Eastern Standard Time, Monday through Friday.

Division	Number	Text Telephones (TTY)
Cadillac	1-866-982-2339	1-800-833-2622
Chevrolet	1-800-630-2438	1-800-833-2438
GMC	1-866-996-9463	1-800-462-8583
Hummer	1-866-964-8663	
Puerto Rico – English	1-800-496-9992	
Puerto Rico – Español	1-800-496-9993	
Virgin Islands	1-800-496-9994	

If, after contacting the appropriate Customer Assistance Center, you are still not satisfied that we have done our best to remedy this condition without charge and within a reasonable time, you may wish to write the Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590 or call 1-888-327-4236.

Customer Reply Form: The enclosed customer reply form identifies your vehicle. Presentation of this form to your dealer will assist in making the necessary correction in the shortest possible time. If you no longer own this vehicle, please let us know by completing the form and mailing it back to us.

Courtesy Transportation: If your vehicle is within the New Vehicle Limited Warranty your dealer may provide you with shuttle service or some other form of courtesy transportation while your vehicle is at the dealership for this repair. Please refer to your Owner's Manual and your dealer for details on Courtesy Transportation.

Recall Information Online: More information about this recall (including answers to frequently asked questions) is available online at the Owner Center at My GMLink. This free online service offers vehicle and ownership-related information and tools tailored to your specific vehicle. To join, visit www.mygmlink.com, and enter your vehicle's 17-digit vehicle identification number shown on the enclosed customer reply form to get the most personalized information for your vehicle.

We are sorry to cause you this inconvenience; however, we have taken this action in the interest of your safety and continued satisfaction with our products.

General Motors Corporation

Technical Service Bulletin # 89358

Date: 881101

Battery - Diagnosis and Charging

Bulletin No. T-89-35
 File in Group 8
 Number 89
 Corp. Ref. No. 886401R
 Date Nov. 1988

SUBJECT: DELCO FREEDOM BATTERY DIAGNOSIS AND CHARGING

MODELS AFFECTED: ALL

This bulletin outlines the following service information:

- I. Battery Storage: (In-Vehicle storage) Discusses battery storage procedures, parasitic loads, and includes a chart of fuses to pull to reduce these loads during storage.
- II. Warranty Policy: Briefly discusses new warranty procedure as it pertains to battery charge and test (as outlined in DSIB 89-I-9).
- III. Testing: Some brief tips for visual inspection and charging cautions.
- IV. Diagnosing Parasitics: Contains an important procedure required to properly test 1986-1988 Eldorados and Seviles and 1987-1988 Allantes for parasitic drains (recommended for all carlines).
- V. Charging: Tips relating to quick charging procedures. Also lists other sources of information.

Read all this information. Try recharging a deeply discharged battery; review training materials if necessary. The majority of deeply discharged batteries can be recharged if proper procedures are followed.

CAUTION: BATTERIES PRODUCE EXPLOSIVE GASES Always shield eyes and face from battery. Cigarettes, flames, or sparks could cause battery to explode. Do not charge or use booster cables or adjust terminal post connections without proper instructions and training.

CAUTION: BATTERIES CONTAIN SULFURIC ACID WHICH CAN CAUSE SEVERE BURNS

Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. In the event of accident, flush with water and call a physician immediately.

I. Battery Storage In Vehicle

Cadillacs have several electronic devices which result in very small but continuous current drains on batteries, commonly referred to as "parasitic

loads". Parasitic loads may cause vehicles, not used for an extended period of time, to develop deeply discharged and/or permanently damaged batteries. Discharged batteries can freeze at temperatures as high as +20~F, causing permanent damage. Batteries that have been frozen should be scrapped. Never attempt to recharge or use a battery which has been frozen.

To prevent frozen or damaged batteries, assure that the battery green dot is visible before storing the vehicle. The negative battery cable should be disconnected on vehicles which are not going to be in service within a 30-day period. If this is not possible, batteries should be recharged periodically, every 30-60 days, until the green dot is visible (see section on charging). NOTE:

Disconnecting the battery may disable any vehicle security/anti-theft systems!

NOTICE: The ignition switch, headlights, RAP, etc., must be off when connecting or disconnecting battery jumper cables or chargers. Failure to do so may overstress or damage the ECM or other electronic components. Disconnecting jumper cables with the engine running may cause voltage surges that could damage headlamp bulbs or other electronic components.

REMOVE FUSES TO PREVENT PARASITIC DRAIN DURING STORAGE			
CARLINE	PRIMARY FUSE	SECONDARY FUSES	FUSE LOCATION
Allante'	R1 (30 amp) CPS and BCM	R2 (30 amp) ECM	Trunk – by power antenna
		L4 (30A) Cell phone	
Eldorado/ Seville	#5 (15 amp) CPS	#17 (10A) Radio Power	Glove Box
Deville/ Fleetwood	#11 (20A) Radio	(Battery negative cable is next most accessible item)	Fuse Block – drivers side

FIGURE 1 - RECOMMENDED FUSES TO PULL TO MINIMIZE PARASITICS DURING STORAGE

When disconnecting the negative battery cable is not practical for storage, Figure 1 can be used to determine which fuses should be pulled to minimize the parasitic drain. The "Primary" fuse should be pulled and placed in a location in the vehicle where sales and service personnel can easily find and reinstall it.

The fuse-pull suggestions found below, in Figure 1, are not designed to completely eliminate parasitic load; only disconnecting the battery negative cable can accomplish this. Rather, it should help eliminate some of the major draws in a convenient manner.

II. Warranty Policy

Following proper testing and parasitic diagnosis procedures are in the best interests of the dealership in light of Warranty Policies and procedures outlined in DSIB 89-I-9. This bulletin states that Labor Operation N0100, "Battery charge and test", is to be used only in case of new vehicles received from the carrier with a discharged or "Dark Eye" battery. Recharge and/or replacement of new vehicle batteries on unsold cars in dealer inventory are the responsibility of the dealership.

	Black Eye	Green Eye
At Dealer Delivery	<ul style="list-style-type: none"> • Charge Battery and Test • Look for Root Cause of Drain • No Root Cause Found: Charge N0100 • Root Cause Found: Charge Root Cause Labor Op and Add No More than .3 Other Labor Hours 	<ul style="list-style-type: none"> • OK to Store • Take precautions • For Prolonged Storage, Disconnect Battery Negative Cable • Shorter Term Storage, Pull Fuses (see chart)
In Storage (before delivery)	<ul style="list-style-type: none"> • Charge Battery and Test • Look for Root Cause of Drain • No Root Cause Found: Vehicle stored too long without having battery disconnected or fuses pulled – Dealership responsibility • Root Cause Found: Charge Root Cause Labor Op and Add No More than .3 Other Labor Hours (authorization for other labor hours required) 	<ul style="list-style-type: none"> • Take precautions • Disconnect Battery • Pull Fuses (see chart)
At Delivery (to customer)	<ul style="list-style-type: none"> • Charge Battery and Test • Look for Root Cause of Drain • No Root Cause Found: Vehicle stored too long without having battery disconnected or fuses pulled – Dealership responsibility, Pre-Delivery Inspection for green-eye • Root Cause Found: Charge Root Cause Labor Op and Add No More than .3 Other Labor Hours (authorization for other labor hours) 	<ul style="list-style-type: none"> • OK to Deliver
In Service	<ul style="list-style-type: none"> • Charge Battery and Test • Look for Root Cause of Drain • No Root Cause Found: Inquire about Storage and Driving habits, inadvertent drains. Battery drain due to courtesy lamps, headlamps, etc inadvertently left on is the owners responsibility. <ul style="list-style-type: none"> – See notes on internal battery shorts in Section IV. – Check for bulletins which address intermittent conditions which could cause battery drains • Root Cause Found: Charge Root Cause Labor Op and Add No More than .3 Other Labor Hours 	<ul style="list-style-type: none"> • OK to Deliver • Test Battery if Other Diagnosis Indicates Necessity

FIGURE 2 - WARRANTY PROCEDURE UNDER VARIOUS CONDITIONS

If a condition of discharged battery is a customer concern on a delivered vehicle, the root cause of the discharge should be diagnosed and repaired before the battery is charged and tested. Battery charge and test on delivered vehicles is to be submitted for approval at no more than 0.3 "Other Labor Hours" and is to accompany the repair operation that corrects the root cause of the discharge. Refer to Figure 2 on the next page.

III. Testing the Battery

A. Visual Test

Check for obvious damage, such as cracked or broken case or cover that is permitting loss of electrolyte. If obvious damage is noted, replace the battery. Determine the cause of damage and correct as needed. If battery terminals are severely damaged, for instance loose, burned, or broken, replacement of the battery is recommended.

Evidence of small amounts of electrolyte leakage, especially around the vent holes, does not necessarily indicate the battery is defective. The leakage could have been caused by overcharging or tipping of the battery. If a small amount of the electrolyte leakage is detected, the battery should be fully charged OUT OF THE CAR so that any electrolyte that may escape does not damage the bumper filler panels or other components.

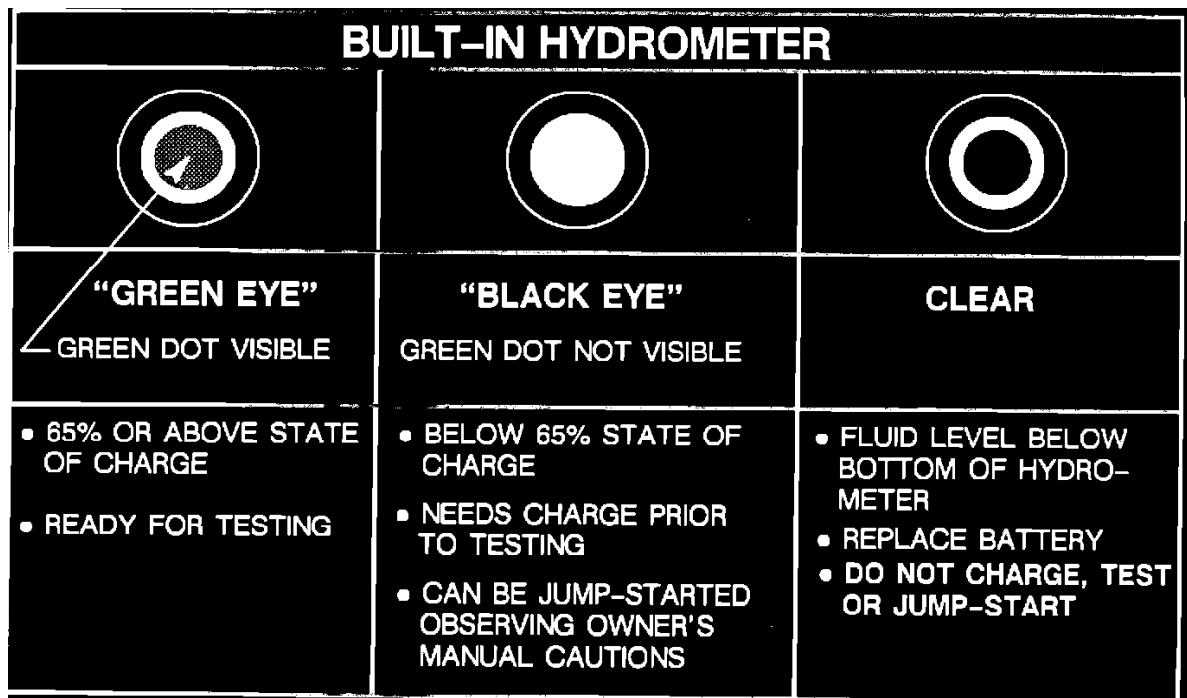


FIGURE 3 - BUILT-IN HYDROMETER

B. Reading Built-In Hydrometer

Look straight down into the built-in hydrometer to observe its reading, clean and use a flashlight if necessary, and tap lightly on top of the hydrometer to dislodge any trapped air bubbles that might prevent a correct reading. Refer to Figure 3.

IV. Diagnosing Discharged Batteries and Parasitic Battery Drains

All no-start, slow cranking, and/or frequently discharged battery conditions should be thoroughly diagnosed to avoid unnecessary replacement of batteries. The battery should be charged and load tested in accordance with established service procedures as described in the Cadillac Service Information Manual before considering battery replacement. Examples of conditions causing low charged or discharged batteries are:

- ^ Extended storage of vehicles.
- ^ Batteries already discharged when vehicle is received, due to handling in transit and at assembly.
- ^ Extended cranking periods due to plug fouling.
- ^ Accessory lights left on with engine not running (courtesy, glove box, trunk lights).
- ^ Insufficient recharge (ampere-hours) of discharged battery.
- ^ Charging system problems.
- ^ Continuous current draw on battery through parasitic drain.

VEHICLE ELECTRICAL SYSTEM PARASITIC LOAD @ 12.6 V (In mA)		
CARLINE		TYPICAL PARASITIC
ALLANTE'	4.1L	28 mA
ELDORADO	4.5L	22 mA
SEVILLE	4.5L	23 mA
DEVILLE	4.5L	20 mA
BROUGHAM	5.0L	15 mA
CIMARRON	2.8L	11 mA

FIGURE 4 - PARASITIC LOADS BY CARLINE

As was discussed previously in "Battery Storage", today's Cadillacs have several electronic devices which result in very small but continuous current drains on their batteries, commonly referred to as "parasitic loads". A parasitic drain of up to 50mA is considered normal, 30mA being about average. Any battery draw above 50mA, with ignition off and retained accessory power disabled (if so equipped), is excessive. Figure 4 gives approximate average values of design parasitic current draw for each carline.

Also, refer to the table of component parasitic loads found above under "Battery Storage". These values should only be used as general guidelines when diagnosing suspect components.

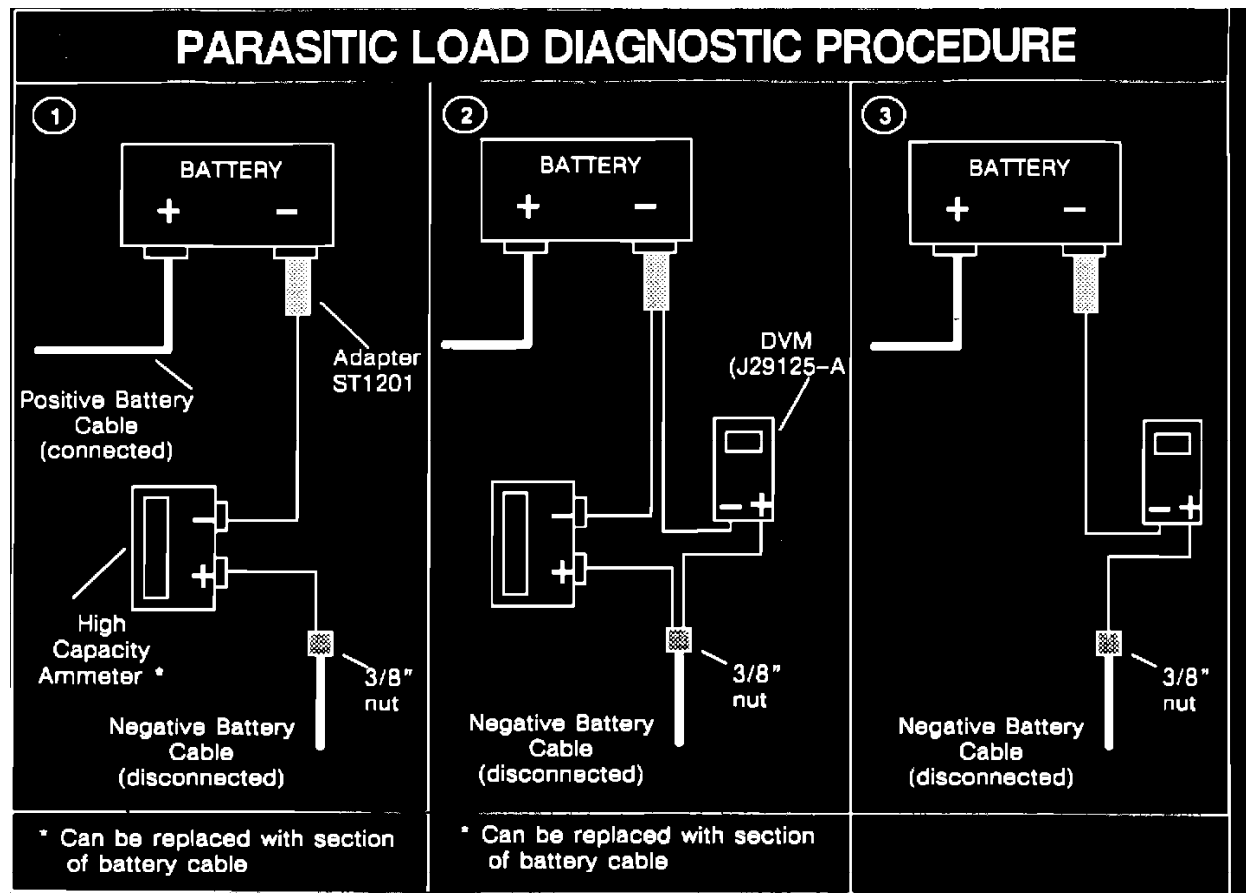


FIGURE 5 - PROPER PARASITIC LOAD DIAGNOSTIC PROCEDURE

A. How to Check the Battery Drain (Refer to Figure 5)

When checking any type of current draw, it is important to use an ammeter or digital multimeter to measure the amperage.

The electrical circuitry of most Cadillac vehicles require that the Body Computer Module (BCM) and the Central Power Supply (CPS) get an initialization charge whenever the battery power is first provided. This initialization occurs with the ignition key in the "OFF" position, and depending on how long the battery has been disconnected, the initial draw may last from 1 to 3 seconds and can range between 0.5 and 9.0 amps. Therefore, to prevent misleading readings or unnecessary fuse replacement on the digital multi-meter, J-29125, or similar equipment, the following procedure is recommended. **THIS PROCEDURE is PARTICULARLY CRITICAL ON THE 1987-1988 ALLANTE AND THE 1986-1988 ELDORADO AND SEVILLE.** It is recommended as a good practice for all vehicles.

1. Disconnect the negative battery cable.
2. Install a battery side terminal adapter, AC-Delco ST1201 or equivalent, in the negative terminal of the battery.
3. Install a 3/8 nut, with standard threads (16 UNC) on the negative battery cable attaching screw to assure a good electrical contact with the lead face on the cable for testing. Yellow or black finish nuts are generally non-conductive and should not be used.
4. With all lights, accessories, Retained Accessory Power (RAP), and the ignition switch off, connect a high capacity ammeter at least 10 amps from the negative battery cable to the side terminal adapter. This high capacity ammeter is connected to verify whether or not a high current draw is occurring at a constant rate. It is this type of high current draw which will blow the fuse in lower capacity ammeters. After the initial draw occurs, the ammeter reading should drop below 1 amp.

NOTE: If a high capacity ammeter is not available, install a section of heavy wire (preferably a battery cable) between the existing battery negative cable and the side terminal adapter. Allow ample time (approximately 30-60 seconds) for the initial draw to occur and proceed to step 5.

5. With the high capacity ammeter or battery cable section still connected, connect the digital multi-meter, set to the 2000 DCmA range, in parallel with the high reading ammeter.

VEHICLE ELECTRICAL SYSTEM PARASITIC LOAD @ 12.6 V (In mA)		
CARLINE		TYPICAL PARASITIC
ALLANTE'	4.1L	28 mA
ELDORADO	4.5L	22 mA
SEVILLE	4.5L	23 mA
DEVILLE	4.5L	20 mA
BROUGHAM	5.0L	15 mA
CIMARRON	2.8L	11 mA

FIGURE 4 - PARASITIC LOADS BY CARLINE

SAMPLE COMPONENT PARASITIC LOADS (mA)		
COMPONENT	TYPICAL PARASITIC	MAXIMUM PARASITIC
BCM	3.6	12.4
ECM	5.6	10.0
RADIO	3.0	6.0
GENERATOR REGULATOR	1.4	2.0 3.5 ALLANTE
ELC/ALC	2.0	3.3
CPS	1.6	2.7
ILLUMINATED ENTRY	1.0	1.0
THEFT	0.35	1.0
AUTO DOOR LOCKS	1.0	1.0
CHIME	1.0	1.0
HVAC POWER MODULE	1.0	1.0

FIGURE 6 - SAMPLE COMPONENT PARASITIC LOADS (IN mA)

6. Disconnect the high capacity ammeter and take the reading with the digital multi-meter.

A current draw of 50mA or less (see values in Figures 4 and 6) indicates that all lights and accessories are off and that there is no unexplained current draw. Care should be taken to allow for a time delay before reading the meter on vehicles equipped with Electronic Level Control (ELC) (not found on Allante).

Due to this initialization process, test lamps CANNOT be used in place of ammeters to diagnose current draw conditions. The voltage drop across the test lamp prevents the initialization process from occurring.

Clamp-On Ammeters:

Clamp-on ammeters may be used if the meter can measure in the milli-amp range and if the meter clamp can fit around all of the battery negative or positive cables. All of the cables must fit in the clamp with the clamp closed to be sure that all of the parasitics are being measured. Zero the clamp-on ammeter carefully. Magnetic fields from engine electrical items (generator, ignition, solenoids) and from shop sources (fluorescent lights, power cables) can alter the clamp-on meter readings. If the parasitic readings are not repeatable, use the series measurement method described in this bulletin.

B. Determining the Source of the Drain

Once it has been determined that a parasitic drain in excess of 50 mA exists, a visual inspection of the vehicle should be conducted. Check to see if there are any unwanted lights on, motors running or switches/relays activating.

VEHICLE ELECTRICAL SYSTEM PARASITIC LOAD @ 12.6 V (In mA)		
CARLINE		TYPICAL PARASITIC
ALLANTE'	4.1L	28 mA
ELDORADO	4.5L	22 mA
SEVILLE	4.5L	23 mA
DEVILLE	4.5L	20 mA
BROUGHAM	5.0L	15 mA
CIMARRON	2.8L	11 mA

FIGURE 4 - PARASITIC LOADS BY CARLINE

If no cause for the draw is immediately apparent, it may be possible to narrow in on the source by systematically removing fuses and circuit breakers, one by one, from the fuse panels. This should be done while monitoring the ammeter so that a disruption of the drain will be evident. Refer to Figure 4 for average and maximum parasitic loads for various vehicle components.

SAMPLE COMPONENT PARASITIC LOADS (mA)		
COMPONENT	TYPICAL PARASITIC	MAXIMUM PARASITIC
BCM	3.6	12.4
ECM	5.6	10.0
RADIO	3.0	6.0
GENERATOR REGULATOR	1.4	2.0 3.5 ALLANTE
ELC/ALC	2.0	3.3
CPS	1.6	2.7
ILLUMINATED ENTRY	1.0	1.0
THEFT	0.35	1.0
AUTO DOOR LOCKS	1.0	1.0
CHIME	1.0	1.0
HVAC POWER MODULE	1.0	1.0

FIGURE 6 - SAMPLE COMPONENT PARASITIC LOADS (IN mA)

Figure 6 gives an approximate indication of typical and maximum parasitic loads by component in milli-amps (mA).

In addition to parasitic loads, a certain amount of self-discharge is always occurring as a result of internal chemical reactions even when the battery is not connected. The higher the ambient temperature, the greater the amount of self-discharge. This explains why the number of discharged batteries may increase at your location in very hot weather. The original equipment battery has a much lower rate of self-discharge than conventional batteries, however, self-discharge at 100 degrees ambient can be as high as 7mA.

V. Battery Charging

Dealership service personnel are advised to refer to Cadillac Serviceman Bulletin T-83-12, Group 6D for detailed instructions on:

1. Battery Side Terminal Connections
2. Battery Charging
3. Charging Time Required
4. Load Testing

NOTES:

1. The majority of discharged batteries can be recharged using normal battery charging procedures. Some deeply discharged batteries or batteries which have been allowed to remain in a discharged state may need a higher charge voltage initially to start the recharging process.
2. The Freedom battery is more resistant to overcharging damage than conventional batteries. Boost or Quick-Charge settings on battery chargers may be safely used in most instances. (This is not true of other non-Delco OE batteries and many aftermarket batteries.)
3. With the battery at room temperature, voltages as high as 15.0 volts to 16.0 volts may be safely used without causing battery damage. Cold batteries require more voltage to cause them to accept current. Warm batteries will accept less voltage without causing overcharging.
4. After starting the battery on charge and periodically during the charging process, the battery should be checked to assure that it is not overcharging. Overcharging can be identified by excessive battery case temperature and electrolyte boiling or bubbling (or spewing out the vents).

^ Battery case temperatures of about 125~F is the maximum which should be allowed. Check by hand feel and reduce the charge rate if high temperatures are found.

^ Excessive electrolyte bubbling or boiling indicates that the charge voltage is too high and that the battery is being forced to accept too

much current. Turn down the charge rate if high temperatures are found.

- ^ A battery with an internally shorted cell will show signs of overcharging at normally acceptable voltages. If charge voltages of around 13 volts result in overcharging (on a battery at room temperature or cooler), disconnect the battery and check the voltage. Batteries with internal shorts will exhibit a drop in voltage over time. Batteries with internal shorts should be scrapped.

Technical Service Bulletin # **02-06-03-010A**

Date: **040702**

Battery - Parasitic Drain

Bulletin No.: 02-06-03-010A

Date: July 02, 2004

INFORMATION

Subject:
Battery Parasitic Drain

Models:
2005 and Prior Passenger Cars and Trucks
2003-2005 Isuzu Light Duty Trucks

Supercede:

This bulletin is being revised to add the 2004 and 2005 model years. Please discard Corporate Bulletin Number 02-06-03-010 (Section 06 - Engine).

In automotive terms, a parasitic drain is an electrical load that draws current from the battery when the ignition is turned off. Some devices, such as the PCM and the radio memory are intended to draw a very small amount continuously. These draws are measured in milliamps (mA).

In normal use, parasitic drains aren't usually cause for concern, because the battery is replenished each time the vehicle is driven. But, in long-term parking situations, parasitic drains may discharge the battery enough to cause a no-start condition. New vehicles in dealer stock and airport long-term parking are two such situations.

An abnormal parasitic drain could be a glovebox or luggage compartment light that remains on but undetected. Or an electronic component may malfunction and cause a parasitic drain that is larger than normal specification.

Parasitic Drains and On-the-Lot Battery Discharge

Important:

In most cases of discharged batteries in low-age, low-mileage vehicles, proper charging procedures with approved charging equipment is the only repair necessary.

Here are some rules of thumb that might help relate parasitic drains to how long a battery would last on a parked vehicle. The Reserve Capacity (RC) rating multiplied by 0.6 gives the approximate available ampere-hours (AH) from full charge to complete rundown. Somewhere between full charge and complete rundown, the battery will reach a point at which it can no longer start the engine, although it may still operate some of the electrical accessories.

Using up about 40% of the total available AH will usually take a fully-charged battery to a no-start condition at moderate temperatures of 25°C (77°F). Put another way, for a typical battery in a storage situation, depleting the available AH by 20 to 30 AH will result in a no-start condition.

Important:

If the battery begins storage at 90% of full charge, reduce the available AH accordingly.

The recommendation for maximum parasitic drain is around 30 mA (0.030 amp). A typical drain today actually falls into the 7-12 mA range, even though some vehicles do approach the maximum. Multiply the drain (in amps) by the time (in hours) the battery sits without being recharged. The result is the amount of AH consumed by the parasitic drain. The actual drain may be small, but over time the battery grows steadily weaker.

Here's an example: a vehicle with a 30 mA drain and a fully-charged 70 RC battery will last 23 days. But if that battery is at only 65% of full charge (green dot barely visible), it is going to last only 15 days before causing a no-start.

Effects of Temperature on a Standing Battery

The parasitic drain will be fairly constant over a range of temperatures. The important temperature is that of the vehicle at the time a start is attempted. Colder temperature raises the threshold of a no-start by increasing the residual power needed. When the temperature falls to 0°C (32°F), the battery will be able to put out only about 85% of its normally available starting power, and the engine may need as much as 165% of the usual power to start.

The combined effect of these two factors is to reduce the number of days the battery can stand with a parasitic drain. At 0°C (32°F), the battery can stand only half as long as it could at 25°C (77°F). And at -19°C (0°F), the standing days are reduced to one-fourth.

Temperatures above the moderate climate of 25°C (77°F) increase the battery's internal self discharge. If the battery is in a locale where the temperature is averaging 32°C (90°F), an additional 5% to 10% of the available ampere-hours will be lost in a month due to self-discharge within the battery. At temperatures below the moderate range, self-discharge will be low enough to be negligible compared to the parasitic loss.

What the Policies and Procedures Manual Says About Parasitic Drains

Because determining how long a battery may last in a storage situation is not precise, the P & P manual provides a clear-cut policy, excerpted here.

"Discharged batteries can freeze at temperatures as high as 0°C (32°F), causing permanent damage. Other permanent damage may result from allowing batteries to stand discharged for extended periods."

"To alleviate this condition, the negative battery cable should be disconnected on vehicles which are not going to be in service within a 20 day period, beginning from the time the vehicle is shipped. If this is not possible, batteries should be recharged periodically, every 20-45 days, until the green eye is visible."

"Disconnected batteries will slowly discharge, especially with higher temperatures; therefore, even disconnected batteries should be checked every four months and recharged if necessary."

"Vehicles on display are subject to battery discharge due to drains from courtesy lights and other accessories. Provision to maintain battery state of charge for these vehicles will be necessary."

Consult your P & P manual for full details.

Tracking Down the Source of a Parasitic Load

If the battery in a vehicle becomes discharged in a shorter time than described earlier, the vehicle may have an out-of-specification parasitic load. Refer to Service Information (SI) for procedures for locating parasitic drains. Follow these steps:

1. Build the vehicle.
2. Select the Engine section.
3. Select the Engine Electrical sub-section.
4. Select Diagnostic Information and Procedures.
5. Select Battery Electrical Drain/Parasitic Load Test.

You will need the J 38758 Parasitic Draw Test Switch and a digital multimeter set to the 10A scale.

Important:

Read the procedure and follow the steps exactly as described in SI. The following is a summary, not the complete procedure.

The test switch permits you to place an ammeter in series with the battery negative cable. Before performing the test, the engine must be run and all accessories must be operated as instructed. After shutting the ignition off, turn the test switch off. Now, all the current being used by the vehicle is shunted through the ammeter where it is measured. If the reading is out of specification, the procedure explains how to pinpoint the cause.

A Final Word About Battery Testing

Your dealership has an essential tool, the Midtronics Micro 410 Battery Tester, J 42000. Use it to quickly identify batteries that are serviceable and can be charged. Refer to Corporate Bulletin Number 02-06-03-006A for more information about this tool.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Battery - Specification Label Clarification

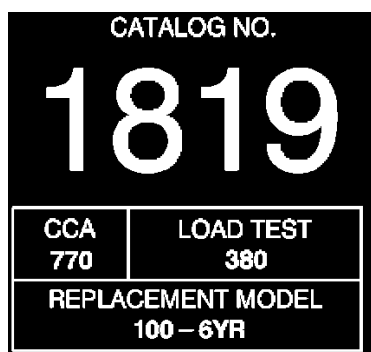
Bulletin No.: 04-06-03-016

Date: December 13, 2004

INFORMATION

Subject:
Battery Specification Label

Models:
2005 and Prior Passenger Cars and Light Duty Trucks



This bulletin is being issued to provide additional information concerning the specification label on OEM batteries. On the upper right corner of the label is a replacement model number that has a reference to the battery warranty if sold in the aftermarket. Sample label content shown with replacement model number as 100-6 YR. This number has been known to cause some confusion in the field as customers think that they have a longer warranty on the battery than the standard 3 year/36,000 mile (60,000 km) or 4 year/50,000 mile (80,000 km) vehicle warranty.

ACDelco(R) established this model number as part of their cataloging system and it is provided only for replacement information. The warranty code (6 YR) only applies to retail sales. The battery warranty is the same as the vehicle warranty.

If a battery is replaced during the vehicles warranty period, instruct the customer that the new battery will continue to be covered for the remainder of the vehicle warranty or 12 months/12,000 miles (in Canada, 3 months/6,500 km), whichever is longer.

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Disclaimer Technical Service Bulletin # **04-06-03-001**

Date: **040203**

Alternator - Incorrect Amperage Coding

Bulletin No.: 04-06-03-001

Date: February 03, 2004

INFORMATION

Subject:
Incorrect Amp Code On Generator

Models:
2003-2004 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2004 Chevrolet Avalanche, Express, Silverado, Suburban, Tahoe
2003-2004 GMC Denali XL, Savana, Sierra, Yukon, Yukon XL
2003-2004 HUMMER H2

The purpose of this bulletin is to inform the technician of an incorrect Amp code stamped on the generator. The code on the side of the generator reads 130 A and it should read 145 A. The 130 A has been stamped on the generators in error and does not indicate the actual amperage of the generator. A 130 A generator is not produced for this vehicle. The correct replacement for the above vehicles is the generator with the 145 A marking.

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Disclaimer Technical Service Bulletin # **04-06-03-002**

Date: **040205**

Ignition Switch - Intermittent No Crank/Dead Battery

Bulletin No.: 04-06-03-002

Date: February 05, 2004

INFORMATION

Subject:

Diagnostic Information for Intermittent Vehicle No Crank/Dead Battery

Models:

2004 Buick Rainier
2000-2004 Cadillac Escalade
2002-2004 Cadillac Escalade EXT
2003-2004 Cadillac Escalade ESV
1998-2004 Chevrolet Blazer, S-10 Pickup
1999-2004 Chevrolet Silverado
2000-2004 Chevrolet Suburban, Tahoe
2002-2004 Chevrolet Avalanche, TrailBlazer, TrailBlazer EXT
2003-2004 Chevrolet Express
1998-2004 GMC Jimmy/Envoy, Sonoma
1999-2004 GMC Sierra
2000-2004 GMC Yukon, Yukon XL
2002-2004 GMC Envoy, Envoy XL
2003-2004 GMC Savana
2004 GMC Envoy XUV
1998-2004 Oldsmobile Bravada
2003-2004 HUMMER H2

When diagnosing a concern regarding an intermittent vehicle no crank or dead battery, technicians should remove and reinstall the ignition switch using the Ignition Switch Replacement procedure in the Steering Wheel and Column section of SI. The ignition switch may have been misindexed in the steering column during a previous replacement.

If the ignition switch is misindexed in one direction, the ignition switch circuits will not be completely open when the ignition switch is in the OFF position with the key removed. This may result in lights remaining on or instrument panel lights illuminating, which will drain the battery. If the ignition switch is misindexed in the opposite direction, the ignition circuits will open correctly but the ignition switch may not close the crank circuit properly when the ignition key is turned to the crank position. This will result in a no crank concern.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Disclaimer Technical Service Bulletin # **05-06-01-006**

Date: **050209**

Engine Controls - Noise at Idle/Steering Wheel Vibration

Engine Vibration/Noise at Idle, Vibration Felt in Steering Wheel/Seat (Reprogram PCM) # 05-06-01-006 - (Feb 9, 2005)

Models:

2003-2005 Cadillac Escalade
2003-2005 Chevrolet Tahoe
2003-2005 GMC Yukon

with 4.8L or 5.3L Engine (VINS V, T, Z, - RPOs LR4, LM7, L59)

Condition

Some customers may comment on an engine vibration or noise while the vehicle is in gear at idle. This vibration can be felt in the steering wheel or seat and may intensify if the A/C is turned on. It should be noted that if the engine speed is raised or lowered approximately 50 RPMs, the vibration/noise will be reduced or go away.

Correction

A new service calibration has been released to lower the engine idle speed to 538 RPM in park/neutral and 525 RPM in gear. Before installing the new calibration, use the Tech 2(R) and go into Powertrain/Special Functions/TAC System Engine Speed Control and when the condition is duplicated (engine running, in gear, foot on the brake, A/C on), command the idle down to 525 RPM. If the condition greatly improves or goes away, reprogram the PCM with the Updated software calibration. This new calibration was released with TIS satellite data update version 1.75 available January 26, 2005. As always, make sure your Tech 2(R) is updated with the latest software version.

Also, if the vehicle is a 2004 model, Corporate Bulletin Number 04-06-01-023 may need to be performed.


For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
J7506*	Use Tech 2® to Reduce Engine Idle	0.2 hr
Add	To Reprogram PCM	0.4 hr

*This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

Warranty Information

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Disclaimer Technical Service Bulletin # 05-07-30-013

Date: 050509

Engine Controls - 4L60E/4L65E A/T 2nd Gear Start

Bulletin No.: 05-07-30-013

Date: May 09, 2005

TECHNICAL

Subject:

4L60-E/4L65-E Automatic Transmission Second Gear Start, Lack/Loss of Power When Accelerating From a Stop (Reprogram Powertrain Control Module (PCM))

Models:

- 2004-2005 Cadillac Escalade
- 2004-2005 Chevrolet Avalanche, Express, Silverado, Suburban, Tahoe
- 2004-2005 GMC Savana, Sierra, Yukon
- 2004-2005 HUMMER H2

with 4L60-E (RPO M30) or 4L65-E (RPO M32) Automatic Transmission

Condition

Some customers may comment on a slip on launch, low power on a launch or a second gear start when accelerating from a stop.

This condition is usually very intermittent, occurring only once in a few thousand miles of driving.

A Tech 2 or VDR snapshot of the event may show 2nd gear being commanded for approximately two seconds, then 1st gear commanded as would be expected.

Cause

This condition may be caused by an intermittent VSS signal, which causes the PCM to command second gear.

Important:

There are other conditions that can cause the transmission to start in a gear higher than first. The following are a few of these conditions.

- ^ Some DTCs can cause the transmission to start in a higher gear. Check for the presence of DTCs and repair as appropriate before proceeding.
- ^ Debris on top of the spacer plate or in the valve body or a leaking shift solenoid can cause a 4L60-E or 4L65-E transmission to start in a gear higher than first. A start in a higher gear caused by any of these conditions typically occurs with much greater frequency. Refer to Service Bulletin 01-07-30-036D or newer for diagnostic information of these conditions.
- ^ Placing the shift lever in the D2 position will cause a 4L60-E or 4L65-E transmission to start in second gear. Correction

Important:

- ^ This bulletin ONLY applies to 2004-2005 models year vehicles listed above.
- ^ Some DTCs can cause the transmission to start in a higher gear. Check for the presence of DTCs and repair as appropriate before proceeding.

1. Using a scan tool, check for the presence of DTCs. If DTCs are present, refer to the appropriate SI Document before proceeding with this calibration.

Important:

These calibrations also contain the 2-3 shift clunk calibration as detailed in bulletin 05-07-30-012.


2. Technicians are to reprogram the PCM with an updated software calibration. This new service calibration was released with TIS satellite data update version 5 or later available May 1, 2005. Refer to Service Programming System (SPS) in Vehicle Control Systems in the appropriate SI Document.

Warranty Information

Labor Operation	Description	Labor Time
J6355	Module, Powertrain Control – Transmission Reprogramming	Use Current Published Labor Time

For vehicles repaired under warranty, use the table.

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WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Bulletin No.: 04-08-48-001B

Date: June 28, 2005

INFORMATION

Subject:

Rear Window Defogger - Broken Heating Grid Detection Method

Models:

2006 and Prior Passenger Cars and Light Duty Trucks (Including Saturn)

2003-2006 HUMMER H2

2006 HUMMER H3

Supercede:

This bulletin is being revised to add the 2006 model year and additional models. Please discard Corporate Bulletin Number 04-08-48-001A (Section 08 - Body and Accessories).

The addition of vertical grid lines to the heated back window defogger circuits has made it difficult to detect broken defogger grid lines. In the past, it was a simple matter to use a voltmeter to check the continuity of each grid line in order to locate a non-functional line. Some new design back windows have two vertical grid lines that connect all of the horizontal grid lines together, thereby providing alternate routes for the electrical current to follow. This makes the old test method ineffective. If the vehicle does not have the vertical lines, the old (line-by-line) test methods can be used.

Materials Required

^ Permatex(R) Quick Grid, GM P/N 12346001, or equivalent

^ A small ball of fine steel wool Type 00, or

^ Optional - A strip of liquid crystal heat sensitive paper, 51 mm x 305 mm (2 in x 12 in) or similar size (Contact Edmund Scientific at 800-728-6999 for part number CR30723-70 or go to www.scientificsonline.com), or

^ Optional-A portable infrared thermometer, GE-46819, available from Kent-Moore (1-800-345-2233), or equivalent.

Correction

There are three distinct zones across the back window that must be checked. They are:

^ the driver's side outboard of the two vertical lines

^ the passenger side outboard of the two vertical lines

^ the central zone that falls between the two vertical lines

To detect a broken grid line in any of the above three zones and to isolate the exact location of the break, perform the following steps:

Caution:

^ Approved safety glasses and gloves should be worn when performing this procedure to reduce the chance of personal injury.

^ Cover the rear shelf area to prevent damage to the interior trim material.

1. Start the engine and turn on the back window defogger.

2. Take the ball of fine steel wool and twist one end to a point. Move the point slowly across each grid line. Be sure to start at the far side of the zone and move it to the opposite side of the zone. When you bridge the grid line break with the steel wool, you will see a small spark. Repeat the test over the same area to be sure you have accurately located the break. Mark the exact location of the grid line break. Repeat this portion of the test for each grid line. If you do not see a spark at any point, it is possible that there are two breaks in the same line and zone. Close visual inspection using a magnifying glass may be the only way to locate breaks in this case.

3. The following are provided as an alternative way to detect a non-functional grid line. If available, use in addition to the steel wool.

3.1. Method using liquid crystal heat sensitive paper:

Important:

The first part of the test must be completed quickly before the entire surface of the back window becomes warm.

- 3.1.1. From outside the vehicle, place the heat sensitive paper (dull surface in contact with the glass) against the top driver side grid line. Start the engine and turn on the back window defogger. A distinct color change will take place at each conductive grid line. Repeat for the bottom grid lines until they have all been checked in the driver side zone.
- 3.1.2. Repeat the process for the passenger side and center area zones.
- 3.1.3. If no color change is noted for a grid line, place a crayon or china marker check mark beside it. Mark each grid line in the zone where it is non-conductive and, therefore, not heating up. More than one broken grid line may be found.
- 3.2. Method using portable infrared thermometer:
 - 3.2.1. Start the engine and turn on the rear back window defogger.
 - 3.2.2. From inside the vehicle, start at the top driver side grid line and slowly run the portable infrared thermometer vertically down the rear window contacting each grid line. You should be able to see a distinct variation in temperature readings.
 - 3.2.3. Mark each grid line in the zone where it is non-conductive and, therefore, not heating up. More than one broken grid line may be found.
 - 3.2.4. Repeat the process for the passenger side and center area zones.
4. Use Permatex(R) Quick Grid, GM P/N 12346001, or equivalent, to repair each broken grid line. Follow the manufacturer's instructions.
5. Wait 24 hours before turning the defogger on, or the repair can be fast cured using a heat gun, 260 °C - 371 °C (500°F - 700°F). Hold the heat gun within 25 - 51 mm (1-2 in) from the repair point for 2 to 3 minutes.
6. Recheck the grid line with the heat sensitive paper or portable infrared thermometer to ensure that the line is now functional and that the repair was successful.

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WE SUPPORT
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CERTIFICATION

Disclaimer Technical Service Bulletin # **05-08-50-017**

Date: **051214**

Interior - Power Seat Switch Knobs Loose/Missing

Bulletin No.: 05-08-50-017

Date: December 14, 2005

TECHNICAL

Subject:
Power Front Seat (RPO AN3) Switch Knobs Loose or Missing (Replace Switch Knobs)

Models:
2002-2006 Cadillac Escalade, Escalade EXT
2003-2006 Cadillac Escalade ESV
2002-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2002-2006 GMC Sierra, Yukon, Yukon XL

with Individual Front Seat Non-Bucket (RPO AN3) and Driver Front Seat Power Adjuster (AG1) and/or Passenger Front Seat Power Adjuster (AG2)

Condition

Some customers may comment that the power front seat adjuster switch knobs are loose and fall off or are missing.

Correction

Do This	Don't Do This
Replace the Front Seat Adjuster Switch Knob.	DO NOT Replace the Front Seat Adjuster Switch.

Replace the front seat adjuster switch knob. These knobs were formerly available only as part of the power seat adjuster switch. DO NOT replace the switch if the knob only needs to be replaced.

Part Number	Description
19122217	Knob, F/Seat Power Adjuster Switch (Both Driver and Passenger)
19122218	Knob, F/seat Power Recliner (Passenger Only)
19122219	Knob, F/seat Power Recliner (Driver Only)

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
C2990	Knob, Control and/or Shift (One or All) – Replace	0.2 hr

For vehicles repaired under warranty, use the table.

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WE SUPPORT
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Disclaimer

Technical Service Bulletin # **NHTSA05V163000**

Date: **050422**

Recall 05V163000: 2nd Row Seat Belt Modification

MAKE/MODELS:

MODEL/BUILD YEARS:

CADILLAC / ESCALADE 2003-2005

CHEVROLET / AVALANCHE 2003-2005

CHEVROLET / SILVERADO 2003-2005

CHEVROLET / SUBURBAN 2003-2005

CHEVROLET / TAHOE 2003-2005
GMC / SIERRA 2003-2005
GMC / YUKON 2003-2005
HUMMER / H2 2004-2005

MANUFACTURER: General Motors Corp.

NHTSA CAMPAIGN ID NUMBER: 05V163000 RECALL DATE: April 22, 2005

COMPONENT: Seat Belts: Rear

POTENTIAL NUMBER OF UNITS AFFECTED: 1359824

SUMMARY:

On certain crew cab pickup trucks and sport utility vehicles, the 2nd row center occupant seat belt routing may make it difficult to position the lap portion of the safety belt low around the hips of occupants, especially smaller occupants, seated in this position. Appropriate use of a child seat or booster seat, as recommended for small children, does improve the fit condition for this user group. In addition to instructions on proper infant and young child restraint (with child seats or boosters), special verbiage for restraining older child is included in the owner's manual text.

CONSEQUENCE:

A lap portion of the seat belt routing that is not low and snug on the hips can allow the lap belt to ride up on an occupant's abdomen instead of fitting low around their hipbones, and therefore, can expose them to more risk of abdominal and internal organ injury.

REMEDY:

Dealers will cut open the guide loop, remove a portion of the loop, and then the remaining two sides should be folded over and secured with a retainer. The manufacturer has not yet provided an owner notification schedule for this campaign. Owners should contact Cadillac at 1-866-982-2339, Chevrolet at 1-800-630-2438, GMC at 1-866-996-9463, or Hummer at 1-800-732-5493.

NOTES:

GM recall No. 05037. Customers can also contact The National Highway Traffic Safety Administration's Auto Safety Hotline at 1-888-327-4236.

Technical Service Bulletin # **05037**

Date: **050714**

Recall - 2nd Row Center Seat Belt Loop Modification

Second Row Center Safety Belt

05037 - (Jul 14, 2005)

Models:

2003-2005 CADILLAC ESCALADE, ESCALADE ESV, ESCALADE EXT
2003-2005 CHEVROLET AVALANCIE, SILVERADO CREW CAB, SUBURBAN, TAHOE
2003-2005 GMC SIERRA CREW CAB, YUKON, YUKON XL
2004-2005 HUMMER H2

Condition

General Motors has decided that a defect, which relates to motor vehicle safety, exists in certain 2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT; Chevrolet Avalanche, Silverado Crew Cab, Suburban, Tahoe; GMC Sierra Crew Cab, Yukon, Yukon XL; and 2004-2005 HUMMER H2 vehicles. On these vehicles, the seat loop in the second row center seating position may make it difficult to position the lap portion of the safety belt low around the hips of the occupant. In the event of a vehicle accident, if the lap portion of the safety belt routing is not low and snug on the hips, it may not properly restrain the occupant and could increase the risk of abdominal injury.

Correction

Dealers are to eliminate the seat loop by removing the safety belt from the loop and stitching the loop closed.

Vehicles Involved

Year	Division	Model	From	Through
2003	Cadillac	Escalade	3R100043	3R320094
2004	Cadillac	Escalade	4R100166	4R323204
2005	Cadillac	Escalade	5R100030	5R169534
2003	Cadillac	Escalade ESV	3G193141	3G347889
2004	Cadillac	Escalade ESV	4G100002	4G342535
2005	Cadillac	Escalade ESV	5G100035	5G177278
2003	Cadillac	Escalade EXT	3G100002	3G343890
2004	Cadillac	Escalade EXT	4G100005	4G343604
2005	Cadillac	Escalade EXT	5G100009	5G177402
2003	Chevrolet	Avalanche	3G100001	3G347428
2004	Chevrolet	Avalanche	4G100011	4G344788
2005	Chevrolet	Avalanche	5G100003	5G177440
2003	Chevrolet	Silverado Crew Cab	3F100001	3F259060
2004	Chevrolet	Silverado Crew Cab	4F100001	4F269046
2005	Chevrolet	Silverado Crew Cab	5F800001	5F858773
2003	Chevrolet	Suburban	3G100007	3G348253
2003	Chevrolet	Suburban	3J100007	3J346322
2003	Chevrolet	Suburban	3R100004	3R319989
2004	Chevrolet	Suburban	4G100017	4G344801
2004	Chevrolet	Suburban	4J100031	4J333376
2004	Chevrolet	Suburban	4R100001	4R323231
2005	Chevrolet	Suburban	5G100001	5G177428
2005	Chevrolet	Suburban	5J100003	5J163706
2005	Chevrolet	Suburban	5R100015	5R169548
2003	Chevrolet	Tahoe	3J100001	3J346326
2003	Chevrolet	Tahoe	3R100017	3R320159
2004	Chevrolet	Tahoe	4J100005	4J333379
2004	Chevrolet	Tahoe	4R100008	4R323251
2005	Chevrolet	Tahoe	5J100008	5J163696

2005	Chevrolet	Tahoe	5R100013	5R169567
2003	GMC	Sierra Crew Cab	3F100008	3F259040
2004	GMC	Sierra Crew Cab	4F100005	4F269047
2005	GMC	Sierra Crew Cab	5F800011	5F858770
2003	GMC	Yukon	3J100003	3J346327
2003	GMC	Yukon	3R100006	3R320129
2004	GMC	Yukon	4J100013	4J333312
2004	GMC	Yukon	4R100014	4R323227
2005	GMC	Yukon	5J100017	5J163690
2005	GMC	Yukon	5R100012	5R169564
2003	GMC	Yukon XL	3G100020	3G348250
2003	GMC	Yukon XL	3J100008	3J346316
2003	GMC	Yukon XL	3R100005	3R320012
2004	GMC	Yukon XL	4G100023	4G340744
2004	GMC	Yukon XL	4J100006	4J333378
2004	GMC	Yukon XL	4R100022	4R322891
2005	GMC	Yukon XL	5G100029	5G177410
2005	GMC	Yukon XL	5J100019	5J163689
2005	GMC	Yukon XL	5R100003	5R169261
2004	HUMMER	H2	4H100001	4H122809
2005	HUMMER	H2	5H100001	5H155125

Involved are certain 2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT; Chevrolet Avalanche, Silverado Crew Cab, Suburban, Tahoe; GMC Sierra Crew Cab, Yukon, Yukon XL; and 2004-2005 HUMMER H2 vehicles built within the VIN breakpoints shown.

Important:

Dealers should confirm vehicle eligibility through GMVIS (GM Vehicle Inquiry System) prior to beginning recall repairs. [Not all vehicles within the above breakpoints may be involved.]

For US and Canada

For dealers with involved vehicles, a Campaign Initiation Detail Report containing the complete Vehicle Identification Number, customer name and address data has been prepared and will be loaded to the GM DealerWorld (US) Recall Information, GMInfoNet (Canada) Recall Reports. Dealers will not have a report available if they have no involved vehicles currently assigned.

For Export

For dealers with involved vehicle, a Campaign Initiation Detail Report containing the complete Vehicle Identification Number, customer name and address data has been prepared, and is being furnished to involved dealers. Dealers will not receive a report with the recall bulletin if they have no involved vehicles currently assigned.

The Campaign Initiation Detail Report may contain customer names and addresses obtained from Motor Vehicle Registration Records. The use of such motor vehicle registration data for any purpose other than follow-up necessary to complete this recall is a violation of law in several states/provinces/countries. Accordingly, you are urged to limit the use of this report to the follow-up necessary to complete this recall.

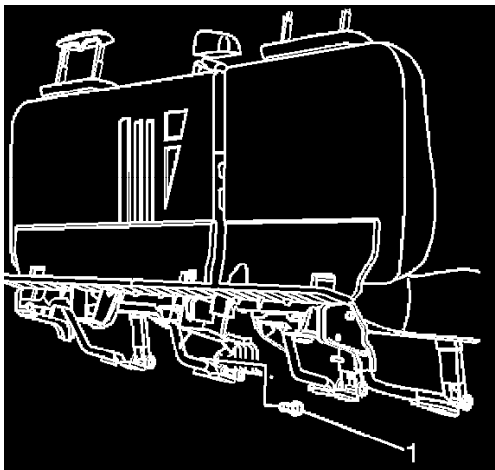
Parts required for this recall are to be obtained locally.

Description	Qty/Vehicle
Upholstery Thread (approximately matched color)	1
Upholstery Needle (size 16 recommended)	1

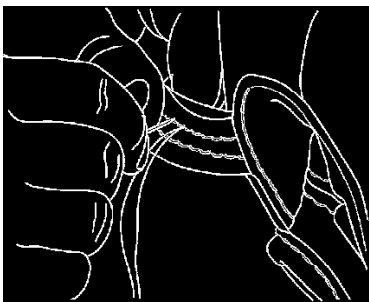
Parts Information

Service Procedure

1. Note the position of the rear seats.
2. Position the seats to gain access to the lower seat belt anchor stud for the rear center seat.
3. Remove any cover necessary to gain access to the lower seat belt anchor point for the rear center seat.



4. Remove the nut (1) retaining the rear center seat's lower seat belt anchor (seat back shown in the up position).
5. Remove the belt anchor point from the stud.
6. Remove the belt from the seat loop on the front of the seat back cushion.
7. Route the belt outside of the seat loop and install it on the lower anchor stud. Be sure that the belt is not twisted.



8. Install the retaining nut to the anchor stud.

Tighten

Tighten the retaining nut to 53 Nm (39 lb ft).

- Use a minimum of four complete loops of thread.
- Use the existing upper stitching holes as guides.
- Knot the thread and cut off any excess thread.

9. Using an appropriate color of locally obtained upholstery thread and needle (size 16 recommended), sew the retaining loop closed in the center.
10. Reposition the seats to the customer's original position as noted in Step 1

Courtesy Transportation -- for US and Canada

The General Motors Courtesy Transportation Program is intended to minimize customer inconvenience when a vehicle requires a repair that is covered by the New Vehicle Limited Warranty. The availability of courtesy transportation to customers whose vehicles are within the warranty coverage period and involved in a product recall is very important in maintaining customer satisfaction. Dealers are to ensure that these customers understand that shuttle service or some other form of courtesy transportation is available and will be provided at no charge. Dealers should refer to the General Motors

Service Policies and Procedures Manual for courtesy transportation guidelines.

Claim Information

Repair Performed	Part Count	Part No.	Parts Allow	CC-FC	Labor Op	Labor Hours	Net Item
Stitch Seat Loop Closed	0	N/A	N/A	MA-96	V1382	0.2	*
Courtesy Transportation for vehicles within the New Vehicle Limited Warranty (US & Canadian Dealers)	N/A	N/A	N/A	MA-96	**	N/A	***

* The amount identified in the "Net Item" column should represent the sum total of the actual cost for the thread and needle obtained locally to perform the required repairs, not to exceed \$3.00 USD, \$4.00 CAD.

** Submit courtesy transportation using normal labor operations for courtesy transportation as indicated in the GM Service Policies and Procedures Manual for vehicles within the New Vehicle Limited Warranty.

*** The amount identified in the "Net Item" column should represent the actual dollar amount for courtesy transportation.

Refer to the General Motors WINS Claims Processing Manual for details on Product Recall Claim Submission.

Submit a Product Recall Claim with the information shown.

Customer Notification -- For US and Canada

General Motors will notify customers of this recall on their vehicle (see copy of customer letter shown this bulletin).

Customer Notification -- For Export

Letters will be sent to known owners of record located within areas covered by the US National Traffic and Motor Vehicle Safety Act. For owners outside these areas, dealers should notify customers using the sample letter.

Dealer Recall Responsibility -- For US and Export (US States, Territories, and Possessions)

The US National Traffic and Motor Vehicle Safety Act provides that each vehicle which is subject to a recall of this type must be adequately repaired within a reasonable time after the customer has tendered it for repair. A failure to repair within sixty days after tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within a reasonable time, the customer may be entitled to an identical or reasonably equivalent vehicle at no charge or to a refund of the purchase price less a reasonable allowance for depreciation. To avoid having to provide these burdensome remedies, every effort must be made to promptly schedule an appointment with each customer and to repair their vehicle as soon as possible. In the recall notification letters, customers are told how to contact the US National Highway Traffic Safety Administration if the recall is not completed within a reasonable time.

Dealer Recall Responsibility -- All

All unsold new vehicles in dealers' possession and subject to this recall MUST be held and inspected/repared per the service procedure of this recall bulletin BEFORE customers take possession of these vehicles.

Dealers are to service all vehicles subject to this recall at no charge to customers, regardless of mileage, age of vehicle, or ownership, from this time forward.

Customers who have recently purchased vehicles sold from your vehicle inventory, and for which there is no customer information indicated on the dealer listing, are to be contacted by the dealer. Arrangements are to be made to make the required correction according to the instructions contained in this bulletin. A copy of the customer letter is shown in this bulletin for your use in contacting customers. Recall follow-up cards should not be used for this purpose, since the customer may not as yet have received the notification letter.

In summary, whenever a vehicle subject to this recall enters your vehicle inventory, or is in your dealership for service in the future, please take the steps necessary to be sure the recall correction has been made before selling or releasing the vehicle.

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WE SUPPORT
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CERTIFICATION

Disclaimer

July 2005

Dear General Motors Customer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

Reason For This Recall

General Motors has decided that a defect, which relates to motor vehicle safety, exists in certain 2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT; Chevrolet Avalanche, Silverado Crew Cab, Suburban, Tahoe; GMC Sierra Crew Cab, Yukon, Yukon XL; and 2004-2005 HUMMER H2 vehicles. On these vehicles, the seat loop in the second row center seating position may make it difficult to position the lap portion of the safety belt low around the hips of the occupant. In the event of a vehicle accident, if the lap portion of the safety belt routing is not low and snug on the hips, it may not properly restrain the occupant and could increase the risk of abdominal injury.

What Will Be Done

Your GM dealer will eliminate the seat loop by removing the safety belt from the loop and stitching the loop closed. This service will be performed for you at *no charge*.

How Long Will The Repair Take?

This service will take approximately 15 minutes. However, due to service scheduling requirements, your dealer may need your vehicle for a longer period of time.

Contacting Your Dealer

To limit any possible inconvenience, we recommend that you contact your GM dealer as soon as possible to schedule an appointment for this repair. Should your dealer be unable to schedule a service date within a reasonable time, you should contact the appropriate Customer Assistance Center at the listed number below. The Customer Assistance Center's hours of operation are from 8:00 AM to 11:00 PM, EST, Monday through Friday.

Division	Number	Text Telephones
Cadillac	1-866-982-2339	1-800-833-2622
Chevrolet	1-800-630-2438	1-800-833-2438
GMC	1-866-996-9463	1-800-462-8583
HUMMER	1-866-964-8663	
Puerto Rico - English	1-800-496-9992	
Puerto Rico - Español	1-800-496-9993	
Virgin Islands	1-800-496-9994	
Guam	1-671-648-8650	

If, after contacting the appropriate Customer Assistance Center, you are still not satisfied that we have done our best to remedy this condition without charge and within a reasonable time, you may wish to write the Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590 or call 1-888-327-4236.

Customer Reply Form

The enclosed customer reply form identifies your vehicle. Presentation of this form to your dealer will assist in making the necessary correction in the shortest possible time. If you no longer own this vehicle, please let us know by completing the form and mailing it back to us.

Courtesy Transportation

If your vehicle is within the New Vehicle Limited Warranty your dealer may provide you with shuttle service or some other form of courtesy transportation while your vehicle is at the dealership for this repair. Please refer to your Owner's Manual and your dealer for details on Courtesy Transportation.

Owner Center Online

This free online service offers vehicle and ownership related information and tools tailored to your specific vehicle. To get the most personalized information for your vehicle, visit www.mygmlink.com, and enter your vehicle's 17-character vehicle identification number (VIN) shown on the customer reply form.

Federal regulation requires that any vehicle lessor receiving this recall notice must forward a copy of this notice to the lessee within ten days.

We are sorry to cause you this inconvenience; however, we have taken this action in the interest of your safety and continued satisfaction with our products.

General Motors Corporation

Technical Service Bulletin # **05-08-110-003**

Date: **050324**

Air Bag System - Passenger Air Bag Discolored

Bulletin No.: 05-08-110-003

Date: March 24, 2005

INFORMATION

Subject:

Information on Cleaning Discolored Passenger Side Air Bag Cover

Models:

2000-2005 Chevrolet and GMC Full Size Pickups and Utilities

with Passenger Side Air Bag

DO THIS	DON'T DO THIS
Clean the passenger side air bag cover with a mild, non-abrasive liquid soap.	DO NOT REPLACE the passenger side air bag modules P/N's 15182351 16822834 10399602 10399601 15051340 15182350 for discoloring concerns.

The passenger side air bag module cover may be discoloring. DO NOT replace the air bag module for discoloring concerns. The discoloring is a salt that is formed on the air bag cover surface as a result of a chemical reaction between the polyester cover material and gases originating from urethane components in the vehicle.

Clean the air bag cover with a nonabrasive liquid soap (such as liquid dish soap or liquid hand soap) and warm water solution.

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CERTIFICATION

Disclaimer Technical Service Bulletin # **04-08-64-016**

Date: **040809**

Lighting - Rear Door Puddle Lamp Reflector Replacement

Bulletin No.: 04-08-64-016

Date: August 09, 2004

INFORMATION

Subject:
Rear Door Puddle Lamp Reflector Replacement

Models:
2004 Cadillac Escalade, Escalade ESV, Escalade EXT
2004 Chevrolet Avalanche, Suburban, Tahoe
2004 GMC Denali, Denali XL, Yukon, Yukon XL

Do This	Don't Do This
Replace Only The Damaged Inside Rear Door Reflector	Replace The Inside Rear Door Trim Panel

The purpose of this service bulletin is to announce that when replacement of a rear door interior trim panel puddle lamp/reflector is necessary, replace **ONLY** the reflector. The reflector is available separately and replacement of the complete door trim panel is not necessary. Use the applicable reflector part number listed below.

Using a small screwdriver, pry from the rear outer edge to remove the reflector.

Part Number	Description	Qty
15183155	Reflector-RR S/D Wrng (LH)	1
15183156	Reflector-RR S/D Wrng (RH)	1

Parts Information


Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
C2524/ C2525	Reflector, Rear Door Trim Panel (Right/Left) – Replace	0.2 hr

For vehicles repaired under warranty, use the table.

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WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Bulletin No.: 04-08-49-018E

Date: January 05, 2005

TECHNICAL

Subject:

Cranks But No Start, Stall, Inaccurate/Incorrect Fuel Gauge Reading, No Fuel, Vehicle is Out of Fuel and Fuel Gauge Reads Above Empty (Replace Fuel Level Sensor)

Models:

2001-2004 Cadillac Trucks

1999-2004 Chevrolet and GMC Trucks

with Gasoline Engine (VINs Z, X, V, T, U, N, G, 6, 8 - RPOs LU3, LR4, LM7, LQ4, LQ9, L59, L18, LK5 L52)

Attention:

Parts are currently available for vehicles with Variable Fuel (VIN Z - RPO L59) vehicles. Please refer to Corporate Bulletin Number 04-06-04-01 2B or newer for Variable Fuel (VIN Z - RPO L59) vehicles.

Supersede:

This bulletin is being revised to include information on the Chevrolet Colorado and the GMC Canyon. Please discard Corporate Bulletin Number 04-08-49-018D (Section 08 - Body and Accessories).

Condition

Some customers may comment on the vehicle stalling and will not restart, vehicle ran out of fuel, vehicle appears to be out of fuel but the fuel gauge reads above empty. The fuel gauge may read 1/4 tank.

Cause

Contamination on the fuel sending card may cause inaccurate/incorrect fuel gauge readings.

Correction

Follow the service procedure below for diagnosis and repair of this concern.

1. Confirm that the vehicle is actually out of fuel.
 - ^ If the vehicle is not out of fuel but Engine Cranks but Does Not Run, refer to the appropriate Service Information.
 - ^ If the vehicle is out of fuel and the gauge does not read empty, test the fuel gauge. Refer to the following information:
 - Fuel Gage Inaccurate or Inoperative Single Tank
 - Fuel Gage Inaccurate or Inoperative Dual Tanks
 - Fuel Gage Inaccurate or Inoperative Colorado and Canyon
2. If testing reveals that the fuel gauge is operating correctly, replace the fuel sensor assembly and auxiliary tank fuel level sensor if equipped.
3. Replace the fuel level sensor. Refer to the following appropriate service information:
 - ^ Fuel Level Sensor Replacement 4.8L and 5.3L Engines
 - ^ Fuel Level Sensor Replacement 6.0L Engine - Front Tank
 - ^ Fuel Level Sensor Replacement 6.0L Engine - Rear Tank
 - ^ Fuel Level Sensor Replacement 8.1L vehicles with Front Tank
 - ^ Fuel Level Sensor Replacement 8.1 L vehicles with Rear Tank

Parts are in limited quantities. Please DO NOT order parts for stock.

Part Number	Description
89060635	Sensor Assembly, Aux Tank, Rear 2001–2003 360364 0353, Cab/Chassis, Reg. and Ext Cab with LQ4 or L18 and minus NQZ (with aux fuel tank)
89060636	Sensor Assembly, Main Tank, Side 2001–2003 360364 0353, Cab/Chassis, Reg. and Ext Cab with LQ4 or L18 and without K53 (robust fuel system)
89060637	Sensor Assembly, Main Tank, Side 2000–2003 159259 0636, C/K, Long Wheel Base Utility with LM7 or LQ4 or LQ9 or L18 and without K53 (robust fuel system)
89060638	Sensor Assembly, Main Tank, Side 2000–2003 157 06, C/K, Short Wheel Base Utility with LM7 or LQ4 or LQ9 or L18 and without K53 (robust fuel system)
89060640	Sensor Assembly, Main Tank, Side 1999–2003 100200300 034353, C/K, 2 Dr, 4 Dr and Ext Cab Pickup with LU3 or LR4 or LM7 or LQ4 or LQ9 or L18 and — K53 (without robust fuel system) 2004 100 0353, C/K, 2 Dr and Ext Cab with LU3 and without K53 (robust fuel system)
89060642	Sensor Assembly, Main Tank, Rear 2000–2003 259 0636, C/K, Long Wheel Base Utility with LM7 or LQ4 or LQ9 or L18 and without K53 (robust fuel system)
88965817	Sensor Assembly 2004–2005 Colorado / Canyon

Parts Information


Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
L1197	Sensor, Fuel Level (Tank Unit) – Replace	Use published labor operation time

For vehicles repaired under warranty, use the table.

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Disclaimer
 Technical Service Bulletin # **02-08-42-001B**

Date: **041008**

Lighting - Damage To Polycarbonate Headlamp Lenses
Info - Chemical Damage to Exterior Polycarbonate Headlamp Lenses #02-08-42-001B - (Oct 8, 2004)

Chemical Damage To Exterior Polycarbonate Headlamp Lenses

2005 and Prior Passenger Cars and Trucks

2003-2005 HUMMER H2

This bulletin is being revised to add the 2004 and 2005 model years. Please discard Corporate Bulletin Number 02-08-42- 001A (Section 08 - Body and Accessories).

The bulletin is being issued to make dealers and customers aware of chemical damage that may be caused to exterior polycarbonate headlamp lenses. Most late model vehicles have these types of headlamp lenses. This material is used because of its temperature and high impact resistance.

A variety of chemicals can cause crazing or cracking of the headlamp lens. Headlamp lenses are very sensitive. Care should be exercised to avoid contact with all exterior headlamp lenses when treating a vehicle with any type of chemical, such as those recommended for rail dust removal. Rubbing compound, grease tar and oil removers, tire cleaners, cleaner waxes and even car wash soaps in too high a concentration may also attribute to this condition. This could result in the need to replace the entire headlamp housing.

Also, crazing or deformations of the lens may occur if a shop mat or fender cover is draped over the fender and covers a portion or all of the headlamp assembly while the DRL or headlamps are on. This action restricts the amount of heat dissipated by the headlamps.

Once a heat buildup is generated by the headlamp, a degradation of the headlamp lens begins. This degradation of the lens can be unnoticeable at first and eventually manifest as spider cracks. In more extreme cases, it will begin to melt the lens of the headlamp.

06-01-38-002

Date: **060317**

A/C - Hiss Noise From Instrument Panel

Bulletin No.: 06-01-38-002

Date: March 17, 2006

TECHNICAL

Subject:
 A/C System Refrigerant Hiss Noise (Replace Liquid Line)

Models:
 2003-2006 Cadillac Escalade Models

2003-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2006 GMC Sierra, Yukon Models

with 4.3L, 4.8L, 5.3L, 6.0L or 8.1L Engine (VINs X, V, T, Z, B, U, N, G - RPOs LU3, LR4, LM7, L59, L33, LQ4, LQ9, L18) and Air Conditioning (RPOs CJ2, CJ3 and C69)

Condition

Some customers may comment on a hiss noise coming from the instrument panel. The noise has also been described as sounding like a gurgle or water spattering. The noise occurs when the Air Conditioning (A/C) compressor engages and may continue for 5 to 10 seconds after the compressor disengages or the A/C system is turned off. The noise is most noticeable when the vehicle is at idle or is being driven at low speeds. The noise is undetectable after about one minute when the A/C system has been turned off or the vehicle has been turned off.

Cause

This condition may be caused by the expanding refrigerant as it passes through the orifice tube.

Correction

Technicians are to verify that the customer concern is only as described in the condition statement above. If the customer concern is a refrigerant hiss noise, then technicians are to perform the normal diagnostic procedures for an A/C system concern. The ACR2000 should be used to check the A/C system performance, charge level and discharge temperatures. This will eliminate the possibility that another condition is contributing to this customer concern. If the A/C system is performing properly, and all other possible sources of this noise are eliminated, then technicians are to replace the A/C liquid line. Use the proper part number as described in the parts information box below. Verify that the noise has been eliminated and that the A/C system operates normally.

Part Number	Description	Qty
15785055	Tube ASM-A/C Evaporator (vehicles with C69 and a long condenser)	1
15785056	Tube ASM-A/C Evaporator (all vehicles with front only A/C)	1
15785057	Tube ASM-A/C Evaporator (vehicles with C69 and a short condenser)	1

Parts Information

Important:

The trucks affected by this bulletin that have rear air conditioning were built with two different length condensers. The short condenser is 762 mm (30.0 in) long. The long condenser is 914 mm (36.0 in) long. Be sure to measure the length of the condenser before ordering one of the tubes listed below for vehicles with rear air conditioning.

Warranty Information

Labor Operation	Description	Labor Time
D3083	Hoses And/Or Lines, Refrigerant-Condenser To Evaporator (Liquid Line) – Replace	Use published labor operation time
Add	To Recover and Recharge A/C System	Use published labor operation time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 99-08-51-001A

Date: 051121

Body - Paint-Less Dent Repair Recommendations

Bulletin No.: 99-08-51-001A

Date: November 21, 2005

INFORMATION

Subject:

Paint-less Dent Repair Process

Models:

2006 and Prior GM Passenger Cars and Trucks

2003-2006 HUMMER H2

2006 HUMMER H3

2005-2006 Saab 9-7X

with Steel Outer Body Panels

Supersede:

This bulletin is being revised to add model years, models and update the information. Please discard Corporate Bulletin Number 99-08-51-001 (Section 08 - Body and Accessories).

The process of removing dents from vehicles without painting has been around for many years. Over the past several years, General Motors has evaluated many versions of this process. Most versions were found to be unacceptable because of the potential long-term durability concerns. However, a new type of repair process has been identified. This process uses special tools requiring no drilling of holes or removal of vehicle components for access. This process is appropriate for the majority of panels with reasonable access to the back side of the damaged area. The special tools and procedures that have been developed will remove the dents while eliminating the need to fill, paint, or replace the panel. This type of procedure has been thoroughly evaluated and the repaired parts were tested for negative impact. No negative impact was found.

Important:

The removal of structural components or drilling of holes in any panel is not recommended and may void the General Motors Corrosion Warranty. Evaluating Damage

Appropriate uses for paint-less dent repair include the following conditions:

- ^ Dents with no broken paint on the surface. Be sure to inspect for cracks with a 4x magnifying glass.
- ^ Large or small dents, creases or buckles, small sharp dents and soft dents in body lines and contoured areas that allow reasonable access to the back side of the damaged area.
- ^ Dents that do not require structural part removal.

Inappropriate uses for paint-less dent repair include the following situations:

- ^ Dents that include cracked paint.
- ^ Dents that require holes to be drilled.
- ^ Dents that require structural parts to be removed.
- ^ Sharp dents in contoured areas, dents on the edge of panels, or dents in zero-clearance areas.

Tools

Use tools that are high-quality, tempered steel with smooth polished, rounded tips. These will not damage the back side of the dented area. Typically, these tools are shaped and bent in order to allow access to most areas of the vehicle without drilling holes in the body as well as provide a clear view of the work area. Specialty lights are also used to highlight damaged areas.

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Disclaimer Technical Service Bulletin # **04-08-46-005**

Date: **041221**

OnStar(R) - System Inoperative/No LED Lamp ON

Bulletin No.: 04-08-46-005

Date: December 21, 2004

TECHNICAL

Subject:

OnStar(R) Generation 6 (Digital) System Inoperative/Has No Power, LED Light Not On (Remove/Reinstall OnStar(R) Fuse and Replace VCIM or Follow SI Diagnostics)

Models:

2004-2005 Buick Rainier, Rendezvous
 2005 Buick Allure (Canada), LaCrosse, LeSabre, Terrazza
 2004-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
 2005 Cadillac CTS, DeVille
 2004-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe, TrailBlazer, TrailBlazer EXT
 2005 Chevrolet Colorado, Express, Impala, Monte Carlo, Uplander
 2004-2005 GMC Denali, Denali XL, Envoy, Envoy XL, Envoy XUV, Sierra, Yukon, Yukon XL
 2005 GMC Canyon, Savana
 2004-2005 Pontiac Aztek
 2005 Pontiac Bonneville, Grand Prix, Montana SV6, Vibe

with Digital Gen 6 OnStar(R) (RPO UE1)

Condition

Some customers may comment any or all of the following conditions:

- ^ The OnStar(R) system may be inoperative.

- ^ The OnStar(R) system may have no power.
- ^ The OnStar(R) LED light may not be on.

The technician may also not be able to communicate with the OnStar(R) Vehicle Communication Interface Module (VCIM) with a Tech 2(R).

Correction

Remove the OnStar(R) fuse from the fuse box, wait five minutes and reinstall the fuse. If the OnStar(R) system DOES NOT return to normal functionality, then follow the diagnostics in SI for this condition.

If the OnStar(R) system DOES return to normal functionality, you will need to replace the VCIM. If the VCIM is not replaced, there is the possibility that the customer will return to the dealership with the same conditions at a later date.

Please contact the GM Technical Assistance Center (TAC), to obtain a new VCIM. The TAC consultant will verify your diagnosis and, if appropriate, order a replacement part. Replacement parts are usually shipped out within 24 hours, and a pre-paid return package label will be included for returning the faulty part. By returning the faulty part, you will avoid a significant non-return core charge. After the VCIM has been replaced, press the blue OnStar(R) button and request a full reconfiguration.


When contacting TAC regarding this concern, the availability of certain information from the vehicle will streamline the process for the dealership technician as well as minimize the time necessary for TAC to provide the correct diagnosis. Please refer to Corporate Bulletin Number 01-00-89-011B for further information concerning the information necessary before contacting TAC. Dealers in Canada should refer to GM Service Policies & Procedures Section 5.3.1 "DEALER REQUIREMENTS FOR ASSISTANCE".

Warranty Information

Labor Operation	Description	Labor Time
R5140	Module, Vehicle Interface Unit VIU/VCIM – Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **04-08-46-002B**

Date: **060207**

OnStar(R) - Unable to Connect, Bulletin Cancellation

Bulletin No.: 04-08-46-003B

Date: February 07, 2006

INFORMATION

Subject:
Unable to Connect to OnStar(R) or OnStar(R) Personal Calling Inoperative

Models:
2001-2005 GM Passenger Cars and Light Duty Trucks
2003-2005 HUMMER H2
2005 Saab 9-7X

with Analog OnStar System (RPO UE1)

Attention:

This bulletin only applies to vehicles currently in the state of Alaska.

Supercede:

This bulletin is being revised to cancel Bulletin Number 04-08-46-003A. The OnStar issues in Alaska have been corrected. Please discard Corporate Bulletin Number 04-08-46-003A (Section 08 - Body and Accessories).

This bulletin is being published to cancel Bulletin Number 04-08-46-003A. The issues with OnStar in Alaska have been corrected and dealers no longer need to follow the information contained in the bulletin.

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Disclaimer Technical Service Bulletin # **02-08-46-010G**

Date: **060301**

OnStar(R) - Programming for Canadian French

Bulletin No.: 02-08-46-010G

Date: March 01, 2006

INFORMATION

Subject:

Programming OnStar(R) Module for Canadian French Voice Recognition (OnStar(R) Generation 5 or Generation 6)

Models:

2003-2005 Buick LeSabre
 2003-2006 Buick Rendezvous
 2004 Buick Regal
 2004-2005 Buick Century
 2004-2006 Buick Rainier
 2005-2006 Buick Allure (Canada Only), LaCrosse, Terraza
 2003 Cadillac CTS, DeVille, Seville
 2003-2006 Cadillac Escalades
 2004 Cadillac Seville
 2004-2005 Cadillac DeVille, XLR
 2004-2006 Cadillac CTS, SRX
 2005 Cadillac STS
 2003-2005 Chevrolet Cavalier, Express, Venture
 2003-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe, TrailBlazer, TrailBlazer EXT
 2004-2005 Chevrolet Impala, Malibu, Malibu Maxx, Monte Carlo
 2004-2006 Chevrolet Colorado
 2005 Chevrolet Cobalt, Corvette, Equinox
 2005-2006 Chevrolet Uplander
 2003-2005 GMC Savana
 2003-2006 GMC Envoy, Envoy XL, Sierra, Yukon, Yukon XL
 2004-2006 GMC Canyon
 2003 Oldsmobile Aurora
 2003-2004 Oldsmobile Bravada, Silhouette
 2003-2005 Pontiac Aztek, Bonneville, Montana, Sunfire
 2004-2006 Pontiac Grand Prix
 2005 Pontiac G6, Pursuit (Canada Only)
 2005-2006 Pontiac Montana SV6, Vibe
 2003-2006 Saturn ION, VUE
 2004 Saturn L-Series
 2005-2006 Saturn Relay
 2003-2006 HUMMER H2, H2 SUT

2006 HUMMER H3
 2005-2006 Saab 9-7X

with OnStar(R) Generation 5 or Generation 6 (RPO UE1)

Make	Model	VIN Breakpoint
Buick	2006 Allure	Built Prior to 61170824
	2006 LaCrosse	Built Prior to 61170802
	2006 Rainier	Built Prior to 62183996

	2006 Rendezvous	Built Prior to 6S564233
	2006 Terraza	Built Prior to 6D151347
Cadillac	2003 CTS	Built After and Including 30148827
	2006 CTS	Built Prior to 60140179
	2003 DeVille	Built After and Including 3U261178
	2006 Escalade	Built Prior to 6R159937
	2006 Escalade ESV	Built Prior to 6G141826
	2006 Escalade EXT	Built Prior to 6G143120
	2003 Seville	Built After and Including 3U261889
	2006 SRX	Built Prior to 60143844
		2006 Avalanche

Chevrolet	2006 Colorado	Built Prior to 68200749
	2006 Silverado (Built in Flint)	Built Prior to 6F155636
	2006 Silverado (Built in Ft. Wayne)	Built Prior to 6Z182035
	2006 Silverado (Built in Oshawa)	Built Prior to 61201507
	2006 Silverado (Built in Pontiac)	Built Prior to 6E153429
	2006 Silverado (Built in Silao)	Built Prior to 6G147430
	2006 Suburban (Built in Silao)	Built Prior to 6G143184
	2006 Suburban (Built in Janesville)	Built Prior to 6J153392

	2006 Tahoe (Built in Arlington)	Built Prior to 6R159936
	2006 Tahoe (Built in Janesville)	Built Prior to 6J153520
	2006 Uplander	Built Prior to 6D151072
	2006 TrailBlazer	Built Prior to 62183983
	2006 TrailBlazer EXT	Built Prior to 66127994
	2006 Canyon	Built Prior to 68201021
	2006 Envoy	Built Prior to 62183982
	2006 Envoy XL	Built Prior to 66127728
	2006 Sierra (Built in Flint)	Built Prior to 6F155778
	2006 Sierra (Built in Ft. Wayne)	Built Prior to 6Z182038
	2006 Sierra (Built in Oshawa)	Built Prior to 61201505

GMC	2006 Sierra (Built in Pontiac)	Built Prior to 6E153461
	2006 Sierra (Built in Silao)	Built Prior to 6G147413
	2006 Yukon (Built in Arlington)	Built Prior to 6R159935
	2006 Yukon (Built in Janesville)	Built Prior to 6J153509
	2006 Yukon XL (Built in Janesville)	Built Prior to 6J152906
	2006 Yukon XL (Built in Silao)	Built Prior to 6G143025
Pontiac	2006 Grand Prix	Built Prior to 61170813
	2006 Montana SV6	Built Prior to 6D151170
	2006 Vibe	Built Prior to 6Z424768
HUMMER	2006 H2	Built Prior to 6H108876
	2006 H2 SUT	Built Prior to 6H108975

	2006 H3	Built Prior to 68178961
Saturn	2006 ION	Built Prior to 6Z151985
	2006 Relay	Built Prior to 6D151080
	2003 VUE	Built After and Including 3S885677
	2006 VUE	Built Prior to 6S832730
Saab	2006 9-7X	Built Prior to 62800175

Refer to table for applicable VIN breakpoints.

Attention:

This bulletin is not applicable to vehicles equipped with OnStar(R) Generation 6.1 or later. This bulletin only applies to OnStar(R) Generation 5 and/or 6 with a Station Identification (STID) number in the following range: 9,100,001-13,000,000 or 14,000,001-15,999,999 or 22,000,001-23,200,000.

Supercede:

The bulletin is being revised to include additional models and add the 2006 model year. Please discard Corporate Bulletin Number 02-08-46-010E (Section 08 - Body and Accessories).

The Gen 5 and 6 OnStar(R) Systems have the capability change the default English voice recognition to French.

Changing the language of the OnStar(R) system will change the following features to the language you select:

- ^ Voice recognition command prompts will be played in the language selected.
- ^ The voice recognition system will only recognize commands given in the selected language.

Once completed, this process completely changes all voice recognition and voice commands of the OnStar(R) system. The process will need to repeated in its entirety to change to a different language, including English.

Important:

If the following steps are NOT completed prior to performing the SPS download, the VCIM will be damaged and will have to be replaced. The technician must document the error codes displayed on the Tech 2(R) if the calibration fails.

2005-2006 Cadillac SRX

Prior to downloading the French calibration, the Rear Hatch 10 amp fuse must be removed from the right rear fuse block. After completing the SPS programming, the fuse must be reinstalled.

2006 Chevrolet Silverado/GMC Sierra 2500/3500 HD Trucks

Prior to downloading the French calibration, the TCM (transmission control module) must be disconnected on vehicles equipped with an Allison(R) automatic transmission (RPO MW7). After completing the SPS programming, the TCM must be reinstalled.

2004-2005 Pontiac Grand Prix, Buick Allure (Canada Only)

Prior to downloading the French calibration, remove the serial data line (circuit 1037, terminal 38) from connector C1 at the BCM (body control module). After completing the SPS programming, the data line must be reinstalled.

2005 Chevrolet Corvette

Prior to downloading the French calibration, remove the serial data line for the HVAC module (circuit 1038, terminal B) from SP208. After completing the SPS programming, the data line must be reinstalled.

2005 Buick Rendezvous

After downloading the French calibration, the IPC may display "ERROR". The battery cables may need to be disconnected and reinstalled.

2004 Chevrolet Malibu

Malibu's with an automatic air conditioning (RPO C68) must have the HVAC control module disconnected prior to downloading the French calibration. After completing the SPS programming, the control head must be reinstalled.

The current modules that require SPS reprogramming are:

- EBCM (when replaced)
- PCM (when replaced or updated with new calibrations/programming)
- OnStar(R) Module (only when language is changed between English and French or back to English)

Service Procedure

Important:

On vehicles with Gen 5 OnStar(R) modules, you will need to obtain the software ID number using a Tech 2. You will need this number later in the procedure to complete the download. The software ID number is found under ID Information, Module Information 1.

Important:

Please follow each step in its entirety.

Important:

This process does not change the routing of calls to a French-speaking advisor.

1. Be sure your Tech 2(R) software version is 25.009 or later and the Techline(R) terminal TIS CD is 9.0 (2005) or later.
2. Turn OFF the ignition.
3. Install the Tech 2(R) to the Data Link Connector (DLC).
4. Turn ON the ignition with the engine off.
5. Turn off all vehicle accessories.
6. With the Tech 2(R), select F1: Service Programming System (SPS).
7. Select FO: Request Info on the Tech 2(R).
8. Verify that the displayed VIN matches the vehicle's VIN. If the displayed VIN does not match the actual VIN, write down the actual VIN and correct the VIN at the Techline(R) terminal.
9. When complete, Exit Service Programming.
10. Turn OFF the Tech 2(R) and disconnect the Tech 2(R) from the vehicle.
11. Turn OFF the ignition.
12. Connect the Tech 2(R) to the Techline(R) terminal.
13. Select Service Programming System.
14. Select Tech 2(R) as the tool you are using.
15. Select the type of programming to be performed.

16. Verify the displayed VIN with the vehicle's VIN. Correct the VIN as necessary.
17. Select OnStar(R) Module. If OnStar(R) does not appear as a selection on the list, please contact the Techline(R) Customer Support Center (TCSC) for further instructions on the VCI programming option.
18. Identify what type of programming you are performing.
 - ^ Normal: This type of programming is for updating an existing calibration or programming a new controller.
 - ^ Vehicle Configuration Index (VCI): This selection is used if the vehicle VIN is unavailable or not recognized by the Techline terminal. Please note that you will need to contact TCSC to use this function.
19. Select the appropriate calibration.
 - ^ French
 - ^ English
20. Ensure that all connections are secure.
21. Select Next to initiate the download of the new calibration to the Tech 2(R).
22. After the download is complete, turn OFF the Tech 2(R).
23. Disconnect the Tech 2(R) from the Techline(R) terminal.
24. Install the Tech 2(R) to the DLC.
25. Turn ON the Tech 2(R).
26. Turn ON the ignition with the engine OFF.
27. Select F1: Service Programming System.
28. Select F1: Program ECU.
29. After the download is complete, Exit Service Programming.
30. Turn OFF the ignition for 30 seconds.
31. Turn OFF the Tech 2(R).

Programming Verification

1. Turn ON the ignition.
2. Press the black button with the white dot. The "OnStar(R) Ready" response should play in the language you downloaded.
3. Say "Help" in the language downloaded.
4. The system should respond with a list of available features in the language you just downloaded.

Labor Operation	Description	Labor Time
R4806*	Module, OnStar® – Reset/Reprogram	0.4 hr
*This is a unique labor operation number. It should only be used with this bulletin.		

Warranty Information


Dealers may submit for reimbursement to change the resident language only once per vehicle. Once per vehicle is defined as changing from the default language to an alternate language. Changing the language again will require following one of the above processes and will be at the dealer's or owner's expense.

Labor Operation	Description	Failed Object	Fault/Reason	Fault/Reason Code	Location Code	Repair/Action Code	Labor Time
3691001	Module, OnStar® – Reset/Re program	36910	00	0	01	05	Use Published Time

Warranty Information (Saab U.S. Models)

Dealers may submit for reimbursement to change the resident language only once per vehicle. Once per vehicle is defined as changing from the default language to an alternate language. Changing the language again will require following one of the above processes and will be at the dealer's or owner's expense.

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Disclaimer Technical Service Bulletin # 03-09-41-003A

Date: 050209

Restraints - Air Bag System Diagnostics

Info - Proper Air Bag System Diagnosis and Service # 03-09-41-003A - (Feb 9, 2005)

Models:

2004 and Prior Passenger Cars and Light Duty Trucks

Excluding 2004 Pontiac Grand Prix

This bulletin is being revised to remove 2004 Pontiac Grand Prix for the models. Please discard Corporate Bulletin Number 03-09-41-003 (Section 9 - Restraints).

This bulletin is being issued to emphasize several aspects of proper diagnosis and servicing of the Air Bag System.

Air Bag Readiness Light

As stated in Owners Manuals, if the air bag readiness light stays on after the vehicle is started, the system may not be working properly. The air bags may not inflate in a crash or may even inflate without a crash. If the Air Bag Readiness Light/Indicator is illuminated or comes on intermittently, diagnose to determine the cause. Refer to Air Bag Indicator Circuit Malfunction in the SIR sub-section of the appropriate Service Manual.

Replacement of Soaked SDMs

As stated in Service Manuals, if the vehicle interior is exposed to moisture and becomes soaked up to the level of the sensing and diagnostic module (SDM), the SDM and SDM harness connector must be replaced. The SDM could be activated when powered, which could cause air bag deployment and result in personal injury. The air bags, as well as the sensors and related parts, would have to be replaced. To help avoid this situation, turn the ignition off immediately. DO NOT turn the ignition back on, even to tow the vehicle, unless the battery cable is first disconnected.

Replacement of SDM that Shows Signs of Water Exposure or Corrosion

If an SDM that is being replaced shows signs of water exposure or corrosion and the customer does not know the source of the water exposure, then the vehicle should be checked for water leaks. If leaks are found, the customer should be advised to have them repaired to help avoid damage to the

replacement SDM.

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Disclaimer Technical Service Bulletin # **05-09-41-010**

Date: **051222**

SRS - New SIR System Disabling Procedure

Bulletin No.: 05-09-41-010

Date: December 22, 2005

INFORMATION

Subject:

New SIR System Disabling and Enabling Procedure

Models:

2003-2006 GM Passenger Cars and Light Duty Trucks (including Saturn)

2003-2006 Chevrolet Kodiak C4500-C8500 Series Medium Duty

2003-2006 GMC TopKick C4500-C8500 Series Medium Duty

2003-2006 HUMMER H2

2006 HUMMER H3

2005-2006 Saab 9-7X

with Supplemental Inflatable Restraint (SIR) System

SIR System Disabling and Enabling

Past experience with Supplemental Inflatable Restraint (SIR) systems enables simplification of the SIR Disabling and Enabling procedure. Testing has shown that it is not always necessary to disconnect air bag(s) in the area of repairs. Future designs will eliminate certain deployment loop in-line connectors. The new SIR Enabling and Disabling procedure requires only a fuse removal and/or the negative battery cable disconnect.

The new SIR Enabling and Disabling procedure is less invasive (therefore eliminating potential squeak and rattle conditions that may occur from the previous procedure) and is a simpler and quicker approach. The labor time for operations requiring SIR disabling will be adjusted as appropriate according to the new procedure and revisions will appear in future releases of the GM Labor Time Guide.

SIR components are installed in various locations around the vehicle. To find the location of the SIR components, refer to the SIR Identification Views in the service manual.

Condition	Action
If the vehicle was involved in an accident with an air bag deployment.	Disconnect the negative battery cable(s)*. Then refer to Repairs and Inspections Required After a Collision in the service manual.
When performing SIR diagnostics.	Follow the appropriate SIR service manual diagnostic procedure(s)*.

When removing or replacing an SIR component or a component attached to an SIR component.	Disconnect the negative battery cable(s)*.
If the vehicle is suspected of having shorted electrical wires.	Disconnect the negative battery cable(s)*.
When performing electrical diagnosis on components other than the SIR system.	Remove the SIR/Airbag fuse(s) when indicated by the diagnostic procedure to disable the SIR system.

*Diagnostic Trouble Codes (DTCs) will be lost when the negative battery cable is disconnected.

The information shown covers the proper procedures for disabling/enabling the SIR system.

SIR Service Precautions

Caution:

When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Failure to observe the correct procedure could cause deployment of the SIR components. Serious injury can occur. Failure to observe the correct procedure could also result in unnecessary SIR system repairs.

The inflatable restraint Sensing and Diagnostic Module (SDM) maintains a reserved energy supply. The reserved energy supply provides deployment power for the air bags if the SDM loses battery power during a collision. Deployment power is available for as much as one minute after disconnecting the vehicle power. Waiting one minute before working on the system after disabling the SIR system prevents deployment of the air bags from the reserved energy supply.

General Service Instructions

The following are general service instructions that must be followed in order to properly repair the vehicle and return it to its original integrity:

- ^ Do not expose inflator modules to temperatures above 65°C (150°F).
- ^ Verify the correct replacement part number. Do not substitute a component from a different vehicle.
- ^ Use only original GM replacement parts available from your authorized GM dealer. Do not use salvaged parts for repairs to the SIR system.

Discard any of the following components if it has been dropped from a height of 91 cm (3 feet) or greater:

- ^ Inflatable restraint Sensing and Diagnostic Module (SDM).
- ^ Any inflatable restraint air bag module.
- ^ Inflatable restraint steering wheel module coil.
- ^ Any inflatable restraint sensor.
- ^ Inflatable restraint seat belt pretensioners.
- ^ Inflatable restraint Passenger Presence System (PPS) module or sensor.

Disabling Procedure - Air Bag Fuse

1. Turn the steering wheel so that the vehicle's wheels are pointing straight ahead.
2. Place the ignition switch in the OFF position.

Important:

The inflatable restraint Sensing and Diagnostic Module (SDM) may have more than one fused power input. To ensure there is no unwanted SIR deployment, personal injury, or unnecessary SIR system repairs, remove all fuses supplying power to the SDM. With all SDM fuses removed and the ignition switch in the ON position, the AIR BAG warning indicator illuminates. This is normal operation, and does not indicate a SIR system malfunction.

3. Locate and remove the fuse(s) supplying power to the SDM. Refer to SIR Schematics and/or Electrical Center Identification Views.

4. Wait one minute before working on the system.

Enabling Procedure - Air Bag Fuse

1. Place the ignition switch in the OFF position.
2. Install the fuse(s) supplying power to the SDM. Refer to SIR Schematics and/or Electrical Center Identification Views.
3. Turn the ignition switch to the ON position. The AIR BAG indicator will flash then turn OFF.
4. Perform the Diagnostic System Check - Vehicle if the AIR BAG warning indicator does not operate as described. Refer to Diagnostic System Check - Vehicle.

Disabling Procedure - Negative Battery Cable

1. Turn the steering wheel so that the vehicle's wheels are pointing straight ahead.
2. Place the ignition switch in the OFF position.
3. Disconnect the negative battery cable(s) from the battery. Refer to the Battery Negative Cable Disconnect/Connect Procedure.
4. Wait one minute before working on system.

Enabling Procedure - Negative Battery Cable

1. Place the ignition switch in the OFF position.
2. Connect the negative battery cable(s) to the battery. Refer to the Battery Negative Cable Disconnect/Connect Procedure.
3. Turn the ignition switch to the ON position. The AIR BAG indicator will flash then turn OFF.
4. Perform the Diagnostic System Check - Vehicle if the AIR BAG warning indicator does not operate as described. Refer to Diagnostic System Check - Vehicle.

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Disclaimer Technical Service Bulletin # **02-06-05-004B**

Date: **060214**

Accessories - DTC's P0300, P1380, P1381

Bulletin No.: 02-06-05-004b

Date: February 14, 2006

INFORMATION

Subject:

Misfire DTCs P0300, P1380, P1381 and Catalytic Converter Damage Due to Installation of Alarm Systems

Models:

2006 and Prior GM Passenger Cars and Light Duty Trucks

2006 and Prior HUMMER H2, H3

2006 and Prior Isuzu Light Duty Trucks

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 02-06-05-004A (Section 06 - Engine/Propulsion System). General Motors Engineering, in an effort to determine the root cause of catalytic converter damage, has determined that aftermarket alarm systems incorrectly installed in vehicles have the potential to cause misfire codes and damage to the converter. These alarm systems use a circuit interrupt which utilizes the ignition circuit on the vehicles.

These alarm systems utilize mechanical relays and normal vehicle movement can trigger these relays to engage and disengage the ignition circuit while the vehicle is in motion. These disruptions of the ignition circuit, which occur in milliseconds, may cause more fuel to be commanded. Overtime, this dumping of fuel on and off again can cause misfire codes and ultimately damage the converter assembly.

Important:

Engineering could not identify any alarms that utilize solid state circuitry that would eliminate this concern. Because of this, it has been determined that all alarm systems must be routed through the starter circuit in order to avoid this condition.

Dealers must be aware of this issue and take note of the wiring on vehicles with alarm systems that come in for repair, particularly for catalytic converter damage that seem to have no known root cause.

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Disclaimer Technical Service Bulletin # **02-09-41-002A**

Date: **040324**

SRS - Air Bag Lamp ON/DTC B0092 Set

Bulletin No.: 02-09-41-002A

Date: March 24, 2004

TECHNICAL**Subject:**

Air Bag Lamp On, Passenger Air Bag Indicator Always Reads OFF, DTC B0092 Set (Repair Passenger Presence System (PPS) Sensor Harness)

Models:

2003-2004 Cadillac Escalade, Escalade EXT

2003-2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe

2003-2004 GMC Sierra, Yukon, Yukon XL

with Sensor Indicator Inflatable Restraint Front Passenger/Child Presence Detector (RPO ALO)

Supercede:

This bulletin is being revised to add the 2004 model year. Please discard Corporate Bulletin Number 02-09-41-002 (Section 09 - Restraints).

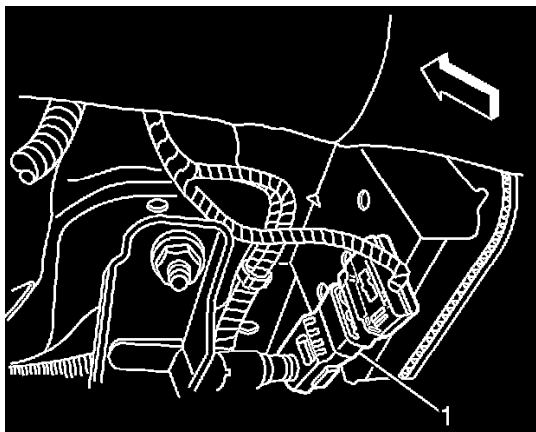
Condition

Some customers may comment that the Air Bag Lamp is on and the Passenger Air Bag indicator always reads OFF. Upon investigation, the technician may find DTC B0092 set.

Cause

The cause of this condition may be a shorted Passenger Presence System (PPS) sensor wire. The PPS sensor harness is located under the front passenger seat. This harness may be pinched between the seat frame and the track/riser.

Correction



Locate the PPS sensor (1) and inspect the harness for proper routing. If the harness is pinched between the seat frame and the track/riser, use the procedure listed below to repair wire(s).

1. Move the front passenger seat to the full rearward and full tilt up position.
2. Loosen the seat frame to track/riser nut and remove the harness.
3. Tighten the seat frame to track/riser nut.
4. Repair any damaged wires. Refer to Wiring Repairs in the Wiring Systems sub-section of the Service Manual.

Warranty Information

Labor Operation	Description	Labor Time
N6624	Wiring and/or Connector, Occupant Safety - Repair	Use published labor operation time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **05-06-04-024**

Date: **050317**

Engine Controls - Revised DTC P1172 & P2636

Bulletin No.: 05-06-04-024

Date: March 17, 2005

SERVICE MANUAL UPDATE

Subject:

Revised DTC P1172 and DTC P2636

Models:

2001-2005 Cadillac Escalade Models

2001-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2001-2005 GMC Sierra, Yukon Models

with 4.8L, 5.3L, 6.0L or 8.1L Engine (VINs V, P, T, Z, U, N, G - RPOs LR4, LM4, LM7, L59, LQ4, LQ9, L18)

This bulletin is being issued to revise Step 29 of DTC P1172 and DTC P2636 in the Engine Controls sub-section of the Service Manual. Please replace the current information in the Service Manual with the following information.

The following information has been updated within SI. If you are using a paper version of this Service Manual, please make a reference to this bulletin on the affected page.

Step 29 of both DTC P1172 and DTC P2636 should read - Replace the rear fuel sender assembly.

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Disclaimer Technical Service Bulletin # **05-06-04-029A**

Date: **050624**

Engine - Rough Idle/Misfire/MIL ON/DTC P0300

Bulletin No.: 05-06-04-029A

Date: June 24, 2005

TECHNICAL

Subject:

Flexible Fuel (RPO L59) Rough Idle, Misfire, MIL DTC P0300
(Install Intake Manifold Gaskets With Teal Green Gasket Material)

Models:

2002-2004 Chevrolet Silverado, Suburban, Tahoe
2002-2004 GMC Sierra, Yukon, Yukon XL
with 5.3L Engine and Flexible Fuel (VIN Z - RPO L59)

This bulletin may apply to the following engines using regular fuel: 4.8L, 5.3L, 6.0L (VINs V, T, P, U, N - RPOs LR4, LM7, LM4, LQ4, LQ9).

Supercede:

This bulletin is being revised to add additional diagnostic information. Please discard Corporate Bulletin Number 05-06-04-029 (Section 06 - Engine/Propulsion System).

Important:

Always begin your diagnosis with the Diagnostic System Check - Engine Controls (SI Document ID # 1289827) for any MIL or driveability concern. The Diagnostic System Check directs you to the next logical step in your diagnosis. Follow the instructions in this bulletin should the rough idle, misfire, or DTC P0300 diagnostic procedure point to an air leak in the intake manifold gasket. Following the published diagnostic procedures will improve diagnostic accuracy and support our fix it right the first time approach.

Condition

Some customers may comment that the vehicle may have a rough idle, misfires and/or a MIL illuminated with a stored DTC P0300.

Cause

The L59 engine is calibrated for ethanol fuel (E85). Due to the low volatility of ethanol, the PCM provides higher fuel flow through the injector, which may pool on the upper manifold to head gasket material. Overtime (usually 12 months and longer), the gasket material may degrade resulting in an unmetered air leak.

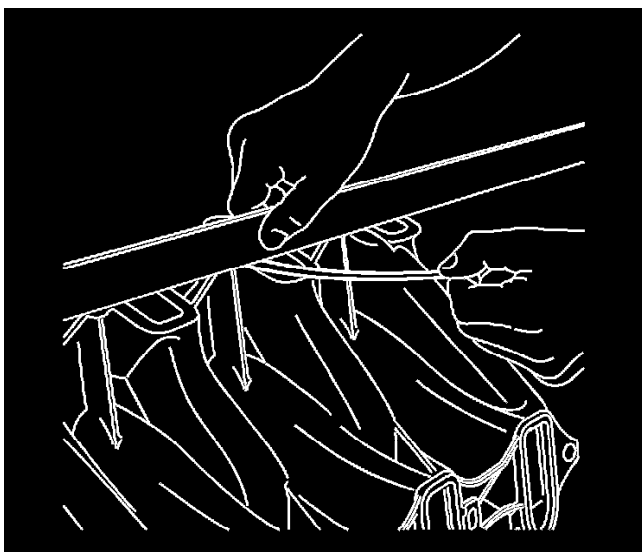
Correction

Replace the upper intake manifold gaskets with the teal green gasket material, P/N 89017589.

Important:

Do not replace the upper intake manifold gaskets with the original orange gasket material, P/N 17113557.

Inspect Intake Manifold to Cylinder head Deck for Warpage

**Important:**

The intake plenum should also be checked for excessive warpage that may cause an uneven clamping pressure of the seal. If the plenum is found to be warped it will need to be replaced. Service Information states, "An intake manifold with warpage in excess of 3 mm (0.118 in) over a 200 mm (7.87 in) area should be replaced." Intake warpage is measured at the gasket sealing surfaces and should be measured within a 200 mm (7.87 in) area. This measurement is across only two of the intake runner port openings. Measurements taken across the entire distance of all four intake runner ports will lead to unnecessary manifold replacements.

Important:

Measurements taken across the entire distance of all four intake runner ports will lead to unnecessary intake manifold replacements.

1. Locate a straight edge across the intake manifold cylinder head deck surface. Position the straight edge across two runner port openings.
2. Insert a feeler gauge between the intake manifold and the straight edge. 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. Do not replace intake manifolds with warpage that measures less than 3 mm (0.118 in) over a 200 mm (7.87 in).

Part Number	Description
89017589	Gaskets, Upper Intake Manifold (Teal Green)

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
J 0251	Gasket, Intake Manifold – Replace	Use Publish ed Labor Operati on Time

For vehicles repaired under warranty, use the table.

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Disclaimer Technical Service Bulletin # **05-08-05-008**

Date: **050818**

Interior - Heated Seats Intermittently Inoperative

Bulletin No.: 05-08-05-008

Date: August 18, 2005

TECHNICAL

Subject:
Intermittent Heated Seats Inoperative, DTC B3941 Set (Reprogram Driver Seat Module)

Models:
2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2005 GMC Sierra, Yukon, Yukon XL, Yukon Denali

All with Seat FRT, Individual (Non BKT) (RPO AN3)

2003-2005 HUMMER H2 with Seat, Front Bucket Deluxe (RPO AR9)

Condition

Some customers may comment that occasionally the seat heater will not operate when activated. If the ignition key is cycled OFF and back ON again, the heated seat will operate correctly. Also, on some LB7 diesel engine vehicles, the seat heater may turn itself off during the first 10 minutes of operation. This occurs only with the first activation for the day and works correctly with subsequent activations immediately after the event. These conditions are intermiffent and DTC B3941 may be set.

Correction

Technicians are to reprogram the driver seat module with an updated software calibration. This new service calibration was released with TIS satellite data update version 6.5 available June 13, 2005. As always, make sure your Tech 2(R) is updated with the latest software version.

Labor Operation	Description	Labor Time
N9524*	Driver Seat Module – Reprogram	0.4 hr

*This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

Warranty Information

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Disclaimer Technical Service Bulletin # 01-07-30-002E

Date: 050923

Electrical - A/T Stuck in 2nd/3rd Gear/MIL ON/DTC's

Bulletin No.: 01-07-30-002E

Date: September 23, 2005

TECHNICAL

Subject:

Malfunction Indicator Lamp (MIL) On, Transmission Stuck in Second or Third Gear, Instrument Cluster Inoperative (Verify and Repair Source of Voltage Loss In Transmission Solenoid Power Supply Circuit)

Models:

2006 and Prior GM Passenger Cars and Light Duty Trucks
2005-2006 HUMMER H2
2006 HUMMER H3
2005-2006 Saab 9-7X

with 4L60-E, 4L65-E, 4L80-E or 4L85-E Automatic Transmission (RPOs M30, M32, M33, MT1, MN8)

Supercede:

This bulletin is being revised to update model years, add additional models and add additional diagnostic information. Please discard Corporate Bulletin Number 01-07-30-002D (Section 07 - Transmission/Transaxle).

Condition

Some customers may comment on one or more of the following conditions:

- ^ The Malfunction Indicator Lamp (MIL) is ON.
- ^ The transmission is defaulted to second gear (4L80/85-E).
- ^ The transmission is defaulted to third gear (4L60/65-E).
- ^ The instrument cluster is inoperative.

Upon investigation, one or all of the diagnostic trouble codes (DTCs) P0740, P0753, P0758, P0785, P0787, P0973, P0976, P1860, P2761, P2764 and P2769 may be set depending on the vehicle.

Cause

The most likely cause of this condition may be a loss of voltage to the transmission solenoid power supply circuit. This condition may also be the result

of an incorrect installation of an aftermarket electronic device such as a remote starter or alarm system.

Correction

Important:

If the vehicle is equipped with an aftermarket electronic device and the DTCs are being set when the device is being used, verify that the appropriate fuse is being supplied battery voltage during operation. If voltage is not present at this fuse, these DTCs will be set due to lack of voltage at the solenoids. This condition is most likely to occur with an incorrectly installed remote starting system. If this is the case, refer the customer to the installer of the system for corrections. **ANY REPAIRS DUE TO AFTERMARKET INSTALLATION OF ACCESSORIES IS A NON-WARRANTABLE ITEM.**

1. With the ignition switch in the RUN position, test for battery voltage at the circuit fuse in the transmission solenoid power supply circuit. Refer to the appropriate SI Document for the transmission solenoid power supply circuit information.
2. If battery voltage is present at the fuse, inspect the ignition voltage circuit between the fuse and the transmission for possible opens.
3. If battery voltage is not present at the fuse, test for continuity between the fuse and the ignition switch. If NO continuity is between the fuse and the ignition switch, repair the open in that circuit.
4. If you have continuity between the fuse and the ignition switch, the most likely cause is the ignition switch. Replace the ignition switch using the appropriate Ignition Switch Replacement procedure in SI. Refer to group number 2.188 of the parts catalog for part description and usage of the ignition switch.

Warranty Information (excluding Saab U.S. Models)

Labor Operation	Description	Labor Time
N6630	Wiring and/or Connector, Transmission - Repair	Use published labor operation time

For vehicles repaired under warranty, use the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason Code	Location Code	Warranty Type	Repair/Action Code	Labor Time
3711401	Replace part, Adj., Wiring Harness, A/T Incl. diagnosis time 2005	37114	67	0	01	05	Use published labor operation time

For vehicles repaired under warranty, use the table.

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Disclaimer Technical Service Bulletin # **03-08-50-014A**

Date: **060120**

Electrical - No Module Communication/DTCs/Warning Lamps

Bulletin No.: 03-08-50-014A

Date: January 20, 2006

TECHNICAL

Subject:

No Communication with Any Modules, Memory Seat May Not Recall, Multiple U-DTCs Set or Instrument Panel Cluster (IPC) Warning Indicators, Crank No Start (Inspect/Repair Affected Wiring Harness)

Models:

2003-2006 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2006 GMC Sierra, Yukon, Yukon XL

with Front, Individual (Non-Bkt) Seat (RPO AN3) and/or Active Brake Control (Stabilitrak(R)) (RPO JL4)

Supercede:

This bulletin is being revised to update the various conditions and add the 2004-2006 model years, additional diagnostic and warranty information. Please discard Corporate Bulletin Number 03-08-50-014 (Section 08 - Body & Accessories).

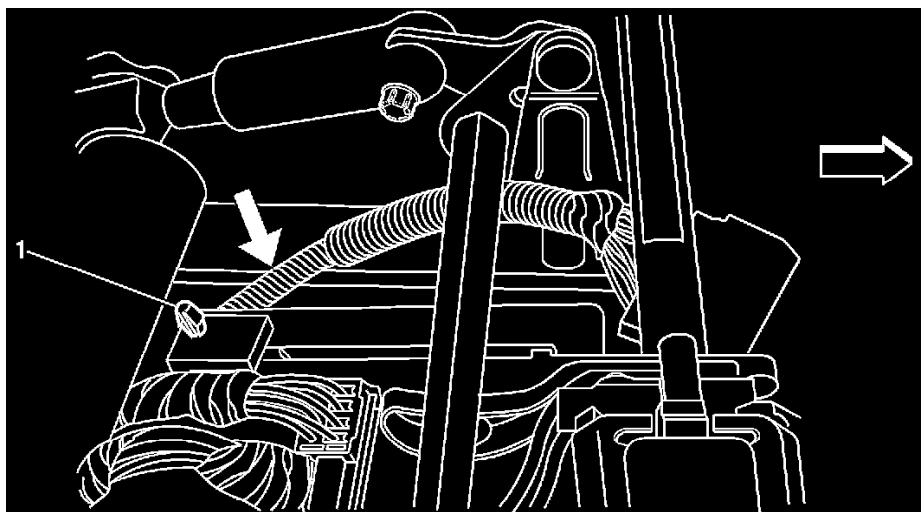
Condition

Some customers may comment on any of the following conditions:

- ^ Various IPC Warning indicators are coming on.
- ^ Driver Information Center (DIC) displays "Unknown Driver".
- ^ Memory seat may not recall.
- ^ RKE fobs may be inoperative.
- ^ Radio or HVAC may shut off.
- ^ Engine cranks but will not start.

Upon investigation, the Technician may find multiple U-DTCs set.

Cause



On RPO AN3 equipped vehicles, a chafed or pinched seat wiring harness under the driver seat may be a cause of this condition. Because of the routing, a portion of the seat wiring harness may rest on the inboard edge of the seat track or frame. Over time, the harness may be pinched or chafed because of the seat movement. Refer to the above illustration. The illustration shows the inverted position of the seat bottom. The arrow shows the primary location of the possible harness chafing/pinching.

Also, on any of the above listed vehicles, the PCM wiring harness may be chafing against the precharge pump bracket or the battery tray.

Correction

On RPO AN3 vehicles, inspect the routing of the seat wiring harness. Reroute the seat wiring harness and attaching harness fastener (1) to the opposite side of the seat module bracket. Repair the harness as necessary. Refer to Wiring Repairs in the Wiring Systems sub-section of SI. The seat may have to be removed for ease of access and proper repair of the wiring harness.

Inspect the routing of the PCM wiring harness at the precharge pump bracket and the battery tray. Repair the harness as necessary. Refer to Wiring Repairs in the Wiring Systems sub-section of SI.


If any of the above conditions still remain after this repair, refer to SI for further diagnostic information.

Warranty Information

Labor Operation	Description	Labor Time
N9542	Wiring and/or Connector - Seat System and/or PCM – Repair	0.2-0.4 hr

For vehicles repaired under warranty, use the table.

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WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Disclaimer
 Technical Service Bulletin # 05-09-41-001A

Date: 060130

Restraints - SRS Lamp ON/Multiple DTC's Set
 Bulletin No.: 05-09-41-001A

Date: January 30, 2006

TECHNICAL

Subject:

Supplemental Inflatable Restraint (SIR) Light ON, Diagnostic Trouble Codes (DTC) B0013, B0014, B0017, B0018, B0024, B0026, B0043, B0044 (Inspect and/or Replace IP Harness to Inflatable Restraint Module (Air Bag) Yellow 4-Way Connector C221 and/or C222)

Models:

- 2003-2006 Cadillac Escalade Models
- 2003-2006 Chevrolet Full-Size Pickup and Utility Models
- 2003-2006 Chevrolet Avalanche
- 2003-2006 GMC Full-Size Pickup and Utility Models

Supercede:

This bulletin is being revised to add additional models years, DTC information and connector information. Please discard Corporate Bulletin Number 05-09-41-001 (Section 09 - Restraints).

Condition

Some customers may comment that the Service Supplemental Inflatable Restraint Light is on. Diagnosis with a scan tool may indicate a DTC B0013, B0014, B0017, B0018, B0024, B0026, B0043, B0044.

Cause

The most likely cause of any one of the following DTCs: B0013, B0014, B0017, B0018, B0024, B0026, B0043, B0044 is improper connection/high resistance in the IP harness to inflatable restraint module connector C221 and/or C222.

Diagnostic Information

DTC B0013, B0014, B0017, B0018, B0024, B0026, B0043, B0044 will set when one of the following conditions occur:

- ^ The SDM detects the air bag module deployment loop resistance is greater than 4.8 ohms for 500 milliseconds.
- ^ The SDM detects that the voltage at the air bag module high control is less than 2.4 volts and deployment loop resistance is 6 ohms or greater for 500 milliseconds.
- ^ For additional diagnostic information, refer to DTC B0013, B0014, B0017, B0018, B0024, B0026, B0043, B0044 in the appropriate SI Document.

Correction

DO THIS	Don't Do This
Test for proper connection/high resistance at connector C221 and/or C222.	DO NOT replace SIR system components prior to testing for proper connection/high resistance in C221 and/or for DTCs B0013, B0014, B0017, B0018, B0024, B0026, B0043, B0044.

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.

Important:

The IP harness to inflatable restraint module connectors C221 or C222 is NOT located at the base of the steering column.

- ^ C221 (4 Cavities) - I/P Harness to Body Harness, behind the left kick panel
- ^ C222 (4 Cavities) (w/o HP2) - I/P harness to body harness, behind the right kick panel
- ^ C222 (4 Cavities) (W/HP2) - Behind the left side I/P access panel
- ^ Refer to the Master Electrical Component List for additional location information.

1. Remove the appropriate side door sill plate.
2. Remove the appropriate side hinge pillar panel.
3. Locate the IP harness to inflatable restraint module yellow 4-way connector C221 or C222.
4. Inspect the IP harness to inflatable restraint module connector C221 or C222 for proper connection.
5. Disconnect and reconnect the IP harness to inflatable restraint module connector C221 or C222 THREE times.
6. Clear the DTC and road test the vehicle.
 - ^ If DTCs B0013, B0014, B0017, B0018, B0024, B0026, B0043, B0044 DOES NOT reset, no additional repairs are necessary. Continue with step 10.
 - ^ If DTCs B0013, B0014, B0017, B0018, B0024, B0026, B0043, B0044 DOES reset, the most likely cause is high resistance in the IP harness to inflatable restraint module connector C221 or C222. Continue with the next step.
7. Replace the appropriate connector C221 and/or C222, P/N's 15306186 and 15306363.
8. Road test the vehicle and confirm that the repair is complete.
9. Install the driver's side hinge pillar panel.
10. Install the driver's side door sill plate.

Part Number	Description	Qty
15306186	Connector (4-way Female, w/Leads)	1
15306363	Connector (4-way Male, w/Leads)	1

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
N6624	Wiring And/Or Connector - Occupant Safety - Repair Or Replace	Use published labor operation time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **01-07-30-036F**

Date: **060214**

A/T - 4L60-E, 4L65-E, 4L70-E DTC P0756 Diagnostics

Bulletin No.: 01-07-30-036F

Date: February 14, 2006

INFORMATION

Subject:

Diagnostic Tips for Automatic Transmission DTC P0756, Second, Third, Fourth Gear Start

Models:

2007 and Prior Passenger Cars and Light Duty Trucks

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

with 4L60-E, 4L65-E or 4L70-E Automatic Transmission (RPOs M30, M32 or M70)

Supercede:

This bulletin is being revised to add the 2007 model year and 4L70-E transmission. Please discard Corporate Bulletin Number 01-07-30-036E (Section 07 - Transmission/Transaxle).

Some dealership technicians may have difficulty diagnosing DTC P0756, 2-3 Shift Valve Performance on 4L60-E, 4L65-E or 4L70-E automatic transmissions. As detailed in the Service Manual, when the PCM detects a 4-3-3-4 shift pattern, DTC P0756 will set. Some customers may also describe a condition of a second, third or fourth gear start that may have the same causes but has not set this DTC yet. Below are some tips when diagnosing this DTC:

^ This is a performance code. This means that a mechanical malfunction exists.

^ This code is not set by electrical issues such as a damaged wiring harness or poor electrical connections. Electrical problems would cause a DTC P0758, P0787 or P0788 to set.

^ The most likely cause is chips/debris plugging the filtered AFL oil at orifice # 29 on the top of the spacer plate (48). This is a very small hole and is easily plugged by a small amount of debris. It is important to remove the spacer plate and inspect orifice # 29 and the immediate area for the presence of chips/debris. Also, the transmission case passage directly above this orifice and the valve body passage directly below should be inspected and cleaned of any chips/debris.

^ This code could be set if the 2-3 shift valve (368) were stuck or hung-up in its bore. Inspect the 2-3 shift valve (368) and the 2-3 shuttle valve (369) for free movement or damage and clean the valves, the bore and the valve body passages.

^ This code could be set by a 2-3 shift solenoid (367b) if it were cracked, broken or leaking. Refer to Shift Solenoid Leak Test in the appropriate Service Manual for the leak test procedure. Based on parts return findings, a damaged or leaking shift solenoid is the least likely cause of this condition. Simply replacing a shift solenoid will not correct this condition unless the solenoid has been found to be cracked, broken or leaking.

It is important to also refer to the appropriate Service Manual for further possible causes of this condition.

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Disclaimer Technical Service Bulletin # 02-08-43-001A

Date: 040324

Wipers - Rear Wiper Jumps When Turning Fog Lamps ON

Bulletin No.: 02-08-43-001A

Date: March 24, 2004

TECHNICAL

Subject:

Rear Wiper Jumps When Fog Lamps Turned On (Connect Auxiliary Ground to Rear Washer Pump)

Models:

2002-2004 Cadillac Escalade

2003-2004 Cadillac Escalade ESV

2000-2004 Chevrolet Suburban, Tahoe

2000-2004 GMC Yukon, Yukon XL, Yukon Denali, Yukon Denali XL

Supercede:

This bulletin is being revised to add models, model years and revise the Parts Information. Please discard Corporate Bulletin Number 02-08-43-001 (Section 08 - Body and Accessories).

Condition

Some customers may comment that the rear wiper jumps when the fog lamps are turned on.

Cause

Electrical feedback from the fog lamp circuit into the ground of the rear window washer pump may cause this condition.

Correction

To perform this correction, you will need to obtain the following items:

^ A J 38125-B Terminal Repair Kit. Obtain the following parts from the kit.

- P/N 12041351 (Cable Seal) from tray # 2
- P/N 12077411 (Terminal) from tray # 2
- P/N 12103507 (Ring Terminal) from tray # 18

^ A 508 mm (20 in) length of Black, 0.5 mm (20 gauge) or 0.8 mm (18 gauge) wire

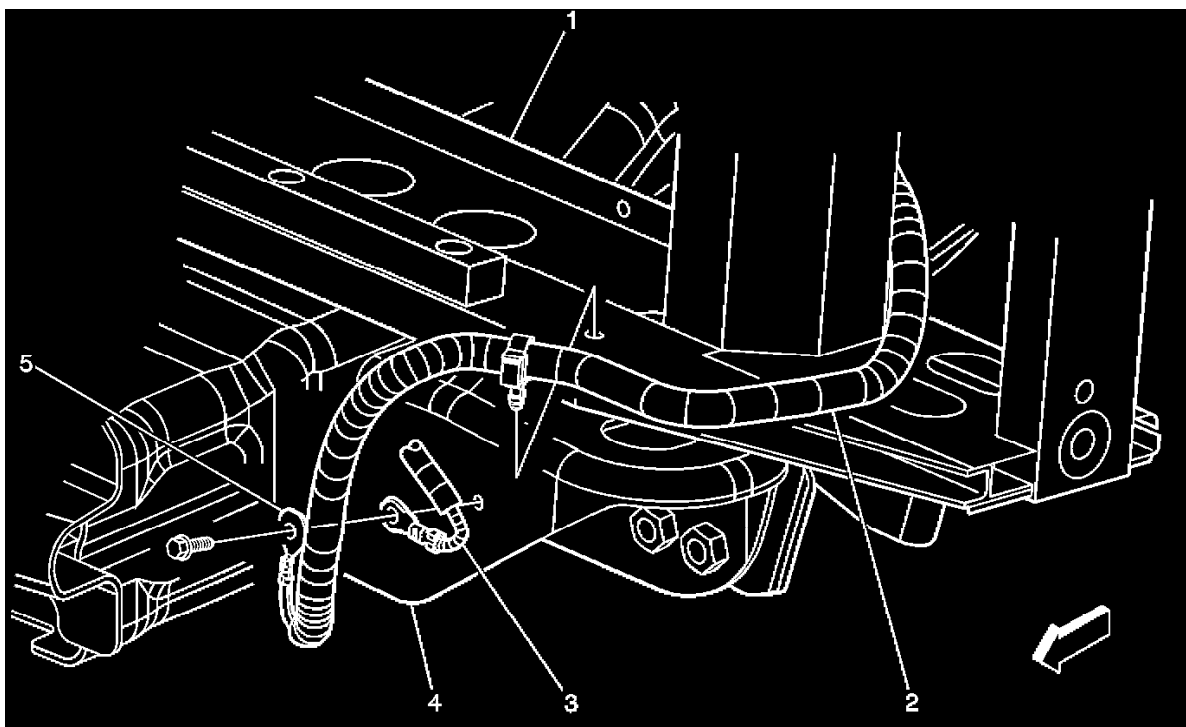
Important:

Do not re-use the old cable seals. Replace old cable seals with P/N 12041351.

Isolate the rear washer pump ground circuit by performing the following steps.

1. Remove the left side fender to radiator tie bar diagonal brace.
2. Remove the battery.
3. Remove the battery tray.
4. Remove the bolt that secures the washer bottle to the upper radiator tie bar.
5. Raise the vehicle on a hoist.
6. Remove the lower washer bottle mounting bolt.
7. Locate the rear washer pump motor, mounted into the washer solvent bottle under the hood, and disconnect the wiring connector for the rear washer pump (Dark Green/White stripe and Black wires).

8. Remove the black wire from the connector. Cut the wire and tape the end to seal out moisture intrusion. A non-sealed wire will allow moisture to wick up the strands of the wire and may corrode other components/connections.
9. Slide one end of the new wire through the weather pack seal that was removed from the old wire.
10. Properly attach the 12077411 terminal (crimp and solder) to one end of the new black wire.
11. Properly attach a 12103507 ring terminal (crimp and solder) to the other end of the new black wire.
12. Place the new terminal and wire assembly into the rear washer pump connector and properly position the weather pack seal.
13. Reconnect the connector to the rear washer pump.



14. Route the new black wire down to the attaching point on the frame, same location as the battery ground. Follow the battery cable routing.
15. Remove the ground to frame attaching bolt.
16. Clean the battery cable and G100 ring terminals of contamination.
17. Install the new wire ring terminal between the battery ground wire (5) and the existing G100 ground wire (3).
Tighten
Tighten the engine wiring harness ground/negative cable bolt to 25 N.m (18 lb ft).
18. Install the lower washer bottle retaining bolt.
Tighten
Tighten the bolt to 9 N.m (80 lb in).
19. Lower the vehicle.
20. Install the upper washer bottle retaining bolt.
Tighten
Tighten the bolt to 9 N.m (80 lb in).
21. Install the battery tray.

Tighten

Tighten the battery tray bolts to 9 N.m (80 lb in).

22. Install the battery.

Tighten

Tighten the battery hold-down retainer bolt to 25 N.m (18 lb ft).

23. Connect the battery cables.

Tighten

Tighten the battery cable bolts to 17 N.m (13 lb ft).

24. Install the left side tender to radiator tie bar diagonal brace.

Tighten

Tighten the front end diagonal brace bolts to 9 N.m (80 lb in).

25. Reset the clock.

26. Advise the customer that all memory modules will have to be reset such as seat, radio presets, and the like.

27. Also advise the customer that the transmission shift points may feel somewhat different. This will change over a short period of time as the transmission adapts to the customer driving habits.

Part Number	Description
12077411	Terminal
12103507	Ring Terminal
12041351	Cable Seal

Parts Information


Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
N8505	Harness, Wiring Repair - Replace or Install	1.0 hr

For vehicles repaired under warranty, use the table.

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Interior - Door Trim Panel Removal Precautions

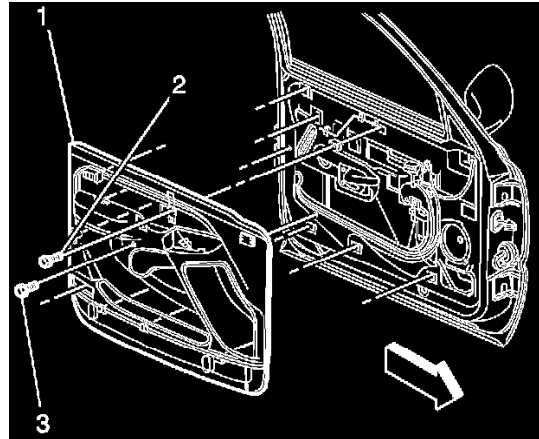
Bulletin No.: 03-08-64-029

Date: August 26, 2003

INFORMATION

Subject:
Information on Removing Front Door Trim Panel to Avoid Breakage

Models:
2003-2004 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2004 GMC Denali, Denali XL, Sierra, Yukon, Yukon XL



The purpose of this bulletin is to remind technicians to follow the front door trim panel removal procedure in SI. The front door trim panel will break if the screw at (2) in the illustration above is not removed. In order to prevent door trim panel breakage, follow the Trim Panel Replacement - Side Front Door procedure in SI.

The front door trim panel may also be broken if the door switch bezel is not removed properly. Refer to Corporate Bulletin Number 03-08-64-022 for information about replacement of the door switch bezel.

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Disclaimer Technical Service Bulletin # 04-08-50-011A

Date: 060504

Interior - Napped Seat Fabric Repair

Bulletin No.: 04-08-50-011A

Date: May 04, 2006

INFORMATION

Subject:
Repairing Napped Seat Fabric

Models:
2007 Cadillac Escalade, Escalade ESV, Escalade EXT
1999-2006 Chevrolet Silverado
2000-2007 Chevrolet Suburban, Tahoe
2002-2005 Chevrolet Astro
2002-2006 Chevrolet Monte Carlo
2002-2007 Chevrolet Avalanche

2002-2005 GMC Safari
 2007 GMC Yukon, Yukon XL
 2002-2004 Oldsmobile Alero
 1997-2006 Pontiac Grand Prix

Supercede:

This bulletin is being revised to add model years and models. Please discard Corporate Bulletin Number 04-08-50-011 (Section 08 - Body & Accessories).

This bulletin is being issued to advise technicians/dealers on the proper repair required when a customer brings in a trimmed seat with the appearance of being worn, having a bald spot and/or being discolored. The seats in the later vehicles are trimmed with a cloth that has a napped fabric. Under some circumstances, the nap may become crushed down by normal use, giving the appearance of being worn out. If the base material is NOT visible, use a small brass (NOT STEEL) wire brush to carefully fluff and raise the nap. The wire brush (fine bristle brass) is available at most hardware and home stores. If the base material is visible, replace the trim cover. The Astro/Safari van will also have this material on the door trim.

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Disclaimer Technical Service Bulletin # **04-08-50-016C**

Date: **050812**

Interior - Erratic Memory Seat Operation

Bulletin No.: 04-08-50-016C

Date: August 12, 2005

TECHNICAL

Subject:
 Memory Seat May Not Return to Requested Position (Reprogram Driver Seat Module)

Models:
 2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
 2003-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe
 2003-2005 GMC Sierra, Yukon, Yukon XL, Yukon Denali

All with Seat FRT, Individual (Non BKT) (RPO AN3)

2003-2005 HUMMER H2 with Seat, Front Bucket Deluxe (RPO AR9)

Supercede:

This bulletin is being revised to update the correction information. Please discard Corporate Bulletin Number 04-08-50-016B (Section 08 - Body and Accessories).

Condition

Some customers may comment that with repeated cycling of the memory seat between the "exit" and one of the "presets", the position of the seat may "creep" forward or rearward out of expected adjustment.

Cause

There is a coding deficiency in the software for the memory seat module.

Correction

Technicians are to reprogram the driver seat module with an updated software calibration. The previous bulletin stated to use a service calibration that was released with TIS satellite data update version 4.5. Feedback has proved that calibration to be ineffective in eliminating the memory seat creep condition. An updated service calibration was released with TIS satellite data update version 6.5 available June 13, 2005. This new calibration has additional memory seat creep protection. As always, make sure your Tech 2(R) is updated with the latest software version.

Important:

After programming is complete, move the seat all the way rearward and down, then bump the seat slightly forward and up. This position will be just off the end of travel hard stops. Reset both memory seat exit positions at this position. Having the seat set at just off the hard stops will aid in reducing the creep condition.

Labor Operation	Description	Labor Time
N9524*	Driver Seat Module – Reprogram	0.4 hr

*This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

Warranty Information

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Disclaimer Technical Service Bulletin # **04-08-48-003**

Date: **040614**

Body - Windshield Area Wind Noise

Bulletin No.: 04-08-48-003

Date: June 14, 2004

TECHNICAL

Subject:

Windrush Around Windshield (Install New Windshield Reveal Moldings)

Models:

2002-2004 Cadillac Escalade
1999-2004 Chevrolet Silverado
2000-2004 Chevrolet Suburban, Tahoe
2002-2004 Chevrolet Avalanche
1999-2004 GMC Sierra
2000-2004 GMC Yukon, Yukon XL
with Hood Air Deflector

Plant	Build Date
Pontiac Assembly	12/17/03
Flint	12/19/03
Ft. Wayne	12/15/03
Oshawa	12/17/03

Built Prior to the Build Dates shown.

Condition

Some customers may comment on noise coming from the windshield and door area.

Cause

This condition may be caused by the installation of a hood air deflector. The deflector may change the path of the air across the vehicle, causing the left side and right side windshield reveal molding to make noise.

Correction

Replace the left and right side windshield reveal molding. Refer to the Windshield Side Reveal Molding Replacement procedure in SI.

Part Number	Description
15131200	Reveal Molding
15131201	Reveal Molding

Parts Information


Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
B7570	Molding, Windshield Side Pillar Reveal - Right – R&R Or Replace	0.3 hr
B7571	Molding, Windshield Side Pillar Reveal - Left – R&R Or Replace	0.3 hr

For vehicles repaired under warranty, use the table.

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Disclaimer Technical Service Bulletin # **03-08-43-002A**

Date: **040901**

Wipers/Washers - Rear Window Spray Nozzle Dripping

File In Section: 08 - Body and Accessories

Bulletin No.: 03-08-43-002A

Date: September, 2004

TECHNICAL

Subject:

Rear Window Washer Spray Nozzle Drips Leaving Stain On Rear Bumper Step Cover (Install Additional Rear Window Washer Check Valve and Apply Conditioner to Rear Bumper Cover)

Models:

2002-2004 Cadillac Escalade
2003-2004 Cadillac Escalade ESV
2000-2004 Chevrolet Suburban, Tahoe
2000-2004 GMC Yukon, Yukon XL

This bulletin is being revised to update the repair procedure and add warranty information. Please discard Corporate Bulletin Number 03-08-43-002 (Section 08 - Body and Accessories).

Condition

Some customers may comment on the rear window washer spray nozzle dripping and leaving a stain on the rear bumper step cover.

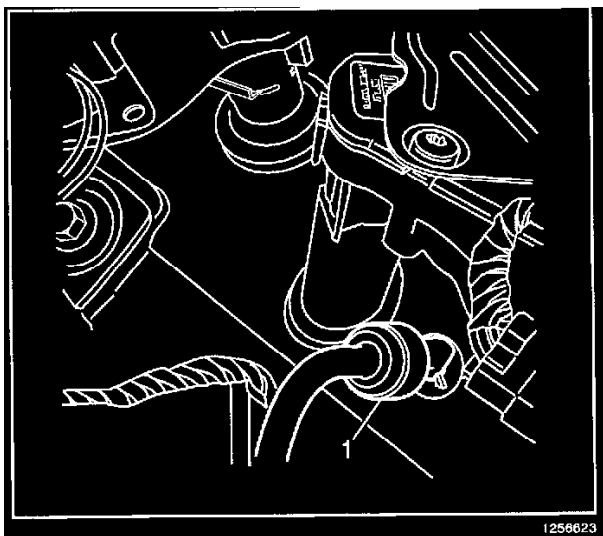
Cause

The location of the existing rear window washer check valve along with thermal expansion of the valve may be the cause of this condition.

Correction

Follow the service procedure below to add an additional check valve to the rear window washer hose where it passes through the lift gate sheet metal.

1. Remove the lift gate garnish molding.
 - 1.1. Open the lift gate window.
 - 1.2. Remove the pushpin retainers from the garnish molding.
 - 1.3. Pry gently with a thin-bladed tool in order to release the retaining clips.
 - 1.4. Remove the garnish molding.
2. Remove the lift gate trim panel.
 - 2.1. Remove the pull strap.
 - 2.2. Pry gently with a thin-bladed tool in order to release the retaining clips.
 - 2.3. Slide the trim panel upward to disengage the mounting hooks.
 - 2.4. Remove the trim panel from the lift gate.
3. Locate and remove the straight connector that connects the washer hose to the pass through grommet on the lift gate sheet metal. Discard the straight connector.



4. Install the new washer check valve (1), P/N 22102237, in place of the straight connector. Install with the arrow pointing in the direction of fluid flow.
5. Install the lift gate trim panel.

- 5.1. Position the trim panel to the lift gate.
- 5.2. Slide the trim panel downward to engage the mounting hooks.
- 5.3. Press on the trim panel in order to engage the retaining clips.
- 5.4. Install the pull strap.

6. Install the lift gate garnish molding.

- 6.1. Install the molding to the lift gate.
- 6.2. Press on the molding in order to engage the retaining clips.
- 6.3. Install the pushpin retainers into the garnish molding.
- 6.4. Close the lift gate window.

Caution:

This product should be used in a well ventilated area using nitrile gloves and proper eye protection. This product is flammable, do not use around open flames. These reconditioning wipes may spontaneously combust, be aware of the risk. All personnel should read the Material Safety Data Sheet before using this product. Proper disposal of used wipes should be followed.

Important:

Make certain that the surface is clean and dry before applying Armor-Dillo. This product will not bond to wet surfaces and, if the surface is not clean, the results will not meet expectations.

7. Apply Armor-Dillo following the procedure below.

- 7.1. Wash the vehicle with a general purpose cleaner to make certain the surface is clean.
- 7.2. For ease of clean-up, tape off the painted or chrome bumper surface around step cover and remove the license plate if necessary.
- 7.3. Apply Armor-Dillo evenly over the surface.
- 7.4. Allow the product to remain on the surface for a few minutes.

Important:

If this step is not performed, this product will remain tacky and will attract dirt.

- 7.5. Use a damp lint free towel and wipe the treated surface thoroughly.
- 7.6. A second coat may be needed on severely stained surface and can be applied after Step # 4.

Part Number	Description
22102237	Washer Check Valve
Parts are currently available from GMSP0.	
For Ordering	
www.armor-dillo.net	
(COD and credit card orders will be accepted)	
1-888-393-4722	
Armor-Dillo	
TS-1	
Recondition Wipes	

This product is sold in a package of 20 per box.
A Canadian distributor is not available for this product. Dealers in Canada may experience difficulty and delays associated with cross border shipment. French Language support cannot be guaranteed, therefore, French speaking dealers may seek the assistance of their District Service manager.

Warranty Information

Important:

Please advise the customer that this is a one-time warranty repair and that future coatings are the responsibility of the owner.

Labor Operation	Description	Labor Time
*B1798	Valve Washer, Pump	0.2 hr
B9734	Condition, Rear Step Bumper Cover	0.4 hr
Add	To Apply Second Coat If Needed	0.2 hr
Add	Material Allowance	GC
Add	Material Allowance Second Coat If Needed At The Time Of The First Repair	GN

*This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 03-03-10-002B

Date: 051102

Wheels - Correct Hub Cap Installation Procedure

Bulletin No.: 03-03-10-002B

Date: November 02, 2005

INFORMATION

Subject:

Use of Correct Installation Procedure for Loose Hubcap Assembly

Models:

1998-2006 Chevrolet Express Van
1999-2006 Chevrolet Silverado Models
2000-2006 Chevrolet Suburban, Tahoe Models
2002-2006 Chevrolet Avalanche
1998-2006 GMC Savana Van
1999-2006 GMC Sierra Models
2000-2006 GMC Yukon, Yukon XL Models

Supercede:

This bulletin is being revised to add the 2006 model year. Please discard Corporate Bulletin Number 03-03-10-002A (Section 03 - Suspension).

Some hubcap assemblies on the above-listed vehicles are being returned to the Warranty Parts Center (WPC) for loose and/or rattle conditions. Some returned hubcaps have the stand-off insulators removed. Analyses of these parts show no out of specification condition.

Hubcap assemblies are placed in the vehicle by the assembly plant for dealer installation. Installation is done by threading the six or eight plastic nut caps, which are part of the hubcap assembly, to the external threads of the wheel (lug) nuts.

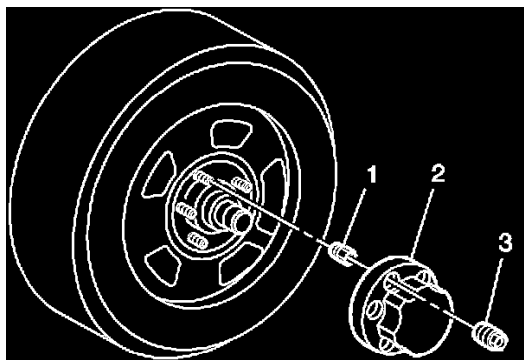
If over-tightened, these plastic nut caps will jump threads, as designed, causing a loose or rattle condition.

Important:

^ DO NOT over-tighten the plastic nut caps.

- ^ DO NOT use an impact wrench on the plastic nut caps.
- ^ DO NOT modify or remove the stand-off insulators from the plastic hubcap assembly.

The nut cap system is designed to skip a thread if over-tightened. DO NOT replace the hubcap assembly if this happens.



Hold hubcap (2) firmly in place on wheel with the plastic wheel nut caps (3) aligned with the steel wheel nuts (1). Hand snug each nut cap (3) (using a hand held deep socket or torque stick) until fully seated against the hubcap (2). You should feel the nut cap (3) ratchet against the hubcap (2) a couple times as the nut cap (3) seats. After all nut caps (3) have been seated, check tightness of each nut cap (3) using the socket or torque stick and tighten any nut cap (3) that may have loosened. If a nut cap (3) jumps thread (a design feature to prevent damage) and becomes loose during tightening, continue to tighten and stop short of thread jump.

Follow the installation instruction sheet that is included in each hubcap package.

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Disclaimer Technical Service Bulletin # **99-07-30-022A**

Date: **030601**

A/T - Shift Stabilization/Tow/Haul Mode Feature

File In Section: 07 - Transmission/Transaxle

Bulletin No.: 99-07-30-022A

Date: June, 2003

INFORMATION

Subject:

Shift Stabilization and Tow/haul Mode Feature for Hydra-Matic 4L60-E/4L65-E and 4L80-E/4L85-E Transmissions

Models:

1999-2000 Cadillac Escalade
 2002-2004 Cadillac Escalade, Escalade EXT
 2003-2004 Cadillac Escalade ESV
 1999-2004 Chevrolet Astro, Blazer, Express, S-10, Silverado
 2000-2004 Chevrolet Suburban, Tahoe
 2002-2004 Chevrolet Avalanche, TrailBlazer
 1999-2004 GMC Envoy, Jimmy, Safari, Savana, Sierra, Sonoma, Suburban, Yukon
 2000-2004 GMC Yukon, Yukon XL
 2001-2004 GMC Yukon Denali, Yukon Denali XL
 2003-2004 GMC Sierra Denali
 1999-2004 Oldsmobile Bravada
 2003-2004 HUMMER H2
 with Hydra-Matic 4L60-E/4L65-E (RPO M30/M32) or 4L80-E/4L85-E
 (RPO MT1/MN8) Automatic Transmission and 4.2L, 4.3L, 4.8L, 5.0L, 5.3L, 5.7L, 6.0L or 6.5L Engine (VINs W, V, M, T, R, U, N, F - RPOs LL8, L35, LR4, L30, LM7, L31, LQ4, LQ9, L65)

This bulletin is being revised to add model years and applications. Please discard Corporate Bulletin 99-07-30-022 (Section 07 - Transmission/Transaxle).

Bulletin Content

This bulletin contains information regarding Shift Stabilization and Tow/haul mode. These features affect transmission shift patterns and the customer's perception of shift feel. Customers may notice a change in shift patterns between previously owned vehicles without shift stabilization and current vehicles with shift stabilization.

Shift Stabilization Applies to all above listed models.

PURPOSE

^ The purpose of shift stabilization is to reduce shift busyness during conditions that would otherwise produce frequent upshifts and downshifts, such as trailering, operating on grades or at higher altitudes.

^ Shift Stabilization is an algorithm in a vehicle's software/calibration that determines if and when to delay upshifts under load. Shift Stabilization only affects upshifts and not downshifts.

ACTIVATION

^ This feature is internal to the vehicle's software/calibration and requires no customer action to activate.

^ Shift Stabilization is effective in normal mode, cruise mode, and in Tow/haul mode.

FUNCTION

^ Shift Stabilization calculates the required torque at the wheels in the current gear as well as the maximum torque available at the wheels in the next higher gear. If the torque in the higher gear is not sufficient, the transmission will remain in the current gear. If the torque in the higher gear is greater than or equal to the required torque, then the upshift is allowed.

^ High throttle opening will disable Shift Stabilization and normal downshifts will occur.

^ Shift Stabilization occurs in the 4L60-E for only 2-3 and 3-4 shifts and in the 4L80-E for 1-2, 2-3, and 3-4 shifts.

Tow/Haul Mode

Applies to the following models:

^ 2000-2004 C/K Utility Models

^ 1999-2004 Chevrolet and GMC C/K Pickup Models (Silverado and Sierra)

^ 1999-2002 GMC S/T Utility Models (Jimmy and Envoy-Old Style)

PURPOSE

^ Reduce the frequency and improve the predictability of transmission shifts when pulling a heavy trailer or a large or heavy load. This is most apparent in city traffic. Without tow/haul, the transmission may upshift on a closed throttle decel. With tow/haul, the transmission will hold the current gear on a closed throttle decel. This reduces upshifts and downshifts.

^ Provide the same solid shift feel when pulling a heavy trailer or a large or heavy load as when the vehicle is unloaded.

^ Improve control of vehicle speed while requiring less throttle pedal activity when pulling a heavy trailer or a large or heavy load.

ACTIVATION

^ Tow/Haul is selected or de-selected via a switch on the end of the transmission shift lever for all models except the GMC Jimmy and Envoy, their switch is mounted on the shift console. A light on the instrument panel will illuminate to indicate that tow/haul has been selected.

^ Tow/Haul must be reselected every time the vehicle is started (if desired).

FUNCTION

^ Tow/haul is designed to be most effective when the vehicle and trailer combined weight is at least 75% of the vehicle's Gross Combined Weight

Rating (GCWR).

- ^ Operation of tow/haul in a lightly loaded or non-loaded vehicle will not cause damage. However, there is no benefit to the selection of tow/haul when the vehicle is unloaded, this situation will cause a firm shift. The tow/haul switch is not a performance switch.
- ^ Selection of tow/haul when unloaded may result in unpleasant engine and transmission driving characteristics and reduced fuel economy. Tow/haul is recommend only when pulling a heavy trailer or a large or heavy load.
- ^ Examples of altered shift speeds when in tow/haul:
 - Minimum 1-2 shifts pushed out approximately 13 km/h (8 mph)
 - Minimum 2-3 shifts pushed out approximately 24 km/h (15 mph)
 - Minimum 3-4 shifts pushed out approximately 48 km/h (30 mph)
 - Tow/haul only affects shift points below 88 km/h (55 mph).

Refer to vehicle Owner's Manual for further information regarding tow/haul mode.

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Disclaimer Technical Service Bulletin # **01-07-30-031A**

Date: **040225**

A/T - Cold Weather Operational Characteristics

Bulletin No.: 01-07-30-031A

Date: February 25, 2004

INFORMATION

Subject:

1-2, 2-3, 3-4, 4-5 Shift and Torque Converter Clutch (TCC) Characteristics During Cold Weather Operation on 4L60-E, 4L80-E or Allison Transmissions

Models:

2002-2004 Cadillac Escalade, Escalade EXT

2003-2004 Cadillac ESV

2001-2004 Chevrolet and GMC Light Duty Full-Size Pickup and Utility Models

2003-2004 HUMMER H2

with 4.3L, 4.8L, 5.3L, 6.0L or 8.1 L Gas Engine (VINs W, V, T, N, U, G - RPOs L35, LR4, LM7, LQ9, LQ4, L18) or 6.6L

Diesel Engine (VINs 1, 2 - RPOs LB7, LLY)

and 4L60-E, 4L80-E or Allison Automatic Transmission (RPO M74-Transmission Auto 5-Speed, Allison, LCT 1000, 3.10 1st, 1.00 4th, 0.71 5th, O/D, Conversion Clutch)

Supercede:

This bulletin is being revised to add model years, model and Allison transmission information. Please discard Corporate Bulletin Number 01-07-30-031 (Section 07 - Transmission/Transaxle).

Transmission operation during cold weather has been revised on these vehicles to provide faster engine warm-up and improved heater performance. During initial key-up, if the intake air temperature (IAT) is less than -7°C (19°F), 1-2, 2-3 and 3-4 upshift speeds will be affected as detailed below.

Vehicles Equipped with Allison Transmissions

Range Shifts with M74 and L18

No heater performance utilized for range shifts for all model years.

(2001-2004 Model Year) TCC Operation with M74 and L18

If the transmission fluid temperature is less than 18°C (64.4°F), torque converter clutch (TCC) operation will not occur until the transmission fluid temperature is greater than 22°C (71.6°F).

(2001-2004 Model Year) 1-2 Shift with M74 and LB7 or LLY

No heater performance for 1-2 range shift for all model years.

(2001-2004 Model Year) 2-3 Shift with M74 and LB7

If the throttle position (TP) is less than 43 percent, the 2-3 upshift will take place at a minimum speed of 35 km/h (22 mph). This raises the shift point a maximum of 2 mph. If the TP is above 43 percent, the shifts will follow the normal shift pattern. When the transmission sump temperature reaches 44°C (111.2°F), 2-3 upshifts will follow the normal shift pattern.

(2004 Model Year) 2-3 Shift with M74 and LLY

If the throttle position (TP) is less than 37 percent, the 2-3 upshift will take place at a minimum speed of 33 km/h (20 mph). This raises the shift point a maximum of 2 mph. If the TP is above 37 percent, the shifts will follow the normal shift pattern. When the engine coolant temperature reaches 68°C (154.4°F), 2-3 upshifts will follow the normal shift pattern.

(2001-2004 Model Year) 3-4 Shift with M74 and LB7

If the throttle position (TP) is less than 56 percent, the 3-4 upshift will take place at a minimum speed of 52 km/h (32 mph). This raises the shift point a maximum of 5 mph. If the TP is above 56 percent, the shifts will follow the normal shift pattern. When the transmission sump temperature reaches 44°C (111.2°F), 3-4 upshifts will follow the normal shift pattern.

(2004 Model Year) 3-4 Shift with M74 and LLY

If the throttle position (TP) is less than 37 percent, the 3-4 upshift will take place at a minimum speed of 50 km/h (31 mph). This raises the shift point a maximum of 6 mph. If the TP is above 37 percent, the shifts will follow the normal shift pattern. When the engine coolant temperature reaches 68°C (154.4°F), 3-4 upshifts will follow the normal shift pattern.

(2001-2004 Model Year) 4-5 Shift with M74 and LB7

If the throttle position (TP) is less than 56 percent, the 4-5 upshift will take place at a minimum speed of 70 km/h (44 mph). This raises the shift point a maximum of 6 mph. If the TP is above 56 percent, the shifts will follow the normal shift pattern. When the transmission sump temperature reaches 44°C (111.2°F), 4-5 upshifts will follow the normal shift pattern.

(2004 Model Year) 4-5 Shift with M74 and LLY

If the throttle position (TP) is less than 56 percent, the 4-5 upshift will take place at a minimum speed of 67 km/h (42 mph). This raises the shift point a maximum of 6 mph. If the TP is above 56 percent, the shifts will follow the normal shift pattern. When the engine coolant temperature reaches 68°C (154.4°F), 4-5 upshifts will follow the normal shift pattern.

(2001-2004 Model Year) TCC Operation with M74 and LB7 or LLY

If the transmission fluid temperature is less than 29°C (84.2°F), torque converter clutch (TCC) operation will not occur until the transmission fluid temperature is greater than 31°C (87.8°F).

Vehicles Equipped with 4L60-E or 4L80-E Transmissions

1-2 Upshift

If the throttle position (TP) is less than 37 percent, the 1-2 upshift will take place at a minimum speed of 19 km/h (12 mph).

2-3 Upshift

^ (2001 Model Year) If the throttle position (TP) is less than 37 percent, the 2-3 upshift will take place at a minimum speed of 51 km/h (32 mph).

^ (2002-2004 Model Year) If the throttle position (TP) is less than 37 percent, the 2-3 upshift will take place at a minimum speed of 43 km/h (27 mph).

^ If the throttle position (TP) is above 37 percent, the shifts will follow the normal shift pattern.

3-4 Upshift

^ (2001 Model Year) If the throttle position (TP) is less than 37 percent, the 3-4 upshift will take place at a minimum speed of 75 km/h (47 mph).

^ (2002-2004 Model Year) If the throttle position (TP) is less than 37 percent, the 3-4 upshift will take place at a minimum speed of 64 km/h (40 mph).

^ If the throttle position (TP) is above 37 percent, the shifts will follow the normal shift pattern.

TCC Operation

If the transmission fluid temperature is less than 17°C (62.6°F), torque converter clutch (TCC) operation will not occur until the transmission fluid temperature is greater than 20°C (68°F).

(2001 Model Year) When the engine coolant temperature (ECT) reaches 77°C (171°F), 2-3 and 3-4 upshifts will follow the normal shift patterns. A brief description of operation may also be included in the Owner's Manual.

(2002 Model Year) When the ECT reaches 80°C (176°F), 2-3 and 3-4 upshifts will follow the normal shift patterns. A brief description of operation may also be included in the Owner's Manual.

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Disclaimer Technical Service Bulletin # **00-07-30-009A**

Date: **050209**

A/T - New/Reman A/T Identification

Bulletin No.: 00-07-30-009A

Date: February 09, 2005

INFORMATION

Subject:

Current Model Year Goodwrench Transmission Replacement Assembly

Models:

1998-2005 Passenger Cars and Light Duty Trucks

with 4L30-E, 4L60-E, 4L80-E, 3T40, 4T40-E, 4T45-E, 4T60-E, 4T65-E or 4T80-E Automatic Transmission

Supersede:

This bulletin is being revised to add additional models and model years. Please discard Corporate Bulletin Number 00-07-30-009 (Section 07 - Transmission/Transaxle).

There may be some confusion about the Goodwrench(R) transmission assembly program and whether a Goodwrench transmission is new or remanufactured.

It should not be assumed that a Goodwrench transmission is a remanufactured unit.

Goodwrench transmissions for the current model year are new transmission assemblies. A new Goodwrench transmission may be identified by inspecting the transmission label. The label will indicate Manufactured by General Motors, and the identification tag is blue. A remanufactured Goodwrench transmission may be identified by inspecting the transmission label. The label will indicate, Remanufactured for General Motors and the identification tag is green.

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Disclaimer Technical Service Bulletin # **01-07-30-041B**

Date: **051006**

A/T - Diagnosing Fluid Leaks

Bulletin No.: 01-07-30-041B

Date: October 06, 2005

INFORMATION

Subject:
Transmission Fluid Leak Diagnosis

Models:
2006 and Prior Passenger Cars and Light Duty Trucks
2003-2006 HUMMER H2
2006 HUMMER H3
2005-2006 Saab 9-7X

with Hydra-Matic(R) and Allison(R) LCT 1000 Automatic Transmissions

Supercede:

This bulletin is being revised to add the 2006 model year, HUMMER H3 and Saab 9-7X vehicles. Please discard Corporate Bulletin Number 01-07-30-041A (Section 07 - Transmission/Transaxle).

The purpose of this bulletin is to provide assistance for technicians when diagnosing fluid leaks on automatic transmissions. It has been found that many of the transmissions returned to the Warranty Parts Center (WPC) for fluid leaks were determined to be no trouble found (fluid leaks could not be found). To reduce unnecessary transmission replacement, please use the following information.

If the customer concern is a leak, the source of the leak must be isolated. There are many components on a vehicle that can produce leaks:

- ^ Engine oil
- ^ Engine coolant
- ^ Power steering
- ^ Transmission
- ^ Rear differential
- ^ Front differential
- ^ Transfer case

It is important to note that leaking fluids can migrate toward the rear of the vehicle. This can make isolating the leak very difficult. Generally, the fluid path can be followed to the leaking component during a visual inspection. Once the leaking component has been identified, use the J 42220 Leak Detection Lamp and the J 28431-6 Leak Dye Kit to isolate the leak point.

If the leaking component cannot be identified, use the leak dye in components that are in the fluid path. The Service Information contains procedures for diagnosing leaks and also alternate methods for leak detection.

Most leaks at seals and gaskets can be repaired on-vehicle. These procedures are located in the appropriate sub-section of the Service Manual and use the time from the applicable Labor Time Guide (LTG). If the transmission case is leaking due to porosity, the transmission typically needs to be replaced.

All components that are diagnosed and that require replacement due to leakage must be diagnosed with the leak dye and a leak detection lamp.

Upon receipt and inspection at/by WPC, components that do not exhibit leaks will be brought to the attention of the Regional Warranty Manager for appropriate action.

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Disclaimer Technical Service Bulletin # **05-07-30-017B**

Date: **060217**

A/T - 4L60-E/4L65-E/4L70-E Shudder/Water in Transmission

Bulletin No.: 05-07-30-017B

Date: February 17, 2006

TECHNICAL

Subject:

4L60-E/4L65-E/4L70-E Automatic Transmission/Torque Converter Clutch (TCC) Shudder, Water In Transmission (Repair Transmission and Seal Cowl Area)

Models:

2004-2006 Cadillac Escalade Models
2004-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe Models
2004-2006 GMC Sierra, Yukon Models

with 4L60-E (RPO M30), 4L65-E (RPO M32) or 4L70-E (RPO M70) Automatic Transmission

Supersede:

This bulletin is being revised to add additional model years, the 4L70-E transmission and clarify usage of Labor Operation B9758. Please discard Corporate Bulletin Number 05-07-30-017A (Section 07 - Transmission/Transaxle).

Condition

Some customers may comment on a shudder condition at approximately 64-80 km/h (40-50 mph) when the TCC engages.

Cause

This condition may be caused by water in the automatic transmission fluid (ATF). Water may enter the transmission by dripping from the cowl area onto the handle of the transmission fluid level indicator.

Indications of water in the ATF may include:

- ^ Visible water in the oil pan
- ^ A milky white substance inside the pan area
- ^ Spacer plate gaskets that appear to be glued to the spacer plate, valve body or case
- ^ Rust on internal transmission iron/steel components

Important:

For vehicles suspected of having a leaking transmission oil cooler that would cause contamination of the transmission fluid with coolant, the following check should be performed before deciding to replace the radiator.

- ^ Remove the surge tank cap and examine the coolant for signs of contamination with transmission fluid (the coolant will have a milky, not clear appearance).
- ^ If the coolant has a normal, clear appearance, the radiator should not be replaced.
- ^ The cooler can also be tested by following the Coolant System Leak Test procedure. Do NOT replace a radiator without verifying that the

transmission oil cooler is leaking.

Correction

Two steps are required to repair the vehicle. First, repair the transmission and second, seal the cowl area to prevent repeat water contamination of the ATF. This bulletin is focused on repairing the second step.

Transmission Repair

Important:

If water or coolant is found in the transmission, the following steps must be performed:

1. Remove the transmission. Refer to the appropriate SI procedure.
2. Disassemble and inspect the transmission. Refer to Unit Repair Automatic Transmission - 4L60-E/4L65-E or 4L70-E.

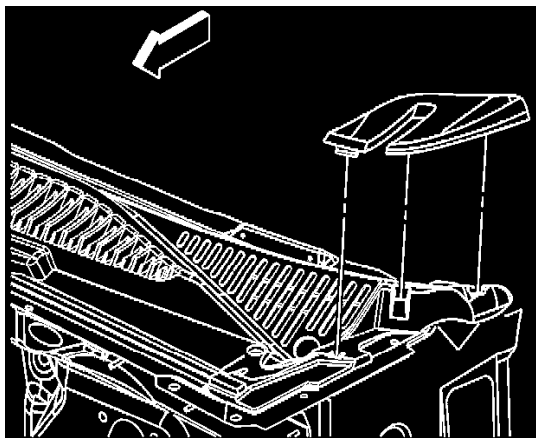
Important:

If water or coolant is found in the transmission, the following components **MUST** be replaced.

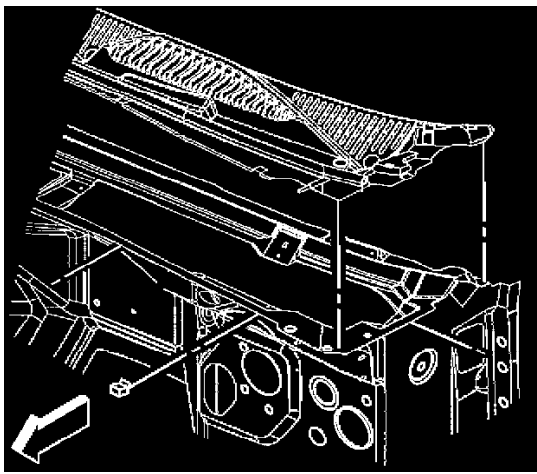
- ^ Replace all of the rubber type seals.
- ^ Replace all of the composition-faced clutch plate assemblies including the band.
- ^ Replace all of the nylon parts.
- ^ Replace the torque converter.
- ^ Thoroughly clean and rebuild the transmission, using new gaskets and oil filter.
- ^ Flush and flow check the transmission oil cooler using J 45096. Refer to Corporate Bulletin Number 02-07-30-052D or newer - Automatic Transmission Oil Cooler Flush and Flow Test Essential Tool J 45096 TransFlow.

Seal the Cowl

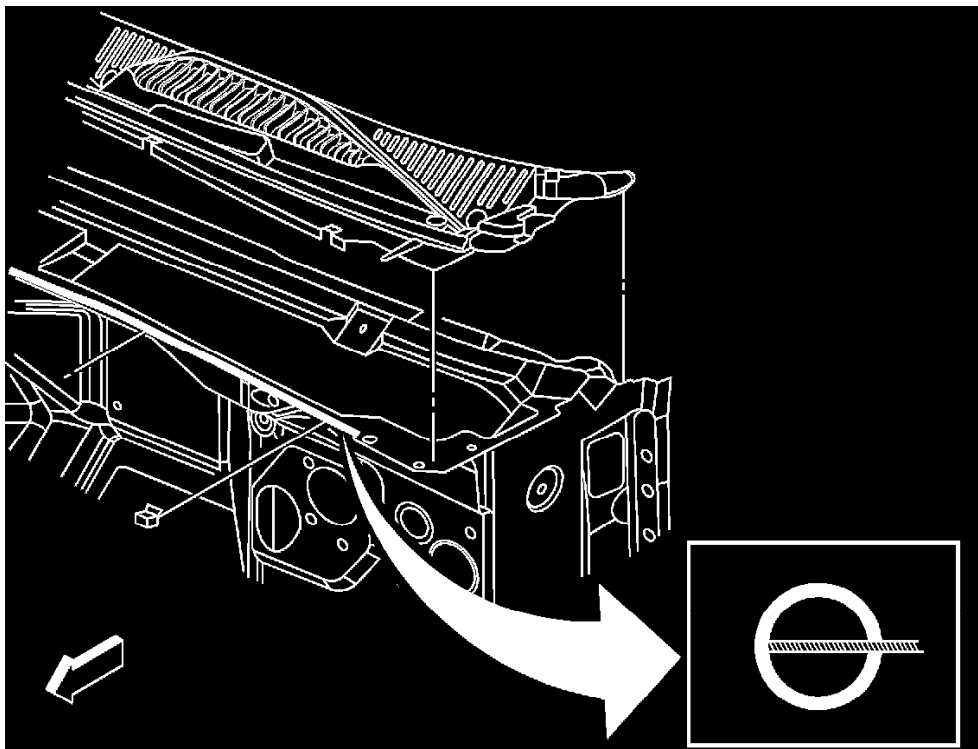
1. Open the hood and install fender covers.



2. Remove both air inlet grille caps by pulling up on the caps.
3. Loosen the sheet metal screws, one on each end of the air inlet grille panel.



4. Remove the four attaching clips running along the edges of the center air inlet grille panel.
5. Measure and cut a piece of 7/64 inch hose, P/N 14033569 or equivalent, 1.27 meters (50 inch) long.
6. With an appropriate sharp cutting tool, cut down the center of the hose, splitting the hose into a C shape, allowing the hose to be installed over the cowl seam.
7. Apply a thin layer of Weather-strip Adhesive, P/N 12345097 (in Canada use 10953479) or equivalent, into the center of the cut hose.
8. Lift up on the air inlet grille panel in order to expose the cowl area metal edge.



9. Place the 7/64 inch hose over the cowl metal edge between the two inner fender brace bolts. Make sure that the hose is long enough to be retained by the two most outer air inlet retaining clips.
10. Push back, towards the windshield, on the air inlet grille and install the four retaining clips.
11. Push back, towards the windshield, on the air inlet grille and tighten the end screws.

Tighten

Tighten the sheet metal screws to 2 N.m (18 lb in).

12. Install the two air inlet grille end caps.

13. Close the hood.
14. Place the vehicle in an area that a water test can be performed.
15. Turn OFF the vehicle.
16. Open the hood.
17. Place a shop rag over the top of the transmission dipstick.
18. Close the hood.
19. Spray and/or run water over the windshield and cowl area for three minutes.
20. Open the hood.
21. Inspect the shop rag for signs of water leaking on top of the transmission dipstick area.
 - ^ If NO water is present, close the hood and NO additional repairs are required.
 - ^ If water IS present, repeat steps 1-20.

Warranty Information


Important:

- ^ DO NOT submit a transmission repair (labor and parts) on Labor Operation B9758.
- ^ Use the appropriate transmission repair labor operation in conjunction with B9758.

Labor Operation	Description	Labor Time
B9758	Install 7/64 Hose – Cowl Water Deflector	0.5 hr

For vehicles repaired under warranty, use the table.

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Disclaimer Technical Service Bulletin # 99-04-20-002D

Date: 060608

A/T - Clunk When Shifting From PARK/DRIVE/REVERSE

Bulletin No.: 99-04-20-002D

Date: June 08, 2006

INFORMATION

Subject:

Information on Driveline Clunk Noise When Shifting Between PARK and DRIVE, PARK and REVERSE or DRIVE and REVERSE

Models:

- 2007 and Prior GM Passenger Cars and Light Duty Trucks
- 2007 and Prior HUMMER H2, H3
- 2005-2007 Saab 9-7X

Supersede:

This bulletin is being revised to add models and model years. Please discard Corporate Bulletin Number 99-04-20-002C (Section 04 - Driveline/Axle).

Important:

The condition described in this bulletin should not be confused with the following previous bulletins:

- ^ Info - Discontinue Flushing and Replacing Transfer Case Fluid Due to Bump/Clunk Concern (Corporate Bulletin Number 99-04-21-004A or newer).
- ^ Clunk, Bump or Squawk when Vehicle Comes to Complete Stop or Accelerating from Complete Stop or Accelerating from Complete Stop (Replace Rear Drive Shaft Nickel-Plated Slip Yoke) (Corporate Bulletin Number 01-04-17-004B or newer).

Some owners of vehicles equipped with automatic transmissions may comment that the vehicle exhibits a clunk noise when shifting between Park and Drive, Park and Reverse, or Drive and Reverse. Similarly, owners of vehicles equipped with automatic or manual transmissions may comment that the vehicle exhibits a clunk noise while driving when the accelerator is quickly depressed and then released.

Whenever there are two or more gears interacting with one another, there must be a certain amount of clearance between those gears in order for the gears to operate properly. This clearance or freeplay (also known as lash) can translate into a clunk noise whenever the gear is loaded and unloaded quickly, or whenever the direction of rotation is reversed. The more gears you have in a system, the more freeplay the total system will have.

The clunk noise that owners sometimes hear may be the result of a buildup of freeplay (lash) between the components in the driveline.

For example, the potential for a driveline clunk would be greater in a 4-wheel drive or all-wheel drive vehicle than a 2-wheel drive vehicle. This is because in addition to the freeplay from the rear axle gears, the universal joints, and the transmission (common to both vehicles), the 4-wheel drive transfer case gears (and their associated clearances) add additional freeplay to the driveline.

In service, dealers are discouraged from attempting to repair driveline clunk conditions for the following reasons:

- ^ Comments of driveline clunk are almost never the result of one individual component with excessive lash, but rather the result of the added affect of freeplay (or lash) present in all of the driveline components.
- ^ Because all of the components in the driveline have a certain amount of lash by design, changing driveline components may not result in a satisfactory lash reduction.

While some owners may find the clunk noise objectionable, this will not adversely affect durability or performance.

For additional diagnostic information, refer to the appropriate Service Information.

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Disclaimer Technical Service Bulletin # **00-08-46-002A**

Date: **050412**

OnStar(R) - Cellular Antenna Replacement Parts

Bulletin No.: 00-08-46-002A

Date: April 12, 2005

INFORMATION

Subject:

OnStar(R) System Cellular Antenna Replacement Parts Availability

Models:

1996-2005 Passenger Cars and Light Duty Trucks

2003-2005 HUMMER H2

with OnStar(R) and Glass Mounted Antennas

Supersede:

This bulletin is being revised to update the model years, models and parts information. Please discard Corporate Bulletin Number 00-08-46-002 (Section 08 - Body & Accessories).

Replacement parts for the OnStar(R) system cellular antenna are available as follows:

- ^ Cellular Antenna Kit - If the antenna mast or exterior base is damaged or missing or if the antenna base has separated from the exterior glass surface.
- ^ Cellular Antenna Inner Coupling - If the antenna coupling on the inside of the glass requires replacement.

Important:

If glass replacement is required, both the Cellular Antenna Kit and the Cellular Antenna Inner Coupling are required. The kits listed contain all the necessary parts and instructions needed to properly install a new cellular antenna exterior base or interior coupling to the glass surface. To obtain maximum adhesion during installation, the instructions included in the kits must be followed carefully and exactly as written.

Important:

Do not attempt to reinstall the original cellular antenna exterior base or interior coupling using any type of glue, adhesive tapes, etc. Doing so may eliminate the cellular signal transfer through the glass and reduce the maximum performance of the system that includes air bag deployment notification.

Important:


To obtain maximum adhesion between the new cellular exterior base or interior coupling and the glass surface, the base, coupling and glass must be kept dry and above 15°C (60°F) during the installation and for the 24 hours immediately following the installation. Not keeping the vehicle dry and above the temperature listed for 24 hours may result in the new cellular antenna exterior base or interior coupling coming off.

Part Number	Description
89047025	Cellular Antenna Kit — All Models (Includes Mast & Exterior Base)
89046752	Coupling, Mobile Telephone (Cellular) Antenna Inner — All Models

Parts Information

Parts are currently available from GMSPO.

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Disclaimer Technical Service Bulletin # 00-08-46-003B

Date: 050209

Instruments - GPS System Performance Degradation

Info - Global Position Sensor (GPS) Performance Degradation # 00-08-46-003B - (Feb 9, 2005)

Models:

- 1996-2005 Passenger Cars and Trucks
- 2002-2005 Saturn Vehicles

with Navigation Systems and/or OnStar(R)

This bulletin is being revised to include additional information. Please discard Corporate Bulletin Number 00-08-46-003A (Section 08 - Body and

Accessories).

Navigation and OnStar(R) systems require a GPS antenna in order to function properly. This antenna may be located inside the vehicle. If the GPS antenna is located inside the vehicle, performance of the system may be compromised by window tinting film.

If the GPS system performance is in question and the vehicle has window tinting, a quick diagnostic check can be made by temporarily moving the GPS antenna to an external vehicle surface, such as the decklid or roof. If the GPS function of the navigation or On Star(R) system operates normally with the antenna relocated the repair would not be considered a warranty repair. The subsequent repair procedure or GPS placement would be up to the customer.

Some vehicles have the GPS antenna located on the rear window shelf. Objects placed on the rear window shelf such as tissue boxes, books, dolls, etc., also have the potential to interfere with GPS performance.

Warranty Information

Repairs made to the vehicle navigation and/or OnStar(R) system, which are the result of window tinting, are not considered warranty repairs.

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Disclaimer Technical Service Bulletin # **04-08-52-005**

Date: **040615**

Keyless Entry - Inoperative

Bulletin No.: 04-08-52-005

Date: June 15, 2004

TECHNICAL

Subject:

Remote Keyless Entry (RKE) System Inoperative (Reprogram Passenger Door Module (PDM))

Models:

2004 Cadillac Escalade, Escalade ESV, Escalade EXT
2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2004 GMC Sierra, Yukon, Yukon XL

Condition

Some customers may comment on any of the following conditions:

- ^ The RKE key fob does not function.
- ^ The "Service Tire Pressure Monitoring System" message is displayed, if equipped.
- ^ The passenger door will not unlock from the passenger's or driver's door switches.
- ^ The passenger door window is inoperative.

Correction

Reprogram the PDM with the Tech 2(R). Currently the Tech 2(R) software is not available for the 2004 model year.

Engineering is aware of this and are working to release a new service calibration. In the meantime, build the Tech 2(R) as a 2003 model year and perform the reprogram using the procedure listed below.

1. Turn the ignition switch to the ON position.
2. Connect the Tech 2(R) to the vehicle's diagnostic link connector (DLC), power it up and press enter.
 - ^ Select: Diagnostics.

- ^ Select model year: 2003.
- ^ Select: Light truck.
- ^ Select: Body.
- ^ Select the proper Product line.
- ^ Select the proper HVAC Type.
- ^ Select the proper Radio System type.
- ^ Select: Passenger Door Module.
- ^ Select: Special Functions.
- ^ Select: Refresh.

Important:

You must remove the described fuse in the next step for the "Refresh" program to be performed. If you do not remove the fuse for five seconds, the Tech 2 will continue to display "Test in Progress" and the program will not complete.

- ^ Remove the PDM fuse for 5 seconds from the fuse center located behind the panel on the left end of the instrument panel.
- ^ Reinstall the fuse and fuse panel cover.
- ^ Press the "Enter" button to perform the "Refresh" function.
- ^ "Test in Progress" will be displayed and the right front passenger door lock will cycle once.
- ^ The screen will display "Procedure Completed".
- ^ Press the "Exit" button as necessary to return to the main menu screen.

3. Using the switches in the right front passenger door, verify that the power window and power door lock located in that door function properly.

Important:

The calibrations required for performing SPS reprogram in the next step are based on the type of exterior rearview mirror the vehicle has. To determine the correct calibration, check the Service Parts Identification Label on the vehicle for the RPO code for exterior mirrors.

- 4. Follow normal Service Programming System (SPS) to reprogram the passenger door module with the current calibration available in TIS 2000.
- 5. After reprogramming is complete, using the switches in the right front passenger door, verify that the power window and power door lock located in that door function properly.

Warranty Information

Labor Operation	Description	Labor Time
N9505*	Passenger Door Module (PDM) – Reprogram	0.3 hr

*This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **04-06-01-023**

Date: **040630**

Engine - Vibration/Noise at Idle Speed

Bulletin No.: 04-06-01-023

Date: June 30, 2004

TECHNICAL

Subject:

Engine Vibration/Noise at Idle, Rough Idle, Steering Wheel Shake (Adjust Engine Mount Bracket(s))

Models:

2004 Cadillac Escalade, Escalade ESV, Escalade EXT

2004 Chevrolet Avalanche, Tahoe

2004 GMC Yukon, Yukon XL

Condition

Some customers may comment on unusual engine vibration or noise while at idle. This vibration can also be felt in the steering wheel.

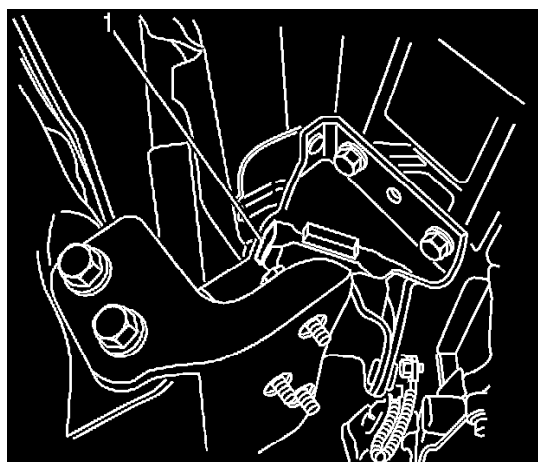
Cause

The cause of this condition may be due to contact between the two halves of the engine mount resulting in a ground out when the vehicle is placed in gear. This occurs when the outboard gap is 1.5 mm (0.059 in) or less. Depending on the severity of the contact, this may also occur when the vehicle is in Park or Neutral.

Correction

Inspect and adjust the engine mount bracket(s) using the procedure listed below.

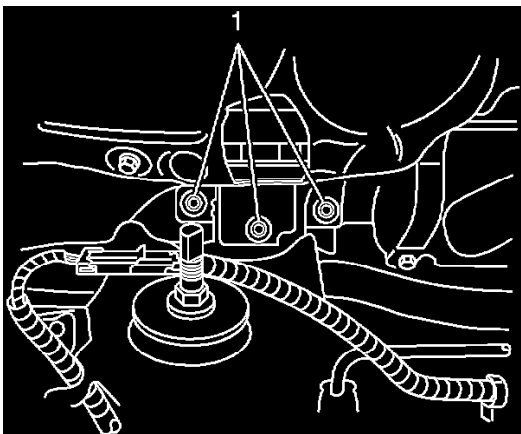
1. Raise and support the vehicle.



2. Inspect the engine mount(s) for close (1.5 mm (0.059 in) or less) or contact condition at outboard gap (1).

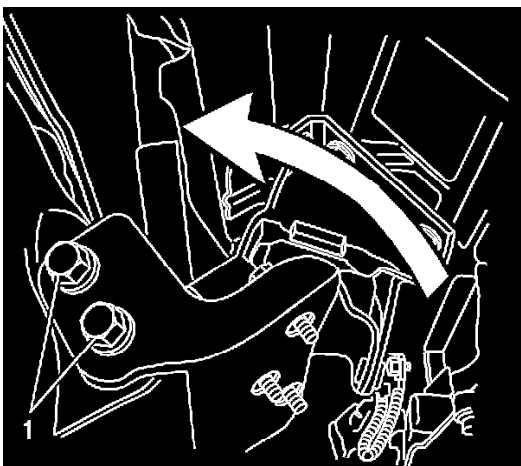
If the vibration is in Drive, check the left mount. If the vibration is in Reverse, check the right mount. If the vibration is in Park or Neutral, check both mounts.

3. Lower the vehicle.



4. Loosen the three engine mount to bracket bolts (1).

5. Raise the vehicle.



6. Loosen the two bracket to frame bolts (1).

7. Lift up the engine with an adjustable jack stand to relieve the load on the mount/bracket.

8. Rotate the bracket as far outboard as possible.

9. Lower the engine and remove the jack stand.

10. Re-tighten the two bracket to frame bolts.

11. Lower the vehicle.

12. Re-tighten the three engine mount to bracket bolts.

13. Repeat the above steps for the other mount, if necessary.

Warranty Information

Labor Operation	Description	Labor Time
J7501*	Engine Mount Bracket – Adjust	0.5 hr
Add:	To Adjust Other Engine Mount Bracket	0.3 hr

*This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

For vehicles repaired under warranty, use the table.

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Disclaimer
Technical Service Bulletin # 04-06-01-013

Date: 040401

Engine - Serpentine Drive Belt Wear Information

Bulletin No.: 04-06-01-013

Date: April 29, 2004

INFORMATION

Subject:
Information on Serpentine Belt Wear

Models:
2004 and Prior Passenger Cars and Trucks
2003-2004 and Prior HUMMER H2

All current GM vehicles designed and manufactured in North America were assembled with serpentine belts that are made with an EPDM material and should last the life of the vehicle. It is extremely rare to observe any cracks in EPDM belts and it is not expected that they will require maintenance before 10 years or 240,000 km (150,000 mi) of use.

Older style belts, which were manufactured with a chloroprene compound, may exhibit cracks depending on age. However, the onset of cracking typically signals that the belt is only about halfway through its usable life.

A good rule of thumb for chloroprene-based belts is that if cracks are observed 3 mm (1/8 in) apart, ALL AROUND THE BELT, the belt may be reaching the end of its serviceable life and should be considered a candidate for changing. Small cracks spaced at greater intervals should not be considered as indicative that the belt needs changing.

Any belt that exhibits chunking should be replaced.

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Disclaimer Technical Service Bulletin # 04-07-30-037B

Date: 060612

A/T - DEXRON(R) VI Fluid Availability

Bulletin No.: 04-07-30-037B

Date: June 12, 2006

INFORMATION

Subject:

Release of DEXRON(R) VI Automatic Transmission Fluid (ATF)

Models:

2007 and Prior Passenger Cars and Light Duty Trucks

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saturn Relay

2005 and Prior Saturn L-Series

2005-2007 Saturn ION

2005-2007 Saturn VUE with 4T45-E

2005-2007 Saab 9-7X

Except 2007 and Prior Chevrolet Aveo, Epica, Equinox, Optra

Except 2007 and Prior Pontiac Torrent, Vibe, Wave

Except 2003-2005 Saturn ION with CVT or AF23 Only

Except 1991-2002 Saturn S-Series

Except 2007 and Prior Saturn VUE with CVT, AF33 or 5AT (MJ7/MJ8) Transmission Only

Supercede:

This bulletin is being updated with the 2007 model year. Please discard Corporate Bulletin Number 04-07-30-037A (Section 07 - Transmission/Transaxle).

DEXRON(R)-VI ATF

General Motors Powertrain has recently upgraded to DEXRON(R)-VI ATF with the start of 2006 vehicle production.

Only 2005 and prior models that currently use DEXRON(R)-III may use DEXRON(R)-VI as a replacement.

All 2006 and future models that use DEXRON(R)-VI are to be serviced with DEXRON(R)-VI fluid only.

DEXRON®-VI	
Extended Factory Fill For Life	160,000 km (100,000 mi) For Cars and Light Duty Trucks* 80,000 km (50,000 mi) (Severe Use) For Cars and Light Duty Trucks*
Clutch Friction Stability	Improved 100%
Clutch Durability Due To Fluid	Improved 120%
Oil Film Thickness	Increased 20%
Fluid Oxidation	Improved 100%
Foam/Aeration	Improved 150%
Shear Stability	Improved 200%

* These ATF change intervals remain the same as DEXRON®-III for the time being.

DEXRON(R)-VI is an improvement over DEXRON(R)-III in the areas shown.

2006-2007 Transmission Fill and Cooler Flushing

Some new applications of the 6L80 six speed transmission will require the use of J 45096 - Flushing and Flow Tester to accomplish transmission fluid fill. It is highly recommended that the clean oil reserve of the machine be purged of DEXRON(R)-III and filled with DEXRON(R)-VI.

Part Number	Description
88861003 (US)	DEXRON®-VI Auto Trans Fluid (1 qt bottle)
88861045 (US)	DEXRON®-VI Auto Trans Fluid (1 gal bottle)
88861046 (US)	DEXRON®-VI Auto Trans Fluid (55 gal drum)
88861004 (Canada)	DEXRON®-VI Auto Trans Fluid (1L bottle)
88861043 (Canada)	DEXRON®-VI Auto Trans Fluid (4L bottle)
88861044 (Canada)	DEXRON®-VI Auto Trans Fluid (205L drum)

Parts Information

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Technical Service Bulletin # **06-03-08-002**

Date: **060309**

Suspension - Revised Upper Control Arm Replacement

Bulletin No.: 06-03-08-002

Date: March 09, 2006

SERVICE MANUAL UPDATE

Subject:

Revised Upper Control Arm Replacement

Models:

2003-2006 Cadillac Escalade Models
2003-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe Models
2003-2006 GMC Sierra, Yukon Models
2003-2006 HUMMER H2

This bulletin is being issued to revise the Upper Control Arm Replacement procedure in the Front Suspension sub-section of the Service Manual. Please replace the current information in the Service Manual with the following information.

The following information has been updated within SI. If you are using a paper version of this Service Manual, please make a reference to this bulletin on the affected page.

Use of special tool J 42188-B eliminates the need to remove the wheel drive shaft on 4WD models.

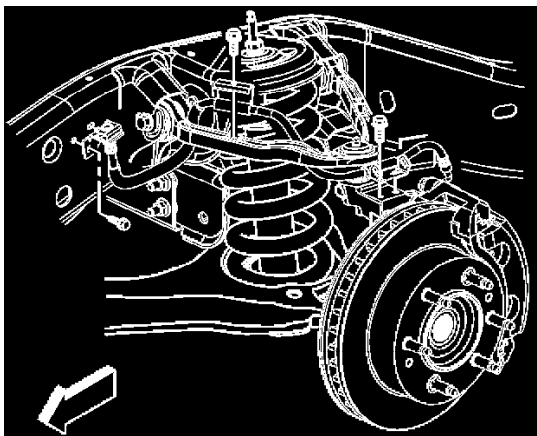
Upper Control Arm Replacement (Escalades, Avalanche, Silverado, Sierra, Suburban, Tahoe, Yukons)

Tools Required

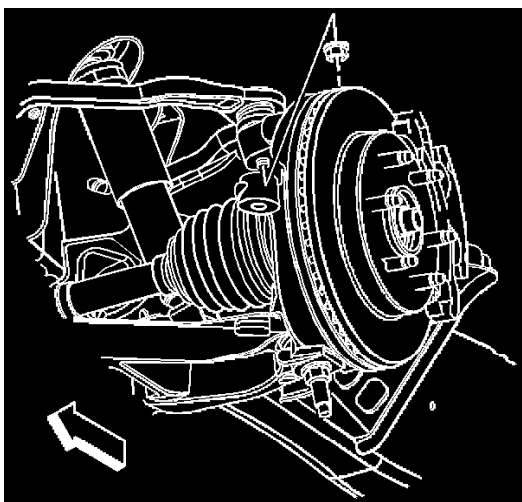
J 42188-B Ball Joint Separator

Removal Procedure

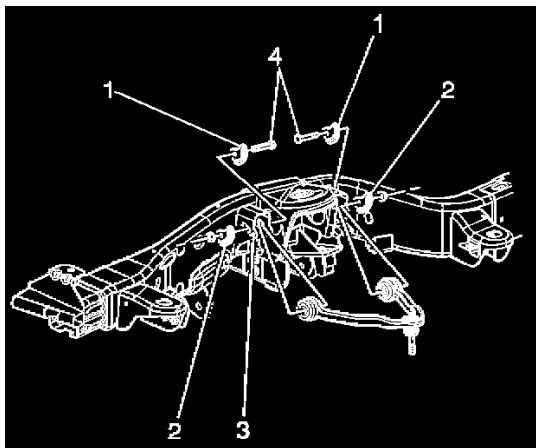
1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
2. Remove the tire and wheel. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
3. Disconnect the electronic suspension control (ESC) link rod from the sensor, if equipped. Refer to Front Position Sensor Link Assembly - Electronic Suspension in Electronic Suspension Control.



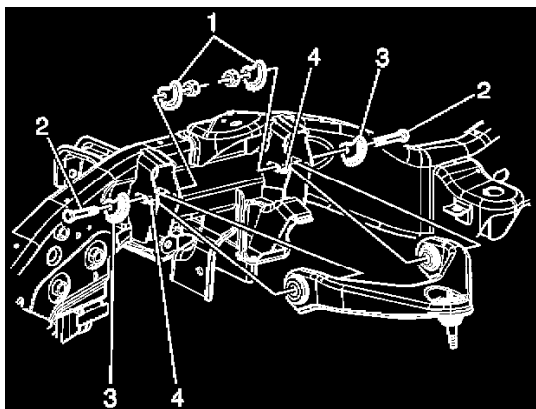
4. Remove the retaining bolt for the brake hose and the wheel speed sensor brackets.



5. Remove the upper ball joint retaining nut.
6. Disconnect the upper control arm from the steering knuckle using the J 42188-B.



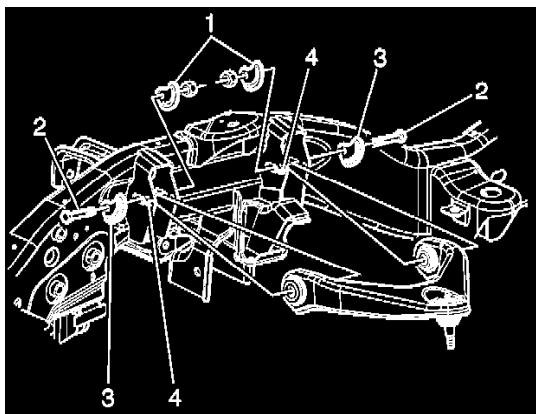
7. Remove the upper control arm nuts and the adjustment cams (2) for the 15 Series 2WD, 4WD, and 25/35 Series 2WD.
8. Remove the upper control arm bolts (4) for the 15 Series 2WD, 4WD, and 25/35 Series 2WD.



9. Remove the upper control arm nuts and the adjustment cams (2) for the 25/35 Series 4WD.
10. Remove the upper control arm bolts (4) for the 25/35 Series 4WD.
11. Remove the upper control arm.

Installation Procedure

1. Install the upper control arm.



2. Install the upper control arm bolts (4) for the 25/35 Series 4WD.

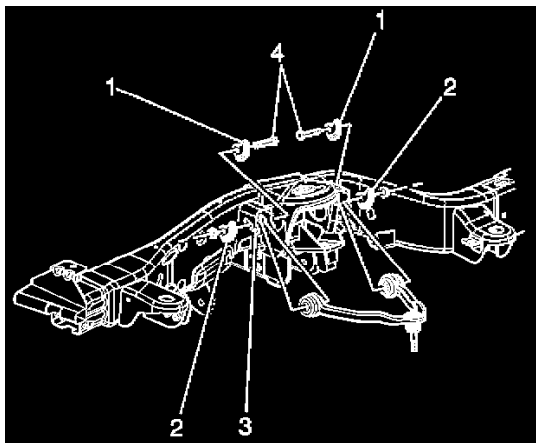
Note:

Refer to Fastener Notice in Cautions and Notices.

3. Install the upper control arm nuts and the adjustment cams (2) 25/35 Series 4WD.

Tighten

Tighten the nuts to 190 N.m (140 lb ft).

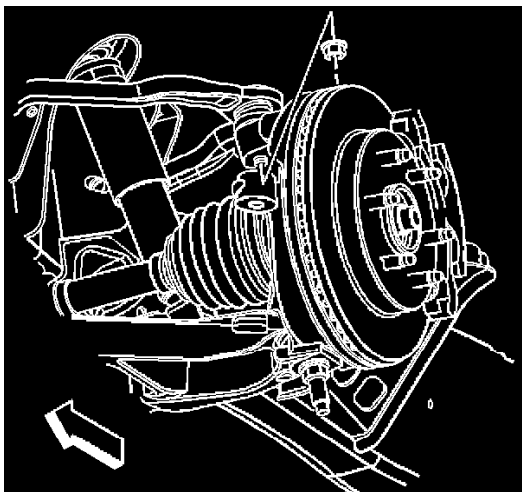


4. Install the upper control arm bolts (4) for the 15 Series 2WD, 4WD, and 25/35 Series 2WD.
5. Install the upper control arm nuts and the adjustment cams (2) for the 15 Series 2WD, 4WD, and 25/35 Series 2WD.

Tighten

Tighten the nuts to 190 N.m (140 lb ft).

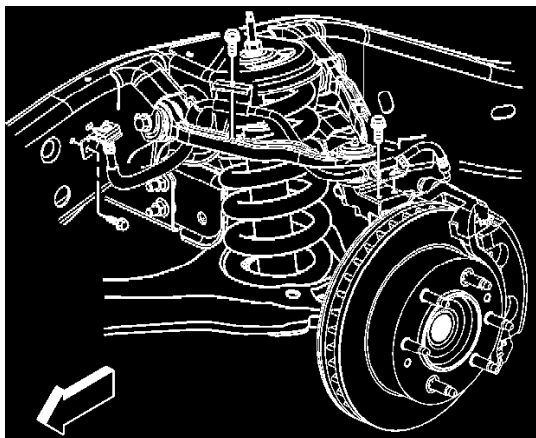
6. Connect the upper control arm to the steering knuckle.



7. Install the new nut to the upper ball joint stud.

Tighten

Tighten the nut to 50 N.m (37 lb ft).



8. Install the retaining bolts for the brake hose and wheel speed sensor brackets.

Tighten

Tighten the bolts to 9 N.m (80 lb in).

9. Connect the ESC link rod to the sensor, if equipped. Refer to Front Position Sensor Link Assembly Replacement - Electronic Suspension in Electronic Suspension Control.
10. Install the tire and wheel. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
11. Remove the safety stands.
12. Lower the vehicle.
13. Verify the wheel alignment. Refer to Measuring Wheel Alignment in Wheel Alignment.

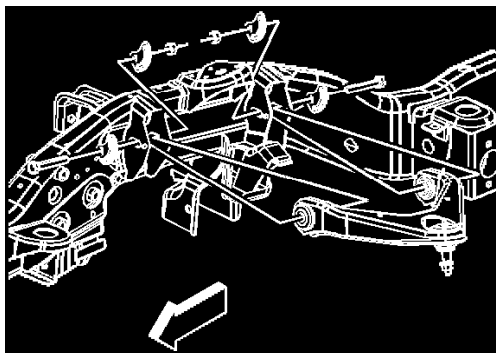
Upper Control Arm Replacement (H2)

Tools Required

J 42188-B Ball Joint Separator

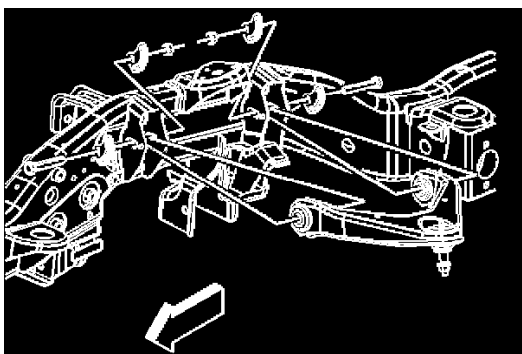
Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.
2. Remove the tire and wheel. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.
3. Remove the retaining bolt for the brake hose and the wheel speed sensor brackets.
4. Remove the nut at the upper ball joint. Discard the nut.



5. Disconnect the upper control arm from the steering knuckle using the J 42188-B.
6. Remove the upper control arm nuts and the adjustment cams.
7. Remove the upper control arm.

Installation Procedure



1. Install the upper control arm.

Note:

Refer to Fastener Notice in Cautions and Notices.

2. Install the upper control arm bolts.

Tighten

Tighten the nuts to 190 N.m (140 lb ft).

3. Connect the upper control arm to the steering knuckle.

4. Install the new nut to the upper ball joint stud.

Tighten

Tighten the nut to 50 N.m (39 lb ft).

5. Install the retaining bolts for the brake hose and wheel speed sensor brackets.

Tighten

Tighten the bolts to 9 N.m (80 lb in).

6. Install the tire and wheel. Refer to Tire and Wheel Removal and Installation in Tires and Wheels.

7. Lower the vehicle.

8. Verify the wheel alignment. Refer to Wheel Alignment Specifications in Wheel Alignment.

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Disclaimer Technical Service Bulletin # **04-01-37-001**

Date: **040106**

A/C - Control Knob Replacement Availability

Bulletin No.: 04-01-37-001

Date: January 06, 2004

INFORMATION

Subject:

HVAC Control Knob Replacement

Models:

2000-2004 All Passenger Cars and Light Duty Trucks

2003-04 HUMMER H2

HVAC Control Knob Availability

Important:

If a knob becomes loose or broken, you **MUST** first check for availability of the control knob before attempting to replace the entire HVAC controller.

The various knobs used on the HVAC controls of most GM vehicles are available for purchase separately from the HVAC head units. If a knob becomes loose or broken, you **MUST** first check for availability of the control knob before attempting to replace the entire HVAC controller. Please use only the labor operation code listed below when replacing an HVAC control knob.

Warranty Information

Labor Operation	Description	Labor Time
C2990	Knob, Control And/Or Shift - One And/Or All - Replace	0.2 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 04-06-04-032

Date: 040428

Fuel System - Fuel Cap Retention When Refueling

Bulletin No.: 04-06-04-032

Date: April 28, 2004

INFORMATION

Subject:

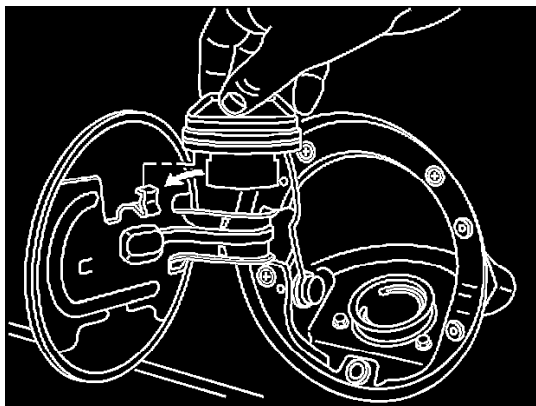
Proper Method to Secure Fuel Cap During Refueling

Models:

2004 Cadillac Escalade, Escalade ESV, Escalade EXT

2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe

2004 GMC Sierra, Yukon, Yukon XL



This bulletin is being issued to inform dealers that there are two different types of fuel caps used on all 2004 full-size pick-ups and utilities with gasoline engines. A threaded design is used with the E-85 5.3L (VIN Z - RPO L59) engine. A 1/4 turn design is used with all other gas engines. The 1/4 turn design has a shorter tether strap and will not allow the customer to drape the fuel cap over the hook on the filler door. However, as designed and per the vehicle's Owners Manual, the cap can be retained in the hook by the lip of the fuel cap.

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Disclaimer Technical Service Bulletin # **05-06-04-043A**

Date: **050802**

Fuel System/Body - Fuel Filler Cap Tether Too Short

Bulletin No.: 05-06-04-043A

Date: August 02, 2005

TECHNICAL

Subject:

Fuel Cap Tether Too Short to Hook On Fuel Door While Fueling Vehicle (Install Fuel Filler Housing and Cap)

Models:

2004-2005 Cadillac Escalade Models

2004-2005 Chevrolet Silverado, Suburban, Tahoe Models

2004-2005 GMC Sierra, Yukon Models

Supercede:

This bulletin is being revised to correct the fuel filler cap P/N.

P/N 15225006 is released for 2006 and 2007 model year vehicles only. The correct fuel cap for the 2004 and 2005 model year is P/N 15225005.

Dealers who currently have P/N 15225006 on order (possibly back-ordered) for this concern should cancel their order and re-order P/N 15225005.

Please discard Corporate Bulletin Number 05-06-04-043 (Section 06 - Engine/Propulsion System).

Plant	Plant Code	VIN Breakpoint
Arlington, TX	VIN Code R	5R230316
Flint, MI	VIN Code F	5F922638
Fort Wayne, IN	VIN Code Z	4Z279906
Janesville, WI	VIN Code J (GMC) VIN Code J (Chevy)	5J226244 5J226273
Oshawa, ON	VIN Code 1	51302641
Pontiac, MI	VIN Code E	5E274724
Silao, MX	VIN Code G	5G234433
Toluca, MX	VIN Code M	5M116355

Built Prior to the VIN Breakpoints shown.

Condition

Some customers may comment that the fuel cap tether is too short to hook on the fuel door while fueling the vehicle.

Cause

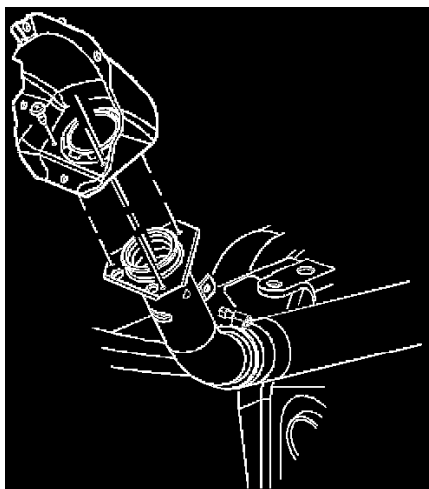
The existing fuel cap tether is too short.

The existing fuel filler housing elongated hole is too small to accommodate the new fuel cap tether.

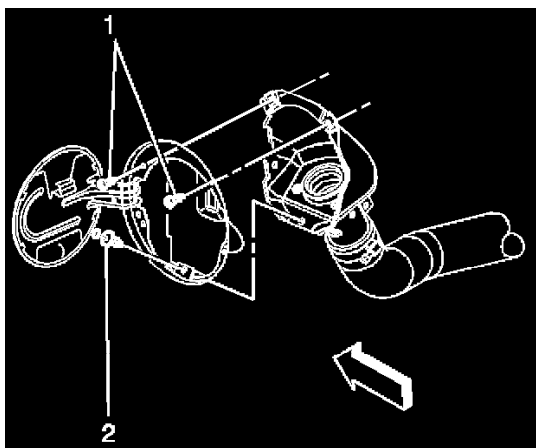
Correction

Important:

Clean the fuel filler cap and surrounding areas prior to removing the fuel filler housing in order to avoid possible contamination.



1. Remove the fuel fill cap.



2. Remove the fuel tank filler housing to fuel tank fill pipe screws.
3. Remove the fuel tank filler housing to body TORX® screws (1) and retainer (2).

Important:

It is NOT necessary to raise the vehicle in order to remove and/or install the fuel filler housing.

4. Remove the fuel filler housing from under the vehicle.
5. Install the new fuel filler housing, P/N 15289921, from under the vehicle.
6. Install the fuel tank filler housing to fuel tank fill pipe screws.

Tighten

Tighten the screws to 2.3 N.m (20 lb in).

7. Install the fuel tank filler housing to body TORX(R) screws and retainer.

Tighten

Tighten the screws to 2.3 N.m (20 lb in).

Important:

The new fuel cap, P/N 15225005 "tether strap" installs in the elongated hole in the fuel filler housing. DO NOT install the new fuel cap tether in the round hole in the fuel filler housing.

8. Install the new fuel cap, P/N 15225005, tether strap in the elongated hole in the fuel filler housing.
9. Install the fuel fill cap on the filler pipe and tighten until the cap clicks.

Part Number	Description	Qty
15225005	Cap, Fuel Filler	1
15289921	Housing, Fuel Filler	1

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
B9753*	Install Fuel Filler Housing and Cap	0.2 hr

*This labor operation is for bulletin use only.

For vehicles repaired under warranty, use the table

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Technical Service Bulletin # **05-08-42-008**

Date: **050610**

Lighting - Fog Lamp Bulb Replacement Precaution

Bulletin No.: 05-08-42-008

Date: June 10, 2005

INFORMATION

Subject:
Information on Damaged Fog Lamp Housings Caused By Incorrect Replacement Bulb

Models:
2002-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
2002-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2002-2005 GMC Sierra, Sierra Denali, Yukon, Yukon XL, Yukon Denali, Yukon Denali XL
with Front Fog Lamps (RPO T96)

Through the analysis of returned warranty parts, GM has found many fog lamp housings replaced under warranty for an overheating condition. The overheating condition observed was the result of incorrect replacement bulbs that exceeded the 27 watt GM specification.

Fog lamp housings will be damaged when bulbs that exceed the 27 watt specification are installed in the housing. Housings damaged by an incorrect bulb are not a warranty item and should not be submitted to GM for reimbursement.

Refer to the GMSPO Parts Catalog for the correct replacement bulbs.

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Technical Service Bulletin # **05-06-01-014**

Date: **050509**

Engine - Oil Leaks In Extreme Cold Temperatures

Bulletin No.: 05-06-01-014

Date: May 09, 2005

TECHNICAL

Subject:

Oil Leak Under Extreme Cold Temperatures (-34°C (-30°F) or Colder) (Install Vented Oil Fill Cap)

Models:

- 2004-2005 Buick Rainier
- 2003-2005 Cadillac Escalade Models
- 2004-2005 Cadillac CTS-V
- 2003-2005 Chevrolet Avalanche, Express, Kodiak, Silverado, SSR, Suburban, Tahoe, TrailBlazer, TrailBlazer EXT
- 2003-2005 GMC Denali Models, Envoy Models, Savana Van Models, Sierra Models, Topkick, Yukon Models
- 2004-2005 Pontiac GTO
- 2005 Pontiac Grand Prix
- 2003-2005 HUMMER H2
- 2003 Isuzu NPR/NQR Commercial Models
- 2003 Work Horse Custom Chassis

with 4.8L, 5.3L, 5.7L or 6.0L Gas Engine (VINs V, M, T, P, B, Z, G, S, U, N - RPOs LR4, LH6, LM7, LM4, L33, L59, LS1, LS6, LS2, LQ4, LQ9)

Condition

Some customers may comment on an engine oil leak under extreme cold temperatures (-34°C (-30°F) or colder). The customer may also comment that there may be some oil seepage out of the engine oil level indicator (dipstick) and/or out of the front or rear crankshaft seals during engine operation only.

Cause

Under extreme cold temperatures (-34°C (-30°F) or colder) and extended driving conditions, the PCV system may experience a freezing condition and shut off all crankcase gases to pass through the PCV system. This may cause crankcase pressure to rise steadily and, in some cases, this high pressure unseats (pushes out) the oil level indicator from the indicator tube and causes an oil leak during engine operation.

Important:

If a visual inspection indicates that oil is still leaking from the front or rear crankshaft seals after this bulletin has been performed, then further diagnosis must be performed using the Oil Leak Diagnosis and/or Crankcase Ventilation System Inspection/Diagnosis in SI. Refer to the following SI document number(s) in this bulletin and print a copy for further assistance in diagnosing this condition.

- ^ Oil Leak Diagnosis (Truck) (SI Document ID #204344)
- ^ Oil Leak Diagnosis (Car) (SI Document ID #1406822)
- ^ Crankcase Ventilation System Inspection/Diagnosis (Truck) (SI Document ID #1246823)
- ^ Crankcase Ventilation System Inspection/Diagnosis (Car) (SI Document ID #954724)

Correction

Follow the service procedure below for diagnosis and correction of this condition.

1. Inspect for the oil fill dipstick being pushed out of the dipstick tube and that there is engine oil seeping out when the engine is under operation. This condition could be caused by the PCV valve freezing shut.
2. If an icing or freezing condition is found with a PCV valve inspection, then replace the oil fill cap with a vented oil fill cap.
3. Use a new vented oil fill cap, P/N 12589430. A vented oil fill cap will regulate the crankcase pressure between 15 kPa and 18 kPa. This will prevent the over pressurization of the crankcase under the freezing conditions of the PCV system. Once the PCV system thaws out, the crankcase gases will pass through the PCV system and normal crankcase pressure will be restored.
4. Inspect the engine oil level. Start and operate the engine under normal conditions and visually inspect that the engine oil leak has been repaired. If another engine oil leak has been detected, then refer to the above mentioned SI Document Numbers for further assistance in repairing the condition.

Part Number	Description
12589430	Cap, Oil Fill (Vented)

Parts Information

Parts are currently available from GMSPO.


Warranty Information

Labor Operation	Description	Labor Time
J 7508*	Cap. Oil Fill (Vented) – Replace	0.3 hr

*This is a unique labor operation for bulletin use only.

For vehicles repaired under warranty, use the table.

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Disclaimer Technical Service Bulletin # 04-08-49-007

Date: 040226

Instruments - Trip Odometer Apparently Inoperative

Bulletin No.: 04-08-49-007

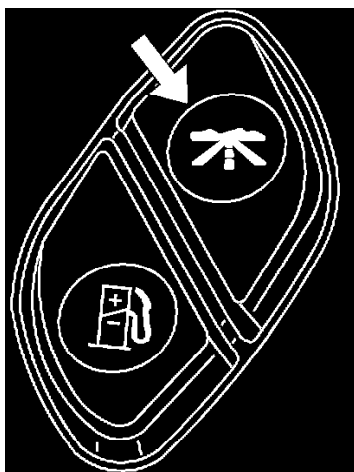
Date: February 26, 2004

INFORMATION

Subject:
Personal Trip/Business Trip Feature - Must be On for Trip Odometer to Accumulate

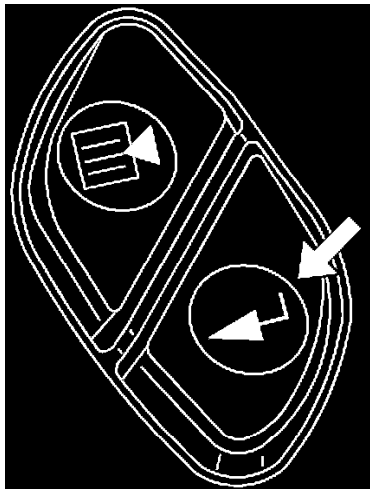
Models:
2003-2004 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2004 GMC Sierra, Sierra Denali, Yukon, Yukon XL, Yukon Denali

The purpose of this bulletin is to prevent the inadvertent replacement of the instrument cluster if a customer comes in to your dealership stating that the trip odometer is inoperative or does not accumulate.



For vehicles with steering wheel controls, the Personal Trip (or Business Trip) feature must be turned On in order for the trip odometer to accumulate.

When the display reads Personal Trip: On (or Business Trip: On), the trip odometer shall accumulate.



The Personal Trip and Business Trip features can be turned on or off by pressing the select button. Refer to Driver Information Center (DIC) in the Owner's Manual for additional information.

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Disclaimer Technical Service Bulletin # **04-08-68-002**

Date: **040901**

Cruise Control - Increasing Set Speed

File In Section: 08 - Body and Accessories

Bulletin No.: 04-08-68-002

Date: September, 2004

INFORMATION

Subject:

Cruise Control Operation - Increasing Set Speed

Models:

2004-2005 Passenger Cars and Light Duty Trucks

This bulletin is being issued to provide dealers with additional information on the increasing set speed function during cruise control operation. The vehicle's Owner's Manual states that the accelerator pedal may be used to increase speed and then establish a new set speed by engaging the set button again. This is true, but the increased speed must be greater than the minimum speed calibrated in the PCM. Minimum speed calibrations vary for each model, depending on which module manufacturer the vehicle is equipped with.

If a customer comes in with a comment that the set button is intermittently inoperative when using it to establish a new set speed, this may be due to the speed increase not being enough. To verify system operation, compare the increased set speed function to another like vehicle. If the operation is similar, then no further work should be performed. If the vehicle does have a condition, then follow diagnostics in Service Information for cruise control set speed operation. The tap up feature for cruise control still will increase vehicle set speed.

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Disclaimer Technical Service Bulletin # **04-03-10-005**

Date: **040723**

Tires/Wheels - Flat Tire Won't Fit on Spare Tire Hoist

Bulletin No.: 04-03-10-005

Date: July 23, 2004

TECHNICAL

Subject:
Flat Road Tire Does Not Fit On Spare Tire Hoist (Replace Hoist Assembly)

Models:
2004 Chevrolet Suburban, Tahoe

with Chevrolet Off-Road Appearance Package (RPO BPH) and Premium 17" Aluminum Wheel (RPO N88)

Condition

Some customers may comment that the flat road tire will not fit on the spare tire hoist.

Cause

A design change made to the hoist does not accommodate the 17" road tire and wheel assembly with the button cap wheel trim (Z71).

Correction

Replace the spare tire hoist assembly.

Part Number	Description
10385565	Hoist Asm – Spare Wheel

Parts Information

Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
E0600	Hold-Down, Spare Tire – Replace	0.4 hr

For vehicles repaired under warranty, use the table.

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Disclaimer
Technical Service Bulletin # 05-03-10-004

Date: 050419

Tire Monitor System - Tire Mounting/Dismounting Cautions

Bulletin No.: 05-03-10-004

Date: April 19, 2005

INFORMATION

Subject:
Tire Pressure Monitoring (TPM) System - Tire Mounting and Dismounting

Models:
2000-2005 Cadillac Deville, Seville, STS
2004-2005 Cadillac CTS-V, Escalade Models, SRX, XLR
1999-2005 Chevrolet Corvette
2004-2005 Chevrolet Tahoe, Suburban
2004-2005 GMC Yukon, Yukon XL, Yukon Denali, Yukon Denali XL

When dismounting and mounting tires, care must be taken when breaking the bead loose from the wheel. If the tire machine's bead breaking fixture is positioned too close to the tire pressure sensor, as the tire bead breaks away from the wheel it may be forced into, or catch on the edge of the tire pressure sensor. This can damage the sensor and require the sensor to be replaced.

Care must also be taken when transferring the tire bead to the other side of the wheel rim. As the tire machine rotates and the tire bead is stretched around the wheel rim, the bead can come in contact with the sensor if it is not correctly positioned in relation to the mounting/dismounting head prior to tire mounting/dismounting. This can also cause sensor damage requiring replacement.

For tire dismounting/mounting, note the following items in order to avoid tire pressure sensor damage. Refer to SI - Tire Mounting and Dismounting section for more information.

Tire Dismounting:

- ^ Place the sensor's cap and valve on a dry clean surface after removal. The cap is aluminum and the valve is nickel plated to prevent corrosion and are not to be substituted with a cap made of any other material.
- ^ When separating the tire bead from the wheel, position the bead breaking fixture 90 degrees from the valve stem.
- ^ Position the mounting/dismounting head so the tire iron, or pry bar can be inserted slightly clockwise of the sensor body when prying the tire bead up and over the mounting/dismounting head.
- ^ Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the outside of the wheel rim.

Tire Mounting:

- ^ Position the mounting/dismounting head 180 degrees from the valve stem.
- ^ Position the bead transition area 45 degrees counterclockwise of the valve stem.
- ^ Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the inside of the wheel rim.

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Disclaimer Technical Service Bulletin # **04-03-10-007E**

Date: **051117**

Tires and Wheels - 20 Inch Wheel/Tire Availability

Bulletin No.: 04-03-10-007E

Date: November 17, 2005

INFORMATION

Subject:
20" Wheels and Tires Available Through GM Accessories

Models:
2002-2006 Cadillac Escalade, Escalade EXT

2003-2006 Cadillac Escalade ESV
 2002-2006 Chevrolet Avalanche (1500 Series Only)
 2000-2006 Chevrolet Suburban, Tahoe (1500 Series Only)
 2000-2006 GMC Yukon, Yukon XL (1500 Series Only)
 2001-2006 GMC Yukon Denali, Denali XL (1500 Series Only)

Excludes the following 2003 vehicles equipped with Active Brake Control (StabiliTrak(R)) (RPO JL4) combined with Vacuum Boost Brake (RPO JC4)

- Chevrolet Tahoe/Suburban
- GMC Yukon/Yukon XL
- Cadillac Escalade (2WD Only)

Excludes 2000~2003** vehicles with Traction Control (RPO NW7) combined with 3.42 Axle Ratio (RPO GU6) (** refer to the Vehicle Modification section of this bulletin for further information)

Supersede:

This bulletin is being revised to add information for setting Tire Type and Pressure for vehicles equipped with TPM. Please discard Corporate Bulletin Number 04-03-10-007D (Section 03 - Suspension).

The purpose of this bulletin is to provide a reference guide for the technician to upgrade a vehicle from factory wheels and tires to 20" wheels and tires, which are available through GM Accessories. This guide will cover Tires, Wheels, Required Vehicle Modifications and Re-programming.

Tires

Important:

The TPC specification for the tire used on the utility vehicles (#1245 MS) is different from the tire used on the pick-ups (#1235 MS). It is important to use the proper tire with the correct TPC specification for the vehicle application.

GM has designed 20" wheels based on the Goodyear Eagle LS2 P275/55R20 tire. The Goodyear Eagle LS2 tire has a *Tire Performance Criteria specification (#1245 MS (utility vehicles only)). This tire has been designed to GM's specific Tire Performance Criteria. GM's Tire Performance Criteria specifications meet or exceed all Federal safety guidelines. When mounting the tires, rubber lubricant, P/N 12345884 (in Canada, P/N 5728223), MUST be used. The vehicle should not be driven aggressively (hard acceleration or braking) for at least 6-8 hours after tire mounting to allow the lube to dry. Failure to do so may cause the tire to slip on the rim. This condition will affect wheel balance which could result in a vibration.

Spare Tire

A P265/75R16 or P265/70R17 tire should be used as a spare. Re-use the vehicle's original spare wheel to mount the spare tire. The spare tire should be used to drive the vehicle to a tire repair/replacement facility and is not intended for extended driving conditions.

Tire Changers

Dealers must have the correct level of tire changing equipment to perform tire changing services. GM requirements and recommendations for servicing glamour wheels are as follows:

- ^ Rim Clamp design
- ^ Runflat capable (preferred)
- ^ Side mounted bead breaking to reduce stress on the wheel and tire
- ^ No metal contact to the wheel at the clamping jaws
- ^ Protective devices to prevent damage during mounting and dismounting operations
- ^ Regulated air pressure to protect user and wheel assembly
- ^ Approved lubricant to avoid wheel slip and damage to the wheel

For further information regarding equipment meeting the requirements for this program, call 1-800-GM-TOOLS.

Balancing

Important:

Many of the 20" wheels available through GM Accessories may not be able to retain stick-on weights due to the excessive angle on the rim.

MC style coated weights are recommended and will provide the best balancing of the tire-wheel assembly. If stick-on weights are used, be sure to follow the manufacturer's recommended installation procedure making sure the surface is clean and dry. Using the incorrect type of weights could result in improper fit, and such weights may fall off the wheel.

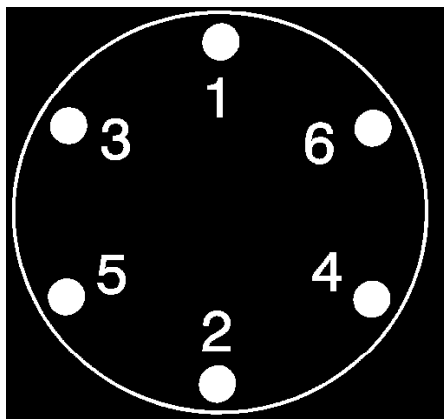
Balancing of the tire and wheel assembly must be performed on a computerized balancer, capable of static and dynamic wheel balance modes. Assemblies should be balanced to within 1/4 ounce on either rim flange. Proper cones and adapters should be used, free of nicks and burrs to ensure proper balancing.

Wheels

Center Cap

Install the center cap onto the wheel after the tire has been mounted and balanced, but BEFORE the assembly is installed onto the vehicle. The preferred method for center cap installation is to push in by hand. As an alternate, use a nonmetallic object to push the center cap into place. Attempting to "hammer-on" the caps may result in damage to the cap.

Wheel (Lug) Nuts



ALUMINUM WHEELS REQUIRE SPECIAL WHEEL NUTS. Each wheel nut should be torqued in the appropriate torque sequence (refer to graphic) and to 190 N.m (140 lb ft). The torque should be re-checked after the first 160 km (100 mi). To help protect the wheels from theft, a wheel lock kit is also available.

Caution:

Incorrect wheel nuts or improperly tightened wheel nuts can cause the wheel to become loose and even come off. This could lead to an accident. Be sure to use the correct wheel nuts.

Wheel Nut Caps

Install the wheel nut caps after tightening the wheel nuts. Install the wheel nut caps finger tight, plus 1/2 turn.

Care/Cleaning

Use soap, hot water and a 100% cotton cloth to clean and polish the new wheels. If using a wheel cleaner, be sure to select one that will not harm the wheel surface, such as GM Chrome and Wire Wheel Cleaner, P/N 1052929 (in Canada, use 10953202). Avoid car washes that use carbide tipped brushes, as these may damage the wheel's finish. Periodically clean the backside of the wheel to remove road grime, brake dust and grease.

Vehicle Modifications

Spare Tire Hoist:

Important:

This modification may be necessary for the following vehicles:

- ^ 2004-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
- ^ 2004-2005 Chevrolet Avalanche, Suburban, Tahoe
- ^ 2004-2005 GMC Yukon, Yukon XL, Denali, Denali XL

- ^ Vehicles Built at Janesville (VIN position 11 - Code J) prior to/including VIN 1GNFK16Z04J331166
- ^ Vehicles Built at Arlington (VIN position 11 - Code R) prior to/including VIN 1GYEK63N95R106116
- ^ Vehicles Built at Silao (VIN position 11 - Code G) prior to/including VIN 3GNEC12T64G335184

Inspect the spare tire hoist. If the hoist plate partially covers the lug holes, a new spare tire hoist is required to stow the 20" wheel in the event of a flat tire. If the spare tire hoist is not changed, the hoist plate will not fit through the center of the 20" wheel and the road flat tire will have to be stowed elsewhere in the vehicle.

Tire Type/Pressure Selection:

To provide a more accurate function of the Tire Pressure Monitoring System, it is necessary to update the PDM (Passenger Door Module) with the correct tire type and pressure information. Using the Tech 2(R), follow the steps listed below to select the appropriate tire type/pressure:

1. Install the scan tool.
2. Turn ignition ON with engine OFF.
3. Enter "Diagnostics" and build vehicle according to model year, vehicle line, etc.
4. Select "Chassis."
5. Select F3: Tire Pressure Monitor.
6. Select F2: Special Functions.
7. Select Tire Type/Pressure.
8. Select P-Metric Standard.
9. Select the front and rear tire pressure as noted on the new vehicle driver door placard sticker for the accessory wheels/tires.
10. Verify that the selections made are correct and press the enter key. The scan tool will flash "Procedure in Progress", then display "Procedure Complete."
11. Press the "exit" key to escape.

Tire Pressure Monitoring System:

Important:

This modification is required on the following vehicles:

- ^ 2004-2006 Cadillac Escalade, Escalade EXT, Escalade ESV
- ^ 2004-2006 Chevrolet Suburban, Tahoe
- ^ 2004-2006 GMC Yukon, Denali, Yukon XL, Denali XL
- ^ 2006 Chevrolet Avalanche

The Tire Pressure Monitor (TPM) system warns the driver when a significant loss of tire pressure occurs in any of the four tires while the vehicle is being driven.

The system uses the passenger door module (PDM), Body Control Module (BCM), driver information center (DIC), instrument panel cluster (IPC), a radio frequency (RF) transmitting pressure sensor inside each wheel/tire assembly and the serial data circuit to perform the system functions.

If the TPM system detects a significant loss of tire pressure, or any of the tire pressures are 25% below the vehicle's recommended tire pressure, the CHECK TIRE PRESSURE warning message is displayed on the DIC and/or the low tire pressure warning indicator is displayed on the IPC, which appears as a cross section of a tire with an exclamation mark inside. Both the DIC message and the IPC indicator can be cleared by adjusting the tire pressures to the recommended kPa/psi. The PDM (Passenger Door Module) has the ability to detect malfunctions within the TPM system. Any malfunction detected will cause the DIC to display the SERVICE TIRE MONITOR warning message.

Tire Pressure Sensors

2004 tire pressure sensors (P/N 15136883-single or 17800063-multi-pack) must be used on 2004 model year vehicles. If 2005/2006 sensors are used on a 2004 vehicle, the PDM will calculate the tire pressure value as half of the actual pressure. This will result in a low tire warning indicator being displayed.

If 2004 sensors are used on a 2005/2006 vehicle, the PDM will calculate the tire pressure value correctly - no low tire warning messages will be displayed.

Important:

- ^ Once the TPM option is enabled in the PDM, it cannot be disabled.
- ^ If transferring the sensors from the OE (original equipment) wheels, the following dismounting and mounting steps should be noted to avoid tire pressure sensor damage.
- ^ After the sensors have been removed from the OE wheels, visually inspect the sensor's sealing grommet for any cuts or damage prior to reinstallation. If any damage is noted, replace the grommet.

Dismounting

- ^ Place the sensors cap and valve on a dry clean surface after removal. The cap is aluminum and the valve is nickel plated to prevent corrosion and are not to be substituted with a cap or valve made of any other material.
- ^ When separating the tire bead from the wheel, position the bead breaking fixture 90° from the valve stem.
- ^ Position the mounting/dismounting head so the tire iron or pry bar can be inserted slightly clockwise of the sensor body when prying the tire bead up and over the mounting/dismounting head.
- ^ Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the outside of the wheel rim.
- ^ Repeat items for inner bead.

Mounting

- ^ Position the mounting/dismounting head 180° from the valve stem.
- ^ Position the bead transition area 45° counterclockwise of the valve stem.
- ^ Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the inside of the wheel rim.
- ^ Repeat items for outer bead.

To avoid system malfunctions, it is necessary to install Tire Pressure Sensors in the 20" wheels. Replacement sensors can be obtained or sensors from the OE wheels can be transferred to the 20" wheels. After the wheels are installed on the vehicle, it is necessary to learn the new sensor identification codes/locations in to the PDM's memory.

The sensor learn procedure must be performed after every tire rotation, sensor replacement, or PDM replacement. Refer to the Owner's Manual.

TPM Sensor Learn Procedure - Using Procedure From Owner's Manual

1. Set the parking brake.
2. Turn the ignition switch to RUN with the engine off.
3. Turn the exterior lamp switch from "Off" to "On" four times within 3 seconds. A double horn chirp will sound and the TPM low tire warning light will begin to flash. The double horn chirp and flashing TPM warning light indicate that the TPM matching process has started. The TPM warning light should continue flashing throughout the matching procedure. The SERVICE TIRE MONITOR message will be displayed on the Driver Information Center (DIC).
4. Start with the left (driver's side) front tire.
5. Remove the valve cap from the valve cap stem. Activate the TPM sensor by increasing or decreasing the tire's air pressure for 10 seconds, then stop and listen for a single horn chirp. The single horn chirp should sound within 15 seconds, confirming that the sensor identification code has been matched to this tire and wheel position. If you do not hear the confirming single horn chirp, you will need to start over with step number one. To let air-pressure out of a tire, you can use the pointy end of the valve cap, a pencil-style air pressure gauge or a key.
6. Proceed to the right (passenger's side) front tire, and repeat the procedure in step 5.

7. Proceed to the right (passenger's side) rear tire, and repeat the procedure in step 5.
8. Proceed to the left (driver's side) rear tire, and repeat the procedure in step 5.
9. After hearing the confirming horn chirp for the left rear tire, check to see if the TPM warning light is still flashing. If yes, turn the ignition switch to OFF.
10. Set all four tires to the recommended air pressure level as indicated on the Certification/Tire label.
11. Put the valve caps on the valve stems.

As an alternative procedure, Diagnostic tool (J 46079 - Tire Pressure Monitor (TPM) System Diagnostic Tool) can be used to activate the sensors after a tire rotation, so the receiver can learn the new sensor locations.

TPM Sensor Learn Procedure - Using Diagnostic Tool J 46079

1. Enable the tire pressure sensor learn mode in the receiver.
2. 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 location.
3. Press and release the "Activate" button. The main display will show moving waves during activation and then the sensor will transmit. The tool will display the sensor's transmission data and signal strength and a horn chirp will sound within 3-5 seconds.
4. After a horn chirp has sounded, proceed as in step 3, to the remaining 3 sensors in the following order:
 - ^ Right Front
 - ^ Right Rear
 - ^ Left Rear
5. After all 4 sensors have been learned, exit the learn mode.

Deflector - I/P Driver Knee Bolster Bracket:

Important:

This modification is required for the following vehicles:

- ^ 2002-2005 Cadillac Escalade
- ^ 2003-2005 Cadillac Escalade ESV
- ^ 2000-2005 Chevrolet Tahoe, Suburban
- ^ 2000-2005 GMC Yukon, Yukon XL
- ^ 2001-2005 GMC Denali, Denali XL
 - 2005 Vehicles Built in Silao (VIN Code G) prior to VIN Breakpoint 3GNEK12295G113554
 - 2005 Vehicles Built in Janesville (VIN Code J) prior to VIN Breakpoint 1GKFK66U05J108965
 - 2005 Vehicles Built in Arlington (VIN Code R) prior to VIN Breakpoint 1GKEC13T25R112946

Important:

A new knee bolster bracket is being installed at the Assembly Plants after the VIN breakpoints. This modification is no longer required on vehicles built after the VIN breakpoints.

Vehicles with the GM Accessory 20" wheel and GM-TPC tire system may perform differently in a frontal collision than vehicles equipped with the original equipment (OE) tires and wheels. With the modified bracket, the vehicle will meet the same Federal Motor Vehicle Safety Standard for frontal collisions as it would with OE tires and wheels.

The following procedure should be followed:

1. Apply the parking brake to prevent the vehicle from moving.

2. Remove the fuse panel cover.
3. Remove the I/P cluster trim plate bezel.
4. Remove the knee bolster.
5. Remove the 2 mm (0.078 in) thick knee bolster deflector.
6. Install the 1.5 mm (0.059 in) thick knee bolster deflector.

A detailed instruction sheet will be provided with the service kit.

Upper Rear Shock Absorber Bolt:

Important:

This modification is required for the following vehicles:

- ^ 2002-2005 Cadillac Escalade, Escalade EXT
- ^ 2003-2005 Cadillac Escalade ESV
- ^ 2002-2005 Chevrolet Avalanche
- ^ 2002-2005 Chevrolet Suburban and Tahoe
- ^ 2002-2005 GMC Yukon, Yukon XL
- ^ 2002-2005 GMC Denali, Denali XL
- ^ Vehicles Built in Silao (VIN Code G) prior to VIN Breakpoint 3GYFK66N04G169314
- ^ Vehicles Built in Janesville (VIN Code J) prior to VIN Breakpoint 1GKEK63UX5J101151
- ^ Vehicles Built in Arlington (VIN Code R) prior to VIN Breakpoint 1GKEK13T45R114247

Important:

Shorter rear shock absorber bolts are being installed at the Assembly Plants after the VIN breakpoints. This modification is no longer required on vehicles built after the VIN breakpoints.

Both rear upper shock absorber bolts must be turned so the head of the bolt faces outward. This modification will ensure adequate clearance to the tires. The following procedure should be followed for this modification:

1. Remove the wheel-house liner to gain access to the upper rear shock absorber nut/bolt.
 2. Support the rear axle.
 3. Remove the rear upper shock absorber nut and bolt.
 4. Reposition and install the upper shock bolts so that the head of the bolt faces outward.
 5. Install the nut.
- Tighten
- Tighten bolt to 95 N.m (70 lb ft).
6. Reinstall the wheel-house liner.
 7. Remove the support from the rear axle.

** 2003 Vehicles Equipped with Traction Control (RPO NW7) combined with a 3.42 Axle Ratio (RPO GU6)

Important:

The 2004 ABS module is not compatible with the brake systems of the 2000-2002 model year vehicles.

2003 Model Year vehicles ONLY, may be equipped with 20" wheels if the EBCM (Electronic Brake Control Module) is replaced. The 2004 EBCM should be installed. This module will NOT work on 2000-2002 Model Year vehicles. Failure to replace the EBCM will cause DTC C0279 to set.

Tire Label:

After installing the recommended P275/55R20 tires, place the provided tire label on the vehicle. The tire label should be located on the door jam, near the original tire label, and should not cover up the original tire label. Be sure that the surface is clean and dry. The surface temperature should not be less than 21°C (70°F). The label is provided as a guide for tire inflation pressures and information relevant to occupant/cargo capacities.

Owner's Manual Insert:

An Owner's Manual insert (Buying New Tires for Plus-Size Wheels) is provided to give instructions for the selection of proper replacement tires. Place the insert in the Owner's Manual over the original "Buying New Tires" instructions.

Re-Programming

Important:

For proper vehicle operation and to insure coverage under the provisions of the new vehicle warranty, the vehicle must be reprogrammed with the correct calibration as soon as the 20" wheels are installed.

2000 Model Year Utilities	2001-2002 Model Year Utilities	2003 Model Year Utilities	2004 Model Year Utilities	2005 Model Year Utilities	2006 Model Year Utilities
	12589876 — GU4 (3.08)	12589880 — GU4 (3.08)	12589884 — GU4 (3.08)	12593917 — GU5 (3.23)	12601282 — GU5 (3.23)
12589873 — GU6 (3.42)	12589877 — GU6 (3.42)	12589881 — GU6 (3.42)	12589885 — GU6 (3.42)	12593918 — GU6 (3.42)	12601283 — GU6 (3.42)
12589874 — GT4 (3.73)	12589878 — GT4 (3.73)	12589882 — GT4 (3.73)	12589886 — GT4 (3.73)	12593919 — GT4 (3.73)	12601284 — GT4 (3.73)
12589875 — GT5 (4.10)	12589879 — GT5 (4.10)	12589883 — GT5 (4.10)	12589887 — GT5 (4.10)	12593920 — GT5 (4.10)	12601285 — GT5 (4.10)

It will be necessary to reprogram the PCM for speedometer accuracy. Contact Techline to obtain a VCI number. Then refer to the table shown for the appropriate calibration part number based on the model year and axle ratio.

Calibration Information Documentation

1. Make a copy of the "Accessory Wheel and Tire Information Form" shown in this bulletin.

VIN: _____	
Original Equipment: VCI #: _____	Tire & Wheel Size: _____
Accessory Equipment: VCI #: _____ Tire & Wheel Size: _____	
<p>Important: Please store this form in the vehicle with your Owner's Manual. A record of this form will also be kept on file at your Servicing Dealer.</p>	

2. Provide all information required on the form shown.
3. Make a copy of the completed form for the customer to keep in the vehicle along with their Owner's Manual.
4. File the original completed form in the Dealership's Vehicle Service History folder.

Important:

Because this is not a warranty repair, dealers will incur a charge to obtain a VCI number.

Important:

A VCI number will not be available for vehicles equipped with the following options:

- ^ EXCLUDES 2003 vehicles equipped with Active Brake Control (StabiliTrak(R)) (RPO JL4) combined with Vacuum Boost Brake (RPO JC4)
- ^ EXCLUDES 2000-2003** vehicles equipped with Traction Control (RPO NW7) combined with a 3.42 Axle Ratio (RPO GU6) (** refer to the Vehicle Modification section of this bulletin for further information)

There is a tire size value in the ABS module that must also be updated using the Tech 2. Use the following path to update the ABS module: Diagnostics>Mode/Year>Vehicle Type>Chassis>Product Line>GVW>ABS>Special Functions>Tire Size Calibration>Verify VIN>Select New Tire Size.

Important:

If original equipment tires/wheels are reinstalled, it will be necessary to reset the programming of the PCM and the ABS module to the original specifications. For those vehicles equipped with VSES, it will be necessary to update the tire size in the VSES module.

YAW RATE REFERENCE TABLE RESET PROCEDURE

This section applies only to those vehicles equipped with Vehicle Stability Enhancement System (VSES) - RPO JL4.

The characteristics of a specific vehicle, that affect vehicle handling or input signals to the electronic brake control module (EBCM), ultimately determine how the VSES operates. Adaptive learning is accomplished by maintaining a yaw rate sensor/lateral accelerometer data table in the EBCM memory. As the vehicle is operated, the table is populated with data that is later referenced, and sometimes modified, to allow the EBCM to provide the best possible stability control for the specific vehicle.

Important:

Different size tires may cause the data stored in the table to become unreliable. Therefore, the yaw rate reference table reset procedure must be performed.

The following procedure should be followed to reset the yaw rate reference table. This procedure should only be used on vehicles equipped with VSES - RPO JL4.

1. Turn OFF the ignition.
2. Disconnect the yaw rate sensor/lateral accelerometer harness connector.
3. Start the engine.
4. Apply firm and steady pressure to the brake pedal for at least 10 seconds.
5. Turn OFF the ignition.
6. Reconnect the yaw rate sensor/lateral accelerometer harness connector.
7. Turn ON the ignition and use the scan tool to clear the DTCs.

20" Wheels

Style #	Single Sets		Multi-Packs	
Wheel Name	Part No.	Pcs./Pack	Part No.	Pcs./Pack
CK793	88962793	1	12499371	4
CK795	88962795	1	12499372	4
CK797	88962797	1	12499373	4
CK799	88962799	1	12499374	4

CK801	88962801	1	12499375	4
CK803	88962803	1	12499376	4
CK805	88962805	1	12499377	4
CK807	88962807	1	12499378	4
CK809	88962809	1	12499379	4
CK040	17801040	1	17801041	4
CK360	17800360	1	17800361	4
CK363	17800363	1	17800364	4
CK628	17800628	1	17800629	4
CK631	17800631	1	17800632	4

		Single-Set		Multi-Pack	
Part Description		Part No.	Pcs./Pack	Part No.	Pcs./Pack
Lug Nut Caps	Black	15646250	1	12499311	24
	Chrome	15045768	1	12499427	24
	Polished Stainless	88963146	1	12499426	24
	Brushed — Chevrolet	15766002	1	12499304	4
	Brushed — GMC	88961684	1	12499305	4
	Polished — Chevrolet	88963139	1	12499421	4

Center Caps	Polished — GMC	88963140	1	12499422	4
	Chrome — Chevrolet	88963143	1	12499424	4
	Chrome — GMC	88963144	1	12499425	4
	Chrome — Cadillac	88963142	1	12499423	4
Valve Stem Caps		—	—	09591607	4
Lug Nuts		—	—	09591772	24
Wheel Lock Kit		12497479	1	—	—
Knee Bolster Bracket		—	—	12499966	1
Spare Tire Hoist		17800115	1	—	—
Tire Labels		—	—	17800463	20
Tire Pressure Sensors	2004 Model Year	15136883	1	17800063	16
	2005/2006 Model Year	15114379	1	17800786	16

Parts Information

Warranty Information

Wheels

All GM Accessories sold and permanently installed on a GM vehicle PRIOR to new vehicle delivery will be covered under the provisions of the New Vehicle Limited Warranty.

For the U.S., in the event GM Accessories are installed AFTER the New Vehicle Delivery, or are replaced under the New Vehicle Warranty, they will be covered (parts and labor) for the balance of the vehicle warranty, but in no event less than 12 months/12,000 miles. This coverage is only effective for GM Accessories permanently installed by a GM dealer or a GM approved ADI (Accessory Distributor / Installer).

For Canada, in the event GM Accessories are installed AFTER the New Vehicle Delivery, they will be covered (parts and labor) for the balance of the vehicle warranty, or up to 12 months/Unlimited kilometers depending on month installed. For replacement under New Vehicle Warranty, refer to claim type "B" guidelines.

GM Accessories sold over the-counter, or those not requiring installation, will continue to receive the standard GM Dealer Parts Warranty of 12 months from the date of purchase (parts only).

Tires

Any approved tire installed on a GM Vehicle PRIOR to delivery will be covered under the provisions of the New Vehicle Limited Warranty. Tires are covered against defects in material and workmanship. Tires are warranted for defects "without" prorated charge for tread mileage. Subsequent replacements under this warranty will continue to be covered for the remainder of the New Vehicle Limited Warranty.

Any approved tire installed on a GM Vehicle PRIOR to delivery may continue to be warranted on a prorated basis by the tire manufacturer once the New Vehicle Limited Warranty expires.

Any approved tire installed AFTER delivery will be covered under the provisions of the tire manufacturer warranty.

USA dealers should refer to GM Warranty Administration Bulletin 00-03-10-003I and GM Parts Process I Policy Bulletin 1B03-00I for more information.

Canadian dealers should refer to GM Warranty Administration Bulletin 01-03-10-003B.

GM Warranty Claims Processing

Only GM dealerships have the ability to file warranty claims for GM Parts and Accessories. Therefore, any warranty claims filed against such parts must be handled by the servicing GM dealership. This includes those parts purchased from a GM-approved ADI (Accessory Distributor / Installer).

ACCESSORY WHEEL AND TIRE INFORMATION FORM

You have just modified your vehicle by installing an "Accessory Package" which includes Wheels and Tires. This form contains important information about your accessory installation. In an effort to provide superior service to you, our customer, we ask that you please present the form to your Servicing Dealer when removing or installing wheels and tires on your vehicle. The form contains important information necessary to service your vehicle.

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Disclaimer Technical Service Bulletin # **06-03-10-004**

Date: **060301**

Tires/Wheels - Wheel Weight Usage Precautions

Bulletin No.: 06-03-10-004

Date: March 01, 2006

INFORMATION

Subject:

Proper Use of OEM Service Wheel Weights, Marring and/or Damage Due to Use of Non-OEM and/or Incorrect Wheel Weight Installation

Models:

2007 and Prior GM Cars and Light Duty Trucks

2003-2007 HUMMER H2

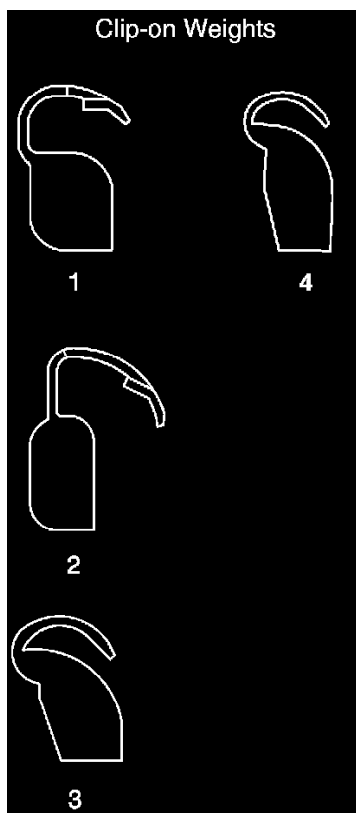
2006-2007 HUMMER H3

2005-2007 Saab 9-7X

Note:

It is critical to use the proper OEM wheel weights when service requires balancing of the tire/wheel assemblies. Failure to use the proper OEM wheel weights may result in damage/marring to the wheel assembly that will NOT be covered under the vehicles warranty.

Service OEM wheels weights are currently available from GMSPO.

**Important:**

When balancing factory aluminum wheels with clip-on wheel balance weights, be sure to use special polyester-coated weights. These coated weights reduce the potential for corrosion and damage to aluminum wheels.

These coated weights reduce the potential for corrosion and damage to aluminum wheels.

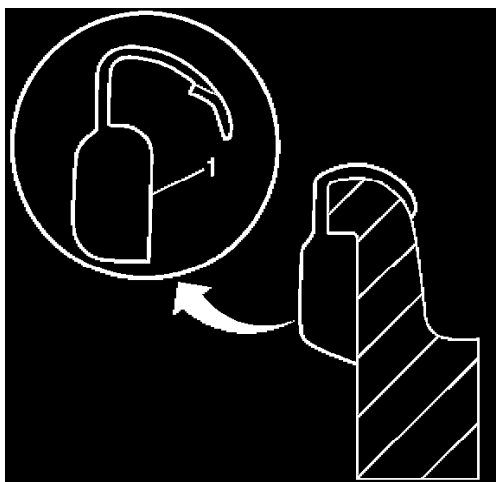
^ MC (1) and AW (2) series weights are approved for use on aluminum wheels.

^ P (3) series weights are approved for use on steel wheels only.

^ T (4) series coated weights are approved for use on both steel and aluminum wheels.

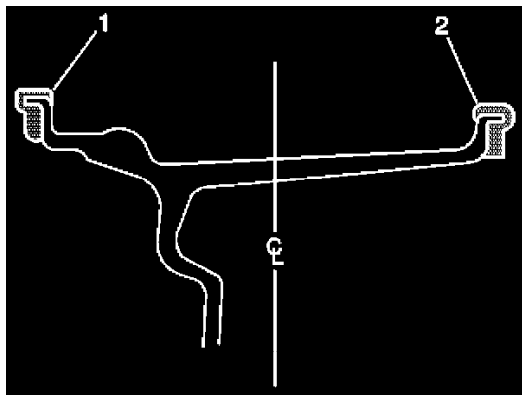
Important:

Use a nylon or plastic-tipped hammer when installing coated clip-on wheel balance weights to minimize the possibility of damage to the polyester coating.



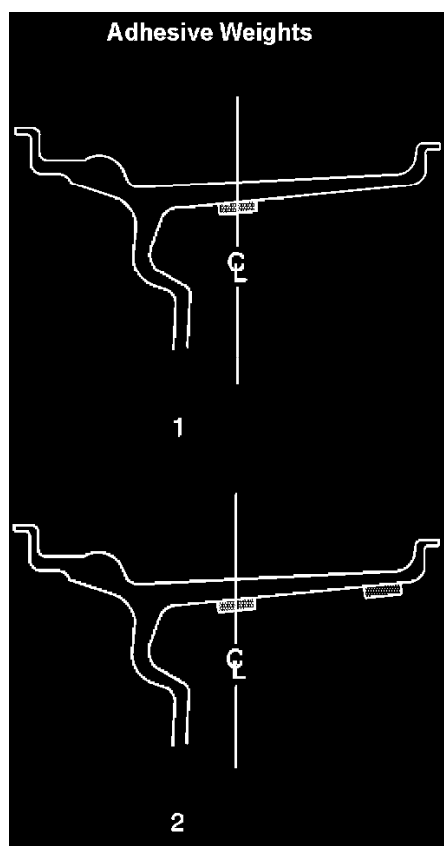
The contour and style of the wheel rim flange will determine which type of clip-on wheel weight (1) should be used. The weight should follow the contour of the rim flange. The weight clip should firmly grip the rim flange.

Wheel Weight Placement - Clip-on Weights



When static balancing, locate the wheel balance weights on the inboard flange (2) if only 28 g (1 oz) or less is called for. If more than 28 g (1 oz) is called for, split the weights as equally as possible between the inboard (2) and outboard (1) flanges.

When dynamic balancing, locate the wheel balance weights on the inboard (2) and outboard (1) rim flanges at the positions specified by the wheel balancer.



Important:

When installing adhesive balance weights on flangeless wheels, do NOT install the weight on the outboard surface of the rim. Adhesive wheel balance weights may be used on factory aluminum wheels.

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Date: March 29, 2006

INFORMATION

Subject:
Urethane Adhesives for Stationary Glass and Other Applications

Models:
2007 and Prior GM Passenger Cars and Trucks (Including Saturn)
2007 and Prior Isuzu Trucks
2003-2007 HUMMER H2
2006-2007 HUMMER H3

Supercede:

This bulletin is being revised to update the models and model years and update the information for Canada. Please discard Corporate Bulletin Number 02-08-48-001A (Section 08 - Body and Accessories).

Effective with the sale of existing stock, General Motors will no longer offer the URETHANE ADHESIVE KIT P/N 12346392 (which includes all associated primers). Until this stock is depleted, the GM kit is still recommended. In Canada, the GM Urethane Adhesive Kit, P/N 10952983, which includes all associated primers, is also being discontinued and will no longer be available after current stock is depleted. It is anticipated that stock will be exhausted no later than May 21, 2006.

As an alternative to the GM Kit for bonded glass installation AND some exterior body panels on specific GM vehicles, various aftermarket materials are recognized as meeting the equivalent of the GM performance specification. This specification (GM 3651G, recently updated) outlines material performance requirements and tests for adhesive manufacturers who develop and manufacture Stationary Glass Urethane adhesives.

Those products currently recognized as meeting those equivalencies are as follows:

- ^ Dow Automotive (Essex) 400HV (one part and requires associated primers)
- ^ Dow Automotive (Essex) U216 (two part and requires associated primers) Call Dow Automotive at 1-800-453-3779 for more information.
- ^ 3M(TM) "Fast Cure" Auto Glass Urethane (one part and requires associated primers) Call 3M(TM) at 1-877-666-2277 for more information.

Any use of these materials should be done as a system by the specific manufacturer. DO NOT intermix primers or adhesives from one manufacturer to another.

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Disclaimer Technical Service Bulletin # **04-08-44-020C**

Date: **051109**

Audio System - CD Player Long Load Time/Error Message

Bulletin No.: 04-08-44-020C

Date: November 09, 2005

TECHNICAL

Subject:
CD Player Long Load-to-Play Time, Error Message, CD Does Not Return to Previous Track, CD Does Not Play, CD Does Not Eject, CD Stuck in Player, Radio Will Not Accept CD (Reprogram Radio)

Models:
2004-2005 Buick Rainier
2004-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
2004-2005 Chevrolet Avalanche, Express, Silverado, Suburban, Tahoe, TrailBlazer, TrailBlazer EXT
2004-2005 GMC Envoy, Envoy XL, Envoy XUV, Savana, Sierra, Sierra Denali, Yukon, Yukon Denali, Yukon XL, Yukon XL Denali
2004-2005 HUMMER H2

with CD Player Radio (RPOs UB0 or UB1)

Supersede:

This bulletin is being revised to add 2004 model year. Also, additional conditions and correction information have been provided. Please discard Advance SI Resolution Bulletin Number 04-08-44-020B (Section 08 - Body and Accessories).

Condition

Some customers may comment on one of the following conditions:

- ^ Long CD load-to-play time
- ^ CD ejects with an error message of "CHECK CD"
- ^ CD does not return to previous track after an ignition cycle
- ^ Clock resets to 12:00
- ^ CD does not play
- ^ CD does not eject
- ^ CD stuck in CD player
- ^ Radio will not accept CD

Cause

A software anomaly within the radio has been found.

Correction

If the customer comments that the CD does not eject or the CD is stuck in the CD player, or the radio will not accept the CD, prior to programming the radio, perform the following steps.

1. Turn off the ignition.
2. Remove the radio fuse for a minimum of 30 seconds.
3. Reinstall the fuse, turn on the ignition and the radio.
4. Attempt to remove the CD by using the eject button or attempt to insert the CD.
5. If the CD was successfully removed or the radio accepted the CD, then proceed with reprogramming.
6. If the CD was not successfully removed or the radio did not accept the CD, then the radio must be removed for repair at an authorized Electronic Service Center.

Reprogram the radio with an updated software calibration. This new service calibration was released with TIS satellite data update version 10.0 available October 3, 2005. As always, make sure your Tech 2(R) is updated with the latest software version. Prior to entering TIS2000, enter the VIN into GMVIS to obtain the RPO codes of the radio and speaker configuration for the vehicle. This will allow for the correct calibration selection. Selecting the incorrect calibration for the vehicle configuration can damage the radio and lead to unnecessary delays in repair time. Once programming is completed, wait at least one minute after key-off to allow the radio to accept the new calibration.

Important:

TIS programming supports two calibrations for radios with the UQA amplifier on the S/T models. Prior to selecting the calibration, determine if the amplifier is class 2 or non-class 2. Use the Tech 2(R) and the following path.

1. Connect the Tech 2(R) to the vehicle and power on.
2. Select "Diagnostics" from the menu.
3. Build the vehicle from the menu options.

4. Select "Diagnostic Circuit Check" from the menu.
5. Select "Class 2 Message Monitor" from the menu.

If the amplifier appears on the class 2 message monitor screen, then the calibration for a class 2 amplifier needs to be selected. If the amplifier does not appear on the screen, then the calibration for a non-class 2 amplifier needs to be selected. Selecting the wrong calibration will result in reduced or no radio volume.

Also, please advise the customer that home-burned CDs must be burned with a "closed session" or the formatting will be incomplete and the player will not read the CD. CDs should NOT have adhesive paper labels affixed to them as the labels may lift off in the player.

Warranty Information

Labor Operation	Description	Labor Time
R0125*	Radio – Reprogram	0.4 hr

For vehicles repaired under warranty, use the table.

* This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

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Disclaimer Technical Service Bulletin # **05-08-44-029A**

Date: **060213**

Audio System - Radio Knob Availability

Bulletin No.: 05-08-44-029A

Date: February 13, 2006

INFORMATION

Subject:
Radio Knobs Available for Service

Models:
2006 and Prior Buick Rainier, Rendezvous, Terraza
2006 and Prior Cadillac Escalades, CTS, SRX, STS, XLR
2005 and Prior Chevrolet Impala, Monte Carlo
2006 and Prior Chevrolet Avalanche, Aveo, Cobalt, Colorado, Corvette, Equinox, Malibu, Optra, Silverado, SSR, Suburban, Tahoe, TrailBlazers, Uplander
2006 and Prior GMC Canyon, Envoys, Sierra, Yukons
2006 Pontiac Torrent
2006 and Prior Pontiac G6, Montana SV6, Pursuit (Canada), Vibe, Wave (Canada Only)
2005 and Prior Saturn ION, L Series, VUE
2006 and Prior Saturn Relay
2006 and Prior Saab 9-7X

Supersede:

This bulletin is being revised to update the models and add an Important statement. Please discard Corporate Bulletin Number 05-08-44-029 (Section 08 - Body and Accessories).

Important:

Because some vehicles offer more than one radio option, please verify with your ESC that the knobs are available for the particular type of radio

you are servicing.

This bulletin is being issued to advise technicians and service personnel that some radio knobs can be serviced without removal of the radio. Many radios have been returned with damaged/discolored knobs that could have been replaced at the dealership. Refer to the table below for usages.

Important:

Radio buttons (for momentary contact switches, i.e. radio preset buttons) are NOT serviceable at the dealer level.

Parts Information

Radio knobs can be obtained from your Electronic Service Center (ESC). Saturn Retailers in the U.S. should order these parts through Saturn Service Parts. Saab radio knobs can be obtained through normal Saab parts ordering procedures. Please provide the model (part) number of the radio and the function of the knob when ordering.

Warranty Information

Labor Operation	Description	Labor Time
R9712*	Radio Knobs – Replace	0.2 hr
*This labor operation number is for bulletin use only. It will not be published in the Labor Time Guide.		


For vehicles repaired under warranty, use the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason	Location Code	Warranty Type	Repair/Action Code	Labor Time
3671004	Radio Knobs – Replace	36710	31	0	01	05	0.2 hr

For vehicles repaired under warranty, use the table.

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WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Disclaimer
 Technical Service Bulletin # 03-07-30-043A

Date: 060525

A/T - Shift Lock Control Feature Function

Bulletin No.: 03-07-30-043A

Date: May 25, 2006

INFORMATION

Subject:
 Information Regarding Automatic Transmission Shift Lock Control Function

Models:

2007 and Prior Passenger Cars and Trucks (Including Saturn)

2007 and Prior HUMMER H2, H3

2005-2007 Saab 9-7X

with Automatic Transmission

Supercede:

This bulletin is being revised to add models and model years. Please discard Corporate Bulletin Number 03-07-30-043 (Section 07 - Transmission/Transaxle). This bulletin is being issued to better explain how the Automatic Transmission Shift Lock Control (formerly known as Brake Transmission Shift Interlock (BTSI)) feature is intended to operate. Revised wording regarding the shift lock control system began appearing in the Owner Manuals beginning with the 2004 model year.

The shift lock control feature was intended to prevent drivers from shifting out of Park with the vehicle running without the brakes applied. However, if the ignition switch is in the Accessory (ACC) position, it may be possible on some vehicles to move the shift lever out of Park WITHOUT first activating the brake.

The shift lock control system is ONLY active when the ignition switch is in the RUN or ON position. This means that when the ignition switch is in the RUN or ON position, the shift lever cannot be moved out of the Park position without activating the brake.

Some owners may feel that the shift lock control system prevents an unattended child from moving the vehicle. Please stress to owners, as stated in the Owner Manual, that children should NEVER be left unattended in a vehicle, even if the ignition key has been removed from the vehicle.

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Disclaimer Technical Service Bulletin # **04-01-38-010**Date: **040809****A/C - Low Pressure Switch Diagnosis**

Bulletin No.: 04-01-38-010

Date: August 05, 2004

INFORMATION

Subject:

Diagnostic Information to Accurately Diagnose A/C Low Pressure Switch Using New Kent Moore Special Tool GE-47742

Models:

2002-2005 Cadillac Escalade, Escalade EXT

2003-2005 Cadillac Escalade ESV

2002-2005 Chevrolet Avalanche

1999-2005 Chevrolet Silverado

2000-2005 Chevrolet Suburban, Tahoe

1999-2005 GMC Sierra

2000-2005 GMC Yukon, Yukon XL

2001-2005 GMC Sierra Denali, Yukon Denali XL

with Air Conditioning

Currently technicians cannot accurately determine the air conditioning (A/C) low pressure switch open/close pressure point by measuring pressure at the low side service port. This is because the evaporator is between the low side service port and the A/C low pressure switch. Correlating pressures measured at the low side service port to actual pressures at the A/C low pressure switch port is difficult because of the multiple variables that impact pressure drop across the evaporator. Providing a pressure range that would take into account all these variables would result in a pressure range that would be too broad to be useful for diagnostic purposes. Kent Moore special tool GE-47742 will allow technicians to monitor the actual pressures at which the A/C low pressure switch opens and closes under actual operating conditions.

Technicians are to use the following steps to install and use Kent Moore special tool GE-47742 to measure A/C low pressure switch opening and closing pressures:

1. Disconnect the wire harness from the A/C low pressure switch.
2. Remove the A/C low pressure switch from the accumulator.
3. Install the A/C low pressure switch, using the threaded port with an O-ring, onto special tool GE-47742.
4. Install special tool GE-47742, with the A/C low pressure switch attached, onto the accumulator.

Important:

Removing the seal from the A/C low pressure switch wire harness connector is required. Failure to remove the seal before plugging it into the switch will lead to misdiagnosis. The "plunger effect" of plugging the connector with a seal into the A/C low pressure switch induces a pressure on the back side of the switch. This pressure will skew the opening/closing characteristics of the switch 34-69 kpa (5-10 psi) until the pressure bleeds off. The time required for the connection induced pressure to bleed off can be 20 minutes or longer.

5. Remove the seal from the A/C low pressure switch wire harness connector.
6. Connect the wire harness, without the seal, to the A/C low pressure switch.
7. Connect the low side service hose from the ACR2000(R) to the service port on special tool GE-47742.
8. Connect a Tech2(R) to the vehicle.
9. Start the vehicle and maintain an engine speed of 1500 RPM. Set the HVAC controls as follows:
 - ^ Set the A/C control switch to ON.
 - ^ Set the mode control switch to A/C and engage recirculation mode.
 - ^ Set the blower motor speed to LOW.
 - ^ Set the temperature control to full cold.
 - ^ Set the auxiliary blower motor speed to LOW. If equipped.
 - ^ Set the auxiliary temperature control to full cold. If equipped.
 - ^ The vehicle must be operating with no sun load (in the shade).
10. Use the Tech2(R) to determine the A/C low pressure switch status and the ACR2000(R) to determine the A/C low side pressure. Simultaneously monitor the switch status and the pressure at which the A/C low pressure switch opens and closes. The Tech2(R) will display switch status as "Normal" for Closed and "Low Pressure" for Open. A properly operating switch should open between 138-172 kpa (20-25 psi) and close between 275-317 kpa (40-46 psi).
11. Remove special tool GE-47742 after diagnosis is complete.

12. Install a new O-ring on the A/C low pressure switch port on the accumulator. Lightly coat the new O-ring seal with mineral base 525 viscosity refrigerant oil.
13. Install the A/C low pressure switch onto the accumulator.

Tighten

Tighten the A/C low pressure switch to 6 N.m (44 lb in).

Important:

Remember to install the seal back onto the A/C low pressure switch wire harness connector. Failure to replace the seal could result in terminal corrosion.

14. Reconnect the wire harness to the A/C low pressure switch.

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Disclaimer Technical Service Bulletin # 02-05-22-004C

Date: 050405

Electrical - Trailer Brakes Apply With Headlamps ON

Bulletin No.: 02-05-22-004C

Date: April 05, 2005

TECHNICAL

Subject:

Trailer Brakes Applied When Headlights/Park Lamps Are On, Brake Controller Illumination (Modify Brake Controller Wiring Harness)

Models:

2002-2005 Cadillac Escalade, Escalade EXT

1999-2005 Chevrolet Silverado

2000-2005 Chevrolet Suburban, Tahoe

2002-2005 Chevrolet Avalanche

1999-2005 GMC Sierra

2000-2005 GMC Yukon, Yukon XL

2003-2005 HUMMER H2

Supercede:

This bulletin is being revised to add additional model years. Please discard Corporate Bulletin Number 02-05-22-004B (Section 05 - Brakes).

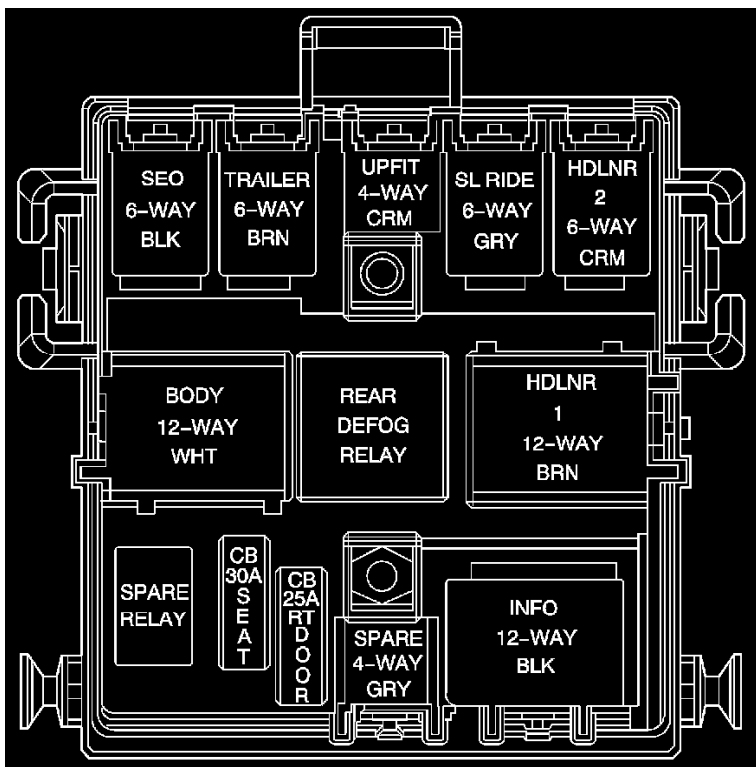
Condition

Some customers may comment that when the headlamps or park lamps are on, the brakes on the trailer are always applied, or that the back lighting for the trailer brake controller only illuminates when the brakes are applied.

Cause

The cause of this condition may be due to wiring changes within the vehicle electrical system for the 2003 model year.

Correction



Inspect the brake controller wiring harness jumper that is plugged into the vehicle relay block-body. The relay block-body is located under the left side of the instrument panel near the left kick panel, behind a plastic cover.

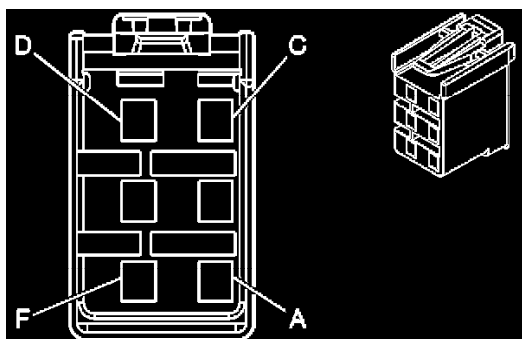
The 1999 through early 2003 wiring harness jumper that plugs into the relay block will have a reddish/brown 6-way connector and a tag with the last four digits of the wiring harness part number. Second design 2003-05 may have a white plastic connector with part number 5418 as well.

^ The 1999 jumper is/was P/N 12171982 with a pink/purple tag identifier of 1982. This number has been superseded to 15366255, with a pink/purple tag identifier of 6255.

^ The 2000 jumper harness is P/N 15366255. The pink/purple tag identifier is 6255.

^ The 2001-2002 jumper is P/N 15086884. The orange tag identifier is 6884.

^ The 2003-05 jumper is P/N 15085418. The orange tag identifier is 5418.



When transferring the brake controller with the wiring jumper attached from a 2001-2002 vehicle to a 2003-05 vehicle, a change to the jumper harness connector must be performed.

Pin	Wire Color	Circuit Number	Function
A	LT BLUE	1620	Stop lamps
B	RED	142	Brake controller 12 volt source
C	DK BLUE	47	Brake Controller output (Trailer Brakes)
D	BROWN	2409	Brake controller illumination
E	—	—	—
F	BLACK	1850	Ground

The following information is for the 2003–05 wiring harness.

Pin	Wire Color	Circuit Number	Function
A	BROWN	2409	Brake controller illumination
B	RED	242	Brake controller 12 volt source
C	DK BLUE	47	Brake Controller output (Trailer Brakes)
D	LT BLUE	1620	Stop Lamps
E	—	—	—
F	BLACK	1850	Ground

The information shown is for the 1999-2002 wiring harnesses and for the 2003-05 wiring harness.

To modify a 12171982, 15366255 or 15086884 harness for use in a 2003-05 vehicle, switch the wires in cavities "A" and "D".

To modify a 15085418 harness for use in a 1999-2002 vehicle (see model list at the front of this bulletin for applicable models), switch the wires in cavities "A" and "D".

Warranty Information

When the correct wiring harness P/N is matched to the specific model year of the vehicle, everything works properly.

Therefore, conversion of an incorrect wiring jumper to match the vehicle would not be considered a warrantable repair.

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A/C - HVAC Module External Seal Kit Availability

Bulletin No.: 04-01-38-018

Date: November 30, 2004

INFORMATION

Subject:
 HVAC Module External Seal Kit Now Available For Service Use

Models:
 2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
 2003-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe
 2003-2005 GMC Sierra, Yukon, Yukon XL

with Air Conditioning (RPOS CJ2 and CJ3)

The purpose of this bulletin is to inform dealer technicians that the external Heating, Ventilation and Air Conditioning (HVAC) module seals are now available for service use. The individual external module seals are not available separately. They are only available as part of the seal kit. The seal kit, P/N 89024877, consists of the following seven parts:

- ^ A/C Evaporator Case Drain Tube Seal
- ^ A/C Evaporator Seal
- ^ A/C Evaporator Tube Seal
- ^ Air Distribution Case Seal
- ^ Air Inlet Valve Seal
- ^ Heater and A/C Evaporator and Blower Module Seal
- ^ Heater Core Tube Seal

Part Number	Description	Qty
89024877	Seal Kit, Heater & A/C Evaporator & Blower Module	1

Parts Information

Parts are currently available from GMSPO.

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Disclaimer Technical Service Bulletin # **05-08-50-008**

Date: **050819**

Interior - Intermittent Seat Heater Operation

Bulletin No.: 05-08-50-008

Date: August 19, 2005

TECHNICAL

Subject:
Intermittent Heated Seats Inoperative, DTC B3941 Set (Reprogram Driver Seat Module)

Models:
2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2005 GMC Sierra, Yukon, Yukon XL, Yukon Denali

All with Seat FRT, Individual (Non BKT) (RPO AN3)

2003-2005 HUMMER H2 with Seat, Front Bucket Deluxe (RPO AR9)

Condition

Some customers may comment that occasionally the seat heater will not operate when activated. If the ignition key is cycled OFF and back ON again, the heated seat will operate correctly. Also, on some LB7 diesel engine vehicles, the seat heater may turn itself off during the first 10 minutes of operation. This occurs only with the first activation for the day and works correctly with subsequent activations immediately after the event. These conditions are intermittent and DTC B3941 may be set.

Correction

Technicians are to reprogram the driver seat module with an updated software calibration. This new service calibration was released with TIS satellite data update version 6.5 available June 13, 2005. As always, make sure your Tech 2(R) is updated with the latest software version.

Labor Operation	Description	Labor Time
N9524*	Driver Seat Module – Reprogram	0.4 hr

*This is a unique labor operation number for use only with this bulletin. This number will not be published in the Labor Time Guide.

Warranty Information
Technical Service Bulletin # 01-07-30-030B

Date: 051018

A/T - 4L60-E/4L65-E Harsh 1-2 Upshift Diagnosis

Bulletin No.: 01-07-30-030B

Date: October 18, 2005

INFORMATION

Subject:
4L60-E/4L65-E Automatic Transmission Diagnostic Information on Harsh 1-2 Upshift

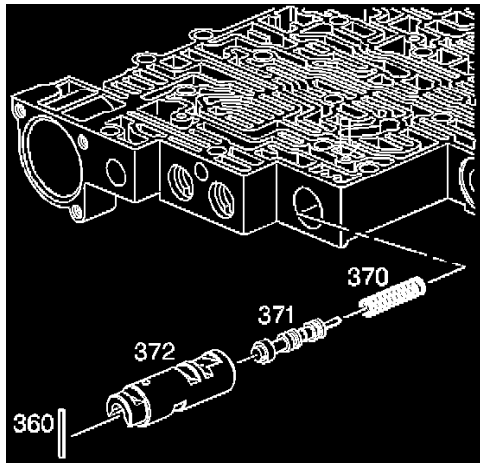
Models:
2001-2006 GM Passenger Cars and Light Duty Trucks
2003-2006 HUMMER H2
2006 HUMMER H3
2005-2006 Saab 9-7X

with 4L60-E or 4L65-E Automatic Transmission

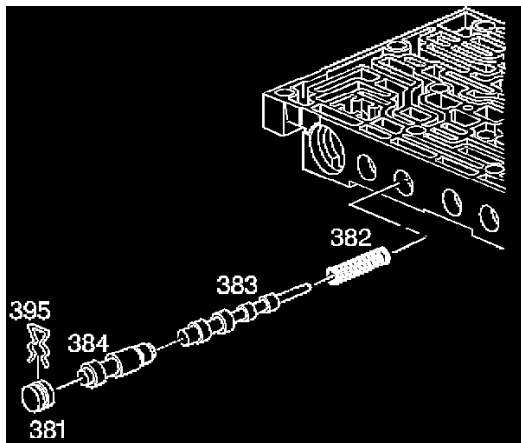
Supercede:

This bulletin is being revised to add model years and models. Please discard Corporate Bulletin Number 01-07-30-030A (Section 07 - Transmission/Transaxle).

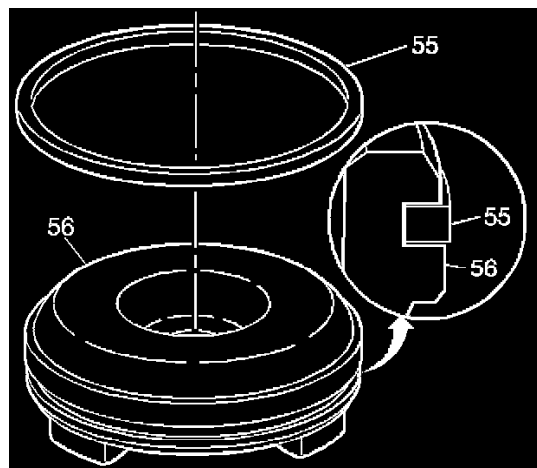
The following four conditions have been found to cause the majority of consistent, harsh 1-2 shift comments.



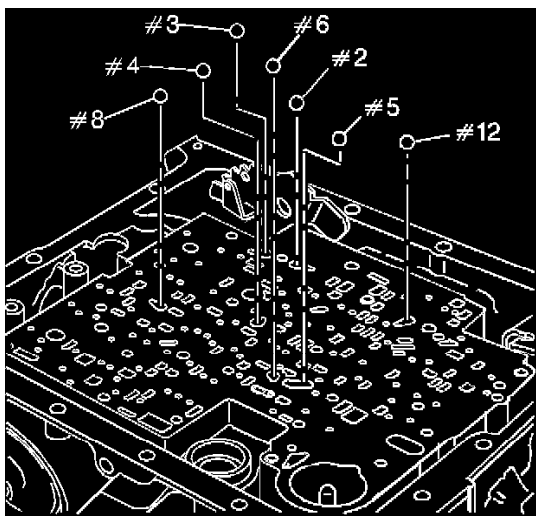
^ Chips/Sediment/Debris/Contamination found in the valve body, 1-2 accumulator valve (371) bore, may cause the 1-2 accumulator valve to stick or hang-up.



^ Chips/Sediment/Debris/Contamination found in the valve body, 4-3 sequence valve (383) bore, may cause the 4-3 sequence valve to stick or hang-up.



A cracked 1-2 accumulator piston (56) that is allowing fluid to leak by.



Mislocated/Missing valve body-to-spacer plate check balls (61).

When attempting to correct a consistent harsh 1-2 shift, the four conditions listed above should be inspected as possible causes. It is important to also refer to the appropriate Service Manual for further possible causes of this condition.

Slipping or Rough 1-2 Shift

Checks	Causes
Valve Body Assembly	<ul style="list-style-type: none"> • Mislocated valve body to spacer plate checkball or checkballs. • 1-2 Shift valve train stuck due to sediment • Gaskets or spacer plate incorrect, mispositioned or damaged • 1-2 Accumulator valve stuck or damaged • Face not flat • 4-3 sequence valve stuck or damaged • #1 or #8 checkball missing or mis-located • 1-2 accumulator valve bushing rotated 180°
2-4 Servo Assembly	<ul style="list-style-type: none"> • Apply pin too long or too short • 2nd servo apply piston seal missing, cut or damaged • Restricted or missing oil passages • Servo bore in case damaged

2nd Accumulator	<ul style="list-style-type: none"> • A cracked 1-2 accumulator piston - allowing fluid to leak by • Porosity in 1-2 accumulator cover or piston • Piston seal or groove damaged • Nicks or burrs in 1-2 accumulator housing • Missing or restricted oil passage • 1-2 accumulator piston spring not seated • Rough finish in 1-2 accumulator bore in case
2-4 Band	Worn or mispositioned
Oil Pump Assembly or Case	Faces not flat

This diagnostic table should be used when addressing a harsh 1-2 shift concern.

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Technical Service Bulletin # **04-07-30-025A**

Date: **040722**

A/T - 4L60-E/-4L65E No Shift/Slipping/Fluid Leaks

Bulletin No.: 04-07-30-025A

Date: July 27, 2004

TECHNICAL

Subject:

Transmission Fluid Leak, Inoperative 2nd/3rd/4th Gears, No Movement, Case Cracked or Broken at 2-4 Servo (Repair Transmission and Install New Retaining Ring)

Models:

2004 Chevrolet Corvette

2004 Pontiac GTO

2004 Light Duty Trucks

with 4L60-E and 4L65-E Automatic Transmission (RPOs M30 or M32)

Supersede:

This bulletin is being revised to add the Corvette and GTO models and to include the 4L65-E transmission. Please discard Corporate Bulletin Number 04-07-30-025 (Section 07 - Transmission/Transaxle).

Condition

Some customers may comment on a transmission leak, inoperative 2nd/4th gear, slipping 3rd/4th gear or no movement due to excess fluid loss.

Cause

This condition normally occurs at low mileage, usually under 1,600 km (1,000 mi), and investigation may show that the servo cover is loose or that the transmission case is cracked or broken at the servo bore.

This condition may be caused by a servo cover retaining ring that did not retain the servo cover.

The servo retaining ring design was changed for the 2004 MY from round wire to wire with two flat faces.

In mid-April, 2004, the retaining ring design did revert back to a round design in production.

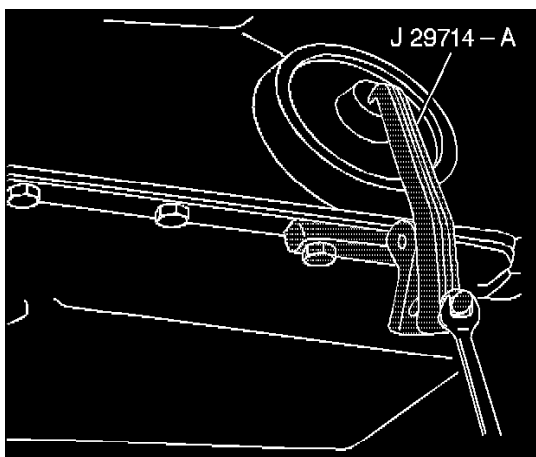
It is possible that the transmission case may crack at the servo cover area due to the retaining ring being incorrectly seated.

Correction

Important:

- ^ In mid-April, 2004, the retaining ring design did revert back to a round design in production.
- ^ If the transmission fluid level has lowered due to loss of fluid, it is possible that damaged 3/4 clutches will result.
- ^ A cracked or broken case may usually be repaired at a significantly lower cost than transmission assembly replacement by replacing the case and any damaged clutches or bands.

1. Raise and suitably support the vehicle.
2. Inspect the transmission case around the servo cover for signs of cracks or damage to the case.
 - ^ If the transmission case is cracked or damaged, replace the transmission case. Refer to the appropriate SI Document for Transmission Case Replacement.
 - ^ If the servo cover is leaking and the case is not damaged, continue with the next step.
3. Remove the front exhaust pipe assembly. Refer to the appropriate SI Document.
4. Remove the heat shield if equipped. Refer to the appropriate SI Document.
5. Clean the servo cover area with Brake Clean and shop air.



6. Install the J 29714-A.
7. Compress the servo cover with J 29714-A.

Important:

Flat-faced servo cover retaining rings that have been removed when servicing a transmission for any reason should not be re-used.

8. Remove the servo cover retaining ring.
9. Install the new round wire servo cover ring, P/N 24232065.

10. Remove J 29714-A.
11. Clean the servo cover area with Brake Clean and shop air.
12. Lower the vehicle.
13. Fill the transmission to the proper level with DEXRON(R)III transmission fluid. Refer to the appropriate SI Document.

Part Number	Description	Qty
24232065	Ring, Servo Cover Retaining (Round Wire Ring)	1

Parts Information


Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
K6630	Servo Assembly, 2-4 – R&R Or Replace	Use Published Labor Operation Time
K7800	Case, Transmission/Transaxle -Replace	

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **04-07-30-028A**

Date: **060112**

A/T - 4T65-E Fluid Leaks From Reverse Servo Cover

Bulletin No.: 04-07-30-028A

Date: January 12, 2006

TECHNICAL

Subject:

4T65-E Automatic Transmission Fluid Leak From Reverse Servo Cover (Replace Reverse Servo Cover Seal)

Models:

2005 and Prior Cars and Light Duty Trucks

with Automatic Transmission 4T65-E (RPOs MN3, MN7, M15, M76)

Supercede:

This bulletin is being revised to announce an improved reverse servo cover seal is available from GMSPo and to advise technicians that it is no longer necessary to replace the reverse servo cover when replacing the seal. The 2005 model year vehicles are also being added. Please discard Corporate Bulletin Number 04-07-30-028 (Section 07 - Transmission/Transaxle).

Condition

Some customers may comment on a fluid leak under the vehicle. A transmission fluid leak may be noted during the Pre-delivery Inspection (PDI).

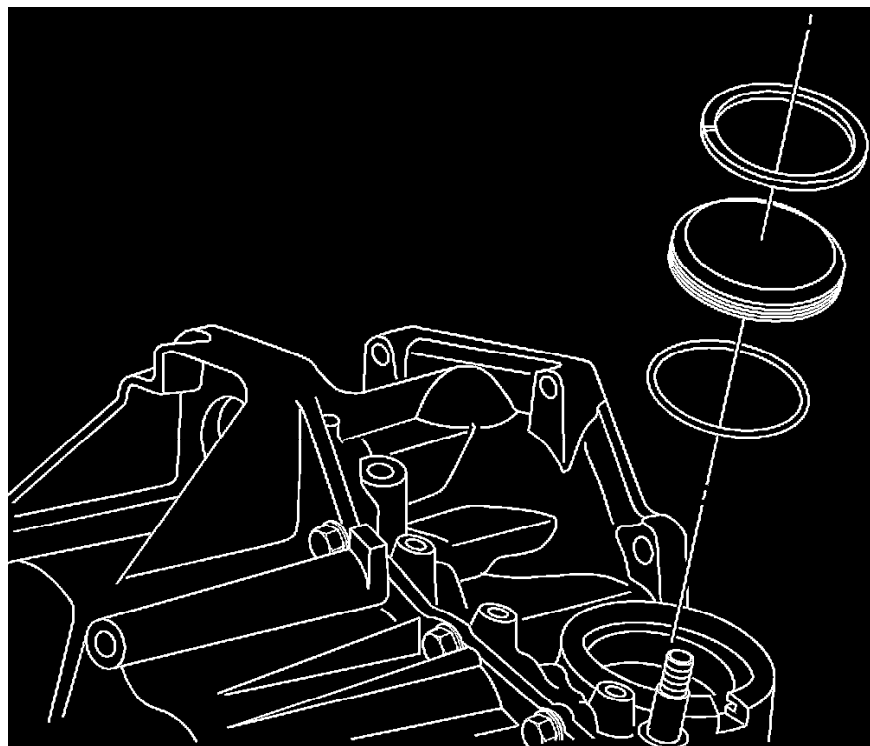
Cause

A possible cause of a transmission fluid leak usually only during cold ambient temperatures below -6.7°C (20°F) may be the reverse servo cover seal. The reverse servo cover seal may shrink in cold ambient temperatures causing a transmission fluid leak.

Correction

Follow the diagnosis and repair procedure below to correct this condition.

1. Diagnose the source of the fluid leak.



2. If the source of the transmission fluid leak is the reverse servo cover, replace the reverse servo cover seal with P/N 24235894. Refer to Reverse Servo Replacement in the appropriate Service Manual.
3. Clean the area around and below the cover.
4. Inspect the transmission fluid level. Refer to Transmission Fluid Checking Procedure in the appropriate Service Manual.

Part Number	Description	Qty
24235894	Seal, Reverse Servo Cover	1

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
K6623	Servo Assembly, Reverse - R&R or Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **02-05-26-001C**

Date: **050119**

Brakes - Park Brake Shoe Retaining Clip Kit

Bulletin No.: 02-05-26-001C

Date: January 19, 2005

INFORMATION

Subject:

Rear Parking Brake Shoe Retaining Spring Clip Service Kit for Drum-in-Hat (DIH) Equipped Vehicles

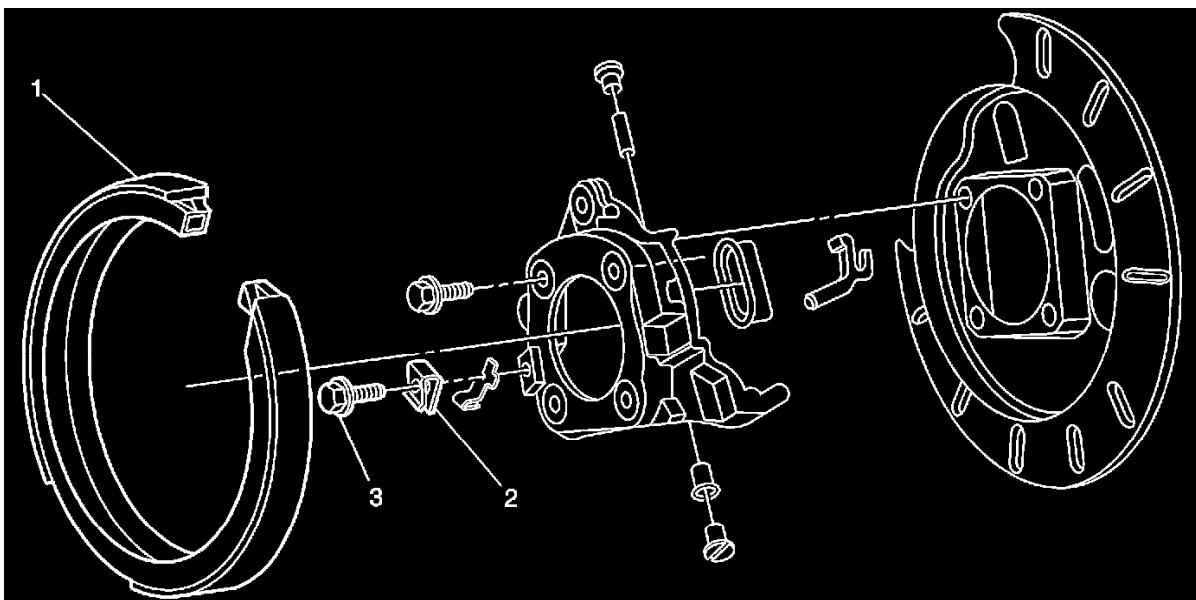
Models:

2004-2005 Buick Rainier
 2002-2005 Cadillac Escalade Models
 2002-2005 Chevrolet Avalanche
 1998-2005 Chevrolet Blazer
 1999-2005 Chevrolet Silverado Models
 2000-2005 Chevrolet Suburban, Tahoe
 2002-2005 Chevrolet SSR, TrailBlazer Models
 2003-2005 Chevrolet Astro, Express
 1998-2005 GMC Jimmy
 1999-2005 GMC Sierra Models
 2000-2005 GMC Yukon Models
 2002-2005 GMC Envoy Models
 2003-2005 GMC Safari, Savana
 1998-2004 Oldsmobile Bravada

This Bulletin ONLY applies to 1500 series vehicles with four wheel disc brakes.

Supercede:

This bulletin is being revised to include additional models and clarify parts usage information. Please discard Corporate Bulletin Number 02-05-26-001B (Section 05 - Brakes).



A rear parking brake retaining spring clip kit has been released for service. This kit consists of two parking brake hold down spring clips (2) and bolts (3).

Note:

Use J 46277 Rotor Removal Tool with J 6125-B Slide Hammer to remove the rotor from the vehicle. Place J 46277 between the rotor surfaces in the vent section of the rotor. DO NOT place J 46277 on the back side of the rotor surface, it may damage the rotor surface.

During rear brake rotor removal, it is possible to damage the parking brake shoe retaining spring clip. Order this new kit when replacement of the clips is required but the parking brake shoes do not require replacement.

Important:

The spring clip kits mentioned in this bulletin do not address any parking brake concerns. Refer to the Parking Brakes sub-section of the Service Manual for any diagnostic information.

Part Number	Description	Qty
88936340	Spring Clip, Parking Brake Retainer Kit (1998-2000 S/T Classic Models)	1
88936342	Spring Clip, Parking Brake Retainer Kit (2001-2005 S/T Classic Models)	1
88935748	Spring Clip, Parking Brake Retainer Kit (2002-2005 S/T Models, SSR)	1
88982879	Spring Clip, Parking Brake Retainer Kit (C/K, M/L, G Models)	1

Parts Information

Parts are currently available from GMSPO.

Labor Operation	Description	Labor Time
H2956	Parking Brake Shoe Retaining Clip – Replace	0.9 hr
Add:	To Sand or Grind DIH (ONE SIDE)	0.2 hr
Add:	To Sand or Grind DIH (BOTH SIDES)	0.3 hr
Add:	To Sand Brake Shoes (ONE OR BOTH SIDES)	0.1 hr

Warranty Information

When removal of the rear brake rotors results in damage to the spring clips on vehicles under warranty, use the labor operation shown in conjunction with one of the kit part numbers listed above.

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Disclaimer Technical Service Bulletin # **02-07-30-024B**

Date: **050818**

A/T - Cracked Case Diagnosis

Bulletin No.: 02-07-30-024B

Date: August 18, 2005

INFORMATION

Subject:
Diagnosis of Cracked or Broken Transmission Case

Models:
2006 and Prior Cars and Light Duty Trucks
2006 and Prior HUMMER H2
2006 HUMMER H3
2005-2006 Saab 9-7X

with 4L60/4L60-E/4L65-E or 4L80-E/4L85-E or Allison(R) Series 1000 Automatic Transmission

Supercede:

This bulletin is being revised to add models and model years. Please discard Corporate Bulletin Number 02-07-30-024A (Section 07 - Transmission/Transaxle).

Diagnosing the cause of a cracked or broken transmission case requires additional diagnosis and repair or a repeat failure will occur.

A cracked or broken transmission case is most often the result of abnormal external torsional forces acting on the transmission case. If none of the conditions listed below are apparent, an internal transmission component inspection may be required. Repairs of this type may be the result of external damage or abuse for which General Motors is not responsible. They are not the result of defects in materials or workmanship. If in doubt, contact your General Motors Service Representative.

The following items should be considered:

^ It is important to inspect the vehicle for signs of an out of line condition, impact damage or foreign material to the following components:

- The transmission
- The engine mounts
- The transmission rear mount and crossmember
- Vehicle frame damage that alters the front to rear alignment of the driveshaft
- The driveshafts (both front and rear)
- The wheels (caked with mud, concrete, etc.)
- The tires (roundness, lack of cupping, excessive balance weights)
- The transfer case (if the vehicle is 4WD)

^ A worn or damaged driveshaft U-Joint has shown to be a frequent cause of transmission case cracking, especially on vehicles that see extended periods of highway driving. Always inspect the U-joint condition when diagnosing this condition.

^ For driveshaft damage or imbalance, inspect the driveshafts (both front and rear) for dents, straightness/runout or signs of missing balance weights. Also, inspect for foreign material such as undercoat sprayed on the driveshaft.

^ The driveshaft working angles may be excessive or non-canceling, especially if the vehicle carrying height has been altered (lifted or lowered) or if the frame has been extended or modified.

^ Damaged or worn upper or lower rear control arms or bushings.

^ A rear axle that is not seated in the rear spring properly (leaf spring vehicles).

^ Broken rear springs and or worn leaf spring bushings.

In some cases, the customer may not comment about a vibration but it is important to test drive the vehicle while using the electronic vibration analysis tool in an attempt to locate the cause of the torsional vibration. Refer to the Vibration Diagnosis and Correction sub-section of the appropriate Service Manual for more details on diagnosing and correcting vibrations.

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Disclaimer Technical Service Bulletin # **05-08-50-012A**

Date: **060724**

Interior - Loose/Unwanted Seat Movement

Bulletin No.: 05-08-50-012A

Date: July 24, 2006

TECHNICAL

Subject:

Unwanted/Loose Seat Movement (Apply Adhesive and Install New Bolts in Seat Mounting Rails)

Models:

2002-2006 Cadillac Escalade, Escalade EXT

2003-2006 Cadillac ESV

1999-2007 Chevrolet Silverado Pickup Models (Classic)

2000-2006 Chevrolet Suburban, Tahoe

2002-2006 Chevrolet Avalanche

1999-2007 GMC Sierra Pickup Models (Classic)

2000-2006 GMC Yukon, Yukon XL

2003-2006 HUMMER H2

with Power Driver Front Seat Power Adjuster (RPO AG1) and/or Passenger Seat Power Adjuster (RPO AG2)

Supersede:

This bulletin is being revised to add model years and additional Warranty Information. Please discard Corporate Bulletin Number 05-08-50-012 (Section 08 - Body and Accessories).

Condition

Some customers may comment on unwanted seat movement in the front power bucket seat (driver or passenger) during fast acceleration or hard braking. A metal to metal clicking noise is often heard at seat "stops."

Cause

The threads of the two zinc nut retainers (one on each side of the seat adjuster) may creep over time, causing a loss of self-rolling screw clamp load and ultimately causes relative rail and vehicle seat motion.

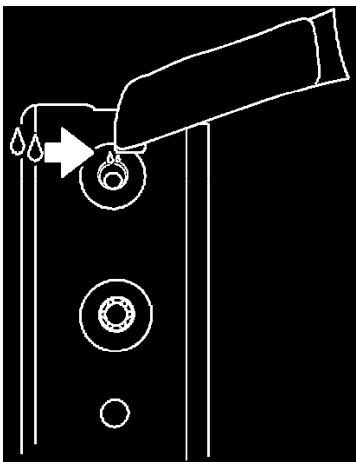
Correction

Apply adhesive and install new bolts in seat mounting rails using the following procedure.

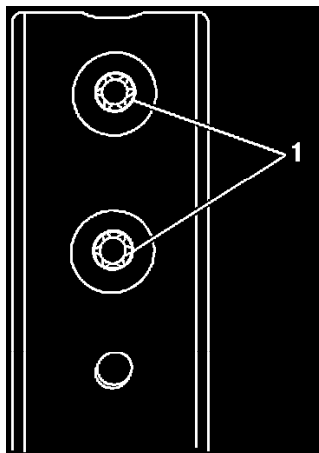
1. Remove the front seat and invert onto a flat surface covered with a clean, non-scratch material (soft cloth or similar). Refer to the applicable Seats sub-section in SI. Adjust so that the seat mounting rails are at 45 degrees.
2. Remove the upper M8 mounting bolt from one rail and discard. Leave the other bolt intact as this will hold the track in place while working. Wipe the bolt hole area with a clean rag.

Important:

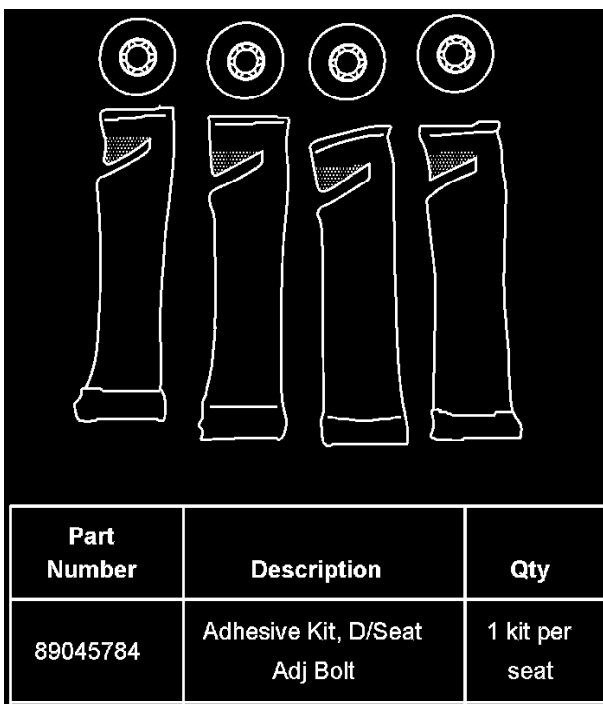
Only use the adhesive provided in the repair kit. Do not substitute with other adhesives.



3. Take one of the adhesive sachets and carefully cut the flag tip off the notched end spout in line with the notch.



4. While holding the sachet vertical, slowly dribble the adhesive into the edge of the bolt hole as shown, ensuring that the adhesive flows into the joint between the seat rail and the zinc block. DO NOT pour the adhesive down the center of the hole. The object is to let the adhesive "wick" between the zinc block and the seat rail in order to bond the two pieces together.
- Important:**
If the bolt thread strips or the proper torque cannot be achieved, then the entire seat adjuster mechanism must be replaced.
5. Replace the previous bolt with a new M8 bolt (1) (included) and install using a "click torque wrench" preset to 9 N.m (79 lb in).
 6. Remove the second M8 mounting bolt from the rail and discard.
 7. Repeat steps 2 through 5 for the second bolt.
 8. Repeat steps 2 through 6 for the opposite mounting rail.
 9. Before installing the seat into the vehicle, verify that the seat will function correctly and does not make any unusual noises during forward and rearward travel motion.
 10. Install the seat. Refer to the applicable Seats sub-section of SI.
 11. While sitting in the seat, verify seat function and listen for any unusual noises.



Labor Operation	Description	Labor Time
C9740*	Replace seat rail bolts and apply adhesive	0.5 hr
Add	to service additional seat	0.4 hr

*This labor operation number is for bulletin use only. The number will not be published in the Labor Time Guide.

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 04-08-50-007

Date: 040312

Interior - Front Heated Seat(s) Inoperative

Bulletin No.: 04-08-50-007

Date: March 12, 2004

INFORMATION

Subject:

Service Information for Front Heated Seat Inoperative/Cold

Models:

2003-2004 Cadillac Escalade/ESV/EXT

2003-2004 Chevrolet Avalanch/Silverado/Suburban/Tahoe

2003-2004 GMC Denali/Sierra/Yukon/Yukon XL

2003-2004 Hummer H2

The purpose of this bulletin is to provide the technician with the following service information:

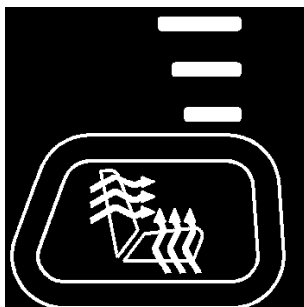
- ^ Heated Seats Switch Operation
- ^ Heated Seats Switch Diagnostics
- ^ Heated Seats Switch Customer Information

Switch Operation

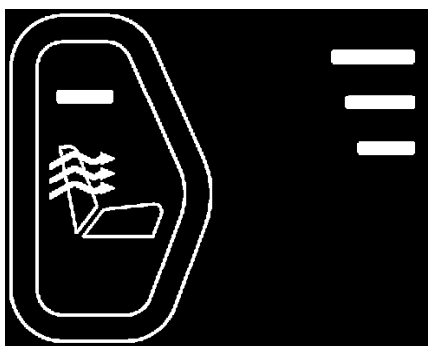
1. The engine must be running for the heated seat feature to work. The heated seats will shut off automatically when the ignition is turned off.



2. Two buttons, located on the door, are used to control the heated seat.
 - ^ Press the horizontal (RH) button to heat the entire seat, back and cushion.
 - ^ Press the vertical (LH) button to heat ONLY the seat back.
 - ^ The three light bars are an indicator of the level of heat selected for either the entire seat (horizontal button) or ONLY the seat back (vertical button).



3. To heat both the seat back and seat cushion at the same time, press the horizontal (RH) button with the heated seat symbol one time.
 - ^ All 3 light bars will glow indicating the HIGH temperature setting.
 - ^ The horizontal (RH) button does NOT have an ON/OFF indicator light.
4. Press the button a second time, 2 light bars will glow indicating the MEDIUM temperature setting for the entire seat.
5. Press the button a third time, 1 light bar will glow indicating the LOW temperature setting for the entire seat.
6. Press the button a fourth time to turn the entire heated seat OFF.



7. To heat ONLY the seat back, press the vertical (LH) button one time.
 - ^ An ON/OFF indicator light over the heated seat back symbol will glow to designate that ONLY the seat back is being heated.
 - ^ All 3 light bars over the horizontal (RH) button will glow indicating the HIGH temperature setting for ONLY the seat back.
8. Press the button a second time, 2 light bars will glow indicating the MEDIUM temperature setting for ONLY the seat back.
9. Press the button a third time, 1 light bar will glow indicating the LOW temperature setting for ONLY the seat back.
10. Press the button a fourth time to turn the heated seat back OFF.

Switch Diagnostics

Important:

In order to eliminate unnecessary part replacement and comeback repairs, it is essential that the appropriate diagnostic tables and aids found in the applicable manuals are followed.

1. Verify the condition prior to making any repairs. Refer to Seats and Seat Controls in the applicable Owners Manual or this bulletin for proper heated seat switch operation information.


2. If an improperly operating front heated seat condition exists, refer to the Diagnostic Information and Procedures in the Seats sub-section of the applicable Service Manual in order to diagnose the system accurately.
3. When measuring the resistance of the seat heater elements, ensure the values are within the updated range of 1.5-5.5 ohms. Refer to DTC B2425 or B2430-Clearing the DTC in the Diagnostic Information and Procedures in the Seats sub-section of the applicable Service Manual.

Customer Information

Some heated seat components from the above listed vehicles have been returned to the Warranty Parts Center (WPC) for heat function not operating properly. Analyses of these parts show 'no out of specification condition' or No Trouble Found (NTF).

1. Provide customers with the knowledge that if bumped, either one of the heated seat switches can be activated/deactivated accidentally.
2. Ensure customers have a thorough understanding of how the heated seat switches function.

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Disclaimer Technical Service Bulletin # **04-06-04-043**

Date: **040617**

Instruments - Unable to Reset Oil Life Monitor

Bulletin No.: 04-06-04-043

Date: June 17, 2004

TECHNICAL

Subject:
Unable to Reset Engine Oil Life Monitor (Reprogram PCM)

Models:
2004 Buick Rainier
2004 Cadillac Escalade, Escalade ESV, Escalade EXT
2004 Chevrolet Avalanche, Express, SSR, Silverado, Suburban, Tahoe, Trailblazer
2004 GMC Envoy, Savana, Sierra, Yukon, Yukon XL
with V8 Engine (VINs G, N, P, T, U, V, Z - RPOs L18, LQ9, LM4, LM7, LQ4, LR4, L59) and Electronic Throttle Control

Condition

Some owners may comment that they are unable to reset the Engine Oil Life Monitor.

Correction

Reprogram the PCM with calibration operating system P/N 12587603 or later.

The new calibration was released beginning with TIS satellite data update version 8.0 for 2003, available August 2003. As always, make sure your TECH2(R) is updated with the latest software version.

Warranty Information

Labor Operation	Description	Labor Time
J6354	Module, Powertrain Control - Reprogram	0.4 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **04-06-04-045**

Date: **040622**

Instruments - Oil Life Monitoring System

Bulletin No.: 04-06-04-045

Date: June 22, 2004

INFORMATION

Subject:

Oil Life Monitoring System - PCM Reset

Models:

2004 All GM Passenger Cars and Trucks

Important:

The Oil Life Monitoring System can be found on many General Motor's vehicles prior to 2004. Refer to SI and/or the Owner's Manual for detailed information.

The purpose of this bulletin is to help technicians identify which vehicles are equipped with the oil life monitoring system. Although many General Motors vehicles prior to 2004 have been equipped with the oil life monitoring system, the 2004 model year vehicles were used as a starting point to validate the system/scan tool functionality.

Customers have come to depend on the Oil Life Monitoring System found on most General Motor's vehicles to inform them when it's time for an oil change. If for any reason the PCM is replaced, it is important to access the "Percent of Oil Life Remaining" from the vehicle's current PCM PRIOR to removing the PCM. This value must be programmed into the new PCM (after it is installed in the vehicle) by using the scan tool.

Note:

Failure to reprogram the value to the new PCM will result in missed maintenance, which may cause damage to the engine.

Important:

If the replacement module is not programmed with the remaining engine oil life, the engine oil will need to be changed at 5,000 km (3,000 mi) from the last engine oil change.

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Disclaimer Technical Service Bulletin # **01-05-26-001A**

Date: **050408**

Brakes - Low Effort Parking Brake System Information

Bulletin No.: 01-05-26-001A

Date: April 08, 2005

INFORMATION

Subject:

Low Effort Parking Brake Apply System

Models:

2002-2005 Cadillac Escalade, Escalade EXT

2003-2005 Cadillac Escalade ESV
 1999-2005 Chevrolet and GMC Full Size Pickup Models
 2000-2005 Chevrolet and GMC Full Size Utility Models
 2003-2005 HUMMER H2

with Rear Disc Brakes

Supercede:

This bulletin is being revised to add models and model years. Please discard Corporate Bulletin Number 01-05-26-001 (Section 05 - Brakes).

The vehicles indicated above have a "low effort" parking brake apply system. The design intent is that a low force on the park brake pedal will effectively apply the park brake. This was done so all operators can easily apply the park brake sufficiently to maintain the vehicle in a stationary position on an incline.

Owners should not interpret this low pedal effort as an indication of system effectiveness.

This park brake system is self-adjusting and there are no cable adjustment provisions on these vehicles. When a vehicle park brake system has been serviced and/or the brake rotor has been removed or replaced, ensure proper system setting is achieved by performing the following steps:

1. Verify that the park brake shoes are adjusted to provide a clearance of 0.66 mm (0.026 in) between the shoes and brake rotor as indicated in the applicable Service Manual procedure.
2. Fully apply and release the park brake lever three times.

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Disclaimer Technical Service Bulletin # **04-06-00-047**

Date: **040624**

Fuel - Top Tier Detergent Gasoline Information

Bulletin No.: 04-06-00-047

Date: June 24, 2004

ADVANCED SERVICE INFORMATION

Subject:

Top Tier Detergent Gasoline (Deposits, Fuel Economy, No Start, Power, Performance, Stall Concerns)

Models:

2005 and Prior All General Motors Passenger Cars and Trucks (U.S. Only)

A new class of gasoline, called Top Tier Detergent Gasoline, will be appearing at retail stations of some fuel marketers. This gasoline meets detergency standards developed by four automotive companies. A description of the concept and benefits of Top Tier is provided in the following question and answer section.

What is Top Tier Detergent Gasoline?

Top Tier Detergent Gasoline is a new class of gasoline with enhanced detergency. It meets new, voluntary deposit control standards developed by four automotive companies that exceed the detergent requirements imposed by the EPA.

Who developed Top Tier Detergent Gasoline standards?

Top Tier Detergent Gasoline standards were developed by four automotive companies: BMW, General Motors, Honda and Toyota.

Why was Top Tier Detergent Gasoline developed?

Top Tier Detergent Gasoline was developed to increase the level of detergent additive in gasoline. The EPA requires that all gasoline sold in the U.S. contain a detergent additive. However, the requirement is minimal and in many cases, is not sufficient to keep engines clean. In order to meet Top Tier Detergent Gasoline standards, a higher level of detergent is needed than what is required by the EPA. Also, Top Tier was developed to give fuel

marketers the opportunity to differentiate their product.

Why did the four automotive companies join together to develop Top Tier?

All four corporations recognized the benefits to both the vehicle and the consumer. Also, joining together emphasized that low detergency is an issue of concern to several automotive companies.

What are the benefits of Top Tier Detergent Gasoline?

Top Tier Detergent Gasoline will help keep engines cleaner than gasoline containing the "Lowest Additive Concentration" set by the EPA. Clean engines help provide optimal fuel economy and performance and reduced emissions. Also, use of Top Tier Detergent Gasoline will help reduce deposit-related concerns.

Who should use Top Tier Detergent Gasoline?

All vehicles will benefit from using Top Tier Detergent Gasoline over gasoline containing the "Lowest Additive Concentration" set by the EPA. Those vehicles that have experienced deposit related concerns may especially benefit from use of Top Tier Detergent Gasoline.

Where can Top Tier Detergent Gasoline be purchased?

The Top Tier program began on May 3, 2004. Some fuel marketers have already joined and are making plans to introduce Top Tier Detergent Gasoline. This is a voluntary program and not all fuel marketers will offer this product. Once fuel marketers make public announcements, a list of all fuel marketers meeting Top Tier standards will be made available. For now, look for the "Top Tier" designation at the gas pump.

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Disclaimer Technical Service Bulletin # **06-06-04-030**

Date: **060515**

Fuel System - E85 Refueling Station Information

Bulletin No.: 06-06-04-030

Date: May 15, 2006

INFORMATION

Subject:

Locations of E85 Refueling Stations and Expanded E85 Information

Models:

2007 and Prior GM Cars and Trucks Equipped for Flexible Fuel (E85)

Attention:

U.S. dealers - This bulletin should be directed to the Sales Manager as well as the Service Manager. Copies of this bulletin may be given to customers purchasing or considering the purchase of E85 capable vehicles, and may be left or posted in customer waiting areas. Canadian dealers - This bulletin is intended for the U.S. Market and provides only limited information relevant to the Canadian market.

Customer Questions, Concerns and Refueling Locations for E85 Fuel

Extensive information on E85 Ethanol based fuels can be found at www.livegreengoyellow.com. This General Motors site contains vital information that anticipates and answers customer questions and concerns about E85 fuel. Part of the information is a useful link that provides the location nationally of all E85 refueling stations.

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Disclaimer Technical Service Bulletin # **02-03-07-002A**

Date: **050324**

Steering/Suspension - Revised Caster/Camber Adjustment

Info - Revised Front Caster and Camber Adjustment Procedure # 02-03-07-002A - (Mar 24, 2005)

Models:

- 1999-2000 Cadillac Escalade
- 2002-2005 Cadillac Escalade, Escalade EXT
- 1999-2005 Chevrolet Express, Silverado, Suburban, Tahoe
- 2002-2005 Chevrolet Avalanche
- 1999 GMC Suburban
- 1999-2005 GMC Savana, Sierra, Yukon, Yukon XL, Yukon XL Denali

This bulletin is being revised to add model years and clarify the information. Please discard Corporate Bulletin Number 02-03-07-002 (Section 03 - Suspension).

When performing a wheel alignment on any of the above vehicles, please refer to the Front Caster and Camber Adjustment Procedure in SI before contacting the GM Technical Assistance Center (TAC) with issues concerning adjustments, caster out-of-spec, etc.

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Disclaimer Technical Service Bulletin # 00-07-30-022C

Date: 041210

A/T - 4L60/65E No Reverse/2nd or 4th Gear

Bulletin No.: 00-07-30-022C

Date: December 10, 2004

TECHNICAL

Subject:

No Reverse, Second Gear or Fourth Gear (Replace Reaction Sun Shell with More Robust Heat Treated Parts)

Models:

1993-2005 Cars and Light Duty Trucks

with 4L60/65-E Automatic Transmission (RPOs M30 or M32)

Supercede:

This bulletin is being revised to correct two part numbers referenced in the vehicle groups and add text after the Parts Information table. Please discard Corporate Bulletin Number 00-07-30-022B (Section 07 - Transmission/Transaxle).

Condition

Some customers may comment on a no reverse, no second or no fourth gear condition. First and third gears will operate properly.

Cause

The reaction sun gear (673) may not hold inside the reaction sun shell (670).

Correction

Important:

There are FOUR distinct groups of vehicles and repair procedures involved.

^ Vehicles built in the 2001 model year and prior that make use of a reaction shaft to shell thrust washer:

^ The sun shell can be identified by four square holes used to retain the thrust washer. Use reaction sun shell P/N 24228345 reaction carrier to shell thrust washer (699B) P/N 8642202 and reaction sun gear shell thrust washer (674) P/N 8642331 along with the appropriate seals and

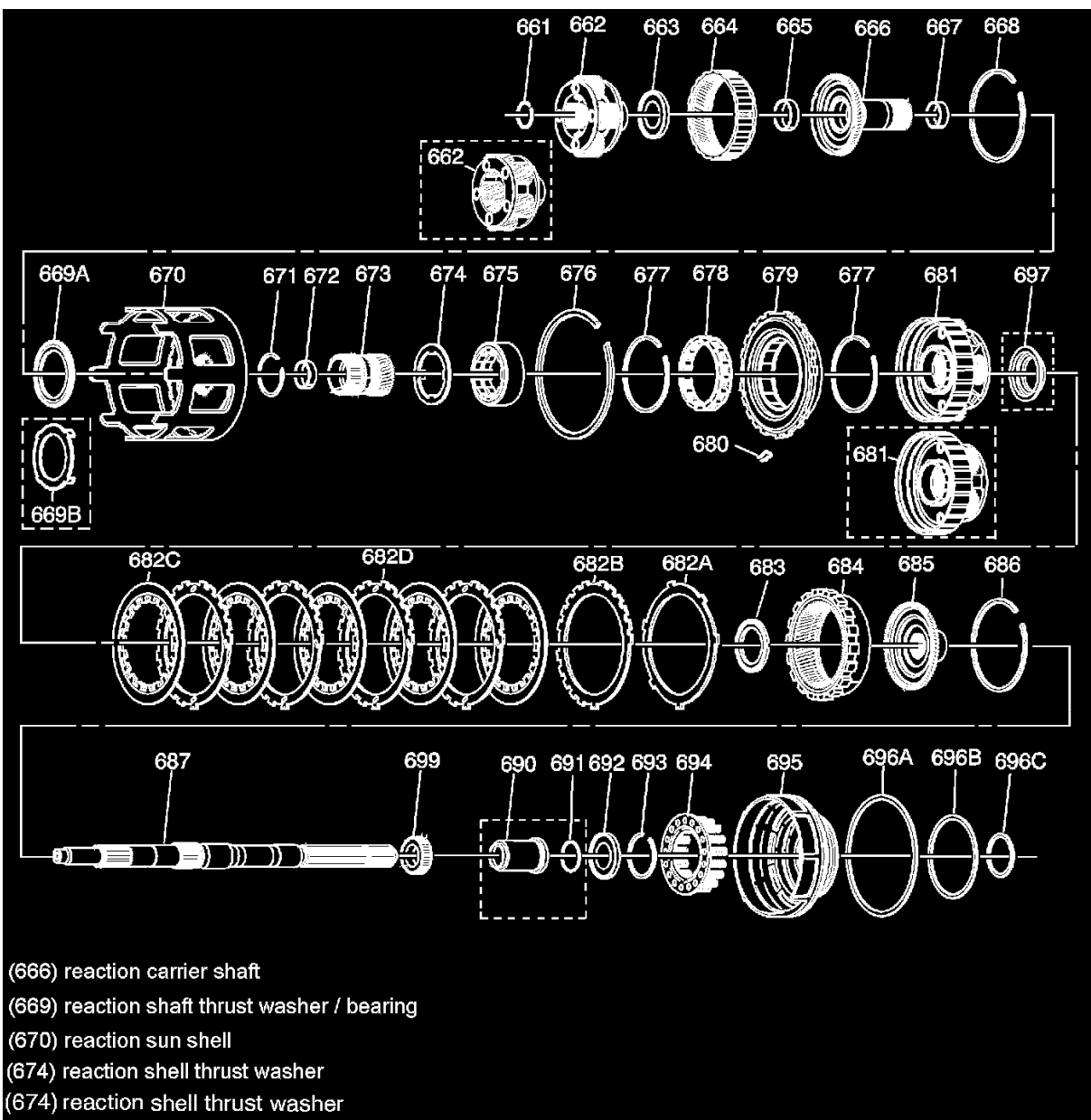
washers listed below.

- ^ Vehicles built in the 2001 model year and prior that have had previous service to the reaction sun shell:
- ^ It is possible that some 2001 and prior model year vehicles have had previous service to the reaction sun shell. At the time of service, these vehicles may have been updated with a Reaction Sun Shell Kit (Refer to Service Bulletin 02-07-30-003) without four square holes to retain the thrust washer. If it is found in a 2001 model year and prior vehicles that the reaction sun shell DOES NOT have four square holes to retain the thrust washer, these vehicles must be serviced with P/Ns 24229825 (674), 24217328 and 8642331 along with the appropriate seals and washers listed below.
- ^ Vehicles built in the 2001 model year and later that make use of a reaction shaft to shell thrust bearing:
- ^ The sun shell can be identified by no holes to retain the thrust washer. Use reaction sun shell, P/N 24229825, reaction carrier shaft to shell thrust bearing (669A), P/N 24217328 and reaction sun gear shell thrust washer (674), P/N 8642331 along with the appropriate seals and washers listed below.
- ^ Vehicles built from November, 2001 through June, 2002:
- ^ These vehicles should have the reaction carrier shaft replaced when the sun shell is replaced. Use shell kit P/N 24229853, which contains a sun shell (670), a reaction carrier shaft (666), a reaction carrier shaft to shell thrust bearing (669A) and a reaction sun gear shell thrust washer (674). The appropriate seals and washers listed below should also be used.
- ^ When servicing the transmission as a result of this condition the transmission oil cooler and lines MUST be flushed. Refer to Corporate Bulletin Number 02-07-30-052.

Follow the service procedure below for diagnosis and correction of the no reverse, no second, no forth condition.

Important:

If metallic debris is found on the transmission magnet, the transmission must be completely disassembled and cleaned. Metallic debris is defined as broken parts and pieces of internal transmission components. This should not be confused with typical "normal" fine particles found on all transmission magnets. Failure to properly clean the transmission case and internal components may lead to additional repeat repairs.



1. Remove the transmission oil pan and inspect the magnet in the bottom of the pan for metal debris.
2. Remove the transmission from the vehicle. Refer to the appropriate SI document.

Important:

- ^ Inspect all the transmission components for damage or wear. Replace all damaged or worn components. The parts list below should be sufficient to correct this concern.
- ^ This condition does not normally require replacement of the transmission completely. Components such as clutches, valve body, pump and torque converters will NOT require replacement to correct this condition.

1. Disassemble the transmission and replace the appropriate parts listed below. Refer to the Unit Repair Manual - Repair Instructions.
2. Reinstall the transmission in the vehicle. Refer to appropriate service information.

When servicing the transmission as a result of this condition the transmission oil cooler and lines MUST be flushed. Refer to Corporate Bulletin Number 02-07-30-052.

Part Number	Description	Qty
First Design Shell (1993–2001)		
24228345 AND 8642202	Shell, Reaction Sun Gear, First Design 1993–2001 (this shell is used with a reaction shaft to shell thrust washer (699B) and has four holes for the thrust washer) AND Thrust Washer (669B), Reaction Carrier Shaft to Shell	1 AND 1
Second Design Shell (2001-2004)		
24229825 AND 24217328	Shell, Reaction Sun Gear (second design 2001-2004) (this shell is used with a reaction shaft to shell thrust bearing (669A) and has no holes for the thrust bearing) AND Bearing, Reaction Carrier Thrust (669A) (second design 2001-2004) (used with a reaction shell that has no holes for the thrust bearing)	1 AND 1
Second Design Shell and Reaction Carrier Shaft Kit (used ONLY with Vehicles Built November 2001 – June 2002)		

24229853	Shell Kit (to be used only in vehicles built November, 2001 thru June, 2002) (This kit includes a second design shell, reaction carrier shaft, reaction carrier shaft to shell thrust bearing (669A) and a reaction sun gear shell thrust washer (663))	1
Additional Parts For All Design Levels		
8642331	Washer, Reaction Sun Gear Shell Thrust (674)	1
24210605*	Seal, Fluid Pump (O-ring type)	1
12337931	Gasket, Fluid Pump	1
24208664	Seal, Fluid Pump Bolt	7
24208662	Seal, 2-4 Band Servo Cover	1
24221350	Gasket Kit, Control Valve Body Spacer Plate	1
24208576	Filter Kit	1
15642511	Gasket, Transfer Case Adapter (T, L Models)	1
15704050	Gasket, Transfer Case Adapter (K Models)	1
12378470	Fluid, Dexron III	11

***Please see Corporate Bulletin Number 04-07-30-023 prior to ordering seal.**

Parts Information

Parts are currently available from GMSPO.

Warranty Information

Labor Operation	Description	Labor Time
K7285	Reaction Gear Set and/or Reaction Sun Shell – Replace	Use published labor operation time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **02-01-39-004B**

Date: **051116**

A/C - New PAG Oil

Bulletin No.: 02-01-39-004B

Date: November 16, 2005

INFORMATION

Subject:

New PAG Oil Released

Models:

2006 and Prior GM Passenger Cars and Trucks (Including Saturn)

2003-2006 HUMMER H2

2006 HUMMER H3

2005-2006 Saab 9-7X

Built With R-134a Refrigeration System

All Air Conditioning Compressor Types (Excluding R4 and A6 Type Compressors)

Supercede:

This bulletin is being revised to change the PAG oil part number used for R4 and A6 compressors with R-134a refrigerant systems. Please discard Corporate Bulletin Number 02-01-39-004A (Section 01 - HVAC).

All General Motors vehicles built with R-134a refrigerant systems shall now be serviced with GM Universal PAG Oil (excluding vehicles equipped with an R4 or A6 compressor).

R4 and A6 compressors with R-134a refrigerant systems shall use PAG OIL, GM P/N 12356151 (A/C Delco part number 15-118) (in Canada, use P/N 10953486).

GM Universal PAG Oil Part Numbers:		
P/N	Description	Quantity
12378526	U.S. Part Number	6 pack of 8 oz. cartridges
88900060	Canadian / Saturn Part Number	6 pack of 8 oz. cartridges
88901445/10-5026	AC Delco Part Number	8 pack of 8 oz. cartridges

Important:

The PAG oil referenced in this bulletin is formulated with specific additive packages that meet General Motors specifications and use of another oil may void the A/C systems warranty.

Use this new PAG oil when servicing the A/C system on the vehicles listed above. Oil packaged in an 8 oz tube should be installed using A/C Oil Injector, J 45037. Refer to the HVAC Section of Service Information for detailed information on Oil Balancing and Capacities.

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Disclaimer Technical Service Bulletin # **04-08-50-003**

Date: **040226**

Interior - Seat Memory Feature Appears Inoperative

Bulletin No.: 04-08-50-003

Date: February 26, 2004

INFORMATION

Subject:

Enabling Memory Seat Feature via DIC If Feature Appears Inoperative

Models:

2003-2004 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2004 GMC Sierra, Yukon, Yukon Denali, Yukon Denali XL
2003-2004 HUMMER H2

with Steering Wheel Controls (RPO UK3) (standard on H2)

If the memory seat feature appears inoperative, check the Driver Information Center (DIC).

Many of the memory seat modules that were returned through the Warranty Parts Center for a condition of inoperative have shown No Trouble Found. The Driver Information Center (DIC), programmed for Seat Entry and Exit, is set to the default "Off" mode at the assembly plant. **DO NOT REPLACE THE MEMORY SEAT MODULE.**

Perform the following procedure.

Important:

The following procedure will need to be completed for each Remote/Key selection.

Using the DIC menu, do the following steps:

1. Set the "Seat Recall" to either "At Key In" or "On Remote" based on the customer's preference.
2. Set the "Exit Seat" to "On".
3. Adjust the following items:

Memory Seat:

- 3.1. Driver's Seat (including the seat back, recliner, lumbar, and side wings)
- 3.2. Throttle and Brake Pedals (not available on H2 or Silverado and Sierra Trucks)
- 3.3. Outside Mirrors
- 3.4. Radio Station Presets
- 3.5. Last Chosen Climate Control System Settings (not available on Silverado or Sierra Trucks)
- 3.6. Press and hold the "1" or "2" (for driver 1 or 2) button of the memory control for three seconds. A double chime will sound to let you know that the position has been stored.

Easy Exit Seat:

- 3.1. Press and release the 1 or 2 button or press the unlock button on the desired remote keyless entry transmitter. The seat will move to the stored memory position.
- 3.2. Adjust the seat to the desired exit position.
- 3.3. Press and hold the exit button of the memory control (located on the door) for three seconds. A double chime will sound to let you know that the position has been stored for the identified driver (1 or 2).

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Disclaimer Technical Service Bulletin # 04-03-16-002

Date: 040407

Tire Pressure Monitor - Description/Operation/Diagnosis

Bulletin No.: 04-03-16-002

Date: April 07, 2004

INFORMATION

Subject:

Tire Pressure Monitoring System Description, Operation and Diagnostics

Models:

2004 Cadillac Escalade, Escalade ESV, Escalade EXT

2004 Chevrolet Suburban, Tahoe

2004 GMC Yukon, Yukon Denali, Yukon XL

with Tire Pressure Monitoring System (RPO UJ6)

The purpose of this bulletin is to further explain information found in SI and the Owner's Manual about the function of the Tire Pressure Monitoring (TPM) System.

Description

The Tire Pressure Monitor (TPM) system warns the driver when a significant loss of tire pressure occurs in any of the four tires while the vehicle is being driven.

Operation

The system uses the passenger door module (PDM), Body Control Module (BCM), driver information center (DIC), instrument panel cluster (IPC), a radio frequency (RF) transmitting pressure sensor inside each wheel/tire assembly and the serial data circuit to perform the system functions. When the vehicle speed is less than 32 km/h (20 mph), the sensors go into stationary mode. In this mode, the sensors transmit once every 60 minutes to minimize

sensor battery consumption. As the vehicle speed increases, centrifugal force closes the sensor's internal roll switch causing the sensors to go into drive mode. In this mode the sensor transmits once every 60 seconds. The PDM receives and translates the data contained in each sensor's RF transmission into sensor presence, sensor mode and tire pressure. If the TPM system detects a significant loss of tire pressure, or any of the tire pressures are 25% below the vehicle's recommended tire pressure, the CHECK TIRE PRESSURE warning message is displayed on the DIC and the low tire pressure warning indicator is displayed on the IPC, which appears as a cross section of a tire with an exclamation mark inside. Both the DIC message and the IPC indicator can be cleared by adjusting tire pressures to the recommended kPa/psi. The PDM has the ability to detect malfunctions within the TPM system. Any malfunction detected will cause the DIC to display the SERVICE TIRE MONITOR warning message.

Diagnostic Tips

Sensors

The sensor, with built-in valve stem, is inserted from the inside, through a hole in the wheel. The sensor is retained by a nut and is sealed by a grommet. The sensors are located within the drop well of the wheel. It is important to be careful when using a tire machine when mounting or dismounting a tire. The sensor could be damaged in two ways; either by direct contact with the machinery or by the bead of the tire as it is stretched over the wheel rim.

The sensor is powered by a 3 volt lithium battery with an expected life of 10 years, or 160,000 km (100,000 mi). When the battery in a sensor runs down, it is necessary to replace the sensor. Batteries are not serviceable.

Valve Stem

The valve stem cap is made of aluminum and the valve core is nickel-plated to resist corrosion. The end of the stem serves as the sensor's antenna.

Important:

DO NOT replace either the cap or the valve with standard parts. This will interfere with the sensor's ability to transmit.

Control Module Set-up

The service replacement PDM/Switch assembly comes with the TPM system disabled to allow the same part number PDM to be used in both TPM and non-TPM equipped vehicles. Verify that the vehicle is TPM equipped (RPO UJ6). After a PDM/Switch replacement, the TPM System Enable procedure must be performed for the Tire Pressure Monitor system to function properly.

Important:

Once the TPM option is enabled in the PDM, it cannot be disabled.

After PDM/Switch assembly replacement, each of the tire pressure sensors unique identification codes must be learned into the PDM's memory.

Sensor Relearn

Once the learn mode has been enabled, each of the sensor's unique identification codes can be learned into the PDM's memory. Each sensor takes a pressure measurement sample once every 20 seconds while in stationary mode. If the tire pressure increases, or decreases by more than 11 kPa (1.6 psi) from the last pressure measurement, another measurement will occur immediately to verify the change in pressure. If a pressure change has indeed occurred, the sensor transmits a remeasure mode transmission. When the PDM receives a remeasure mode transmission while in sensor learn mode, it will assign that sensor ID to the location on the vehicle relative to the order in which it was learned. When a sensor's ID code has been learned, the PDM sends a serial data message to the BCM to sound a horn chirp. This verifies the sensor has transmitted its ID code and the PDM has received and learned it. The PDM must learn the sensor's ID codes in the proper sequence in order to determine sensor location. The first learned ID is assigned to the left front, the second to right front, the third to right rear and the fourth to left rear. The TPM system will cancel the learn mode if more than 2 minutes have passed and no sensors have been learned, or if the system has been in learn mode for more than 5 minutes. If the learn mode is cancelled before any sensor has been learned, the PDM will remember all current sensor IDs and their locations. As soon as the first sensor ID code is learned, all other IDs are erased from the PDM's memory. Refer to the Owner's Manual.

J 46079 - Tire Pressure Monitor (TPM) System Diagnostic Tool

The J 46079 TPM diagnostic tool will test the TPM system and can also be used to activate the sensors after a tire rotation, so the receiver can learn the new sensor locations. In addition, J 46079 can be used for the Tire Pressure Sensor Test and Receiver Test.

Tire Pressure Sensor Learn Procedure

The sensor learn procedure must be performed after every tire rotation, sensor replacement, or receiver replacement.

1. Enable the tire pressure sensor learn mode in the receiver.
2. 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 location.
3. Press and release the "Activate" button. The main display will show moving waves during activation and then the sensor will transmit. The tool will display the sensor's transmission data and signal strength and a horn chirp will sound within 3-5 seconds.

4. After a horn chirp has sounded, proceed as in step 3 for the remaining 3 sensors in the following order:

^ Right Front

^ Right Rear

^ Left Rear

After all 4 sensors have been learned, exit the learn mode.

Tire Pressure Sensor Test

The sensor test procedure is used to verify that the sensors can transmit valid data after they have been activated with a Low Frequency (LF) transmission from the J 46079. During this procedure, the J 46079 will receive sensor transmissions and display the transmission data on the screen.

1. Hold the antenna of the J 46079 against the tire sidewall close to the wheel rim at the valve stem location.
2. Press and release the "Activate" button on the tool. The circling symbol indicates the tool is scanning for the sensor's transmission.
3. With the J 46079, observe the screen and wait 3-5 seconds for the sensor's transmission to be received. The screen should display an 8-digit ID number, tire pressure within 13 kPa (2 psi) of actual tire pressure, learn mode and good signal strength.
4. Proceed as in step 3, for the remaining sensors to verify all sensors are operating properly.

The Tire Pressure Sensor test cannot verify if the sensors internal roll switch is functioning. The vehicle must be test driven to determine if the internal roll switch is functioning. Refer to the electronic Service Information for further diagnostic information.

Receiver Test

The receiver test procedure is used to verify the receiver can receive and translate the data from simulated sensor transmissions.

1. Enable the learn mode in the receiver.
2. Locate the J 46079 in a central location in the passenger compartment of the vehicle.
3. Press and release the "Simulate" button.
4. Press and release the "Start" button and the J 46079 will begin to transmit a simulated sensor transmission. When the receiver receives the simulated sensor transmission, a horn chirp will sound, or the DIC will display the next sensor to be learned.
5. Press and release the "Next" button then the "Yes" button after a horn chirp has sounded or DIC message is displayed.
6. Repeat step 5 for the remaining 3 sensor locations until all 4 simulated sensor transmission have been learned into the receiver's memory. The J 46079 will display the preset ID numbers and tire pressures for each location.
7. With the scan tool, observe the TPM data list and verify the sensor IDs and tire pressures match what is displayed on the J 46079 screen and all 4 sensor modes are "Learn".

After-Market Wheels/Tires

Due to the wheel and tire profile of some after-market wheels and tires, the TPM sensor may not seat into the rim. It's important to be careful when using a tire mounting machine. The sensor could be damaged in two ways; either by direct contact with the machinery or by the bead of the tire as it is stretched over the wheel rim. If the vehicle is equipped with a TPM system, it cannot be disabled. Failure to install the TPM sensors will result in the system setting codes and a message appearing on the IP or DIC.

Tire Pressure Sensor Grommet Replacement

Any time a Tire Pressure Sensor is being reinstalled, it is important to replace the grommet on the sensor. The grommet is compressed during installation. Reuse of a grommet can cause an improper seal and result in an air leak.

Use of Tire Sealants

Tire sealants can be used on vehicles with tire pressure sensors. However, the sensor must be replaced after a sealant is used. The sealant can obstruct the small pressure sensing port on the front of the sensor body, causing the TPM system to display incorrect/false tire pressure readings.

Tire Rotations

Each TPM sensor has a unique identification code. Any time the vehicle's tires are rotated, the identification codes will need to be learned to the new tire/wheel location. If the learn procedure is not performed, the system will continue to report the correct pressures, but will assign them to the wrong locations on the vehicle. If a system malfunction has occurred and a DTC has set, it will also indicate the wrong sensor location in the DTC descriptor when performing system diagnosis. Follow the procedure as outlined in the Owner's Manual.

Tool Description	Tool Number
Tire Pressure Monitor System Diagnostic Tool	J 46079


Tool Information

Part Number	Description
15102575	Sensor Asm – Tire Pressure Indicator
25754190	Grommet – Tire Valve

Parts Information

Parts are currently available from GMSPO.

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Disclaimer Technical Service Bulletin # **05-03-16-002**

Date: **050620**

Tire Monitor System - System Messages

Bulletin No.: 05-03-16-002

Date: June 20, 2005

INFORMATION

Subject:
Tire Pressure Monitoring (TPM) System - System Messages

Models:
2004-2005 Cadillac Escalade, Escalade ESV, Escalade EXT
2004-2005 Chevrolet Suburban, Tahoe
2004-2005 GMC Denali, Denali XL, Yukon, Yukon XL

When diagnosing a customer concern related to the TPM system on the above vehicles, the following information may be helpful in determining if the concern is normal operation, related to a system fault or a low tire pressure(s). All of the above vehicles are equipped with a Driver Information Center (DIC) and may display one of three TPM system messages. It is very important to determine which message the customer is reporting.

Condition:
DIC Message "Tire Pressures"

Cause:
Scrolling through DIC information using steering wheel controls.

Correction:

None - normal DIC message that precedes the individual tire pressures.

Explanation:

2005 model year utility vehicles with steering wheel controls have the ability of displaying the individual tire pressures on the DIC. The message "Tire Pressures" is the selection displayed on the DIC to view these pressures. This message does NOT illuminate the "Low Tire Pressure" light or set TPM system codes. A customer who is not familiar with the different DIC messages may perceive this normal system message as a system fault.

Condition:

DIC Message "Check Tire Pressure"

Cause:

One or more tire pressures are low when the message is present.

Correction:

Check and adjust tire pressures with tires cold.

Explanation:

The DIC will display a "Check Tire Pressure" message on the DIC and illuminate the Low Tire light in the instrument cluster when any road tire pressure is lower than 25% of the placard value displayed on the tire pressure label. The "Check Tire Pressure" message does not indicate a system fault. The cause of a "Check Tire Pressure" message is most likely a low tire pressure. Vehicles that display this message are operating properly and tire pressures should be accurately adjusted (cold) to avoid the message and light.

Condition:

DIC Message "Service Tire Monitor"

Cause:

Various system faults.

Correction:

Follow diagnostics provided in Service Information.

Explanation:

The DIC will display a Service Tire Monitor Message and illuminate the tire light in the IPC when a system fault is detected. TPM DTC's will also be set when this message is displayed. Normal diagnosis using Service Information should be performed when the Service Tire Monitor message is displayed.

Information About Setting Tire Pressures:

It is very important to set tire pressures to the placard value when the tires are cold. It is also very important to use an accurate tire pressure gauge when adjusting cold tire pressures. The rule of thumb is that tire pressure will rise approximately 6.9 kPa (1 psi) for every 5.6°C (10°F) temperature increase.

Consider the following example:

A customer comments that a message and light are displayed when the vehicle is first driven. The message and light goes out after the vehicle is driven. The customer is unsure of which message was displayed. The technician finds no codes in the TPM system and tire pressures appear to be only slightly lower than specifications. The customer believes they have properly set tire pressures to the 206 kPa (30 psi) specification displayed on the tire pressure label.

This condition is most likely caused by a tire pressure which is just below the 25% low point when the tires are cold. As the tire warms up (during driving) the tire pressure rises and is within the acceptable operating range.

In our example above, the true cold tire pressure may be less than expected due to the following controllable factors:

- ^ Tire pressure gauge accuracy
 - not all tire pressure gauges are accurate
 - gauges that read as little as 20 kPa (3 psi) higher than actual air pressure, will have an effect on true cold tire pressure
- ^ The vehicle may have been driven several miles before tire pressures were adjusted (tires not truly cold).
- ^ Outside temperature (tire temperature) drops significantly from the temperature at which tires were set.

In this example, the "Check Tire Pressure" message will be displayed until the tire warms up during driving. The customer will see a message and a

light until tire pressure exceeds 155 kPa (22.5 psi). This TPM system is operating properly but will still be a concern to a customer.

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Disclaimer Technical Service Bulletin # **00-00-89-027D**

Date: **061003**

Interior - Eliminating Unwanted Odors

Bulletin No.: 00-00-89-027D

Date: October 03, 2006

INFORMATION

Subject:
Eliminating Unwanted Odors in Vehicles

Models:
2007 and Prior GM Passenger Cars and Light/Medium Duty Trucks (including Saturn)
2003-2007 HUMMER H2
2006-2007 HUMMER H3
2005-2007 Saab 9-7X
2007 and Prior Isuzu Medium Duty Trucks

Attention:

Please direct this bulletin to the PARTS, USED CAR, BODY SHOP, and SERVICE Managers.

Supersede:

This bulletin is being revised to add model years and additional usage information and instructions. Please discard Corporate Bulletin Number 00-00-89-027C (Section 00 - General Information).

Vehicle Odor Elimination

General Motors offers a product that may control or eliminate odors in the interior and luggage compartment areas of GM vehicles. GM Vehicle Care Odor Eliminator is a non-toxic, biodegradable odor remover. This odorless product has been shown to greatly reduce or remove objectionable smells of mold and mildew resulting from vehicle water leaks (as well as customer created odors, i.e. smoke). You may use GM Vehicle Care Odor Eliminator on fabrics, vinyl, leather, carpet and sound deadening materials. It may also be induced into HVAC modules and instrument panel ducts (for the control of non-bacterial related odors).

This product leaves no residual scent and should not be sold as or considered an air freshener. Product action may result in the permanent elimination of an odor and may be preferable to customers with allergies who are sensitive to perfumes.

How to Use This Product

GM Vehicle Care Odor Eliminator may be sprayed on in a ready-to-use formula or used in steam cleaners as an additive with carpet shampoo. This water-based, odorless product is safe for all vehicle interiors. Do not wet or soak any interior surface that plain water would cause to deteriorate, as this product will have the same effect. Also avoid letting this product come into contact with vinegar or any acidic substance. Acid-based products will hamper the effectiveness of, or render GM Vehicle Care Odor Eliminator inert.

Please note:

Complete eight page treatment sheets are enclosed within each case of GM Vehicle Care Odor Eliminator. These treatment instructions range from simple vehicle odor elimination to full step by step procedures for odor removal from water leaks. If lost, contact 800-977-4145 to get a replacement set faxed or e-mailed to your dealership.

Instructions and cautions are printed on the bottle, but additional help is available. If you encounter a difficult to eliminate or re-occurring odor, you may call 1-800-955-8591 (in Canada, 1-800-977-4145) to obtain additional information and usage suggestions.

This product may effectively remove odors when directly contacting the odor source. It should be used in conjunction with diagnostic procedures (in cases such as a water leak) to first eliminate the root cause of the odor, and then the residual odor to permanently correct the vehicle condition.

Vehicle Waterleak Odor Elimination

STEP ONE:

Confirm that all water leaks have been repaired. Determine what areas of the vehicle were water soaked or wet. Components with visible mold/mildew staining should be replaced. Isolate the odor source inside the vehicle. Often an odor can be isolated to an area or component of the vehicle interior by careful evaluation. Odor evaluation may need to be performed by multiple persons. Another method of isolating an odor source is to remove and segregate interior trim and components. Plastic sheeting or drop cloths can be used to confine seats, headliners, etc. to assist in evaluation and diagnoses. If appropriate the vehicle and interior trim should be evaluated separately to determine if the odor stays with the vehicle or the interior components. Odors that stay with the vehicle may be isolated to insulating and sound deadening materials (i.e. water leak at the windshield or standing water in the front foot well area caused mold/mildew to form on the bulkhead or kick panel sound deadening pads. If the interior is removed the floor pan and primed/painted surfaces should be treated with bleach/soap solution, rinsed with clean water and dried. Interior surfaces should then be treated with GM Vehicle Care Odor Eliminator product before reinstalling carpet or reassembling.

The GM Vehicle Care Odor Eliminator product is an effective odor elimination product when used properly. It must come into direct contact with the odor source. It should be used in conjunction with diagnostic procedures to first eliminate the root cause of the odor. Some procedures for use after odor root cause correction are:

STEP TWO:

Use the trigger spray head.

Put a drop of dish soap the size of a quarter in the bottom of a bottle.

Add 8 oz. of GM Vehicle Care Odor Eliminator (1 cup) to the dish soap and top off the bottle with tap water.

This formula should be used on hard surfaces (dash, interior plastic molding, and floor pan)

STEP THREE:

The third step to neutralizing the vehicle is a light to medium treatment of all carpeting and upholstered seats with the GM Vehicle Care Odor Eliminator formula and a wide fan spray setting (at full strength) (i.e.: carpeting on the driver's side requires 4-5 triggers pulls for coverage). The headliner and trunk should be sprayed next. Lightly brushing the formula into the carpeting and upholstery is a recommended step for deep odor problems. The dash and all hard surfaces should be sprayed with dish soap/water mixture. Let stand for 1-2 minutes then wipe off the surface.

STEP FOUR:

(vehicle ventilation system treatment)

The ventilation system is generally the last step in the treatment of the vehicle.

- a. Spray the GM Vehicle Care Odor Eliminator formula into all dash vents. (1-2 trigger pulls per vent).
- b. Start the vehicle and turn the vehicle fan on high cool (not A/C setting).
- c. Spray the formula (10 trigger pulls) into the outside fresh air intake vent (cowl at base of windshield)
- d. Enter the vehicle after 1 minute and wipe off the excess formula spurting out of the dash vents.
- e. Smell the air coming from the dash vents. If odors are still present, spray another 5 triggers into the cowl, wait another minute and smell the results. Once you have obtained a fresh, clean smell coming from the vents turn the system to the A/C re-circulation setting. Roll-up windows, spray 3-5 pumps into the right lower IP area and let the vehicle run with the fan set on high for 5 - 7 minutes.

Please follow this diagnosis process thoroughly and complete each step. If the condition exhibited is resolved without completing every step, the remaining steps do not need to be performed. If these steps do not resolve the condition, please contact GM TAC for further diagnostic assistance.

Additional Suggestions to Increase Customer Satisfaction

Here are some additional ideas to benefit your dealership and to generate greater customer enthusiasm for this product.

Keep this product on-hand for both the Service Department and the Used Car lot. Add value to your used car trades; treat loaner and demo cars during service and at final sale to eliminate smoke, pet, and other common odors offensive to customers. Make deodorizing a vehicle part of your normal vehicle detailing service.

Consider including GM Vehicle Care Odor Eliminator as a give-away item with new vehicle purchases. Many dealers give away as "gifts" various cleaning supplies at time of delivery. GM Odor Eliminator is one of a few products GM offers that has as many uses in the home as in the vehicle. Customers may find this product can be used for a host of recreational activities associated with their new vehicle, such as deodorizing a boat they tow, or a camper.

GM Odor Eliminator and many of the GM Vehicle Care products offer you the chance to increase dealership traffic as these superior quality products cannot be purchased in stores. Many Dealerships have product displays at the parts counter. Consider additional displays in the Customer Service Lounge, the Showroom and at the Service Desk or Cashier Window. Many customers who purchase vehicles and receive regular maintenance at your dealership may never visit the parts counter, and subsequently are not exposed to the variety and value that these products offer.

Part Number	Description
12378554 (U.S.) 88901678 (Canada/S aturn)	GM Vehicle Care Odor Eliminator – 16 oz (0.473L) Non-Aerosol Bottles (Case of 12)

Parts Information

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Technical Service Bulletin # **06-01-39-015A**

Date: **070112**

A/C - No Rear Temp Control/Noise/DTC's B0434 or B3764

Bulletin No.: 06-01-39-015A

Date: January 12, 2007

TECHNICAL

Subject:

Unable To Control Rear HVAC Temperature Or Modes, Intermittent Ticking Noise From Rear HVAC Actuators Or Rear HVAC DTCs B0434 Or B3764 (Replace Auxiliary HVAC Control Module)

Models:

2003-2006 Cadillac Escalade Models
2003-2006 Chevrolet Suburban, Tahoe
2003-2006 GMC Yukon Models

with Automatic Control HVAC System and Rear A/C (RPOs CJ2 and C69)

Supercede:

This bulletin is being revised to correct one of the blower motor control module part numbers. Please discard Corporate Bulletin Number 06-01-39-015 (Section - 01 HVAC).

Condition

Some customers may comment on one or more of the following conditions:

An intermittent ticking/clicking noise from the rear Heating, Ventilation and Air Conditioning (HVAC) system.

Unable to control rear HVAC system temperature.

Unable to change rear HVAC system modes.

Technicians may find that Diagnostic Trouble Codes (DTCs) B0434 and/or B3764 have been set.

Cause

These conditions may be caused by HVAC actuators that hunt for the correct position. This cycling may cause a clicking or ticking noise.

An overtravel of the HVAC system control doors may cause one or more of the above system conditions. If an overtravel occurs, a DTC will be set, and the door will go to a preset default position.

Overtravel DTC	System Door Affected
B0434	Auxiliary (rear) Air Temperature Actuator
B3764	Auxiliary (rear) Mode Actuator

When a system door defaults, that door will stay at the default position until the DTC is cleared. Clearing the DTC will allow the door to operate properly until the overtravel condition reoccurs. The table lists the DTCs that may have been set and the door that is associated with that code.

Correction

Technicians are to replace the auxiliary (rear) HVAC control module with the part number listed in the table. Refer to the Auxiliary Heater and Air Conditioning Control Module Replacement procedure in SI for more information. This module contains a new calibration to compensate for the actuator overtravel condition and the hunting/clicking noises. The new calibration effectively eliminates DTCs B0434 and B3764. The new control module also eliminates the default position of the doors associated with the DTC. The new control module will allow door travel from counts 0 to 255 without setting a DTC or defaulting the door.

The new auxiliary HVAC control module is compatible with either the first or second design blower motor control module. When using the new auxiliary HVAC control module, the customer may notice a slight increase in the rear blower motor speed (approximately 50 rpm) at a given setting, as compared to the blower motor speed at the same setting with the original HVAC control module. If the customer comments that the increase in blower speed at a given setting is objectionable, the blower motor control module may be replaced with the second design part listed below to correct the slight increase in speed.

The revised auxiliary HVAC control module should not be used unless one or both of the DTCs are set or one or more of the conditions listed above are present. The revised auxiliary HVAC control module will not correct any other DTC or Air Conditioning (A/C) performance concern.

Parts Information

Part Number	Description	Qty
15832319	Module Assembly-Auxiliary Heater & A/C Control	1

Auxiliary HVAC Control Module

The blower motor control modules listed below should not be used unless the customer finds the change in blower speeds between the original and the new auxiliary HVAC control modules objectionable.

Part Number	Part Description	Vehicle Application	Quantity
89024926	Module Assembly, Auxiliary Heater & A/C Control (Auxiliary Blower Motor Control Module) (Second Design)	Escalade, Tahoe, Yukon (vehicles with a short wheelbase)	1
89018849	Module Assembly, Auxiliary Heater & A/C Control (Auxiliary Blower Motor Control Module) (Second Design)	Escalade ESV, Suburban, Yukon XL (vehicles with a long wheelbase)	1

Blower Motor Control Modules

Warranty Information

Labor Operation	Description	Labor Time
D0901	Module, HVAC Control-Auxiliary – Replace	Use Published Labor Operation Time
Add	With Third Row Seat	

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 05-01-38-012C

Date: 061102

A/C - Blower Motor Inop. or Works On Low Speed Only

Bulletin No.: 05-01-38-012C

Date: November 02, 2006

TECHNICAL

Subject:

EI05082 - Loss of Blower Motor Speeds Except for Low Speed or Inoperative (Replace Blower Motor Resistor and Resistor Module Connector)

Models:

2004-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe, TrailBlazer, TrailBlazer EXT

2007 Chevrolet Silverado (Classic) Built Prior to September 1, 2006

2004-2006 GMC Envoy, Envoy XL, Sierra, Yukon, Yukon Denali, Yukon XL

2007 GMC Sierra (Classic) Built Prior to September 1, 2006

with HVAC System AC Front, Manual Temp Control (RPO CJ3) or Heater Only (RPO C42)

Supersede:

This bulletin is being revised to clarify the Warranty Information. Please discard Corporate Bulletin Number 05-01-38-012B (Section 01 - HVAC).

Condition

Some customers may comment that the blower will only work on low speeds or has become inoperative.

Correction

REPLACE THE BLOWER MOTOR RESISTOR AND RESISTOR MODULE CONNECTOR.

Replace the blower motor resistor and module connector using the following procedure:

Remove the blower fuse.

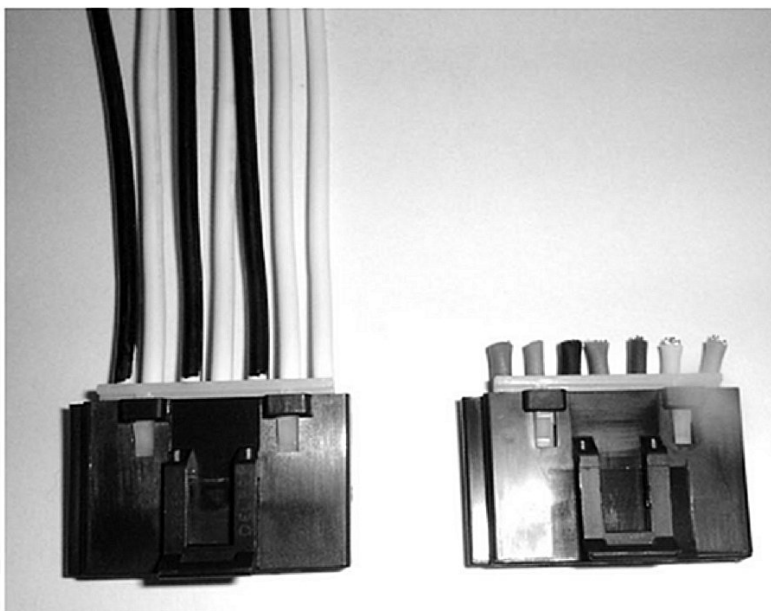
Fullsize Trucks and Utility Vehicles - Htr A/C & HVAC 1 fuses

Midsize Utility Vehicles - Blower Fuse 35 located in the Underhood Fuse Block

Lower the hush panel or close-out panel enough to gain access to the resistor module connector.

Disconnect the connector from the resistor module.

Remove the tape from the wiring harness to expose the wiring.



Cut the wires back far enough from the connector to eliminate any melted insulation on the wire.

Tip

Use the old connector as a map for splicing the wires for the new connector. Be sure to use the correct crimping tool from the terminal repair kit J 38125. Use only Duraseal splice sleeves. Other splice sleeves may not protect the splice from moisture or provide a good electrical connection.

Install the new connector. Use the yellow splice sleeves provided with the connector.

Install new blower motor resistor.

Reinstall the fuse or connector block. Test the blower motor to make sure all speeds are functional.

Reinstall the hush panel/close-out panel.

To determine which resistor to use for Fullsize Truck/Utility vehicles, search the parts catalog using the vehicle's VIN.

Part Number	Description	Qty
15862656	Connector – Resistor Blower Motor (includes splice sleeves)	1
89019088	Resistor — Blower Motor (Fullsize Truck/Utility)	1
89019089	Resistor — Blower Motor (Fullsize Truck/Utility)	1
89019100	Resistor - HVAC & A/C (midsize utility vehicles)	1


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
N9561*	HVAC Module Connector and Resistor – Replace	0.6 hr
*This is a unique labor operation number for bulletin use only. This number will not be published in the Labor Time Guide.		

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 00-03-10-002D

Date: 060801

Wheels Chrome Wheel Chemical Staining/Pitting/Corrosion

Bulletin No.: 00-03-10-002D

Date: August 01, 2006

INFORMATION

Subject:
Chemical Staining, Pitting, Corrosion and/or Spotted Appearance of Chromed Aluminum Wheels

Models:
2007 and Prior GM Cars and Trucks (Including Saturn)
2003-2007 HUMMER H2

2006-2007 HUMMER H3
2005-2007 Saab 9-7X

Supercede:

This bulletin is being revised to add models and model years as well as update the information and subject. Please discard Corporate Bulletin Number 00-03-10-002C (Section 03 - Suspension).

Important:

You may give a copy of this bulletin to the customer.

What is Chemical Staining of Chrome Wheels?

Figure 1



Chemical staining in most cases results from acid based cleaners (refer to Figure 1 for an example). These stains are frequently milky or greenish in appearance. They result from using cleaning solutions that contain hydrofluoric, oxalic and most other acids on chrome wheels (or any wheels). Soap and water is usually sufficient to clean chrome wheels, but if a cleaner must be used on chrome wheels, GM Chrome and Wire Wheel Cleaner, P/N 1052929 (in Canada, use P/N 10953202), or equivalent, is recommended. Do not use cleaning solutions that contain hydrofluoric, oxalic and most other acids on chrome wheels (or any wheels).

Note:

Many wheel cleaner instructions advise to take care to avoid contact with painted surfaces. Most customers think of painted surfaces as the fenders, quarter panels and other exterior sheet metal. Many vehicles have painted brake calipers. Acidic wheel cleaners may craze, crack, or discolor the paint on the brake calipers. Damage from wheel cleaners is not covered under the vehicle new car warranty. Soap and water applied with a soft brush is usually all that is required to clean the calipers.

Important:

GM Chrome and Wire Wheel cleaner, P/N 1052929 (in Canada, P/N 10953202), has a mild phosphoric acid, which will not stain the chrome. However, do not use this product on clear-coated aluminum wheels.

Whenever any wheel cleaner is used, it must be THOROUGHLY rinsed off of the wheel with clean, clear water. Special care must be taken to rinse under the hub cap, balance weights, wheel nuts, lug nut caps, between the wheel cladding and off the back side of the wheel.

Note:

Do not use cleaning solutions that contain hydrofluoric, oxalic and most other acids on chrome wheels (or any wheels).

If the customer is unsure of the chemical make-up of a particular wheel cleaner, it should be avoided.

For wheels showing signs of milky staining from acidic cleaners, refer to Customer Assistance and Instructions below.

Warranty of Stained Chrome Wheels

Stained wheels are not warrantable. Most acid based cleaners will permanently stain chrome wheels. Follow-up with dealers has confirmed that such cleaners were used on wheels that were returned to the Warranty Parts Center (WPC). Any stained wheels received by the WPC will be charged back to the dealership. To assist the customer, refer to Customer Assistance and Instructions below.

Pitting or Spotted Appearance of Chrome Wheels



A second type of staining or finish disturbance may result from road chemicals, such as calcium chloride used for dust control of unpaved roads. The staining will look like small pitting (refer to Figure 2 shown). This staining will usually be on the leading edges of each wheel spoke, but may be uniformly distributed. If a vehicle must be operated under such conditions, the chrome wheels should be washed with mild soap and water and thoroughly rinsed as soon as conveniently possible.

Important:

Road chemicals, such as calcium chloride used for dust control of unpaved roads, can also stain chrome wheels. The staining will look like small pitting. This staining will usually be on the leading edges of each wheel spoke. This is explained by the vehicle traveling in the forward direction while being splashed by the road chemical. If a vehicle must be operated under such conditions, the chrome wheels should be washed with mild soap and water and thoroughly rinsed as soon as conveniently possible.

Warranty of Pitted or Spotted Chrome Wheels

Wheels returned with pitting or spotting as a result of road chemicals may be replaced one time. Damage resulting from contact with these applied road chemicals is corrosive to the wheels finish and may cause damage if the wheels are not kept clean.

Important:

Notify the customer that this is a one time replacement. Please stress to the customer the vital importance of keeping the wheels clean if they are operating the vehicle in an area that applies calcium chloride or other dust controlling chemicals! "GM of Canada" dealers require prior District Service Manager approval.

Customer Assistance and Instructions

GM has looked for ways customers may improve the appearance of wheels damaged by acidic cleaners. The following product and procedure has been found to dramatically improve the appearance of stained wheels. For wheels that have milky stains caused by acidic cleaners try the following:

Note:

THE 3M CHROME AND METAL POLISH REQUIRED FOR THIS PROCEDURE IS AN EXTREMELY AGGRESSIVE

POLISH/CLEANER. THE WHEELS MUST BE CLEANED BEFORE APPLICATION TO AVOID SCRATCHING THE WHEEL SURFACE. THIS PRODUCT WILL REDUCE THE THICKNESS OF THE CHROME PLATING ON THE WHEEL AND IF USED INCORRECTLY OR EXCESSIVELY MAY REMOVE THE CHROME PLATING ALL TOGETHER, EXPOSING A LESS BRIGHT AND BRASSY COLORED SUB-LAYER. FOLLOW INSTRUCTIONS EXACTLY.

1. Wash the wheels with GM Chrome and Wire Wheel Cleaner, P/N 1052929 (in Canada, use P/N 10953202). Follow the instructions as indicated on the bottle for stubborn stains. This step will clean and may reduce wheel staining. Flood all areas of the wheel with water to rinse.
2. Dry the wheels completely.

Note:

Begin with a small section of the wheel and with light pressure buff off polish and examine results. ONLY apply and rub with sufficient force and time to remove enough staining that you are satisfied with the results. Some wheels may be stained to the extent that you may only achieve a 50% improvement while others may be able to be restored to the original lustre. IN ALL CASES, only apply until the results are satisfactory.

3. Apply *3M Chrome and Metal Polish # 39527 with a clean terry cloth towel. As you apply the polish, the staining will be diminished.
4. When dry, buff off the polish with a clean portion of the towel.
5. Repeat application of the 3M Chrome and Metal Polish until satisfied with the results. If continued applications fail to improve the appearance further discontinue use.

This procedure will improve the appearance of the wheels and may, with repeated applications, restore the finish dramatically. For wheels that exhibit spotting from road chemicals the above procedure may marginally improve the condition but will not restore the finish or remove the pitting. In this type of staining the wheel finish has actually been removed in spots and no manner of cleaning will restore the finish.

*We believe this source and their products to be reliable. There may be additional manufacturers of such products/materials. General Motors does not endorse, indicate any preference for or assume any responsibility for the products or material from this firm or for any such items that may be available from other sources.


Part Number	Description
1052929 (US)	*GM Chrome and Wire Wheel Cleaner
10953202 (Canada)	
39527	**3M Chrome and Metal Polish (10 oz)

*Not available to Saturn Retailers. Saturn Retailers are to use soap and water.

**This product is currently available from 3M. To obtain information for your local retail location please call 3M at 1-800-364-3577.

Parts Information

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Technical Service Bulletin # 06-03-10-010

Date: 060907

Wheels - Changing Procedures/Precautions

Bulletin No.: 06-03-10-010

Date: September 07, 2006

INFORMATION

Subject:

Information on Proper Wheel Changing Procedures and Cautions

Models:

2007 and Prior GM Passenger Cars and Trucks (including Saturn)

2007 and Prior HUMMER Models

2005-2007 Saab 9-7X

Attention:

Complete wheel changing instructions for each vehicle line can be found under Tire and Wheel Removal and Installation in Service Information (SI). This bulletin is intended to quickly review and reinforce simple but vital procedures to reduce the possibility of achieving low torque during wheel installation. Always refer to SI for wheel lug nut torque specifications and complete jacking instructions for safe wheel changing.

Frequency of Wheel Changes - Marketplace Driven

Just a few years ago, the increasing longevity of tires along with greater resistance to punctures had reduced the number of times wheels were removed to just required tire rotation intervals. Today with the booming business in accessory wheels/special application tires (such as winter tires), consumers are having tire/wheel assemblies removed - replaced - or installed more than ever. With this increased activity, it opens up more of a chance for error on the part of the technician. This bulletin will review a few of the common concerns and mistakes to make yourself aware of.

Proper Servicing Starts With the Right Tools

The following tools have been made available to assist in proper wheel and tire removal and installation. J 39544-KIT Complete Torque Socket Set or equivalent.

J 41013 Rotor Resurfacing Kit or Equivalent

J 42450-A Wheel Hub Resurfacing Kit or Equivalent

Corroded Surfaces

One area of concern is corrosion on the mating surfaces of the wheel to the hub on the vehicle. Excessive corrosion, dirt, rust or debris built up on these surfaces can mimic a properly tightened wheel in the service stall. Once the vehicle is driven, the debris may loosen, grind up or be washed away from water splash. This action may result in clearance at the mating surface of the wheel and an under-torqued condition.

Before installing a wheel, remove any buildup on the wheel mounting surface and brake drum or brake disc mounting surface. Installing wheels with poor metal-to-metal contact at the mounting surfaces can cause wheel nuts to loosen. This may cause a wheel to come off when the vehicle is moving, possibly resulting in a loss of control or personal injury.

Whenever you remove the tire/wheel assemblies, you must inspect the mating surfaces. If corrosion is found, you should remove the debris with a die grinder equipped with a fine sanding pad, wire brush or cleaning disc. Just remove enough material to assure a clean, smooth mating surface.

The J 41013, or equivalent can be used to clean the following surfaces:

The hub mounting surface

The brake rotor mounting surface

The wheel mounting surface

Use the J 42450-A or equivalent, to clean around the base of the studs and the hub.

Lubricants, Grease and Fluids

Some customers may use penetrating oils, grease or other lubricants on wheel studs to aid in removal or installation. Always use a suitable cleaner/solvent to remove these lubricants prior to installing the wheel and tire assemblies. Lubricants left on the wheel studs may cause improper readings of wheel nut torque.

Always install wheels to clean, dry wheel studs ONLY.

Lubricants left on the wheel studs or vertical mounting surfaces between the wheel and the rotor or drum may cause the wheel to work itself loose after the vehicle is driven. Always install wheels to clean, dry wheel studs and surfaces ONLY.

Wheel Stud and Lug Nut Damage

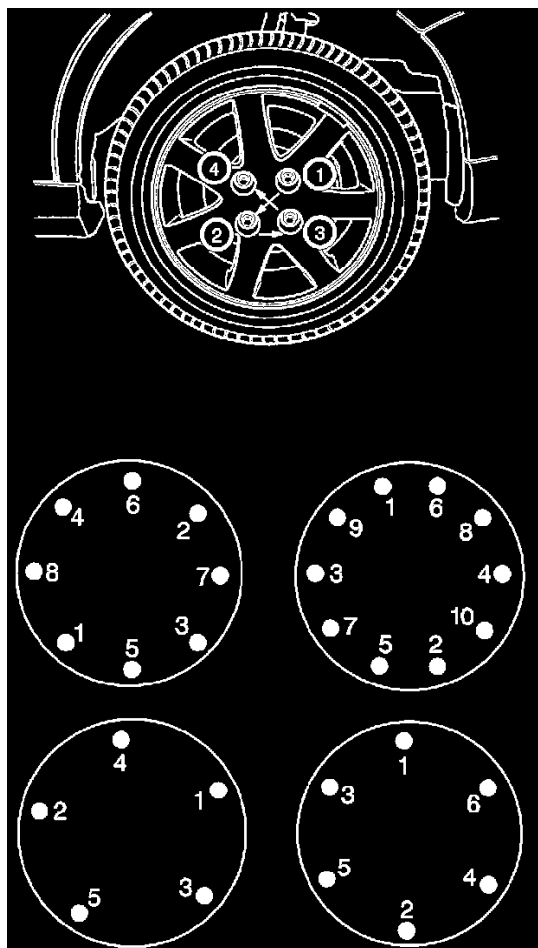
Always inspect the wheel studs and lug nuts for signs of damage from cross threading or abuse. You should never have to force wheel nuts down the stud. Lug nuts that are damaged may not retain properly, yet give the impression of fully tightening. Always inspect and replace any component suspected of damage.

Tip

Always start wheel nuts by hand! Be certain that all wheel nut threads have been engaged BEFORE tightening the nut.

If the vehicle has directional tread tires, verify the directional arrow on the outboard side of the tire is pointing in the direction of forward rotation.

Wheel Nut Tightening and Torque



Improper wheel nut tightening can lead to brake pulsation and rotor damage. In order to avoid additional brake repairs, evenly tighten the wheel nuts to the proper torque specification as shown for each vehicle in SI. Use the J 39544-KIT, or the equivalent torque stick, in order to tighten the nuts with an impact wrench. When running the nuts down the studs, run the impact wrench at a reasonable speed. Always observe the proper wheel nut tightening sequence as shown in order to avoid trapping the wheel on the wheel stud threads or clamping the wheel slightly off center resulting in vibration.

The Most Important Service You Provide

While the above information is well known, and wheel removal so common, technicians run the risk of becoming complacent on this very important service operation. A simple distraction or time constraint that rushes the job may result in personal injury if the greatest of care is not exercised. Make it a habit to double check your work and to always side with caution when installing wheels.

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Tires - Spare Tire Different Size Than Other Tires

Bulletin No.: 02-03-10-001C

Date: August 28, 2006

INFORMATION

Subject:

Spare Tire is a Different Size than Other Tires

Models:

2002-2007 Cadillac Escalade Models
2000-2007 Chevrolet Suburban, Tahoe
2002-2007 Chevrolet Avalanche
1999-2007 Chevrolet Silverado (Classic)
2001 GMC Sierra C3
2001-2007 GMC Yukon Models
2002-2007 GMC Sierra Denali
1999-2007 GMC Sierra (Classic)

Supercede:

This bulletin is being revised to include the 18" and 22" Accessory Wheel available through GMSPO and to update the model years. Please discard Corporate Bulletin Number 02-03-10-001B (Section 03 - Suspension).

This bulletin is being issued to supply additional information concerning the spare tire on the above vehicles. You or your customers may have noticed that the spare tire has a 16-inch diameter steel wheel while the road tires have a 17-inch, 18-inch, 20-inch or 22-inch diameter aluminum wheel.

Although the spare tire has a different wheel diameter and may be a different brand, the rolling circumference is nearly identical to the road tires. The size difference will not cause a concern because the spare and the other tires will travel the same distance in one revolution.

This combination of non-matching tires is used most often on full-size trucks. These vehicles use a road tire and wheel combination that may be too large to conveniently fit the storage compartment space of the vehicle. The customer may not be able to easily remove the spare tire/wheel from the storage area because of its size and/or weight. A steel spare wheel, rather than an aluminum one, may be used since the spare is stowed under the vehicle where it is exposed to road and weather elements. A steel wheel is less likely to incur cosmetic damage while in the stowed position for long periods of time.

Please provide this information to your customers. Also, remind your customers of the importance of following the tire maintenance schedule as listed in their Owner Manual. Additional tire care information can be found by visiting www.gmtiresafety.com or contacting GM toll-free at 1-866-522-0505.

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Disclaimer Technical Service Bulletin # **06-06-04-046**

Date: **060912**

Engine Controls - MIL ON/Misfire/Misfire DTC's Set

Bulletin No.: 06-06-04-046

Date: September 12, 2006

INFORMATION

Subject:

Information on Engine Misfire MIL/SES Light Illuminated or Flashing DTC P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0420 or P0430

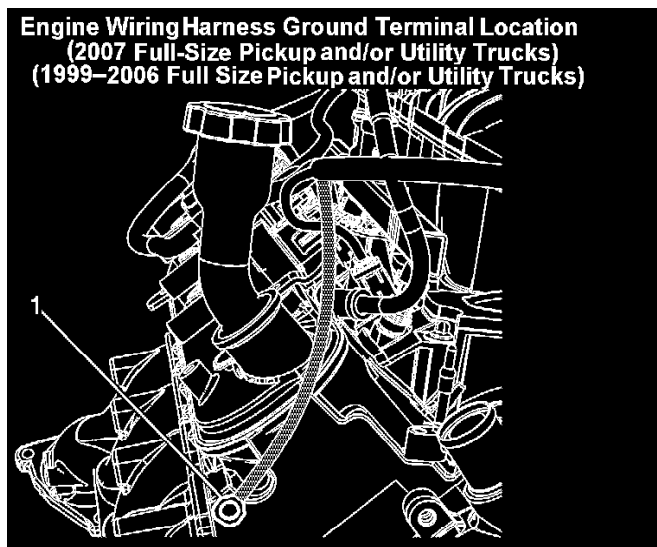
Models:

1999-2007 Cadillac, Chevrolet, GMC Full-Size Pickup and/or Utility Trucks

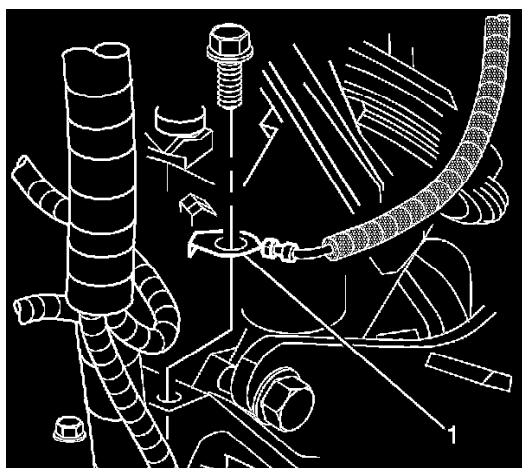
with 4.8L, 5.3L, 5.7L, 6.0L or 6.2L VORTEC GEN III, GEN IV, V-8 Engine (VINs V, C, T, Z, B, 3, M, 0, J, R, U, N, Y, K, 8 - RPOs LR4, LY2, LM7, L59, L33, LC9, LH6, LMG, LY5, L31, LQ4, LQ9, L76, LY6, L92)

with Active Fuel Management(TM) and E85 Flex Fuel

If you encounter vehicles that exhibit the above conditions, refer to SI for the appropriate DTC(s) set. If no trouble is found, the cause may be due to an ECM ground terminal that has corroded with rust over time. Inspect the main engine wiring harness ground terminal (G103) for this condition.



The wire terminal (G103) attaches either to the front or to the rear of the right side cylinder head, depending on the model year of the Full Size Pickup and/or Utility Trucks. If the ECM ground terminal has been found to be corroded, then follow the service procedure outlined in this bulletin to correct the corrosion issue.



Remove either the nut or bolt securing the main engine wiring harness ground terminal (G103) to the right cylinder head. Refer to the above illustration to determine where the ground is located on the vehicle (1).

Remove all rust from the ground terminal, the cylinder head and the retaining nut or bolt.

Position the main engine wiring harness ground terminal and install the nut or bolt.

Tighten:

Tighten the retaining nut or bolt to 16 N.m (12 lb ft).

Apply some type of electrical moisture sealant to protect the harness terminal from further corrosion.

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Disclaimer Technical Service Bulletin # 04-06-04-054A

Date: 070111

Engine Controls - Aftermarket Accessory Usage

Bulletin No.: 04-06-04-054A

Date: January 11, 2007

INFORMATION

Subject:

Non-GM Parts and Accessories (Aftermarket)

Models:

2007 and Prior Passenger Cars and Trucks (Including Saturn)

2007 and Prior HUMMER H2, H3

2005-2007 Saab 9-7X

Supercede:

This bulletin is being updated to add models and model years. Please discard Corporate Bulletin Number 04-06-04-054 (Section 06 - Engine).

The recent rise and expansion of companies selling non-GM parts and accessories has made it necessary to issue this reminder to dealers regarding GM's policy on the use and installation of these components.

When a dealer is performing a repair under the New Vehicle Limited Warranty, they are required to use only genuine GM or GM-approved parts and accessories. This applies to all warranty repairs, special policy repairs or any repairs paid for by GM. Parts and accessories advertised as being "the same" as parts manufactured by GM, but not sold through GM, do not qualify for use in warranty repairs, special policy repairs or any repairs paid for by GM.

During a warranty repair, if a GM original equipment part is not available through GMSPO, ACDelco(R) distributors, other GM dealers or approved sources, the dealer is to obtain comparable, non-GM parts and clearly indicate, in detail, on the repair order the circumstances surrounding why non-GM parts were used. The dealer must give customers written notice, prior to the sale or service, that such parts or accessories are not marketed or warranted by General Motors.

It should also be noted that dealers modifying new vehicles and installing equipment, parts and accessories obtained from sources not authorized by GM are responsible for complying with the National Traffic and Motor Vehicle Safety Act. Certain non-approved parts or assemblies, installed by the dealer or its agent not authorized by GM, may result in a change to the vehicle's design characteristics and may affect the vehicle's ability to conform to federal law. Dealers must fully understand that non-GM approved parts may not have been validated, tested or certified for use. This puts the dealer at risk for potential liability in the event of a part or vehicle failure. If a GM part failure occurs as the result of the installation or use on a non-GM approved part, the warranty will not be honored.

A good example of non-authorized modification of vehicles is the result of an ever increasing supply of after market devices available to the customer, which claim to increase the horsepower and torque of the Duramax(TM) Diesel Engines. These include the addition of, but are not limited to one or more of the following modifications:

Propane injection

Nitrous oxide injection

Additional modules (black boxes) that connect to the vehicle wiring systems

Revised engine calibrations downloaded for the engine control module

Calibration modules which connect to the vehicle diagnostic connector Modification to the engine turbocharger waste gate

Although the installation of these devices, or modification of vehicle components, can increase engine horsepower and torque, they may also negatively affect the engine emissions, reliability and/or durability. In addition, other powertrain components, such as transmissions, universal joints, drive shafts, and front/rear axle components, can be stressed beyond design safety limits by the installation of these devices.

General Motors does not support or endorse the use of devices or modifications that, when installed, increase the engine horsepower and torque.

These same policies apply as they relate to the use of non-GM accessories. Damage or failure from the use or installation of a non-GM accessory will not be covered under warranty. Failure resulting from the alteration or modification of the vehicle, including the cutting, welding or disconnecting of the vehicle's original equipment parts and components will void the warranty.

Additionally, dealers will NOT be reimbursed or compensated by GM in the event of any legal inquiry at either the local, state or federal level that results from the alteration or modification of a vehicle using non-GM approved parts or accessories.

Dealers should be especially cautious of accessory companies that claim the installation of their product will not void the factory warranty. Many times these companies have even given direction on how to quickly disassemble the accessory in an attempt to preclude the manufacturer from finding out that it has been installed.

Any suspect repairs should be reviewed by the Area Service Manager (District Service Manager in Canada) for appropriate repair direction. If it is decided that a goodwill repair is to be made on the vehicle, even with the installation of such non-GM approved components, the customer is to be made aware of General Motors position on this issue and is to sign the appropriate goodwill documentation required by General Motors.

It is imperative for dealers to understand that by installing such devices, they are jeopardizing not only the warranty coverage, but also the performance and reliability of the customer's vehicle.

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Technical Service Bulletin # 02-08-98-001C

Date: 061009

Body - Metal Panel Adhesive Bonding Information

Bulletin No.: 02-08-98-001C

Date: October 09, 2006

INFORMATION

Subject:

Metal Panel Bonding

Models:

2007 and Prior GM Passenger Cars and Trucks (Including Saturn)

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

2007 and Prior Isuzu Medium Duty Commercial Trucks

Attention:

This bulletin applies to all models that have published panel bonding procedures in SI.

Supersede:

This bulletin is being revised to update the applicable models and add information. Please discard Corporate Bulletin Number 02-08-98-001B (Section 08 - Body and Accessories).

This bulletin is intended to provide general information for adhesive bonding of Non-Structural exterior panels as an alternative to MIG welding. Panel bonding may be seen as an alternative to MIG welding to provide full panel replacement in regards to collision repair procedures. The benefits of panel bonding include the following:

No heat or burn damage when additional welding is not required

Corrosion protection

Can act as a sealant

Improved process for complicated shapes (wheelhouse area)

The General Motors specification for metal bonding adhesives is GM 6449G and provides test and standards information to adhesive manufacturers and suppliers. The scope of this specification is intended to provide the performance guidelines of structural adhesive systems used to repair (metallic) automotive bodies in the aftermarket. These types of adhesives are intended for use when bonding Non-Structural replacement body panels as an option

to welding as the attachment means. Supplier guidelines outline the use of room temperature cure acrylic adhesives that contain glass bead technology.

Bonding procedures in general are applicable only to a factory seams type approach. Sectioning or partial paneling of full panels is not supported by General Motors unless specifically documented in a Service Bulletin or Manual.

Applicable components for this technology are NON-STRUCTURAL EXTERIOR PANELS ONLY, including door skins, tail panels, roof outer panels and quarter panels. While this bonding process has gained popularity, General Motors only supports this process for vehicles which it has published written repair procedures that are found in a Service Manual or Bulletin.

Manufacturer and Part Number	Description
GM P/N 12378566 (US)	Fast Set Bonding Adhesive
GM P/N 88901674 (Canada)	
Lord Fusor P/N 110B/111B	
GM P/N 12378567 (US)	Medium Set Panel Bonding Adhesive
GM P/N 88901675 (Canada)	
Lord Fusor P/N 108B/109B	
3M P/N 8116	Panel Bonding Adhesive
Ashland Plio Grip Panel 60	Panel Bonding Adhesive
The dispensing tool may be purchased locally. (Painters Supply Store)	


Adhesives currently meeting the performance requirements include General Motors materials, Lord Adhesives, Ashland Plio Grip, and products manufactured by 3M Corporation. At this time, ONLY the adhesive products shown meet this guideline.

Service information is also available on the web.

(www.acdelcotechconnect.com) - This website includes service repair information for the total vehicle and is a subscription based site.

(www.techinfo.gmgoodwrench.com) - This website includes select collision repair information only and is downloadable and free to the user.

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WE SUPPORT
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Date: January 17, 2007

INFORMATION

Subject:
Hem Flange Rust Repair

Models:
2007 and Prior Passenger Cars and Trucks (Including Saturn)
2007 and Prior HUMMER H2, H3
2007 and Prior Saab 9-7X

Supercede:

This bulletin is being revised to add the 2007 model year and HUMMER, Saturn and Saab vehicles. Please discard Corporate Bulletin Number 02-08-98-002A (Section 08 - Body and Accessories).

In the event that hem flange corrosion becomes a concern, a new tool has been released by Kent Moore, J 46162, which allows for easier opening of the hem flange.

Repair Procedure

Remove the body panel from the vehicle.

Clean the hem flange area with wax and grease remover.

Using Kit J 46162, insert the tool into an air impact gun and open the hem flange up starting at one end.

Clean out the corrosion by "sand blasting" or by using *3M(R) Strip Disc, P/N 07460.

If perforation is present, replace the affected panel.

Inspect the area for rust perforation or "micro pin holes".

Apply anticorrosion primer to the hem flange.

Apply a bead of *LORD FUSOR, P/N 108B or 109B, adhesive to the hem flange. Follow the manufacturer,s recommendations for use.

Close the hem flange using the tool in the kit.

Clean off excessive adhesive from the repair area.

Refer to the 2007 GM Approved Refinish Materials booklet (GM 4901 MD-2007) for specific products.

To access the booklet, go to www.gmgoodwrench.com. Click on GM Collision Parts. Then click on GM Technical Repair Information. Finally, select Paint Shop.

Prime and refinish the area as required.

*We believe these sources and their products to be reliable. There may be additional manufacturers of such material. General Motors does not endorse, indicate any preference for or assume any responsibility for the products from these firms or for any such items which may be available from other sources.

Parts Information

To order this tool (J 46162), call Kent Moore at 1-800-GMTOOLS.

LORD FUSOR and 3M(R) Strip Disc may be obtained from your local body shop supplier.

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Disclaimer Technical Service Bulletin # **06-06-04-037**

Date: **060804**

Engine Controls - MIL Function During I/M Testing

Bulletin No.: 06-06-04-037

Date: August 04, 2006

INFORMATION

Subject:

Normal Characteristics of Malfunction Indicator Lamp (MIL) During On-Board Diagnostic (OBD) Inspection/Maintenance (I/M) Testing

Models:

2007 and Prior Passenger Cars and Trucks (Including Saturn)

2007 and Prior HUMMER H2, H3

2007 and Prior Saab 9-7X

The purpose of this bulletin is to inform dealers and OBD inspection/maintenance testing facilities of normal characteristics of the malfunction indicator lamp (MIL) and the engine or powertrain control module (ECM or PCM).

Some customers may comment on having been rejected or having failed an OBD emission inspection. In some cases, these vehicles do not need repair and may have been rejected or may have failed the OBD emission inspection due to a lack of understanding with regard to the normal characteristics of the MIL and ECM/PCM.

Following an engine run period, the MIL may not illuminate on an ignition OFF to ignition ON transition unless a 30 second delay is observed between key OFF and key ON. The delay is necessary on some control modules to allow the control module, either ECM or PCM, to power down. Most vehicles may require less time to achieve power down, but a 30 second delay will satisfy all known applications. This is normal operation for all GM control modules.

Some OBD I/M emissions test centers may not wait 30 seconds after a vehicle is turned off before proceeding with the MIL bulb check, which could result in a vehicle rejection or test failure.

To confirm proper MIL operation, wait 30 seconds after the ignition is turned OFF before proceeding with any key ON bulb check.

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Disclaimer Technical Service Bulletin # **00-06-04-033B**

Date: **061010**

Emissions - OBDII I/M Readiness Testing

Bulletin No.: 00-06-04-033B

Date: October 10, 2006

INFORMATION

Subject:

I/M Readiness as Part of Emission Inspection and Maintenance Program for OBD II Vehicles

Models:

1996-2007 GM Passenger Cars and Light Duty Trucks (Including Saturn)

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

with OBD II Emissions Systems

Attention:

"GM of Canada" and "IPC" Dealers are not authorized to utilize this Service Bulletin.

Supercede:

This bulletin is being revised to add models, model years and additional information on emission testing. Please discard Corporate Bulletin Number 00-06-04-033A (Section 06 - Engine-Engine Controls).

Inspection Maintenance (I/M) Program

Several states require that vehicles pass OBD system I/M emissions inspection. These inspections may apply to any 1996 and newer model year OBD II equipped passenger cars and light duty trucks.

As part of an OBD I/M emission inspection, the vehicles I/M readiness status is checked to ensure that the vehicle's OBD system has properly evaluated the emissions systems of the vehicle for proper operation. To ensure vehicles are capable of passing this portion of the inspection, technicians can review the I/M readiness test status using the I/M System Status display on the Tech(R)2. This display provides test data that will verify whether the vehicle's OBD systems have run. States performing inspections on an advisory basis will not reject vehicles for not being I/M-ready.

Conditions for Updating the I/M System Status

Each OBD II system requires at least one diagnostic test. A system monitor is complete when all of the DTCs that report to the system monitor have run and passed or failed. The results of a failed test are reported by a diagnostic trouble code (DTC).

Once all of the tests are complete, the I/M System Status display indicates YES in the "Completed" column. For example, when the HO2S Heater Test indicates YES, all oxygen sensor heaters have been diagnosed.

When any required test for a specified system has not run, the "Completed" column under I/M System Status displays NO. The following is a list of conditions that would set the I/M System Status indicator to NO:

The vehicle is new from the factory and has not yet been driven through the necessary drive conditions to complete the tests.

The battery has been disconnected or discharged below operating voltage.

The control module power or ground has been interrupted.

The control module has been reprogrammed.

The control module DTCs have been cleared as part of a service procedure.

Monitored Emission Control Systems

The OBD II System monitors all emission control systems that are on-board. Not all vehicles have a full complement of emission control systems. For example, a vehicle may not be equipped with AIR or EGR.

The following is a complete list of the vehicle's systems that may require monitoring by the OBD system:

Air conditioning system

Catalytic converter efficiency

Comprehensive component monitoring (emission-related inputs and outputs)

Evaporative Emissions (EVAP) system

Exhaust Gas Recirculation (EGR) system

Fuel delivery system

Heated catalyst monitoring

Misfire monitoring

Oxygen sensor system (O2S or HO2S)

Oxygen sensor heater system (HO2S heater)

Secondary Air Injection (AIR) system

If a specific vehicle is not required to monitor one or more of the above listed systems, the Tech(R)2 display will read "not supported." Any non-supported system will not be considered when determining the readiness of the overall system.

For the specific DTCs related to each system, refer to SI (Service Information) for further diagnostic information on conditions for running the DTC or refer to the publication information mentioned in this bulletin to order the Inspection Maintenance Emissions Diagnostics Manual and follow the I/M Readiness Testing System DTC Tables. Systems such as fuel delivery, misfire, and comprehensive components may not be listed in a system status list. These tests run continuously on some vehicles and may not require an indicator.

Diagnostic Aids

The I/M System Status display indicates when the control module has completed the required tests. This does not necessarily mean that the test has passed, only that a decision was made. If the diagnostic fails, a DTC will indicate the failure. If a failure indication is present, it may prevent other required tests from running. For example, a DTC for the control circuit of the relay controlling an AIR pump may not be listed in the Inspection Maintenance System DTC Table because it is a continuous test. If this DTC is set, the Active Tests for the AIR system may not run and AIR system readiness could display "NO."

The I/M System Status information may be useful for a technician to determine if diagnostics have run when verifying repairs.

Publications

General Motors Service and Parts Operations has published a supplement titled "Inspection Maintenance Emissions Diagnostics Manual" (Item # SD-MA-IM240).

This publication includes the content of the General Motors Green Books (GMPT/97-IM240 and GMPT/95-IM240). Content covers enhanced I/M program, including the procedures for setting OBD II monitors. To order this manual, contact ACDelco(R) at 1-800-825-5886.

Training

General Motors Service Technical College (STC) offers two courses for technicians to address service issues related to this type of testing.

16042.10B, H Enhanced Vehicle Emissions, Testing and Diagnostics

16044.14W3 GM Powertrain Performance

For more information about service technical training, visit the GM Training website.

Having competent, trained technicians will give your Service Department a competitive edge by offering your customers a dependable repair facility which can fix vehicles right the first time.

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Disclaimer Technical Service Bulletin # **06-08-48-002**

Date: **061005**

Body - New Design Back Glass Availability

Bulletin No.: 06-08-48-002

Date: October 05, 2006

INFORMATION

Subject:

Availability of A New Design Back Glass

Models:

2000 Cadillac Escalade
 2002-2005 Cadillac Escalade, Escalade EXT
 2000-2005 Chevrolet Suburban, Tahoe
 2000-2003 GMC Yukon, Yukon XL, Yukon Denali
 2004-2005 GMC Yukon Denali XL

The purpose of this bulletin is to inform dealers of a new design back glass for the full-size utility trucks. The original equipment back glass on the 2000-2005 full-size utility trucks featured an encapsulated back glass. The rim of the glass was encased with a black rubber trim. In 2006, a new design back glass eliminated the encapsulation. The second design back glass is fully interchangeable. The encapsulated 2000-2005 back glass is no longer available from GMSPO.

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Disclaimer Technical Service Bulletin # **04-08-111-002B**

Date: **061026**

Body - Dimple In Body Side Molding(s)

Bulletin No.: 04-08-111-002B

Date: October 26, 2006

TECHNICAL

Subject:

Dimple in Body Side Molding (Replace Moldings)

Models:

2004 Chevrolet Avalanche without Body Hardware (RPO WBH)
 2004 Chevrolet Silverado, Suburban, Tahoe

with Body/Side Exterior-Molding-in-Color (RPO B85)

Supercede:

This bulletin is being revised to change the Warranty and add a revised parts information statement. Please discard Corporate Bulletin Number 04-08-111-002A (Section 08 - Body and Accessories).

Condition

Some customers may comment on a raised surface or a dimple in the exterior molded-in-color body side door moldings. This condition may be more pronounced in warmer climates. This does not apply to standard colored keyed black body side moldings.

Cause

Engineering has determined that this condition may be caused by a bar code label on the backside of the molding that dimples the molding.

Correction

Replace ALL of the exterior body side door moldings. Refer to Molding Replacement-Body Side procedure in SI.

Dealer Action

Please contact all customers that were told they would be called when a repair became available.

Parts Information

Part Number	Description	Model/Application
15103884	Molding, RR S/D (LH) Wht	Chevy Extended Cab W8624/50U
15103885	Molding, RR S/D (RH) Wht	Chevy Extended Cab W8624/50U
15103886	Molding, RR S/D (RH) Wht	Chevy Crew Cab/Suburban W8624/50U
15103887	Molding, RR S/D (LH) Wht	Chevy Crew Cab/Suburban W8624/50U

15103888	Molding, Frt S/D Lwr Wht	Chevy Regular Cab W8624/50U
15103889	Molding, Frt S/D Lwr (LH) Wht	Chevy Extended /Crew Cab W8624/50U
15103890	Molding, Frt S/D Lwr (RH) Wht	Chevy Extended /Crew Cab W8624/50U
15113361	Molding, Frt S/D Lwr (LH) Sdw	Chevy Tahoe/Suburban W711J/58U
15113362	Molding, Frt S/D Lwr (RH) Sdw	Chevy Tahoe/Suburban W711J/58U
15113363	Molding, Frt S/D Lwr (LH) Red	Chevy Tahoe/Suburban W817K/63U
15113364	Molding, Frt S/D Lwr (RH) Red	Tahoe W817K/63U
15113492	Molding, RR S/D (LH) Wht	Tahoe W8624/50U
15113493	Molding, RR S/D (LH) Wht	Tahoe W8624/50U
15113494	Molding, RR S/D (LH) Sdw	Tahoe W711J/58U
15113495	Molding, RR S/D (RH) Sdw	Tahoe W711J/58U
15113496	Molding, RR S/D (RH) Grn	Tahoe W9539/47U
15113497	Molding, RR S/D (RH) Grn	Tahoe W9539/47U
15113498	Molding, RR S/D (LH) Silv	Tahoe W926L/59U
15113499	Molding, RR S/D (RH) Silv	Tahoe W926L/59U
15113500	Molding, RR S/D (LH) Red	Tahoe W817K/63U
15113501	Molding, RR S/D (RH) Red	Tahoe W817K/63U
15113502	Molding, RR S/D (LH) Sdw	Suburban W711J/58U
15113503	Molding, RR S/D (RH) Sdw	Suburban W711J/58U
15113504	Molding, RR S/D (LH) Red	Suburban W817K/63U
15113505	Molding, RR S/D (RH) Red	Suburban W817K/63U

15199239	Molding, Frt S/D Lwr Grn	Regular Cab W9539/47U
15199241	Molding, Frt S/D Lwr Gry	Regular Cab W805K/62U
15199242	Molding, Frt S/D Lwr Sds	Regular Cab W929L/15U
15199243	Molding, Frt S/D Lwr Sil	Regular Cab W926L/59U
15199248	Molding, Frt S/D Lwr (LH) Grn	Extended/Crew Cab W9539/47U
15199249	Molding, Frt S/D Lwr (RH) Grn	Extended/Crew Cab W9539/47U
15199252	Molding, Frt S/D Lwr (LH) Gry	Extended/Crew Cab W805K/62U
15199253	Molding, Frt S/D Lwr (RH) Gry	Extended/Crew Cab W805K/62U
15199254	Molding, Frt S/D Lwr (LH) Sds	Extended/Crew Cab W929L/15U
15199255	Molding, Frt S/D Lwr (RH) Sds	Extended/Crew Cab/Tahoe/Suburban W929L/15U
15199256	Molding, Frt S/D Lwr (LH) Sil	Extended/Crew Cab/Tahoe/Suburban W926L/59U
15199257	Molding, Frt S/D Lwr (RH) Sil	Extended/Crew Cab/Tahoe/Suburban W926L/59U
15199266	Molding, RR S/D (LH) Grn	Extended Cab W9539/47U
15199267	Molding, RR S/D (RH) Grn	Extended Cab W9539/47U
15199270	Molding, RR S/D (LH) Gray	Extended Cab W805K/62U
15199271	Molding, RR S/D (RH) Gray	Extended Cab W805K/62U
15199272	Molding, RR S/D (LH) Sdst	Extended Cab W929L/15U
15199273	Molding, RR S/D (RH) Sdst	Extended Cab W929L/15U
15199274	Molding, RR S/D (LH) Silv	Extended Cab W926L/59U

15199275	Molding, RR S/D (RH) Silv	Extended Cab W926L/59U
15199282	Molding, RR S/D (RH) Grn	Crew/Suburban W9539/47U
15199283	Molding, RR S/D (LH) Grn	Crew/Suburban W9539/47U
15199286	Molding, RR S/D (RH) Gray	Crew W805K/62U
15199287	Molding, RR S/D (LH) Gray	Crew W805K/62U
15199288	Molding, RR S/D (RH) Sdst	Crew/Suburban W929L/15U
15199289	Molding, RR S/D (LH) Sdst	Crew/Suburban W929L/15U
15199290	Molding, RR S/D (RH) Silv	Crew/Suburban W926L/59U
15199291	Molding, RR S/D (LH) Silv	Crew/Suburban W926L/59U

The moldings are available in factory colors; however, quantities are limited. When these quantities are exhausted, the moldings will only be available in paint to match only.

Warranty Information

Labor Operation	Description	Labor Time
B9727	Molding, Body Side – Replace (Two Door) (Change BOTH Sides)	0.5 hr
B9728	Molding, Body Side – Replace (Four Door) (Change BOTH Sides)	0.9 hr
A5182	Molding, Body Side (One Or All) – Color/Clear Coat-Right	0.6 hr GE
A5183	Molding, Body Side (One Or All) – Color/Clear Coat- Left	0.6 hr GE

For vehicles repaired under warranty, use the table.

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Disclaimer

Technical Service Bulletin # 06-08-50-004A

Date: 060728

Interior - Front Seat Arm Rest Hinge Broken

Bulletin No.: 06-08-50-004A

Date: July 28, 2006

TECHNICAL

Subject:
Front Seat Armrest Hinge Breaking (Replace Lid)

Models:
2003-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2006 GMC Sierra, Yukon, Yukon XL

with Front Split Seat (RPO AE7)

Supercede:

This bulletin is being revised to include RPO Code and interior trim color code information. Please discard Corporate Bulletin Number 06-08-50-004 (Section 08 - Body and Accessories).

DO THIS	DON'T DO THIS
Replace just the lid for the armrest.	Do NOT replace the armrest assembly.

Condition

Some customers may comment that the lid for the armrest is broken.

Correction

Replace the armrest lid using the procedure below.

1. Open the armrest lid.
2. Remove the armrest inner panel. Use a flat-bladed screwdriver and place it between the two panels and pull to separate.
3. Fold the seat backs to gain access to the hinge pin. Using a punch, push the hinge pin out.
4. Install the two springs into the new armrest lid.
5. Align the two springs and the lid to the armrest and install the pin.
6. Install the inner lid to the armrest and close the lid.
7. Place the seat back in the upright position.

Part Number	Description
19127364	Compartment Kit, F/Seat Stor (Dark Pewter) (69I)
19127365	Compartment Kit, F/Seat Stor (Pewter) (92I)
19127366	Compartment Kit, F/Seat Stor (Neutral) (52I)

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
C2740	Door And/Or Pad, Console Compartment – R&R Or Replace	Use Published Labor Operation Time

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Disclaimer

Technical Service Bulletin # 00-06-02-006D

Date: 060815

Cooling System - Coolant Recycling Information

Bulletin No.: 00-06-02-006D

Date: August 15, 2006

INFORMATION

Subject:

Engine Coolant Recycling and Warranty Information

Models:

2007 and Prior GM Passenger Cars and Trucks (Including Saturn)

2007 and Prior HUMMER Vehicles

2005-2007 Saab 9-7X

Attention:

Please address this bulletin to the Warranty Claims Administrator and the Service Manager.

Supersedes:

This bulletin is being revised to adjust the title and Include Warranty Information. Please discard Corporate Bulletin Number 00-06-02-006C (Section 06 - Engine/Propulsion System).

Coolant Reimbursement Policy

General Motors supports the use of recycled engine coolant for warranty repairs/service, providing a GM approved engine coolant recycling system is used. Recycled coolant will be reimbursed at the GMSPO dealer price for new coolant plus the appropriate mark-up. When coolant replacement is required during a warranty repair, it is crucial that only the relative amount of engine coolant concentrate be charged, not the total diluted volume. In other words: if you are using two gallons of pre-diluted (50:50) recycled engine coolant to service a vehicle, you may request reimbursement for one gallon of GM Goodwrench engine coolant concentrate at the dealer price plus the appropriate warranty parts handling allowance.

Licensed Approved DEX-COOL(R) Providers

Important:

USE OF NON-APPROVED VIRGIN OR RECYCLED DEX-COOL(R) OR DEVIATIONS IN THE FORM OF ALTERNATE CHEMICALS OR ALTERATION OF EQUIPMENT, WILL VOID THE GM ENDORSEMENT, MAY DEGRADE COOLANT SYSTEM INTEGRITY AND PLACE THE COOLING SYSTEM WARRANTY UNDER JEOPARDY.

Table 1 — Approved and Licensed Providers of DEX-COOL Products Meeting General Motors GM6277M Specifications

License #	Provider
DC 001	Chevron
DC 002	Prestone
DC 003	Shell
DC 004	Valvoline
DC 005	Recycled Fluid Technologies (Bulk Service)
DC 011	GM Vehicle Care
DC 011	AC Delco

Shown in Table 1 are the only current licensed and approved providers of DEX-COOL(R). Products that are advertised as "COMPATIBLE" or "RECOMMENDED" for use with DEX-COOL(R) have not been tested or approved by General Motors. Non-approved coolants may degrade the coolant system integrity and will no longer be considered a 5 yr/150,000 mile (240,000 km) coolant.

Coolant Removal Services/Recycling

The tables include all coolant recycling processes currently approved by GM. Also included is a primary phone number and demographic information. Used DEX-COOL(R) can be combined with used conventional coolant (green) for recycling. Depending on the recycling service and/or equipment, it is then designated as a conventional 2 yr/30,000 mile (50,000 km) coolant or DEX-COOL(R) 5 yr/150,000 mile (240,000 km) coolant. Recycled coolants as designated in this bulletin may be used during the vehicle(s) warranty period.

DEX-COOL(R) Recycling

Table 2 — Approved Engine Coolant Recycling Services – DEX-COOL®

Recycler	Equipment/Service	Recycled Products	Demographics	Contact
Recycling Fluid Technologies	Service	DEX-COOL® Licensed Provider (50/50 pre-mix)	IN, IL, MI, OH	800-474-4947

The DEX-COOL(R) recycling service listed in Table 2 has been approved for recycling waste engine coolants (DEX-COOL) or conventional to DEX-COOL(R) with 5 yr/150,000 mile (240,000 km) usability. Recycling Fluid Technologies is the only licensed provider of Recycled DEX-COOL(R) meeting GM6277M specifications and utilizes GM approved inhibitor packages. This is currently a limited program being monitored by GM Service Operations which will be expanded as demand increases.

Conventional (Green) Recycling

Table 3 — Approved Engine Coolant Recycling Services and Equipment – Conventional Green

Recycler	Equipment/Service	Recycled Products	Demographics	Contact
Antifreeze Technologies Systems	Service	Conventional Green (50/50 pre-mix)	IL, IN, MA, MD, MI, NH, NJ, PA, TX, VA	800-474-4947
Asbury Environmental Services/Demenno Kerdoon - Trinity Brand	Service	Conventional Green (50/50 pre-mix)	AZ, CA, NV, OR, WA	800-974-4495
Automotive Environmental Service	Service	Conventional Green (50/50 pre-mix)	AZ, CA, NV, OR, WA	650-325-2666
Kleentek	AF-250	Conventional Green (50/50 pre-mix)	US, Canada, Mexico	800-435-5336
Wynn Oil Company	Du-All Bulk 07400	Conventional Green (50/50 pre-mix)	US, Canada, Mexico	800-GMTools 800-989-8363
Clore Automotive	TechGuard	Conventional Green (50/50 pre-mix)	US, Canada, Mexico	800-328-2921

Processes shown in the Table 3 are capable of recycling waste engine coolants (DEX-COOL(R) or conventional) to a conventional (green) coolant. Recycling conventional coolant can be accomplished at your facility by a technician using approved EQUIPMENT (listed by model number in Table 3), or by an approved coolant recycling SERVICE which may recycle the coolant at your facility or at an offsite operation. Refer to the table for GM approved coolant recyclers in either of these two categories. Should you decide to recycle the coolant yourself, strict adherence to the operating procedures is imperative. Use ONLY the inhibitor chemicals supplied by the respective (GM approved) recycling equipment manufacturer.

Sealing Tablets

Cooling System Sealing Tablets (Seal Tabs) should not be used as a regular maintenance item after servicing an engine cooling system. Discoloration of coolant can occur if too many seal tabs have been inserted into the cooling system. This can occur if seal tabs are repeatedly used over the service life of a vehicle. Where appropriate, seal tabs may be used if diagnostics fail to repair a small leak in the cooling system. When a condition appears in which seal tabs may be recommended, a specific bulletin will be released describing their proper usage.

Water Quality

The integrity of the coolant is dependent upon the quality of DEX-COOL(R) and water. DEX-COOL(R) is a product that has enhanced protection capability as well as an extended service interval. These enhanced properties may be jeopardized by combining DEX-COOL(R) with poor quality water. If you suspect the water in your area of being poor quality, it is recommended you use distilled or de-ionized water with DEX-COOL(R).

"Pink" DEX-COOL(R)

DEX-COOL(R) is orange in color to distinguish it from other coolants. Due to inconsistencies in the mixing of the dyes used with DEX-COOL(R), some batches may appear pink after time. The color shift from orange to pink does not affect the integrity of the coolant, and still maintains the 5 yr/150,000 mile (240,000 km) service interval.

Back Service

Only use DEX-COOL(R) if the vehicle was originally equipped with DEX-COOL(R).

Contamination

Mixing conventional green coolant with DEX-COOL(R) will degrade the service interval from 5 yrs./150,000 miles (240,000 km) to 2 yrs./30,000 miles (50,000 km) if left in the contaminated condition. If contamination occurs, the cooling system must be flushed twice immediately and re-filled with a 50/50 mixture of DEX-COOL(R) and clean water in order to preserve the enhanced properties and extended service interval of DEX-COOL(R).

After 5 years/150,000 miles (240,000 km)

After 5 yrs/150,000 miles (240,000 km), the coolant should be changed, preferably using a coolant exchanger. If the vehicle was originally equipped with DEX-COOL(R) and has not had problems with contamination from non-DEX-COOL(R) coolants, then the service interval remains the same, and the coolant does not need to be changed for another 5 yrs/150,000 miles (240,000 km)

Equipment (Coolant Exchangers)

The preferred method of performing coolant replacement is to use a coolant exchanger. A coolant exchanger can replace virtually all of the old coolant with new coolant. Coolant exchangers can be used to perform coolant replacement without spillage, and facilitate easy waste collection. They can also be used to lower the coolant level in a vehicle to allow for less messy servicing of cooling system components. It is recommended that you use a coolant exchanger with a vacuum feature facilitates removing trapped air from the cooling system. This is a substantial time savings over repeatedly thermocycling the vehicle and topping-off the radiator. The vacuum feature also allows venting of a hot system to relieve system pressure. Approved coolant exchangers are available through the GMDE (General Motors Dealer Equipment) program.

For refilling a cooling system that has been partially or fully drained for repairs other than coolant replacement, the Vac-N-Fill Coolant Refill Tool (GE-47716) is recommended to facilitate removal of trapped air from the cooling system during refill.

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Disclaimer Technical Service Bulletin # 01-07-30-038D

Date: 060912

A/T - Poor Performance/MIL ON/DTC P0757

Bulletin No.: 01-07-30-038D

Date: September 12, 2006

TECHNICAL

Subject:

Diagnostic Trouble Code (DTC) P0757 Set, Malfunction Indicator Lamp (MIL) Illuminated, Poor Performance of Transmission, Transmission Slipping (Clean Transmission Valve Body and Case Oil Passages of Debris)

Models:

2007 and Prior GM Passenger Cars and Light Duty Trucks

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

with 4L60-E/4L65-E/4L70-E Automatic Transmission (RPOs M30/M32/M70)

Supercede:

This bulletin is being revised to add the 2007 model year and the 4L70-E transmission. Also, information has been added to Condition, Cause and Correction.

Please discard Corporate Bulletin Number 01-07-30-038C (Section 07 - Transmission/Transaxle).

Condition

Some customers may comment on any of the following conditions:

An illuminated MIL where DTC P0757 is found as a history code in the PCM or TCM.

No 3rd and 4th gear.

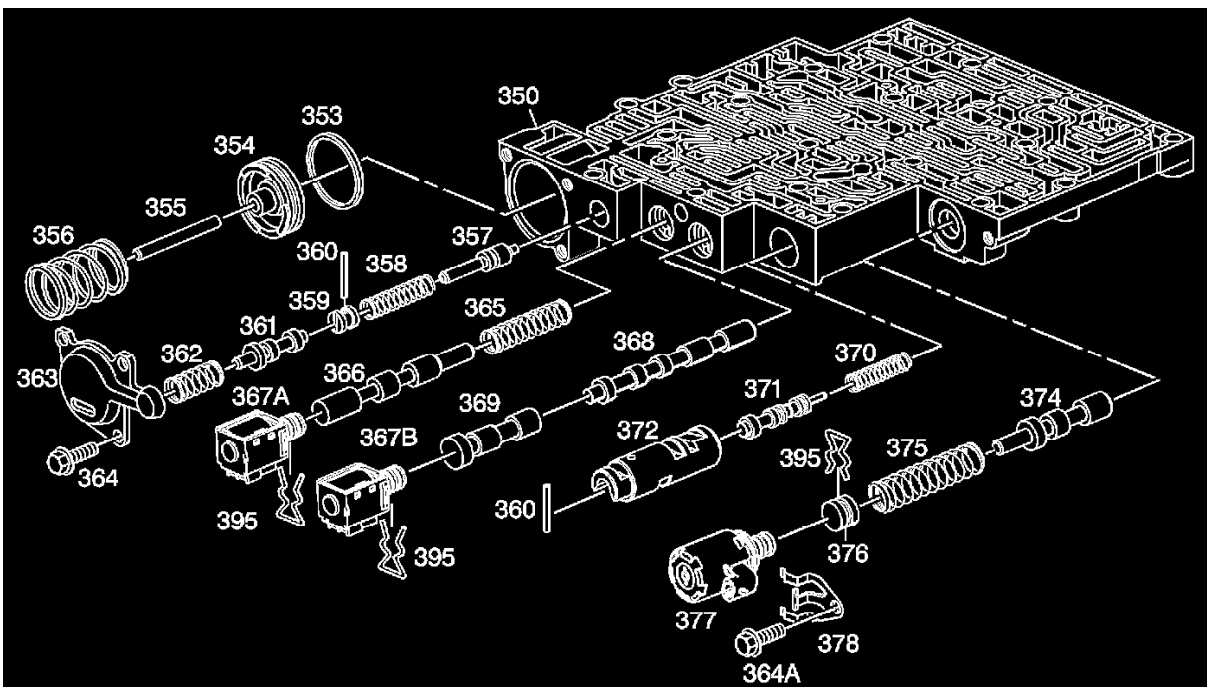
The transmission does not shift correctly.

The transmission feels like it shifts to Neutral or a loss of drive occurs.

The vehicle free wheels above 48 km/h (30 mph). High RPM needed to overcome the free wheeling.

Cause

This condition may be caused by any of the following:



Chips or debris plugging the bleed orifice of the 2-3 shift solenoid (367). This will cause the transmission to stay in 2nd gear when 3rd gear is commanded and return to 1st gear when 4th gear is commanded.

A 2-3 shift valve (368) or 2-3 shuttle valve (369) that is stuck, restricted and/or hung-up in its bore.

This condition may also be an indication of a damaged 2-4 band or 3-4 clutches. This clutch damage may generate debris causing the 2-3 shift valve line-up to stick in the valve body bore and set DTC P0757.

Correction

Inspect the condition of the transmission fluid for signs of overheat or a burnt odor. If either is noted, the transmission should be disassembled for further investigation and repaired as needed.

Inspect the inside of the oil pan for signs of clutch friction material. A small amount of friction material in the bottom of the pan is normal. If a large amount of clutch material is noted in the fluid or bottom pan, the transmission should be disassembled for further investigation and repaired as needed.

Inspect and clean the 2-3 shift valve (368), the 2-3 shuttle valve (369) and the valve bore of debris/metal chips.

Inspect and clean the 2-3 shift solenoid (367B) opening of debris/metal chips. While inspecting the 2-3 shift solenoid (367B), look for a screen over the solenoid opening. If the solenoid DOES NOT have a screen, replace the solenoid. All current GMSPO stock shift solenoids have a screen over the solenoid opening.

If clutch debris is found, it is also very important to inspect the pressure control (PC) solenoid valve fluid screens. Clean or replace the PC solenoid as necessary. It is also important to flush and flow check the transmission oil cooler using J 45096. Refer to SI "Automatic Transmission Oil Cooler Flushing and Flow Test" for the procedure.

Refer to the appropriate Service Manual for additional diagnostic information and service procedures.

Warranty Information

For repairs performed under warranty, use the applicable published labor code and information.

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Disclaimer

Technical Service Bulletin # **04-08-49-015A**

Date: **061106**

Instruments - Noises From The Instrument Cluster

Bulletin No.: 04-08-49-015A

Date: November 06, 2006

TECHNICAL

Subject:
Noise Coming From Instrument Panel Cluster (Replace Instrument Panel Cluster (IPC))

2003–2005 Buick LeSabre
 2003–2007 Buick Rendezvous
 2004–2005 Buick Rainier
 2003–2006 Cadillac Escalade, Escalade ESV, Escalade EXT
 2003–2005 Chevrolet Cavalier, Impala, Monte Carlo
 2003–2006 Chevrolet Avalanche, Suburban, Tahoe, TrailBlazer EXT
 2003–2007 Chevrolet Silverado Classic, TrailBlazer
 2003–2007 Chevrolet Kodiak Models
 2004–2006 Chevrolet SSR
 2003–2006 GMC Envoy XL, Yukon, Yukon XL
 2004–2005 GMC Envoy XUV
 2004–2007 GMC Envoy
 2003–2007 GMC Sierra Classic
 2003–2004 Oldsmobile Bravada
 2003–2005 Pontiac Aztek, Bonneville, Sunfire
 2003–2005 HUMMER H2

Models

Attention:

Appropriate repair is based on vehicle build date. Use GMVIS to determine the vehicle build date.

Supercede:

This bulletin is being revised to add model years and provide important repair information. Please discard Corporate Bulletin Number 04-08-49-015 (Section 08 - Body and Accessories).

Condition

Some customers may comment on a noise coming from the instrument panel cluster (IPC) while driving or on initial start-up. Instrument clusters may contain stepper motor gages that can make noise during the following conditions:

Initial start-up (gages zero/reset)

Gage ascending and descending (gage sweeping)

Engine idle (tachometer ticking)

Engine off (gages reset to zero)

Cause

The cause of this noise may come from the instrument cluster gages, which contain stepper motors. As the gage pointer moves, rotors and gears inside the stepper motors are rapidly rotated and rubbing one another. It is natural to generate mechanical noise due to all gear movement. However, it will not in any way affect the performance and durability of the cluster.

Correction

For vehicles built or clusters remanufactured on or after March 1, 2005, DO NOT exchange the IPC for a noise only concern. As of March 1, 2005, all stepper motor improvements are in place and noise from the cluster is within the acceptable performance. Any remaining noise from the IPC is inherent to the system design and replacing the cluster for just a noise concern will more than likely result in a similar noise. Please inform the customer that the IPC is performing within the acceptable guideline. If after the customer has been informed and still insist to replace the cluster, then the cluster should be replaced.

For vehicles built or clusters remanufactured prior to March 1, 2005, clusters should be replaced for noise concern.

Clusters should continue to be replaced for any concern affecting the functionality of the IPC.

Parts Information

Cluster exchange units can be obtained from an authorized Electronic Service Center.

Warranty Information

Labor Operation	Description	Labor Time
N4180	Cluster Assembly, Instrument Panel – Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **05-08-46-001C**

Date: **061019**

OnStar(R) - System Inoperative/LED Not ON

Bulletin No.: 05-08-46-001C

Date: October 19, 2006

TECHNICAL

Subject:

OnStar(R) Generation 5 or 6 (Digital) System Inoperative/Has No Power, LED Light Not On (Remove/Reinstall OnStar(R) Fuse and Replace VCIM or

Follow SI Diagnostics)

2003-2005 Buick LeSabre

2004 Buick Regal

2004-2005 Buick Century

2004-2006 Buick Rendezvous

2004-2006 Buick Rainier (Prior to VIN 62183996)

2005-2006 Buick Allure (Canada) (Prior to VIN 61170824), LaCrosse (Prior to VIN 61170802), Terrazza

2003-2005 Cadillac DeVille, Seville, STS

2003-2006 Cadillac CTS, Escalade, Escalade ESV, Escalade EXT

2003-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe, TrailBlazer (Prior to VIN 62183983), TrailBlazer EXT (Prior to VIN 6612

2004-2006 Chevrolet Colorado, Express, Impala, Monte Carlo, Uplander

2003-2006 GMC Envoy (Prior to VIN 62183982), Envoy XL (Prior to VIN 66127728), Envoy XUV, Sierra, Yukon, Yukon XL, Yukon Der

2004-2006 GMC Canyon, Savana

2003-2005 Pontiac Aztek, Bonneville

2003-2006 Pontiac Grand Prix (Prior to VIN 61170813), Vibe

2005-2006 Pontiac Montana SV6

2003-2006 Saturn ION, VUE

2005-2006 Saturn Relay

2003-2006 HUMMER H2 (Prior to VIN 6H108876)

2005-2006 HUMMER H2 SUT (Prior to VIN 6H108876)

2006 HUMMER H3

2005-2006 Saab 9-7X (Prior to VIN 62800175)

with Gen 5 or 6 (Digital) OnStar® (RPO UE1)



6127994)

Denali, Yukon Denali XL

Models

Supersede:

This bulletin is being revised to add new information for the 2006 Impala/Monte Carlo. Please discard Corporate Bulletin Number 05-08-46-001B (Section 08 - Body & Accessories).

Condition

Some customers may comment any or all of the following conditions:

The OnStar(R) system may be inoperative.

The OnStar(R) system may have no power.

The OnStar(R) LED light may not be on.

The technician may also not be able to communicate with the OnStar(R) Vehicle Communication Interface Module (VCIM) with a Tech 2(R).

Correction

On 2006 Chevrolet Impala and Monte Carlo models, make sure the ignition is OFF prior to removing the OnStar(R) fuse. Disconnecting power to the OnStar(R) module while the ignition is ON may discharge and permanently damage the OnStar(R) back-up battery.

This bulletin does NOT apply to 2006 vehicles built AFTER the VIN breakpoints listed above. Refer to applicable diagnostics in SI for those vehicles that exhibit this condition.

Remove the OnStar(R) fuse from the fuse box, wait five minutes and reinstall the fuse. (For Saturn VUE vehicles, remove the "INT LTS" fuse from the I/P fuse block for five minutes, then reinstall the fuse.) If the OnStar(R) system DOES NOT return to normal functionality, then follow the diagnostics in SI for this condition.

If the OnStar(R) system DOES return to normal functionality, perform the following steps:

Install the Tech 2(R) and determine what generation hardware and software ID is in the vehicle.

If the vehicle is equipped with Generation 5 hardware and a software version 146, the VCIM should have the B1000 reprogramming performed as described in Corporate Bulletin Number 04-08-46-004A. The system should be tested and if the concern returns, the VCIM should be replaced.

If Gen 5 with a software version OTHER than 146 or Gen 6 and above, the VCIM needs to be replaced and the system reconfigured.

You will need to call GM TAC in order to obtain a new VCIM. Refer to Corporate Bulletin Number 03-08-46-004C for more details on how to order a new VCIM.

As with any OnStar(R) VCIM replacement, the OnStar(R) system must be reconfigured after replacement.

Warranty Information

Labor Operation	Description	Labor Time
R5140	Module, Vehicle Interface Unit VIU/CIM – Replace	Use Published Labor Operation Time


For vehicles repaired under warranty, use the table.

Labor Operation	Description	Failed Object	Fault/Reason Code	Location Code	Warranty Type	Repair/Action Code	Labor Time
3691002	Replace VIU/Tel ematic Unit	36910	61	0	01	01	Use Published Labor Operation Time

Warranty Information (Saab U.S. Models)

For vehicles repaired under warranty, use the table.

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WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Disclaimer
 Technical Service Bulletin # 06-01-39-007

Date: 060725

A/C - Contaminated R134A Refrigerant
 Bulletin No.: 06-01-39-007

Date: July 25, 2006

INFORMATION

Subject:
Contaminated R134a Refrigerant Found on Market for Automotive Air-Conditioning Systems

Models:
2007 and Prior GM Passenger Cars and Trucks (including Saturn)
2007 and Prior HUMMER H2, H3
2007 and Prior Saab 9-7X

Attention:
This bulletin should be directed to the Service Manager as well as the Parts Manager.

Commercially Available Contaminated R134a Refrigerant

Impurities have been found in new commercially available containers of R134a. High levels of contaminants may cause decreased performance, and be detrimental to some air-conditioning components. Accompanying these contaminants has been high levels of moisture.

Tip:
Excessive moisture may cause system concerns such as orifice tube freeze-up and reduced performance.

Industry Reaction: New Industry Purity Standards

Due to the potential availability of these lower quality refrigerants, the Society of Automotive Engineers (SAE), and the Air Conditioning and Refrigeration Industry (ARI) are in the process of instituting reliable standards that will be carried on the labels of future R134a refrigerant containers. This identifying symbol will be your assurance of a product that conforms to the minimum standard for OEM Automotive Air-Conditioning use.

How Can You Protect Yourself Today?


It is recommended to use GM or ACDelco(R) sourced refrigerants for all A/C repair work. These refrigerants meet General Motors own internal standards for quality and purity, insuring that your completed repairs are as good as the way it left the factory.

Parts Information

Part Number	Description
12356150 (in Canada, use 10953485)	30 lb container R134a
15-119 (in Canada, use 10953485)	30 lb container R134a (ACDelco®)

The part numbers shown are available through GMSPO or ACDelco(R). The nearest ACDelco(R) distributor in your area can be found by calling 1-800-223-3526 (U.S. Only).

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Bulletin No.: 04-06-04-047G

Date: November 28, 2006

INFORMATION

Subject:

TOP TIER Detergent Gasoline (Deposits, Fuel Economy, No Start, Power, Performance, Stall Concerns) - U.S. Only

Models:

2007 and Prior GM Passenger Cars and Trucks (including Saturn) (U.S. Only)

2003-2007 HUMMER H2 (U.S. Only)

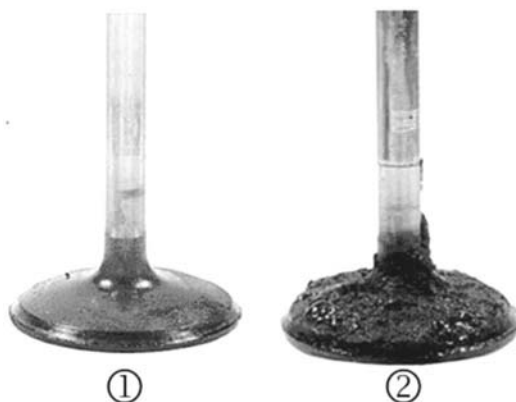
2006-2007 HUMMER H3 (U.S. Only)

2005-2007 Saab 9-7X (U.S. Only)

Supercede:

This bulletin is being revised to add additional sources to the Top Tier Fuel Retailers list. Please discard Corporate Bulletin Number 04-06-04-047F (Section 06 - Engine/Propulsion System). In Canada, refer to Corporate Bulletin Number 05-06-04-022C

A new class of fuel called TOP TIER Detergent Gasoline is appearing at retail stations of some fuel marketers. This gasoline meets detergency standards developed by four automotive companies. All vehicles will benefit from using TOP TIER Detergent Gasoline over gasoline containing the "Lowest Additive Concentration" set by the EPA. Those vehicles that have experienced deposit related concerns may especially benefit from the use of TOP TIER Detergent Gasoline.



Intake valve: 10,000 miles with TOP TIER Detergent Gasoline

Intake valve: 10,000 miles with Legal Minimum additive Gasoline

Brands That Currently Meet TOP TIER Detergent Gasoline Standards

Chevron**QuikTrip****Conoco****Phillips 66****76****Shell****Entec Stations** located in the greater Montgomery, Alabama area.**MFA Oil Company** located throughout Missouri.**Kwik Trip, Inc.** in Minnesota and Wisconsin and **Kwik Star** convenience stores in Iowa.**The Somerset Refinery, Inc.** at Somerset Oil stations in Kentucky.**Aloha Petroleum****Tri-Par Oil Company****Texaco**

As of November 15, 2006, all grades of the gasoline brands shown meet the TOP TIER Detergent Gasoline Standards.

What is TOP TIER Detergent Gasoline?

TOP TIER Detergent Gasoline is a new class of gasoline with enhanced detergency. It meets new, voluntary deposit control standards developed by four automotive companies that exceed the detergent requirements imposed by the EPA.

Where Can TOP TIER Detergent Gasoline Be Purchased?

The TOP TIER program began on May 3, 2004. Some fuel marketers have already joined and have introduced TOP TIER Detergent Gasoline. This is a voluntary program and not all fuel marketers will offer this product. Once fuel marketers make public announcements, they will appear on a list of brands that meet the TOP TIER standards.

Where Can I find the Latest Information on TOP TIER Fuel and Retailers?

On the web, please visit www.toptiergas.com for additional information and updated retailer lists.

Who developed TOP TIER Detergent Gasoline standards?

TOP TIER Detergent Gasoline standards were developed by four automotive companies: BMW, General Motors, Honda and Toyota.

Why was TOP TIER Detergent Gasoline developed?

TOP TIER Detergent Gasoline was developed to increase the level of detergent additive in gasoline. The EPA requires that all gasoline sold in the U.S. contain a detergent additive. However, the requirement is minimal and in many cases, is not sufficient to keep engines clean. In order to meet TOP TIER Detergent Gasoline standards, a higher level of detergent is needed than what is required by the EPA. Also, TOP TIER was developed to give fuel marketers the opportunity to differentiate their product.

Why did the four automotive companies join together to develop TOP TIER?

All four corporations recognized the benefits to both the vehicle and the consumer. Also, joining together emphasized that low detergency is an issue of concern to several automotive companies.

What are the benefits of TOP TIER Detergent Gasoline?

TOP TIER Detergent Gasoline will help keep engines cleaner than gasoline containing the "Lowest Additive Concentration" set by the EPA. Clean engines help provide optimal fuel economy and performance and reduced emissions. Also, use of TOP TIER Detergent Gasoline will help reduce deposit related concerns.

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Disclaimer Technical Service Bulletin # **05-03-07-009A**

Date: **060928**

Wheel Alignment - Recommendations/Requirements

Bulletin No.: 05-03-07-009A

Date: September 28, 2006

INFORMATION

Subject:
Wheel Alignment Specifications, Requirements and Recommendations for GM Vehicles

Models:
2007 and Prior GM Passenger Cars and Light Duty Trucks (Including Saturn Models)
2003-2007 HUMMER H2
2006-2007 HUMMER H3
2005-2007 Saab 9-7X

Supercede:

This bulletin is being revised to include information regarding wheel alignment specifications. Please discard Corporate Bulletin Number 05-03-07-009 (Section 03 - Suspension).

The purpose of this bulletin is to provide retail and wholesale personnel with General Motors' specifications, requirements and recommendations for wheel alignment equipment and alignment procedures.

Wheel Alignment Specifications

Technicians must refer to SI for the correct wheel alignment specifications for each vehicle. SI is the only source of GM wheel alignment specifications that is up-to-date throughout the year.

The wheel alignment specifications loaded in any wheel alignment machine by the equipment manufacturer may be incorrect and/or outdated, even if the dealership subscribes to the manufacturer's update service. GM sends certain vendors a "one-time" CD with wheel alignment specifications for the new model year in early summer. Therefore, any changes to wheel alignment specifications after this CD is distributed may not be present in dealership wheel alignment machines.

Using incorrect and/or outdated specifications may result in unnecessary adjustments, irregular and/or premature tire wear and repeat customer concerns.

Conditions Possibly Requiring a Wheel Alignment

Lead/pull defined as "at a constant highway speed on a typical straight road, the amount of effort required at the steering wheel to maintain the vehicle's straight path."

Steering wheel off-center (clockwise or counterclockwise)

Unusual tire wear

Other repairs that affect wheel alignment

Alignment Equipment

Alignments must be performed with a quality alignment machine that will give accurate results when performing alignment checks. "External Reference" (image-based camera technology) is preferred.

Requirements

Computerized four wheel alignment system

Computer capable of printing before and after alignment reports

Computer capable of time and date stamp printout

Racking system must have jacking capability

Racking system must be capable of level to 1.6 mm (1/16 in)

Appropriate wheel stops and safety certification

Built-in turn plates and slip plates

Wheel clamps capable of attaching to 20" or larger wheels

Racking capable of accepting any GM passenger car or light duty truck

Operator properly trained and ASE-certified (U.S. only) in wheel alignment

Recommendations

Racking should have front and rear jacking capability.

Equipment Maintenance and Calibration

Alignment machines must be regularly calibrated in order to give correct information. Most manufacturers recommend the following:

Alignment machines with "internal reference" sensors should be checked (and calibrated, if necessary) every six months.

Alignment machines with "external reference" (image-based camera technology) should be checked (and calibrated, if necessary) once a year.

Racks must be kept level to within 1.6 mm (1/16 in).

If any instrument that is part of the alignment machine is dropped or damaged in some way, check the calibration immediately.

Check with the manufacturer of your specific equipment for their recommended service/calibration schedule.

Warranty Claim Documentation

Failure to have proper documentation of the repair order may result in denial or chargeback of the warranty claim.

In order to properly document a warranty claim for alignment, the following must be completed:

Details of the customer's concern or complaint are to be noted at the time of repair order write-up by recording the description of the customer's problem.

The technician's description of the cause of the concern and the repairs performed must be written on all copies of the repair order.

"Before" and "After" alignment settings are to be recorded on the repair order. An alignment machine printout of "Before" AND "After" settings with date/time stamp is to be attached to the repair order by dealers who have printout capable equipment.

Documentation of alignment machine calibration within the last 12 months must be available for AVM (in Canada, DSM, for Saturn, DSSM) review upon request.

Prior wholesale approval required for vehicles under 800 km (500 mi) or over 12,070 km (7,500 mi) (will now apply to Saturn retailers also). Refer to the GM Service Policies and Procedures Manual for complete warranty policy information.

Alignment Process

When performing wheel alignment measurement and/or adjustment, the following steps should be taken:

Preliminary Steps

Verify that the vehicle has a full tank of fuel (compensate as necessary).

Inspect the wheels and the tires for damage.

Inspect the tires for the proper inflation and irregular tire wear.

Inspect the wheel bearings for excessive play.

Inspect all suspension and steering parts for looseness, wear, or damage.

Inspect the steering wheel for excessive drag or poor return due to stiff or rusted linkage or suspension components.

Inspect the vehicle trim height.

Compensate for frame angle on targeted vehicles (refer to Wheel Alignment Specifications in SI).

Satisfactory vehicle operation may occur over a wide range of alignment angles. However, if the wheel alignment angles are not within the range of specifications, adjust the wheel alignment to the specifications. Refer to Wheel Alignment Specifications in SI. Give consideration to excess loads, such as tool boxes, sample cases, etc. Follow the alignment equipment manufacturer's instructions.

Measure/Adjust

Prior to making any adjustments to wheel alignment on a vehicle, technicians must verify that the wheel alignment specifications loaded into the wheel alignment machine are up-to-date by comparing these to the wheel alignment specifications for the appropriate model and model year in SI. Using incorrect and/or outdated specifications may result in unnecessary adjustments, irregular and/or premature tire wear and repeat customer concerns.

When performing adjustments to vehicles requiring a 4-wheel alignment, set the rear wheel alignment angles first in order to obtain proper front wheel alignment angles.

Perform the following steps in order to measure the front and rear alignment angles:

Install the alignment equipment according to the manufacturer's instructions.

Jounce the front and the rear bumpers 3 times prior to checking the wheel alignment.

Measure the alignment angles and record the readings.

Adjust alignment angles to vehicle specification, if necessary. Refer to Wheel Alignment Specifications in SI.

Test drive the vehicle to ensure proper repair.

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Disclaimer Technical Service Bulletin # **06-08-111-004**

Date: **060908**

Body - Exterior Emblem Discoloration/Peeling/Blistering

Bulletin No.: 06-08-111-004

Date: September 08, 2006

INFORMATION

Subject:

Information on Discoloration, Blistering, Peeling or Erosion of Various Exterior Emblems Including the Chevy Bowtie

Models:

2007 and Prior GM Passenger Cars and Light/Medium Duty Trucks (including Saturn)

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

Chemical Discoloration of Badges

Through warranty reviews and visits to dealership storage lots, it has been determined that certain chemicals may discolor exterior badging. The badges most likely to be affected are referred to as Second Surface Acrylic Emblems. These emblems have a clear lens over the painted portion that lends depth to the badge. Several aggressive cleaners have been identified that when allowed to soak the emblem may migrate under the lens and discolor it.

Butyl Cellusolve

This chemical is one of the most likely to harm badges. This chemical is found in several cleaning products such as Simple Green, RainX, Orange Blast Wheel Cleaner, Purple Power Engine Degreaser and many others. Most of these products have warnings about contact with plastics. Further, these products generally are not intended for use as a cleaner of painted surfaces. The exception is Rain X which if added to the washer reservoir may be dispersed into emblems from rear wiper/washers. Avoid the use of Butyl Cellusolve altogether.

Always use mild soap and water as a first step whenever cleaning a vehicle.

Other Chemical Concerns

The following three chemicals may also harm plastic emblems:

Oxalic Acid

Dihydrate Techorganic Acid

Hydroflorides

Contact with these chemicals is sometimes associated with products intended to clean bug marks off vehicles, as well as in diluted form in some commercial car washes.

When using any cleaners on exterior emblems, DO NOT soak the application rag. In some cases the cleaner may not harm the badge if used sparingly and not allowed to seep into the lens of the emblem. Always use mild soap and water as a first step whenever cleaning a vehicle.

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Disclaimer Technical Service Bulletin # 01-07-31-002B

Date: 061101

M/T - Hydraulic Clutch Bleeding Procedure Improvement

Bulletin No.: 01-07-31-002B

Date: November 01, 2006

INFORMATION

Subject:

Improved Bleeding Procedure for Hydraulic Clutch Release System

Models:

2007 and Prior GM Passenger Cars and Light Duty Trucks (including Saturn)
2007 and Prior Chevrolet and GMC 6-7F T-Series Medium Duty Tilt Cab Models
2007 and Prior Isuzu F-Series Medium Duty Tilt Cab Models
2006-2007 HUMMER H3

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 01-07-31-002A (Section 07 - Transmission/Transaxle). This bulletin is being issued to inform dealers of an improved procedure to aid in the ease of bleeding the clutch hydraulic system for the above listed vehicles. This procedure can be used anytime air is introduced into the hydraulic system. Following this procedure may also reduce the number of unnecessary parts replaced for low clutch pedal reserve and high shift effort.

Verify that all the lines and fittings are dry and secure.

Clean the dirt and grease from the reservoir cap in order to ensure that no foreign substances enter the system.

Remove the reservoir cap.

Fill the reservoir to the proper level with the required fluid.

Attach the J 43485 (Adapter) to the J 35555 (Mity Vac), or equivalent.

Brake fluid will deteriorate the rubber on J 43485. Use a clean shop cloth to wipe away the fluid after each use.

Place and hold the adapter on the reservoir filler neck to ensure a tight fit. In some cases, the adapter will fit into the reservoir opening.

Apply a vacuum of 51-68 kPa (15-20 hg) and remove the adapter.

Refill the reservoir to the proper level.

Repeat Steps 6 and 7.

If needed, refill the reservoir and continue to pull a vacuum until no more bubbles can be seen in the reservoir or until the fluid level no longer drops.

The vehicle will move if started in gear before the Actuator Cylinder is refilled and operational. Start the vehicle the first time in neutral to help prevent personal injury from vehicle movement and see if the transmission will shift easily into gear.

Pump the clutch pedal until firm (to refill actuator cylinder).

Add additional fluid if needed.

Test drive vehicle to ensure proper operation.

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Technical Service Bulletin # **04-01-39-009C**

Date: **070228**

A/C - Blower Motor Inop. - BULLETIN CANCELLED

Bulletin No.: 04-01-39-009C

Date: February 28, 2007

TECHNICAL

Subject:

HVAC Blower Motor Inoperative or Stays Running (Replace Blower Motor Control Module)

Models:

2004-2005 Buick Rainier

2003-2005 Cadillac Escalade, Escalade ESV, Escalade EXT

2003-2005 Chevrolet Avalanche, Silverado, Suburban, Tahoe, TrailBlazer, TrailBlazer EXT

2003-2005 GMC Envoy, Envoy XL, Sierra, Sierra Denali, Yukon, Yukon Denali, Yukon XL

2004-2005 GMC Envoy XUV

2003-2004 Oldsmobile Bravada

2003-2005 HUMMER H2

with Automatic Temperature Control HVAC Systems Only (RPO CJ2)

Supersede:

This bulletin is being cancelled due to the information contained in it being superseded by information published in Corporate Bulletin 06-01-39-002A.

Please discard Corporate Bulletin Number 04-01-39-009B (Section 01 - HVAC).

Corporate Bulletin Number 04-01-39-009B is being cancelled.

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Technical Service Bulletin # **01-06-01-011D**

Date: **070403**

Engine - Oil Consumption Guideline Info.

Bulletin No.: 01-06-01-011D

Date: April 03, 2007

INFORMATION

Subject:

Information on Engine Oil Consumption Guidelines

Models:

1998-2007 GM Passenger Cars and Gasoline Powered Light Duty Trucks Under 8500 LB GVW (Including Saturn)

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

Supercede:

This bulletin is being revised to include information on manual transmission vehicles and additional warranty statements.

Please discard Corporate Bulletin Number 01-06-01-011C (Section 06 - Engine/Propulsion System).

All engines require oil to lubricate and protect the load bearing and internal moving parts from wear including cylinder walls, pistons and piston rings. When a piston moves down its cylinder, a thin film of oil is left on the cylinder wall. During the power stroke, part of this oil layer is consumed in the combustion process. As a result, varying rates of oil consumption are accepted as normal in all engines.

Oil Consumption

The accepted rate of oil consumption for engines used in the vehicles referenced is 0.946 liter (1 qt) in 3200 km (2000 mi).

Certain 2006 and 2007 models have a new GM Extended Warranty. Please refer to the appropriate Owner's Manual for warranty information.

This rate only applies to personal use vehicles, under warranty, that are driven in a non-aggressive manner and maintained in accordance with the appropriate maintenance schedule, with less than 58,000 km (36,000 mi), or 80,450 km (50,000 mi) for Cadillac, driven at legal speeds in an unloaded (for trucks) condition.

This rate does not apply to vehicles that are driven in an aggressive manner, at high RPM, high speeds, or in a loaded condition (for trucks). Oil consumption for vehicles driven under these conditions will be more.

Many factors can affect a customer's concern with oil consumption. Driving habits and vehicle maintenance vary from owner to owner. Thoroughly evaluate each case before deciding whether the vehicle in question has abnormal engine oil consumption.

Gasket and External Leaks

Inspect the oil pan and engine covers for leakage due to over-tightened, damaged, or out of place gaskets. Inspect oil lines and fittings for signs of leakage.

Improper Reading of the Oil Level Indicator (Dipstick)

Verify that the dipstick tube is fully seated in the block. When checking the oil level, make sure the dipstick is wiped clean before taking an oil level reading and fully depress the dipstick until the shoulder bottoms out on the dipstick tube. The dipstick should be the proper part number for the engine/vehicle that is being checked.

Operating your vehicle with an oil level that is below the minimum level indicated on the engine oil dipstick can result in severe engine damage. Repairs resulting from operating an engine with insufficient oil are not covered under the terms of the New Vehicle Warranty.

Refer to Owner Manual in SI for checking and adding engine oil.

Not Waiting Long Enough After Running Engine to Check Oil Level

Some engines require more time than others for the oil to drain back into the crankcase. To assure a sufficient amount of oil has drained back to the crankcase, and an accurate reading can be obtained, the vehicle should be allowed to sit for at least 15 minutes, after the engine has been shut off, before taking an oil level reading. In order to ensure accurate results, the temperature of the oil should be close to the same temperature as the last time the oil level was checked.

This does not apply to 2006 and 2007 Corvette ZO6 equipped with the 7.0L LS7 engine (dry sump). Follow the instructions in the Owner's Manual for checking the oil in this application.

Improper Oil Fill After an Oil Change

Following an oil change, verify that the proper amount and type of oil was put in the engine and that the oil level on the dipstick is not above the full mark or below the add marks. Refer to the Owner's Manual or Service Manual for information on recommended oil quantity, viscosity, and quality.

Aggressive Driving High Speed or High RPM Driving

Aggressive driving and/or continuous driving at high speeds/high RPMs will increase oil consumption. Because this may not always be an everyday

occurrence, it is hard to determine exactly how much the oil economy will be affected.

A higher rate of oil consumption is normal for vehicles equipped with manual transmissions that are driven aggressively. By "aggressive," we mean operation at high RPM (3,000 RPM to redline), with frequent use of engine braking (using the engine to slow the vehicle). Vehicles that are driven aggressively may consume engine oil at a rate of up to 0.946 L (1 quart) every 805 km (500 mi). This is normal for a vehicle that is driven aggressively. No repair is necessary. This characteristic does, however, require the owner to check the engine oil level at sufficiently frequent intervals, especially when driving aggressively, to assure the oil level remains within the recommended operating range. As the Owner's Manual recommends, you should check the oil level every time you get fuel.

Towing or Heavy Usage

Towing a trailer will increase oil consumption and may cause oil consumption to fall below the normal accepted rate referenced in this bulletin for an unloaded vehicle in a personal use application. Large frontal area trailers will further increase the work required from the engine, especially at highway speeds, and thus increases the rate of oil consumption.

Crankcase Ventilation System

Verify that the positive crankcase ventilation (PCV) system is operating properly. Blockages, restrictions, or damage to the PCV system can result in increased oil use.

Oil Dilution (Fuel and Water)

On vehicles that are usually driven short distances, less than 8 km (5 mi), especially in colder weather, unburned fuel and condensation generated from cold engine operation may not get hot enough to evaporate out of the oil. When this occurs, the dipstick may indicate that the oil level is over-full. Subsequent driving on a trip of sufficient length to enable normal engine operating temperature for 30 minutes or more, in order to vaporize excess moisture and fuel, may give the customer the impression of excessive oil consumption.

Engine Temperature

If an engine is run at overheated temperatures (see Owner's Manual or Service Manual) for more than brief periods, oil will oxidize at a faster than normal rate. In addition, gaskets may distort, piston rings may stick, and excessive wear may result. Verify that all cooling system components are in proper working order.

Engine Wear

Piston scuffing, excessive piston-to-wall clearance, tapered or out of round cylinders, worn, damaged or improperly installed valve guides, seals and piston rings will all cause an increase in oil consumption.

Measurement of Oil Consumption

Engines require a period of time to BREAK IN so that moving parts are properly seated. Therefore, oil economy should not be tested until the vehicle has accumulated at least 6400 km (4000 mi). An exception would be allowed only if an engine is reported to be using more than 0.946 liter (1 qt) in 1600 km (1000 mi).

Verify that the engine has no external leaks. Repair as necessary.

Verify that the engine is at normal operating temperature (see Owner's Manual or Service Manual).

Park the vehicle on a level surface.

Wait at least 15 minutes, after the engine is shut off, before checking the oil level to make sure that the oil has had time to drain back into the crankcase.

Verify that the oil level is at, but not above, the full mark on the dipstick, and that the proper viscosity and quality oil are being used as recommended in the Owner's Manual.

Oil Economy Test --- Data Sheet

Dealer Name: _____

Customer Name: _____

Phone: () _____ - _____ Phone: () _____ - _____

VIN: _____

Oil Type Used: _____

R.O. #: _____

Step	Date	Mileage	Oil Level	Driving Conditions (City, Highway, Both)
1				(Start of Test)
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Record the vehicle mileage, date, and exact oil level on the form shown.

Ask the customer to verify the oil level, each time the vehicle is fueled, following steps 1-6 and return the vehicle to the dealership if the oil level is found at or below the add mark, 0.946 liter (1 qt) low. If the oil level remains above the add mark, the customer should continue to operate the vehicle and verify the engine oil level until 3200 km (2000 mi) has accumulated before returning to the dealership for a final evaluation.

If the final evaluation shows that the engine uses more than 0.946 liter (1 qt) in 3200 km (2000 mi), follow the published symptom diagnostics as described in the appropriate Service Manual. If the oil consumption test shows that the engine uses less than 0.946 liter (1 qt) in 3200 km (2000 mi), explain to the customer that their engine meets the guidelines for oil consumption.

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Disclaimer Technical Service Bulletin # **03-06-04-060A**

Date: **070212**

Ignition System - New Spark Plugs/Gapping

Bulletin No.: 03-06-04-060A

Date: February 12, 2007

INFORMATION

Subject:
Information on New Spark Plugs and Gapping

Models:

2004 Buick Rainier
2002-2004 Cadillac Escalade, Escalade EXT
2003-2004 Cadillac Escalade ESV
2004 Cadillac CTS-V
1997-2004 Chevrolet Corvette
1998-2002 Chevrolet Camaro
1999-2004 Chevrolet Silverado
2000-2004 Chevrolet Suburban, Tahoe
2002-2004 Chevrolet Avalanche
2003-2004 Chevrolet Express, TrailBlazer
1999-2004 GMC Sierra
2000-2004 GMC Yukon, Yukon XL
2001-2004 GMC Yukon Denali, Yukon XL Denali
2002-2004 GMC Sierra Denali
2003-2004 GMC Envoy XL
1998-2002 Pontiac Firebird
2004 Pontiac GTO
2003-2004 HUMMER H2

with 4.8L, 5.3L, 5.7L or 6.0L V-8 Engine (VINs V, P, T, Z, G, S, N, U - RPOs LR4, LM4, LM7, L59, LS1, L56, LQ9, LQ4)

Attention:

Please disregard the Set Gap Per Vehicle Specification statement on the side of an ACDelco(R) Iridium Spark Plug Box. The statement will be removed from the boxes in the future.

Supersede:

This bulletin is being revised to bring attention to the Set Gap Per Vehicle Specification on the ACDelco(R) Iridium Spark Plug Boxes. Please discard Corporate Bulletin Number 03-06-04-060 (Section 06 - Engine/Propulsion System).

A new spark plug has been released for use in the above vehicles. The new spark plug has an Iridium tip instead of the current Platinum tip. Due to the different tip design, the gap of the spark plug has also changed.

The new spark plug, P/N 12571164 with AC Delco P/N 41-985, is gapped to 1.01 mm (0.040 in) when the spark plug is made.

The spark plug gap is set during manufacturing and should not be changed or damage to the spark plug may result. Any new spark plug found to not be properly gapped should not be used.

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Disclaimer
Technical Service Bulletin # 07-06-01-002

Date: 070305

Engine - Revised Connecting Rod Bolt Torque

Bulletin No.: 07-06-01-002

Date: March 05, 2007

INFORMATION

Subject:

Information on Revised Connecting Rod Bolt Torque for Small Block GEN III and GEN IV Vortec(TM) V8 Engines

1999–2008 Cadillac Escalade Models
 2004–2008 Cadillac CTS
 1997–2008 Chevrolet Corvette (Excluding LS7)
 1998–2002 Chevrolet Camaro
 1999 Chevrolet Forward Control Chassis, P32 R/V Van Chassis, P42 Commercial Chassis
 1999–2008 Chevrolet Express, Silverado (Classic and New Style), Suburban, Tahoe, W-Series Medium Duty Commercial
 2002–2008 Chevrolet Avalanche
 2005–2006 Chevrolet SSR
 2006–2007 Chevrolet Monte Carlo
 2003–2008 Chevrolet TrailBlazer Models
 2006–2008 Chevrolet Impala
 1999–2008 GMC Denali Models, Savana, Sierra (Classic and New Style), Yukon Models, W-Series Medium Duty Commercial
 2003–2008 GMC Envoy Models
 1998–2002 Pontiac Firebird Formula, Firebird Trans AM
 2005–2006 Pontiac GTO, Grand Prix
 2003–2008 HUMMER H2, H2 SUT
 2008 HUMMER H3
 1999–2008 Isuzu N-Series Medium Duty Commercial
 2005–2008 Saab 9-7X
 with GEN III and GEN IV Vortec™ V8 4.8L, 5.3L, 5.7L, 6.0L or 6.2L Engine (VINs V, C, B, M, T, Z, 8, 3, 0, J, H, N, U, S, Y, K, G, P — RPOs LR4, LY2, L33, LH6, LH8, LM4, LM7, L59, L92, LC9, LMG, LY5, LS1, LS2, LS4, LS6, LQ4, LQ9, L76, LY6)

Models

A new connecting rod bolt torque specification was introduced to the GEN III and GEN IV Vortec(TM) small block V8 engines. The connecting rod bolts should continue to be tightened using two passes. The second pass value has been increased from 75 degrees to 85 degrees.

Install the connecting rod bolts and tighten. Refer to Piston, Connecting Rod, and Bearing Installation in SI.

Tighten

Tighten the connecting rod bolts a first pass to 20 N.m (15 lb ft).

Tighten the connecting rod bolts a final pass to 85 degrees using the J 45059 Angle Meter.

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Technical Service Bulletin # 04-07-30-013B

Date: 070201

Engine, A/T - Shift/Driveability Concerns/MIL ON

Bulletin No.: 04-07-30-013B

Date: February 01, 2007

INFORMATION

Subject:

Automatic Transmission Shift, Engine Driveability Concerns or Service Engine Soon (SES) Light On as a Result of the Use of an Excessively/Over-Oiled Aftermarket, Reusable Air Filter

Models:

2007 and Prior GM Cars and Light Duty Trucks

2007 and Prior Saturn Models

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

Supercede:

This bulletin is being revised to add models and model years. Please discard Corporate Bulletin Number 04-07-30-013A (Section 07 - Transmission/Transaxle).

DO THIS	DON'T DO THIS
First, inspect the vehicle for a reusable aftermarket excessively/over-oiled air filter	DO NOT repair MAF sensors under warranty if concerns result from the use of an excessively/over-oiled aftermarket, reusable air filter.

The use of an excessively/over-oiled aftermarket, reusable air filter may result in:

Service Engine Soon (SES) light on

Transmission shift concerns, slipping and damaged clutch(es) or band(s)

Engine driveability concerns, poor acceleration from a stop, limited engine RPM range

The oil that is used on these air filter elements may be transferred onto the Mass Air Flow (MAF) sensor causing contamination of the sensor. As a result, the Grams per Second (GPS) signal from the MAF may be low and any or all of the concerns listed above may occur.

When servicing a vehicle with any of these concerns, be sure to check for the presence of an aftermarket reusable, excessively/over-oiled air filter. The MAF, GPS reading should be compared to a like vehicle with an OEM air box and filter under the same driving conditions to verify the concern.

The use of an aftermarket reusable air filter DOES NOT void the vehicle's warranty.

If an aftermarket reusable air filter is used, technicians should inspect the MAF sensor element and the air induction hose for contamination of oil prior to making warranty repairs.

Transmission or engine driveability concerns (related to the MAF sensor being contaminated with oil) that are the result of the use of an aftermarket reusable, excessively/over-oiled air filter are not considered to be warrantable repair items.

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Interior Lighting - Sun Visor Vanity Mirror Lamp Inop.

Bulletin No.: 06-08-42-002A

Date: January 23, 2007

TECHNICAL

Subject:
Sunshade (Visor) Vanity Mirror Bulb Inoperative (Replace Vanity Mirror Bulb Only)

Models:
2005-2007 Buick Allure (Canada Only), LaCrosse
2005-2007 Cadillac STS
2001-2005 Chevrolet Impala, Monte Carlo
2001-2006 Chevrolet Silverado Crew Cab, Suburban, Tahoe
2001-2006 GMC Sierra Crew Cab, Yukon, Yukon XL
2004-2005 Pontiac Grand Prix
2006-2007 HUMMER H3

Supercede:

This bulletin is being updated to add the 2007 model year. Please discard Corporate Bulletin Number 06-08-42-002 (Section 08 - Body & Accessories).

Condition

Some customers may comment that a sunshade (visor) vanity mirror bulb is inoperative.

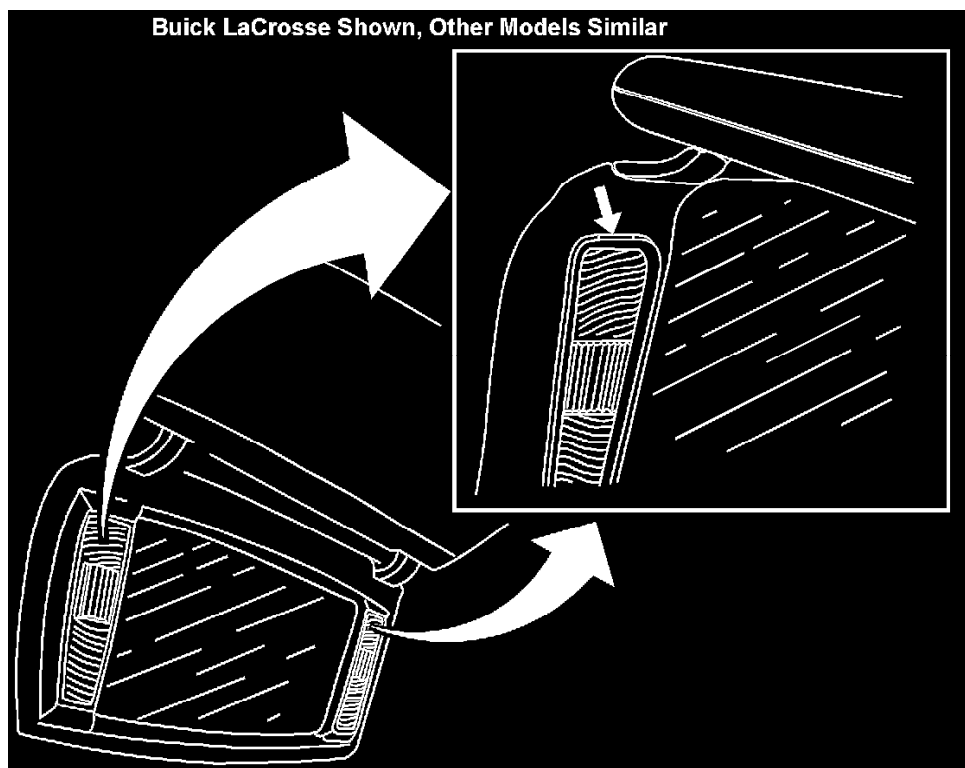
Cause

This condition may be caused by an inoperative bulb.

Correction

Do NOT replace the entire sunshade (visor) assembly.

Replace the sunshade (visor) vanity mirror bulb with P/N 9442395 if repairing one of the affected models covered for an inoperative vanity mirror bulb. Refer to Vanity Mirror Lamp Replacement in SI.



The vanity mirror bulb can be accessed by removing the lens. Place a flat-bladed tool in the notches and gently pry out the lens.

Part Number	Description
9442395	Vanity Mirror Bulb

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
N0520	Bulbs, Lamp – Interior/Courtesy — Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 07-08-98-001

Date: 070402

Body - Non-Approval of 'Clipping' for Collision Repair

Bulletin No.: 07-08-98-001

Date: April 02, 2007

INFORMATION

Subject:
Non-approval of "Clipping" (Sectioning of Two Vehicles) For Collision Repair

Models:
2000-2007 GM Passenger Cars and Trucks (Including Saturn and Saab)
2003-2007 HUMMER H2, H3

General Motors does not approve the use of "clipping" to repair collision damage to vehicles. In the collision repair industry, "clipping" refers to cutting two damaged vehicles through the windshield pillars, the rocker panels, and across the floor pan and joining the undamaged portions from these vehicles to make the repair.

The use of "clipping" voids GM's New Vehicle Limited Warranty (and any variety of the GM Protection Plan, as well as GM's new vehicle service part and corrosion warranties) for each part in the clip.

GM does not sanction clipping repair because it cuts across the major load-bearing paths of a vehicle and can reduce the structural integrity of the repaired vehicle. This is extremely critical because of the increase in the use of Advance High Strength Steel (AHSS). Improper repairs can lead to vehicle performance issues related to noise, vibration and handling problems.


GM recommends replacing body components at factory seams. When applicable, GM will provide a specific service part for collision repair frames, or provide repair information on how to create specific parts from a complete service assembly.

Frame repair procedures for select GM vehicles are available at http://www.gmgoodwrench.com/gmgoodwrenchjsp/gmspo/techrepair_indexjsp.

These parts and procedures provide a practical and cost-effective alternative to clipping. GM provides vehicle specific collision repair procedures which are developed to be in a location and fashion that will yield panel strength comparable to the original panel strength. Replacing damaged parts of a vehicle designed to crush in a collision may reduce occupant protection in a future collision.

GM has not tested or validated a "clipped vehicle" repair; therefore, GM cannot endorse this type of repair or confirm the crash performance during a subsequent collision. GM recommends the use of genuine GM parts in repairs to help ensure the vehicle is returned to pre-collision condition.

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Disclaimer
Technical Service Bulletin # **06-00-89-051A**

Date: **070124**

Locks - Key Code Security Rules & Information

Bulletin No.: 06-00-89-051A

Date: January 24, 2007

INFORMATION

Subject:
KeyCode Security Rules and Information on GM KeyCode Look-Up Application


Models:
2007 and Prior GM Passenger Cars and Light/Medium Duty Trucks (including Saturn)

2007 and Prior HUMMER H2, H3
2005-2007 Saab 9-7X
2007 and Prior Saab (Canada Only)
2002 and Prior Isuzu (Canada Only)

Attention:
This bulletin has been created to address potential issues and questions regarding KeyCode security. This bulletin should be read by all parties involved in KeyCode activity including dealer operator, partner security coordinator, sales, service and parts departments. A copy of this bulletin should be printed and maintained in the parts department for use as a reference.

Supercede:
This bulletin is being revised to update/clarify the information. Please discard Corporate Bulletin Number 06-00-89-051 (Section 00 - General Information).

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Disclaimer
Key Code Information Part - 1
Where are Key Codes Located?

General Motors provides access to KeyCodes through three sources when a vehicle is delivered to a dealer. Vehicle KeyCodes are located on the original vehicle invoice to the dealership, but not on subsequent reprints. There is a small white bar coded tag sent with most new vehicles that also has the key code printed on it. Many dealers don't remove this and don't realize that as they are showing cars to customers they are also showing them the KeyCode to the vehicle. The third source for Key codes is through the GM KeyCode Look-Up application in GM DealerWorld (for U.S. dealers only) or the KeyCode Look-Up feature within the Parts Locator and Information Services application on GM ACCESS (for Canadian dealers only). KeyCode

Look-Up currently goes back 14 previous model years from the current model year (17 years in Canada).

When a vehicle is received by the dealership, care should be taken to safeguard the original vehicle invoice and KeyCode tag provided with the vehicle. Potential customers should not have access to the invoice or this KeyCode tag prior to the sale being completed. After a sale has been completed, the KeyCode information belongs to the customer and General Motors.

Tip

Only the original invoice contains key code information, a re-printed invoice does not.

GM KeyCode Look-Up Application for U.S. Dealers*

*Information for Canadian dealers and the Canadian Look-Up Application follows.

Recent KeyCode reviews have indicated that not all dealers are following the General Motors KeyCode Look-Up Policies and Procedures. GM has made several changes that will enhance the security of the KeyCode Look-Up system.

Please note that the KeyCode Access site is restricted. Only authorized users should be using this application. Please see your Partner Security Coordinator (PSC) for site authorized users. Keycode Look-Up currently goes back 14 previous model years from the current model year.

Recent changes include:

Users may not access the system from multiple computers simultaneously.

Users must accept the Keycode User Agreement for every request.

Users may only request one Keycode at a time.

Users must enter customer name, plate number and State/Province for every request.

Keycode information will only be available on the screen for 60 Seconds.

Detailed warnings have been added for printed Keycode requests.

Important notes about security:

Each user must maintain and protect their password to minimize the potential for abuse of the system within the dealership. Thus, authorized users should never share their password with others.

Processes must be in place for dealership management to review the dealership's Key code activity regularly through the Keycode Audit function available in GM DealerWorld.

The Partner Security Coordinator (PSC) must have processes in place to respond to changes within the dealership. Upon termination, an individual's access must be turned off immediately and access should be re-evaluated upon any position changes within the dealership.

If you think your password or ID security has been breached, contact your dealership Partner Security Coordinator for a new ID.

Contact GM Security via the Awareline at 1-800-244-3460 if you suspect your ID has been used by any other user.

Each user will be required to accept the following agreement each time the KeyCode application is used.

Key Code User Agreement

Key codes are proprietary information belonging to General Motors Corporation and to the vehicle owner.

Unauthorized access to, or use of, key code information is unlawful and may subject the user to criminal and civil penalties.

This information should be treated as strictly confidential and should not be disclosed to anyone unless authorized.

I will ensure that the following information is obtained prior to releasing any Key Code information:

Valid Picture ID

Vehicle Registration to verify owner name and VIN

The user must select I AGREE or I DO NOT AGREE on screen.

GM takes this agreement seriously. Each user must be certain of vehicle ownership before clicking on the "I agree" button.

When the ownership of the vehicle is in doubt, dealership personnel should not provide the information.

Key codes should never be sent via a fax or the internet.

Every Keycode Look-Up request or inquiry is retained indefinitely for GM review purposes.

GM will review KeyCode Look up on a monthly basis for compliance.

Do not put yourself, or your Dealership in the position of needing to "explain" a Keycode Look Up to either GM Security or law enforcement officials.

Create a file to document all Keycode Look Up transactions.

Dealership Partner Security Coordinator and/or assigned management has the ability to review all KeyCode Look-Up transactions.

Dealership management must review KeyCode Look-Up usage for compliance to the stated Policies and Procedures.

Dealership KeyCode documentation must be retained for a minimum of 2 years.

Frequently Asked Questions (FAQS) for U.S. Dealers*

*Information for Canadian dealers and the Canadian Look-Up Application follows.

FAQs are located in the KeyCode Help section of KeyCode look up. The FAQ section should be printed and located near the parts department should there be questions.

FAQs included the following information:

How do I document a Keycode request for a dealer owned vehicle?

The dealership name should be in the "Customer Name" field. "Stock Unit" should be entered in the "Plate Number" field. The dealership location should be used in the "State / Province Registered In" field. Dealership Management specified by the Dealer Operator should authorize any internal KeyCode Requests.

Any clarifying explanation should be entered into the comments field.

How do I request a KeyCode for customer owned vehicle that is not registered?

Scrapped, salvaged or stored vehicles that do not have a current registration should still have the ownership verified by requesting the vehicle title, current insurance policy and / or current lien holder information from the customers financing source. If you cannot determine if the customer is the owner of the vehicle, do not provide the key code information. In these cases, a short description of the vehicle (scrapped, salvaged, etc.) should be entered in the "Plate Number" field and the dealership location should be used in the "State / Province Registered In" field. Any clarifying explanation should be entered into the comments field.

How do I document a Keycode request for a vehicle that is being repossessed?

The reposessor must document ownership of the vehicle by providing a court ordered repossession order and lien-holder documents prior to providing key code information. Copies of the reposessors Drivers License and a business card should be retained by the dealership for documentation. Any clarifying explanation should be entered into the comments field.

What if I cannot obtain the "Plate Number" for the vehicle?

Every effort should be made to obtain complete information for each request. Dealership Management must be involved in any request without complete information. Place the name of the Dealership Manager approving the request in the Plate Number field. Any clarifying explanation should be entered into the comments field. Other forms of documentation include vehicle title, insurance policy, and or current lien information from the customers financing source. If you cannot determine if the customer is the owner of the vehicle, do not provide the key code information.

What do I do if the registration information is locked in the vehicle?

Every effort should be made to obtain complete information for each request. Each Dealership will have to decide on a case by case basis if enough information is available to verify the customer's ownership of the vehicle. Other forms of documentation include vehicle title, insurance policy, and or current lien information from the customers financing source. Dealership Management must be involved in any request without complete information. Place the name of the Dealership Manager approving the request in the Plate Number field. Any clarifying explanation should be entered into the comments field. If you cannot determine if the customer is the owner of the vehicle, do not provide the key code information.

Can I get a print out of the information on the screen?

It is important to note that the Key Code Look Up Search Results contain sensitive and/or proprietary information. For this reason GM recommends against printing it. If the Search Results must be printed, store and/or dispose of the printed copy properly to minimize the risk of improper or illegal use.

Who in the dealership has access to the KeyCode application?

Dealership Partner Security Coordinator will determine, and control, who is authorized to access the KeyCode Look Up application. However, we anticipate that dealership parts and service management will be the primary users of the application. The KeyCode Look Up application automatically tracks each user activity session. Information tracked by the system includes: User name, User ID, all other entered data and the date/time of access.

Do I have to go through the KeyCode Orientation each time I need to get a KeyCode?

The KeyCode Orientation session is required for all first time users on the KeyCode Look Up application. Returning users who have completed the orientation session on the application will only have to accept the KeyCode User Agreement for each request.

What if I input the VIN incorrectly?

If an incorrect VIN is entered into the system (meaning that the system does not recognize the VIN or that the VIN has been entered incorrectly) the system will return an error message highlighting the incorrect information.

If I am an authorized user for the KeyCode Audit application, can I access the application from home?

If you are authorized user for the application, you will be able to access it as you can other DealerWorld applications.

How will users be trained on the new applications?

The "Help" button on the application provides access to the Frequently Asked Questions (FAQs), Security Guidelines, System Usage Agreement and KeyCode Orientation. Additionally, the application features a "mouse-over" function that provides users with instructions for completing each required/optional data field.

Who in the dealership has access to the KeyCode Audit application?

Access to the KeyCode Audit application will be determined, and controlled, by the Partner Security Coordinator in the dealership. The KeyCode Audit function will only allow the authorized user to view VIN's, user name, date and time of requests by your dealership.

What if I suspect key code misuse?

Your dealership should communicate the proper procedures for requesting key codes. Any suspicious activity either within the dealership or externally should be reported to GM via the GM Security tip line. The Awareline toll free number in the US and Canada is 1-800-244-3460, the number for Mexico is 011-800-244-7434.

Key Code Information Part - 2

Whose key codes can I access through the system?

At this time the following US vehicle codes are available through the system: Chevrolet, Cadillac, Buick, Pontiac, GMC, HUMMER (H2 and H3 only), Oldsmobile and Saturn for the current model year and the 14 previous model years.

What should I do if I enter a valid VIN and the system does not produce any key code information?

Occasionally, the Keycode Look Up application may not produce a Key code for a valid VIN. This may be the result of new vehicle information not yet available. In addition, older vehicle information may no longer be available. If you do not receive a Key code returned for valid VIN, current model year or 14 previous model years back, you should contact the DealerWorld Help Desk at 1-888-337-1010. The help desk will escalate your request to the application owner for review. After the application owner has reviewed the key code information, you will be contacted. Please do not contact the DealerWorld Help Desk for future updates on your case.

How do I document a Keycode request for an Engineering Analysis Associate (EAA) Investigator?

The EAA investigator must provide a letter on GM letterhead stating the customer's name, VIN, Product Allegation Resolution (PAR) case number and investigators name. The investigation should be verified by contacting the GM Business Resource Groups PAR Staff during normal business hours M-F 8:00 - 5:00 EST at 800-231-1831 Prompts # 3, # 1, # 4. A copy of this letter, business card and Drivers License of the investigator should be retained by the dealership for documentation.

How do I access Keycodes if the Keycode Look-up system is down?

If the KeyCode Look-up system is temporarily unavailable you can contact the original selling dealer who may have it on file. If the customer is dealing with an emergency lock-out situation you need to have the customer contact Roadside assistance or OnStar, if subscribed. Roadside assistance no longer provides KeyCodes to dealers. At this time, there are no other options for obtaining KeyCodes.

What should I do if the Keycode from the look-up system does not work on the vehicle?

On occasion a dealer may encounter a Key code that will not work on the vehicle in question. In cases where the Key code won't work, you will need to verify with the manufacturer of the cutting equipment that the key has been cut correctly. If the key has been cut correctly, you may be able to verify the proper Key code was given through the original selling dealer. When unable to verify the Key code through the original selling dealer, GM DealerWorld Help Desk may be contacted and your case will be escalated to the application owner for review.

After the application owner has reviewed the key code information, you will be contacted. Please do not contact the DealerWorld Help Desk for future updates on your case. The application owner will verify the Key code provided matches the Key code listed on the vehicle invoice. If the key has been cut correctly and the code given does not work, the lock cylinder may have been changed. In these situations, following the proper SI document for recoding a key or replacing the lock cylinder may be necessary.

How do I document a Keycode request for an ESIS Investigator?

The ESIS investigator must provide a letter on ESIS GM Central Claims Unit letterhead stating the customer's name, VIN, claim number and investigator's name.

The investigation should be verified by contacting the ESIS/GM Claims Unit during normal business hours M-F 8:00 - 5:00 EST at 1-800-888-0164. A copy of this letter, business card and Drivers License of the investigator should be retained by the dealership for documentation.

How long do I have to keep Keycode Records?

Dealership KeyCode documentation should be retained for a minimum of 2 years.

Can I get a KeyCode changed in the Look-Up system?

No. Currently, KeyCodes can not be changed in the Look-Up system if a lock cylinder has been changed.

Whose Name do I put in the "Customer's Name" field of KeyCode Look-Up?

Whenever a KeyCode is requested, the actual person (not the company name) you are giving the KeyCode information to must be put in this field. This would be the same person for which you have verified identification. Detailed comments should be included in the comments section and file if necessary.

What information do I need before I can provide a driver of a company fleet vehicle Keys or Keycode information?

The dealership should have a copy of the individual's driver's license, proof of employment and registration. If there is any question as to the customer's employment by the fleet company, the dealer should attempt to contact the fleet company for verification. If there is not enough information to determine ownership and employment, this information should not be provided.

How do I document a request from an Independent Repair facility for a Keycode or Key?

The independent must provide a copy of their driver's license, proof of employment and signed copy of the repair order for that repair facility. The repair order must include customer's name, address, VIN, city, state and license plate number. Copies of this information must be included in your dealer KeyCode file.

GM Keycode Look-Up Application for GM of Canada Dealers*

* Information for U.S. dealers and U.S. Look-Up Application above.

All dealers should review the General Motors of Canada KeyCode Look-Up Policies and Procedures (Service Policy & Procedures Manual Section 3.1.6 "Replacement of VIN plates & keys").

Please note that the KeyCode Access site is restricted. Only authorized users should be using this application. Please see your Parts Manager for site authorized users. KeyCode Look-Up currently goes back 17 years from current model year.

Important notes about security:

Users may not access the system from multiple computers simultaneously.

Users may only request one KeyCode at a time.

KeyCode information will only be available on the screen for 2 minutes.

Each user is personally responsible for maintaining and protecting their password.

Never share your password with others.

User ID's are suspended after 6 consecutive failed attempts.

User ID's are disabled if not used for 90 days.

Processes must be in place for regular dealership reviews.

The Parts Manager (or assigned management) must have processes in place for employee termination or life change events. Upon termination individuals access must be turned off immediately and access should be re-evaluated upon any position changes within the dealership.

If you think your password or ID security has been breached, contact the GMACCESS Help Desk at 1-800-265-0573 or GM of Canada Dealer Technology at 905-644-1829.

Each user will be required to accept the following agreement each time the KeyCode application is used.

Key Code User Agreement

Key codes are proprietary information belonging to General Motors Corporation and to the vehicle owner.

Unauthorized access to, or use of, key code information is unlawful and may subject the user to criminal and civil penalties.

This information should be treated as strictly confidential and should not be disclosed to anyone unless authorized.

I will ensure that the following information is obtained prior to releasing any Key Code information:

Government issued picture ID (Drivers License)

Registration or other proof of ownership. Registration should have normal markings from the Province that issued the registration and possibly the receipt for payment recorded as well.

GM takes this agreement seriously. Each user must be certain of vehicle ownership before giving out key codes.

When the ownership of the vehicle is in doubt, dealership personnel should not provide the information.

Key codes should NEVER be sent via a fax or the internet.

Each Dealership should create a permanent file to document all KeyCode Look Up transactions. Requests should be filed by VIN and in each folder retain copies of the following:

Government issued picture ID (Drivers License)

Registration or other proof of ownership.

Copy of the paid customer receipt which has the name of the employee who cut and sold the key to the customer.

Do not put yourself or your Dealership in the position of needing to "explain" a KeyCode Look Up to either GM Security or law enforcement officials.

Dealership Management has the ability to review all KeyCode Look-Up transactions.

Dealership KeyCode documentation must be retained indefinitely.

Frequently Asked Questions (FAQs) for GM of Canada Dealers*

* Information for U.S. dealers and U.S. Look-Up Application above.

How do I request a KeyCode for customer owned vehicle that is not registered?

Scrapped, salvaged or stored vehicles that do not have a current registration should still have the ownership verified by requesting the vehicle title, current insurance policy and/or current lien holder information from the customer's financing source. If you cannot determine if the customer is the owner of the vehicle, do not provide the key code information. In these cases, a short description of the vehicle (scrapped, salvaged, etc.) and the dealership location should be kept on file. Any clarifying explanation should be entered into the comments field.

How do I document a KeyCode request for a vehicle that is being repossessed?

The reposessor must document ownership of the vehicle by providing a court ordered repossession order and lien-holder documents prior to providing key code information. Copies of the reposessor's Drivers License and a business card should be retained by the dealership for documentation.

What do I do if the registration information is locked in the vehicle?

Every effort should be made to obtain complete information for each request. Each Dealership will have to decide on a case by case basis if enough information is available to verify the customer's ownership of the vehicle. Other forms of documentation include vehicle title, insurance policy, and or current lien information from the customer's financing source. Dealership Management must be involved in any request without complete information. If you cannot determine if the customer is the owner of the vehicle, do not provide the key code information.

Can I get a print out of the information on the screen?

It is important to note that the Key Code Look Up Search Results contain sensitive and/or proprietary information. For this reason GM recommends against printing it. If the Search Results must be printed, store and/or dispose of the printed copy properly to minimize the risk of improper or illegal use.

Who in the dealership has access to the KeyCode application?

Dealership Parts Manager (or assigned management) will determine, and control, who is authorized to access the KeyCode Look Up application. However, we anticipate that dealership parts and service management will be the primary users of the application. The KeyCode Look Up application automatically tracks each user activity session. Information tracked by the system includes: User name, User ID, all other entered data and the date/time of access.

What if I input the VIN incorrectly?

If an incorrect VIN is entered into the system (meaning that the system does not recognize the VIN or that the VIN has been entered incorrectly) the system will return an error message.

If I am an authorized user for the KeyCode application, can I access the application from home?

The GM Parts Locator and Information Services application resides on the GMACCESS Server. Even if you are an authorized user for the application, you will NOT be able to access it outside of the dealership.

What if I suspect key code misuse?

Your dealership should communicate the proper procedures for requesting key codes. Any suspicious activity either within the dealership or externally should be reported to the GMACCESS Help Desk or GM of Canada Dealer Technology at 905-644-1829.

Whose key codes can I access through the system?

At this time the following Canadian vehicle codes are available through the system: Chevrolet, Cadillac, Buick, Pontiac, GMC, HUMMER (H2 and H3 only), Oldsmobile, Saturn, Saab and Isuzu (up to 2002 model year) for a maximum of 17 model years.

What should I do if I enter a valid VIN and the system does not produce any key code information?

Occasionally, the KeyCode Look Up application may not produce a key code for a valid VIN. This may be the result of new vehicle information not yet available.

In addition, older vehicle information may have been sent to an archive status. If you do not receive a key code returned for valid VIN, you should contact GM of Canada Dealer Technology at 905-644-1829.

How do I access Keycodes if the Keycode Look-up system is down?

If the KeyCode Look-up system is temporarily unavailable, you can contact the original selling dealer who may have it on file or contact GM of Canada Dealer Technology at 905-644-1829. If the customer is dealing with an emergency lock-out situation, you need to have the customer contact Roadside assistance, OnStar if subscribed, or 911.

What should I do if the KeyCode from the look-up system does not work on the vehicle?

On occasion a dealer may encounter a KeyCode that will not work on the vehicle in question. In cases where the KeyCode won't work you will need to verify with the manufacturer of the cutting equipment that the key has been cut correctly. If the key has been cut correctly you may be able to verify the proper Keycode was given through the original selling dealer. When unable to verify the Keycode through the original selling dealer contact GM of Canada Dealer Technology at 905-644-1829. If the key has been cut correctly and the code given does not work, the lock cylinder may have been changed. In these situations following the proper SI document for recoding a key or replacing the lock cylinder may be necessary.

How long do I have to keep KeyCode Records?

Dealership Keycode documentation should be retained indefinitely.

Can I get a KeyCode changed in the Look-Up system?

Yes, Keycodes can be changed in the Look-Up system if a lock cylinder has been changed. Contact GM of Canada Dealer Technology at 905-644-1829.

What information do I need before I can provide a driver of a company fleet vehicle Keys or Keycode information?

The dealership should have a copy of the individual's driver's license, proof of employment and registration. If there is any question as to the customer's employment by the fleet company, the dealer should attempt to contact the fleet company for verification. If there is not enough information to determine ownership and employment, this information should not be provided.

How do I document a request from an Independent Repair facility for a Keycode or Key?

The independent must provide a copy of their driver's license, proof of employment and signed copy of the repair order for that repair facility. The repair order must include customer's name, address, VIN, city, province and license plate number. Copies of this information must be included in your dealer KeyCode file.

Technical Service Bulletin # **07-08-44-007**

Date: **070417**

Navigation System - Replacement Navigation Discs

Bulletin No.: 07-08-44-007

Date: April 17, 2007

INFORMATION

Subject:

Information on Obtaining Replacement Navigation Discs When Radios are Exchanged - Order Replacement Navigation Disc Through Navigation Disc Center

Models:

2007 and Prior GM Passenger Cars and Trucks (Including Saturn)

2007 and Prior HUMMER H2, H3

2007 and Prior Saab 9-7X

with a Navigation Radio

Attention:

The purpose of this bulletin is to inform dealership personnel of a new procedure for obtaining a replacement navigation disc for radios that are sent to an ESC for exchange. This bulletin applies to U.S. and Canadian dealers only and is not intended for use by export dealers.

When a navigation radio warranty exchange is performed, the customer must have a navigation disc to operate the new radio. If the customer's navigation disc was damaged or is stuck in the failed radio, the customer would have to wait for an excessive period of time for the disc to be returned or replaced. The Electronic Service Centers (ESC) are not authorized to remove stuck navigation discs from cores, as the cores must be returned to the supplier for analysis prior to any disassembly. The time it would take for the supplier to return the navigation disc would significantly delay the completion of the repair at the dealership.

If the customer's navigation disc is damaged or cannot be removed from the radio, the dealership is to obtain an exchange radio through an ESC and a new navigation disc through the GM Navigation Disc Center. Both items can be shipped overnight to the dealership upon request.

GM Navigation Disc Center Contact Information

Via the web through gmnavdisc.com

The GM Navigation Disc Center is also the center of expertise for navigation system questions.

Warranty Information

Include the part number and cost of the new navigation disc on the warranty claim for the navigation radio exchange.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Technical Service Bulletin # **05-08-51-008B**

Date: **070423**

Body - Bumps or Rust Colored Spots in Paint

Bulletin No.: 05-08-51-008B

Date: April 23, 2007

TECHNICAL

Subject:
Bumps or Rust Colored Spots in Paint Due to Rail or Iron Dust (Remove Rail Dust)

Models:
1994-2007 GM Passenger Cars and Trucks (Including Saturn)
2003-2007 HUMMER H2
2006-2007 HUMMER H3
2005-2007 Saab 9-7X

Supercede:

This bulletin is being revised to add Saturn models. Please discard Corporate Bulletin Number 05-08-51-008A (Section 08 - Body and Accessories).

Condition

Visible rust colored spots or bumps on a vehicle's paint surface from rail or iron dust.

Cause

Rail dust comes from tiny iron particles produced from the friction between train wheels and the tracks and gets deposited on the vehicle surfaces. Iron dust can get deposited on the surface if the vehicle is stored near any operation producing iron dust such as a steel ore yard. Either material can lay on top of, or become embedded in the paint surface.

Correction

Because the severity of the condition varies, proper diagnosis of the damage is critical to the success of repairs. Diagnosis should be performed on horizontal surfaces (hood, roof, deck lid, pick up box, etc.) after the vehicle has been properly cleaned. There are two types of repair materials recommended to repair rail dust or iron dust:

GEL TYPE OXALIC ACID:

- Has the characteristics of the liquid type oxalic acid but stays where you put it because of its gel consistency.

CLAY TYPE NON-ACID BASED:

- Requires surface lubricant during use.
- Has different grades available.

If, upon inspection, some particles are still present, the various chemical manufacturer's processes can be repeated. After the removal process, small pits may remain in the clearcoat and can be corrected, in most cases, with a finesse/polish operation.

Procedure

Move the vehicle to a cool shaded area and make sure that the vehicle surfaces are cool during the removal process. **DO NOT PERFORM THE REMOVAL PROCESS IN DIRECT SUNLIGHT OR ON A VEHICLE WITH HOT OR WARM BODY PANELS.**

Wash the vehicle with soap and water. Dry it immediately and clean the affected areas with a wax and grease remover. Perform the removal process according to the chemical manufacturer's directions.

Auto Magic® or Clay Magic® products available from:

Auto Wax Company, Inc.

1275 Round Table Dr.

Dallas, TX 75247

(800) 826-0828 (Toll-Free) or (214) 631-4000 (Local)

Fax (214) 634-1342

www.automagic.com

info@autowaxcompany.com

E038 Fallout Gel or E038E Liquid Fallout Remover II available from:

Valvoline Car Brite Company

1910 South State Avenue

Indianapolis, In 46203

(800) 347-2439 (Toll Free) or (317) 788-9925 (Local)

Fax (317) 788-9930

www.carbrite.com

info@carbrite.com

*We believe these sources and their products to be reliable. There may be additional manufacturers of such products. General Motors does not endorse, indicate any preference for or assume any responsibility for the products from these firms or for any such items which may be available from other sources.

If rail dust remover is not available in your area, call one of the numbers listed above for a distributor near your location.

Once the damage has been repaired, the final step involves a polishing process. Use the chemical manufacturers shown, or equivalent.

These labor operations only apply to vehicles shipped by rail.

Labor Operation	Description	Labor Time
A5575	Acid Based Removers	Use Published Labor Operation Time
A5580	Non-Acid Based Removers	

In certain cases where the vehicle finish is severely damaged and the actual repair time exceeds the published time, the additional time should be submitted in the "Other Labor Hours" field.

Warranty information (excluding Saab U.S. Models)


Although rail dust is not the result of any defects in materials or workmanship, General Motors will correct the condition on vehicles during the

pre-delivery process.

Labor Operation	Description	Failed Object	Fault/Reason Code	Location Code	Warranty Type	Repair/Action Code	Labor Time
8010602	Acid Based Removers	80106	86	0	01	05	0.5 hr (Up to an additional 0.7 hr in 99 time may be claimed as required)
8010603	Non-Acid Based Removers	80106	86	0	01	05	0.5 hr (Up to an additional 0.7 hr in 99 time may be claimed as required)

Warranty Information (Saab U.S. Models)

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Technical Service Bulletin # **03-06-05-008D**

Date: **070305**

Exhaust System - Popping/Snapping Noise When Hot/Idling

Bulletin No.: 03-06-05-008D

Date: March 05, 2007

TECHNICAL

Subject:

Exhaust Popping/Snapping Noise When Vehicle is Hot, at Idle, or Immediately After Vehicle is Shut Off (Replace Muffler Heat Shield)

Models:

- 2002-2006 Cadillac Escalade, Escalade EXT
- 2003-2006 Cadillac Escalade ESV
- 2002-2006 Chevrolet Avalanche, Suburban, Tahoe, Silverado, Silverado HD
- 2007 Chevrolet Silverado Classic, Silverado HD Classic
- 2002-2006 GMC Sierra, Sierra HD, Yukon, Yukon Denali, Yukon Denali XL
- 2007 GMC Sierra Classic, Sierra HD Classic
- 2003-2006 HUMMER H2

with 4.8L, 5.3L, 6.0L or 8.1L Gasoline Engine (VINs V, B, T, Z, N, V, G - RPOs LR4, L33, LM7, L59, LQ9, LQ4, L18)

Supercede:

This bulletin is being revised to add the 2006 and 2007 (Classic Only) model years and the 5.3L (L33) engine. Please discard Corporate Bulletin Number 03-06-05-008C (Section 06 - Engine/Propulsion System).

Condition

Some customers may comment on a popping/snapping noise from underneath the vehicle at idle or immediately after the vehicle is shut off. Some popping/snapping noise from the exhaust system during cool down is a normal condition.

The noise may be intermittent depending on the outside temperature and or temperature of the exhaust system at the time of testing.

Cause

As the exhaust system warms and cools, the muffler and the muffler heat shield expand and contract at different rates and may cause a popping and/or snapping noise.

Some popping/snapping noise from the exhaust system during cool down is a normal condition. The customer should be made aware that this service procedure is designed to reduce but not eliminate all exhaust system popping and snapping during cool down.

Correction

DO THIS	DON'T DO THIS
Install a new heat shield and straps on the existing muffler.	DO NOT replace exhaust system components other than the muffler heat shield.

Follow the service procedure below to correct this condition.

Some popping/snapping noise from the exhaust system during cool down is a normal condition. The customer should be made aware that this service procedure is designed to reduce but not eliminate all exhaust system popping and snapping during cool down.

Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.

In order to avoid being burned, do not service the exhaust system while it is still hot. Service the system when it is cool.

Always wear protective goggles and gloves when removing exhaust parts as falling rust and sharp edges could result in serious personal injury.

Remove the nuts securing the muffler to the catalytic converter.

On 6.0L and 8.1L equipped vehicles only, loosen the exhaust pipe clamp.

Do not use oil base lubricants on the rubber exhaust hangers.

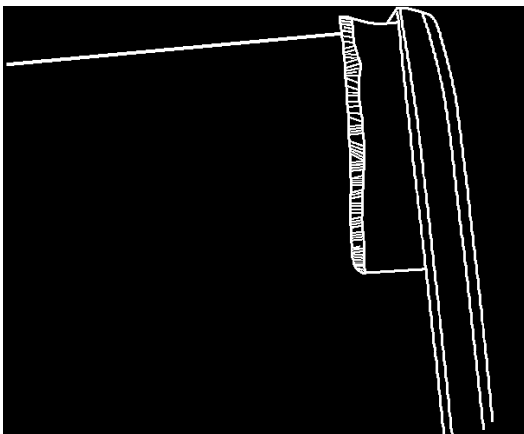
Apply a soapy solution to the exhaust pipe hanger rods in order to ease the removal of the exhaust hangers.

Pry the exhaust hangers free from the exhaust pipe hanger rods.

It is not necessary to remove the muffler from the vehicle to replace the muffler heat shield.

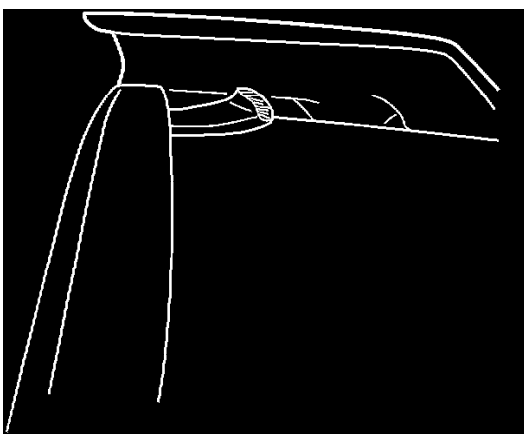
Reposition the muffler to gain access to the muffler heat shield.

Use extreme caution not to damage the muffler when removing the heat shield from the muffler.



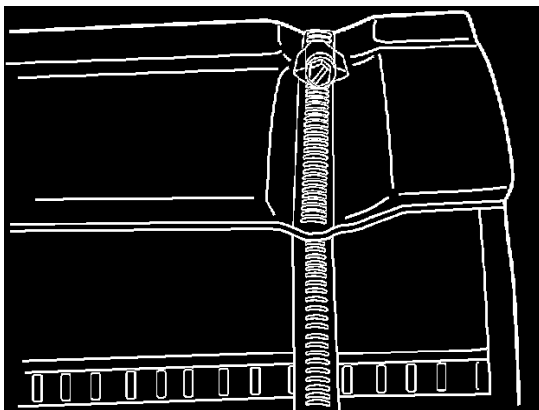
Using an air-powered hack saw blade, or equivalent, cut off the existing muffler heat shield just as the heat shield rises off of the muffler. See the illustration above.

Remove the heat shield from the muffler.



Hammer flush the remaining heat shield to the muffler.

The new heat shield should not come in contact with the remaining muffler heat shield. The new heat shield should not come in contact with the horizontal lock seam on the muffler.

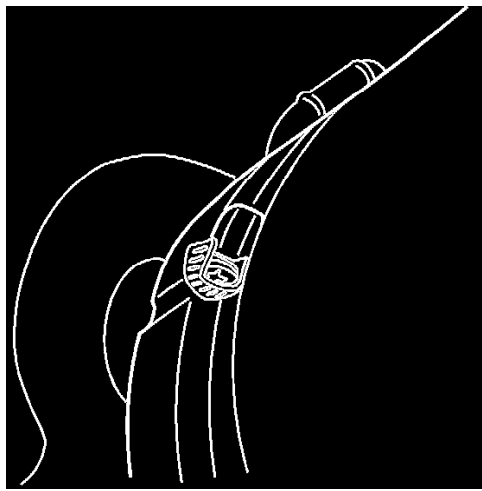


Install the new heat shield (see parts list below) onto the muffler as shown above.

Install three straps, P/N 10391259, so that the strap screw head will be located on top of the muffler.

Tighten

Tighten the strap screw to 4 N.m (35 lb in).



Cut off the excess strap material and bend the strap over the strap screw head as indicated above. Remove the exhaust pipe clamp.

ONLY 6.0L and 8.1L equipped vehicles require a new exhaust pipe clamp, P/N 15103174.

On 6.0L and 8.1L equipped vehicles only, install a new exhaust pipe clamp, P/N 15103174, on the exhaust pipe.

Reposition the muffler in the correct position.

Slide the muffler forward into position, aligning the studs with the rear of the catalytic converter.

Install the nuts securing the muffler to the catalytic converter, but DO NOT tighten at this time.

Apply a soapy solution to the following areas in order to ease the installation of the hangers. The inner diameter of the exhaust pipe hanger

The exhaust pipe hanger rod

Press the exhaust pipe hangers over the exhaust pipe hanger rods.

Tighten

Tighten the muffler nuts by hand until each contacts the metal flange.

Tighten the muffler nuts to 45 N.m (33 lb ft).

On 6.0L and 8.1L equipped vehicles only, tighten the exhaust clamp to 50 N.m (36 lb ft).

Lower the vehicle.

Part Number	Description	Qty
15253526	Shield, Muffler Heat Shield (24 inch shield) with 4.8L or 5.3L engine 1500 Series Base Utility Trucks ONLY	1
10393433	Shield, Muffler Heat Shield 28 inch shield with 6.0L engine (LQ4, LQ9) H2 or 1500 Series Luxury Utility Trucks ONLY	1
15808181	Shield, Muffler Heat Shield 25 inch shield with 6.0L or 8.1L engine (LQ4, LQ9, L18) 2500 Series Utility, HD Pickups and Luxury Pickup Trucks ONLY	1
15103174	Clamp, Exhaust Pipe with 6.0L or 8.1L engines ONLY	1
10391259	Strap, Muffler Heat Shield Strap All Vehicles	3
15103184	Clamp, Exhaust Pipe (pipe size 2.75") (25 Series Suburbans/Avalanche and 8600 lb. 25 Series Pickups w/LQ4)	1
15102680	Clamp, Exhaust Pipe (pipe size 3") (25 & 35 HD Pickups w/LQ4 or L18 engines)	1

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
L2540	Shield, Muffler Heat Shield – Replace	0.8 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 02-08-42-004A

Date: 070330

Instruments - Reduced PRNDL Display Visibility

Bulletin No.: 02-08-42-004A

Date: March 30, 2007

INFORMATION

Subject:

PRNDL Display Reduced Visibility For Approximately One Minute

Models:

2007 and Prior Passenger Cars and Trucks (Including Saturn)

2007 and Prior HUMMER H2, H3

2005-2007 Saab 9-7X

with Automatic Headlamp Control and Vacuum Fluorescent PRNDL Indicator Instrument Panel Cluster

Supercede:

This bulletin is being revised to include additional models and model years. Please discard Corporate Bulletin Number 02-08-42-0004 (Section 08 - Body and Accessories).

After backing the vehicle out of a garage or dark environment into a daylight environment, the PRNDL display has reduced visibility for approximately one minute.

While the vehicle is parked in a dark environment, the sensor for the automatic headlamp/driving lamps senses that it is dark. When the key is turned to the run/start position, the automatic headlamp module will turn all driving lamps, the instrument panel cluster and PRNDL display ON in the night-time mode. The night-time mode intensity of the instrument panel lamps and PRNDL display is controlled by the automatic headlamp module and can be dimmed further by the customer using the dimming control of the headlamp switch.

When the customer then moves the vehicle from the dark environment into the bright sunlight, it will take approximately one minute before the headlamp control module recognizes this as true daylight and not just a bright overhead street lamp shining on the sensor. The headlamp control module will then turn the headlamps off and restore the instrument panel and PRNDL display to full brilliance.

Without the time delay, the automatic headlamp control module would switch to the night mode (turn on all driving lamps, instrument panel lamps and PRNDL display would dim) each time the vehicle was driven under an overpass or other darkened environment.

This is a normal condition and no repair should be attempted.

Ensure the instrument panel backlighting control is in the full bright position. This will help alleviate the condition. You may demonstrate to the customer what happens by placing a repair order over the automatic headlamp control light sensor, which will cause the automatic headlamp control module to switch to the night mode in approximately one minute. All driving lamps will come ON, the instrument panel backlight will be dim, and the PRNDL display will also dim to the night setting in conjunction with the position of the headlamp switch dimming control. Demonstrate to the customer the variance in the instrument panel backlighting and PRNDL display while adjusting the headlamp switch dimming control to both ends of

its allowable range. Advise the customer to keep the headlight switch dimming control in the highest position to allow viewing of the PRNDL display in a bright environment.

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Disclaimer Technical Service Bulletin # **07-08-63-001**

Date: **070417**

Body - Polypropylene Energy Absorber Replacement

Bulletin No.: 07-08-63-001

Date: April 17, 2007

INFORMATION

Subject:
Information on Repair of Polypropylene Energy Absorbers

Models:
2007 and Prior GM Passenger Cars and Trucks (including Saturn)
2007 and Prior HUMMER H2, H3
2005-2007 Saab 9-7X

Supercede:

This bulletin is being revised to change the repair information. Please discard Corporate Bulletin Number 63-20-02 (Section 8 - Body and Accessories).

Because the energy absorbers are relatively low in cost to replace, it is now more cost efficient to replace the energy absorbers whenever they are damaged.

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Disclaimer Technical Service Bulletin # **07-07-30-010**

Date: **070503**

A/T Controls - Snapshot Data Information

Bulletin No.: 07-07-30-010

Date: May 03, 2007

INFORMATION

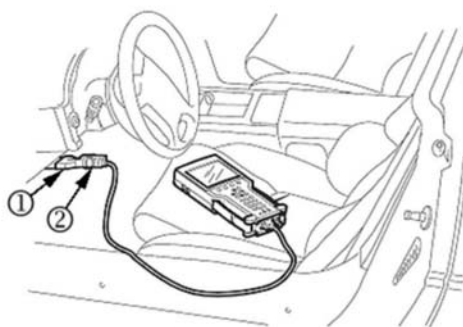
Subject:
Procedure to Take Snapshot Data with a Tech 2(R) and Upload Data To Computer Using TIS Software

Models:
2004-2008 Passenger Cars and Light Duty Truck (Including Saturn)
2004-2008 HUMMER H2, H3
2004-2008 Saab 9-7X

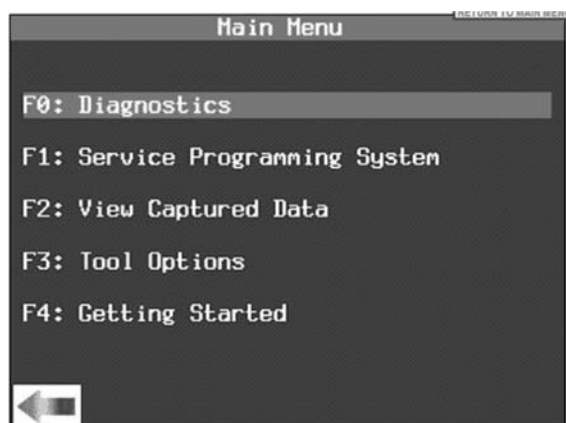
with Automatic Transmission

This procedure is intended to show the user how to take snapshot data with a Tech 2(R) and upload it to a computer. The procedure is written for a Saturn AURA, but will work for all automatic transmission applications. This procedure is written with the assumption the user has a basic understanding of how to use a Tech 2(R) already.

Capturing a Snapshot of the Vehicle Data Stream



Connect the Tech 2(R) to the vehicle Data Link Connector (DLC) as shown above. Use a CANdi module as required.



Power up the Tech 2(R) and press the ENTER key at the start-up screen.

From the Main Menu select F0: Diagnostics

Select "2007"

Select "Passenger Car (F0)"

Select "Saturn"

Select "Z"

Select "Aura"

Select "Powertrain"

Select "3.6L LY7"

Select "Transmission"

Select "Transmission Data"

Trigger Type (F0 - F3 function keys) determines how the snapshot is triggered:

F0: Manual Trigger triggers a snapshot when you press the Trigger soft key.

➔ **F1: Any Code** triggers a snapshot whenever any current trouble code is stored. This event occurs when the first code is stored in the vehicle controller memory.

F2: Single Code triggers a snapshot when a user specified trouble code is stored.

F3: Automatic Trigger (chassis applications only) automatically triggers a snapshot.

Trigger Point (F4 - F6 function keys) is the exact point at which the trouble code (fault) or manual trigger occurs within the snapshot period. It helps to know the trigger point when you are looking for changes in data parameters. Trigger point may be set for:

F4: Beginning causes the Tech 2 to start recording information from the trigger point until snapshot storage is full. This choice is useful if the fault is predictable.

➔ **F5: Center** is the most commonly used trigger point because it stores information leading up to and following the trigger point. This function allows comparison of events before, during, and after a fault.

F6: End sets the trigger point at the end of the snapshot recording and therefore shows only information leading up to and including the fault.

Enter all vehicle information as requested on the scan tool's display. Bolded selections are vehicle specific.

From the application menu, select F3: Snapshot

Choose trigger type and trigger point, as described above.

It is preferred to trigger on "Any Code" (F1)

If multiple codes are setting, select "Single Code" and enter the code you are trying to capture on the next screen.

Select "Center (F5)" for the trigger point. This allows the requester/viewer of the data to see the events before and after the code sets.

Press the Record Snapshot soft key. The Tech 2(R) screen will display the parameters it is going to record for live viewing. When the fault occurs, the Tech 2(R) will automatically start recording if the preferred settings (F1 and F5) are selected. If manual trigger is selected during the setup procedure, you will have to hit the "Trigger" soft key to actually record data. Otherwise, it will automatically start recording when a DTC is set.

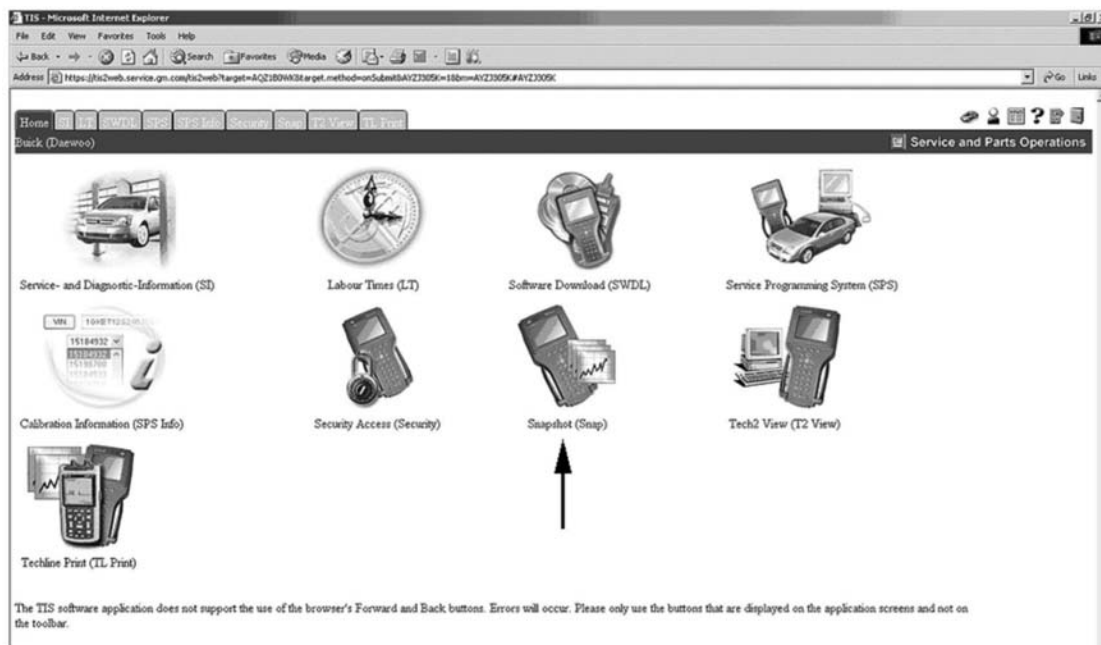
Allow the Tech 2(R) to record the data.

Please note that a Tech 2(R) can record a maximum of 1 minute of data (30 seconds before and 30 seconds after the trigger point if center trigger is selected).

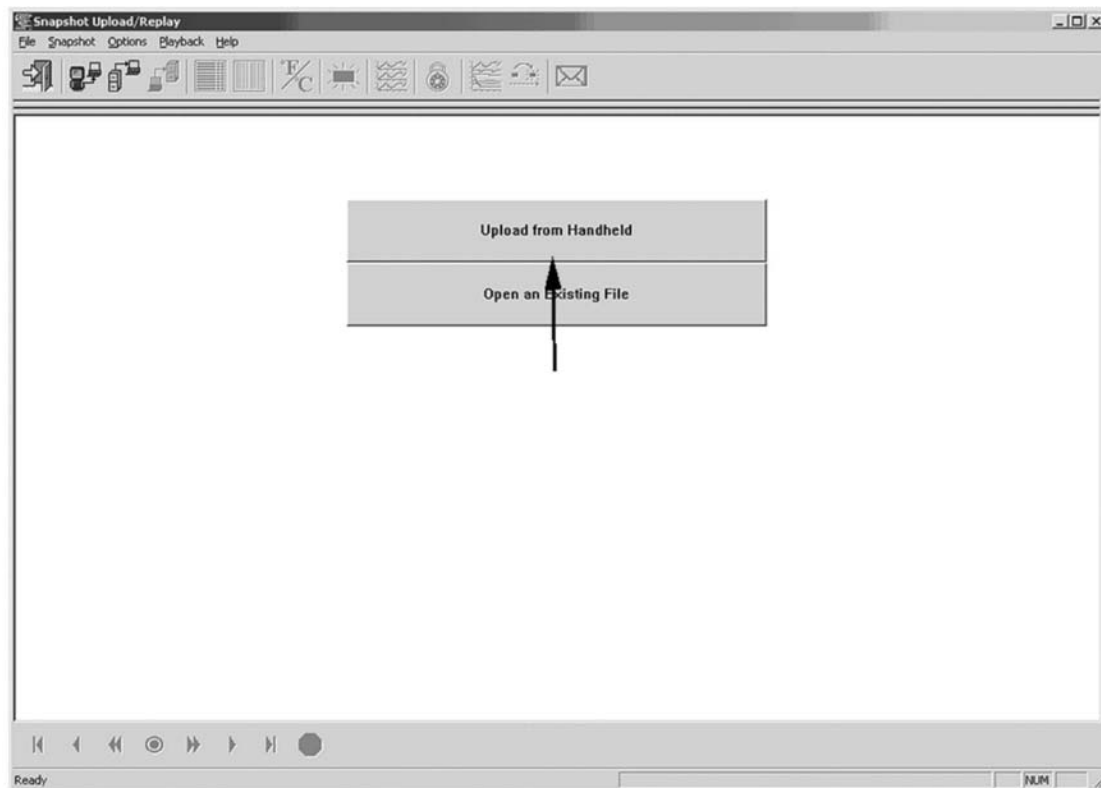
The Tech 2(R) can only record two snapshots prior to uploading to a computer. If a third snapshot is requested, the first snapshot will be overwritten.

When the snap shot data has been recorded, exit to the Main Menu, then power down and disconnect the Tech 2(R) from the vehicle.

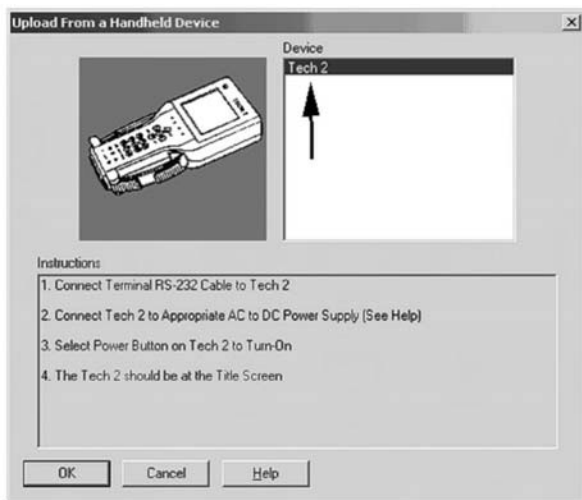
Uploading and Sending a Snapshot via TIS2WEB



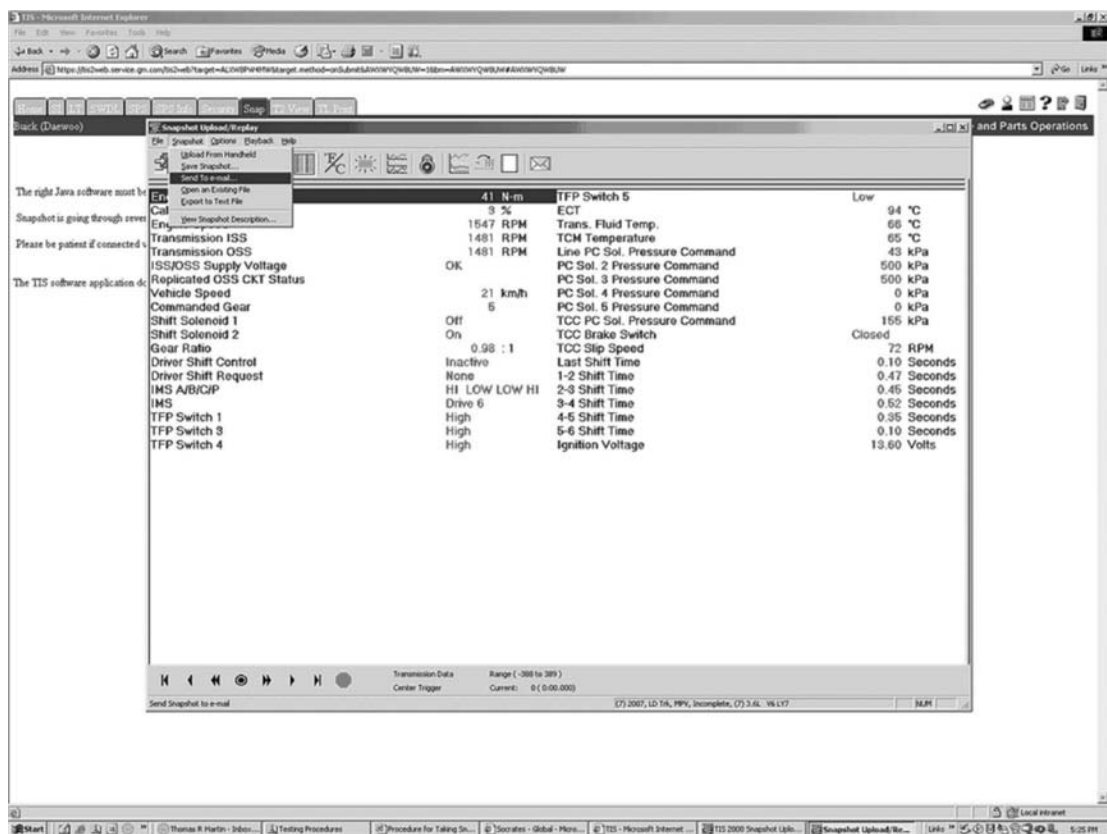
Once TIS2WEB is launched and you're at the main screen, select Snapshot, indicated with a arrow in Figure 8 shown.



Select the Upload from Handheld button to launch the device selection screen just like the TIS 2000 procedure described above.



Select the top button, "Upload from Handheld" which will launch the screen displayed in Figure 10. Make sure the Tech 2(R) is connected to the computer and plugged in. Select Tech 2(R) under Device and select OK. The screen of your Tech 2(R) should start blinking and a line will start scrolling across the screen indicating it is communicating with your computer.



Once communication is established and you select the file you want to upload, you will see a screen similar to shown. You can email the file directly from TIS2WEB by going to the Snapshot drop down menu and selecting "Send to e-mail" as shown in Figure 11.

After selecting Send to e-mail, a dialog box like the one shown in Figure 12 will be displayed. Fill in the information as requested and then click send. Include the VIN in the subject line.

After all the information is entered, hit the send button. After sending the file, you will receive a confirmation box letting you know the e-mail was sent successfully.

It is recommended to now save the file to your computer using the same procedure as if you were using TIS 2000 in case your recipient doesn't receive your email with the snapshot data.

Sending the file via e-mail through TIS2WEB does NOT save the file locally and there is no way to access your sent mail in TIS2WEB like a regular e-mail program.

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Disclaimer Technical Service Bulletin # **99-01-39-004B**

Date: **070529**

A/C - Odors In Hot/Humid Conditions

Bulletin No.: 99-01-39-004B

Date: May 29, 2007

TECHNICAL

Subject:

Air Conditioning Odor (Install Evaporator Core Dryer Kit and Apply Cooling Coil Coating)

Models:

1993-2008 GM Passenger Cars and Trucks (Including Saturn)

2008 and Prior HUMMER H2, H3

All Equipped with Air Conditioning

Supersede:

This bulletin is being revised to update the vehicle applications, model years, correction procedure, parts information and tool numbers. Please discard Corporate Bulletin Number 99-01-39-004A (Section 01 - HVAC).

Condition

Some customers may comment about musty odors emitted from the Heating, Ventilation and Air Conditioning (HVAC) system at vehicle start-up in hot, humid conditions.

Cause

This condition may be caused by condensate build-up on the evaporator core, which does not evaporate by itself in high humidity conditions. The odor

may be the result of microbial growth on the evaporator core. When the blower motor fan is turned on, the microbial growth may release an unpleasant musty odor into the passenger compartment.

There are several other possible sources of a musty odor in a vehicle. A common source is a water leak into the interior of the vehicle or foreign material in the HVAC air distribution system. Follow the procedures in SI for identifying and correcting water leaks and air inlet inspection.

The procedure contained in this bulletin is only applicable if the odor source has been determined to be microbial growth on the evaporator core inside the HVAC module.

Correction

Many vehicles currently incorporate an afterblow function within the HVAC control module software. The afterblow feature, when enabled, employs the HVAC blower fan to dry the evaporator after vehicle shut down and this function will inhibit microbial growth. Technicians are to confirm that the customer concern is evaporator core odor and that the vehicle has the imbedded afterblow feature, as defined in the SI document for that specific vehicle model, model year and specific HVAC option. Refer to SI for enabling the afterblow function. Vehicles being delivered in areas prone to high humidity conditions may benefit from having the afterblow enabled calibration installed prior to any customer comment.

If the vehicle is not factory equipped with the imbedded afterblow enable feature, it may be added with the Electronic Evaporator Dryer Module Kit (P/N 12497910 or AC Delco 15-5876).

When installing the Electronic Evaporator Dryer Module, you **MUST** use the included electrical splice connectors to ensure a proper splice. Complete detailed installation instructions and self testing procedures are supplied with the kit. If necessary, the Electronic Evaporator Dryer Module may be installed underhood if it is protected from extreme heat and water splash areas.

To immediately remove the evaporator core odor on all suspect vehicles, it is necessary to eliminate the microbial growth and prevent its re-occurrence. To accomplish this, perform the following procedure:

Vehicle and Applicator Tool Preparation

The evaporator core must be dry . This may be accomplished by disabling the compressor and running the blower fan on the recirc heat setting for an extended period of time.

Note:

Compressor engagement will cause the evaporator core to remain wet and will prevent full adherence of the Coiling Coil Coating to the evaporator core surfaces.

Verify that the air conditioning drain hose is not clogged and place a drain pan beneath the vehicle. Place a protective cover over the carpet below the evaporator core.

Remove the cabin air filter, if equipped, and cover the opening prior to applying the Cooling Coil Coating, as the product may clog the filter. If the cabin air filter appears to have little or no remaining life, suggest a replacement to your customer.

If the HVAC module has a blower motor cooling tube, be careful **NOT TO SPRAY THE COOLING COIL COATING INTO THE BLOWER MOTOR COOLING TUBE.**

Attach the Flexible Applicator Pressure Spray Tool (J-43810-20A) to a compressed air line operating at 586 kPa (85 psi) to 793 kPa (115 psi).

Shake the bottle of Cooling Coil Coating well. Screw the bottle onto the cap on the applicator tools pick-up tube.

NOTE:

The pick-up tube is designed for 120 ml (4 oz) and 240 ml (8 oz) bottles and should coil slightly in the bottom of a 120 ml (4 oz) bottle.

Use one of the following three methods to apply the Cooling Coil Coating.

If the Pressure Applicator Spray Tool (J-43810-20A) is not available, the Cooling Coil Coating is also available in an aerosol can (P/N 12377951 (in Canada, 10953503)).

Application Through Blower Motor Control Module Opening

Remove the blower motor control module (blower motor resistor). Refer to the applicable procedure in SI.

Clean any debris or foreign material from inside the HVAC module and on the evaporator core surface.

Apply the Cooling Coil Coating directly to the evaporator core through the blower motor blower motor control module (blower motor resistor) opening.

Use the flexible wand to direct the Cooling Coil Coating over the entire evaporator core and surrounding gasket surfaces.

When the application is complete, install the blower motor blower motor control module (blower motor control module).

Application Through Blower Motor Opening

Remove the blower motor. Refer to the applicable blower motor removal procedure in SI.

Clean any debris or foreign material from inside the HVAC module and on the evaporator core surface.

Apply the Cooling Coil Coating directly to the evaporator core through the blower motor opening.

Use the flexible wand to direct the Cooling Coil Coating over the entire evaporator core and surrounding gasket surfaces.

When the application is complete, install the blower motor.

Application Through a Hole in the HVAC Module

If neither of the two previous application methods are available, it may be necessary to drill a hole in the HVAC module.

Locate an area of the HVAC module between the blower motor and the evaporator core. Drill a 10 mm (3/8 in) hole in the HVAC module. Use caution to keep the drill clear of the evaporator core and the blower motor fan.

With the air distribution vents closed and the blower motor fan speed on HIGH, insert the applicator tool into the hole and spray the Cooling Coil Coating into the airstream toward the evaporator core.

Use a GM approved RTV sealant to plug the hole in the HVAC module.

After the Cooling Coil Coating application is complete, start and run the vehicle for approximately 10 minutes, with the compressor disabled, HVAC mode set to Recirculate/Max, heat set to full warm, blower motor fan speed on high, and one window open approximately 12 mm (1/2 in). This cures the Cooling Coil Coating onto the evaporator core surface.

While the engine is running, rinse the applicator tool with warm water to prolong the life of the tool. Be sure to spray warm water through the nozzle to rinse out any residual Cooling Coil Coating still in the capillary pick up tube, otherwise it will dry and clog the applicator tool. Also remove the small green valve from the bottle cap and rinse it thoroughly while rolling it between two fingers and then reinstall it. If this valve is clogged the Cooling Coil Coating will not flow through the applicator tool.

Shut off the engine and enable the compressor again.

Verify proper HVAC system operation.

Remove the protective cover from inside the vehicle.

Remove the drain pan from underneath the vehicle.

Reinstall the cabin air filter if necessary.

The Cooling Coil Coating listed below is the only GM approved product for use under warranty as an evaporator coil disinfectant and for the long term control of evaporator core microbial growth.

Part Description	GM Part Number	SPX Kent-Moore Part Number
Cooling Coil Coating (CCC) Kit (with flexible applicator tool and 1 bottle of Cooling Coil Coating)	12346391	J43810-A
Cooling Coil Coating Flexible Applicator Tool only	N/A	J-43810-20A
Refill for Cooling Coil Coating Applicator Kit (2 x 120 ml (4 oz) Bottles of CCC)	12346390 (N/A in Canada, use SPX Kent-Moore J-43810-4)	J-43810-4
Refill for Cooling Coil Coating Applicator Kit (1 x 120 ml (4 oz) Bottle of CCC)	N/A	J-43810-30
Cooling Coil Coating (1 x 180 ml (6 oz) Aerosol Can of CCC)	12377951 (In Canada use 10953503)	N/A
Electronic Evaporator Dryer Module Kit (one per vehicle)	12497910 (AC Delco 15-5876)	N/A

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
D3316*	Apply Cooling Coil Coating and Install Electronic Evaporator Dryer Kit	0.8 hr
*This labor operation number is for bulletin use only. This number will not be published in the Labor Time Guide.		

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 00-06-01-026B

Date: 070621

Intake Manifold - Inspect/Replace After Engine Damage

Bulletin No.: 00-06-01-026B

Date: June 21, 2007

INFORMATION

Subject:
Intake Manifold Inspection/Replacement After Severe Internal Engine Damage

Models:
2008 and Prior Passenger Cars and Trucks (Including Saturn)
2008 and Prior HUMMER H2, H3
2008 and Prior Saab 9-7X

Supercede:

This bulletin is being revised to include additional models and model years. Please discard Corporate Bulletin Number 00-06-01-026A (Section 06 - Engine).

When replacing an engine due to internal damage, extreme care should be taken when transferring the intake manifold to the new Goodwrench service engine long block. Internal damage may result in the potential discharge of internal engine component debris in the intake manifold via bent, broken, or missing intake valves. After removing the intake manifold from the engine, the technician should carefully inspect all of the cylinder head intake ports to see if the valve heads are still present and not bent. Usually when the valve heads are missing or sufficiently bent, internal engine component debris will be present to varying degrees in the intake port of the cylinder head. If this debris is present in any of the cylinder head intake ports, the intake manifold should be replaced. This replacement is required due to the complex inlet runner and plenum configuration of most of the intake manifolds, making thorough and complete component cleaning difficult and nearly impossible to verify complete removal of debris. Re-installation of an intake manifold removed from an engine with deposits of internal engine component debris may result in the ingestion of any remaining debris into the new Goodwrench service engine. This may cause damage or potential failure of the new service engine.

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Disclaimer Technical Service Bulletin # **06-06-01-019B**Date: **070612****Engine - Coolant Loss With No Visible Leaks**

Bulletin No.: 06-06-01-019B

Date: June 12, 2007

INFORMATION

Subject:
Information on Gradual Coolant Loss Over Time With No Evidence of Leak Found

Models:
2004-2006 Buick Rainier
2001-2006 Cadillac Escalade Models
2001-2006 Chevrolet Avalanche, Blazer, Silverado, Suburban, Tahoe, TrailBlazer Models
2001-2006 GMC Envoy, Jimmy, Sierra, Yukon Models
2001-2004 Oldsmobile Bravada
2005-2006 Saab 9-7X

with 4.8L or 5.3L VORTEC(R) GEN III, GEN IV V8 Engine (VINs V, T, M, B, Z - RPOs LR4, LM7, LH6, L33, L59)

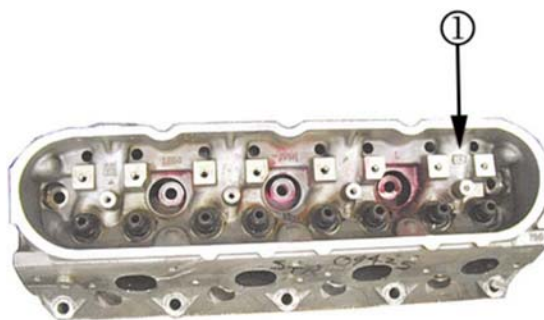
Supercede:

This bulletin is being revised to include engine RPO L59. Please discard Corporate Bulletin Number 06-06-01-019A (Section 06 - Engine/Propulsion System).

Some vehicles may experience a gradual coolant loss over time. A very low percentage of cylinder head(s) manufactured with an embossed Castech logo may develop a porosity crack in a very specific area.

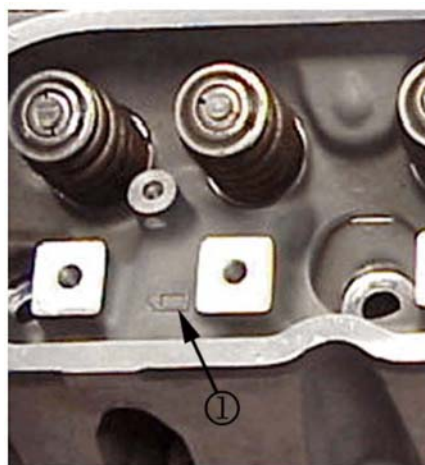
Inspect the cylinder head assembly to determine if the casting was manufactured by Castech. This can be accomplished by inspecting for their casting logo located on top of the intake port, under the rocker arm support rail and in the spring deck cavity portion of the cylinder head.

If the cylinder head(s) are Not a Castech casting, follow normal diagnostic procedures in SI to determine the cause of the coolant loss.

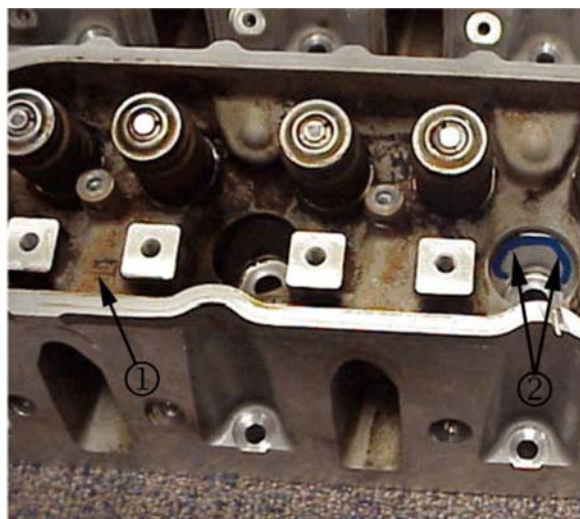


Refer to the illustrations on how to identify Castech casting and/or the very specific areas of the cylinder head(s) for a coolant leak from porosity.

Cylinder head(s) location of the Castech manufacturing casting logo (1).

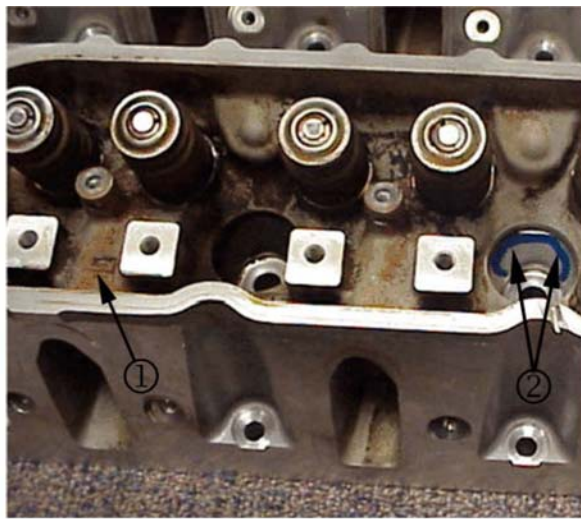


Close up view of the cylinder head(s) showing the Castech manufacturing casting logo (1).



If the cylinder head(s) is a Castech casting (1), inspect the area around the five oil drain holes for witness marks indicating coolant seepage over time (2).

If No evidence of coolant loss is found on inspection of Castech casting cylinder head(s), follow normal diagnostic procedures in SI to determine the cause of the coolant loss.



The crack location can be found in any of the five cylinder head(s) oil drains. This can be seen as a clean or shiny area, on an otherwise stained surface (1). Pressurizing the cooling system at this time may reveal coolant, air, or a combination, weeping in the described area. If inspection reveals evidence of coolant witness marks (1), replace the entire cylinder head(s) assembly.

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Disclaimer Technical Service Bulletin # **05-02-32-008B**

Date: **070718**

Steering - Lack of Assist at Low Speeds

Bulletin No.: 05-02-32-008B

Date: July 18, 2007

ENGINEERING INFORMATION

Subject:

EI06002 - 670 Gear Box Power Steering Pump, P/S Performance Concerns

Models:

2003-2006 Cadillac Escalade, Escalade ESV, Escalade EXT
2003-2006 Chevrolet Avalanche, Suburban, Tahoe
2003-2007 Chevrolet Silverado Classic
2007-2008 Chevrolet Silverado, Suburban (2500 Series Only)
2003-2006 GMC Yukon, Yukon Denali, Yukon XL
2003-2007 GMC Sierra Classic
2007-2008 GMC Sierra, Yukon XL (2500 Series Only)

Supersede:

This bulletin is being revised to add model years and models. Please discard Corporate Bulletin Number 05-02-32-008A (Section 02 - Steering).

Condition

Some customers may comment on a lack of steering assist when stopped or during parking lot type maneuvers. A lack of steering assist could occur if the brakes are applied and turning the steering wheel with the vehicle stopped or during parking lot type maneuvers. This condition will go away or greatly improve once vehicle begins to move or is above parking lot speeds. This concern can be aggravated by worn tires, low tire air pressure, low power steering pump pressures, and tires larger than stock size.

Correction

In all cases, it is recommended that the proper tire size and the maximum tire pressure is set according to the manufacturer's specification as noted on the door placard; especially for the front tires.

Perform the "Power Steering System Test" found in SI. Make any necessary repairs based on system diagnosis.

FOR 2500 AND 3500 VEHICLES ONLY - If diagnostics did not lead to any repair, this concern is a normal operating characteristic. No further repairs should be made. A Field Product Report should be submitted - refer to Corporate Bulletin Number 02-00-89-002D.

FOR 1500 SERIES VEHICLES ONLY - If diagnostics did not lead to any repair, this concern is a normal operating characteristic.

If the vehicle is equipped with a 670 gear box, replacing it with a 680 gear box may increase the customer satisfaction.

To determine if the vehicle is equipped with a 670 gear box, inspect the mounting bolts that attach the stub shaft housing. A 670 gear box will only have 3 mounting bolts. If the stub shaft housing does not have any mounting bolts or has 4 bolts - DO NOT PROCEED WITH THIS BULLETIN. The vehicle is not equipped with a 670 gear box.

If replacing a 670 gear box with a 680 gear box, it will be necessary to replace the power steering gear, union fitting and both inlet O-ring seals.

Part Number	Description
88965542	Power Steering Gear
26025709	Union Fitting
26001594	Inlet O-ring Seal


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
E9050	Pump Assembly, Power Steering – Replace	Use Published Labor Operation Time
E9740	Gear Assembly, Power Steering – Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, choose the one labor operation that reflects the corrective action, as shown in the table.

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Disclaimer

Technical Service Bulletin # 99-08-64-016B

Date: 070622

Body - Use of Silicone for Weatherstrip Maintenance

Bulletin No.: 99-08-64-016B

Date: June 22, 2007

INFORMATION

Subject:
Use of Silicone for Weatherstrip Maintenance

Models:
2008 and Prior GM Passenger Cars and Trucks (including Saturn)
2008 and Prior HUMMER H2, H3
2005-2008 Saab 9-7X

Supercede:
This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 99-08-64-016A (Section 08 - Body and Accessories).

In the past, questions have been raised regarding the proper care and maintenance of weatherstrips. The purpose of this bulletin is to clarify which materials are recommended for use when required.

Periodically, a thin coating of silicone grease can prolong the life of the weatherstrip. The silicone will reduce wear in the contact areas as well as reduce squeaking and sticking conditions. During very cold or damp weather, more frequent applications may be necessary.


Be careful in areas where clothing may come in contact with the weatherstrip, as silicone or dirt may be transferred to clothing.

Part Number	Description
12345579 (U.S.) 10953481 (Canada)	Goodwrench Dielectric Silicone Grease (or equivalent) Lubricant Silicone Grease
3634770 (U.S.) 10953518 (Canada)	Goodwrench Weatherstrip Lubricant (Krytox*) (or equivalent) Lubricant

*The use of KRYTOX for coating weatherstrips is allowed, but not required.

Parts Information

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Disclaimer
Technical Service Bulletin # 04-05-25-002D

Date: 070614

Brakes - ABS Lamp ON/DTC's C0265/C0201/U1041
Bulletin No.: 04-05-25-002D

Date: June 14, 2007

TECHNICAL

Subject:
ABS Light On, DTCs C0265, C0201, U1041 Set and/or Loss of Communication with Brake Module (Reground EBCM Ground)

2004–2007 Buick Rainier
2002–2006 Cadillac Escalade, Escalade EXT
2003–2006 Cadillac Escalade ESV
1999–2007 Chevrolet Silverado Classic
2000–2006 Chevrolet Suburban, Tahoe
2002–2006 Chevrolet Avalanche
2002–2007 Chevrolet TrailBlazer, TrailBlazer EXT
2003–2006 Chevrolet SSR
1999–2007 GMC Sierra Classic
2000–2006 GMC Yukon, Yukon Denali, Yukon XL
2002–2007 GMC Envoy, Envoy XL, Sierra Denali Classic
2004–2005 GMC Envoy XUV
2002–2004 Oldsmobile Bravada

Models

Supercede:

This bulletin is being revised to update model years. Please discard Corporate Bulletin Number 04-05-25-002C (Section 05 - Brakes).

Condition

Some customers may comment that the ABS light is on. Upon further inspection, DTCs C0265 and C0201 may be set in the brake module. It is also possible for DTC U1041 to set in other modules. There may also be a loss of communication with the brake module.

Cause

A poor connection at the EBCM ground is causing unnecessary replacements of brake modules.

The EBCM Ground is different for each application. Refer to the list below for the proper ground reference:

Midsized Utilities = Ground 304

SSR = Ground 400

Fullsize Trucks and Utilities = Ground 110

Correction

DO NOT REPLACE THE BRAKE MODULE.

Perform the following steps to improve the connection of the EBCM Ground:

Remove the EBCM Ground. The EBCM Ground is located on the frame beneath the driver's side door. If multiple grounds are found in this location, the EBCM ground can be identified as the heavy (12-gauge) wire.

Clean the area, front and back, using a Whiz Wheel(R).

Install the ground, then the washer and then the bolt to the frame.

It is important to use the bolts, washers and nuts specified in this bulletin. These parts have been identified due to their conductive finish.

Install a washer and nut to the back side of the frame.

Tighten

Tighten the nut to 9 N.m (79 lb in).

Cover the front and backside of the repair area using Rubberized Undercoating.

An additional check can be made to ensure a good connection for the Battery Cable to Frame ground. It is possible for this ground to cause similar symptoms with the ABS as described above.

FULL-SIZE TRUCKS, SUVs AND H2	
Part Number	Description
11588564	Bolt
15650962	Washer
15672934	Nut
12378398 (in Canada, 10952414)	Rubberized Undercoating — Paintable
MIDSIZE SUVs	
Part Number	Description
11517555	Bolt
15650961	Washer
11503749	Nut
12378398 (in Canada, 10952414)	Rubberized Undercoating — Paintable


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
N9502	Ground Repair – EBCM Ground	0.2 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 06-08-50-009B

Date: 070719

Restraints - Front Passenger Seat Accessory Precautions

Bulletin No.: 06-08-50-009B

Date: July 19, 2007

INFORMATION

Subject:

Information on Passenger Presence Sensing System (PPS or PSS) Concerns With Custom Upholstery, Accessory Seat Heaters or Other Comfort Enhancing Devices

Models:

2008 and Prior GM Cars and Trucks (including Saturn)

2008 and Prior HUMMER H2, H3

2005-2008 Saab 9-7X

with Passenger Presence Sensing System

Supercede:

This bulletin is being revised to include the 2008 model year. Please discard Corporate Bulletin Number 06-08-50-009A (Section 08 - Body and Accessories).

Concerns About Safety and Alterations to the Front Passenger Seat

The front passenger seat in many GM vehicles is equipped with a passenger sensing system that will turn off the right front passenger's frontal airbag under certain conditions, such as when an infant or child seat is present. In some vehicles, the passenger sensing system will also turn off the right front passenger's seat mounted side impact airbag. For the system to function properly, sensors are used in the seat to detect the presence of a properly-seated occupant. The passenger sensing system may not operate properly if the original seat trim is replaced (1) by non-GM covers, upholstery or trim, or (2) by GM covers, upholstery or trim designed for a different vehicle or (3) if any object, such as an aftermarket seat heater or a comfort enhancing pad or device is installed under the seat fabric or between the occupant and the seat fabric.

Aftermarket Seat Heaters, Custom Upholstery, and Comfort Enhancing Pads or Devices

ON A GM VEHICLE EQUIPPED WITH A PASSENGER SENSING SYSTEM, USE ONLY SEAT COVERS AND OTHER SEAT-RELATED EQUIPMENT RELEASED AS GM ACCESSORIES FOR THAT VEHICLE. DO NOT USE ANY OTHER TYPE OF SEAT COVERS OR SEAT-RELATED EQUIPMENT, OR GM ACCESSORIES RELEASED FOR OTHER VEHICLE APPLICATIONS.

Many types of aftermarket accessories are available to customers, upfitting shops, and dealers. Some of these devices sit on top of, or are Velcro(R) strapped to the seat while others such as seat heaters are installed under the seat fabric. Additionally, seat covers made of leather or other materials may have different padding thickness installed that could prevent the Passenger Sensing System from functioning properly. Never alter the vehicle seats. Never add pads or other devices to the seat cushion, as this may interfere with the operation of the Passenger Sensing System and either prevent proper deployment of the passenger airbag or prevent proper suppression of the passenger air bag.

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Disclaimer Technical Service Bulletin # 06-08-43-003A

Date: 070608

Wipers - Performance/Cleaning Instructions/Maintenance

Bulletin No.: 06-08-43-003A

Date: June 08, 2007

INFORMATION

Subject:

Windshield Wiper Performance, Cleaning Instructions and Maintenance

Models:

2008 and Prior GM Passenger Cars and Trucks (including Saturn)

2008 and Prior HUMMER H2, H3

2008 and Prior Isuzu Medium Duty Trucks

2005-2008 Saab 9-7X

Supersede:

This bulletin is being revised to add the 2008 model year. Please discard Corporate Bulletin Number 06-08-43-003 (Section 08 - Body and Accessories).

Wiper Concerns

Most concerns about windshield wiper performance are the result of dirty wiper blades, damaged wiper blades, or worn out blades that are continuing to be used beyond their useful life. Depending on environmental conditions, wiper blades can have dramatic differences in lifespan. Here are some tips and guidelines to maximize wiper performance to avoid damage to the blades, and to avoid unnecessary replacements.

Many wiper blades are being replaced under warranty with reviews showing there is nothing wrong with the returned blades other than a build-up of dirt. Additionally, advise the customer to review the information in their Owner Manual.

Inspection and Cleaning

Scheduled Maintenance

Inspect your wipers rubber blades every 4-6 months or 12,000 km (7,500 mi) for wear, cracking or contamination.

Clean the windshield and the rubber wiper blades (using the procedure below) if the blades are not clearing the glass satisfactorily. If this does not correct the problem, then replace the rubber elements.

Cleaning Procedure

Avoid getting windshield washer fluid on your hands. Wear rubber gloves or avoid direct contact with washer fluid.

Do not use gasoline, kerosene, or petroleum based products to clean wiper blades.

Clean the rubber blades using a lint free cloth or paper towel soaked with windshield washer fluid or a mild detergent. You should see significant amounts of dirt being removed on the cloth.

Be sure to wash the windshield thoroughly when you clean the blades. Bugs, road grime, sap and a buildup of car wash/wax treatments may additionally cause wiper streaking.

Tip

For a larger scale buildup on the windshield, use a non-abrasive cleaner such as Bon-Ami* (www.faultless.com) cleanser with a wet sponge, being sure to use plenty of water to avoid scratching the glass. Flush the surface and body panels completely.

Tip

For day-to-day exterior glass cleaning and to maintain a streak free appearance, suggest Vehicle Care Glass Cleaner, P/N 89021822 (in Canada, 992727). This product is an easy to use foaming cleaner that quickly removes dirt and grime from glass surfaces.

Tip

Interior glass should be cleaned with plain, clean water to eliminate any film or haze on the window and help prevent fogging, a major customer dissatisfier. Refer to Corporate Bulletin Number 03-00-89-006D for more information. The New Vehicle Pre-Delivery Inspection form also recommends using plain water to clean interior glass.

*We believe this material to be reliable. There may be additional manufacturers of such material. General Motors does not endorse, indicate any preference for or assume any responsibility for the products or equipment from these firms or any such items which may be available from other sources.

Avoiding Wiper Damage

The following are major contributors to wiper damage. Some of these you can control and others are environmental concerns.

Extremely dusty areas (such as driving on dirt roads) may cause the wipers rubber edge to wear quickly and unevenly.

Sand and salt used on roads for increasing winter traction and ice control will cause the wiper blades to wear quicker. Areas with significant snowfall require more frequent blade replacements.

Heat and time may cause the rubber blades to take a "permanent set" resulting in the rubber not flexing and turning over uniformly. This condition may result in streaking and/or unwiped areas.

Rubber blades are easily cut or torn when using ice scrapers. Likewise pulling blades up off a frozen windshield can tear the rubber. Exercise caution when clearing ice and snow.

Using your wipers to "wear through" frost and ice, instead of allowing the defrosters to melt the ice, can dull, nick or tear the rubber blades.

Banging wipers on the glass to remove ice and snow may cause the blade to bend, dislodging the rubber and causing potential scratching of the windshield.

Ice can form in the pin joints of the wipers, which can cause streaking and unwiped areas. To remove ice from pin joints, compress the blade and rubber edge with your hand to loosen the frozen joints. Consider using Winter Blades that have a rubber cover to avoid this condition.

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Technical Service Bulletin # **03-08-64-010C**

Date: **070618**

Body - Rearview Mirrors Blow In At Highway Speeds

Bulletin No.: 03-08-64-010C

Date: June 18, 2007

TECHNICAL

Subject:

Outside Rearview Mirrors May Blow In At Highway Speeds or Power Folding Feature Appears Inoperative (Synchronize Mirrors)

Models:

2002-2006 Cadillac Escalade, Escalade EXT

2003-2006 Cadillac Escalade ESV

2003-2006 Chevrolet Avalanche, Suburban, Tahoe

2003-2007 Chevrolet Silverado (Classic)

2003-2006 GMC Yukon, Yukon XL

2003-2007 GMC Sierra (Classic)

2003-2006 HUMMER H2

Supercede:

This bulletin is being revised to add the 2007 Classic Pickup models. Please discard Corporate Bulletin Number 03-08-64-010B (Section 08 - Body and Accessories).

Condition

Some customers may comment that the power fold feature of the mirrors either does not operate properly or that the mirrors may blow back toward the closed position at highway speeds.

Cause

Manually folding the mirror may cause the mirror and the motor to become out of sync.

The power mirror drive has detents in the drive hub that lock the mirror to the drive system. This system is designed to let the drive hub disconnect without damage through manual input to the mirror. This mechanism allows the mirrors to be folded by power but still have the break-a-way feature if contacted accidentally.

Correction

There are no replacement parts necessary to correct this condition. The mirrors will self-synchronize by following the procedure below. Once

synchronized, the mirrors will function properly unless folded manually.

Prior to replacing a mirror, attempt to electrically fold and unfold the mirrors a minimum of 3 cycles.

Set the power mirror selector switch to the center position. You will see the mirror directional control switch illuminate the power folding symbol.

Press the right or left side of the directional control to fold or unfold the mirrors.

Cycle the mirrors open and closed 3 times. The mirrors should now operate normally.

Please advise the customer of the above procedure for future reference or provide them with a copy of this bulletin.

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Technical Service Bulletin # **01-07-30-042E**

Date: **070521**

A/T - 2-3 Upshift or 3-2 Downshift Clunk Noise

Bulletin No.: 01-07-30-042E

Date: May 21, 2007

INFORMATION

Subject:

Information on 2-3 Upshift or 3-2 Downshift Clunk Noise

Models:

2008 and Prior Passenger Cars and Light Duty Trucks

2003-2008 HUMMER H2

2006-2008 HUMMER H3

2005-2008 Saab 9-7X

with 4L60-E, 4L65-E or 4L70-E Automatic Transmission (RPOs M30, M32, M70)

Supercede:

This bulletin is being revised to add the 2008 model year and 4L70E transmissions. Please discard Corporate Bulletin Number 01-07-30-042D (Section 07 - Transmission/Transaxle).

For 2005 model year fullsize utilities and pickups, refer to Corporate Bulletin 05-07-30-012.

Some vehicles may exhibit a clunk noise that can be heard on a 2-3 upshift or a 3-2 downshift.

During a 2-3 upshift, the 2-4 band is released and the 3-4 clutch is applied. The timing of this shift can cause a momentary torque reversal of the output shaft that results in a clunk noise. This same torque reversal can also occur on a 3-2 downshift when the 3-4 clutch is released and the 2-4 band applied. This condition may be worse on a 4-wheel drive vehicle due to the additional tolerances in the transfer case.

This is a normal condition. No repairs should be attempted.

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Technical Service Bulletin # **02-06-03-008C**

Date: **070530**

Charging System - Lights Dim/Low Voltage Display

Bulletin No.: 02-06-03-008C

Date: May 30, 2007

INFORMATION

Subject:

Low Voltage Display on IP Gauge, Lights Dim at Stop Lights, Battery Discharged, No Start, Slow Cranking, Dim Lights at Idle, Low Generator Output

Models:

1990-2008 Passenger Cars and Light Duty Trucks (including Saturn)

2003-2008 HUMMER H2, H3

2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to add the 2008 model year. Please discard Corporate Bulletin Number 02-06-03-008B (Section 06 - Engine).

Any vehicle may have a low voltage display (if equipped with gauges), lights that dim at stop lights, slow cranking, no start, low generator output at idle or dim lights at idle when electrical loads are heavy at idle or under slow driving or infrequent usage conditions. These characteristics may be more noticeable with customer added electrical accessories, or with a discharged battery. These are normal operating characteristics of a vehicle electrical system and no repairs should be attempted unless a proven fault has been diagnosed.

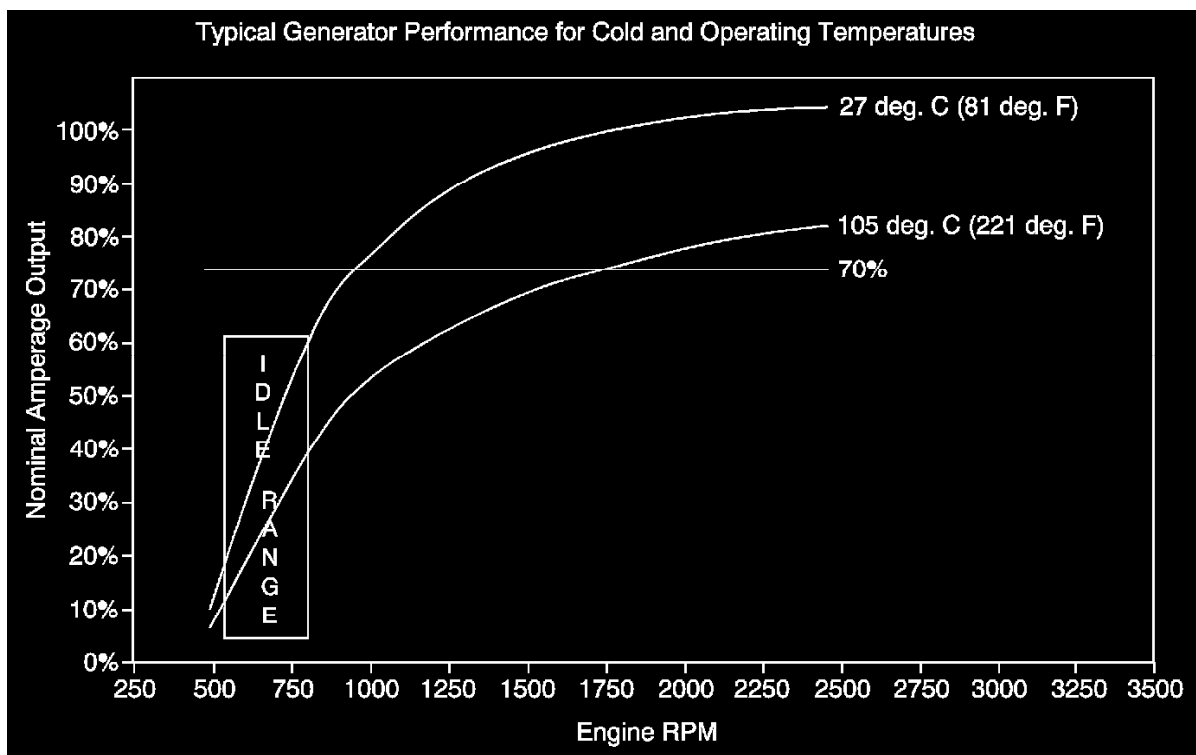
During normal driving conditions, when engine speed is above 1000 RPM, the generator is designed to do two things:

Supply the current necessary to operate the vehicle's originally equipped electrical devices (loads).

Recharge/maintain the battery's state of charge.

The following factors may affect generator and battery performance:

Non-usage of the vehicle for extended periods of time. The vehicle's computers, clocks and the like will cause the battery state of charge to drop (For example; 30 days in a parking lot and the vehicle may not start because of a dead battery or a vehicle which is driven only a short distance once a week may end up with a discharged battery to the point where the vehicle may not start). This would be considered abnormal usage of the vehicle and the normally expected result for the vehicle battery, generator and electrical systems.



At idle, vehicle electrical loads may exceed the low speed current (amperage) output of the generator and when this happens the shortfall comes from

the battery. This will result in a drop in the electrical system voltage as the battery delivers the additional electrical current to meet the demand. This is equivalent to the brown outs experienced by homes and businesses when the electrical demand is more than the supply. See Figure 1.

Extended periods of engine idling, with high electrical loads, may result in a discharged battery. Attempting to recharge a battery by letting the engine run at idle may not be beneficial unless all electrical loads are turned "OFF".

Increased internal generator temperatures from extended idling can also contribute to lower electrical system voltage. As the generator's internal temperature rises, the generator's output capability is reduced due to increased electrical resistance.

System	Amperage Load
Rear Window defogger	25
Electric AIR Pump	25
Heated Seats	5 Amps per seat
Headlamps (high)	20
Blower Motor (High)	20
Headlamps (low)	15
Brake Lights	6
Windshield Wipers	6
Ignition	6

The table shown are some typical examples of electrical loads.

Depending on the vehicle application, generator current (amperage) output at engine idle speeds of 600-700 RPM can be as low as 35 percent of the full rated output. With enough electrical loads "ON", it is easy to exceed the generator current (amperage) output when the engine is at an idle of 600-700 RPM. This is a normal condition. The battery supplements for short periods of time. Items that affect the vehicle's electrical system current and voltage at idle are the number of electrical loads being used, including add-on accessories, and extended idle times. When the vehicle speed is above approximately 24 km/h (15 mph), the engine/generator RPM is high enough and the generator current (amperage) output is sufficient to supply the current (amperage) requirements of the vehicle as originally equipped and recharge the battery.

Dimming lights at idle may be considered normal for two reasons:

As the engine/generator speed changes, so will the current (amperage) output of the generator. As a vehicle slows, engine/generator RPM slows, and the current (amperage) output of the generator may not be sufficient to supply the loads, the vehicle system voltage will drop and the lights will dim. Dimming of the lights is an indication that current is being pulled from the battery. If the battery is in a low state-of-charge (discharged condition), the driver will notice a more pronounced dimming than a vehicle with a fully charged battery.

When high current loads (blower, rear defogger, head lamps, cooling fan, heated seats, power seats, electric "AIR" pump, or power windows) are operating or cycled "ON", the generator's voltage regulator can delay the rise in output. This effect, usually at lower engine speeds, can take up to ten seconds to ramp up the generator output. This is done to avoid loading the engine severely. To increase current (amperage) output, additional torque is consumed by the generator. The engine computer (PCM) will ramp up engine/generator speed in small steps so engine speed variations are not noticeable to the driver.

For diagnosis of the battery and or the generator, refer to the appropriate Service Information or Corporate Bulletin Number 05-06-03-002B.

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Technical Service Bulletin # 05-06-04-022D

Date: 070726

Fuel System - TOP TIER Gasoline Usage (Canada)

Bulletin No.: 05-06-04-022D

Date: July 26, 2007

INFORMATION

Subject:

TOP TIER Detergent Gasoline (Deposits, Fuel Economy, No Start, Power, Performance, Stall Concerns) - Canada ONLY

Models:

2008 and Prior GM Passenger Cars and Trucks (Canada Only)

2008 and Prior Saab Vehicles (Canada Only)

2008 and Prior Saturn Vehicles (Canada Only)

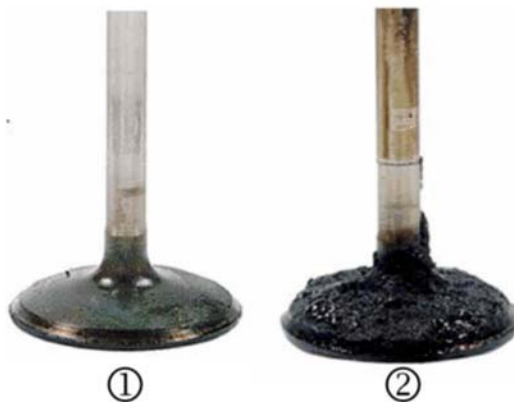
2003-2008 HUMMER H2 (Canada Only)

2006-2008 HUMMER H3 (Canada Only)

Supercede:

This bulletin is being revised to update the information and include additional model years and sources to the TOP TIER Fuel Retailers list.

Please discard Corporate Bulletin Number 05-06-04-022C (Section 06 - Engine/Propulsion System). In the U.S., refer to Corporate Bulletin Number 04-06-04-047G.



A new class of fuel called TOP TIER Detergent Gasoline is appearing at retail stations of some fuel marketers. This gasoline meets detergency standards developed by six automotive companies. All vehicles will benefit from using TOP TIER Detergent Gasoline over gasoline containing the "Lowest Additive Concentration" recommended by the Canadian General Standards Board (CGSB). Those vehicles that have experienced deposit related concerns may especially benefit from use of TOP TIER Detergent Gasoline.

Intake valve: 16,093 km (10,000 mi) with TOP TIER Detergent Gasoline

Intake valve: 16,093 km (10,000 mi) with Minimum Additive recommended by the CGSB

Top Tier Fuel Availability

Chevron was the first to offer TOP TIER Detergent Gasoline in Canada. Shell became the first national gasoline retailer to offer TOP TIER Detergent Gasoline across Canada. Petro-Canada began offering TOP TIER Detergent Gasoline nationally as of October 1, 2006. Sunoco began offering TOP TIER Detergent Gasoline in March of 2007.

Gasoline Brands That Currently Meet TOP TIER Detergent Gasoline Standards

The following gasoline brands meet the TOP TIER Detergent Gasoline Standards in all octane grades:

Chevron Canada (markets in British Columbia and western Alberta)

Shell Canada (nationally)

Petro-Canada (nationally)

Sunoco-Canada (Ontario)

What is TOP TIER Detergent Gasoline?

TOP TIER Detergent Gasoline is a new class of gasoline with enhanced detergency and no metallic additives. It meets new, voluntary deposit control standards developed by four automotive companies that exceed the detergent recommendations of Canadian standards and does not contain metallic additives, which can damage vehicle emission control components.

Where can TOP TIER Detergent Gasoline Be Purchased?

The TOP TIER program began in the U.S. and Canada on May 3, 2004. Some fuel marketers have already joined and introduced TOP TIER Detergent Gasoline. This is a voluntary program and not all fuel marketers will offer this product. Once fuel marketers make public announcements, they will appear on a list of brands that meet the TOP TIER standards.

Who developed TOP TIER Detergent Gasoline?

TOP TIER Detergent Gasoline standards were developed by six automotive companies: BMW, General Motors, Honda, Toyota, Volkswagen and Audi.

Why was TOP TIER Detergent Gasoline developed?

TOP TIER Detergent Gasoline was developed to increase the level of detergent additive in gasoline. In the U.S., government regulations require that all gasoline sold in the U.S. contain a detergent additive. However, the requirement is minimal and in many cases, is not sufficient to keep engines clean. In Canada, gasoline standards recommend adherence to U.S. detergency requirements but do not require it. In fact, many brands of gasoline in Canada do not contain any detergent additive. In order to meet TOP TIER Detergent Gasoline standards, a higher level of detergent is needed than what is required or recommended, and no metallic additives are allowed. Also, TOP TIER was developed to give fuel marketers the opportunity to differentiate their product.

Why did the six automotive companies join together to develop TOP TIER?

All six corporations recognized the benefits to both the vehicle and the consumer. Also, joining together emphasized that low detergency and the intentional addition of metallic additives is an issue of concern to several automotive companies.

What are the benefits of TOP TIER Detergent Gasoline?

TOP TIER Detergent Gasoline will help keep engines cleaner than gasoline containing the "Lowest Additive Concentration" recommended by Canadian standards. Clean engines help provide optimal fuel economy and engine performance, and also provide reduced emissions. Also, the use of TOP TIER Detergent Gasoline will help reduce deposit related concerns.

Who should use TOP TIER Detergent Gasoline?

All vehicles will benefit from using TOP TIER Detergent Gasoline over gasoline containing the "Lowest Additive Concentration" recommended by Canadian standards. Those vehicles that have experienced deposit related concerns may especially benefit from use of TOP TIER Detergent Gasoline. More information on TOP TIER Detergent Gasoline can be found at <http://www.toptiergas.com/>.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Disclaimer Technical Service Bulletin # **00-05-22-002J**

Date: **070515**

Disc Brake System - Warranty Service and Procedures

Bulletin No.: 00-05-22-002J

Date: May 15, 2007

WARRANTY ADMINISTRATION

Subject:

Disc Brake Warranty Service and Procedures

Models:

1999-2008 GM Passenger Cars and Light Duty Trucks
2003-2008 HUMMER H2
2006-2008 HUMMER H3
1999-2004 Isuzu Light Duty Trucks (Canada Only)
2005-2008 Saab 9-7X (Canada Only)
1999-2008 Saturn Vehicles (Canada Only)

Supercede:

This bulletin is being revised to include the 2008 model year and revise the requirements for submitting claims using H9709 - Brake Burnish. Please discard Corporate Bulletin Number 00-05-22-002I (Section 05 - Brakes).

For your convenience, this bulletin updates and centralizes all GM's Standard Brake Service Procedures and Policy Guidelines for brake rotor and brake pad service and wear. For additional information, the Service Technical College lists a complete index of available Brake courses. This information can be accessed at www.gmtraining.com> resources> training materials> brakes courseware index. In Canada, refer to Service Know How course 55040.00 and Hydraulic Brake Certification program 15003.16.

PLEASE FAMILIARIZE YOURSELF WITH THESE UPDATES BEFORE PERFORMING YOUR NEXT GM BRAKE SERVICE.

There are five (5) key steps that must be performed to complete a successful brake service:

Measure and Document Rotor Thickness* - determine rotor refinish/replace

Clean Mating Surfaces - hub, rotor and wheel

Proper Rotor Refinish and Documentation

Measure, Document and Correct Lateral Run Out (LRO)** - Maximum 0.050 mm (0.002 in)

Reassemble with Proper Torque and sequence - wheel lug nuts

* The bulletin refers to Minimum Thickness specification as the minimum allowable thickness after refinish. Always refer to SI to verify the spec stamped on the rotor is the minimum thickness spec after refinish and not the discard spec.

**The bulletin will refer to LRO maximum specification as 0.050 mm (0.002 in). However, some trucks may slightly differ.

Refer to SI to verify specifications.

Bulletin Topic
Repair Order and Warranty Information Network System (WINS) Required Documentation
New GM Brake Service Procedure (Hubless and Hubbed / Trapped / Captured Rotors)
Brake Lathe Calibration Procedure (Bench / On-Car Lathe)
Brake Pulsation (Rotor Thickness Variation — Lateral Run Out [LRO] / Corrosion)
Brake Rotor Clean-up Procedure
Brake Noise
Frequently Asked Questions
Brake Warranty (Rotor / Pad)
Tools and Parts Information
Labor Operation and Labor Time Information
Worksheet — Brake Lathe Calibration
Attachment Form — GM Brake Service Repair Order Documentation for Required Measurements

Bulletin Format

TOOL INFORMATION	
Tool Description	Tool Number
Brake Rotor Micrometer — English	J 45021
Brake Rotor Micrometer — Metric	J 44279
Wheel Hub Cleaning Kit	J 42450A
Whiz Wheel®	J 41013
Torque Stick	J 39544 Kit
Dial Indicator Kit (.001 Increments)	J 45101
Conical Washers	J 45101-100

TOOL INFORMATION

CORRECTION PLATE PART INFORMATION**Correction Plate**

Correction Plate — 0.0762 mm (0.003 in)

Correction Plate — 0.1524 mm (0.006 in)

Correction Plate — 0.2286 mm (0.009 in)

CORRECTION PLATE PART INFORMATION

For vehicles repaired under warranty, Brake Align(R) Run-Out Correction Plates should be submitted in the Net Amount at cost plus 40%. Brake Align(R) Run-Out Correction Plates are available through the following suppliers:

Dealer Equipment and Services at 1-800-GM TOOLS

Brake Align(R) LLC at 1-888-447-1872 (U.S. Dealers Only)

*We believe this source and their products to be reliable. There may be additional manufacturers of such products.

General Motors does not endorse, indicate any preference for or assume any responsibility for the products from this firm or for any such items, which may be available from other sources.

WARRANTY INFORMATION

Published labor operations include time to check run-out and road test vehicle after repair.

Labor operation H9709 - Brake Burnish is not a published labor operation and will not be found in the Labor Time Guide. This labor operation should be used to claim the necessary time for cleaning up the braking surfaces for thickness variation pulsation due to "lot rot" corrosion - refer to Brake Pulsation section of this bulletin for procedure. Thickness Variation Pulsation due to "lot rot" corrosion occurs when vehicles are not driven for an extended period of time. This type of corrosion clean-up is covered under the terms of the new vehicle warranty coverage.

Claims submitted using H9709 do not require LRO measurements.

If correcting for LRO, claim the use of correction plates as OLH. The times for using correction plates are not to exceed 0.2 hr for one side and 0.4 hr for both sides. Guidelines for submitting OLH per General Motors Policy & Procedures should be followed.

Model years 2005 to current - labor operations H0120/1/7 and H0130/1/7, are to be used only when replacing rotors.

Model years 2005 to current - labor operations H0122, H0132, H0192 and H0202 have been established for Brake Rotor/Drum Refinishing.

For model years in which the new labor operations do not apply, the time for refinishing the rotor is in labor operations H0120/1/7 and H0130/1/7.

Labor Operation	Description	Labor Time
H9709	Brake Burnish	0.2 hr
H0042	Pads, Front Disc Brake — Replace	Use Published Labor Operation Time
H0043	Pads, Disc Brake-Rear – R&R or Replace	Use Published Labor Operation Time
H0120	Rotor Asm-Front Right – Replace	Use Published Labor Operation Time
H0121	Rotor Asm — Front Left Replace	Use published labor operation time
H0127	Rotor Asm-Front Both – Replace	Use Published Labor Operation Time
H0130	Rotor Asm-Rear Right – R&R or Replace	Use Published Labor Operation Time
H0131	Rotor Asm-Rear Left – Replace	Use Published Labor Operation Time

H0137	Rotor Asm-Rear Both – Replace	Use Published Labor Operation Time
H0122	Brake Rotor Refinishing — Front	Use Published Labor Operation Time
H0132	Brake Rotor Refinishing — Rear	Use Published Labor Operation Time
H0192	Brake Drum Refinishing — Front	Use Published Labor Operation Time
H0202	Brake Drum Refinishing — Rear	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

WORKSHEET — BRAKE LATHE CALIBRATION

Brake lathe calibration should be performed and recorded monthly.

BRAKE LATHE CALIBRATION CHECK SHEET

Dealer Code: _____ Date: _____ Lathe Type:
 _____ Lathe Model: _____ What is the
 Lathe's Run Out? _____ Is the Lathe within Specification? _____ Yes
 _____ No Comments:

WORKSHEET - BRAKE LATHE CALIBRATION

ATTACHMENT FORM — GM BRAKE SERVICE REPAIR ORDER DOCUMENTATION FOR REQUIRED MEASUREMENTS

PART MEASUREMENT/REPLACEMENT DOCUMENTATION

Dealer Code: _____ Repair Order Number: _____

Front Rotor - ORIGINAL/REFINISHED thickness measurements (required when front labor operation is used):

Thickness Specification (Min. Thickness/Discard Stamped on Rotor/SI): _____
inch/mm (Circle One)

ORIGINAL measured thickness before refinish: Left Front (OLF) _____ inch/mm Right Front (ORF) _____ inch/mm

REFINISHED measured thickness after refinish: Left Front (RLF) _____ inch/mm Right Front (RRF) _____ inch/mm

Rear Rotor - ORIGINAL/REFINISHED thickness measurements (required when rear labor operation is used):

Thickness Specification (Min. Thickness/Discard Stamped on Rotor/SI): _____
inch/mm (Circle One)

ORIGINAL measured thickness before refinish: Left Rear (OLR) _____ inch/mm Right Rear (ORR) _____ inch/mm

REFINISHED measured thickness after refinish: Left Rear (RLR) _____ inch/mm Right Rear (RRR) _____ inch/mm

Rotor Replacement:

If rotors are replaced, you must indicate reason for replacement

Pad Replacement:

If Pads are replaced, you must indicate reason for replacement:

LATERAL RUN OUT (LRO) DOCUMENTATION

Front Rotor (required when front rotor labor operation is used):

LRO measurement after rotor refinish/replace: Left Front (LLF) _____ inch Right Front (LRF) _____ inch

If above LRO greater than 0.050 mm (0.002 in), document correction plate part number used: Left _____ Right _____ (Example: 801-03)

Rear Rotor (required when rear rotor labor operation is used):

LRO measurement after rotor refinish/replace: Left Rear (LLR) _____ inch Right Rear (LRR) _____ inch

If above LRO greater than 0.050 mm (0.002 in), document correction plate part number used: Left _____ Right _____ (Example: 801-03)

ATTACHMENT FORM - GM BRAKE SERVICE CUSTOMER SERVICE ORDER DOCUMENTATION FOR REQUIRED MEASUREMENTS/LATERAL RUN OUT (LRO) DOCUMENTATION

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Repair Order/Warranty Claim Required Documentation

***REPAIR ORDER / WARRANTY CLAIM REQUIRED DOCUMENTATION

When using any one of the brake labor operations listed in this bulletin (except for H9709 - Brake Burnish) the following three rotor measurements (1. Original Rotor Thickness, 2. Refinished Rotor Thickness and 3. Lateral Run Out) are required and MUST be written/documented on the repair order, or for your convenience, complete the form (GM Brake Service Repair Order Documentation for Required Measurements) shown in this bulletin and attach it to the repair order. If the Warranty Parts Center generates a request, this Documentation/Form must be attached to the repair order that is sent back.

Documentation of brake lathe maintenance and calibration as recommended by the lathe manufacturer must be available for review upon request.

Repair Order Documentation - Rotor Original And Refinished Thickness - REQUIRED

When resurfacing a brake rotor or drum, the ORIGINAL thickness (measured thickness before refinish) and REFINISHED thickness (measured thickness after refinish) MUST be written/documented on the repair order hard copy for each rotor serviced. If a rotor replacement is necessary, only the Original thickness measurement needs to be recorded.

Repair Order Documentation - Lateral Run Out (LRO) and Correctional Plate Part Number - REQUIRED

When using any one of the brake labor operations listed in this bulletin (except for H9709 - Brake Burnish), the rotor assembly MUST be measured for Lateral Run Out (LRO) (follow brake procedure steps 9-11). If the LRO measurement is greater than 0.050 mm (0.002 in), correct it by using the proper Brake Align(R) Correctional Plate (DO NOT refinish new rotors or newly refinished rotors to correct LRO). This LRO measurement, and the Correctional Plate part number used to correct the LRO, MUST be written/documented on the repair order hard copy. If no correction is necessary, only the LRO measurement for each rotor serviced needs to be recorded.

Correction plates can only be used on Hubless rotor design. A correction plate part number can not be used with Hubbed, Trapped or Captured type designed rotors.

Warranty System Documentation Lateral Run Out (LRO) REQUIRED

When using any one of the brake labor operations listed in this bulletin (except for H9709 - Brake Burnish), the Lateral Run Out (LRO) measurement (as measured in the "Repair Order Documentation - Lateral Run Out" section above) MUST be documented in the Warranty System (WINS) in the Failure Code/DTC field of the claim submission (refer to the Claims Processing Manual, Section IV, Warranty Claim Data, page 6, Item G) and correspond to the Labor Operation used.

Because the Warranty System Failure Code/DTC field can only accept five characters/numerics, the first 0 is dropped from each LRO measurement, the left side (drivers side) is recorded first, then an R for right side (passenger side), then record the right side measurement. LRO should be recorded in Warranty System Failure Code/DTC field in inches only (not mm).

Example: If a Labor Operation for both fronts is used and the left front rotor LRO measurement is (0.002 in) and the right front rotor measurement is (0.0035 in), it should be recorded as 02R03. If a Labor Operation for both rears is used and the left rear rotor LRO measurement is (0.002 in) and the right rear rotor measurement is (0.0035 in), it should be recorded as 02R03. If a single side labor operation for the front or rear left side is used and the left side is (0.002 in), then record as 02RNA. If only the right side is used and the right side is (0.002 in), then record as NAR02 (NA = Not Applicable).

Repair Order Documentation - Explanation of Part Replacement - REQUIRED

If replacement of a brake component is necessary, proper documentation on the repair order is required. See the following examples:

Brake rotor replacement - Customer comment was brake pulsation. Rotor was refinished on a prior brake service. After rotor measurement, it was determined that refinishing the rotor again would take it under the Minimum Thickness specification.

Brake pad replacement - Customer comment was brake squeak noise. On inspection, found pads contaminated by fluid leak at caliper.

New GM Brake Service Procedure

NEW GM BRAKE SERVICE PROCEDURE

Brake Service Procedure

Remove the wheel and caliper.

Measure rotor thickness. In order to determine if the rotor can be refinished, do the following steps:

If performing routine Brake Service for worn pads only, and the rotors are not damaged and measure within specification - DO NOT REFINISH ROTORS.

Remove the rotor(s).

Measure the rotor for original thickness using a brake micrometer.

Multiple measure points should be taken and the lowest measurement should be recorded.

Reference the Minimum Thickness specification stamped on the backside of the rotor or SI for Minimum Thickness specification/other. In most cases, the rotor should be refinished unless the measurement taken makes it obvious that refinishing the rotor would take the measurement under the Minimum Thickness specification (then replacement is necessary). DO NOT use any other manufacturers rotor specifications.

***Record the lowest ORIGINAL rotor thickness measurement on the repair order hard copy as noted in the "Repair Order Documentation - Rotor Refinish" section of this bulletin.

Clean all of the mating surfaces between the hub, the rotor and the wheel using the J 42450A - Wheel Hub Cleaning Kit and J 41013 - Whiz Wheel(R).

If rotors are not to be refinished - Go To Step 8.

Cleaning all mating surfaces and making them free of corrosion, burrs and other debris (which includes removal of Hubless rotors) is critical and MUST be performed whether using an On-Car or Bench Lathe Refinish Procedure.

Be sure to follow the appropriate refinishing procedure listed below for the type of lathe you are using.

Only replace the rotors if they do not meet the Minimum Thickness specification.

DO NOT REFINISH NEW ROTORS.

Only remove the necessary amount of material from each side of the rotor and note that equal amounts of material do not have to be removed from both sides on any brake system using a floating caliper.

Prior to making the cut, install the recommended clip-on style disc silencer supplied with the lathe. Use of this silencer is critical to prevent chatter from occurring during the cut.

Bench Type Lathe

Refinish the existing rotor on an approved, well-maintained lathe to guarantee smooth, flat and parallel surfaces.

Check for clean and true lathe adapters and make sure the arbor shoulder is clean and free of debris or burrs. For more information, see the "Brake Lathe Calibration Procedure (Bench-Type)" section in this bulletin.

On the outboard area of the rotor, position the cutting tools one eighth of an inch into the brake pad area of the rotor. Feed the cutting tools into the rotor until they cut the rotor to new metal, a full 360 degrees. Zero each dial and back off a full turn.

Move the cutting bits to the middle of the rotor and do the same procedure. If zero is passed during the process, reset zero. Back off a full turn.

Position the cutting bits one eighth of an inch inside the inboard (closest to the hub) edge of the brake pad contact area. Do the same procedure. If zero is passed during the process, reset zero.

Back off a full turn and position the cutting bits all the way inboard in preparation to refinish the full rotor surface. Advance both tool cutters to the zero setting plus just enough to clean up the entire rotor surface.

After completing the refinish, sand both sides of the rotor for approximately one minute per side using a sanding block and 130-150 grit sandpaper to obtain a non-directional finish.

On-Car Type Lathe

Reinstall the rotor(s).

When using the On-Car lathe on vehicles equipped with limited slip (or posi-trac) rear system, it is critical that the rear drive shaft is disconnected/disengaged prior to operation of the On-Car lathe. Remember to mark and re-index the drive shaft correctly on re-assembly to prevent creating driveline vibration. Whenever the lathe drive motor is being switched on, the operator MUST keep their body out of the wheel well area until the machine has reached its normal operating RPM.

Refinish the existing rotor on an approved, well-maintained lathe to guarantee smooth, flat and parallel surfaces.

When raising the vehicle on the lift, be sure to have it at a good working height (waist high is average) to accommodate mounting the On-Car lathe. Optimally, the center piston on the lathe trolley will be mid-travel. If the lathe trolley center piston is completely compressed (bottoming out) or inversely fully extended and hanging off the vehicle hub, this could affect the calibration time of the lathe.

Select the correct adapter for the vehicle you're working on and mount it to the hub with the vehicle lug nuts. Hand tighten 34-41 N.m (25-30 lb ft) the nuts using equal torque. DO NOT use impact wrenches, excessive torque will damage the adapter.

Ensure the adapter sits flush on the rotor hat surface. Be sure to remove any rust, rotor retaining clips, etc. that may preclude the adapter from sitting flat on the mounting surface.

Connect the lathe to the adapter, turn on the lathe and activate the computer to compensate for run-out in the hub.

Once the computer indicates the compensation process was successful, on the outboard area of the rotor, position the cutting tools one eighth of an inch into the brake pad area of the rotor. Feed the cutting tools into the rotor until they cut the rotor to new metal, a full 360 degrees. Zero each dial and back off a full turn.

Move the cutting bits to the middle of the rotor and do the same procedure. If zero is passed during the process, reset zero. Back off a full turn.

Position the cutting bits one eighth of an inch inside the inboard (closest to the hub) edge of the brake pad contact area. Do the same procedure. If zero is passed during the process, reset zero.

Back off a full turn and position the cutting bits all the way inboard in preparation to refinish the full rotor surface. Advance both tool cutters to the zero setting plus just enough to clean up the entire rotor surface.

After completing the refinish, sand both sides of the rotor for approximately one minute per side using a sanding block and 130-150 grit sandpaper to obtain a non-directional finish.

Dismount the lathe, but leave the lathe adapter attached to the vehicle.

Once the rotor has been properly machined, wash the rotor with soap and water (use a mild dish washing soap) or wipe it clean with GM approved brake cleaner, P/N 12378392 (Canadian P/N 88901247).

Thoroughly cleaning the rotor will prevent the possible transfer of finite metal dust left as a by-product of machining to the pad material during the seating process, thus reducing the opportunity for squeaks or other noises to occur.

***Record the REFINISHED rotor thickness measurement on the repair order hard copy. Refer to the "Repair Order Documentation - Rotor Refinish" section of this bulletin. Setting up to measure for Lateral Run Out (LRO):

Bench-Type Lathe

Ensure that the mating surfaces of the rotor hat section and the hub mating surface are clean and free of debris.

Mount the new, original or refinished rotor onto the vehicle hub.

Always hold the rotor on the bottom half so any debris that may be dislodged from the vents will fall out instead of falling into the mounting area. Any movement or jarring from the rotor falling over on the studs can release rust from the vents on the rotor.

Tilt the top of the rotor in towards the vehicle so you can see the studs and ease the rotor onto the studs.

Slide the rotor all the way to the hub and hold it in place until you have placed one of the conical washers (with the tapered hole side facing out) and run the first lug nut up tight by hand so the rotor doesn't move when you release it.

Place the conical washers on the rest of the studs (with the tapered hole side facing out), start and snug the lug nuts by hand.

Using the one half inch drive impact wrench and a torque stick (J 39544) or equivalent, start with the lug nut opposite of the one you first tightened by hand and tighten the lug nuts using a star pattern until they touch the hub but do not completely torque. Then again, starting with the first lug nut you tightened by hand, tighten all the lug nuts in a star pattern to the specific vehicle torque specification.

DO NOT reinstall the caliper or the wheel at this time.

On-Car Type Lathe

Leave the On-Car adapter on the wheel.

Proceed to Step 9.

Fasten the dial indicator to the steering knuckle so that the indicator needle contacts the rotor outboard friction surface approximately 6.35 mm (0.25 in) from the rotor's outer edge. The stylus should be perpendicular to the friction surface of the rotor.

Make sure the dial indicator needle tip is screwed tight, a loose tip could cause false readings.

Measure for LRO. Follow the procedure below to determine if the LRO is within specification (0.050 mm (0.002 in) or LESS).

Rotate the rotor and locate the point on the rotor where the lowest dial indicator reading is indicated and set the dial indicator to zero.

Rotate the rotor from the low point and locate the point with the highest dial indicator reading (rotor "high spot"). Note the amount and mark the location of the "high spot" on the rotor and mark the closest wheel stud relative to this location. If the high point falls between two studs, mark both studs. In instances where the vehicle has "capped lug nuts" you should mark the hub.

***Record the rotor Lateral Run Out measurement on the repair order hard copy. Refer to the "Repair Order Documentation - Lateral Run Out" section of this bulletin. Measuring for LRO is critical and MUST be performed whether using an On-Car or Bench Lathe Refinish Procedure.

***This measurement must also be documented in the Warranty System (WINS) in the Failure Code field of the claim submission. Refer to the "Warranty System Documentation - Lateral Run Out" section of this bulletin.

If the Lateral Run Out (LRO) measurement is 0.050 mm (0.002 in) or LESS, no correction is necessary. Go to Step 16 if this is the first rotor completed. Go to Step 17 if this is the second rotor completed. If the LRO is GREATER than 0.050 mm (0.002 in), go to Step 13.

If the LRO measurement is greater than 0.050 mm (0.002 in), use the following procedure to correct for LRO:

If the LRO measurement is over 0.279 mm (0.011 in), determine the source or cause of the LRO and correct it (i.e. verify drive axle nut torque specification, refinished rotor is source of LRO due to a lathe qualification issue - see "Brake Lathe Calibration Procedure").

Hubless Rotor

Remove the rotor and using the Brake Align(R) application chart, choose the correct plate to bring the rotor LRO to 0.050 mm (0.002 in) or less. The plates come in 0.0762 mm (0.003 in), 0.1524 mm (0.006 in) and 0.2286 (0.009 in) compensation. For more information on proper plate selection, see

the instruction video/DVD included in the "Brake Align(R)" kit.

Align the V-notch of the selected Brake Align(R) correction plate to the marked wheel stud ("high spot") or between the two points marked (if the "high spot" is between two wheel studs).

If Brake Align(R) Correction Plates are not available for the vehicle being serviced, refer to SI Document ID# 836495 for correcting LRO.

Per Brake Align(R) manufacturer, NEVER attempt to stack two or more Correction Plates together on one hub. NEVER attempt to reuse a previously installed Correction Plate.

Reinstall the rotor using the same method and precautions as the first time - found in Step 8. Make sure to index the rotor correctly to the marks made in step 10, otherwise LRO will be comprised.

Hubbed / Captured / Trapped Rotor

Measure the rotor thickness.

Refinish or replace the rotor (see Service Information for further details). Use a Dial Indicator to measure the rotor to verify the LRO is within specification. If using,

BENCH LATHE - DO NOT remove conical washers and lug nuts at this time.

ON-CAR LATHE - You must remove adapter and install conical washers and lug nuts to retain rotor position.

For Hubless rotor design, while removing the adapter, you must hold the rotor tight to the hub and install the top conical washer and lug nut first to ensure no debris falls between the surface while removing the adapter. Then, install the remaining conical washers and lug nuts. Otherwise, LRO will be comprised.

Perform Steps 1 - 12 on the opposite side of the vehicle.

After both sides of the vehicle have LRO measurements within specification, perform the following steps:

Reinstall the calipers and pads.

Pump the brakes to pressurize the calipers.

Remove the lug nuts/conical washers.

Install and properly torque the wheels.

It is critical to follow the star pattern wheel torque procedure and use the proper tools (torque stick or torque wrench) as referenced in SI.

Road test the vehicle to verify the repairs.

***Indicates measurements must be written/documented on the repair order and/or in the warranty system.

Brake Lathe Calibration Procedure (Bench/On-Car Lathe)

Calibration of the brake lathe should be performed and recorded monthly.

Use the following procedure to calibrate a Bench-Type brake lathe:

After refinishing a rotor, loosen the arbor nut and while holding the inside bell clamp to keep it from rotating, rotate the rotor 180 degrees.

Retighten the arbor nut and set the dial indicator on the rotor using the same instructions as checking the run out on the vehicle.

Rotate the arbor and read the run-out.

Divide the reading by two and this will give you the amount of runout the lathe is cutting into the rotor.

If there is any run-out, you will need to machine the inside bell clamp in place on the lathe (this procedure is for a Bench type lathe ONLY, DO NOT machine inside the bell clamp on an On-Car type lathe).

Any nicks or burrs on the shoulder of the arbor must be removed. An 80-grit stone can be used to accomplish this. Spray WD-40(R) on the shoulder and with the lathe running, hold the stone flat against the shoulder surface using slight pressure. When the burrs are gone, clean the surface. Burrs must also be removed from the hub of the inside bell clamp. This can be accomplished with the stone and WD-40(R). Keep the stone flat on the hub while

removing the burrs. After removing the burrs, clean the hub.

Place the bell clamp on the arbor of the lathe and use the small radius adapters first and then spacers to allow you to tighten the arbor nut to secure the bell clamp to the lathe. Position the tool bit in the left hand of the rotor truer so you can machine the face of the bell clamp. Machine the face of the bell clamp taking just enough off of it to cut the full face of the clamp the full 360 degrees. Before you loosen the arbor nut, match mark the hub of the bell clamp to the arbor and line up these marks before machining a rotor. A magic marker can be used to make the match marks. Machine a rotor and recheck the calibration. Repeat this procedure on all Inside Bell Clamps used.

If run-out is still present, contact the brake lathe supplier.

Use the following procedure to calibrate an On-Car brake lathe:

Connect the lathe to a vehicle using the appropriate adapter.

Attach a vise-grip dial indicator to a fixed point in the wheel well and bring the dial indicator to a flat surface on the cutting head.

Turn on the lathe and press the "start" button so the lathe begins to compensate.

Once compensation is complete, note the runout as measured by the dial indicator. Measured runout at this point is overstated given that it is outside the rotor diameter.

If runout is in excess of 0.1016 mm (0.004 in) (0.050 mm (0.002 in) as measured within the rotor diameter), calibration must be tightened. Follow manufacturer's instructions for tightening the calibration of the lathe. This information is found in the manual supplied with the lathe.

If the machine is taking a long time to compensate during normal use, prior to checking the lathe calibration it is recommended that the machine be disconnected from the adapter and the adapter (still connected to the vehicle) is rotated 180 degrees and the machine reattached. This will accomplish two things:

- It will re-verify the machine is properly attached to the adapter.
- It will change the location of the run-out (phase) relative to the machine and thus possibly allow for quick compensation as a result of the position change.

The following information has been added as a reference to ensure your Pro-Cut PFM lathe provides a consistent smooth surface finish over long term usage.

The cutting tips must be right side up. Reference marks always face up. The cutting tips may not have chips or dings in the surface of the points. Cuts of 0.1016 - 0.381 mm (0.004 - 0.015 in) will provide the best surface finish and the optimal tip life. When cleaning or rotating the cutting bits, make sure that the seat area for the tip on the tool is free and clear of debris.

On each brake job, the technician must center the cutting head for that particular vehicle using one of the mounting bolt holes on the slide plate. Once the head is centered, it is vital that the technician use one hand to push the head firmly and squarely back into the dovetail on the slide plate while using the other hand to tighten the Allen-Hex bolt that secures the head. Failure to do this could result in chatter occurring during the cut.

The tool holder plate is the plate that the cutting arms are attached to. It can bend or break if a technician accidentally runs the cutting arms into the hub of the rotor while the rotor is turning. (Cuts of more than 0.508 mm (0.020 in) can also bend this plate). Once bent, the lathe will most likely not cut properly until the tool holder plate is replaced. In order to verify the condition of the tool holder plate on a machine that will not cut right, remove the mounting bolt and remove the cutting head from the slide plate. With the cutting head titled at an angle, lay the long edge of the tool holder plate down on the flat part of the slide plate. If any gap can be seen between the edge and the slide plate, the tool holder plate is bent and the source of vibration. Also check to ensure that the cutting arms are lying flat on the upper side of the tool holder plate. If the mounting arm post is bent, it will show itself by having the back of the cutting arm lifting off the surface of the tool holder.

As wear occurs between the slide plate and the box it rides on, you must take up the slack. You do this by way of a moveable wedge, which we call the gib. Your lathe manual details adjustment process, which you should perform when required after monthly checks or whenever surface finish is inconsistent.

Brake Pulsation

Brake pulsation is caused by brake rotor thickness variation. Brake rotor thickness variation causes the piston in the brake caliper, when applied, to "pump" in and out of the caliper housing. The "pumping" effect is transmitted hydraulically to the brake pedal. Brake pulsation concerns may result from two basic conditions:

Thickness Variation Caused by Lateral Run Out (LRO). - LRO on a brake corner assembly is virtually undetectable unless measured. If the brake corner is assembled with excessive LRO (greater than 0.050 mm (0.002 in), thickness variation will develop over time and miles. Excessive LRO will cause the brake pads to wear the brake rotors unevenly, which causes rotor thickness variation. Pulsation that is the result of excessive Lateral Run Out usually develops in 4,800 - 16,000 km (3,000 - 10,000 mi). LRO can be induced when uneven torque is applied to wheel nuts (lug nuts). Improper

wheel tightening after tire rotation, spare tire usage, brake inspection, etc. can be the cause of pulsation. Again, it usually takes 4,800 - 16,000 km (3,000 - 10,000 mi) AFTER an event for the condition to surface. The owner or driver does not usually make the connection between the service event and the awareness of the pulsation. The proper usage of torque wrenches and/or torque sticks (torque limiting sockets) will greatly reduce or eliminate the pulsation conditions after wheel service events. The improper use of impact wrenches on wheel nuts greatly increases the likelihood of pulsation after wheel service.

The following are examples of pulsation conditions and reimbursement recommendations:

If the customer noticed the condition between 4,800 - 16,000 km (3,000 - 10,000 mi) and it gradually got worse, normally the repair would be covered. The customer may tolerate the condition until it becomes very apparent.

If a customer indicated they had wheel service, ask who performed the service. Then;

If a GM dealer performed the service, consider paying for the repair and then strongly reinforce the use of torque sticks at the dealer. Two common size torque sticks cover 90% of all GM products. Each technician needs to use torque sticks properly every time the wheel nuts are tightened.

If the customer had the wheel service done outside of a GM dealership, normally GM would not offer any assistance.

Thickness Variation Caused by Brake Rotor Corrosion - Rotor corrosion is another form of thickness variation, which can cause a pulsation concern and can be addressed as follows:

Cosmetic Corrosion:

In most instances rotor corrosion is cosmetic and refinishing the rotor is unnecessary.

Corrosion - Pulsation Caused by Thickness Variation (Lot Rot / Low Miles - 0-321 km (0-200 mi):

At times more extensive corrosion can cause pulsation due to thickness variation. This usually happens when the vehicle is parked for long periods of time in humid type conditions and the braking surface area under the pads corrodes at a different rate compared to the rest of the braking surface area. Cleaning up of braking surfaces (burnishing) can be accomplished by 10 - 15 moderate stops from 56-64 km/h (35 - 40 mph) with cooling time between stops. If multiple moderate braking stops do not correct this condition, follow the "Brake Rotor Clean-Up Procedure" below.

Corrosion - Pulsation Caused by Thickness Variation (without rotor flaking / higher mileage - 3,200-8,000 km (2,000-5,000 mi):

In some cases, more extensive corrosion that is not cleaned up by the brake pad over time and miles can cause the same type of pulsation complaint due to thickness variation. In these cases, the rotor surface is usually darker instead of shiny and a brake pad foot print can be seen against the darker surface. This darker surface is usually due to build-up, on the rotor material surface, caused by a combination of corrosion, pad material and heat. To correct this condition, follow the "Brake Rotor Clean-up Procedure" below.

Corrosion - Pulsation Caused by Thickness Variation (with rotor flaking/higher mileage - 8,000 + km (5,000 + miles):

At times, more extensive corrosion over time and miles can cause pulsation due to thickness variation (flaking). This flaking is usually a build up, mostly on the rotor material surface, caused by a combination of corrosion, pad material and heat. When rotor measurements are taken, the low areas are usually close to the original rotor thickness (new rotor) measurement and the high areas usually measure more than the original rotor thickness (new rotor) measurement (depending on mileage and normal wear). To correct this condition, follow the "Brake Rotor Clean-up Procedure" described below.

In some flaking instances, cleaning-up this type of corrosion may require more rotor material to be removed than desired. Customer consideration should be taken in these situations and handled on a case by case basis, depending on the amount/percentage of rotor life remaining and the vehicle's warranty time and miles.

Brake Rotor Clean-Up Procedure

BRAKE ROTOR CLEAN-UP PROCEDURE

Clean-up the rotors on an approved, well-maintained brake lathe to guarantee smooth, flat and parallel surfaces. Check for clean and true lathe adapters and make sure the arbor shoulder is clean and free of debris or burrs. For more information see the "Brake Lathe Calibration Procedure" section in this bulletin.

On the outboard area of the rotor, position the cutting tools one eighth of an inch into the brake pad area of the rotor.

Feed the cutting tools into the rotor until they cut the rotor to new metal, a full 360 degrees. Zero each dial and back off a full turn.

Move the cutting bits to the middle of the rotor and do the same procedure. If zero is passed during the process, reset zero. Back off a full turn.

Position the cutting bits one eighth of an inch inside the inboard (closest to the hub) edge of the brake pad contact area. Do the same procedure. If zero is passed during the process, reset zero.

Back off a full turn and position the cutting bits all the way inboard in preparation to refinish the full rotor surface. Advance both tool cutters to the zero setting plus just enough to clean up the entire rotor surface.

After completing the refinish, sand both sides of the rotor for approximately one minute per side using a sanding block and 130-150 grit sandpaper to obtain a non-directional finish.

Only remove the necessary amount of material from each side of the rotor and note that equal amounts of material do not have to be removed from both sides on any brake system using a floating caliper.

In many of these instances, such a minimal amount of material is removed from the rotor that customer satisfaction is not a concern for future brake services. This procedure is intended to "Clean-up" the rotor surface and should be conveyed to the customer as such - not as "cut", "refinish" or "machine", which tends to be terms understood as a substantial reduction of rotor material/life. If the brake lathe equipment being used is not capable of removing minor amounts of material while holding tolerances, further lathe maintenance, repair, updates or equipment replacement may be necessary.

Brake Noise

BRAKE NOISE

Some brake noise is normal and differences in loading, type of driving, or driving style can make a difference in brake wear on the same make and model. Depending on weather conditions, driving patterns and the local environment, brake noise may become more or less apparent. Verify all metal-to-metal contact areas between pads, pad guides, caliper and knuckles are clean and lubricated with a thin layer of high temperature silicone grease. Brake noise is caused by a "slip-stick" vibration of brake components. While intermittent brake noise may be normal, performing 3 - 4 aggressive stops may temporarily reduce or eliminate most brake squeal. If the noise persists, a brake dampening compound may be applied to the back of each pad. This allows parts to slide freely and not vibrate when moving relative to each other. Use Silicone Brake Lubricant, ACDelco P/N 88862182 (Canadian P/N 88862496) or equivalent.

The following noises are characteristics of all braking systems and are unavoidable. They may not indicate improper operation of the brake system.

Squeak / Squeal Noise:

Occurs with front semi-metallic brake pads at medium speeds when light to medium pressure is applied to the brake pedal.

Occasionally a noise may occur on rear brakes during the first few stops or with cold brakes and/or high humidity.

Grinding Noise:

Common to rear brakes and some front disc brakes during initial stops after the vehicle has been parked overnight.

Caused by corrosion on the metal surfaces during vehicle non-use. Usually disappears after a few stops.

Groan Noise:

A groan type noise may be heard when stopping quickly or moving forward slowly from a complete stop. This is normal.

On vehicles equipped with ABS, a groan or moan type noise during hard braking applications or loose gravel, wet or icy road conditions is a normal function of the ABS activation.

KEY POINTS — FREQUENTLY ASKED QUESTIONS

Q: How do on-car lathes react to Axle Float? Does the play affect the machining of the rotor, either surface finish or LRO?

A: Because the Pro-Cut on-car lathe adjusts in a live mode while spinning the hub/rotor, the dynamics of a floating axle are effectively eliminated. Once the lathe is compensated, there is no difference in the cutting/surface finish and LRO are just the same as with a non-floating axle.

Q: Which lathe is essential for performing brake work, the bench or on-car?

A: Dealers must have a well maintained bench lathe and well maintained on-car lathe. These lathes need to be calibrated on a monthly basis. BOTH lathes are essential to providing quality brake service.

Q: Why is it necessary to use a dial indicator to check runout?

A: Both the bench lathe and the on-car lathe will yield EXCELLENT results, but NO LATHE guarantees that the “installed rotor” will meet GM's lateral runout specification. This is why GM insists on the dial indicating of all rotors.

Q: When should the measurement be taken using a dial indicator?

A: ALL rotors are to be dial indicated after resurfacing and mounting on the vehicle hub, regardless of whether the technician uses the bench lathe or the on-car lathe.

Q: What is the expected tip life for an on-car lathe?

A: The geometry and composition of the Pro-Cut tips are designed for “single pass” cutting. When using the Pro-Cut the cutting depth should be set to take all material needed to get below rust grooves, eliminate all run-out and resurface the entire disc in a single pass. Cuts of 0.1016 – 0.381 mm (0.004 – 0.015 in) will provide the best surface finish and the optimal tip life. No “skim cut” or “finish cut” is needed. Failure to follow this procedure will shorten tip life. The Pro-cut tips will last between 7–12 cuts per corner. With three usable corners, a pair of tips is good for at least 21 cuts.

Q: Why does GM recommend the use of single pass (referred to as “positive rake”) bench and on-car brake lathes?

A: GM Service and GM Brake Engineering have performed competitive evaluations on a significant number of bench and on-car brake lathes. These tests measured critical performance characteristics such as flatness, surface finish and the ability of the lathe to repeat accuracy over many uses. In each test, single pass lathe designs out performed the competitors. Single pass brake lathes are more productive requiring less time to perform the same procedure.

Q: Is it okay to leave the caliper/pads installed while cutting rotors using an on-car lathe?

A: On-car lathes should never be used with the pads and calipers installed on the vehicle. The debris from cutting the rotors can contaminate the brake pads/calipers which can lead to other brake concerns and comebacks.

Q: What is the best way to correct for excessive lateral runout on vehicles with hubless rotors?

A: Regardless of the type of lathe used to resurface hubless rotors, on-car or bench lathe, the preferred method to correct for excessive lateral runout is the Brake Align Runout Correction Plate System. This warranty policy for correction of lateral runout applies to ALL model vehicle, therefore it is essential to inventory a FULL assortment of Brake Align Correction Plates, and a full assortment of sizes, (.003”, .006”, and .009”).

Q: Is it necessary to measure for LRO on new rotors from GMSPO?

A: All new GM rotors must also be dial indicated after installation. New rotors are NEVER to be resurfaced on any type of lathe.

Q: What labor operation can be used to claim the time for measuring and/or correcting for LRO?

A: Applicable labor operations include the time for performing a final LRO measurement in the base time allowance. Refer to the “Warranty Information” section of this bulletin in instances where additional time for correcting LRO to meet specification is necessary.

Q: What information needs to be documented on the Repair Order?

A: Any claim that is submitted using the labor operations in this bulletin, must have the Original Rotor Thickness, Refinish Rotor Thickness and LRO documented on the repair order. For more information, refer to the “Repair Order / Warranty Claim Required Documentation” section of this bulletin.

All Warranty Repair Orders paid by GM, are subject to review for compliance, documentation of lateral runout measurements and the use of Brake Align Plates and may be debited where the repair does not comply with this procedure.

Brake Warranty (Rotor/Pad)

BRAKE WARRANTY

Brake Rotors:

Brake rotor warranty is covered under the terms of the New Vehicle Bumper-to-Bumper warranty. Reference the vehicle's warranty guide for verification.

Rotors should not be refinished or replaced during normal/routine pad replacement.

Rotors should not be refinished or replaced and is ineffective in correcting brake squeal type noises and/or premature lining wear out.

Rotors should not be refinished or replaced for cosmetic corrosion. Clean up of braking surfaces can be accomplished by 10-15 moderate stops from 56-64 km/h (35-40 mph) with cooling time between stops.

Rotors should not be refinished or replaced for rotor discoloration/hard spots.

Rotors should be refinished NOT replaced for Customer Pulsation concerns. This condition is a result of rotor thickness variation, usually caused by LRO (wear induced over time and miles) or corrosion (Lot Rot).

When rotor refinishing, only remove the necessary amount of material from each side of the rotor and note that equal amounts of material do not have to be removed from both sides on any brake system using a floating caliper.

Rotors should be refinished for severe scoring - depth in excess of 1.5 mm (0.060 in).

If the scoring depth is more than 1.5 mm (0.060 in) after the rotor is refinished, it should be replaced.

It is not necessary to replace rotors in pairs. Rotors may be replaced individually. However, caution should be exercised, as a variance in surface finish may cause a brake pull condition.

New rotors should not be refinished before installation. Original equipment rotor surfaces are ground to ensure smooth finish and parallelism between mounting and friction surfaces. If a new rotor has more than 0.050 mm (0.002 in) Lateral Run Out (LRO) when properly mounted on the hub, correct it using one of the following methods:

For hubless rotor designs, use the correction plate procedure found in the "GM Brake Service Procedure for Hubless Rotors" outlined in this bulletin.

For hubbed/trapped/captured rotor designs, refinish the rotor using an On-Car lathe and the procedure outlined in this bulletin.

Never reuse rotors that measure under the Minimum Thickness specification.

In this instance, the rotor should be replaced.

If the Minimum Thickness specification is not visible on the rotor, reference Service Information (SI) for the specific vehicle application. DO NOT use any other manufacturers rotor specifications.

Brake Pads:

Consideration should be given for covering brake pads up to 39,000 km (24,000 mi) (excluding owner abuse, excessive trailering, or the situations that would not be considered normal use).

Installation of new rotors does not require pad replacement. Do not replace pads unless their condition requires it - excessively worn, damage or contaminated.

Brake Wear:

Several factors impact brake lining wear and should be taken into account when reviewing related issues:

- heavy loads / high temperatures / towing / mountainous driving / city driving / aggressive driving / driver braking characteristics (left foot or two feet)

The following are conditions that may extend brake lining wear:

- light loads / highway driving / conservative driving / level terrain

Technical Service Bulletin # **03-03-16-001A**

Date: **070621**

Tire Monitor System - DTC's C0760/C0765

Bulletin No.: 03-03-16-001A

Date: June 21, 2007

INFORMATION

Subject:

Diagnostic Information for Tire Pressure Monitoring (TPM) System - DTC C0760 and/or C0765

Models:

2004-2006 Cadillac Escalade, Escalade ESV, Escalade EXT

2004-2006 Chevrolet Suburban, Tahoe
 2004-2006 GMC Yukon, Yukon XL

with Tire Pressure Monitoring System (RPO UJ6)

Supersede:

This bulletin is being revised to update model year and labor operation information. Please discard Corporate Bulletin Number 03-03-16-001 (Section 03 - Suspension).

The Tire Pressure Monitoring (TPM) System may set DTC C0760 - Left Rear Tire Pressure Sensor Malfunction and/or C0765 - Right Rear Tire Pressure Sensor Malfunction. Due to a programming error, the DTC may not lead the technician to the correct location of the malfunctioning sensor.

There are three possible failure modes in which these DTCs can set.

The sensor may not be transmitting (no horn chirp during the sensor learn procedure).

The PDM may not be receiving sensor transmission (also no horn chirp during sensor learn procedure).

The sensor's internal roll switch may be stuck (Sensor Mode on Tech 2(R) does not change from "wake" to "drive" above 32 km/h (20 mph).

To diagnose the Tire Pressure Monitoring System, the following steps should be taken:

The Tire Pressure Sensor Learn Procedure must be performed every time a tire pressure sensor or the PDM is replaced or the tires are rotated.

Perform the Tire Pressure Sensor Learn Procedure. Refer to SI Document ID # 1311203 to ensure the sensors have not been mislocated from a previous tire rotation. If a horn chirp is heard on all 4 sensors, proceed to step 3.

If a horn chirp did not sound while learning a sensor, replace that sensor and again perform the sensor learn procedure to learn the new sensor ID. If a horn chirp still does not sound, replace the PDM and perform the sensor learn procedure.

Clear the DTC.

Test drive the vehicle and view the "Right Rear Pressure Sensor Mode" and the "Left Rear Pressure Sensor Mode" data parameter on the Tech 2(R). Verify that both Right Rear and/or Left Rear Pressure Sensor Modes change from "wake" to "drive" at or above 32 km/h (20 mph).

If the Right Rear and Left Rear Pressure Sensor Modes change from "wake" to "drive", the system is working properly. If the Right Rear and/or Left Rear Pressure Sensor Modes do not change as indicated in step 4, replace whichever rear sensor did not change.

Part Number	Description
15136883	Sensor Asm – Tire Pressure Indicator
19115820	Switch Asm – Door Lock and Side Window

Parts Information

Labor Operation	Description	Labor Time
E0722	Tire Pressure Indicator Sensor – Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **05-08-44-005A**

Date: **070719**

Entertainment System - Headphone Foam Pad Replacement

Bulletin No.: 05-08-44-005A

Date: July 19, 2007

INFORMATION

Subject:
Information on Rear Seat Headphone Foam Ear Pad Replacement if Worn or Damaged

Models:
2001-2008 GM Passenger Cars and Light Duty Trucks (including Saturn)
2003-2008 HUMMER H2, H3
2005-2008 Saab 9-7X

with Rear Seat Entertainment System (RPOs U32, U42)

Supercede:

This bulletin is being revised to add models and model years and update the shipping costs. Please discard Corporate Bulletin Number 05-08-44-005 (Section 08 - Body and Accessories).

Foam ear pads on the rear headphone may become worn or damaged. The headphone foam ear pads may wear out when not handled and stored carefully.

If the headphone foam ear pads become damaged or worn out, the foam pads can be replaced separately from the headphone set. It is not necessary to replace the complete headphone set.

Parts Information

All pricing information listed in this bulletin is in U.S. dollars and is subject to change without notice.

The headphone replacement foam ear pads can be ordered in pairs directly through the supplier. Have your customer call Unwired at 1-888-293-3332, then prompt zero (0). The replacement, P/N CS-980 (thick earfoam), can be ordered for \$3.50 (USD) per pair plus \$2.50 USPS shipping.

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Disclaimer Technical Service Bulletin # **07-08-49-015B**

Date: **070928**

Instruments - Odometer and Hour Meter Set-Up

Bulletin No.: 07-08-49-015B

Date: September 28, 2007

INFORMATION

Subject:
Information On Instrument Panel Cluster (IPC) Odometer and Engine Hour Meter Set Up at Dealership After IPC Replacement

Models:

2004-2007 Buick Rainier
2003-2006 Cadillac Escalade Models
2003-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2002-2008 Chevrolet TrailBlazer
2007 Chevrolet Silverado Classic (12th Digit of VIN 1 or 2)
2003-2006 GMC Sierra, Yukon Models
2002-2008 GMC Envoy
2007 GMC Sierra Classic (12th Digit of VIN 1 or 2)
2002-2004 Oldsmobile Bravada
2003-2007 HUMMER H2
2005-2008 Saab 9-7X

Attention:

The purpose of this bulletin is to inform dealership personnel that the Instrument Panel Cluster (IPC) odometer and engine hour meter (when applicable) setting will no longer be performed at an Electronic Service Center (ESC). Dealerships will now receive IPCs with the odometer and engine hour meter not programmed. The technician will be required to note the odometer reading and engine hour (when applicable) values of the original IPC, then use the SPS application to program these values into the new IPC.

Supersede:

This bulletin is being revised to provide additional information in the service procedure. Please discard Corporate Bulletin Number 07-08-49-015A (Section 08 - Body & Accessories).

Background Information

Current IPC replacement procedures specify that the season odometer and engine hour values be communicated to and programmed by the Electronic Service Centers (ESC) into the replacement IPC at the time the replacement is ordered. This required the vehicle to be parked after the replacement IPC is ordered so that no additional mileage can be accumulated on the vehicle while the new IPC is in transit to the dealership. Improvements to the TIS2WEB SPS application will now allow IPC odometer and engine hours programming to be performed as an additional function of the IPC programming event. This new process will allow the vehicle to be returned to the customer, if necessary, and driven while waiting for the replacement IPC to arrive at the dealership. Odometer and engine hour values will no longer be communicated to the ESC for programming purposes but ESCs still need the odometer value for warranty reporting. Dealerships will now receive replacement IPCs with the season odometer and engine hours values not programmed. The technician will be required to note the season odometer and engine hour values of the original IPC, then use the TIS2WEB SPS application to program these values into the replacement IPC. The odometer and engine hour programming will now be included as a normal part of the IPC replacement procedure in SI.

Odometer and Engine Hour Programming Procedure

If the original IPC odometer value cannot be obtained from the customer's vehicle, follow local and federal regulations regarding unknown odometer mileage situations.

Because the odometer and engine hour values can now be read from the original IPC and programmed into the replacement IPC during the same visit, the customer's vehicle will no longer need to be parked until the replacement IPC is received from an ESC.

Avalanche, Escalade, Sierra, Silverado, H2, Suburban, Tahoe and Yukon vehicles will also require the engine hour data to be recorded for transfer to the replacement IPC. The replacement IPC may already have engine hours showing, this does not affect the IPC Setup procedure. Bravada, Envoy, Rainier and TrailBlazer vehicles do not support the calculation or display of engine hour data.

Ensure that the proper season odometer value is entered when prompted. Once programming is complete, the odometer and engine hour (when applicable) values cannot be changed.

By default, the applications odometer entry will be set to "miles." For metric units, click the button on the left next to "Kilometers."

Service Procedure

Before the original IPC is disconnected from the vehicle, record the season odometer and engine hour values.

Replace the IPC with a replacement part obtained from the ESC following the IPC replacement procedure in SI.

The replacement IPC requires SPS programming and IPC Setup procedures to be performed. It does not matter which procedure is performed first.

Use the TIS2WEB SPS application to program the previously recorded odometer and engine hour (when applicable) values into the replacement IPC. In SPS, select either "Tech2 Legacy Pass-Thru", "J2534 Tech2", or "J2534 MDI" (when available) and build the vehicle.

Next make the appropriate selection, "IPC Setup" or "IPC Setup (J2534)". "IPC Setup (J2534)" must be used with "J2534 Tech 2" or "J2534 MDI". Either choice will only program the odometer and engine hours (when applicable). The standard IPC programming and set up choice must also be run in order to program IPC calibration files and operating software

After selecting "IPC Setup" or "IPC Setup (J2534)", the user will be prompted to "install the new controller". Ignore this if the new IPC was already installed. This prompt is just to remind the user that this application is only for new IPCs.

For 2003 fullsize trucks, utilities and H2, the engine must be started and running prior to entering the mileage and engine hours. After the odometer value is programmed, the engine must remain running for 6 minutes 15 seconds before the ignition can be turned off. Failure to do so will result in engine hours not being programmed and a new IPC will have to be ordered.

Next, a screen will prompt the user to enter the odometer and engine hour (when applicable) values. By default the application will be set to miles. For metric units, click the button on the left next to "Kilometers".

The IPC odometer and engine hour meter Setup procedure is now complete. The IPC calibration files can now be programmed into the IPC using SPS if they were not downloaded prior to the odometer Setup.

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Technical Service Bulletin # **07-06-01-016A**

Date: **070917**

Engine - Internal Noise/Damage After Oil Filter Change

Bulletin No.: 07-06-01-016A

Date: September 17, 2007

INFORMATION

Subject:
Information on Internal Engine Noise or Damage After Oil Filter Replacement

Models:
2008 and Prior Passenger Cars and Trucks (Including Saturn and Saab)
2008 and Prior HUMMER H2, H3

Supercede:

This bulletin is being updated to include additional information on incorrect or improperly installed engine oil filters.

Please discard Corporate Bulletin Number 07-06-01-016 (Section 06 - Engine/Propulsion System).

Engine damage that is the result of an incorrect or improperly installed engine oil filter is not a warrantable claim. The best way to avoid oil filter quality concerns is to purchase ACDelco(R) oil filters directly from GMSPO.

Oil filter misapplication may cause abnormal engine noise or internal damage. Always utilize the most recent parts information to ensure the correct part number filter is installed when replacing oil filters. Do not rely on physical dimensions alone. Counterfeit copies of name brand parts have been discovered in some aftermarket parts systems. Always ensure the parts you install are from a trusted source. Improper oil filter installation may result in catastrophic engine damage.

Refer to the appropriate Service Information (SI) installation instructions when replacing any oil filter and pay particular attention to procedures for proper cartridge filter element alignment. If the diagnostics in SI (Engine Mechanical) lead to the oil filter as the cause of the internal engine noise or damage, dealers should submit a field product report. Refer to Corporate Bulletin Number 02-00-89-002F (Information for Dealers on How to Submit a Field Product Report).

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Disclaimer Technical Service Bulletin # **05-06-01-010B**

Date: **070928**

Engine - Sealant Usage/Procedures

Bulletin No.: 05-06-01-010B

Date: September 28, 2007

INFORMATION

Subject:

Service Information Update on Consolidating Use of GM Liquid Gasket/Engine Sealants and New Sealant Dispenser GE-48326 Essential Tool

Models:

2008 and Prior GM Passenger Cars and Trucks (including Saturn)

2003-2008 HUMMER H2

2006-2008 HUMMER H3

2005-2008 Saab 9-7X

with Gasoline or Diesel Engines

Supercede:

This bulletin is being updated to add additional information about the use by date code printed on the crimp of the sealant tube. Please discard Corporate Bulletin Number 05-06-01-010A (Section 06 - Engine/Propulsion System).

In 2005 General Motors consolidated the use of all liquid gaskets/engine sealants. At that time, two sealants replaced all previous sealants referred to in Service Information (SI) and/or the Service Manual.

In 2007, GM has consolidated to one engine sealant already available in a 150 g cartridge and now in a 75 g aluminum tube. As a result, P/N 12346141, 54 g tube, has been deleted from service.

One of these, engine sealant P/N 12378521 (U.S.) and P/N 88901148 (Canada), was released in a cartridge to be used in a conventional caulking gun. The cartridge and conventional caulking gun proved to be too large and cumbersome in certain instances when used in on-vehicle service.

To address this concern, GM Powertrain Engineering released the engine sealant in a 0.075 kg (75 gram) squeeze tube (packaged six to the carton, with nozzles) along with a new essential service tool, Sealant Dispenser GE-48326, which has been shipped to all GM dealerships.

Sealant Guidelines

The GM Powertrain engineering specification for applying this sealant is an even bead, 3 mm (0.118 in) in diameter. Due to the high viscosity of the sealant, a dispenser is required to meet this specification. The GE-48326 Sealant Dispenser provides the ability to apply the sealant to specification using one hand, even in areas not accessible using the P/N 12378521 Engine Sealant cartridge and caulking gun.

This solitary engine sealant available in tubes and small cartridge is compatible with all synthetic, synthetic blends and mineral oils, as well as all engine coolants including DEX-COOL(R). The maximum working time of this sealant is 20 minutes. The sealant will be fully cured in 24 hours. The assembly may be filled with oil or coolant immediately after applying the sealant and tightening the bolts.

88861417 (U.S.)	Engine Sealant 0.075 kg (75 gram) Squeeze Tube
88861418 (Canada)	
12378521 (U.S.)	Engine Sealant 0.15 kg (150 gram) Cartridge
88901148 (Canada)	

Engine Sealant Part Numbers



Use By Date Code

The 0.075 kg (75 gram) Squeeze Tube is not available for 2008 and prior Saturn models (only in 150 g cartridges).

The "use by" date on the 0.15 kg (150 gram) cartridge currently is not available.

The use by date of the 0.075 kg (75 gram) tube is twelve months from the manufacture date printed on the crimp month (1), date (2), year (3). GMSPOR recommends that dealers use the first-in first out (FIFO) system of stock rotation on chemicals. Use the oldest stock first by rotating the oldest to the front of a stock location.



Special Service Tool GE-48326 Sealant Dispenser



New Engine Sealant 0.075 kg (75 gram) Squeeze Tube (also available in Vehicle Care label for US dealers)

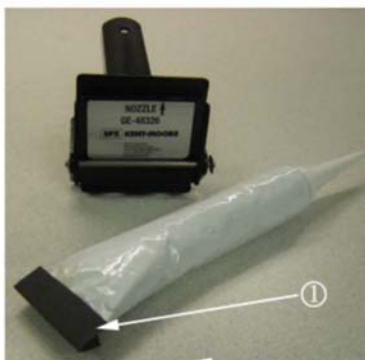
New Sealant and Sealant Dispenser GE-48326

Engine Sealant 0.075 kg (75 gram) Squeeze Tube is not available for 2008 and prior Saturn models (only in 150 g cartridges).

The following service procedures will assist technicians in the proper use of the new sealant dispenser GE-48326 in applying an even bead of sealant 3 mm (0.118 in) in diameter using one hand, even in areas not accessible using engine sealant cartridge and caulking gun.



To use the sealant dispenser correctly, install the two white tabs on the rear handle (1) over the front handle. The white paint marks are for demonstration purposes only. Now your dispenser is ready to install engine sealant 0.075 kg (75 gram) squeeze tube.



Before installing engine sealant 0.075 kg (75 gram) squeeze tube into the dispenser, install a small piece of medium grit sandpaper, or equivalent, by folding it over the bottom of the squeeze tube (1). This will help hold the squeeze tube firmly in place while using the sealant dispenser.



Install engine sealant 0.075 kg (75 gram) squeeze tube with a small piece of medium grit sandpaper into the dispenser (see above graphic illustration). Remember to open the squeeze tube with a sharp knife or equivalent and cut the sealant nozzle to the correct diameter to apply a 3 mm (0.118 in) even bead of sealant.



The sealant dispenser with the engine sealant is now ready to be used (see above graphic illustration).

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Disclaimer Technical Service Bulletin # **04-06-04-036C**

Date: **070830**

Engine Controls - Warranty Info., Emissions Programming

Bulletin No.: 04-06-04-036C

Date: August 30, 2007

WARRANTY ADMINISTRATION

Subject:
Warranty Coverage for Emission-Related Reprogramming Events (PCM, ECM and TCM)

Models:
2008 and Prior GM Passenger Cars and Trucks (Including Saturn)
2003-2008 HUMMER H2
2006-2008 HUMMER H3
2008 and Prior Saab Vehicles (Canada Only)

Supersede:

This bulletin is being updated to add the 2008 model year and Saab vehicles for Canada. Please discard Corporate Bulletin Number 04-06-04-036B (Section 06 - Engine).

The coverage for emission-related reprogramming has the same coverage as the emission controller under the emission controller warranty - 8 years/80,000 miles (130,000 km).

Reprogramming that is not emissions-related is covered under the terms of the New Vehicle Limited Warranty. (For additional information regarding labor codes for use in non-emission-related reprogramming, refer to Corporate Bulletin Number 06-08-47-001B.)

Emissions-related calibration updates will be announced through a GM Technical Service Bulletin with specific guidelines of coverage for each model affected. A special emission-related reprogramming labor operation will be used. The labor operation to be used for claims relating to emission-related reprogramming is J6353 and will only be referenced in the bulletins addressing emission-related calibrations. This labor operation must NOT be used for non-emissions-related reprogramming or for any other vehicle that is not referenced in an emission-related reprogramming technical service bulletin.

Example:


The PCM on 2004 model light duty vehicles is covered by the emission controller warranty for 8 years/80,000 miles (130,000 km). If GM released an "emission-related" calibration update for one of these vehicles, this reprogramming event would also be covered for 8 years/80,000 miles (130,000 km). If GM released a driveability-related calibration update (for example, to eliminate a hesitation) for one of these vehicles, this reprogramming event would be covered for the terms of the New Vehicle Limited Warranty.

An emission-related calibration for medium duty and diesel applications are also covered by the emission warranty that is applicable to that vehicle's emissions controller.

Example:

The PCM on 2004 model medium duty vehicles is covered by the emission controller warranty for 5 years/50,000 miles (80,000 km). If GM released an "emission-related" calibration update for one of these vehicles, this reprogramming event would also be covered for 5 years/50,000 miles 80,000 km).

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Disclaimer Technical Service Bulletin # **07-08-42-013**

Date: **070907**

Lighting - Mirror Turn Signal is Inoperative

Bulletin No.: 07-08-42-013

Date: September 07, 2007

TECHNICAL

Subject:

Turn Signal in Camper Style Outside Rearview Mirror (RPO DPN) Does Not Illuminate Turn Signal Flash (Replace Upper Mirror Glass)

Models:

- 2003-2006 Chevrolet Avalanche, Suburban, Tahoe
- 2003-2007 Chevrolet Silverado Classic
- 2003-2007 GMC Sierra Classic
- 2003-2007 GMC Yukon, Yukon Denali, Yukon XL, Yukon Denali XL

Condition

Some customers may comment that the turn signal in the camper style rearview mirror (RPO DPN) does not illuminate the flash.

Cause

The signal unit adhesive may not be fully seated to the back side of the glass.

Correction

Do This	Don't Do This
Replace the mirror upper glass only.	Do Not replace the entire mirror assembly.

Replace the upper mirror glass only with a new mirror kit, P/N 15933017-LH or 15933018-RH. It is not necessary to replace the entire mirror assembly. The mirror kit contains the electric upper mirror glass and a molded wedge tool (instructions embossed on tool).

Use the following procedure to replace the upper mirror glass:

Tape the entire mirror glass in order to prevent personal injury.

Tilt the upper glass down.

Tilt the lower glass down.

Using the tool provided with the kit at the bottom of the upper mirror, pry the upper glass toward the top of the housing until the glass backing plate disconnects from the housing.

Disconnect the electrical connector.

Properly dispose of the old glass assembly.

Attach the electrical connector to the new glass assembly.

Align the spring fingers of the new upper glass assembly to the ramps at the sides and bottom of the housing.

Position the glass assembly at the top of the housing opening and slide down to engage the locking tabs.

Part Number	Description
15933017	Mirror Kit, O/S Rearview (contains elec LH Upper Glass and tool)
15933018	Mirror Kit, O/S Rearview (contains elec RH Upper Glass and tool)


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
B4150	Glass, Outside Rear View Mirror-Right – Replace	Use Published Labor Operation Time
B4151	Glass, Outside Rear View Mirror-Left – Replace	

For vehicles repaired under warranty, use the table.

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Disclaimer

Technical Service Bulletin # 03-07-29-004D

Date: 071017

Manual Transmission - Operating Characteristics

Bulletin No.: 03-07-29-004D

Date: October 17, 2007

INFORMATION

Subject:
Manual Transmission Operating Characteristics

Models:
2008 and Prior Passenger Cars and Light Duty Trucks (Including Saturn)
2008 and Prior Chevrolet and GMC Medium Duty Trucks
2006-2008 HUMMER H3
2008 and Prior Isuzu Medium Duty Trucks

with Manual Transmission

Supercede:

This bulletin is being revised to add the 2008 model year. Please discard Corporate Bulletin Number 03-07-29-004C (Section 07 - Transmission/Transaxle).

Even though this bulletin attempts to cover operating characteristics of manual transmissions, it cannot be all inclusive. Be sure to compare any questionable concerns to a similar vehicle and if possible, with similar mileage. Even though many of the conditions are described as characteristics and may not be durability issues, GM may attempt to improve specific issues for customer satisfaction.

The purpose of this bulletin is to assist in identifying characteristics of manual transmissions that repair attempts will not change. The following are explanations and examples of conditions that will generally occur in all manual transmissions. All noises will vary between transmissions due to build variation, type of transmission (usually the more heavy duty, the more noise), type of flywheel and clutch, level of insulation, etc.

Basic Information

Many transmission noises are created by the firing pulses of the engine. Each firing pulse creates a sudden change in angular acceleration at the crankshaft.

These changes in speed can be reduced with clutch damper springs and dual mass flywheels. However, some speed variation will make it through to the transmission. This can create noise as the various gears will accel and decel against each other because of required clearances.

Gear Rattle

Rattling or grinding (not to be confused with a missed shift type of grinding, also described as a combustion knock type of noise) type noises usually occur while operating the engine at low RPMs (lugging the engine). This can occur while accelerating from a stop (for example, a Corvette) or while operating at low RPMs while under a load (for example, Kodiak in a lower gear and at low engine speed). Vehicles equipped with a dual-mass flywheel (for example, a 3500 HD Sierra with the 6-speed manual and Duramax(R)) will have reduced noise levels as compared to vehicles without (for example, a 4500 Kodiak with the 6-speed manual and Duramax(R)). However, dual-mass flywheels do not eliminate all noise.

Neutral Rattle

There are often concerns of rattle while idling in neutral with the clutch engaged. This is related to the changes in angular acceleration described earlier. This is a light rattle, and once again, vehicles with dual mass flywheels will have reduced noise. If the engine is shut off while idling in neutral with the clutch engaged, the sudden stop of the engine will create a rapid change in angular acceleration that even dual mass flywheels can not compensate. Because of the mass of all the components, this will create a noise. This type of noise should not be heard if the clutch is released (pedal pushed to the floor).

Backlash

Backlash noise is created when changing engine or driveline loading. This can occur when accelerating from a stop, coming to a stop, or applying and releasing the throttle (loading and unloading the driveline). This will vary based on vehicle type, build variations, driver input, vehicle loading, etc. and is created from the necessary clearance between all of the mating gears in the transmission, axle(s) and transfer case (if equipped).

Shift Effort

Shift effort will vary among different style transmissions and synchronizer designs. Usually the more heavy duty the transmission, the higher the shift effort because of the increased mass of the components. Shift effort can also be higher in cold weather because the fluid will be thicker. Medium duty transmissions will not shift as quickly as a Corvette transmission. To reduce shift effort, do not attempt to rush the shift - allow the synchronizers to work as designed. Shifting harder will only increase the chance of rushing past the synchronizer leading to grinding while shifting.

Non-Synchronized Gears

Some light duty truck transmissions in 1st gear (creeper-gear) and reverse gears in various transmissions, along with all gears in some medium duty transmissions, may be non-synchronized. This means there is not a mechanism to match input and output shaft speeds to allow for a smooth shift. This function is left up to the driver. This can be noticed if a shift into 1st or reverse is attempted while the vehicle is rolling or before the input shaft stops rotating leading to a gear grind. The grinding can be reduced by coming to a complete stop and pausing for a moment before shifting into the 1st or reverse gear. Some slight grinding can be expected. In medium duty non-synchronized transmissions, the driver must match input shaft (engine) speed to output shaft (driveshaft) speed with every shift. This can be accomplished by double clutching, or by using other methods. If the driver is not able to perform this function properly, there will be gear grinding with each improperly completed shift. Driver training may be required to correct this condition. Clutch brakes are used in medium duty non-synchronized transmissions to allow a shift into gear at a stop. The clutch brake is used to stop the input shaft from spinning, allowing a shift into gear at a stop without grinding. The clutch brake is activated by pressing the clutch pedal all the way to the floor. When the clutch brake is used, it is possible to have a blocked shift with the vehicle stationary. If this occurs, engage the clutch slightly to rotate the input gear to allow the shift. The clutch brake is intended to only be used while at a stop. Care must be taken to not activate the clutch brake while shifting between gears. This could lead to excessive grinding or a blocked or missed shift.

Skip Shift

Currently, the Cadillac CTS-V, GTO, and Corvette (other models may follow) equipped with the 6-speed manual transmission have a feature referred to as a skip-shift. This feature only allows a shift from 1st to 4th gear when the indicator lamp is illuminated on the dash. Dealers cannot disable this feature as it was established to help meet fuel economy standards. The conditions for this feature are: engine coolant at normal operating temperature, vehicle speed of 24-31 km/h (15-19 mph), 21% or less throttle being used (refer to Service Information or the Owner Manual for more details.)

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Disclaimer Technical Service Bulletin # 07-08-44-016A

Date: 070828

Entertainment System - DVD Monitor Display Inoperative

Bulletin No.: 07-08-44-016A

Date: August 28, 2007

TECHNICAL

Subject:

GM Accessories Headrest DVD System Display Monitor Inoperative (Install Cable Connector Clamps)

2004–2007 Buick Rainier
 2008 Buick Enclave
 2003–2008 Cadillac Escalade Models
 2005–2008 Cadillac CTS, SRX, STS
 2006–2008 Cadillac DTS
 2003–2008 Chevrolet Avalanche, Silverado, Suburban, Tahoe, TrailBlazer Models
 2006–2008 Chevrolet Colorado
 2007–2008 Chevrolet Equinox, HHR
 2003–2008 GMC Envoy Models, Sierra, Yukon Models
 2006–2008 GMC Canyon
 2007–2008 GMC Acadia
 2007–2008 Pontiac Torrent
 2005–2008 HUMMER H2
 2006–2008 HUMMER H3
 2007–2008 Saturn OUTLOOK
 2005–2008 Saab 9-7X

Models

Supercede:

This bulletin is being revised to update the models affected list. Please discard Corporate Bulletin Number 07-08-44-016 (Section 08 - Body & Accessories).

Condition

Some customers may comment on an inoperative display monitor or monitors in the GM Accessories Headrest DVD System.

Cause

This condition may be caused by a loose connection at the display monitor cable connectors. These connectors are located at the lower rear part of both front seats. Two cables are routed to the display monitor in each seat.

Correction

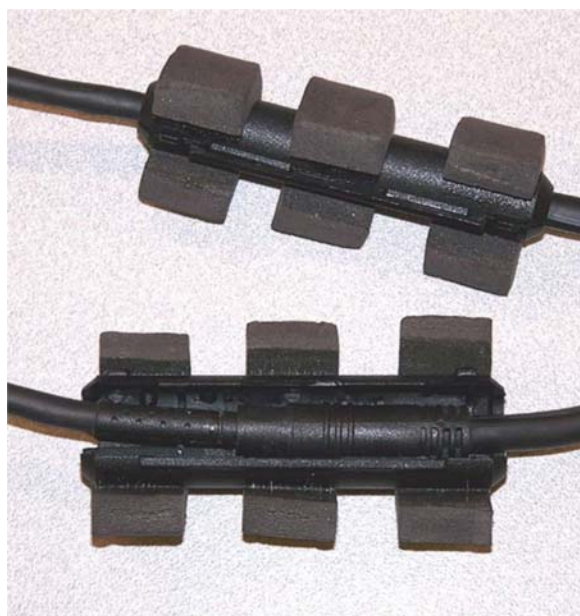
Do This	Don't Do This
Install display monitor cable connector clamps.	Do Not replace the DVD system display monitor.

A number of headrest monitors have been replaced under warranty and in many cases, no trouble was found by the supplier when these units were analyzed. Therefore, technicians should be checking for loose connections and installing cable connector clamps to ensure a positive and robust connection.

Technicians are to install a video cable connector clamp on each cable connector located under each front seat. A total of four cable connector clamps, P/N 19159659, are required for each vehicle.



The illustration above shows a pair of display monitor cable connectors without the cable clamps installed.



The illustration above shows the display monitor cable connectors with the cable connector clamps. The lower cable connector clamp is installed but not locked together. The upper cable connector clamp is closed and locked.

The cable connector clamps have now been added as a permanent component to all GM Accessories Headrest DVD Systems installation kits.

A total of four clamps are required for each vehicle.

Part Number	Description	Qty
19159659	Clamp, DVD Cable Connector	4

Parts Information

Warranty Information (excluding Saab U.S. Models)

Labor Operation	Description	Labor Time
R9392	Video/Infotainment/DVD Systems	0.2 hr


For vehicles repaired under warranty, use the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason Code	Location Code	Warranty Type	Repair/Action Code	Labor Time
3826903	Video/Infotainment/DVD Systems	36982	62	0	01	05	0.2 hr

For vehicles repaired under warranty, use the table.

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Disclaimer

Technical Service Bulletin # 07-08-45-002

Date: 070905

Electrical - Aftermarket Fuse Warning

Bulletin No.: 07-08-45-002

Date: September 05, 2007

ADVANCED SERVICE INFORMATION

Subject:

Service Alert: Concerns With Aftermarket Fuses in GM Vehicles

Models:
2008 and Prior GM Passenger Cars and Light Duty Trucks (including Saturn)
2008 and Prior HUMMER H2, H3
2008 and Prior Saab 9-7X

Concerns with Harbor Freight Tools "Storehouse" Branded Blade Type Fuses

General Motors has become aware of a fuse recall by Harbor Freight Tools/Storehouse for a variety of aftermarket fuses. In two cases, these fuses have not provided protection for the wiring system of the vehicles they were customer installed in.

Upon testing the 15 amp version, it was found that the fuse still would not "open" when shorted directly across the battery terminals.


How to Identify These Fuses



Packed in a 120 piece set, the fuse has a translucent, hard plastic, blue body with the amperage stamped into the top. There are no white painted numbers on the fuse to indicate amperage. There are no identifying marks on the fuse to tell who is making it. The fuses are known to be distributed by Harbor Freight Tools but there may be other marketers, and packaging of this style of fuse. It would be prudent to replace these fuses if found in a customers vehicle. Likewise, if wiring overheating is found you should check the fuse panel for the presence of this style of fuse.

All GM dealers should use genuine GM fuses on the vehicles they service. You should also encourage the use of GM fuses to your customers to assure they are getting the required electrical system protection. GM has no knowledge of any concerns with other aftermarket fuses. If additional information becomes available, this bulletin will be updated.

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WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Disclaimer
Technical Service Bulletin # 05-00-89-072A

Date: 071016

Engine/Fuel - Additive Information

Bulletin No.: 05-00-89-072A

Date: October 16, 2007

INFORMATION

Subject:
Fuel and Oil Additives - Facts and Myths/Maximizing Fuel Economy

Models:
2008 and Prior GM Passenger Cars and Trucks (including Saturn)
2008 and Prior HUMMER H2, H3
2005-2008 Saab 9-7X

Attention:

Please direct this bulletin to the Service Manager, the Service Consultants and the Sales Staff. A copy of this bulletin is encouraged to be given to your customer as it is written with the consumer in mind. You may also post this bulletin in your customer lounge or waiting area.

Supercede:

This bulletin is being revised to update model years, Top Tier fuel providers and revise the Federal Trade Commission website address. Please discard Corporate Bulletin Number 05-00-89-072 (Section 00 - General information).

A Statement About Fuel Economy

As gasoline prices have increased, the consumer has shifted priorities to become increasingly concerned with fuel consumption. GM is presently proud to offer over 30 cars in the U.S. with EPA highway estimates of at least 30 mpg. In Canada, vehicles are rated for fuel consumption in liters per 100 kilometers. GM offers over 20 vehicles in Canada that consume less than 7.0L/100 km on the highway. The information below contains reasonable and prudent advice for your dealership and the consumer to get the most from every gallon or litre of gas.

The information below is presented in two easy to understand sections:

What Not To Do: Engine and Fuel Additives, Alternate Fuels, and "Miracle" Products

What to Do: Maximizing Fuel Economy/Minimizing Costs

WHAT NOT TO DO: Engine and Fuel Additives, Alternate Fuels, and "Miracle" Products

Various unproven products to improve vehicle fuel economy have been reported ranging from magnets that align molecules to chemical combustion improvers.

Most products claiming to provide benefits are based on unsubstantiated claims. Those that do present "scientific" results generally either have too little supporting data to be conclusive, have not conducted experiments in a controlled fashion, or cannot be substantiated by anyone else but the products manufacturer.

The U.S. Federal Trade Commission summarizes results for products tested by the federal government at:

www.ftc.gov/bcp/edu/pubs/consumer/autos/aut10.shtm. A review of the list shows that the majority did not work, and for those that showed some effect, the benefit was too small to be cost effective.

Harmful Ideas That May Damage Your Vehicle and Increase Emissions

One more recent poor idea to improve fuel economy that should not be attempted is to blend either kerosene or diesel fuel into gasoline. Why? Both kerosene and diesel fuel are distillate fuels meant for use in compression ignition engines, not spark ignition engines. They have very low octane and since they are heavier (higher density) than gasoline, they will cause heavy engine deposits and degradation of engine oil.

Never put Kerosene or Diesel Fuel in your Gasoline Engine vehicle. This may result in inconsistent performance and permanent damage to your vehicle that is not covered by your New Vehicle Warranty.

Chemicals that are normally used as solvents also should not be used. These include acetone, ketones, and methanol. These solvents can be incompatible with your vehicles rubber or sealing components, and may dissolve the vehicle's paint finish. In the case of methanol, corrosion of metal parts in the fuel system also may occur.

Never use acetone, ketones, or methanol additives in your vehicle. Some of these solvents may damage or corrode your fuel system. They are also very damaging to the painted surfaces of the vehicle if spilled.

Damage to vehicle components that result from non-approved or aftermarket additives and devices are not covered under the terms of the New Vehicle Warranty. The only fuel additive currently approved by GM is GM Fuel System Treatment Plus, P/N 88861011 (in Canada, # 88861012).

WHAT TO DO: Maximizing Fuel Economy/Minimizing Costs

The best fuel economy possible is the direct result of proper maintenance and good driving habits. Listed below are GM's recommendations to achieve the best mileage possible. The first group are things to consider for your vehicle, while the second are tips relating to your driving habits.

Vehicle Considerations:

Tire Pressure

- One of the major contributors to poor fuel economy are under inflated tires. Tires low on pressure create drag that the vehicle's powertrain must overcome, wasting dollars in fuel. Always keep your tires inflated to the proper pressure as shown on the vehicle placard. This not only serves to increase gas mileage but cuts down on tire wear, further decreasing your costs per mile.

Air Filter

- A vehicle that has a dirty air filter can't efficiently draw air into the engine. This restriction forces the engine to expend energy to "breathe" wasting fuel in the process. Change recommendations are found in your vehicle Owner's Manual.

Proper Viscosity "Starburst" Rated Oil

- Always use the proper viscosity oil in your engine. Oil that has a higher than required viscosity will create more drag on the internal components of the engine, causing more work for it, especially when cold. Each Owner's Manual contains information on the proper type of oil for your vehicle. Look for the "starburst" symbol on the front of the bottle, and the SM rating on the API circle on the back label. If you are in doubt, stop by your dealer for an oil change, and any other services required. Most current GM vehicles are equipped with oil life monitors to further assist on the "when" to change your oil. (Aveo/Wave/Optra/Epica currently do not have oil life monitors).

GM Vehicles DO NOT require additional engine oil additives. Some additives may cause harmful effects to the internal seals and additionally void the terms of your vehicles New Car Warranty.

Top Tier Fuels

- Some fuel manufacturers provide gasoline advertised as TOP TIER DETERGENT GASOLINE (Chevron, Conoco, Phillips 66, Shell, Texaco, Entec Stations, MFA Oil Company, 76, Somerset Oil, Aloha Petroleum, Tri-Par Oil Company, QuikTrip, and Kwik Trip) in the U.S. and (Petro-Canada, Chevron, Shell, and Sunoco) in Canada. These fuels are preferable when and where available. They help to keep your fuel injectors and intake valves free of deposits. Clean engines provide optimal fuel economy, performance and reduced emissions. When Top Tier fuels are not available, consider a bottle of GM Fuel System treatment PLUS, P/N # 88861011 (in Canada, # 88861012), at oil change time which will remove intake system and injector deposits. GM does not recommend any other fuel system cleaner.

DO NOT confuse Top Tier Fuels with Higher Octane (Plus/Premium Grade Fuel) commonly sold at most all gas stations. Plus and Premium fuels are required in some high performance GM vehicles. However, they do not necessarily represent higher detergency present in TOP TIER Detergent Gasoline.

For additional information regarding Top Tier fuels and availability, please refer to Corporate Bulletin Number 04-06-04-047G for U.S. or 05-06-04-022D for Canada.

E85 FUELS:

- Only vehicles designated for use with E85 should use E85 blended fuel. E85 compatibility is designated for vehicles that are certified to run on up to 85% ethanol and 15% gasoline. All other gasoline engines are designed to run on fuel that contains no more than 10% ethanol. Use of fuel containing greater than 10% ethanol in non-E85 designated vehicles can cause driveability issues, service engine soon indicators as well as increased fuel system corrosion. See Corporate Bulletin Number 05-06-04-035C for additional information. Use the Recommended Grade (Octane) Fuel

Purchasing higher than required octane fuel is a waste of money. Using higher octane fuels in a vehicle that only required regular unleaded fuel will neither increase performance nor improve gas mileage. In all cases refer to your owners manual and ONLY use the octane rated fuel recommended for your vehicle.

In high performance GM vehicles that DO require Premium (91 octane or higher) fuel, you MUST use fuels of at least this octane. Use of lower octane fuel may result in reduced performance, knocking, and/or permanent engine damage not covered under the terms of the New Vehicle Warranty.

Check Engine/Service Engine Soon Light

- Is the Check Engine/SES light on? When this light is on, the vehicles On-Board diagnostics computer has noticed that something is wrong. GM vehicles have many sensors that the computer uses to both control and sense actual fuel usage. When the computer lights the Check Engine/SES light it has lost some ability to run efficiently. This may result in increased fuel consumption, increased emissions, and/or driveability concerns.

Spark Plugs

- Even though most current GM vehicles have 160,000 km (100,000 mi) service intervals for spark plugs, if your vehicle is at that point in it's life, have the spark plugs changed to assure proper running and continued efficient, trouble free operation. Refer to the applicable Maintenance Schedule for spark plugs service intervals on Chevrolet Aveo, Optra, Epica, Pontiac Vibe, Wave and Saturn Astra.

Slow Down, Drive Smoothly

- Avoid quick/full throttle acceleration from a standstill in town and high cruising speeds on the interstates. While the optimum MPG for highway cruising speed varies from vehicle to vehicle, faster is almost always worse. If your vehicle is equipped with a Driver Information Center that displays Instant Fuel Economy, select that read out and vary your cruising speed while on the highway. The display will change continuously with

uphill and downhill sections but you should quickly be able to identify on level ground the speed range that your vehicle does the best in.

Empty Your Trunk

- Avoid leaving unnecessary items in your trunk. It takes power to move increased weight and that means more gasoline consumption and reduced performance. While the change may be slight, multiplied by thousands of miles, it all adds up.

Avoid Extended Idling

- There is no need to idle your engine till it reaches operating temperature. Idling wastes fuel.

Combine Trips

- Your vehicle uses much more fuel when the engine is cold. This is especially true in the winter months when the engine will take the longest to warm up. Combine errands or trips so that the vehicle only needs to warm up once to encompass many different stops.

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Technical Service Bulletin # **03-06-03-001D**

Date: **070802**

Starting System - Starter Cranks After Key Released

Bulletin No.: 03-06-03-001D

Date: August 02, 2007

INFORMATION

Subject:

Starter Cranks After Key Is Released (Normal Condition)

Models:

2003-2008 Passenger Cars and Trucks (Including Saturn)

2003-2008 HUMMER H2, H3

2005-2008 Saab 9-7X

Attention:

This bulletin ONLY applies to vehicles with PCM/ECM controlled starters.

Supercede:

This bulletin is being revised to update the models and model years. Please discard Corporate Bulletin Number 03-06-03-001C (Section 06 - Engine/Propulsion System).

Some customers may comment that the engine starter will continue to run after the key is released.

For the 2003 through 2008 model years, the Powertrain Control Module (PCM) or Engine Control Module (ECM) controls the starter relay based on input from the key switch. When the ignition switch is held in the start position for 0.4 seconds, the PCM/ECM start timer is activated. Once the start timer is activated, the PCM/ECM will continue to crank the starter until either the engine starts or a no start time limit is reached.

Occasionally, the fuel pump module will take one or two seconds to build fuel pressure. Often this will occur after the vehicle sits overnight. During some vehicle starts, the customer may release the ignition switch key before the engine actually starts. When this occurs, the engine will then continue to crank until the engine starts or the no start time limit is reached.

This is a normal condition and no repairs should be attempted for this condition.

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Technical Service Bulletin # **05-03-10-005C**

Date: **070821**

Wheel/Tire - Upsized Wheel/Tire Performance Info.

Bulletin No.: 05-03-10-005C

Date: August 21, 2007

INFORMATION

Subject:

Performance Characteristics of Vehicles with Accessory Wheel/Tire Assemblies Installed as "Upsized" to Original Equipment

Models:

2008 and Prior GM Passenger Cars and Light Duty Trucks (including Saturn)

2006-2008 HUMMER H3

Supercede:

This bulletin is being revised to add the 2008 model year and include Turning Information for Classic Fullsize Truck and Utility vehicles only. Please discard Corporate Bulletin Number 05-03-10-005B (Section 03 - Suspension).

When GM Accessories wheel/tire assemblies are installed on a vehicle, customers may notice a change in the driving characteristics of the vehicle. The purpose of this document is to review the different performance characteristics of a vehicle with accessory wheel/tire assemblies installed.

Vehicle Performance:

Use of larger "upsized" tire/wheel assemblies, in lieu of the standard factory installed tire/wheel assemblies, can change the vehicle's overall performance characteristics. Depending on road surface and driving conditions, the driver may note changes or differences in the following:

Tire/road noise

Ride stiffness

Tire tread wear rate

Steering effort

Fuel economy

Braking performance

Tire traction (wet/dry/snow/ice)

Also, generally, tire chains cannot be used due to lack of clearance to the wheelhouse. Trucks equipped with accessory wheel/tire assemblies will not be compatible for use with snowplow equipment.

Turning Information:

This section ONLY applies to the following vehicles:

1999-2007 Silverado and Sierra (Classic)

2000-2006 Fullsize Utilities

In a reverse turn, the tire may contact the plastic inner liner toward the rear and may also contact the sway bar. In a bounce/jounce condition, the tire may contact the top of the wheel house (the metal part inside the fender lip). These are all considered friendly surface contacts, meaning they will not damage the tire/wheel and are a characteristic of the upgrade.

Warranty Information

All GM accessories sold and permanently installed on a GM vehicle prior to delivery will be covered under the provisions of the New Vehicle Limited Warranty.

The changes in ride handling listed above are considered normal conditions when upgrading to larger wheels/tires and are not covered by the New Vehicle Limited Warranty.

Wheels:

For the U.S., in the event GM Accessories are installed AFTER new vehicle delivery, or are replaced under the new vehicle warranty, they will be covered (parts and labor) for the balance of the vehicle warranty, but in no event less than 12 months/12,000 miles. This coverage is only effective for GM Accessories permanently installed by a GM dealer or a GM approved ADI (Accessory Distributor / Installer).

For Canada, in the event GM Accessories are installed AFTER new vehicle delivery, they will be covered (parts and labor) for the balance of the vehicle warranty, or up to 12 months/unlimited kilometers depending on month installed. For replacement after the new vehicle warranty expires, but within the 12 months/unlimited kilometers coverage, refer to claim type "B" guidelines.

GM Accessories sold over-the-counter, or those not requiring installation, will continue to receive the standard GM Dealer Parts Warranty of 12 months from the date of purchase (parts only).

Tires:

Any approved tire installed on a GM Vehicle PRIOR to delivery will be covered under the provisions of the New Vehicle Limited Warranty. Tires are covered against defects in material and workmanship. Tires are warranted for defects "without" prorated charge for tread mileage. Subsequent replacements under this warranty will continue to be covered for the remainder of the New Vehicle Limited Warranty.

Any approved tire installed on a GM Vehicle PRIOR to delivery, may continue to be warranted on a prorated basis by the tire manufacturer once the New Vehicle Limited Warranty expires.

Any approved tire installed AFTER delivery will be covered under the provisions of the tire manufacturer warranty. U.S. dealers should refer to GM Warranty Administration Bulletin 00-03-10-003K and GM Parts Process/Policy Bulletin IB03-001 for more information.

Canadian dealers should refer to GM Warranty Administration Bulletin 01-03-10-003D.

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Disclaimer Technical Service Bulletin # **03-03-10-007C**

Date: **070921**

Tires/Wheels - Vibration/Balance/Shake/Flat Spotting

Bulletin No.: 03-03-10-007C

Date: September 21, 2007

INFORMATION

Subject:

Info - Tire/Wheel Characteristics (Vibration, Balance, Shake, Flat Spotting) of GM Original Equipment Tires

Models:

2008 and Prior Cars and Light Duty Trucks (Including Saturn)

2008 and Prior HUMMER H2, H3

2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to include additional information and model years. Please discard Corporate Bulletin Number 03-03-10-007B (Section 03 - Suspension).

The purpose of this bulletin is to help explain that, under certain circumstances, a customer may notice a slight tire shake within the first few miles/kilometers of vehicle operation.

Tires may be designed with a nylon overlay configuration engineered to enhance the tire's integrity at high speeds. This allows the tires to be driven at higher speeds without excessive heat buildup.

Before measuring tires on equipment such as the Hunter GSP 9700, the vehicle MUST be driven a minimum of 16 km (10 mi) to ensure removal of any flat spotting. (The tendency to "flat spot" is less likely as the tire accumulates mileage.)

When parked overnight, or for a period of time, the tires may set (flat spot) and require a few miles/kilometers before heating up to their normal operating temperature. Until the tires warm up, a slight tire shake may be felt but should subside quickly.

DEALERS SHOULD REFRAIN FROM ATTEMPTING REPAIRS OR REPLACING COMPONENTS.

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Technical Service Bulletin # **07-07-30-024**

Date: **070927**

A/T - Valve Body Reconditioning

Bulletin No.: 07-07-30-024

Date: September 27, 2007

INFORMATION

Subject:

Information on 4L60-E M30 Rear Wheel Drive Automatic Transmission Valve Body Reconditioning, DTC P0741, P0756, P0894, Harsh 1-2 Shift

2004–2007 Buick Rainier
2002–2005 Cadillac Escalade
1997–2002 Chevrolet Camaro
1997–2003 Chevrolet Corvette, S-10
1997–2005 Chevrolet Astro
1997–2005 Chevrolet Blazer
1997–2007 Chevrolet Express, Silverado Classic, Silverado, Suburban, Tahoe
2002–2007 Chevrolet Avalanche, TrailBlazer, TrailBlazer EXT
2004–2007 Chevrolet Colorado
2004 Chevrolet SSR
1997–2003 GMC Jimmy, Sonoma
1997–2005 GMC Safari
1997–2007 GMC Savana, Sierra Classic, Sierra, Yukon
2001–2007 GMC Envoy, Envoy XL, Envoy XUV, Envoy Denali, Envoy XL Denali, Yukon XL, Yukon Denali, Yukon XL Denali
2004–2007 GMC Canyon
1997–2004 Oldsmobile Bravada
1997–2002 Pontiac Firebird
2004 Pontiac GTO
2006–2007 HUMMER H3
2005–2007 Saab 9–7X
with Hydra-Matic® 4L60-E Automatic Transmission (RPO M30)

Models

The following new service information outlined in this bulletin will aid technicians in providing easy to follow valve body reconditioning instructions and new illustrations to simplify reassembly of the valve body. This service bulletin will also provide additional service information documents that are related to the 4L60-E transmission.

Related Service Documents

DTC P0741 - Torque Converter Clutch (TCC) System - Stuck Off. Refer to Service Bulletin 04-07-30-041.

DTC P0756 - 2-3 Shift Solenoid Valve Performance - No First or Second Gear. Refer to Service Bulletin 01-07-30-036F.

DTC P0894 - Transmission Component Slipping. Refer to Service Bulletin 06-07-30-007.

Harsh 1-2 Shift. Refer to Bulletin PIP3170E.

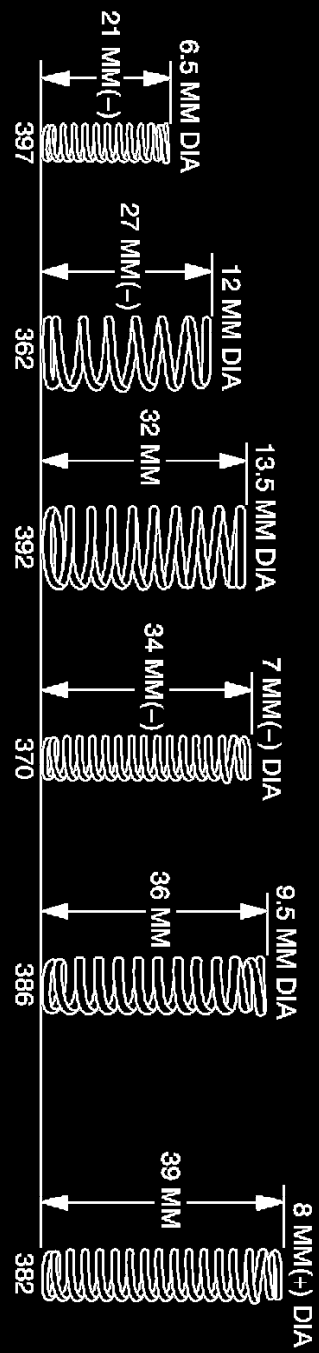
If valve body cleaning is not required, Do Not disassemble the bores unless it is necessary to verify movement of valves.

Inspection Procedure

Using the exploded views in this bulletin, inspect each bore for freedom of valve(s) movement and evidence of debris. Pay particular attention to those valves related to the customer's concern.

Verify movement of the valves in their normal installed position. Valves may become restricted during removal or installation. This is normal due to small tolerances between the valves and bores.

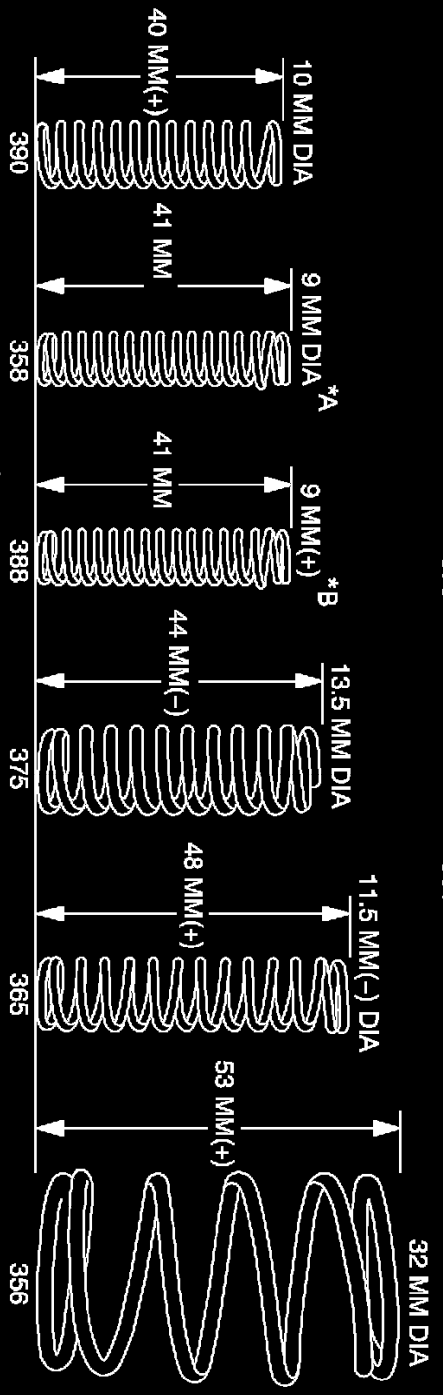
If a valve is restricted and cannot be corrected by cleaning the valve and bore, then replace the valve body. Describe the restricted valve on the repair order.



(+) = LESS THAN 1 MM LARGER

(-) = LESS THAN 1 MM SMALLER

BORE PLUGS:

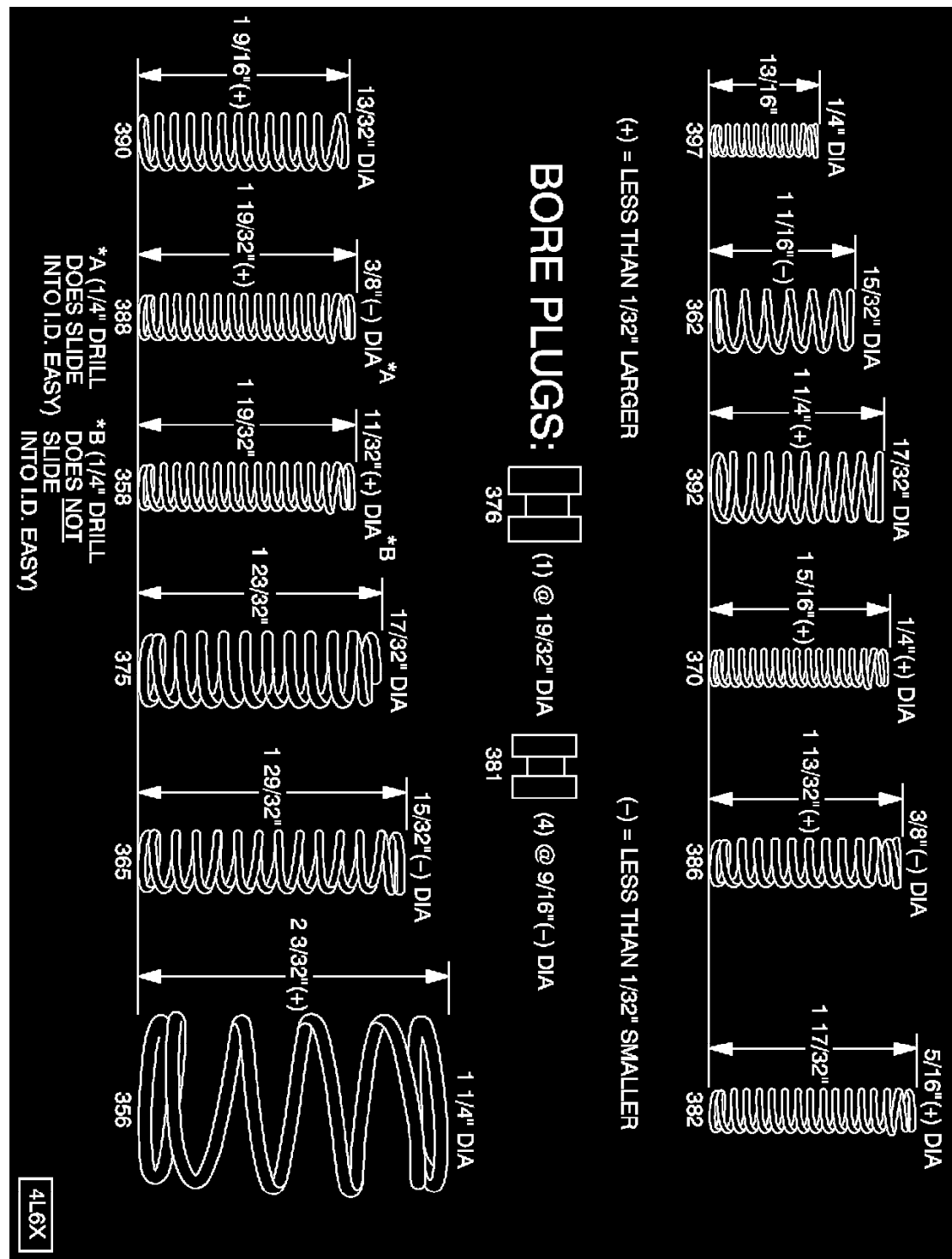


*A (6.5 MM DRILL DOES NOT SLIDE INTO I.D.)

*B (6.5 MM DRILL DOES SLIDE INTO I.D.)

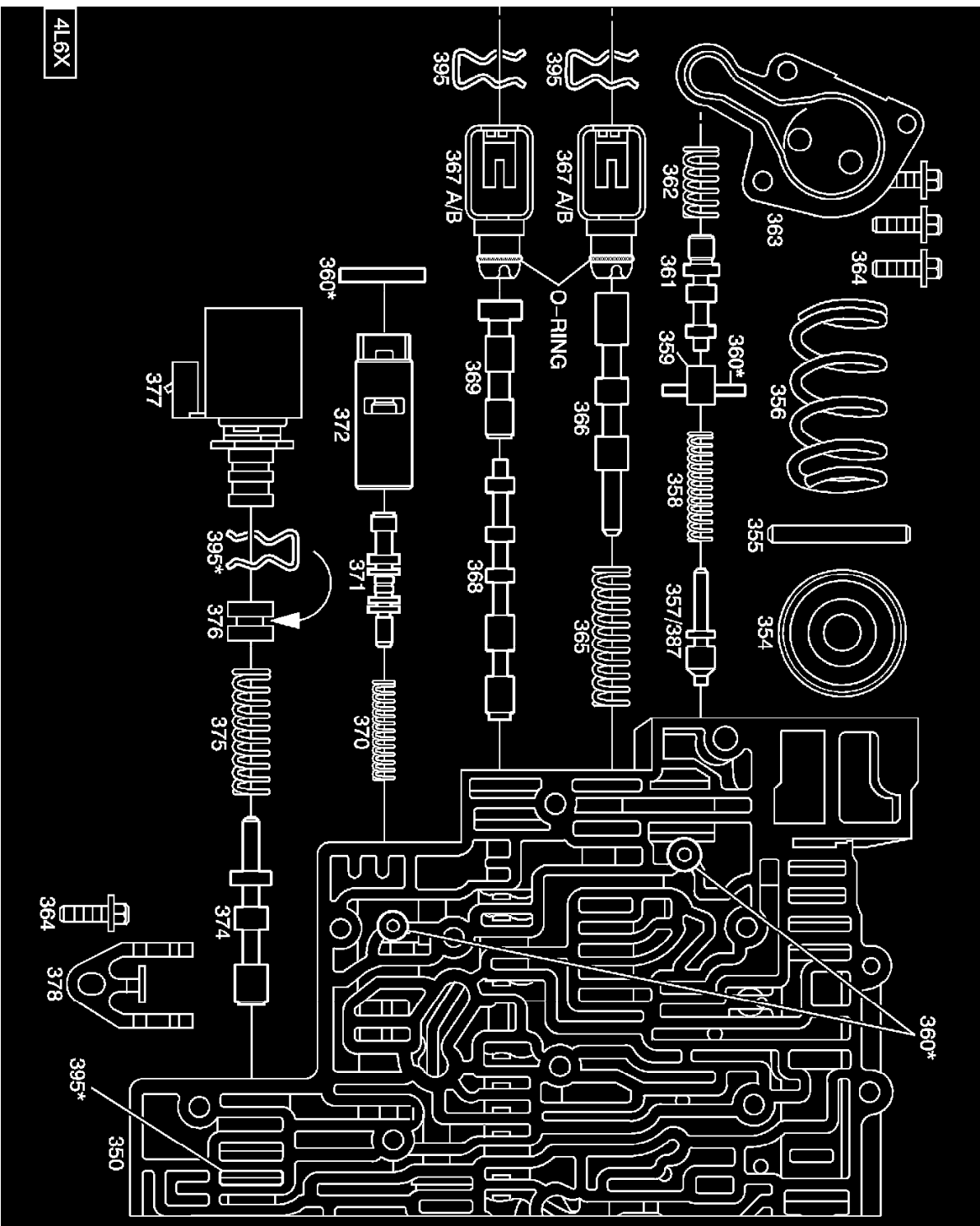
4L6X

Valve Body Spring and Bore Plug Chart (Inch)



Valve Body Spring and Bore Plug Chart (inch)

4L6X



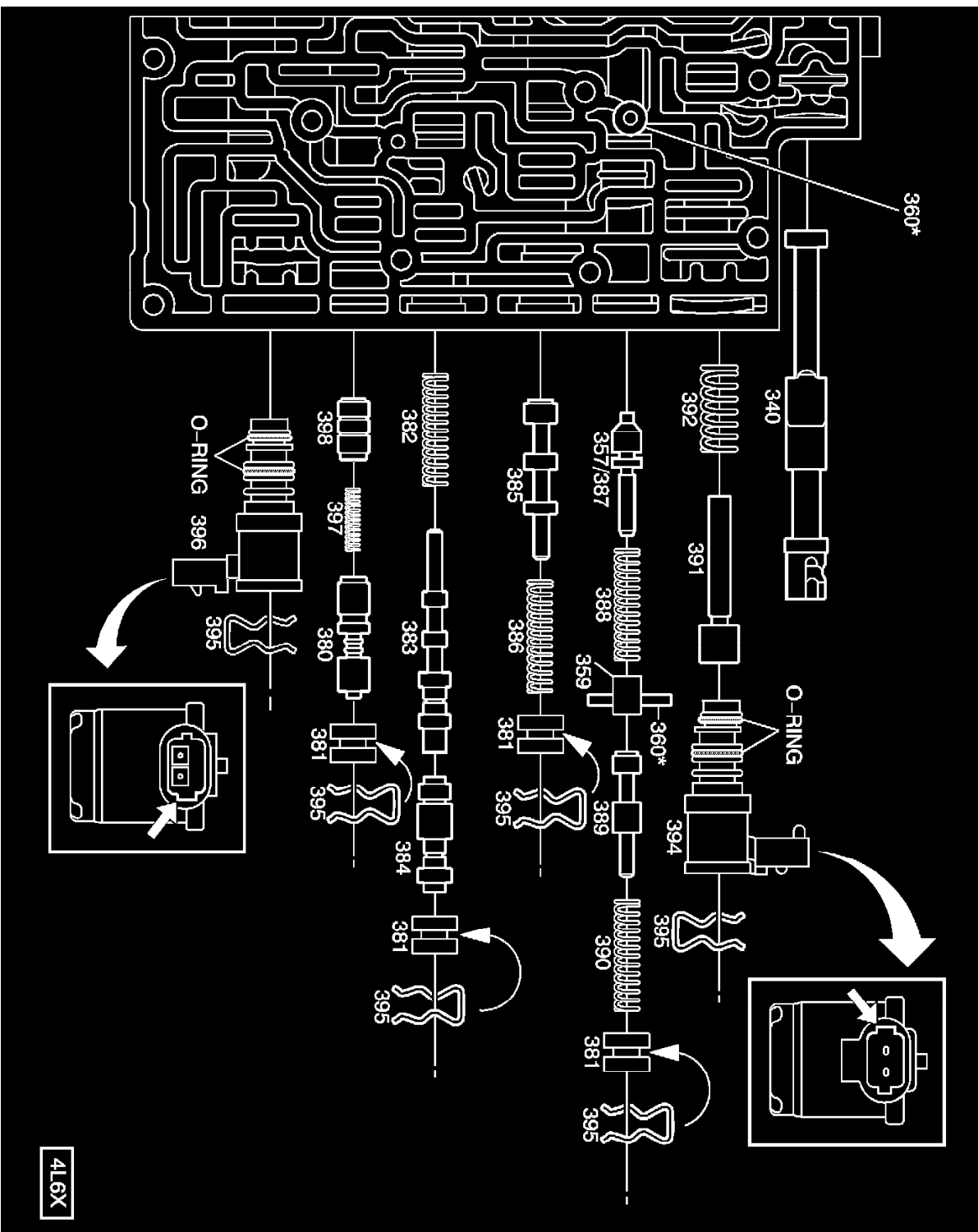
Left Side Control Valve Body Assembly

Call Out Number	Description
350	Valve Assembly, Control Body

354	Piston, Forward Accumulator
355	Pin, Forward Accumulator
356	Spring, Forward Accumulator
357	Valve, Forward Abuse
358	Spring, Forward Abuse Valve
359	Plug, Bore
360	Pin, Coiled Spring
361	Valve, Low Over Run
362	Spring, Low Over Run Valve
363	Cover, Forward Accumulator
364	Bolt, Forward Accumulator Cover
365	Spring, 1-2 Shift Valve
366	Valve, 1-2 Shift
367 A	Shift Solenoid A (1-2 / 3-4)
367 B	Shift Solenoid B (2-3)
368	Valve, 2-3 Shift
369	Valve, 2-3 Shuttle
370	Spring, Accumulator Valve
371	Valve, Accumulator
372	Sleeve, Accumulator Valve
373	Valve, Accumulator
374	Feed Limit

375	Spring, Accumulator Feed Limit Valve
376	Plug, Bore
377	Pressure Control Solenoid
378	Retainer, Pressure Control Solenoid
387	Valve, Reverse Abuse
395	Retainer, Bore Plug

Left Side Control Valve Body Assembly



Right Side Control Valve Body Assembly

Call Out Number	Description
340	Valve, Manual
357	Valve, Forward Abuse

359	Plug, Bore
360	Pin, Coiled Spring
380	Valve, Regulator Apply (Model Dependent)
381	Plug, Bore
382	Spring, 4-3 Sequence Valve
383	Valve, 4-3 Sequence
384	Valve, 3-4 Relay
385	Valve, 3-4 Shift
386	Spring, 3-4 Shift Valve
387	Valve, Reverse Abuse
388	Spring, Reverse Abuse Valve
389	Valve, 3-2 Downshift
390	Spring, 3-2 Downshift Valve
391	Valve, 3-2 Control
392	Spring, 3-2 Control Valve
394	3-2 Control Solenoid
395	Retainer, Bore Plug
396	TCC PWM Solenoid
397	Spring, Regulator Apply (Model Dependent)
398	Valve, Isolator (Model Dependent)

Right Side Control Valve Body Assembly

Be sure all solenoids are installed with the electrical connectors facing the non-machined (cast) side of the valve body; otherwise the solenoids will bind against the transmission case as the valve body bolts are tightened and damage may occur.

Disassembly/Reassembly

If a valve is restricted by a metal burr from machining that bore, remove the valve and burr, then inspect movement in the valve's normal position. If no

other debris or restrictions are found, then reassemble the valve body and install in the transmission.

If the valve body has been contaminated with debris from another transmission component failure, then disassemble all bores for complete cleaning of all valve body components. If possible, keep individual bore parts separated for ease of reassembly. Use the illustrations in this bulletin for a positive identification and location of individual parts:

Using GM Brake Clean, or equivalent, in a safe and clean environment (clean aluminum pan), clean the valve body and dry it with compressed air. Use appropriate eye protection.

Clean individual valve body components with GM Brake Clean, or equivalent. Coat each valve with clean ATF and reassemble in each bore. Check each valve for free movement during assembly of each bore.

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Technical Service Bulletin # 05-06-04-035C

Date: 070730

Fuel System - E85 Fuel Usage Precautions

Bulletin No.: 05-06-04-035C

Date: July 30, 2007

INFORMATION

Subject:

Usage of E85 Fuels in GM Vehicles

Models:

1997-2008 GM Passenger Cars and Trucks (including Saturn)

2003-2008 HUMMER H2

2006-2008 HUMMER H3

1997-2008 Isuzu NPR Commercial Medium Duty Trucks

2005-2008 Saab 9-7X

Supersedes:

This bulletin is being revised to add the 2008 model year and additional engines with E85 capability. Please discard Corporate Bulletin Number 05-06-04-035B (Section 06 - Engine/Propulsion System).

Customer Interest in E85 Fuel

As the retail price of gasoline increases, some locations in the country are seeing price differentials between regular gasoline and E85 where E85 is selling for substantially less than regular grade gasoline. One result of this is that some customers have inquired if they are able to use E85 fuel in non-E85 compatible vehicles.

Only vehicles designated for use with E85 should use E85 blended fuel.

E85 compatibility is designated for vehicles that are certified to run on up to 85% ethanol and 15% gasoline. All other gasoline engines are designed to run on fuel that contains no more than 10% ethanol.

Use of fuel containing greater than 10% ethanol in non-E85 designated vehicles can cause driveability issues, service engine soon indicators as well as increased fuel system corrosion.

Using E85 Fuels in Non-Compatible Vehicles

General Motors is aware of an increased number of cases where customers have fueled non-FlexFuel designated vehicles with E85. Fueling non-FlexFuel designated vehicles with E85, or with fuels where the concentration of ethanol exceeds the ASTM specification of 10%, will result in one or more of the following conditions:

Lean Driveability concerns such as hesitations, sags and/or possible stalling.

SES lights due to OBD codes.

Fuel Trim codes P0171 and/or P0174.

Misfire codes (P0300).

Various O2 sensor codes.

Disabled traction control or Stability System disabled messages.

Harsh/Firm transmission shifts.

Fuel system and/or engine mechanical component degradation.

Use of fuel containing greater than 10% ethanol in non-E85 designated vehicles can cause driveability issues, service engine soon indicators as well as increased fuel system corrosion.

If the dealer suspects that a non-FlexFuel designated vehicle brought in for service has been fueled with E85, the fuel in the vehicle's tank should be checked for alcohol content with tool J 44175. If the alcohol content exceeds 10% the fuel should be drained and the vehicle refilled with gasoline - preferably one of the Top Tier brands.

Repairs to non-FlexFuel vehicles that have been fueled with E85 are not covered under the terms of the New Vehicle Warranty.

A complete list of GM's FlexFuel vehicles can be found in this Service Bulletin, or at www.livegreengoyellow.com.

E85 Compatible Vehicles

2000–2002 S-Series pickups with 2.2L (VIN 5— RPO L43)

2002–2005 full-size pickups and utilities with 5.3L (VIN Z — L59)

2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe with 5.3L (VIN Z — RPO L59)

2006–2007 Chevrolet Impala, Monte Carlo with 3.5L (VIN K — RPO LZE)

2007 Chevrolet Avalanche, Suburban, Tahoe with 5.3L (VINs 0, 3 — RPOs LMG, LC9)

2007 Chevrolet Express, GMC Savana with 5.3L (VIN Z— RPO L59)

2008 Chevrolet Impala with 3.9L (VIN 3— RPO LZG)

2006 GMC Sierra, Yukon, Yukon XL with 5.3L (VIN Z — RPO L59)

2007 GMC Yukon, Yukon XL with 5.3L (VINs 0, 3 — RPOs LMG, LC9)

2007 Saturn Relay, Buick Terraza, Chevrolet Uplander, Pontiac Montana SV6 (Canada Only) with 3.9L (VIN W — RPO LGD)

The only E85 compatible vehicles produced by General Motors are shown.

Only vehicles that are listed in the E85 Compatible Vehicles section of this bulletin and/or www.livegreengoyellow.com are E85 compatible.

All other gasoline and diesel engines are NOT E85 compatible.

Use of fuel containing greater than 10% ethanol in non-E85 designated vehicles can cause driveability issues, service engine soon indicators as well as increased fuel system corrosion.

Repairs to non-FlexFuel vehicles that have been fueled with E85 are not covered under the terms of the New Vehicle Warranty.

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Body/Frame - Front End Snapping or Popping Noises

Bulletin No.: 03-08-61-002I

Date: August 27, 2007

TECHNICAL

Subject:

Snap/Popping Type Noise Coming from Front of Vehicle (Remove Bolt-In Front Crossmember and Add Washers)

Models:

2003-2006 Cadillac Escalade
 2003-2006 Chevrolet Avalanche, Suburban, Tahoe
 2004-2007 Chevrolet Silverado (Classic)
 2003-2006 GMC Yukon, Yukon XL
 2004-2007 GMC Sierra (Classic)
 2003-2008 HUMMER H2

1500 Series (1/2 Ton) and 2500 Series (3/4 Ton) with Two-Wheel Drive

Attention:

This bulletin only applies to 1500/2500 Series 2WD and HUMMER H2 vehicles with recirculating ball type steering.

Supercede:

This bulletin is being revised to update the parts information to include a new washer for HUMMER H2. Please discard Corporate Bulletin Number 03-08-61-002H (Section 08 - Body and Accessories).

Condition

Some customers may comment on a snap or popping-type noise coming from the front of the vehicle. This condition is most apparent during hard left or right turns at low speeds. Going over bumps while turning may also aid in producing this noise.

Correction

Remove the bolt-in front crossmember and add washers using the procedure listed below.

DO NOT slot the mounting holes on the crossmember as stated in previous bulletins. Slotting the holes has been found to be less effective and, in some cases, causes the noise condition to be more prevalent.

Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in SI.

Remove the mounting nuts, bolts and the front crossmember from the vehicle.

Clean all the undercoating off the crossmember in the area of the mounting holes.

C/K Models		
Inside Diameter	Outside Diameter	Thickness
14 mm (0.551 in)	35 mm (1.38 in)	3 mm (0.118 in)
H2		
Inside Diameter	Outside Diameter	Thickness
14 mm (0.551 in)	24 mm (0.945 in)	3 mm (0.118 in)

Reinstall the crossmember with the bolts and nuts. On the driver and passenger side, add washer P/N 11509592 (C/K models) or P/N 15567836 (H2), or equivalent hardened washer (see dimensions shown), at each bolt head and nut location.

Tighten

Tighten the bolts to 120 N.m (89 lb ft).

Apply an even coat of Anti-Corrosion Coating, P/N 12346501 (in Canada, 10952414), or equivalent, to the crossmember where removed. Overlap the original coating in order to provide an effective corrosion protection.

Part Number	Description	Qty
11509592 (C/K Models)	Washer	8
15567836 (H2)	Washer	8


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
E1730	Crossmember, Front Suspension – Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **02-01-39-007B**

Date: **071105**

A/C - Battery Draw Information

Bulletin No.: 02-01-39-007B

Date: November 05, 2007

INFORMATION

Subject:

Automatic Dual Zone HVAC Battery Draw

Models:

2004-2007 Buick Rainier

2003-2008 Cadillac Escalade Models

2002-2008 Chevrolet TrailBlazer

2003-2008 Chevrolet Avalanche, Silverado, Suburban, Tahoe

2002-2008 GMC Envoy Models
2003-2008 GMC Sierra, Yukon Models
2002-2004 Oldsmobile Bravada
2003-2008 HUMMER H2, H3
2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to add models and model years. Please discard Corporate Bulletin Number 02-01-39-007A (Section 01 - HVAC).

When diagnosing battery draws on trucks equipped with the automatic dual zone HVAC controls (RPO CJ2), technicians should keep in mind that the control head does not completely "go to sleep" until after 150-250 minutes, or up to 4-1/4 hours, from when the ignition key is turned OFF. This is a normal condition. In these cases, DO NOT replace the control head.

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Technical Service Bulletin # 06-01-39-002C

Date: 080118

A/C - Blower Motor Inoperative or Won't Shut OFF

Bulletin No.: 06-01-39-002C

Date: January 18, 2008

TECHNICAL

Subject:

Blower Motor Inoperative or May Not Shut Off in Extremely Low Ambient Temperature Conditions (Replace Blower Motor Control Module)

Models:

2004-2007 Buick Rainier
2003-2006 Cadillac Escalade Models
2003-2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe
2003-2007 Chevrolet TrailBlazer Models
2007 Chevrolet Silverado (Classic)
2003-2006 GMC Sierra Models Yukon Models
2003-2007 GMC Envoy Models
2007 GMC Sierra (Classic)
2003-2004 Oldsmobile Bravada
2003-2006 HUMMER H2 Models

with Automatic Temperature Control HVAC System (RPO CJ2)

Supercede:

This bulletin is being revised to update the model years that are affected and add the Oldsmobile Bravada. Please discard Corporate Bulletin Number 06-01-39-002B (Section 01 - HVAC).

Condition

Some customers may comment that the blower motor is inoperative or continues to run after the vehicle has been shut off.

Cause

These conditions may be caused by a blower motor control module failure. This failure may occur when the vehicle is operated in ambient temperature conditions of -23°C (-10°F) or below.

Correction

Replace the blower motor control module if the vehicle experienced a blower motor control module failure in extremely cold ambient temperature

conditions.

Technicians are to replace the blower motor control module also called the Linear Power Module (LPM) with the P/N listed below. Refer to either the Blower Motor Control Processor Replacement or Blower Motor Processor Replacement-Auxiliary procedures in SI. After replacement of the blower motor control module the customer may notice a slightly higher than expected blower motor speed at any of the blower speed settings.

Part Number	Description	Qty
89018849	Module Assembly, Auxillary Blower Motor Control (Rear System on Escalade ESV, Suburban, Yukon XL)	1
89018964	Module, HTR & BLO & A/C CONT (Front system only vehicles – Except H2)	1

89023355	Module Assembly, Blower Motor Control (H2 Models)	1
89024926	Module Assembly, Auxillary Heater & A/C Control (Rear System on Escalade, Yukon, Tahoe)	1


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
D0890	Module, Blower Motor Control – Replace	Use Published Labor Operation Time
Add	Diagnostic Time	

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **03-03-10-001D**

Date: **080117**

Wheels/Tires - Slow Tire Leak/Vibration

Bulletin No.: 03-03-10-001D

Date: January 17, 2008

TECHNICAL

Subject:

Tire Slowly Goes Flat and/or Excessive wheel Vibration Caused By Bead Splits (Replace wheels with New Heavy Duty Rim Version)

Models:

1999-2006 Chevrolet Silverado 1500 Series Pickup Models (Classic)

1999-2006 Chevrolet Express 1500 Series Vans

2000-2006 Chevrolet Suburban Tahoe

1999-2006 GMC Sierra 1500 Series Pickup Models (Classic)

1999-2006 GMC Savana 1500 Series Vans
 2002-2006 GMC Yukon Yukon XL
 2007 GMC Sierra Denali Crew Cab

with 6-Bolt, 16 X 6.5 Full Face Steel wheel (Base and RPO PY2)

Supersede:

This bulletin is being revised to add the Express and Savana models and add information to the Correction section. Please discard Corporate Bulletin Number 03-03-10-001C (Section 03 - Suspension).

Implementation of this service bulletin by "GM of Canada" dealers requires prior District Service Manager approval.

Condition

Some customers may comment on a tire that slowly goes flat and/or excessive wheel vibration. This condition is more apparent on vehicles in which customer usage typically involves frequent severe conditions such as:

High load (at or above gross vehicle weight)

Rough road/off road usage

Fleet/Commercial usage

Cause

The wheel may experience a crack or split in the outboard bead seat weld area. A weld attaches the rim and disc together on full-face wheels in this area. To identify this wheel it is offered in a silver painted version P/N 9593915 code "TZA" and a chrome-clad version, P/N 9593150 code "RSC" (these codes are stamped into the wheel's disc near the bolt holes).

Correction

Wheel replacement should only be done for air loss and/or vibration caused by bead splits.

A new heavy-duty rim version of these wheels has been released for service. The new heavy-duty painted wheel is P/N 9595245 code "FFU" used as a road wheel and spare. The new heavy-duty chrome clad version is P/N 9595306 code "FFW" used as a road wheel only (these codes are stamped into the inboard rim flange balance weight area and are also on a sticker near the bolt holes). If a condition of a crack or split as described above occurs all (5) five of the original wheels on the vehicle should be replaced with the new heavy-duty wheels as follows: Replace road wheel P/N 9593915 with P/N 9595245. Replace road wheel PIN 9593150 with P/N 9595306. Replace the spare wheel with P/N 9595245 on all vehicles.

Part Number	Description
9595245	Wheel Asm. (Painted)
9595306	Wheel Asm. (Chrome Clad)
9595395*	Wheel Asm. (Black Primer)
*This wheel assembly is only for use as a spare on 2007 Sierra Denali Crew Cab models.	

Parts Information

Warranty Information

Labor Operation	Description	Labor Time
E0420	Wheel - Replace	Use Published Labor Operation Time
Add	To Replace Each Additional Wheel	

For vehicles repaired under warranty use, the table.

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Technical Service Bulletin # **00-00-90-002I**

Date: **071023**

Tires/Wheels - Tire Inflation Pressure Information

Bulletin No.: 00-00-90-002I

Date: October 23, 2007

INFORMATION

Subject:

Information on Proper Tire Pressure

Models:

2008 and Prior GM Passenger Cars and Light Duty Trucks (including Saturn)

2008 and Prior HUMMER H2, H3

2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to add information about the 2008 HUMMER H2. Please discard Corporate Bulletin Number 00-00-90-002H (Section 00 - General Information).

ALL tires (including the spare tire) MUST be set to the recommended inflation pressure stated on the vehicle's tire placard (on driver's door) during the PRE-DELIVERY INSPECTION (PDI). Recommended inflation pressure is not the pressure printed on tire sidewall.

Tires may be over-inflated from the assembly plant due to the mounting process.

Generally a 5.6°C (10°F) temperature change will result in (is equivalent to) a 6.9 kPa (1 psi) tire pressure change.

2008 HUMMER H2 Only - The H2 comes standard with Light Truck "D" Load Range tires with a recommended cold inflation pressure of 289 kPa (42 psi). These tires will alert the driver to a low pressure situation at roughly 262 kPa (38 psi), due to a requirement in FMVSS 138, which specifies a Minimum Activation Pressure for each tire type. This creates a relatively narrow window of "usable" pressure values, and the warning will be more sensitive to outside temperature changes during the colder months.

As with other cold temperature / Tire pressure issues, there is nothing wrong with the system itself. If a vehicle is brought in with this concern, check for tire damage and set all tires to the Recommended Cold Inflation Pressure shown on the vehicle placard.

Accurate tire pressures ensure the safe handling and appropriate ride characteristics of GM cars and trucks. It is critical that the tire pressure be adjusted to the specifications on the vehicle's tire placard during PDI.

Ride, handling and road noise concerns may be caused by improperly adjusted tire pressure.

The first step in the diagnosis of these concerns is to verify that the tires are inflated to the correct pressures. The recommended tire inflation pressure is listed on the vehicle's tire placard. The tire placard is located on the driver's side front or rear door edge, center pillar, or the rear compartment lid.

Tip

Generally a 5.6°C (10°F) temperature increase will result in (is equivalent to) a 6.9 kPa (1 psi) tire pressure increase.

The definition of a "cold" tire is one that has been sitting for at least 3 hours, or driven no more than 1.6 km (1 mi).

On extremely cold days, if the vehicle has been indoors, it may be necessary to compensate for the low external temperature by adding additional air to the tire during PDI.

During cold weather, the TPM indicator light (a yellow horseshoe with an exclamation point) may illuminate. If this indicator turns off after the tires warm up (reach operating temperature), the tire pressure should be reset to placard pressure at the cold temperature.

System will work with nitrogen in tires.

System will work with the GM Tire Sealant but may not with other commercially available sealants.

Do not use the tire pressure indicated on the tire itself as a guide.

Always inspect and adjust the pressure when the tires are cold. Vehicles that have different pressures for the front and the rear need to be adjusted after tire rotation.

Improper tire inflation may result in any or all of the following conditions:

Premature tire wear

Harsh ride

Excessive road noise

Poor handling

Reduced fuel economy

Low Tire Pressure Monitor (TPM) Light ON

Low Tire Pressure Message on the Drivers Information Center (DIC)

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Technical Service Bulletin # **00-03-10-006C**

Date: **080109**

Tires - (RFV) Radial Force Variation Information

Bulletin No.: 00-03-10-006C

Date: January 09, 2008

INFORMATION

Subject:

Information on Tire Radial Force Variation (RFV)

Models:

2008 and Prior GM Passenger Cars and Light Duty Trucks

2008 and Prior HUMMER H2, H3

2005-2008 Saab 9-7X

2000-2005 Saturn L Series

2003-2007 Saturn ION

Supercede:

This bulletin is being revised to add the 2008 model year and to adjust the allowable force variation chart. Please discard Corporate Bulletin Number 00-03-10-006B (Section 03 - Suspension).

Before measuring tires on equipment such as the Hunter GSP9700, the vehicle MUST be driven a minimum of 16 km (10 mi) to ensure removal of any flatspotting. Refer to Corporate Bulletin Number 03-03-10-007C or newer - Tire Characteristics of GM Original Equipment Tires (SI Document ID # 1414757).

Equipment such as the Hunter GSP9700 MUST be calibrated prior to measuring tire/wheel assemblies for each vehicle.

The purpose of this bulletin is to provide guidance to GM dealers when using tire force variation measurement equipment, such as the Hunter GSP9700. This type of equipment can be a valuable tool in diagnosing vehicle ride concerns. The most common ride concern involving tire radial force variation is highway speed shake on smooth roads.

Tire related smooth road highway speed shake can be caused by three things: imbalance, out of round and tire force variation. These three conditions are not necessarily related. All three conditions must be addressed.

Imbalance is normally addressed first, because it is the simpler of the three to correct. Off-vehicle, two plane dynamic wheel balancers are readily available and can accurately correct any imbalance. Balancer calibration and maintenance, proper attachment of the wheel to the balancer, and proper balance weights, are all factors required for a quality balance. However, a perfectly balanced tire/wheel assembly can still be "oval shaped" and cause a vibration.

If a vibration or shake still exists after balancing, any out of round conditions, of the wheel, and force variation conditions of the tire, must be addressed. Equipment such as the Hunter GSP9700 can address both (it is also a wheel balancer).

Tire radial force vibration (RFV) can be defined as the amount of stiffness variation the tire will produce in one revolution under a constant load. Radial force variation is what the vehicle feels because the load (weight) of the vehicle is always on the tires. Although free runout of tires (not under load) is not always a good indicator of a smooth ride, it is critical that total tire/wheel assembly runout be within specification.

Equipment such as the Hunter GSP9700 loads the tire, similar to on the vehicle, and measures radial force variation of the tire/wheel assembly. Note that the wheel is affecting the tire's RFV measurement at this point. To isolate the wheel, its runout must be measured. This can be easily done on the Hunter, without the need to set up dial indicators. If the wheel meets the runout specification, the tires RFV can then be addressed.

After measuring the tire/wheel assembly under load, and the wheel alone, the machine then calculates (predicts) the radial force variation of the tire. However, because this is a prediction that can include mounting inaccuracies, and the load wheel is much smaller in diameter than used in tire production, this type of service equipment should NOT be used to audit new tires. Rather, it should be used as a service diagnostic tool to minimize radial force variation of the tire/wheel assembly.

Equipment such as the Hunter GSP9700 does an excellent job of measuring wheel runout, and of finding the low point of the wheel (for runout) and the high point of the tire (for radial force variation). This allows the tire to be matched mounted to the wheel for lowest tire/wheel assembly force variation.

The machine will simplify this process into easy steps.

LT-tires on light trucks	35 lbs or less
P-Metric tires of passenger cars	18 lbs or less
P-Metric tires on light trucks	24 lbs or less

The assembly radial force variation numbers shown should be used as a guide.

If match mounting tires to in-spec wheels produces assembly values higher than these tire replacement may be necessary. Replacing tires at lower values will probably mean good tires are being condemned. Because tires can sometimes become temporarily flat-spotted which will affect force variation it is important that the vehicle be driven at least 16 km (10 mi) prior to measuring. Tire pressure must also be adjusted to the usage pressure on the vehicle's tire placard prior to measuring.

Most GM vehicles will tolerate radial force variation up to these levels. However some vehicles are more sensitive and may require lower levels. Also there are other tire parameters that equipment such as the Hunter GSP9700 cannot measure that may be a factor. In such cases TAC should be contacted for further instructions.

When mounting a GM wheel to a wheel balancer/force variation machine, always use the wheel's center pilot hole. This is the primary centering mechanism on all GM wheels; the bolt holes are secondary. Usually a back cone method to the machine should be used. For added accuracy and repeatability, a flange plate should be used to clamp the wheel onto the cone and machine. This system is offered by all balancer manufacturers in GM's dealer program.

Any type of service equipment that removes tread rubber by grinding, buffing, or truing is NOT recommended, and may void the tire warranty. However, tires may have been ground by the tire company as part of their tire manufacturing process. This is a legitimate procedure.

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Technical Service Bulletin # **04-03-10-001D**

Date: **080107**

Tires - Tire Puncture Repair Procedures

Bulletin No.: 04-03-10-001D

Date: January 07, 2008

INFORMATION

Subject:

Tire Puncture Repair Procedures For All Cars and Light Duty Trucks

Models:

2008 and Prior GM Passenger Cars and Light Duty Trucks (including Saturn)

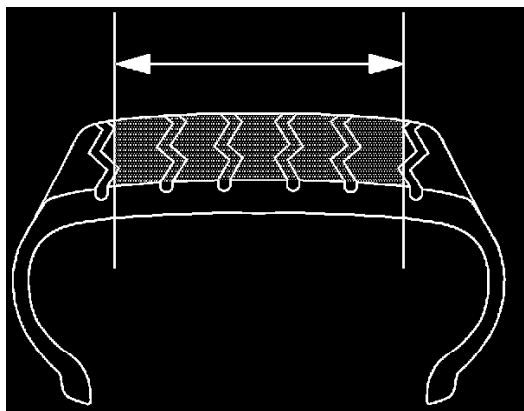
2008 and Prior HUMMER H2 H3

2008 and Prior Saab 9-7X

Supercede:

This bulletin is being revised to add the 2008 model year. Please discard Corporate Bulletin Number 04-03-10-001C (Section 03 - Suspension).

This bulletin covers puncture repair procedures for passenger car and light duty truck radial tires in the tread area only. The tire manufacturer must be contacted for its individual repair policy and whether or not the speed rating is retained after repair.



Repairable area on a radial tire.

NEVER repair tires worn to the tread indicators 1.59 mm (2/32") remaining depth).

NEVER repair tires with a tread puncture larger than 6.35 mm (1/4").

NEVER substitute an inner tube for a permissible or non-permissible repair.

NEVER perform an outside-in tire repair (plug only, on the wheel).

Every tire must be removed from the wheel for proper inspection and repair.

Regardless of the type of repair used, the repair must seal the innerliner and fill the injury.

Consult with repair material supplier/manufacturer for repair unit application procedures and repair tools/repair material recommendations.

Three basic steps for tire puncture repair:

Remove the tire from the wheel for inspection and repair.

Fill the injury (puncture) to keep moisture out.

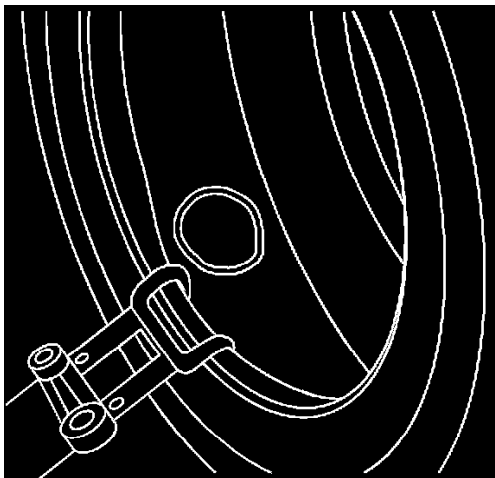
Seal the innerliner with a repair unit to prevent air loss.

External Inspection

Prior to demounting inspect the tire surface the valve and the wheel for the source of the leak by using a water and soap solution. Mark the injured area and totally deflate the tire by removing the valve core.

Demount the tire from the wheel and place the tire on a well-lighted spreader.

Internal Inspection



Spread the beads and mark the puncture with a tire crayon.

Inspect the inner tire for any signs of internal damage.

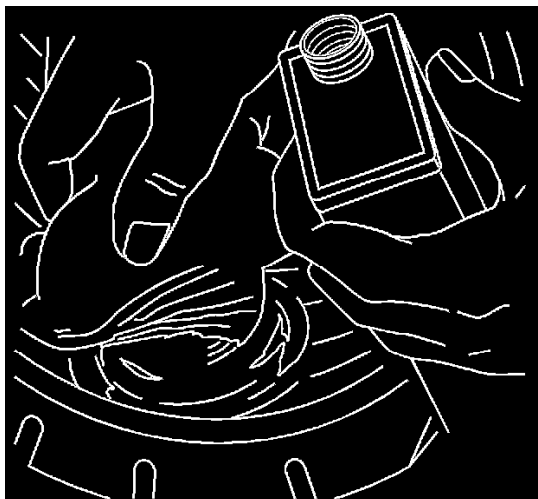
Remove the puncturing object noting the direction of the penetration.

Probe the injury with a blunt awl in order to determine the extent and direction of the injury.

Remove any loose foreign material from the injury.

Punctures exceeding 6.35 mm (1/4") should not be repaired.

Cleaning

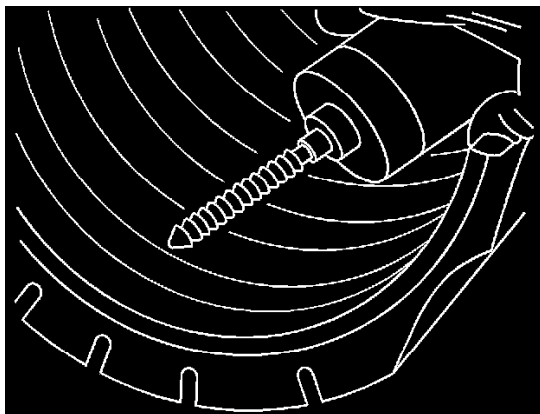


Clean the area around the puncture thoroughly with a proper liner cleaner clean cloth and a scraper. This step serves to remove dirt and mold lubricants

to insure proper adhesion and non-contamination of the buffing tool.

Refer to information on the product or manufacturers Material Safety Data Sheet and follow guidelines for handling and disposal.

Clean the Injury Channel



Use a proper hand reamer carbide cutter or drill bit to ream the puncture channel from the inside of the tire in order to clean the injury.

Remove steel wires protruding above the liner surface to prevent damage to the repair unit.

Consult your repair material supplier for recommended reaming tool(s).

Fill the Injury

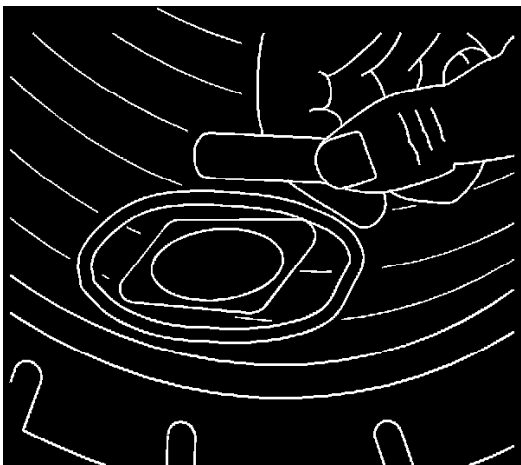


It is necessary to fill the injury channel to provide back up for the repair unit and to prevent moisture from entering the tire fabric and steel wires.

(For combination repair/plug units skip this step.) Cement the injured channel and fill the injury from the inside of the tire with the repair plug per repair material manufacturers recommendations. Without stretching the plug cut the plug off just above the inside tire surface.

Consult your repair material supplier for proper repair material selection.

Repair Unit Selection



Do not install the repair unit in this step.

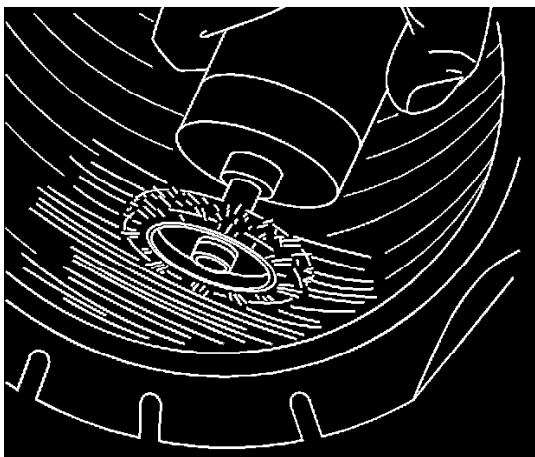
Center the repair unit over the injury as a reference and outline an area larger than the unit so that buffing will not remove the crayon marks.

Remove the repair unit.

DO NOT overlap previous or multiple repair units.

Consult your repair material supplier for proper repair unit selection.

Buffing



To prevent contamination and preserve the outline buff within the marked area thoroughly and evenly with a low speed buffing tool using a fine wire brush or gritted rasp.

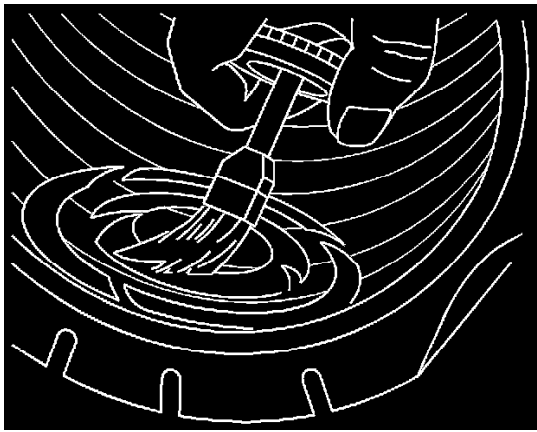
Buff to a smooth velvet surface (RMA # 1 or # 2 buffed texture).

Use caution not to gouge the innerliner or expose casing fabric.

Remove any buffing dust with a vacuum cleaner.

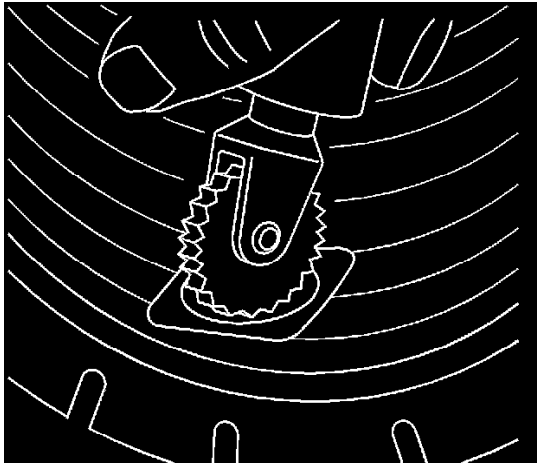
Consult your repair material supplier for a proper buffing tool.

Cementing



Apply chemical cement according to the repair material manufacturers procedures.

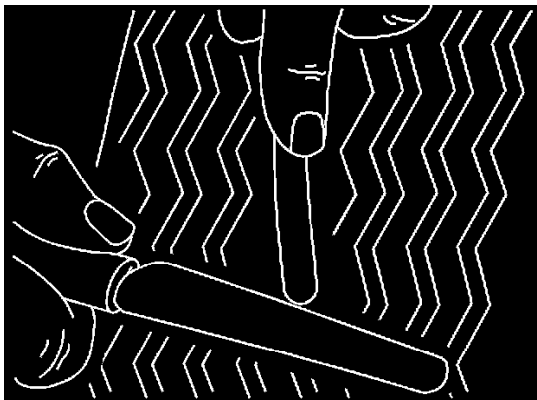
Repair Unit Application



The tire must be in the relaxed position when the repair unit is installed (Do not spread the beads excessively).

Two-Piece Plug and Repair Units

If applicable install the repair unit so that the alignment is correct.



Center the repair unit over the injury and stitch down thoroughly with the stitching tool working from the center out.

Being careful not to stretch the plug material cut the plug flush with the outer tread.

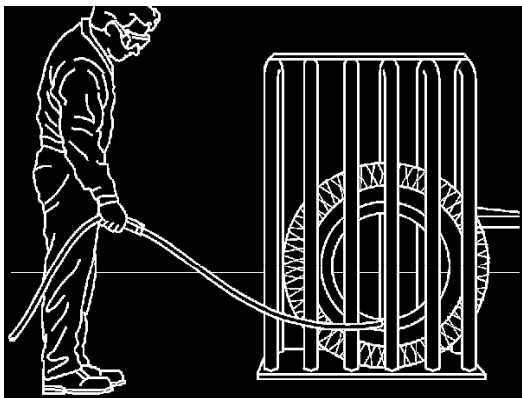
Combination Repair/Plug Units

Pull the plug through the injury until the repair just reaches the liner. Stitch down thoroughly.

Follow the repair material manufacturers recommendations for further installation instructions.

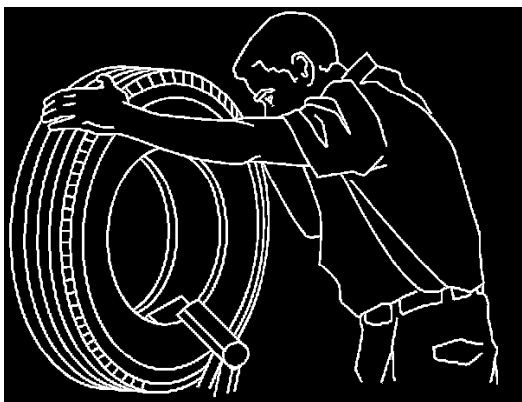
Consult your repair material supplier for the proper stitching tool.

Safety Cage



Some run flat tires such as the Goodyear Extended Mobility Tire (EMT) used on the Corvette may require more than 275 kPa (40 psi) to seat the bead. In such a case a tire safety cage must be used. Consult the tire manufacturer for its individual repair policy.

Final Inspection



After remounting and inflating the tire check both beads the repair and the valve with a water and soap solution in order to detect leaks.

If the tire continues to lose air the tire must be demounted and reinspected.

Balance the tire and wheel assembly. Refer to Tire and wheel Assembly Balancing - OFF Vehicle.

For additional tire puncture repair information, contact:

Rubber Manufacturers Association (RMA)

1400 K Street N.W. Suite 900

Washington DC 20005-2403

Telephone: 202-682-4800

E-mail: info@rma.org

Website: www.rma.org

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Technical Service Bulletin # 05-03-10-020A

Date: 080103

Tires - Nitrogen Gas Usage

Bulletin No.: 05-03-10-020A

Date: January 03, 2008

INFORMATION

Subject:
Use of Nitrogen Gas in Tires

Models:
2008 and Prior GM Passenger Cars and Trucks (including Saturn)
2008 and Prior HUMMER H2 H3
2008 and Prior Saab 9-7X

Supercede:

This bulletin is being revised to add the 2007-2008 model years. Please discard Corporate Bulletin Number 05-03-10-020 (Section 03 - Suspension).

GM's Position on the Use of Nitrogen Gas in Tires

General Motors does not oppose the use of purified nitrogen as an inflation gas for tires. We expect the theoretical benefits to be reduced in practical use due to the lack of an existing infrastructure to continuously facilitate inflating tires with nearly pure nitrogen. Even occasional inflation with compressed atmospheric air will negate many of the theoretical benefits. Given those theoretical benefits practical limitations and the robust design of GM original equipment TPC tires the realized benefits to our customer of inflating their tires with purified nitrogen are expected to be minimal.

The Promise of Nitrogen: Under Controlled Conditions

Recently nitrogen gas (for use in inflating tires) has become available to the general consumer through some retailers. The use of nitrogen gas to inflate tires is a technology used in automobile racing. The following benefits under controlled conditions are attributed to nitrogen gas and its unique properties:

A reduction in the expected loss of Tire Pressure over time.

A reduction in the variance of Tire Pressures with temperature changes due to reduction of water vapor concentration.

A reduction of long term rubber degradation due to a decrease in oxygen concentrations.

These are obtainable performance improvements when relatively pure nitrogen gas is used to inflate tires under controlled conditions.

The Promise of Nitrogen: Real World Use

Nitrogen inflation can provide some benefit by reducing gas migration (pressure loss) at the molecular level through the tire structure.

NHTSA (National Highway Traffic Safety Administration) has stated that the inflation pressure loss of tires can be up to 5% a month.

Nitrogen molecules are larger than oxygen molecules and therefore are less prone to "seeping" through the tire casing. The actual obtainable benefits of nitrogen vary, based on the physical construction and the materials used in the manufacturing of the tire being inflated.

Another potential benefit of nitrogen is the reduced oxidation of tire components. Research has demonstrated that oxygen consumed in the oxidation process of the tire primarily comes from the inflation media. Therefore, it is reasonable to assume that oxidation of tire components can be reduced if the tire is inflated with pure nitrogen. However, only very small amounts of oxygen are required to begin the normal oxidation process. Even slight contamination of the tire inflation gas with compressed atmospheric air during normal inflation pressure maintenance, may negate the benefits of using nitrogen.

GM Tire Quality, Technology and Focus of Importance

Since 1972, General Motors has designed tires under the TPC (Tire Performance Criteria) specification system, which includes specific requirements that ensure robust tire performance under normal usage. General Motors works with tire suppliers to design and manufacture original equipment tires for GM vehicles. The GM TPC addresses required performance with respect to both inflation pressure retention, and endurance properties for original equipment tires. The inflation pressure retention requirements address availability of oxygen and oxidation concerns, while endurance requirements ensure the mechanical structure of the tire has sufficient strength. This combination has provided our customers with tires that maintain their structural integrity throughout their useful treadlife under normal operating conditions.

Regardless of the inflation media for tires (atmospheric air or nitrogen), inflation pressure maintenance of tires is critical for overall tire, and ultimately, vehicle performance. Maintaining the correct inflation pressure allows the tire to perform as intended by the vehicle manufacturer in many areas including comfort, fuel economy, stopping distance, cornering, traction, treadwear and noise. Since the load carrying

capability of a tire is related to inflation pressure proper inflation pressure maintenance is necessary for the tire to support the load imposed by the vehicle without excessive structural degradation.

Regardless of the inflation media for tires (atmospheric air or nitrogen), inflation pressure maintenance of tires is critical for overall tire, and ultimately, vehicle performance.

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Disclaimer Technical Service Bulletin # 03-06-04-030F

Date: 071210

Fuel System - MIL ON/Driveability Issues

Bulletin No.: 03-06-04-030F

Date: December 10, 2007

TECHNICAL

Subject:

Various Driveability Symptoms Due to Clogged Fuel Injectors, MIL/SES DTCs P0171, P0172, P0174, P0300, P1174, P1175 (Clean Fuel Injectors and/or Perform Injector Test With AFIT - CH-47976)

2000-2008 GM Passenger Cars and Light Duty Trucks (Including Saturn)

2003-2008 HUMMER H2

2006-2008 HUMMER H3

2005-2008 Saab 9-7X

with 2.0L, 2.2L, 2.4L, 2.8L, 3.1L, 3.4L, 3.5L, 3.8L, 3.9L, 4.2L, 4.3L, 4.8L, 5.3L, 6.0L, 6.2L or 8.1L Engine (VINs X, F, D, 4, 5, T, 8, J, E, H, L, 6, K, 1, 2, R, W, S, X, V, T, M, N, U, H, Y, 8, G — RPOs LNF, L61, LN2, L43, LD9, LK5, LG8, LA1, LX5, LX9, LZ4, LZE, L52, L36, L67, L26, LZ9, LZ8, LGD, LL8, LU3, LR4, LM7, LH6, LQ9, LQ4, LS2, L76, L92, L18)

and MULTEC® 2 Fuel Injectors

Models

Supercede:

This bulletin is being revised to update the model year to 2008. Please discard Corporate Bulletin Number 03-06-04-030E (Section 06 - Engine/Propulsion System).

Condition

Some customers may comment on any of the following various driveability symptoms:

Extended Crank Time

Hard to Start

MIL/SES Illuminated with DTCs

Hesitation

Lack of Power

Surge or Chuggle

Rough Idle

Light or Intermittent Misfire

Cause

Due to various factors, the fuel injectors may become restricted. Extensive testing has demonstrated that fuel related issues are the cause of clogged injectors. At this point, no specific fuel, fuel constituent, or engine condition has been identified as causing the restriction. The restriction causes the engine to operate at a lean air fuel ratio. This may either trigger the MIL to illuminate or the engine to develop various driveability symptoms.

Correction

Fuel injector restrictions, deposits can be cleaned on the vehicle using the following procedure. Under NO circumstances should this procedure be modified, changed or shortened. As a long term solution, and to prevent reoccurrence, customers should be encouraged to use Top Tier Detergent Gasoline. For further information on Top Tier detergent gasoline and fuel retailers, please refer to the following Corporate Bulletin Numbers:

04-06-04-047G (U.S. Only)

05-06-04-022D (Canada ONLY)

GM UPPER ENGINE AND FUEL INJECTOR CLEANER is the only injector cleaning agent approved for use with General Motors fuel system components. Other injector cleaners may cause damage to plastics, plated metals or bearings. General Motors has completed extensive laboratory testing of GM Upper Engine and Fuel Injector Cleaner, and can assure its compatibility with General Motors fuel system components, as long as the cleaning procedure is followed correctly.

Injector Cleaning Procedure

The following tools, or their equivalent, are required:

CH-47976 Active Fuel Injector Tester (AFIT)

J 35800-A Fuel Injector Cleaner

J 37287 Fuel Line Shut-off Adapter

J 42964 Fuel Line Shut-off Adapter

J 42873 Fuel Line Shut-off Adapter

* One bottle of GM Upper Engine and Fuel Injector Cleaner, P/N 88861802 (in Canada, P/N 88861804)

* One bottle of GM Fuel System Treatment Plus, P/N 88861011 (in Canada, P/N 88861012)

Active Fuel Injector Tester (AFIT - CH-47976)

Some dealers may not have an Active Fuel Injector Tester (AFIT - CH-47976). Dealers can contact 1-800-GM-TOOLS (1-800-468-6657) to order an AFIT - CH-47976. Dealers still can test the fuel injectors without an AFIT. Refer to Fuel Injector Diagnosis (w/J 39021 or Tech 2(R)) in SI.

As mentioned in the AFIT User Guide, vehicles that are not listed in the AFIT menu can still be tested with the AFIT. Depending on the model, it may be possible to enter the previous model year and proceed with testing using the DLC connection. If this is not possible on the model that you are working on, it will be necessary to use the direct connection method outlined in the AFIT User Guide (See Pages 17-31).

General Motors recommends that the Active Fuel Injector Tester (AFIT) be used in testing fuel injectors. If the SI diagnostics do not isolate a cause for this concern, use the Active Fuel Injector Tester (AFIT - CH-47976) to perform an Injector Test as outlined in the AFIT User Guide.

The AFIT Injector Test measures the flow characteristics of all fuel injectors, which is more precise when compared with the standard Tech 2(R) fuel injector balance test. As a result, the AFIT is more likely to isolate the cause of a P1174 DTC (for example: if it is being caused by a fuel injector concern).

The CH-47976 (Active Fuel Injector Tester - AFIT) can also be used to measure fuel pressure and fuel system leak down. Also, as mentioned in the P1174 SI diagnosis, if the misfire current counters or misfire graph indicate any misfires, it may be an indicator of the cylinder that is causing the concern. Refer to Fuel Injector Diagnosis (w/CH-47976) in SI for additional instructions.

Training (U.S.)

To access the training video on AFIT, take the following path at the GM Training Website:

After logging into the gmtraining.com website, choose the link on the left side of the page titled web video library.

Then choose "technical".

Next, within the search box, type in September course number "10206.09D".

This will bring up a link with this course. Scroll through to choose "feature topic".

At this point, the seminar can be chosen to view or the video related to the AFIT.

Additional training is available from the gmtraining.com website. Please see TECHassist 16044.18T2 Active Fuel Injector Tester and also see 16044.14D1 GM Powertrain Performance for more information on GM Upper Engine and Fuel Injector Cleaner.

Also, dealers can now download software updates for the AFIT at GM Dealer Equipment (GMDE) on the web at <http://www.gmde.net/AFIT.cfm>.

Training (Canada)

To access the training video on AFIT, take the following path at the GMPro LMS Training Website:

After logging into the <www.gmprocanada.com> website, choose the link on the left side of the page titled "Catalog."

Then choose "Catalog Search."

Next, within the search box, Select Course Number - Contains - "T" then select search.

This will bring up a list of TECHassist courses. Scroll through to choose "Active Fuel Injector Tester" and select "View."

At this point, a new window will open and the program can be Launched.

Also, dealers can now download software updates for the AFIT at GM Dealer Equipment (GMDE) on the web at <http://www.gmde.net/softwareupdates/>.

Techlink

Additional information can be found on AFIT (June 2006 Edition) and GM Upper Engine and Fuel Injector Cleaner (November 2006 Edition) in Techlink. To access the articles, take the following path:

Go to GM DealerWorld (U.S.) or the GM infoNET (Canada).

Click on the Service Tab in DealerWorld (GM infoNET for Canada).

Click on the GM Techlink Hyperlink.

Click on the Archives Hyperlink at GM Techlink.

Click on 06-2006 in the Archives Section and Click on the Active Fuel Injector Tester Link in the June 2006 Techlink Article.

Click on 11-2006 in the Archives Section and Click on the GM Top Engine Cleaner Replaced Link in the November 2006 Techlink Article.

Injector Cleaning Procedure

GM UPPER ENGINE AND FUEL INJECTOR CLEANER is the only injector cleaning agent recommended. DO NOT USE OTHER CLEANING AGENTS AS THEY MAY CONTAIN METHANOL, WHICH CAN DAMAGE FUEL SYSTEM COMPONENTS. Under NO circumstances should the GM Upper Engine and Fuel Injector Cleaner be added to the vehicle fuel tank.

Do not exceed the recommended cleaning solution concentration. Testing has demonstrated that exceeding the recommended cleaning solution concentration does not improve the effectiveness of this procedure.

Vehicles with less than 160 km (100 mi) on the odometer should not have the injectors cleaned. These vehicles should have any out of specification injectors replaced.

For 4, 5 and 6 cylinder engines, empty two of the 30 ml (1 oz) reservoirs of the GM Upper Engine and Fuel Injector Cleaner container into the J 35800-A - Injector Cleaning Tank then add 420 ml (14 oz) of regular unleaded gasoline. If you are using any other brand of cleaning tank, you will need a total of 60 ml (2 oz) mixed with 420 ml (14 oz) of regular unleaded gasoline.

For 8 cylinder engines, empty two of the 30 ml (1 oz) reservoirs of the GM Upper Engine and Fuel Injector Cleaner container into the J 35800-A - Injector Cleaning Tank then add 420 ml (14 oz) of regular unleaded gasoline. If you are using any other brand of cleaning tank, you will need a total of

60 ml (2 oz) of Upper Engine and Fuel Injector Cleaner mixed with 420 ml (14 oz) of regular unleaded gasoline. This procedure will need to be repeated for a second time for an 8 cylinder engine (8 cylinder engines receive 960 ml total fluid - 120 ml (4 oz) of Upper Engine and Fuel Injector Cleaner and 840 ml (28 oz) of gasoline.

Be sure to follow all additional instructions provided with the tool.

Electrically disable the vehicle fuel pump by either removing the fuel pump fuse or the fuel pump relay and disconnecting the oil pressure switch connector, if equipped.

Turn the ignition to the OFF position.

Relieve fuel pressure and disconnect the fuel feed and return lines at the fuel rail. Plug the fuel feed and return lines coming off the fuel rail with J 37287, J 42873 or J 42964 as appropriate for the fuel system.

Connect the J 35800-A to the vehicle fuel rail.

Pressurize the J 35800-A to 510 kPa (75 psi).

Start and idle the engine until it stalls, due to lack of fuel. This should take approximately 15-20 minutes.

Turn the ignition to the OFF position.

Disconnect the J 35800-A from the fuel rail.

Reconnect the vehicle fuel pump relay and oil pressure switch connector, if equipped.

Remove the J 37287, J 42873 or J 42964 and reconnect the vehicle fuel feed and return lines.

Start and idle the vehicle for an additional two minutes to ensure residual injector cleaner is flushed from the fuel rail and fuel lines.

Pour the entire contents of GM Fuel System Treatment Plus (P/N 88861011 [in Canada, P/N 88861012]) into the tank and advise the customer to fill the tank.

Review the benefits of using Top Tier Detergent gasoline with the customer and recommend that they add a bottle of GM Fuel System Treatment Plus to the fuel tank at every oil change. Regular use of GM Fuel System Treatment Plus should keep the customer from having to repeat the injector cleaning procedure. Road test the vehicle to verify that the customer concern has been corrected.

Part Number	Description	Qty
88861802	GM Upper Engine and Fuel Injector Cleaner 473 ml (16 oz) Container (U.S.)	1*
88861804	GM Upper Engine and Fuel Injector Cleaner 473 ml Container (Canada)	1
88861011	Fuel System Treatment Plus 591 ml (20 oz) Container (U.S.)	1
88861012	Fuel System Treatment Plus 591 ml Container (Canada)	1

* Only 1/8 of the cost may be claimed for 4 and 6 cylinder engines and 1/4 of the cost for 8 cylinder engines.

Parts Information

Warranty Information (excluding Saab U.S. Models)

Labor Operation	Description	Labor Time
*J5645	Cleaning Injector:	
	4 Cylinder Engine	0.8 hr
	5 Cylinder Engine	0.7 hr
	6 Cylinder Engine	0.7 hr
	8 Cylinder Engine	0.9 hr
**Add:	Diagnostic Time	0.0–0.3 hr
<p>* This labor operation number is for bulletin use only. This number will not be published in the Labor Time Guide. **A total diagnostic time equal to the time allowed for cleaning, J5645, may be claimed for performing the injector diagnosis procedure.</p>		

For vehicles repaired under warranty, use the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason Code	Location Code	Warranty Type	Repair/Action Code	Labor Time
2421101	Injector, Replace Engine Code S	24211	71	0	01	01	Use Published Labor Operation Time
2421102	Injector, Replace Engine Code M	24211	71	0	01	01	Use Published Labor Operation Time
Add 1002001	Diagnostic Time	—	—	—	—	—	Use Published Labor Operation Time

2421105	Cleaning Injector, 6 Cylinder Engine	24211	71	0	01	05	0.7 hr*
2421106	Cleaning Injector, 8 Cylinder Engine	24211	71	0	01	05	0.9 hr*

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **05-08-46-004B**

Date: **080108**

OnStar(R) - Number Incorrect/Incorrectly Assigned

Bulletin No.: 05-08-46-004B

Date: January 08, 2008

INFORMATION

Subject:

OnStar(R) Phone Number Concerns (Phone Number Incorrect/Assigned to Another Vehicle/Phone) That Occur During Diagnosis of OnStar(R) System

Models:

2000-2008 GM Passenger Cars and Trucks
2003-2008 HUMMER H2
2006-2008 HUMMER H3
2003-2008 Saturn Vehicles
2005-2008 Saab 9-7X

with OnStar(R) (RPO-UE1)

Supercede:

This bulletin is being revised to add the 2008 model year. Please discard Corporate Bulletin Number 05-08-46-004A (Section 08 - Body and Accessories).

During diagnosis of an OnStar(R) concern the technician may be told that the OnStar(R) phone number is incorrect or tied to another vehicle and/or phone of some kind. To resolve these concerns the Tech 2(R) with software version 22.005 (or higher) has the capability to change the OnStar(R) phone number.

Service Procedure

With the Tech 2(R) build the vehicle to specifications within the Diagnostics area of the Tech 2(R).

For vehicles with physical-based diagnostics - under Body go to the OnStar(R) section. Then select the Special Functions menu. For vehicles with functional-based diagnostics - under Body and Accessories go to the Cellular Communication section. Select Module Setup and then Vehicle Communication Interface Module.

Locate the Program Phone Number prompt and select it. The original phone number will be displayed on the Tech 2(R) screen.

Contact the OnStar(R) team at the GM Technical Assistance Center (TAC) to obtain a new phone number.

Highlight the digits of the phone number one at a time and enter the new phone number using the number keys on the Tech 2(R).

Press the Soft key at the base of the screen for Done once these numbers have been changed on the screen.

Press the Soft key for Done again. The area code or new phone number has now been programmed into the phone.

Cycle the ignition to Off and open the drivers door.

Press the blue OnStar(R) button to make sure that a normal connection can be made to the OnStar(R) call center. If applicable make sure the Hands-Free Calling (HFC) works properly by making a phone call.

If the system is working properly fax or voicemail a case closing into the OnStar(R) team at TAC with the results. Dealers in Canada should submit case closing information through the GM infoNET.

Please follow this diagnostic process thoroughly and complete each step. If the condition exhibited is resolved WITHOUT completing every step the remaining steps do not need to be performed. If the procedure above does not resolve the condition you must contact TAC for further assistance. This diagnostic approach was developed specifically for this condition and should not automatically be used for other vehicles with similar symptoms.

Warranty Information (excluding Saab U.S. Models)

Labor Operation	Description	Labor Time
R9717*	MIN and/or MDN Cellular Communications (OnStar®) – Configuration Update	0.4 hr

*This labor operation number is for bulletin use only.


For vehicles repaired under warranty use, the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason	Location Code	Warranty Type	Repair/Action Code	Labor Time
3691003	MIN and/or MDN Cellular Communications (OnStar®) – Configuration Update	36910	61	0	01	05	0.4 hr

For vehicles repaired under warranty use, the table.

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WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Date: January 08, 2008

INFORMATION

Subject:

Incorrect OnStar(R) Global Positioning System (GPS) Location Reported During OnStar(R) Call

Models:

2000-2008 GM Passenger Cars and Light Duty Trucks (including Saturn)

2003-2008 HUMMER H2

2006-2008 HUMMER H3

2005-2008 Saab 9-7X

with OnStar(R)

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 02-08-46-006B (Section 08 - Body and Accessories).

A small number of the above-mentioned vehicles may exhibit a condition in which the vehicle reports an inaccurate location to the OnStar(R) Call Center. This condition can only be identified via a button press to the OnStar(R) Call Center by the customer. Call Center personnel will be able to identify this inaccurate location condition. Customers will then be notified through the mail by OnStar(R) if their vehicle exhibits this condition. Once this condition has been identified OnStar(R) will instruct the customer to return to the dealership to have this condition corrected.

It is not necessary to reconfigure the vehicle after the following procedure.

In order to correct this condition you must cycle power to the OnStar(R) system. This can be done by either removing the fuses powering the OnStar(R) system or disconnecting the OnStar(R) module (VCIM) from the vehicle. As a last resort you can disconnect the vehicle's battery.

The power needs to be removed from the system for approximately 15 minutes.

After completing this procedure the vehicle should be taken to an area with an unobstructed view of the sky. The vehicle should be kept running for approximately 10 minutes to allow the vehicle to reacquire the global positioning system (GPS). Then contact the OnStar(R) Call Center via the blue OnStar(R) button and ask the advisor to verify the GPS position.

If the OnStar(R) advisor still has an inaccurate GPS location refer to the Navigation Systems and Cellular Communications sub-sections in the Service Manual in order to diagnose and repair the concern. If the normal diagnostics lead to module replacement you will need to contact Technical Assistance (TAC) and choose the OnStar(R) prompt. GM OnStar(R) TAC will assist in the diagnosis and if appropriate order a replacement part. Replacement parts are usually shipped out within 24 hours and a pre-paid return package label will be included for returning the faulty part. By returning the faulty part you will avoid a significant non-return core charge.

Warranty Information (excluding Saab US Models)

Labor Operation	Description	Labor Time
R5140	Module, Vehicle Communication Interface Module (VCIM) – Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

Warranty Information (Saab US Models)

Labor Operation	Description	Failed Object	Fault/Reason	Location Code	Warranty Type	Repair/Action Code	Labor Time
3691002	Vehicle Communication Interface Module (VCIM)-Replace	36910	61	0	01	01	Use Published Labor Operation Time

For vehicles repaired under warranty use, the table.

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Disclaimer Technical Service Bulletin # 02-08-44-007C

Date: 080108

OnStar(R) - Negative Impact of Cloth/Vinyl Roofs

Bulletin No.: 02-08-44-007C

Date: January 08 2008

INFORMATION

Subject:
Negative Impact of Dealer-Installed Cloth/Vinyl Roofs on XM Radio and/or OnStar(R) Systems

Models:
2002-2008 Passenger Cars and Trucks (Including Saturn)
2003-2008 HUMMER H2
2006-2008 HUMMER H3
2005-2008 Saab 9-7X

with XM Radio (RPO U2K) and/or OnStar(R) (RPO UE1)

Supercede:

This bulletin is being revised to include the 2008 model year and additional models. Please discard Corporate Bulletin Number 02-08-44-007B (Section 08 - Body and Accessories).

Dealers should not install a cloth or vinyl roof on vehicles that have been ordered with the XM radio option (RPO U2K) and/or OnStar(R) (RPO UE1). The performance of these systems may be negatively impacted by the installation of the cloth/vinyl roof. Additionally water leaks may result from installing a cloth or vinyl roof on vehicles with roof-mounted antenna systems. Relocating the antenna to another spot on the vehicle exterior in order to install a cloth or vinyl roof is not advised either. The performance of the OnStar(R) and XM Radio antennas has been optimized for their current locations. Relocating the antennas may result in a performance degradation.

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Disclaimer
Technical Service Bulletin # 00-08-46-004C

Date: 080117

OnStar(R) - Re-establishing OnStar(R) Communications

Bulletin No.: 00-08-46-004C

Date: January 17, 2008

INFORMATION

Subject:
Re-establishing Communications with OnStar(R) Center After Battery Disconnect

Models:
2000-2008 GM Passenger Cars and Trucks (Including Saturn and Saab)

with Digital OnStar(R) (RPO UE1)

Supercede:

This bulletin is being revised to add models and model years. Please discard Corporate Bulletin Number 00-08-46-004B (Section 08 - Body and Accessories).

When servicing any of the above models and a battery cable is disconnected or power to the OnStar(R) Vehicle Communication Interface Module (VCIM) is interrupted for any reason the following procedure must be performed to verify proper Global Positioning System (GPS) function.

Never swap OnStar(R) Vehicle Communication Interface Modules (VCIM) from other vehicles. Transfer of OnStar(R) modules from other vehicles should not be done. Each OnStar(R) module has a unique identification number. The VCIM has a specific Station Identification (STID). This identification number is used by the National Cellular Telephone Network and OnStar(R) systems and is stored in General Motors Vehicle History files by VIN.

After completing ALL repairs to the vehicle you must perform the following procedure:

Move the vehicle into an open area of the service lot.

Sit in the vehicle with the engine running and the radio turned on for five minutes.

Press the OnStar(R) button in the vehicle.

When the OnStar(R) advisor answers ask the advisor to verify the current location of the vehicle.

If the vehicle location is different than the location the OnStar(R) advisor gives contact GM Technical Assistance (TAC) and choose the OnStar(R) prompt. GM OnStar(R) TAC will assist in the diagnosis of a failed VCIM and, if appropriate, order a replacement part. Replacement parts are usually shipped out within 24 hours, and a pre-paid return package label will be included for returning the faulty part. By returning the faulty part, you will avoid a non-return core charge.

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Disclaimer Technical Service Bulletin # 99-09-40-005E

Date: 080109

Seat Belts - Seat Belt Extender Availability

Bulletin No.: 99-09-40-005E

Date: January 09, 2008

INFORMATION

Subject:
Seat Belt Extender Availability

Models:
2008 and Prior GM Passenger Cars and Trucks (Including Saturn)
2008 and Prior HUMMER H2, H3
2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to add the 2008 model year. Please discard Corporate Bulletin Number 99-09-40-0050 (Section 09 - Restraints).

DO NOT use belt extenders when securing a child restraint.

The seat and shoulder belt restraint systems used in all General Motors vehicles have sufficient belt length to accommodate most drivers and passengers. Consequently, requests for belt extensions (extenders) should be minimal.

Seat belt extenders are available ONLY IN BLACK for most GM passenger cars and trucks produced in recent years. They are available in two different lengths, 23cm (9 in) and 38cm (15 in). They are designed to be coupled with the existing belts in each vehicle. when in use, the extender makes the belt arrangement a "custom fit" and use by anyone else or in another vehicle will lessen or nullify the protection offered by the vehicle's restraint system. For this reason, it is extremely important that the correct length extender be used for the vehicle and occupant intended.

Do not use an extender just to make it easier to buckle the safety belt. Use an extender only when you cannot buckle the safety belt without using an extender.


Parts Information

For part numbers, usage and availability of extenders, see Extension Kit in Group 14.875 (cars) or Group 16.714 (trucks) of the appropriate parts catalog. Saturn retailers should refer to the appropriate model year Parts & Illustration catalog for the vehicle. U.S. Saab dealers should contact the Parts Help line. Canadian Saab dealers should fax requests to Partech Canada.

Warranty Information

Seat belt extenders are a NO CHARGE item to all GM customers who request them for their specific vehicles.

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Disclaimer Technical Service Bulletin # 03-00-89-008D

Date: 071102

Body - Metal Body Panel Corrosion Protection

Bulletin No.: 03-00-89-008D

Date: November 02, 2007

INFORMATION

Subject:

Corrosion Protection For Metal Panels With Dealer Installed Accessories Fastened by Drilled Holes

Models:

2008 and Prior GM Passenger Cars and Trucks (Including Saturn)

2003-2008 HUMMER H2

2006-2008 HUMMER H3

Supercede:

This bulletin is being revised to update the information. Please discard Corporate Bulletin Number 03-00-89-008C (Section 00 - General Information).

Corrosion Concerns

Frequently, dealer installed accessories, whether aftermarket or GM-approved, may require drilling holes into the body panels or supports to complete installation. Whenever you drill into a metal surface, the corrosion resistance of that panel is compromised. Testing was conducted to determine the best method used to protect the fastener-to-panel mounting holes from future corrosion. Several commercially available sealers and coatings were evaluated.

Recommendations



In all cases, GM Vehicle Care Super Lube(R) with PTFE performed the best at preventing corrosion in fastener to panel interface holes and is now the official GM recommended product as shown in the above illustration. It is recommended to apply the GM Vehicle Care Super Lube(R) with PTFE, to any hole and fastener before installing the fastener into the drilled attaching hole or inside the metal panel.

GM Vehicle Care Super Lube(R) with PTFE is the only product recommended and required by GM for the corrosion protection of metal panels where fasteners will be added to metal panels.

Part Number	Description
12371287 (U.S.)	GM Vehicle Care Super Lube® with PTFE
10953437 (Canada)	

Parts Information

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Technical Service Bulletin # 01-08-42-001E

Date: 071105

Lighting - Exterior Lamp Condensation/Replacement

Bulletin No.: 01-08-42-001E

Date: November 05, 2007

INFORMATION

Subject:

Exterior Lamp Condensation and Replacement Guidelines

Models:

1993-2008 GM Passenger Cars and Trucks (including Saturn)

2003-2008 HUMMER H2

2006-2008 HUMMER H3

2005-2008 Saab 9-7X

Supersede:

This bulletin is being revised to add the 2008 model year. Please discard Corporate Bulletin Number 01-08-42-001D (Section 08 - Body & Accessories).

The following information is being provided to better define the causes of condensation in exterior lamps and includes guidelines for determining the difference between a lamp with a normal atmospheric condition (condensation) and a lamp with a water leak.

Some exterior lamps, such as cornering, turn signal, backup, headlamps or tail lamps may exhibit very small droplets of water, a fine mist or white fog (condensation) on the inside of the lamp lens. This may be more noticeable on lamps with "multi-lens" designs and may be normal during certain weather conditions.

Condensation occurs when the air inside the lamp assembly, through atmospheric changes, reaches the "dew point". When this takes place, the moisture in the air within the lamp assembly condenses, creating a fine mist or white fog on the inside surface of the lamp lens.

Most exterior lamps on General Motors vehicles use a vented design and feature a replaceable bulb assembly. They are designed to remove any accumulated moisture vapor by expelling it through a vent system. The vent system operates at all times, however, it is most effective when the lamps are ON or when the vehicle is in motion. Depending on the size, shape and location of the lamp on the vehicle, and the atmospheric conditions occurring, the amount of time required to clear the lamp may vary from 2 to 6 hours.

Completely sealed headlamp assemblies (sealed beams) are still used on a limited number of models being manufactured today. These lamps require the replacement of the complete lamp assembly if a bulb filament burns out.

Condensation

2006 TrailBlazer Shown



A Fine Mist or White Fog on the Inside Surface of the Lamp Lens Occuring After a Period of High Humidity

May be located primarily in the lens corners (near the vents) and SHOULD NOT cover more than half the lens surface. The condition should clear of moisture when the vehicle is parked in a dry environment, or when the vehicle is driven with the lights ON.

A comparison of the equivalent lamp on the opposing side of the vehicle indicates a SIMILAR performance. If the above conditions are noted, the customer should be advised that replacement of a lamp assembly may not correct this condition.

Water Leak

New Style Pickup Shown



A condition that covers more than half the surface of the lamp lens. An accumulation of water in the bottom of the lamp assembly.

A condition that WONT clear when the vehicle is parked in a dry environment, or when the vehicle is driven with the lights ON.

A comparison of the equivalent lamp on the opposing side of the vehicle indicates a different performance. Any of the above conditions would indicate the need to service the lens or lamp assembly.

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Disclaimer Technical Service Bulletin # **07-08-64-022**

Date: **071213**

Instruments - O/S Rearview Mirror Diagnostics

Bulletin No.: 07-08-64-022

Date: December 13, 2007

INFORMATION

Subject:

Information On Curb Park Assist And Memory Related Issues On Outside Rear View Mirrors

Models:

2008 and Prior GM Passenger Cars and Trucks (Including Saturn)

2008 and Prior HUMMER H2, H3

2008 and Prior Saab 9-7X

with Memory Mirrors

A large number of mirrors are being returned through the Warranty Parts Center (WPC) with customer comments of curb park assist and memory setting issues. The mirrors are found to be fully functional. If you have memory or curb park assist issues, do not replace the mirror. The mirror simply responds to what is commanded by the respective door module. Wiring related issues may be a far more prevalent cause. Check these latter two possibilities prior to replacing the mirror.

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Disclaimer Technical Service Bulletin # **05-06-02-002B**

Date: **080118**

Cooling System - DEX-COOL(R) Coolant Leak Detection Dye

Bulletin No.: 05-06-02-002B

Date: January 18, 2008

INFORMATION

Subject:

DEX-COOL(R) Coolant - New Leak Detection Dye J 46366 - Replaces J 29545-6

Models:

1996-2008 GM Passenger Cars and Light/Medium Duty Trucks* (including Saturn)

1997-2008 Isuzu T-Series Medium Duty Tilt Cab Models Built in Janesville and Flint

1999-2008 Isuzu N-Series Medium Duty Commercial Models with 5.7L or 6.0L Gas Engine

2003-2008 HUMMER H2

2006-2008 HUMMER H3
2005-2008 Saab 9-7X

*EXCLUDING 2006 and Prior Chevrolet Aveo, Epica, Optra, Vivant and Pontiac Matiz, Wave

Supercede:

This bulletin is being revised to include additional model years. Please discard Corporate Bulletin Number 05-06-02-002A (Section 06 - Engine/Propulsion System).

Leak detection dye P/N 12378563 (J 29545-6) (in Canada P/N 88900915) may cause DEX-COOL(R) coolant to appear green in a black vessel making it appear to be conventional (green) coolant. This may cause a technician to add conventional coolant to a low DEX-COOL(R) system thus contaminating it. The green DEX-COOL(R) appearance is caused by the color of the leak detection dye which alters the color of the DEX-COOL(R) coolant.

A new leak detection dye P/N 89022219 (J 46366) (in Canada P/N 89022220) has been released that does not alter the appearance of the DEX-COOL(R) coolant. When adding the new leak detection dye the color of the DEX-COOL(R) coolant will not change. For detecting leaks on any system that uses DEX-COOL(R) leak detection dye P/N 89022219 (in Canada P/N 89022220) should be used. The new leak detection dye can be used with both conventional and DEX-COOL(R) coolant.

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Technical Service Bulletin # **04-07-30-037D**

Date: **071121**

A/T - DEXRON(R)-VI Fluid Information

Bulletin No.: 04-07-30-037D

Date: November 21, 2007

INFORMATION

Subject:

Release of DEXRON(R)-VI Automatic Transmission Fluid (ATF)

2008 and Prior GM Passenger Cars and Light Duty Trucks

2003–2008 HUMMER H2

2006–2008 HUMMER H3

2005–2007 Saturn Relay

2005 and Prior Saturn L-Series

2005–2007 Saturn ION

2005–2008 Saturn VUE with 4T45-E

2005–2008 Saab 9-7X

Except 2008 and Prior Chevrolet Aveo, Equinox

Except 2006 and Prior Chevrolet Epica

Except 2007 and Prior Chevrolet Optra

Except 2008 and Prior Pontiac Torrent, Vibe, Wave

Except 2003–2005 Saturn ION with CVT or AF23 Only

Except 1991–2002 Saturn S-Series

Except 2008 and Prior Saturn VUE with CVT, AF33 or 5AT (MJ7/MJ8) Transmission Only

Except 2008 Saturn Astra

Models

Attention:

DEXRON(R)-VI Automatic Transmission Fluid (ATF) is the only approved fluid for warranty repairs for General Motors transmissions/transaxles requiring DEXRON(R)-III and/or prior DEXRON(R) transmission fluids.

Supersede:

This bulletin is being revised to update model/model year information. Please discard Corporate Bulletin Number 04-07-30-037C (Section 07 - Transmission/Transaxle).

MANUAL TRANSMISSIONS/TRANSFER CASES and POWER STEERING

The content of this bulletin does not apply to manual transmissions or transfer cases. Any vehicle that previously required DEXRON(R)-III for a manual transmission or transfer case should now use P/N 88861800. This fluid is labeled Manual Transmission and Transfer Case Fluid. Power Steering Systems should now use P/N 9985010 labeled Power Steering Fluid.

Consult the Owner's Manual or Service Information (SI) for fluid recommendations.

Some of our customers and/or General Motors dealerships/Saturn Retailers may have some concerns with DEXRON(R)-VI and DEXRON(R)-III Automatic Transmission Fluid (ATF) and transmission warranty claims. DEXRON(R)-VI is the only approved fluid for warranty repairs for General Motors transmissions/transaxles requiring DEXRON(R)-III and/or prior DEXRON(R) transmission fluids. Please remember that the clean oil reservoirs of the J 45096 - Flushing and Flow Tester machine should be purged of DEXRON(R)-III and filled with DEXRON(R)-VI for testing, flushing or filling General Motors transmissions/transaxles.

DEXRON(R)-VI can be used in any proportion in past model vehicles equipped with an automatic transmission/transaxle in place of DEXRON(R)-III (i.e. topping off the fluid in the event of a repair or fluid change). DEXRON(R)-VI is also compatible with any former version of DEXRON(R) for use in automatic transmissions/transaxles.

DEXRON(R)-VI ATF

General Motors Powertrain has upgraded to DEXRON(R)-VI ATF with the start of 2006 vehicle production.

Current and prior automatic transmission models that had used DEXRON(R)-III must now only use DEXRON(R)-VI.

All 2006 and future model transmissions that use DEXRON(R)-VI are to be serviced ONLY with DEXRON(R)-VI fluid.

DEXRON®-VI	
Fluid Service Change Interval	160,000 km (100,000 mi) For Cars and Light Duty Trucks* 80,000 km (50,000 mi) (Severe Use) For Cars and Light Duty Trucks*
Clutch Friction Stability	Improved 100%
Clutch Durability Due To Fluid	Improved 120%
Oil Film Thickness	Increased 20%
Fluid Oxidation	Improved 100%
Foam/Aeration	Improved 150%
Shear Stability	Improved 200%

* These ATF change intervals remain the same as DEXRON®-III for the time being.

DEXRON(R)-VI is an improvement over DEXRON(R)-III in the areas shown.

2006-2008 Transmission Fill and Cooler Flushing

Some new applications of the 6L80 six speed transmission will require the use of the J 45096 - Flushing and Flow Tester to accomplish transmission fluid fill. It is highly recommended that the clean oil reservoir of the machine be purged of DEXRON(R)-III and filled with DEXRON(R)-VI.

Part Number	Description
88861003 (US)	DEXRON®-VI Auto Trans Fluid (1 qt bottle)
88861045 (US)	DEXRON®-VI Auto Trans Fluid (1 gal bottle)
88861046 (US)	DEXRON®-VI Auto Trans Fluid (55 gal drum)
88861004 (Canada)	DEXRON®-VI Auto Trans Fluid (1L bottle)
88861043 (Canada)	DEXRON®-VI Auto Trans Fluid (4L bottle)
88861044 (Canada)	DEXRON®-VI Auto Trans Fluid (205L drum)

Parts Information

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Technical Service Bulletin # 07-08-49-020A

Date: 080115

Instruments - Odometer Programming Reference Guide

Bulletin No.: 07-08-49-020A

Date: January 15, 2008

INFORMATION

Subject:

IPC Odometer Programming Method Quick Reference Guide

Models:

2003-2008 GM Passenger Cars and Trucks (Including Saturn)

2003-2008 HUMMER H2, H3

2005-2008 Saab 9-7X

Supersede:

This bulletin is being revised to update the information on the Pontiac Grand Prix and add the G8 model to the reference guide. Please discard Corporate Bulletin Number 07-08-49-020 (Section 08-Body & Accessories).

Model	Model Year	Odometer Value Storage	Odometer Programming Method
Buick			
Century	2003-2005	IPC	ESC
Enclave	2008	IPC	ESC
LaCrosse/Allure	2005-2008	IPC	ESC
Lucerne	2006-2008	IPC	ESC
LeSabre	2003-2005	IPC	ESC
Park Avenue	2003-2005	IPC	ESC
Rainier	2004-2007	IPC	SPS
Regal	2003-2004	IPC	ESC
Rendezvous	2003-2007	IPC	ESC
Terraza	2005-2008	IPC	ESC
Cadillac			
CTS	2003-2008	IPC	ESC

DeVille	2003-2005	IPC	ESC
DTS	2006-2008	IPC	ESC
Escalade	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
Seville	2003-2004	IPC	ESC
SRX	2004-2008	IPC	ESC
STS	2005-2008	IPC	ESC
XLR	2004-2008	IPC	ESC
Chevrolet			
Astro	2003-2005	IPC	ESC
Avalanche	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
Aveo	2004-2008	IPC	ESC
Blazer	2003-2005	IPC	ESC
Colorado	2004-2008	IBCM	Tech 2
Cavalier	2003-2005	IBCM	Tech 2
Cobalt	2005-2008	IBCM	Tech 2
Corvette	2003-2008	IPC	ESC
Epica	2004-2006	IPC	ESC
Equinox	2005-2006	IBCM	Tech 2
	2007-2008	IPC	ESC
Express	2003-2008	IPC	ESC
HHR	2006-2008	IBCM	Tech 2
Impala	2003-2008	IPC	ESC
Kodiak	2003-2008	IPC	ESC
Malibu	2003	IPC	ESC
Malibu	2004-2008	IBCM	Tech 2
Monte Carlo	2003-2007	IPC	ESC
Opra	2004-2007	IPC	ESC
S-10	2003-2004	IPC	ESC

Silverado Classic	2003-2007	IPC	SPS
Silverado	2007-2008	IPC	ESC
SSR	2003-2006	IPC	ESC
Suburban	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
Tahoe	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
TrailBlazer	2003-2008	IPC	SPS
Uplander	2005-2008	IPC	ESC
Venture	2003-2005	IPC	ESC
GMC			
Acadia	2007-2008	IPC	ESC
Canyon	2004-2008	IBCM	Tech 2
Envoy	2003-2008	IPC	SPS
Jimmy	2003-2005	IPC	ESC
Safari	2003-2005	IPC	ESC
Savana	2003-2008	IPC	ESC
Sierra Classic	2003-2007	IPC	SPS
Sierra	2007-2008	IPC	ESC
Sonoma	2003-2004	IPC	ESC
TopKick	2003-2008	IPC	ESC
Yukon	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
HUMMER			
H2	2003-2007	IPC	SPS
	2008	IPC	ESC
H3	2006-2008	IBCM	Tech2
Oldsmobile			
Alero	2003-2004	IPC	ESC
Bravada	2003-2004	IPC	SPS

Silhouette	2003–2004	IPC	ESC
Pontiac			
Aztek	2003–2005	IPC	ESC
Bonneville	2003–2005	IPC	ESC
G5	2007–2008	IBCM	Tech 2
G6	2005–2008	IBCM	Tech 2
G8	2008	IPC	SPS
Grand Am	2003–2005	IPC	ESC
Grand Prix	2003–2008	DIC	ESC
GTO	2004–2006	IPC	ESC
Montana	2003–2005	IPC	ESC
Montana SV6	2005–2008	IPC	ESC
Pursuit	2005–2006	IBCM	Tech 2
Solstice	2006–2008	IBCM	Tech 2
Sunfire	2003–2005	IBCM	Tech 2
Torrent	2006	IBCM	Tech 2
	2007–2008	IPC	ESC
Vibe	2003–2008	IPC	ESC
Wave	2005–2008	IPC	ESC
Saab			
9-7X	2005–2008	IPC	SPS
Saturn			
AURA	2007–2008	IBCM	Tech 2
ION	2003–2007	IBCM	Tech 2
L-Series	2003–2005	IBCM	Tech 2
OUTLOOK	2007–2008	IPC	ESC
RELAY	2005–2007	IPC	ESC
SKY	2007–2008	IBCM	Tech 2
VUE	2003–2007	IBCM	Tech 2
	2008	IPC	SPS

The purpose of this bulletin is to provide a reference guide to help identify which season odometer programming method to use after replacing the Instrument Panel Cluster (IPC). The three season odometer programming methods in use today are shown. In addition this reference guide lists the component where the season odometer value is stored. The season odometer value may be stored in the IPC the Driver Information Center (DIC) or the Integrated Body Control Module (IBCM) also commonly called a Body Control Module (BCM).

Season Odometer Programming Methods In Use Today

IPC reprogramming and setup using the Service Programming System (SPS).

Odometer setup at the Electronic Service Center (ESC) when using an exchange IPC/DIC.

Tech2(R) - The Tech2 is used to setup a replacement BCM which includes loading the odometer value that is displayed and stored in the IPC. A replacement IPC will display the previously stored vehicle odometer value communicated from the BCM after cycling the ignition or driving the vehicle.

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Disclaimer Technical Service Bulletin # 07187A

Date: 071108

Campaign - Instrument Cluster Warranty Extension

Bulletin No.: 07187A

Date: November 08, 2007

SPECIAL COVERAGE

Subject:

07187A - SPECIAL COVERAGE ADJUSTMENT - INSTRUMENT PANEL CLUSTER GAUGE NEEDLE FUNCTION

Models:

2003-2004 CADILLAC ESCALADE, ESCALADE ESV, ESCALADE EXT
2003-2004 CHEVROLET AVALANCHE, SILVERADO, SUBURBAN, TAHOE
2003-2004 GMC SIERRA, YUKON, YUKON XL

Supercede:

THE SERVICE PROCEDURE IN THIS BULLETIN HAS BEEN REVISED. IN A SMALL NUMBER OF VEHICLES, THE GAUGE SWEEP TEST MAY NOT ALWAYS CONFIRM THE CONDITION. PLEASE REVIEW THE SERVICE PROCEDURE IMMEDIATELY.

DUE TO PART AVAILABILITY, THIS SPECIAL COVERAGE IS BEING ADMINISTERED IN PHASES. YOU WILL BE NOTIFIED AS EACH ADDITIONAL PHASE IS RELEASED.

CUSTOMERS ARE BEING INSTRUCTED TO CONTACT THE DEALERSHIP TO ARRANGE AN APPOINTMENT IF THEY BELIEVE THEIR VEHICLE HAS THIS CONDITION. THE CUSTOMER IS BEING ASKED TO PROVIDE THE VIN SO THE IPC CAN BE ORDERED IN ADVANCE OF THE SCHEDULED APPOINTMENT. THIS WILL ELIMINATE THE NEED TO KEEP THE VEHICLE OVERNIGHT. DEALERS ARE TO OBTAIN THE VEHICLE MILEAGE WHEN SCHEDULING A SERVICE APPOINTMENT. THE VEHICLE MILEAGE WILL BE REQUIRED WHEN PLACING AN ORDER FOR THE IPC.

Condition

Some customers of 2003-2004 model year Cadillac Escalade, Escalade ESV, and Escalade EXT; Chevrolet Avalanche, Silverado, Suburban, and Tahoe; and GMC Sierra, Yukon, and Yukon XL vehicles have reported that one or more of the instrument panel (IP) cluster gauges stick, flutter, or become inoperative. This may cause inaccurate readings, including the speedometer and fuel gauge.

Special Coverage Adjustment

This special coverage covers the condition described above for a period of 7 years or 70,000 miles (110,000 km), whichever occurs first, from the date the vehicle was originally placed in service, regardless of ownership.

Dealers are to replace the instrument panel cluster after the condition has been verified. The repairs will be made at no charge to the customer.

For vehicles covered by Vehicle Service Contracts, all eligible claims with repair orders on or after September 28, 2007 are covered by this special coverage and must be submitted using the labor operation codes provided with this bulletin. Claims with repair orders prior to September 28, 2007, must be submitted to the Service Contract provider.

Vehicles Involved

YEAR	DIVISION	MODEL	FROM	THROUGH
2003	Cadillac	Escalade	3R100001	3R320163
2004	Cadillac	Escalade	4R100006	4R323240
2003	Cadillac	Escalade ESV	3G117982	3G348029

2004	Cadillac	Escalade ESV	4G100001	4G343605
2003	Cadillac	Escalade EXT	3G100002	3G343890
2004	Cadillac	Escalade EXT	4G100005	4G343604
2003	Chevrolet	Avalanche	3G100001	3G347428
2004	Chevrolet	Avalanche	4G100011	4G344788
2003	Chevrolet	Silverado	3E+07	3E+07
2003	Chevrolet	Silverado	3E100001	3E381150
2003	Chevrolet	Silverado	3F100001	3F259060
2003	Chevrolet	Silverado	3M100001	3M112290
2003	Chevrolet	Silverado	3Z100001	3Z361857
2004	Chevrolet	Silverado	4E+07	4E+07
2004	Chevrolet	Silverado	4E100001	4E403760
2004	Chevrolet	Silverado	4F100001	4F269046
2004	Chevrolet	Silverado	4M100006	4M112271
2004	Chevrolet	Silverado	4Z100002	4Z353683
2003	Chevrolet	Suburban	3G100007	3G348254
2003	Chevrolet	Suburban	3J100007	3J346322
2003	Chevrolet	Suburban	3R100004	3R319989
2004	Chevrolet	Suburban	4G100010	4G344801
2004	Chevrolet	Suburban	4J100031	4J333376
2004	Chevrolet	Suburban	4R100001	4R323241
2003	Chevrolet	Tahoe	3J100001	3J346326
2003	Chevrolet	Tahoe	3R100014	3R320162
2004	Chevrolet	Tahoe	4J100005	4J333379
2004	Chevrolet	Tahoe	4R100003	4R323252
2003	GMC	Sierra	3E+07	3E+07
2003	GMC	Sierra	3E100003	3E381153
2003	GMC	Sierra	3F100008	3F259040

2003	GMC	Sierra	3Z100004	3Z900320
2004	GMC	Sierra	4E+07	4E+07
2004	GMC	Sierra	4E100002	4E403758
2004	GMC	Sierra	4F100005	4F269047
2004	GMC	Sierra	4Z100001	4Z900747
2003	GMC	Yukon	3J100003	3J346327
2003	GMC	Yukon	3R100006	3R320129
2004	GMC	Yukon	4J100002	4J333371
2004	GMC	Yukon	4R100002	4R323250
2003	GMC	Yukon XL	3G100020	3G348252
2003	GMC	Yukon XL	3J100006	3J346324
2003	GMC	Yukon XL	3R100002	3R320042
2004	GMC	Yukon XL	4G100023	4G340744
2004	GMC	Yukon XL	4J100001	4J333378
2004	GMC	Yukon XL	4R100004	4R323210

Involved are certain 2003-2004 model year Cadillac Escalade, Escalade ESV, and Escalade EXT; Chevrolet Avalanche, Silverado, Suburban, and Tahoe; and GMC Sierra, Yukon, and Yukon XL vehicles built within the VIN breakpoints shown.

Parts Information - U.S. and Canadian Dealers Only

Instrument panel clusters (IPC) required to complete this special coverage are to be obtained from the Electronic Service Centers. The vehicle mileage will be required when placing an order. Refer to GM Service Policies and Procedures Manual, section 1.5.9, for specific procedures. To eliminate keeping the customer's vehicle overnight, customers are being told to contact the dealership to arrange a service appointment and to supply their VIN. Dealers are to pre-order the IPC identifying the part from the Electronic Parts Catalog using the VIN filter so it will be at the dealership on the day of the scheduled appointment.

1. The customer will contact the dealership to arrange an appointment and provide their VIN.
2. Contact a GM Authorized Electronic Service Center to order an exchange and arrange for delivery of the pre-exchange product.
3. All units will be shipped FedEx Ground (US) or Purolator (Canada).
4. After removal of the defective unit, return the defective core to the Electronic Service Center using the supplied pre-paid Automatic Return shipping (ARS) label.
5. Failure to return the product within 30 days to the Electronic Service Center will result in a charge to the Dealer's Open Parts Account.

Parts Information - Export Dealers Only

For Export Dealers Only: Order appropriate instrument panel cluster from General Motors Service and Parts Operation (GMSPO).

Customer Notification

General Motors will notify customers of this special coverage on their vehicles (see copy of typical customer letter shown in this bulletin - actual divisional letter may vary slightly).

Service Procedure

There are pre-programming instructions for 2003 model year instrument panel clusters (IPC). In order for the engine hours to set to their current value when the IPC is replaced, carefully read and follow the instructions below. This information is applicable for 2003 model year IPCs only. An add time of 0.1 for the pre-programming requirement is published in the Claim section of the bulletin.

2003 Model Year Instrument Panel Cluster (IPC) Pre-Programming Instructions

Install the IPC. Ensure everything is connected properly. The replacement IPC requires SPS Programming and IPC Setup procedures to be performed. It does not matter which procedure is performed first.

Start the engine and then select IPC Setup. You must have the engine running before performing the IPC Setup. Select IPC Setup. With the engine running, enter the appropriate mileage and engine hours.

Select OK. Review the pop up asking you to verify the mileage and engine hours. Move the pop up out of the way if necessary to view the verification screen. This may require a click and drag of the dialog box.

Verify that the mileage and engine hours are correct and select "OK". DO NOT turn the ignition OFF until the engine has run for approximately seven (7) minutes. Allowing the engine to idle for this period of time allows the IPC to accumulate 1/10th of an hour and write the correct engine hour value to the permanent memory.

The engine must be running before set up is performed and run for approximately seven minutes after the user selects "OK" confirming their mileage/engine hour inputs. After approximately seven minutes, shut the engine OFF and complete the event. The seven minute clock starts after you select "OK" confirming the entries.

Note:

Based on feedback from technicians, we are currently making changes to the "IPC Setup" application which will include several enhancements to the set up screens. These are scheduled to be released and available in TIS2WEB very soon.

Only IPC conditions listed in the Condition section of the bulletin are covered under this special coverage program. In a small number of vehicles, the condition may be intermittent and the gauge sweep test may not always verify the condition.

IPC Performance

IPC performance may be affected by the following conditions:

Cold temperatures

Temperature fluctuations

High humidity

Driving over rough surfaces such as dirt roads or potholes

Customer Comments and Observations

Customers who describe gauge performance as jumpy, sticky, slow or erratic. Gauge performance may also be described as being inoperative or inaccurate. For example, for a period of time the speedometer may appear to move normally but be inaccurate and not return to zero (0) after the vehicle comes to a stop. This inaccurate condition may be more or less pronounced during the drive cycle and may, for a time, return to normal operation. A Tech 2 sweep test may not reveal the condition.

Perform a gauge sweep test to determine/verify that an IPC gauge is sticking, stuck, or inoperative. Using the Tech 2, navigate to the following screens to perform the gauge sweep test: Body -> Instrument Panel Cluster -> Special Functions -> IPC Gauges -> Display(s) Test.

If one or more of the gauges are sticking, stuck, or inoperative. Replace the IPC. Refer to Step 2.

If the Tech 2 gauge sweep test does NOT verify the condition but a customer's comments and observations include information that it outlined in the IPC Performance and/or Customer Comments and Observations section of the bulletin, replace the IPC. Refer to Step 2.

If the Tech 2 gauge sweep test does NOT verify the condition but a customer's comments and observations include information that is outlined in the IPC Performance or Customer Comments and Observations section of the bulletin, do NOT replace the IPC. Submit a claim for Perform Tech 2 Gauge Sweep Test.

If the IPC is to be replaced, record the vehicle odometer and engine hour (where applicable) value from the original IPC.

Remove the instrument panel cluster. Refer to the appropriate vehicle IPC removal and installation procedure in SI.

Install the new instrument panel cluster. Refer to the appropriate vehicle IPC removal and installation procedure in SI.

J2534 Pass-Thru or Tech 2 Legacy Pass-Thru Programming Method for the IPC

If Pass-Thru programming fails, call Techline Customer Support Center (TCSC). A "Candi" module is necessary.

CALIBRATION INFORMATION

Do not attempt to order the calibration number from GMSPO. The calibration numbers required for this service procedure are programmed into control modules via a Techline Tech 2(R) scan tool and TIS 2 Web with the calibration update. Use TIS2Web version 8.5 for 2007 (available on 08/20/07). If you cannot access the calibration, call the Techline Customer Support Center and it will be provided.

Before reprogramming, please check the battery condition to prevent a reprogramming error of any of the modules due to battery discharge. Battery voltage must be between 12 and 16 volts during reprogramming. If the vehicle battery is not fully charged, use approved Midtronics PCS charger, a fully charged 12V jumper, or booster pack disconnected from the AC voltage supply. Be sure to turn off or disable any system that may put a load on the battery, such as automatic headlamps, daytime running lights, interior lights, heating, ventilation, and air conditioning (HVAC) system, radio, engine cooling fan, etc. A programming failure or control module damage may occur if battery voltage guidelines are not observed.

The ignition switch must be in the proper position. The Service Programming System (SPS) application prompts you to turn ON the ignition, with the engine OFF. DO NOT change the position of the ignition switch during the programming procedure, unless instructed to do so.

Make certain all tool connections are secure, including the following components and circuits:

The RS-232 communication cable port

The connection at the data link connector (DLC)

The voltage supply circuits

DO NOT disturb the tool harnesses while programming. If an interruption occurs during the programming procedure, programming failure or control module damage may occur.

DO NOT turn OFF the ignition if the programming procedure is interrupted or unsuccessful. Ensure that all control module and DLC connections are secure and the TIS terminal operating software is up to date.

Verify that there is a battery charge of 12 to 16 volts. The battery must be able to maintain a charge during programming. Only use approved Midtronics PCS charger, a fully charged 12V jumper, or booster pack disconnected from the AC voltage supply to maintain proper battery voltage during programming.

IPC Programming and IPC Setup are required after installing the IPC. First select IPC Instrument Panel Cluster from the Supported Controllers screen to perform the first calibration. After completing the first programming event, complete the IPC Setup. Select IPC/IPC Setup from the Supported Controllers screen. The odometer mileage and engine hour information (where applicable) is required to perform the IPC Setup. Follow the TIS2WEB instructions.

For information about odometer mileage and engine hour setup, please refer to Technical Service Bulletin 07-08-49-015.

Reprogram the instrument panel cluster (IPC). Refer to SI and Service Programming System (SPS) documentation for IPC programming instructions, if required.

Claim Information

Repair Performed	Part Count	Part No.	Parts Allow	CC-FC	Labor Op	Labor Hours	Net Item
Perform Tech 2 Gauge Sweep Test	N/A	N/A	N/A	MK-95	T5685	0.2	N/A
Replace & Reprogram IPC (inc. Gauge Sweep Test)	N/A	N/A	N/A	MK-95	T5686	0.9*	\$20.00**
Add: 2003 MY Vehicles (Add'l Vehicle Run Time)						0.1	
Customer Reimbursement (Canadian & Export Dealers/US CAC)	N/A	N/A	N/A	MK-95	T5688	0.2	***
* Labor time includes 0.2 hours administrative allowance. ** The amount identified in the "Net Item" column represents the amount allowed for IPC exchange. *** The amount identified in the "Net Item" column should represent the customer reimbursement amount.							

For vehicles repaired under the terms of this special coverage, submit a claim with the information shown.

Customer Reimbursement - For US

All customer requests for reimbursement for previous repairs for the special coverage condition will be handled by the Customer Assistance Center, not by dealers.

A General Motors Customer Reimbursement Procedure and Claim Form was sent out with the original letter.

Refer to the GM Service Policies and Procedures Manual, section 6.1.12, for specific procedures regarding customer reimbursement and the form.

Customer Reimbursement - For Canada and Export

Customer requests for reimbursement of previously paid repairs to correct the condition described in this bulletin are to be submitted to the dealer within one year. Repairs must have occurred within the 7 years of the date the vehicle was originally placed in service, or 110,000 kilometers, whichever occurs first.

When a customer requests reimbursement, they must provide the following:

Proof of ownership at time of repair.

Original paid receipt confirming the amount of unreimbursed repair expense(s) (including Service Contract deductibles), a description of the repair, and the person or entity performing the repair.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Dear General Motors Customer:

As the owner of a 2003 or 2004 model year Cadillac Escalade, Escalade ESV or Escalade EXT; Chevrolet Avalanche, Silverado, Suburban, or Tahoe; or GMC Sierra, Yukon, or Yukon XL vehicle, your satisfaction with our product is very important to us.

This letter is intended to make you aware that some of these vehicles could develop a condition where one or more of the instrument panel gauge needles may stick, flutter, or become inoperative. This may cause inaccurate readings, including the speedometer and the fuel gauge.

Do not take your vehicle to your GM dealer as a result of this letter unless you believe that your vehicle has this condition.

What We Have Done: General Motors is providing owners with a special coverage that extends the warranty on the instrument panel cluster for the condition described above. If this condition occurs on your 2003 or 2004 model year Cadillac Escalade, Escalade ESV, or Escalade EXT; Chevrolet Avalanche, Silverado, Suburban, or Tahoe; GMC Sierra, Yukon, or Yukon XL within 7 years of the date your vehicle was originally placed in service or 70,000 miles, whichever occurs first, the condition will be repaired for you at no charge.

What You Should Do: Repairs and adjustments qualifying under this special coverage must be performed by a General Motors dealer. If you believe your vehicle has this condition, contact your GM dealer to schedule an appointment at a time that is convenient for you. Your dealer will inspect the vehicle and if the condition is found, your dealer will replace the instrument panel cluster. When calling your dealer, please have your 17 character vehicle identification number (VIN) handy so your dealer can ensure that the cluster will be available on your appointment date. Keep this letter with your other important glove box literature for future reference.

Reimbursement: The enclosed form explains what reimbursement is available and how to request reimbursement if you have paid for repairs for the special coverage condition.

If you have any questions or need any assistance, just contact your dealer or the appropriate Customer Assistance Center at the number listed below. The Customer Assistance Center's hours of operation are from 8:00 AM to 11:00 PM, EST, Monday through Friday.

Division	Number	Text Telephones (TTY)
Cadillac	1-866-982-2339	1-800-833-2622
Chevrolet	1-800-630-2438	1-800-833-2438
GMC	1-866-996-9463	1-800-462-8583
Guam	1-671-648-8650	
Puerto Rico – English	1-800-496-9992	
Puerto Rico – Español	1-800-496-9993	
Virgin Islands	1-800-496-9994	

We are sorry for any inconvenience you may experience; however we have taken this action in the interest of your continued satisfaction with our products.

General Motors Corporation

Technical Service Bulletin # 07-03-10-016

Date: 071217

Wheels/Tires - Changing Tire and Wheel Assemblies

Bulletin No.: 07-03-10-016

Date: December 17, 2007

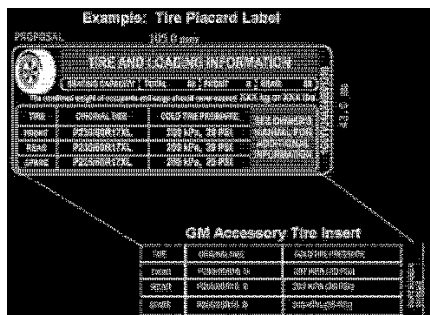
INFORMATION

Subject:
GM Guidelines for Changing Tire and Wheel Assemblies

Models:
2008 and Prior GM Passenger Cars and Light Duty Trucks (including Saturn)
2008 and Prior HUMMER H2, H3

The purpose of this bulletin is to provide additional information and guidance when changing out tire and wheel assemblies on any General Motors vehicle. Given the market demand to personalize vehicles with different tire and wheel assemblies, it is important to remind dealers of the vehicle implications and requirements that are the responsibility of your dealership.

The National Traffic and Canadian Motor Vehicle Safety Act (Safety Act) provides, in part, a dealer may not sell vehicles or equipment that do not comply with the applicable safety standards. Dealers are prohibited from making inoperative, in whole or in part, any part of a device or element of design installed on or in a motor vehicle in compliance with an applicable motor vehicle safety standard. Accordingly, a dealer must replace the vehicle tire and loading placard if, after the dealer installs GM Accessory Wheels and Tires, the information required is no longer accurate.



As a reminder, GM Accessory Wheel and Tire Assemblies are released in approved tire and wheel combinations that have been designed and validated by GM Engineering for a specific vehicle application. Each GM Accessory wheel contains the appropriate installation instructions which may include, but not limited to, change to the TPMS (Tire Pressure Monitoring System), updating the ABS Module to reflect correct tire size, vehicle calibration and updating the tire size information using the Tire Placard insert (as shown in the example).

FMVSS and CMVSS 110, Tire Selection and Rims, requires the "Tire Placard Label Insert" (refer to graphic-English shown - French and Spanish included for accessory wheels) to be affixed to each vehicle.

Do not use the information offered in the ABS module (tire size selection) as a guide to determine what tires are applicable to the vehicle in question. Changing the tire size in the ABS module will only affect ABS wheel speed sensor calibrations that are direct inputs to the ABS module. It will not correct or calibrate the speedometer's accuracy or other sensor values. To verify if GM Accessories offers optional tire and wheel combinations for a specific vehicle configuration, refer to GM Dealer World - "Accessory Information Center". In Canada, refer to GMinfoNET - "Product Information - Accessories" located under Parts & Accessories page.


Installation of Non-GM Products:

Before non-GM products are installed on new vehicles, dealers should refer to Article 5.1.1 of the GM Dealer Sales and Service Agreement ("Dealer Agreement"). If a dealer modifies or sells a modified new vehicle, or installs any equipment, accessory, recycled part or part not supplied by General Motors, the dealer must disclose this fact on the purchase order and bill of sales, indicating that the modification, equipment, accessory or part is not warranted by General Motors. Refer to form "Dealer Disclosure of Non-GM Products Used" in section 3.3 (3.2.1 in Canada) of the GM Service Policy and Procedures Manual.

Vehicle Repairs:

Refer to Article 7.2 of the Dealer Agreement - The dealer agreement provides that dealers will only use genuine GM or GM approved Parts and Accessories in performing warranty repairs, special policy repairs and any other repairs paid for by General Motors. This also is addressed in Article 1.2.4e of the GM Service Policy and Procedures Manual.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Wheels/Tires - Low Tire Pressure

Bulletin No.: 05-03-10-003C

Date: January 15, 2008

TECHNICAL

Subject:
Low Tire Pressure Leaking Cast Aluminum wheels (Repair with Adhesive Sealant)

Models:
2008 and Prior GM Passenger Cars and Light Duty Trucks (including Saturn)
2008 and Prior HUMMER H2, H3
2008 and Prior Saab 9-7X

with Cast Aluminum wheels

Supercede:

This bulletin is being revised to add the 2008 model year and update the Warranty Information section. Please discard Corporate Bulletin Number 05-03-10-003B (Section 03 - Suspension).

Condition

Some customers may comment on a low tire pressure condition.

Diagnosis of the low tire pressure condition indicates an air leak through the cast aluminum wheel.

Cause

Porosity in the cast aluminum wheel may be the cause.

Correction

Remove the tire and wheel assembly from the vehicle. Refer to the appropriate service procedure in SI.

Locate the leaking area by inflating the tire to 276 kPa (40 psi) and dipping the tire/wheel assembly in a water bath or use a spray bottle with soap and water to locate the specific leak location.

If the porosity leak is located in the bead area of the aluminum rim (where the tire meets the rim), the wheel should be replaced.

If two or more leaks are located on one wheel, the wheel should be replaced.

If air bubbles are observed mark the location.

If the leak location is on the tire/rubber area refer to Corporate Bulletin Number 04-03-10-001D or newer - Tire Puncture Repair Procedures for All Cars and Light Duty Trucks.

If the leak is located on the aluminum wheel area continue with the next step.

Inscribe a mark on the tire at the valve stem in order to indicate the orientation of the tire to the wheel.

Dismount the tire from the wheel. Refer to Tire Mounting and Dismounting.

Remove the tire pressure sensor. Refer to Corporate Bulletin Number 04-03-16-002 regarding tire pressure sensor grommet replacement and the appropriate Tire Pressure Sensor removal procedure in SI.

Scuff the INSIDE rim surface at the leak area with # 80 grit paper and clean the area with general purpose cleaner such as 3M(R) General Purpose Adhesive Cleaner P/N 08984 or equivalent.

Apply a 3 mm (0.12 in) thick layer of Silicone - Adhesive/Sealant P/N 12378478 (in Canada use 88900041) or equivalent to the leak area. Allow for the adhesive/sealant to dry.

Caution must be used when mounting the tire so as not to damage the sealer. Damaging the repair area may result in an air leak.

Align the inscribed mark on the tire with the valve stem on the wheel.

Reinstall the Tire Pressure Sensor. Refer to Corporate Bulletin Number 04-03-16-002 regarding tire pressure sensor grommet replacement and the appropriate Tire Pressure Sensor installation procedure in SI.

Mount the tire on the wheel. Refer to Tire Mounting and Dismounting.

Pressurize the tire to 276 kPa (40 psi) and inspect for leaks.

Adjust tire pressure to meet the placard specification.

Balance the tire/wheel assembly. Refer to Tire and wheel Assembly Balancing - Off-Vehicle.

Install the tire and wheel assembly onto the vehicle. Refer to the appropriate service procedure in SI.

Part Number	Description
12378478 (In Canada, use 88900041)	Silicone – Adhesive/Sealant
3M® 08984	3M® General Purpose Adhesive Cleaner

Parts Information

Warranty Information (excluding Saab U.S. Models)

The Silicone - Adhesive/Sealant comes in a case quantity of six. ONLY charge warranty one tube of adhesive/sealant per wheel repair.

One leak repair per wheel.

Labor Operation	Description	Labor Time
E0420	Wheel - One – R&R Or Replace	Use Published Labor operation Time
Add:	To Repair Porosity On Aluminum Wheel	Use Published Labor operation Time
Add:	To Repair Each Additional Wheel	Use Published Labor operation Time

For vehicles repaired under warranty use, the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason	Location Code	Warranty Type	Repair/Action Code	Labor Time
7711001	Wheel - One – R&R Or Replace	77110	55	3-left 4-right 5-all	01	05	Use Published Labor Operation Time
add 7711003	To Repair Porosity On Aluminum Wheel	—	—	—	—	—	0.1 hr
add 7711002	To Repair Each Additional Wheel	—	—	—	—	—	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Disclaimer Technical Service Bulletin # 05-08-46-006N

Date: 071220

OnStar(R) - Updating Analog Systems to Digital

Bulletin No.: 05-08-46-006N

Date: December 20, 2007

INFORMATION

Subject:

Information on Upgrading Certain OnStar(R) Analog/Digital-Ready Systems to OnStar(R) Generation 6 Digital-Capable System

2000-2004 Buick LeSabre
2003-2004 Buick Rendezvous
2004 Buick Rainier, Regal
2004-2005 Buick Century
2002-2004 Cadillac DeVille, Seville
2003-2004 Cadillac CTS
2003-2004 Cadillac Escalade Models
2004-2005 Cadillac SRX, XLR
2005 Cadillac CTS, STS
2002-2004 Chevrolet Impala, Monte Carlo, TrailBlazer Models
2003-2004 Chevrolet Avalanche, Express, Silverado, Suburban, Tahoe
2003-2005 Chevrolet Cavalier, Venture
2004 Chevrolet Colorado
2004-2005 Chevrolet Malibu, Malibu Maxx
2005 Chevrolet Cobalt, Corvette, Equinox
2002-2004 GMC Envoy Models
2003-2004 GMC Savana, Sierra, Yukon Models
2004 GMC Canyon
2001-2003 Oldsmobile Aurora
2002-2004 Oldsmobile Bravada
2003-2004 Oldsmobile Silhouette
2003-2004 Pontiac Aztek
2000-2004 Pontiac Bonneville
2003-2005 Pontiac Montana, Sunfire
2004 Pontiac Grand Prix
2005 Pontiac G6, Pursuit (Canada)
2003-2004 HUMMER H2
2002-2004 Saturn VUE
2003-2004 Saturn ION
2003-2004 Saturn L-Series
with OnStar® (RPO UE1)

Models

Supercede:

This bulletin is being revised to update the information. Please discard Corporate Bulletin Number 05-08-46-006M (Section 08 - Body and Accessories).

This bulletin is being issued to provide dealer personnel with information and procedures to follow should an owner wish to upgrade their OnStar(R) Generation 4 or 5 Analog/Digital-Ready system to an OnStar(R) Generation 6 Digital-Capable system.

Use labor code Z2096 to submit your claim for the labor time published below plus 0.2 hr Administrative Allowance and an additional \$20.00 Net Amount.

For all dealer claim submissions (excluding U.S. Saturn), use Complaint Code MH - Technical Bulletin, and Failure Code 93 - Technical Service Bulletin.

For U.S. Saturn retailer claim submission, use the Net item code "M" and Case Type VW.

Part Number	Model Year and Vehicle Line
19115913 Or 19117013	2004 Grand Prix 2005 Corvette 2005 Equinox
19117088 Or 19117089	2000-2002 LeSabre 2000-2002 Bonneville 2001-2002 Aurora
19115914 Or 19117014	2004 H2 2004 Colorado 2004 Canyon
19115950 Or 19117015	2003 Rendezvous 2003 Aztek
19115951 Or 19117016	2003 Escalade/ESV/EXT 2003 Avalanche 2003 Silverado 2003 Suburban 2003 Tahoe 2003 Sierra 2003 Yukon/ XL
19115952 Or 19117017	2003 H2
19117091 Or 19117101	2003-2004 LeSabre 2004 Regal 2004-2005 Century 2003 CTS (built after and including VIN breakpoint 30148827) 2004 CTS 2003-2004 Express 2004 Impala, Monte Carlo 2003-2004 Savana 2003-2004 Bonneville 2004 L-Series 2003 Aurora
19117094 Or 19117104	2003 CTS (built prior to VIN breakpoint 30148827)

19117097 Or 19117107	2002-2003 Impala, Monte Carlo
19117092 Or 19117102	2002 Deville 2003 DeVille (built prior to VIN breakpoint 3U261178)
19117093 Or 19117103	2002 Seville (without the F45/F55 suspension option) 2003 Seville (built prior to VIN breakpoint 3U261889 without the F45/F55 suspension option)
19117099 Or 19117109	2002 Seville (with the F45/F55 suspension option) 2003 Seville (built prior to VIN breakpoint 3U261889 with the F45/F55 suspension option)
19117095 Or 19117105	2004 SRX (built prior to VIN breakpoint 40171353) 2003 TrailBlazer/EXT 2003 Envoy/XL 2003 Bravada 2003 ION

19117096 Or 19117106	2002 TrailBlazer/EXT 2002 Envoy XL 2002 Bravada
19115912 Or 19117012	2004 Escalade, Escalade ESV, Escalade EXT 2005 CTS (built prior to VIN breakpoint 50162843) 2004 Avalanche, Silverado, Suburban, Tahoe 2004 Sierra, Yukon, Yukon XL
19115503 Or 19117009	2004 Rainier 2004 SRX (built after and including VIN breakpoint 40171353) 2005 SRX (built prior to VIN breakpoint 50169388) 2004 TrailBlazer, TrailBlazer EXT 2004-2005 Venture 2004 Envoy, Envoy XL, Envoy XUV 2004 Bravada, Silhouette 2004-2005 Montana 2004 ION
19115911 Or 19117011	2004 Rendezvous 2004-2005 XLR 2004 Aztek

19116022	2005 STS with option DD7
19117090 Or 19117100	2003 DeVille (built after and including VIN breakpoint 3U261178) Seville (built after and including VIN breakpoint 3U261889) 2004 DeVille, Seville 2003-2005 Cavalier 2003-2005 Sunfire
19116021	2005 STS (with options DD8 & TQ5)
19115502	2005 STS (with option DD8) 2004-2005 Malibu, Malibu Maxx 2005 G6
19115506 Or 19117010	2003 Venture 2003 Silhouette 2003 Montana
19115504	2005 Cobalt 2005 Pursuit
19117026 Or 19117116	2003 L-Series (LW)
19117025 Or 19117115	2003 L-Series (LS)
19117027 Or 19117117	2002 VUE 2003 VUE (built prior to VIN breakpoint 3S885677)
19117098 Or 19117108	2003 VUE (built after and including VIN breakpoint 3S885677) 2004 VUE

Parts Information

The OnStar(R) upgrade kits are ordered by clicking on the Analog-to-Digital Program link, which can be accessed on the OnStar(R) Online Enrollment webpage, located under the sales tab of GM DealerWorld (infoNET for Canadian upgrade orders).

Labor Operation	Model Year and Vehicle Line	Labor Time
	2004-2005 Cadillac XLR	0.4 hr
	2004 Pontiac Grand Prix	0.5 hr
	2004 Buick Rainier 2005 Cadillac STS (with option DD8) 2004 Chevrolet Colorado 2004 Chevrolet TrailBlazer, TrailBlazer EXT 2003-2005 Chevrolet Venture 2005 Chevrolet Equinox 2004 GMC Envoy, Envoy XL, Envoy XUV 2004 GMC Canyon 2004 Oldsmobile Bravada 2003-2004 Oldsmobile Silhouette 2003-2005 Pontiac Montana	0.6 hr
	2003-2004 Buick Rendezvous 2005 Cadillac CTS 2005 Chevrolet Corvette 2003-2004 Pontiac Aztek	0.7 hr
	2003-2004 Buick LeSabre 2003-2004 Chevrolet Express 2003-2004 GMC Savana 2003-2004 Pontiac Bonneville 2003-2004 Saturn L-Series	0.8 hr

Z2096 OnStar® Analog-to-Digital Upgrade Kit-Install*	2002-2004 Cadillac DeVille 2005 Cadillac STS (with options DD8 & TQ5) 2005 Cadillac STS (with option DD7) 2002-2003 Chevrolet TrailBlazer, TrailBlazer EXT 2002-2004 Chevrolet Impala, Monte Carlo 2002-2003 GMC Envoy, Envoy XL, Envoy XUV 2002-2003 Oldsmobile Bravada 2002-2004 Saturn VUE	0.9 hr
	2004-2005 Buick Century 2000-2002 Buick LeSabre 2004 Buick Regal 2003-2004 Cadillac CTS 2005 Chevrolet Cobalt 2001-2003 Oldsmobile Aurora 2000-2002 Pontiac Bonneville	1.0 hr
	2002-2004 Cadillac Seville 2003-2004 Cadillac Escalade, Escalade ESV, Escalade EXT 2003-2004 Chevrolet Avalanche, Silverado, Suburban, Tahoe 2003-2004 GMC Sierra, Yukon, Yukon XL	1.1 hrs
	2004 ION	1.2 hrs
	2003-2004 HUMMER H2	1.4 hrs

2003-2005 Chevrolet Cavalier 2003-2005 Pontiac Sunfire 2003 Saturn ION	1.6 hrs
2004 Cadillac SRX (built after VIN breakpoint 40171353) 2005 Cadillac SRX 2004-2005 Chevrolet Malibu, Malibu Maxx 2005 Pontiac G6	1.7 hrs
2004 Cadillac SRX (prior to VIN breakpoint 40171353)	2.1 hrs
*This is a unique labor operation number for bulletin use only. This number will not be published in the Labor Time Guide.	

Labor Time Information

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Program Overview

Program Overview

To upgrade their vehicle to an OnStar(R) Generation 6 Digital-Capable system, all that a customer must do is:

Take their vehicle to their dealer for the system upgrade.

Pay the dealer the regular retail price (no discounts are available) for one of the following 1-year, non-refundable OnStar(R) Analog-to-Digital Transition (ADT) Service Subscription Plans:

1-year Safe & Sound Subscription: \$199 (\$289 in Canada)

1-year Directions & Connections Subscription: \$399 (\$579 in Canada) Pay the dealer the applicable state and local sales taxes on the subscription:

U.S. Dealers: Taxes only apply in these states: CT, DC, FL, HI, ND, NJ, NM, NY, SC, SD, TX, and WV

Canadian Dealers: All applicable taxes Pay the dealer a one-time charge of \$15 for the upgrade

U.S. Dealers: Do not collect taxes on the \$15

Canadian Dealers: Collect all applicable taxes on the \$15

New customers who started their OnStar(R) subscription on or after 2/20/07, will also be required to pay a \$100 activation fee for their new equipment.

U.S. Dealers: Do not collect taxes on the \$100

Canadian Dealers: Collect all applicable taxes on the \$100

Note:

Dealers should NOT remit OnStar(R) ADT-related taxes to their taxing authority as OnStar(R) is responsible for tax remittance.

Please Be Sure To Read these Important Points:

The 1-year OnStar subscription is not refundable or transferable to another person. Upgrades can apply unused subscription months to a new or Certified Pre-Owned digital OnStar-equipped GM vehicle purchase or lease.

As noted above, the digital upgrade program requires the subscriber to purchase a one-year prepaid OnStar(R) subscription. Assuming the subscriber intends to keep their vehicle, but subsequently purchases or leases a 2006 model year or newer OnStar(R)-equipped new or certified used GM vehicle, in the interest of subscriber satisfaction, they may apply remaining unused whole months of the subscription to the new vehicle. The subscription may not be applied to another person's vehicle.

This is a customer satisfaction measure that would usually occur several months after an upgrade. It is not intended to be leveraged as part of a new/used vehicle purchase or lease transaction.

The \$15 charge and the \$100 activation fee are not refundable.

Dealer ADT kit orders are VIN specific. Dealer kit orders require a VIN and must be exchanged with the OnStar(R) unit in the vehicle with that VIN. Proper activation and enrollment depends on this step.

You must put the actual miles on the Repair Order. Do not estimate.

Customers will receive a new phone number once the digital hardware is installed and configured.

Any remaining OnStar(R) Hands-Free Calling minutes that the customer had in their analog hardware will be transferred to the new digital hardware automatically.

Any nametags that were stored in the old system will need to be re-set by the subscriber once the new hardware is installed.

Customers are responsible for the charges described above regardless of whether their vehicle is in or out of the New Vehicle Warranty period. In addition, customers should not be charged labor costs. Dealers can charge GM the labor for the upgrade as specified at the end of this bulletin using the listed labor operation.

Vehicles eligible for an OnStar(R) hardware upgrade are listed in this bulletin. Vehicle upgradeability can also be determined by typing the VIN into the field entitled "Determine VIN Hardware Functionality" on the OnStar(R) Online Enrollment website, located in the sales tab of GM DealerWorld. Canadian Dealers can use a similar tool that is available within InfoNET.

Access to the sales and/or service tab the OnStar(R) Online Enrollment website can be granted by the dealership's Partner Security Coordinator (PSC). If you are unsure who the PSC is, check with the Sales Manager.

The 1-year OnStar(R) subscription will begin following the expiration of the customer's existing subscription assigned to the vehicle.

Ordering the Upgrade Kit

Ordering the Upgrade Kit

To order a kit, you will need to access the OnStar(R) Online Enrollment webpage, located under the sales or service tab of GM DealerWorld (infoNET for Canadian upgrade orders).

These kits cannot be ordered from GMSPO.

Click on the Analog-to-Digital Program link to start the ordering process. To order a kit, you will need the following information:

VIN

OnStar(R) account holder's first name

OnStar(R) account holder's last name

OnStar(R) account holder's e-mail address (optional)

OnStar(R) account holder's phone number

OnStar(R) account holder's street address

OnStar(R) account holder's ZIP code (or postal code for Canadian upgrades)

6-digit Dealer BAC code and the 5-digit Divisional Dealer Code (do not use a Parts Department Dealer Code).

Service department contacts name, phone number and a dealership e-mail address

Repair Order (R.O.) Number

Mileage on vehicle

Which OnStar(R) subscription plan do they want (Safe & Sound or Directions & Connections)?

After submitting the order, the Terms and Conditions of Your OnStar(R) Service" page will display. This is your confirmation that the upgrade kit order has been created. U.S. Dealers will also receive an e-mail from Autocraft within several hours of ordering an upgrade kit (Canadian Dealers will receive an e-mail from MASS Electronics).

Print the Terms and Conditions of Your OnStar(R) Service page, and have the customer sign a copy.

A copy of this form should be stapled to the customer's copy of the Repair Order and one copy should be retained in the customer service folder.

You will receive the upgrade kit within 48 hours of entering your order through the OnStar(R) Online Enrollment webpage. To check on the status of your order, U.S. Dealers can log onto the distributors website at www.autocraft.com. Canadian dealers can call MASS Electronics at 877-410-6277.

Upgrade Kit Installation

Skip to the next step if the vehicle to be upgraded is not listed below:

2003 Buick Rendezvous

2003 Cadillac Escalade, Escalade ESV, Escalade EXT

2003 Chevrolet Avalanche, Silverado, Suburban, Tahoe, Venture

2003 GMC Sierra, Yukon, Yukon XL

2003 HUMMER H2

2003 Oldsmobile Silhouette

2003 Pontiac Aztek, Montana

Unscrew the existing analog OnStar(R) antenna mast from the antenna base and discard. Screw the provided Digital-Capable OnStar(R) antenna mast onto the antenna base.

Skip to the next step if the vehicle to be upgraded is not listed below:

2000-2004 Buick LeSabre

2004 Buick Regal

2004-2005 Buick Century

2002-2004 Cadillac DeVille, Seville

2003-2004 Cadillac CTS

2004 Cadillac SRX built prior to VIN breakpoint 40171353

2002-2003 Chevrolet TrailBlazer, TrailBlazer EXT

2003-2004 Chevrolet Express

2002-2004 Chevrolet Impala, Monte Carlo

2003-2005 Chevrolet Cavalier

2002-2003 GMC Envoy, Envoy XL

2003-2004 GMC Savana

2001-2003 Oldsmobile Aurora

2002-2003 Oldsmobile Bravada

2000-2004 Pontiac Bonneville

2003-2005 Pontiac Sunfire

2003-2004 Saturn L-Series

2003 Saturn ION

2002-2004 Saturn VUE

Replace the existing OnStar(R) analog on-glass antenna mast, inner coupler and outer coupler with the provided new Digital-Capable antenna components. Refer to the antenna component replacement instructions included in the kit or those found in the Cellular Communication section of SI. You must follow these instructions carefully in order to ensure proper adhesion of the new antenna.

Skip to the next step if the vehicle to be upgraded is not a 2005 Cadillac STS. The 2005 Cadillac STS kit may include a new inside rearview (ISRV) mirror assembly and a new ISRV mirror wiring cover. If the kit you receive includes these parts, please remove the existing ISRV mirror and wire cover from the vehicle and install the ones provided in the kit per the instructions in SI.

Skip this step if the vehicle to be upgraded is not listed below.

2003-2004 Saturn L-Series

2003 Saturn ION

2002-2003 Saturn VUE

Locate and remove the Right Audio output signal terminal 7 from Connector C2 at the Vehicle Communication Interface Module (VCIM).

Remove the terminal end and strip the wire.

Locate the Left Audio output signal wire from terminal 1 in Connector C2.

Splice the Right Audio output signal wire from terminal 7 with the Left Audio output signal wire from terminal 1.

See Wiring Repairs in SI for approved splicing methods.

Replace the OnStar(R) Vehicle Communication Interface Module (VCIM) in the vehicle with the provided Digitally-Capable VCIM. Refer to the Communication Interface Module Replacement procedure in the Cellular Communication section of SI. This kit may include a new VCIM bracket. If it does, use this new bracket on the vehicle and discard the original bracket. The kit may also include a small wiring jumper cable. If it does, plug the wiring jumper cable into the connector on the VCIM and the other end to the corresponding vehicle wiring harness connector.

For 2002 and 2003 Chevrolet Impala and Monte Carlo, do not reinstall the black plastic OnStar(R) module cover onto the vehicle after the VCIM and module bracket have been installed. This black plastic cover will no longer fit on the vehicle.

The upgrade kit for 2002 Seviles and DeVilles, and some 2003 Seviles and DeVilles, will contain a large bracket. To install the new VCIM into this bracket you'll need to carefully line up the notch in the VCIM with the tab in the bracket.

On 2002 Seviles and DeVilles, the GPS jumper cable MUST be unclipped from the back seat cross brace, or unplugged from the VCIM first. DO NOT pull back on the mounting bracket until the GPS antenna jumper cable is unclipped from the back seat cross brace or unplugged from the VCIM. The short length of jumper cable does not allow the VCIM mounting bracket to be pulled back very far, and could lead to a break at the VCIM connector.

On 2000-2002 Bonneville and LeSabres and 2001-2002 Auroras you will need to follow these steps:

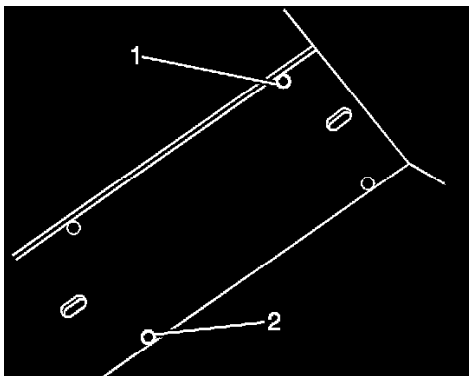
Remove the 4 nuts that secure the VCU/VIU bracket assembly to the rear seat back brace.

Note:

Save these nuts for later use.

Remove the plastic VCU/VIU bracket assembly from the vehicle.

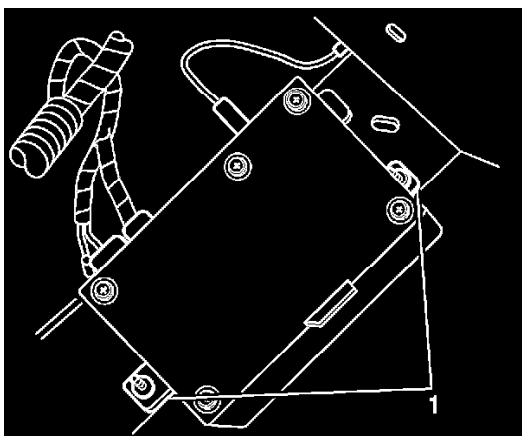
Discard the plastic VCU/VIU bracket assembly.



Remove the upper right stud (1) from the rear seat back brace and re-install in the middle lower slot (2) on the brace.

Tighten the fastener to 4 N.m (36 lb in).

Position the new VCIM in the vehicle over the studs on the rear seat back brace.



Install two of the nuts saved from step (1).

Tighten the nuts to 4 N.m (36 lb in).

Connect the new OnStar jumper harness supplied in the kit to the VCIM (two white connectors) and the body wiring harness (C345 connector).

Connect the small coaxial jumper cable supplied in the kit, to the VCIM, with the end that has a blue plastic housing connector. Plug the other end of this coaxial jumper cable to the OnStar Global Positioning Satellite (GPS) antenna coaxial cable at the right angle connector.

Note:

The GPS cable in the new OnStar jumper harness is not utilized.

Connect the cellular coaxial cable to the OnStar VCIM.

After replacing the VCIM, it is essential to configure the new OnStar(R) system. Failure to configure the system will result in an additional customer visit for repair. DO NOT press and hold the white dot button on the keypad as it will not reset this version of the OnStar(R) system and may result in a DTC being set. Use of the TIS2WEB and SPS applications, along with the Tech 2, are required in order to perform the VCIM configuration and setup procedure for this vehicle. The configuration and set-up procedure is now a two-step process which enables an automated activation by the OnStar(R) Center, without a button press by the technician to the OnStar(R) Call Center.

Connect the Tech 2(R) to the vehicle.

Connect the Techline Information System (TIS) terminal to the Tech 2(R).

Scroll to the bottom of the Controller List, and select the " ONSA TIS2WEB Pass-Thru OnStar(R) Activation (Replaced/Upgraded Units Only)" option using the Service Programming System (SPS).

Do not use the clear DTC function. This will only temporarily turn the LED to green.

Upon completion of the OnStar(R) TIS2WEB step, disconnect the TIS terminal from the Tech 2(R) and perform the VICM/OnStar(R) Set-up Procedure using the Tech 2(R). The set up procedure is located under the special function menu option.

Failure to perform the above steps will result in a red LED, DTC being set and limited or incomplete OnStar(R) services, and will require a customer return visit to the dealership.

The default language for the new VCIM will be English. To change to French or Spanish, access the special functions menu on the Tech 2(R), and follow the instructions accordingly.

OnStar(R) Emergency Services are immediately available after these steps, however, full configuration, including activation of Hands-Free Calling (HFC), may take up to 24 hours to complete.

Skip to the next step if the vehicle to be upgraded is not listed below:

2002-2004 Cadillac DeVille

2002-2004 Cadillac Seville

2005 Cadillac STS

Set up the Dash Integration Module (DIM) using the following procedure:

On the Tech 2 select the correct Year, Make and Model.

Enter Dash Integration Module (DIM)> Special Functions> Set Options> Misc. Options 1 > and turn off phone (if the vehicle does not have the UV8 option).

Enter Nav Radio Present and set to "No Nav" (if the vehicle does not have a navigation radio).

Turn the ignition off and open the door to turn off the RAP.

Turn the ignition on and enter the Vehicle Comm. Interface Module > Special Functions> Set Up OnStar VCIM.

When prompted select "No Phone" (if the vehicle does not have the UV8 phone) and "No Nav" (if the vehicle does not have a navigation radio).

Turn the ignition off and open the door to turn off the RAP.

OnStar(R) Emergency Services are immediately available after these steps, however, full configuration, including activation of Hands-Free Calling (HFC), may take up to 24 hours to complete.

Processing the Module Exchange

Processing the Module Exchange

For this program, submitting a credit request for the removed OnStar(R) VCIM (the core) will be performed through a website. When this process is followed, the removed Analog / Digital-Ready VCIM, in most cases, will not be mailed back to the distributor, but can be scrapped by the dealership.

U.S. Dealers

Return the removed Analog / Digital-Ready OnStar(R) VCIM to the Parts Manager.

The Parts Manager will log onto www.autocraft.com.

Select Account Maintenance.

Select Outstanding Cores.

Choose the outstanding core you wish to process, by selecting the Virtual Core Button on the far right side of the screen.

Enter the information in the required fields and select the submit button.

Record the confirmation number.

Canadian Dealers

Return the removed Analog / Digital-Ready OnStar(R) VCIM to the Parts Manager.

The Parts Manager will log onto <https://adt.onstar.gm.mass.ca> and enter information as prompted.

If the website indicates that the VCIM needs to be physically returned to the distributor, please use the pre-paid shipping label that was included in the kit to return the removed VCIM.

To avoid a \$250 core non-return charge, you must do one of the following within 30 days of kit shipment:

Submit the necessary VCIM data through the website, as indicated above.

Mail the removed core from the customer's vehicle back to the distributor.

Return the unused digital upgrade kit back to the distributor using the pre-paid shipping label that is included in the kit box.

Returning the Upgraded Vehicle to the Customer

Place the new OnStar Subscriber Information (Owner's Manual kit) in the customer's vehicle where they can review some of the new features of the Digital-Capable system. The continuous digit dialing feature should be highlighted to the customer to avoid a return to the dealership for dialing instructions. Advise the customer to discard any existing OnStar(R) Owner's Manuals that may be in the vehicle.

Have the Service Advisor, Service Manager or Sales Consultant review the new OnStar(R) Hands-Free Calling procedure with the customer. The customer is used to their Generation 4 or 5 OnStar(R) Hands-Free Calling system, which uses individual digit dial to make a call. The Generation 6 Digital-Capable system uses continuous digit dial, and the customer needs to be made aware of this change.

U.S. Dealers Only: Staple the "Tip Sheet - OnStar(R) Generation 6 Digitally-Capable System", that was included in the kit, to the customer's copy of the repair order. This tip sheet will help your customer better understand their new OnStar(R) system.

Canadian Dealers Only: Refer the customer to the HFC Quick Review Card from the new OnStar(R) Owner's Manual kit for help with the new dialing procedure.

Fill out the form entitled "GM Limited Warranty for Upgraded OnStar(R) Digital Equipment Program Participants" and staple a copy of this to the customer's repair order. You may want to keep a copy for your records.

Encourage your customer to press their blue OnStar(R) button the next day. The OnStar(R) advisor will be able to review some of the new features of their digital OnStar® system.

Closing the OnStar(R) Upgraded Exchange

Collect payment from the customer. Your dealership's open account (sales) will be charged for the cost of the chosen subscription plan, any applicable subscription taxes, the \$15 upgrade charge, and the \$100 activation fee (if applicable) after the vehicle has been configured through the TIS2WEB process.

None of the costs associated with the OnStar Digital Upgrade program may be claimed as a GM goodwill event. These costs must be paid by the customer, and may not be included in any goodwill offered to the customer. GM employees or representatives or field personnel are not able to offer goodwill for this program. If the dealership decides to pay for the upgrade for their customer, be aware that your GM or OnStar(R) contact will not be able to reimburse you for this cost.

Technical Service Bulletin # **02-08-46-007C**

Date: **071119**

OnStar(R) - Loss of GPS Signal/Hands Free Issues

Bulletin No.: 02-08-46-007C

Date: November 19, 2007

INFORMATION

Subject:

Information on OnStar(R) System - Possible Loss of GPS Signal, Hands-Free Calling Minutes Expire Prematurely and/or Inability to Add Hands-Free Calling Minutes

Models:

2001-2008 GM Passenger Cars and Light Duty Trucks (Including Saturn)

2003-2008 HUMMER H2

2006-2008 HUMMER H3

2005-2008 Saab 9-7X

with OnStar(R) System (RPO UE1)

Supersede:

This bulletin is being revised to add the 2008 model year, warranty information and to provide GPS signal recovery steps (under Dealer Action heading) to do PRIOR to determining if the VIU/VCIM needs replacement. Please discard Corporate Bulletin Number 02-08-46-007B (Section 08 - Body & Accessories).

If the vehicle currently has analog-upgradable OnStar(R) hardware, then the customer should be made aware of the digital upgrade program per the latest version of Service Bulletin # 05-08-46-006. Any analog OnStar system that is not upgraded prior to the end of 2007 will be deactivated due to the upcoming phase-out of the analog cellular network in the U.S. and Canada. If the vehicle has recently been upgraded or has had a service replacement unit installed, this bulletin may not be applicable.

Certain 2001-2008 model year vehicles equipped with OnStar(R) may exhibit a condition with the Global Positioning System (GPS) that causes inaccuracies in the GPS clock. The GPS system is internal to the OnStar(R) Vehicle Interface Unit (VIU) or the Vehicle Communication Interface Module (VCIM). This inaccuracy can result in a symptom where the OnStar(R) Call Center is unable to obtain an accurate GPS signal, hands-free calling minutes expire prematurely and/or the inability to add Hands-Free calling minutes.

Customer Notification

OnStar(R) will notify the customer by mail with instructions to contact their dealership service department.

Dealer Action

Not all vehicles will require VIU/VCIM replacement.

The GPS signal in some vehicles may be recoverable. To determine if the signal is recoverable, simply connect the Tech2(R) and using the GPS information data display option, observe the GPS date and time. If the date/time stamps are equal to a date approximately 19 years in the future, the GPS clock has exceeded its capacity and the VIU/VCIM will need to be replaced. If the date/time stamp is in the past or near future, the GPS clock has simply generated an inaccurate value and may be recoverable by performing the following power-up reset.

To initiate a power-up reset, battery voltage (batt. +) must be removed from the VIU/VCIM. The preferred methods, in order, of initiating the reset are outlined below.

Remove the fuse that supplies Battery positive (Batt. +) voltage to the module (refer to the applicable Service Information schematics for the appropriate fuse).

The next preferred method is to remove the connector to the OnStar(R) unit that Batt + is contained.

The least preferable method is to remove the negative terminal of the vehicle battery. This will not only initiate the power-up reset, but it may also result in the loss of radio presets and other stored personalization information/settings in other modules as well.

After initiating the power-up reset, the GPS data will be set to the defaulted date and time and will require an acquisition of the GPS signal in order to gain the proper date and time.

Acquiring the GPS signal requires running the vehicle in an open/unobstructed view of the sky. First, contact OnStar(R) Technical Support by pressing the blue button. Allow the OnStar(R) Technical Advisor to activate the GPS recovery process. This should take approximately 10 minutes. Continue to monitor the Tech2(R) for the current time and date. REMINDER - Keep in mind that the time displayed on the Tech2(R) is in Greenwich Mean Time (GMT) and the offset is based on the time zones relationship to GMT.

If replacement of the VIU/VCIM is necessary, you MUST reconfigure the OnStar® system. Failure to reconfigure the system will result in an additional customer visit for repair. OnStar® VIU, Generations 2 and 3, will require the technician to press the blue OnStar® button to reconfigure the vehicle with an OnStar® advisor.

OnStar(R) VCIM, Generations 4-7 will require the technician to reconfigure the vehicle with the use of the TIS2WEB and SPS applications (pass thru only), along with the Tech2(R).

The configuration and set-up procedure is a two-step process that must be completed step-by-step without interruption or delay in between each step. This procedure enables an automated activation without a button press by the technician to the OnStar(R) Call Center. Following this procedure, it may take up to 24 hours for all OnStar(R) services to be fully activated.

How to Order Parts

If the OnStar(R) GPS date/time stamp is non-recoverable and the unit needs to be replaced, dealers in the U.S. should contact Autocraft Electronics select the catalog item that contains this bulletin number. Canadian dealers should contact MASS Electronics.

Dealers DO NOT need to call the GM Technical Assistance Center (TAC) for replacement approval. Autocraft Electronics and MASS Electronics will be responsible for verifying that the subject vehicle is a candidate for a replacement VIU/VCIM.

Warranty Information (excluding Saab U.S. Models)

Labor Operation	Description	Labor Time
R9742*	VIU/VCIM GPS Signal Recovery Process	0.5 hr
R5140	Vehicle Interface Unit (VIU/VCIM) – Replace	Use Published Labor Operation Time
*This labor operation number is for bulletin use only. This number will not be published in the Labor Time Guide.		

For vehicles repaired under warranty, use the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason Code	Location Code	Warranty Type	Repair/Action Code	Labor Time
3691005*	VIU/VCIM GPS Signal Recovery Process	36910	67	0	01	05	0.5 hr
3691002	Vehicle Interface Unit (VIU/VCIM) – Replace	36910	62	0	01	01	Use Published Labor Operation Time
*This labor operation number is for bulletin use only. This number will not be published in STM.							

For vehicles repaired under warranty, use the table.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Technical Service Bulletin # **06-08-61-003B**

Date: **080122**

Body/Frame - Pop/Clunk Noise On Turns/Bumps

Bulletin No.: 06-08-61-003B

Date: January 22, 2008

TECHNICAL

Subject:

Underbody Pop or Clunk Type Noise while Turning or Driving on Uneven Road Surfaces (Install Body Mount Insulator)

Models:

2004-2006 Cadillac Escalade, Escalade ESV, Escalade EXT

2004-2006 Chevrolet Avalanche, Suburban, Tahoe

2004-2007 Chevrolet Silverado (Classic)

2004-2006 GMC Yukon, Yukon XL, Yukon Denali, Yukon Denali XL

2004-2007 GMC Sierra, Sierra Denali (Classic)

2003-2008 HUMMER H2

Supercede:

This bulletin is being revised to add the 2008 HUMMER H2. Please discard Corporate Bulletin Number 06-08-61-003A (Section 08 - Body and Accessories).

Condition

Some customers may comment on a pop or clunk type noise while turning or driving on uneven road surfaces. This noise can be heard and/or felt at either the drivers or front passenger floor pan area.

Cause

Under certain conditions normal movement between the frame and body mount may cause this noise to occur.

Correction

Install an insulator at the right and left side # 1 body mounts. The insulator should be installed between the upper portion of the body mount and the frame bracket. The # 1 mount is the mount located just under the A-pillar. Use the procedure listed below.

Raise the vehicle on the hoist. It is recommended to use a four-post lift or strap the vehicle frame to the hoist arms.

For the left side mount only remove the intermediate park brake cable. Perform the following steps:

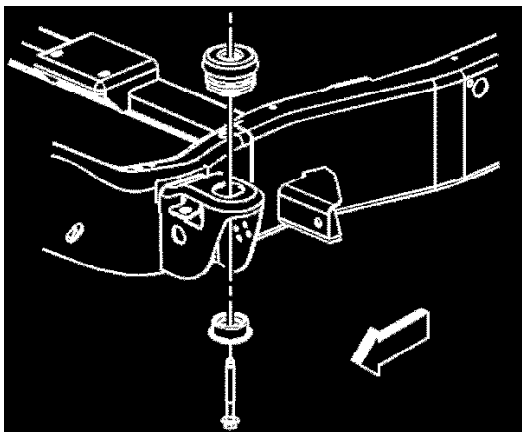
Remove the nut from the park brake equalizer.

Remove the intermediate cable from the equalizer.

Depress the retaining tabs that secure the park brake cable to the frame.

Pull slightly on the cable from the mounting area in order to provide slack for body movement without binding the cable. Remove all of the body mount bolts on the side being repaired.

Properly support the body at the # 1 body mount area.



When you remove the body mount, do NOT separate the frame from the body more than necessary. possible personal injury and damage to multiple parts may result.

Lower the chassis accordingly in order to remove the upper portion of the # 1 body mount.

While the body mount is removed, check the underbody area that interfaces with the top of the body mount for excess build-up of E-Coat Primer or other foreign material. If the surface is not smooth use a 90 degree die grinder, or equivalent to remove the excessive build-up. Apply an anti-corrosion protection, P/N 12378398 (in Canada, 10952414), to the bare surface as necessary to prevent rusting.



Install the new insulator to the bottom of the top portion of the # 1 body mount. The picture shows the insulators (1) location after the body mount is reassembled.

Install the # 1 body mount to the frame bracket.

Perform the following procedure before installing the bolts.

Clean the bolt threads of all the original thread locking compound.

Clean the threads of the bolt with denatured alcohol or equivalent and allow to dry.

Apply Threadlocker GM P/N 89021297 (In Canada use P/N 10953488).

Install the body mount bolts.

Tighten

For 2003, 2004 and 2005 model year tighten the bolts to 85 N.m (63 lb ft).

Tighten

For 2006-2008 model year tighten the bolts to 100 N.m (74 lb ft).

Reinstall the intermediate park brake cable.

Repeat steps 3-9 for the other side.

Test drive the vehicle to verify the repair.

Part Number	Description	Qty
15899719	Insulator, Body	2


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
E9438*	Install Insulator to #1 Body Mount	1.7 hrs
* This labor operation number is for bulletin use only. This number will not be published in the Labor Time Guide.		

For vehicles repaired under warranty, use the table.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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Technical Service Bulletin # **04-06-01-029B**

Date: **080205**

Engine - Crankcase Flushing Information

Bulletin No.: 04-06-01-029B

Date: February 05, 2008

INFORMATION

Subject:

Unnecessary Engine Crankcase and Subsystems Flushing Services Additive Recommendations and Proper Utilization of GM Simplified Maintenance Schedule to Enhance Customer Service Experience

Models:

2008 and Prior GM Passenger Cars and Trucks (including Saturn)

2008 and Prior HUMMER H2, H3

2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 04-06-01-029A (Section 06 - Engine/Propulsion System).

An Overview of Proper Vehicle Service

General Motors is aware that some companies are marketing tools and equipment to support a myriad of engine crankcase and subsystem flushing procedures. These dedicated machines are in addition to many engine oil cooling system fuel system A/C and steering system additives available to the consumer. GM Vehicles under normal usage do not require any additional procedures or additives beyond what is advised under the former Vehicle Maintenance Schedules or the current Simplified Maintenance Schedules. Do not confuse machines available from Kent-Moore/SPX that are designed to aid and accelerate the process of fluid changing with these flushing machines.

Engine Crankcase Flushing

General Motors Corporation does not endorse or recommend engine crankcase flushing for any of its gasoline engines. Analysis of some of the aftermarket materials used for crankcase flushing indicate incompatibility with GM engine components and the potential for damage to some engine seals and bearings. Damage to engine components resulting from crankcase flushing IS NOT COVERED under the terms of the New Vehicle Warranty.

GM Authorized Service Information: Detailed, Descriptive, and Complete

If a specific model vehicle or powertrain need is identified GM will issue an Authorized Service Document containing a procedure and if required provide make available or require the specific use of a machine tool or chemical to accomplish proper vehicle servicing. An example of this is fuel injector cleaning. Due to variation in fuel quality in different areas of the country GM has recognized the need for fuel injector cleaning methods on some engines though under normal circumstances this service is not part of the maintenance requirements.

GM has published several gasoline fuel injector cleaning bulletins that fully outline the methods to be used in conjunction with GM Part Numbered solutions to accomplish proper and safe cleaning of the fuel injectors with preventative maintenance suggestions to maintain optimum performance. You may refer to Corporate Bulletin Numbers 03-06-04-030 and 04-06-04-051 for additional information on this subject.

Subsystem Flushing

Flushing of A/C lines radiators transmission coolers and power steering systems are recognized practices to be performed after catastrophic failures or extreme corrosion when encountered in radiators. For acceptable A/C flushing concerns refer to Corporate Bulletin Number 01-01-38-006. Flushing will remove metal fragments and safeguard new components. This practice is NOT required or recommended for normal service operations.

Service Is Important to You and Your Customer

General Motors takes great pride in offering our dealerships and customers high quality vehicles that require extremely low maintenance over the life of the vehicle. This low cost of ownership builds repeat sales and offers our customers measurable economy of operation against competing vehicles.

Providing responsible services at the proper intervals will greatly aid your dealership with repeat business and additional services when required. Most customers appreciate and gain trust in the dealership that informs and offers them just what they need for continued trouble-free operation. Examine your service department's practices and verify that all Service Consultants and Technicians focus on customer satisfaction vehicle inspections and other products at time of service. Use this opportunity to upgrade the services you provide to your customers. Here are a few suggestions:

Take the time required to align your dealership service practices with the new GM Simplified Maintenance Schedule launched with the 2004 models (in Canada, the GM Merchandising Maintenance Process launched with the 2003 models). Use the new vehicle Owners Manual Maintenance I and II schedules (in Canada, use the "Warranty, Maintenance and Owner Assistance information" booklet and the vehicle's "Owner Manual" Maintenance Schedule) to create a "mirror image" in your advertising and dealer service pricing that is easily understandable to your customer. Taking advantage of this new service strategy may greatly increase your dealership service sales and customer retention while decreasing the frequency of visits and inconvenience to your customer.

Review your program to ensure that all vehicles coming in are evaluated for safety and wear items. Examine all vehicles for tire condition, signs of misalignment, brake wear, exterior lamp functionality, exhaust condition, A/C cooling performance, SRS or Air Bag MIL, along with Service Engine Soon or Check Engine indicators. If the Service Engine Soon or Check Engine MIL is illuminated, it is vital that you inform the customer of the concerns with ignoring the indicator and what the required repair would cost. In addition to the possibility of increased emissions and driveability concerns, many customers are unaware that lower gas mileage may also result, with additional cost to the customer.

Be complete in your service recommendations. Some sales opportunities are not being fully pursued nationally. Focus on overlooked but required maintenance that has real benefits to the customer. Many vehicles are equipped with cabin air filters. If these filters are used beyond replacement time, they may impede airflow decreasing A/C and heating performance. Make sure these filters are part of your recommended service. Note that some of our vehicles may not have been factory equipped but will accept the filters as an accessory.

Express the value in maintaining the finish quality of the customers vehicle at the Maintenance I and II visits (in Canada, Semi-Annual and Annual Service inspections). More fully utilize the vehicle prep personnel you already have in place. In today's world, many people simply ignore the finish of their vehicle, at best infrequently using an automatic car wash for exterior cleaning. Offer vehicle detailing services in stages from just a wash and wax to a complete interior cleaning. When paired with the Simplified Maintenance (in Canada, the Semi-Annual and Annual Service) visit, this will increase customer satisfaction. On return, the customer gets a visibly improved vehicle that will be a source of pride of ownership along with a vehicle that is now fully maintained. Also, reinforce the improved resale value of a completely maintained vehicle.

For customers who clean and maintain the appearance of their vehicles themselves encourage the use of GM Vehicle Care products. Many customers may have never used GM Car Wash/Wax Concentrate, GM Cleaner Wax or a longtime product, GM Glass Cleaner, which is a favorite of many customers who try it just once. If your dealership give samples of these products with new car purchases, customers may already be sold on the product but not willing to make a special trip to the dealership. Capitalize on sales at this time. Stock shelves right at the Service counter with these products and consider instituting compensation programs for Service Consultants who suggest these products. Many consumers faced with an intimidating wall full of car care products sold at local auto parts stores may find it comforting to purchase a fully tested product sold by GM that they know will not harm the finish of their vehicle.

In USA:
 #12378401 GM Vehicle Care Wash/Wax Concentrate 16 fl. oz. (0.473L)
 #89021822 GM Vehicle Care Glass Cleaner Aerosol 18 oz. (510 g)
 #12377966 GM Vehicle Care Cleaner Wax 16 fl. oz. (0.473L)
 #1052929 GM Vehicle Care Chrome and Wire Wheel Cleaner 16 fl. oz. (0.473L)
 #12378554 GM Vehicle Care Odor Eliminator 16 fl. oz. (0.473L)

In Canada:
 #10953203 GM Vehicle Care Wash & Wax Concentrate 473 mL
 #992727 GM Glass Cleaner Aerosol 500 g
 #10952905 GM Vehicle Care Liquid Cleaner/Wax 473 mL
 #10953013 GM Vehicle Care Chrome Cleaner and Polish 454 mL
 #10953202 GM Vehicle Care Wheel Brite 473 mL
 #88901678 GM Vehicle Care Odor Eliminator 473 mL


We suggest the competitively priced basic vehicle care products shown to emphasize.

Display signboards with the installed price for popular GM Accessories such as running boards and Tonneau Covers. Customers may not think to ask about these desirable items at the time of a service visit.

Finally, take advantage of the GM Goodwrench initiatives (Tire Program, Goodwrench Credit Card, etc. / Dealer Marketing Association (DMA) Promotions in Canada) to provide the customer with more reasons to identify your dealership as the best place to go for parts and service.

Remember to utilize ALL of the service aspects you possess in your dealership to satisfy and provide value to your customer. Many businesses exist profitably as an oil change location a vehicle repair facility or a detailing shop alone. You already have the capabilities of all three and provide these services with the inherent trust of your customer under the GM Mark of Excellence.

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WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION

Disclaimer Technical Service Bulletin # **06-06-01-010A**

Date: **080204**

Exhaust System - Catalytic Converter Precautions

Bulletin No.: 06-06-01-010A

Date: February 04, 2008

INFORMATION

Subject:

Information on Close-Coupled Converter and Engine Breakdown or Non-Function Due to Severe Overheat or Lack of Oil Causing Piston(s) Connecting Rod(s) Crankshaft Cylinder(s) and/or Head(s) Camshaft(s) Intake and/or Exhaust Valve(s) Main and/or Rod Bearing(s) Damage

Models:

2004-2008 GM Passenger Cars and Trucks

with Close-Coupled Catalytic Converters

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 06-06-01-010 (Section 06 - Engine/Propulsion System).

Certain 2004-2008 General Motors products may be equipped with a new style of catalytic converter technically known as the close-coupled catalytic converter providing quick catalyst warm-up resulting in lower tail pipe emissions earlier in the vehicle operating cycle.

If an engine breakdown or non-function were to occur (such as broken intake/exhaust valve or piston) debris may be deposited in the converter through engine exhaust ports. If the engine is non-functioning due to a severe overheat event damage to the ceramic "brick" internal to the catalytic converter may occur. This may result in ceramic debris being drawn into the engine through the cylinder head exhaust ports.

If a replacement engine is installed in either of these instances the replacement engine may fail due to the debris being introduced into the combustion chambers when started.

When replacing an engine for a breakdown or non-function an inspection of the catalytic converters and ALL transferred components (such as exhaust/intake manifolds) should be performed. Any debris found should be removed. In cases of engine failure due to severe overheat dealers should also inspect each catalytic converter for signs of melting or cracking of the ceramic "brick". If damage is observed the converter should be replaced.

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Disclaimer Technical Service Bulletin # 00-06-01-012C

Date: 080414

Engine - Use of 'Surface Conditioning Disks' INFORMATION

Bulletin No.: 00-06-01-012C

Date: April 14, 2008

Subject:

Use of "Surface Conditioning Disks" When Cleaning Engine Gasket Sealing Surfaces and/or Reused Engine Parts

Models:

2009 and Prior GM Passenger Cars and Trucks (including Saturn)

2009 and Prior HUMMER H2 Models, H3

2009 and Prior Saab 9-7X

Supersede:

This bulletin is being revised to add the 2008 and 2009 model years. Please discard Corporate Bulletin Number 00-06-01-012B (Section 06 - Engine/Propulsion System).

The Use of "Surface Conditioning Disks"

Notice:

Do not use abrasive pad/bristle devices to clean the gasket surfaces of engine components. Abrasive pads should not be used for the following reasons:

- ^ Abrasive pads will produce fine grit that the oil filter will not be able to remove from the oil. THIS GRIT IS ABRASIVE AND HAS BEEN KNOWN TO CAUSE INTERNAL ENGINE DAMAGE. Abrasive pads can easily remove enough material to round cylinder head surfaces. This has been known to affect the gaskets ability to seal especially in the narrow seal areas between the combustion chambers and coolant jackets.
- ^ Abrasive pads can also remove enough metal to affect cylinder head block oil pan rail and intake manifold runner flatness which can cause coolant and oil leaks. It takes about 15 seconds to remove 0.203 mm (0.008 in) of metal with an abrasive pad.

When cleaning engine gasket sealing surfaces and/or cleaning parts from an engine that are to be reused surface conditioning disks (typically constructed of woven fiber or molded bristles) that contain abrasives such as a high amount of Aluminum Oxide should NOT be used.

The use of such surface conditioning disks dislodges Aluminum Oxide (from the disk) and metal particles which can lead to premature engine bearing failure.

The presence of Aluminum Oxide in engine oil has been shown to cause premature engine bearing failure. In some cases this failure occurs in as little as 2,200 km (1,000 mi) or less after the repair has been made.

Surface conditioning disks may grind the component material and imbed it into the disk. This can result when more aggressive grinding of the gasket surface takes place.

Recommended Cleaning Procedure

General Motors recommends the use of a razor blade or plastic gasket scraper to clean the gasket surface on engine components that are to be reused. When cleaning gasket surfaces please note the following:

- ^ When using a razor blade type gasket scraper use a new razor blade for each cylinder head and corresponding block surface. Hold the blade as parallel to the gasket surface as possible. This will ensure that the razor blade does not gouge or scratch the gasket surfaces.
- ^ Do not gouge or scrape the combustion chamber surfaces.
- ^ Do not gouge or scratch any engine-sealing surface during the cleaning process.

Important:

The appearance of the gasket surface is not critical - the feel is. There will be indentations from the gasket left in the cylinder head after all the gasket material is removed. The new gasket will fill these small indentations when it is installed.

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Disclaimer Technical Service Bulletin # **06-02-32-013A**

Date: **080205**

Steering - Power Steering Pump Replacement Tips

Bulletin No.: 06-02-32-013A

Date: February 05, 2008

INFORMATION

Subject:
Diagnostic Tips/Recommendations when Power Steering Pump Replacement is Necessary

Models:
1997-2008 GM Passenger Cars and Light Duty Trucks (including Saturn)
2008 and Prior HUMMER H2, H3
2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 06-02-32-013 (Section 06 - Engine/Propulsion System).

A recently completed analysis of returned power steering (PS) pumps that had been replaced for noise, no power assist, no or low pressure and leaking conditions has indicated a high number of "No Trouble Found" results.

Service Bulletin Number 01-02-32-004 indicates that when attempting to repair a power steering concern, the steering system analyzer should be utilized to assist the technician in a successful diagnosis. Note - Saturn ASTRA does not utilize the Power Steering System Analyzer.

In addition, extensive warranty analysis has shown that the following situations are all significant root causes of PS pump failures:

Improper pulley installation

Re-using the O-rings

Using fluid other than the OE-specified steering fluid

Failure to flush the PS system

In order to help improve customer satisfaction and reduce comebacks, GM recommends the following tips for replacing a PS pump:

Low or no pressure from the PS pump may be the results of dirty or contaminated fluid, which could cause the pressure relief valve to stop functioning. Using the proper tools, flush and bleed the PS system. Any residual contaminants will result in pump failure.

When removing the pulley, use the proper special tools. Because the pulley alignment is critical, distorting the pulley may damage bearings on the new

PS pump.

Be sure to use only the new 0-rings included with the PS pump. The new reservoir 0-ring must be lubricated with OE-specific PS fluid prior to installation. Also make sure that the control valve 0-ring is in its exact groove position and is NOT covering the pressure bypass hole.

Bleed the PS system according to the procedures/recommendations in SI.

Following these procedures and using the correct tools and fluids should help ensure that the new PS pump operates properly. Skipping steps may cost you time and trouble later.

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Disclaimer Technical Service Bulletin # **04-03-10-012B**

Date: **080201**

Wheels - Chrome Wheel Brake Dust Accumulation/Pitting

Bulletin No.: 04-03-10-012B

Date: February 01, 2008

INFORMATION

Subject:

Pitting and Brake Dust on Chrome wheels

Models:

2008 and Prior GM Passenger Cars and Trucks (including Saturn)

2008 and Prior HUMMER H2, H3

2005-2008 Saab 9-7X

Supersede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 04-03-10-012A (Section 03 - Suspension).

Analysis of Returned Wheels

Chrome wheels returned under the New Vehicle Limited Warranty for pitting concerns have recently been evaluated. This condition is usually most severe in the vent (or window) area of the front wheels. This "pitting" may actually be brake dust that has been allowed to accumulate on the wheel. The longer this accumulation builds up, the more difficult it is to remove.

Cleaning the Wheels

In all cases, the returned wheels could be cleaned to their original condition using GM Vehicle Care Cleaner Wax, P/N 12377966 (in Canada, P/N 10952905). When using this product, you should confine your treatment to the areas of the wheel that show evidence of the brake dust build-up. This product is only for use on chromed steel or chromed aluminum wheels.

Part Number	Description
12377966 (in Canada, 10952905)	GM Vehicle Care Cleaner Wax 16 fl oz (.473 L)

Parts Information

Warranty Information

Wheel replacement for this condition is NOT applicable under the terms of the New Vehicle Limited Warranty.

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Disclaimer Technical Service Bulletin # 02-07-30-052E

Date: 080222

Automatic Transmission - Fluid Cooler Flushing INFORMATION

Bulletin No.: 02-07-30-052E

Date: February 22, 2008

Subject:

Automatic Transmission Oil Cooler Flush and Flow Test Essential Tool J 45096 TransFlow(R)

Models:

2008 and Prior Passenger Cars and Light Duty Trucks (Excluding Saturn)

2003-2008 HUMMER H2

2006-2008 HUMMER H3

with Automatic Transmission/Transaxle including Allison(R) Transmissions

Supercede:

This bulletin is being revised to update the models to 2008. Please discard Corporate Bulletin Numbers 03-07-30-002B and 02-07-30-052D (Section 07 - Transmission/Transaxle).

Important:

All labor operations that include removal of the transmission from the vehicle include labor time to flush the transmission oil cooler system.

The J 45096 transmission oil cooling system flush and flow test tool replaces current tool J 35944-A. J 45096 is a self-contained unit utilizing a 12-volt flow meter shop air supply and DEXRON(R) VI automatic transmission fluid (ATF). In the flush mode transmission fluid is cycled through the transmission oil cooling system. High-pressure air is automatically injected into the fluid stream adding agitation to the ATF oil to enhance the removal of contaminated ATF oil and debris. In the flow mode an electronic flow meter is used to measure the flow capability of the ATF oil cooling system. A digital display indicates the ATF oil flow rate in gallons per minute (GPM) along with the amount of ATF oil in the supply vessel supply vessel ATF oil temperature machine cycles and the operating mode. The supply oil vessel has 30 L (32 qt) capacity and the waste oil vessel has 32 L (34 qt) capacity. The waste oil vessel is constructed of a translucent composite material that allows the user to easily identify the oil level. The waste oil vessel can accommodate vacuum evacuation and gravity draining. In the code mode a random encrypted code is generated that can be used for verification of flow test results.

Current essential cooler line adapters are used to connect the J 45096 to the automatic transmission oil cooler lines that allows J 45096 to adapt to General Motors passenger cars and light duty trucks current and past models (except the Pontiac Vibe, Wave and Chevrolet Aveo).

The tool may be adapted for use on the Pontiac Vibe, Wave and Chevrolet Aveo by dealership personnel with a barbed hose connector and rubber hose obtained locally. The Vibe's/Wave's/Aveo's transmission has a transmission oil requirement which is slightly different than DEXRON(R) VI ATF. However flushing the cooler with DEXRON(R) VI automatic transmission fluid is an acceptable service procedure. Very little fluid remains in the cooler after the flush procedure and the residual DEXRON(R) VI ATF in the cooler is compatible with the Vibe's/Wave's/Aveo's transmission fluid.

Transmission	Oil Cooler Feed (Exiting Transmission)	Oil Cooler Return (Entering Transmission)
200-4R	top connector	bottom connector
3L30 (180)	front connector	rear connector
3L80 (400)	bottom connector	top connector
4L30-E	front connector	rear connector
4L60 (700-R4)	bottom connector	top connector
4L60-E	bottom connector (may require J 35944-200)	top connector (may require J 35944-200)
4L80-E	front connector (may require J 35944-200)	rear connector (may require J 35944-200)
3T40	bottom connector	top connector
4T40-E	top connector (requires J 35944-440)	bottom connector (requires J 35944-440)
4T60 (440-T4/F7)	vertical (top) connector	horizontal (bottom) connector
4T60-E	vertical (top) connector	horizontal (bottom) connector
4T65-E	vertical (top) connector	horizontal (bottom) connector
4T80-E	front connector (case cover)	rear connector (case)
Allison (M74)	top (rear) connector	lower (forward) connector
Aisin (AF33-5)	top connector	bottom connector (requires J 35944-440)
Aisin (AF17)	top connector	bottom connector
MU4/MU5	top connector	bottom connector
5L50E	bottom connector	top connector
6T70/75	top/front connector	top/rear connector
6T40/45	top/front connector	rear connector
6L50/80/90	bottom connector	top connector

Notice:

Insufficient oil flow through the ATF oil cooling system will cause premature transmission failure. The required minimum ATF oil flow rate reading is directly related to the supply oil temperature. Refer to the flow rate reference chart for the oil flow rate specification based on the temperature of the ATF in the supply vessel.

Helpful Hints for Maintaining the Temperature at or above 18°C (65°F)**Important:**

- ^ The temperature of the supply vessel oil must be 18°C (65°F) or greater for J 45096 to operate. It is recommended to store the J 45096 in an area of the dealership where the room temperature remains at or above 18°C (65°F) when not in use.
- ^ Do not attempt to increase the fluid temperature in the Transflow(R) machine with an engine oil dipstick, or any other immersion type heater. The Transflow(R) machine has a check valve in the supply reservoir. Inserting a heater will damage the check valve and the subsequent repair expense would be the dealer's responsibility.
- ^ A heater blanket is available for the Tranflow(R) transmission cooling system flushing tool P/N J 45096. This heater fastens around the Transflow(R) internal supply vessel and runs on 110 volts AC. The heater will warm the ATF in the supply vessel to at least 18°C (65°F) and has a thermostat to hold a constant temperature.

Store the Transmission Cooling System Service Tool J 45096 Transflow(R) machine in a room where the temperature is maintained at or above 18°C (65°F).

Keep the ATF level in the reservoir low when the Transmission Cooling System Service Tool J 45096 Transflow(R) is not in use. Store several gallons of oil in an area where the temperature is maintained at or above 18°C (65°F). Fill the reservoir of the J 45096 as needed before using the machine on each repair.

With the ATF in a tightly sealed container place the container in a tub of hot water for a period of time. Then pour the ATF into the reservoir. This method works best with a low fluid level in the reservoir.

Place the Transflow(R) machine in the direct sunlight with the cabinet door open to expose the reservoir to the rays of the warm sun.

Flush/Flow Test Procedure**Important:**

All labor operations that include removal of the transmission from the vehicle include labor time to flush the transmission oil cooler system.

Refer to SI for Automatic Transmission Oil Cooler Flushing and Flow Test J 45096 for the appropriate procedure.

Important:

The J 45096 can be used to flush the transmission oil cooler system on an Allison equipped vehicle, but the flow meter should not be utilized. Refer to SI for Automatic Transmission Oil Cooler Flushing and Flow Test J 45096 for the appropriate flow check procedure.

Machine Displays

After completion of the flush and flow test the following information is to be recorded on the repair order. This information is displayed on the Transmission Cooling System Service Tool J 45096 Transflow(R) machine when the dial is in the code position.

- ^ Tested flow rate (displayed in Gallons Per Minute (GPM))
- ^ Temperature (displayed is degrees Fahrenheit)
- ^ Cycle number (a number)
- ^ Seven digit Alpha/Numeric flow code (i.e. A10DFB2)

Warranty Information

Important:

All labor operations that include removal of the transmission from the vehicle include labor time to flush the transmission oil cooler system.

Performing a transmission oil cooling system flush and flow test will use between 4.7-7.5 L (5-8 qts) of DEXRON(R)VI transmission fluid. The amount of transmission fluid (ATF) (DEXRON(R)VI) (fluid) that is to be charged for the flush portion of the repair should not exceed the allowable charge for 7.5 L (2 gal) of fluid. This expense should be shown in the net item column of the warranty claim document.

The Seven digit Alpha/Numeric flow code i.e. A10DFB2 "MUST" be written on the repair order and placed in the comments section of the warranty claim. Any repair that requires the technician to contact the Product Quality Center (PQC) must also include the seven digit flow code. The agent will request the seven digit flow code and add the information to the PQC case prior to providing authorization for the warranty claim.

In Canada the Seven digit Alpha/Numeric flow code i.e. A10DFB2 MUST be written on the repair order. Any repair that requires the technician to contact the Product Quality Center (PQC) must also include the seven digit flow code. The agent will request the seven digit flow code and add the information to the PQC case prior to providing authorization for the warranty claim.

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Disclaimer Technical Service Bulletin # **08-07-30-004**

Date: **080131**

A/T - Cooler Line Fitting Applications

Bulletin No.: 08-07-30-004

Date: January 31, 2008

INFORMATION

Subject:

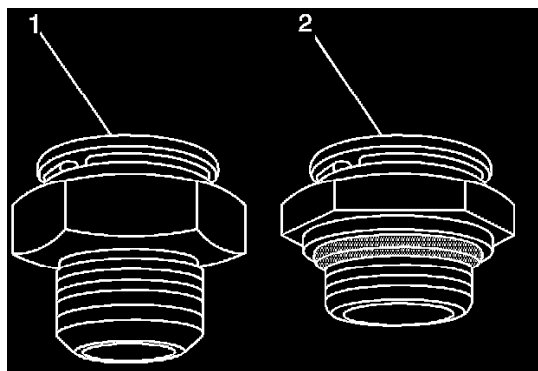
4L60-E, 4L65-E, 4L70-E HYDRA-MATIC(R) Automatic Transmission (RPOs M30, M70 M32, M33, MK2 MD6)

Oil Cooler Fitting Change

Models:

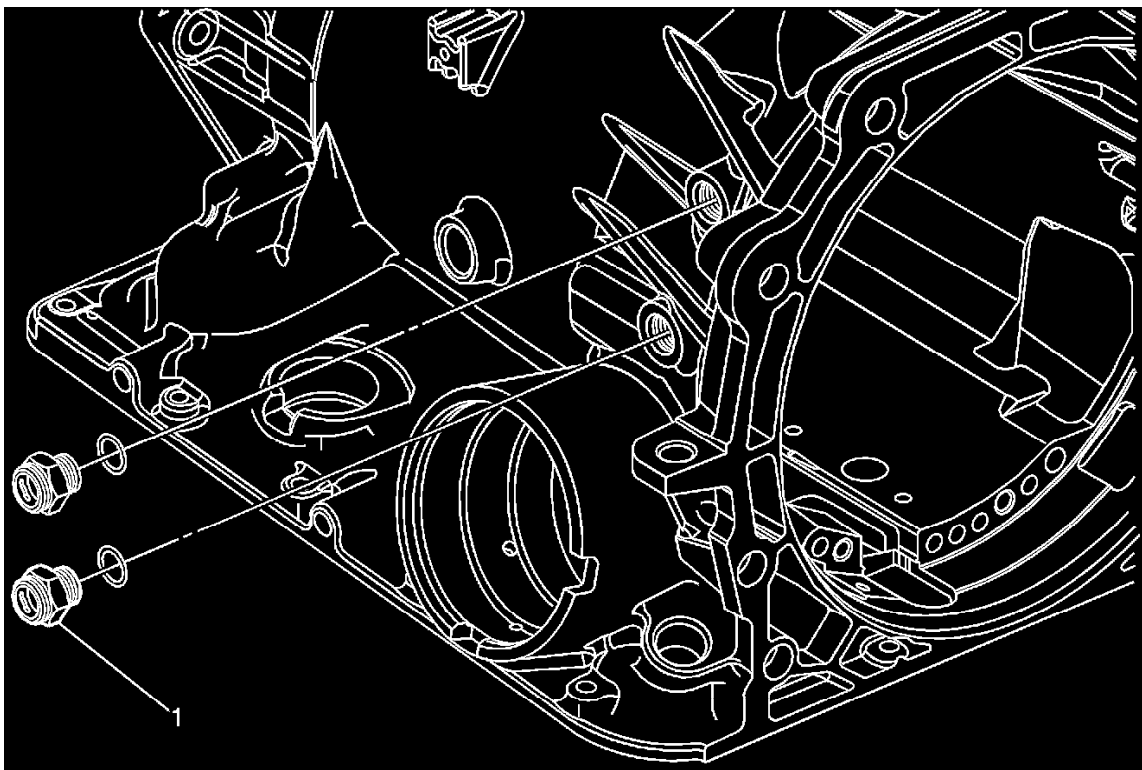
1997-2008 GM Light Duty Trucks (Including Saab)

with 4L60-E, 4L65-E, 4L70-E HYDRA-MATIC(R) Automatic Transmission (RPOs M30, M70, M3, M33, MK2, MD6)



Aluminum cooler line fittings - These new fittings (2) cannot be used on earlier cases because the threaded hole is not the same size. Old style fittings (1) will continue to be available through SPO parts.

Service cases will be the new case and fittings. The old cases with the old thread design will not be maintained for service. The connection on the hose side will accept both the short snout and the newer longer snout cooler hose assemblies.



The fittings (1) have a new torque specification of 20 N.m (14 lb ft). They also have one inner and one outer "O" ring that are not serviced separately. The new thread size 9/16-1a UNF-2A (1) was implemented on 11-29-07 or Julian date 333.

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Technical Service Bulletin # 00-02-35-003N

Date: 080326

Steering - Underhood Clunk Heard/Felt in Steering Wheel

TECHNICAL

Bulletin No.: 00-02-35-003N

Date: March 26 2008

Subject:

Clunking Noise Under Hood and Can Be Felt in Steering Wheel and/or Steering Column (Replace Upper Intermediate Steering Shaft [I-Shaft] Assembly)

Models:

2002-2006 Cadillac Escalade Models
 1999-2007 Chevrolet Silverado Models (Classic)
 2000-2006 Chevrolet Suburban, Tahoe Models
 2002-2006 Chevrolet Avalanche
 1999-2007 GMC Sierra Models (Classic)
 2000-2006 GMC Yukon, Yukon XL Models
 2003-2006 HUMMER H2

Attention:

This Service Bulletin DOES NOT include Mid-Size Utilities such as Buick Rainier, Chevrolet TrailBlazer Models, GMC Envoy Models or Oldsmobile Bravada. Refer to Service Bulletin 02-02-35-006A or newer for Mid-Size Utilities.

Supersede:

This bulletin is being revised to add diagnostic information (refer to Diagnostic Tips) to check the lower steering column bearing as a potential source of the noise. Please discard Corporate Bulletin Number 00-02-35-003M (Section 02-Steering).

Condition

Some customers may comment on a clunk-type noise coming from under the hood that also can be felt in the steering wheel. These conditions may be more noticeable when turning at low speeds on rough road surfaces.

Diagnostic Tips

Use the information below to help diagnose the source of the noise.

- ^ The lower steering column bearing may create the same noise as the intermediate shaft. Before replacing the I-shaft, verify the noise isn't being caused by movement from the lower steering column bearing. Check the bearing for movement by pushing up and down on the I-shaft where it attaches to the steering column.
- ^ Frame Snap and/or Popping Type Noise - A frame snap or popping type noise can be duplicated on rough or smooth road surfaces with steering wheel input to the left or the right. This type of noise can be HEARD and is typically louder with the windows rolled down. For additional information refer to Corporate Bulletin Number 03-08-61-002F or newer - Snap/Popping Type Noise Coming from Front of Vehicle (Remove Front Crossmember Change Fastener Orientation).
- ^ Intermediate Shaft Clunk - Intermediate shaft clunk is heard and FELT in the steering wheel and/or steering column area typically while driving on rough road surfaces with steering wheel input.

Correction

DO THIS	DON'T DO THIS
Replace the I-Shaft with P/N 19153614.	Do NOT lubricate or exercise the I-Shaft.

Important:

- ^ I-shaft P/N 19153614 has been designed to replace previous designed dampened and non-dampened I-shafts. The physical difference in the yoke size will accommodate all vehicles listed in this bulletin.
- ^ Due to the design of the new I-shaft, it is not possible to lubricate/grease the I-shaft.

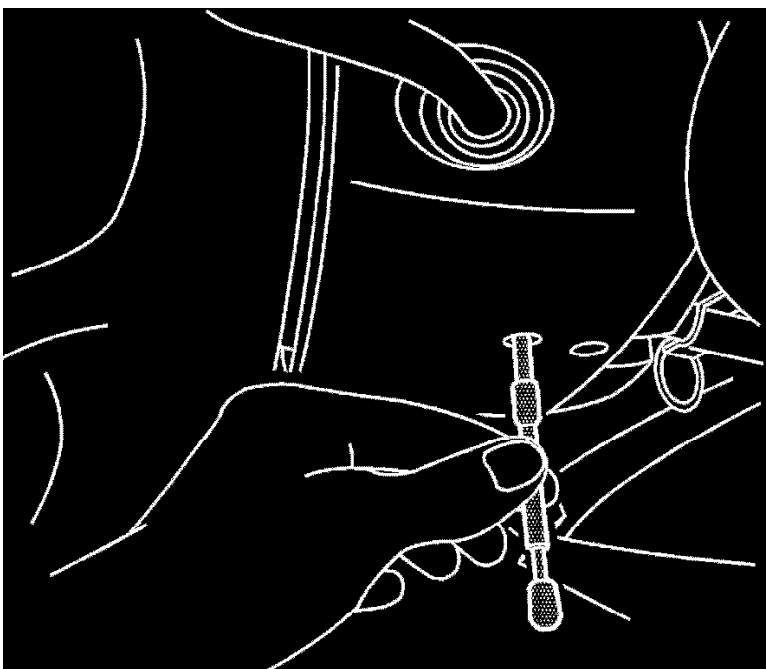
Replace the steering column upper intermediate shaft with an improved design shaft that will eliminate the clunk noise using the procedure listed below.

1. Set the front wheels in the straight ahead position.

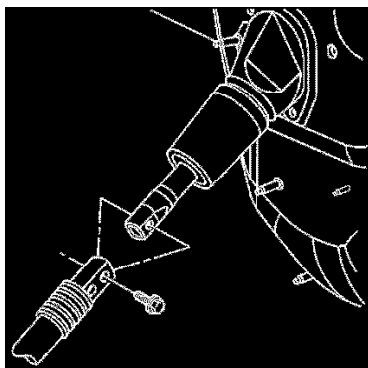
Notice:

On the 2002 and later model year vehicles the steering column LOCK was removed from the steering column. It is critical that the J 42640 - Steering column Anti-Rotation Pin is used when servicing steering columns on 2002 and later model year vehicles. Failure to use the J 42640 may result in damage to the SIR coil.

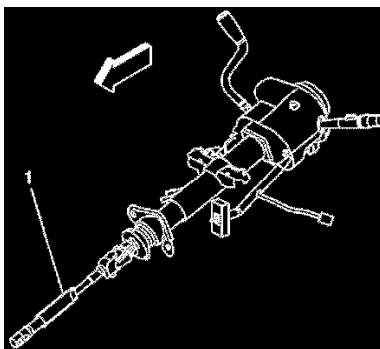
- Set the steering wheel in the LOCK position on 2001 and prior model year vehicles.



- For 2002 and later vehicles install the J 42640 in the steering column lower access hole.



- From under the hood remove the lower bolt that connects the upper intermediate shaft to the steering gear coupling shaft.
- Slide the shaft towards the dash in order to disengage the shaft from the steering gear coupling shaft.
- For vehicles equipped with adjustable foot pedals perform the following steps:
 - Reposition the carpet away from the accelerator pedal position (APP) sensor.
 - Remove the two nuts retaining the accelerator pedal to the bulkhead.
 - Reposition the accelerator pedal out of the way so the intermediate shaft can be removed.



7. From inside the vehicle remove the upper bolt from the upper intermediate steering shaft (1) to the steering column connection.
8. Remove the upper intermediate steering shaft assembly.
 1. From inside the vehicle slide the shaft down and off the steering column.
 2. From inside the vehicle slide the upper intermediate shaft through the dash boot seal and remove the shaft from the vehicle.
9. Replace the upper intermediate shaft.
10. Install the upper intermediate steering shaft through the dash boot seal and slide the lower end into the steering gear coupling shaft.
11. Raise the upper end of the intermediate steering shaft and install into the steering column shaft.
12. Install the upper bolt and nut.

Tighten

Tighten the bolt to 47 N.m (35 lb ft).
13. Install the lower bolt and nut.

Tighten

Tighten the bolt to 50 N.m (37 lb ft).
14. For vehicles equipped with adjustable foot pedals perform the following steps:
 1. Reposition the accelerator pedals into position on the bulkhead.
 2. Install the two retaining nuts.

Tighten

Tighten the nuts to 20 N.m (15 lb ft).
 3. Reposition the carpet into place.

Part Number	Description
19153614	Shaft – Upper Intermediate Steering


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
E7700	Shaft, Steering Intermediate – Upper — Replace	Use Published Labor Operation Time

For vehicles repaired under warranty use, the table.

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Technical Service Bulletin # 08-03-08-003

Date: 080327

Bulletin No.: 08-03-08-003

Date: March 27, 2008

Subject:
Wheel Hub Changes - Gen III vs. Gen II

Models:
2008 and Prior Cadillac Escalade Models
2008 and Prior Chevrolet Avalanche, Silverado, Silverado Classic, Suburban, Tahoe
2008 and Prior GMC Sierra, Sierra Classic, Yukon Models

General Motors Vehicle Engineering has introduced a new design Gen III front wheel hub for the above listed vehicles which replaced the Gen II product.

These Gen II 4x2 and 4x4 applications that were previously serviced by seven part numbers are now serviced by three Gen III part numbers.

Gen II Design	Superseded by Gen III Design	Applications Served	Model
15225750	15946732	Old Body Style HD SUV	4x2 w/SRW
15225751	15946732	Old Body Style HD P/U	4x2 w/SRW
1522750	15946732	New Body Style HD SUV, P/U	4x4 w/SRW
1522752	15946733	Old Body Style HD P/U	4x2 w/DRW
15225753	15946733	Old Body Style HD SUV, P/U	4x4 w/DRW
15881888	15910968	New Body Style HD	4x2 w/SRW
15881889	15910968	New Body Style HD	4x2 and 4x4 w/SRW
SRW = Single Rear Wheel			
DRW = Dual Rear Wheel			


Concerns have been expressed by technicians regarding the use of the new supersessions and whether the Gen III hubs will properly fit the vehicles being serviced, especially because of visual and functional differences (splines). This bulletin has been developed to address those concerns.

When replacing an older Gen II design 4x2 hub with a new 4x2/4x4 common Gen III hub, it is acceptable to have a bearing with splines on it for a 4x2 application that previously did not. However, the older Gen II design 4x4 hubs should NOT be used on a 4x2 vehicle. The Gen II 4x4 hub relies on the tension of the wheel drive shaft joint to hold everything together. The roll form feature on the inboard side of the new 4x2/4x4 Gen III hub eliminates this concern.

The only hub that is not back serviceable is P/N 15719007 for 1999-2000 C25 applications due to a different hub flange to bearing flange offset.

Important:
Only the new part numbers referenced in this bulletin are interchangeable between the 4x2 and 4x4 applications with the exception of P/N 15719007. Under no circumstances should any other 4x4 hub be used in a 4x2 application.

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Disclaimer
Technical Service Bulletin # 02-06-03-009C

Date: 080417

Electrical - Battery Charging Tips/Recommendations INFORMATION

Bulletin No.: 02-06-03-009C

Date: April 17, 2008

Subject:
Battery Charging Tips (Includes Information References for HP2 Hybrid Truck [PHT] 42-volt System)

Models:

1990-2009 GM Passenger Cars and Light Duty Trucks (Including Saturn)
 2003-2009 HUMMER H2
 2006-2009 HUMMER H3
 1990-2009 Isuzu Light Duty Trucks
 2005-2009 Saab 9-7X

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 02-06-03-009B (Section 06 - Engine/Propulsion System).

When you test a battery with a Midtronics Conductance Tester J 42000 or J 42000-EU (or equivalent for Saturn Retailers) there are five typical outcomes:

- ^ Good battery
- ^ Good - recharge
- ^ Charge & retest
- ^ Replace battery
- ^ Bad cell - replace

You'll notice that battery charging is called for in two of these outcomes. This bulletin will address charging and chargers in more detail.

What's Involved in Charging

Briefly, charging involves applying sufficient voltage to the battery to cause current to flow through the battery. Charging causes a chemical change in both the batteries plates and the electrolyte. If the battery is simply discharged, but otherwise good, and you apply a suitable current for enough time, the battery will eventually become as fully charged as is chemically possible. However, continued application of current can lead to overheating, loss of electrolyte and shortened battery life.

The charging process requires two things: time and current. If you multiply the charging rate in amperes by the number of hours, the result will be the ampere-hours of charge you've applied to the battery. To bring a battery to full charge will require roughly the same number of ampere-hours at a low charge rate as it does at a high rate. Put another way, a higher rate will take less time.

Because customers desire to have their vehicles returned quickly, it's often desirable to get the charging job done quickly by using a high charge rate. Before doing this, though, you need to know a little more about the process.

State of Charge

State of Charge

OCV (conventional flooded-cell battery)	OCV (AGM battery)	% charge at 0°C (32°F)	% charge at 25°C (75°F)
12.75	12.8	100%	100%
12.70	—	100%	90%
12.60	—	90%	75%
—	12.6	100%	75%
12.45	12.4	75%	65%
12.20	12.3	65%	45%
12.00	12.1	40%	20%

It is not possible to measure a battery's state of charge in ampere-hours, so another method must be used. Open circuit voltage (OCV), measured across the battery's terminals, relates to the battery's state of charge. The voltmeter must be capable of reading to the nearest 0.01 volt.

If the battery has NOT been charged or used (the engine started or the vehicle driven) in the last 12 hours, a reading may be taken.

If the battery has been discharged and recharged or used within the last 12 hours, connect a carbon pile and load the battery at 300 amperes for 15 seconds. Remove the load. Wait 15 seconds and then take the reading.

Important:

The OCV reading is accurate +/- 10%.

A battery with a state of charge of 65% or greater ("green eye" showing) is marginally charged enough to be returned to service. However, if the vehicle is or will be used in slow traffic or short drive times, or in very cold or very hot conditions, the battery should be at least 90% of full charge before returning to service (the customer).

Battery Charging and the Reality of the Service Lane

A customer with a "bad" / "discharged" battery typically expects something to be done about it immediately. The customer may not understand that the battery may be "good" but simply discharged. Customers may want to get back on the road quickly and demand a new battery under warranty.

There are two things wrong with this approach. One, if the battery is otherwise serviceable, it may only need a recharge to return it to health. Second, unless the cause of the battery becoming discharged is resolved, neither a new battery nor recharging the original will permanently solve the problem.

Your job, then is to recharge the battery quickly and safely determine and repair, if necessary, the cause of the battery becoming discharged.

Automatic Battery Chargers

Recent advancements in battery charging technology now combine diagnostics and charging control systems that monitor and automatically regulate the charging process.

These controls maximize the chargers output based on the battery status, while protecting the battery from overcharge. This shortens the overall time by making the most effective use of the chargers output capability. This means you can confidently use chargers with the highest output ratings, so long as the charger makes the necessary adjustments as the battery approaches full charge.

Automatic battery chargers such as the Midtronics GR1, Associated Intell/Matic Pro or the Cristie PDQ can return a good, but discharged, battery (as indicated by your J 42000 tester) to at least 85% state of charge in 20 to 40 minutes. For more information on these chargers, call GM Dealer Equipment.

Manual Battery Chargers

Non-automatic battery chargers do not offer the self-limiting features of the latest equipment. It is the operators responsibility to control the charging process. With careful monitoring you can use a manual charger to successfully charge maintenance-free batteries.

Monitor both charging current and voltage every 30 minutes. Because voltage is not held constant, it will rise as the battery becomes charged.

When voltage reaches 16 volts, you must reduce the charging current to 5 amperes. When the voltage reaches 16 volts again, at the 5 amp current, the battery is fully charged.

Conditions That Affect Charging

A completely discharged battery will take more than twice as long as a half-charged battery to bring the battery to a usable state of charge. The electrolyte in a discharged battery is largely water, which is a poor conductor. The battery may accept such a small amount of current at first that it appears not to take charge.

Chemical reactions in a battery are slower at low temperatures. This means a very cold battery will take longer to charge than one at room temperature.

And, of course, a larger battery will take longer to charge than a small one.

Special Conditions for AGM Batteries

The Absorbent Glass Mat (AGM) battery uses absorbent glass mats to hold a small amount of electrolyte in contact with the plates. The battery uses a gas recombinant technology, which means the gases produced at the plates are recombined to form water before they escape. This battery design offers high power for lower weight and is more resistant to high temperatures, vibration and cycling.

The AGM battery may be charged using the automatic battery charger. Laboratory tests have shown that AGM batteries respond very well to such chargers. In fact, even the chargers with the highest output ratings may be confidently used, as long as the charger automatically adjusts the charging current as the battery nears full charge. When the charger operation indicates that the battery is fully charged (refer to the charger manufacturers instructions), remove the battery from charge.

However, when using a conventional charger, limit the rate to 10 amperes or less. Do not allow the battery to charge at 3 amperes or more for longer than 10 hours, or 10 amperes for longer than 5 hours. When these limits are reached, allow the battery to stand overnight, then resume charging, if further charging is required.

Check the voltage every 30 minutes and remove the battery from charge when the voltage reaches 15 volts at 3-10 amperes. The state of charge is now at 90 to 95%.

2004-2007 PHT Trucks Only: The AGM application for the PHT pickup (RPO HP2) involves three such batteries in a 42 volt system, at a 50% charge. Refer to Battery Inspection/Test (HP2), Battery Pack Service Charge-HP2 and Battery Charging (HP2) procedures in SI for specific information on hybrid battery systems.

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Technical Service Bulletin # 05-06-03-002C

Date: 080417

Battery/Charging System - Electrical Diagnostics Info. INFORMATION

Bulletin No.: 05-06-03-002C

Date: April 17, 2008

Subject:

Battery and Charging System Electrical Diagnostics

Models:

1997-2009 GM Passenger Cars and Trucks

2003-2009 HUMMER H2

2006-2009 HUMMER H3

EXCEPT Electric Vehicles and Hybrid Truck

Attention:

This bulletin does not apply to Saturn and Saab models.

Supersede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 05-06-03-002B (Section 06 - Engine/Propulsion System).

Changing Diagnostic Strategy

The previous electrical diagnostic worksheet provided in GM Corporate Bulletin Numbers 02-06-03-006B, 02-06-03-011 and 02-06-03-012 is no longer required when diagnosing battery and charging system concerns.

Battery and charging system diagnostic information provided by these bulletins has been incorporated into SI and the printed Service Manuals for 2007 model year and later vehicles.

New Information on Electrical Diagnosis

Specific electrical diagnostics are available for each vehicle line in SI. Please refer to Engine Electrical Diagnostics within Engine Electrical.

New Labor Times for Battery and Generator Diagnostics

With the deletion of the previously required electrical diagnostic worksheet, the ADD time allowances for the following labor operations have been revised. The warranty chart below updates the ADD conditions for the following labor operation numbers. These times are effective immediately.

Warranty Information

Labor Operation	Description	Labor Time with ADD Times
N0110	Battery, Replace	Use Published Labor Operation Time
Add:	Battery Test — Single Battery	0.0-0.3 hr
N0117	Battery, Replace – Two Battery System	Use Published Labor Operation Time
Add:	Battery Test – Dual Battery	0.0-0.4 hr
J4100	Generator, Replace	Use Published Labor Operation Time
Add:	Battery and Generator Test	0.0-0.5 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **03-08-48-006D**

Date: **080311**

Electrical, A/C - Rear Defroster Grid Repair Information INFORMATION

Bulletin No.: 03-08-48-006D

Date: March 11, 2008

Subject:
Repair Information for Reconnection of Rear Window Defroster Contact or Tab

Models:
2000-2008 GM Passenger Cars and Trucks (including Saturn)
2003-2008 HUMMER H2
2006-2008 HUMMER H3
2005-2008 Saab 9-7X
2007-2008 Opel GT
2007-2008 Daewoo G2X

with Electric Rear Window Defroster (RPO C49)

Supercede:

This bulletin is being revised to update the part number table and to alter the repair instructions for the new style utility (GMT900) vehicles with moveable glass. Please discard Corporate Bulletin Number 03-08-48-006C (Section 08 - Body and Accessories).

Repair Suggestion

Soldering Defroster Contact Tabs

In most applications it is preferable to create a new solder connection to reattach a separated rear defroster tab. If you take note of the steps below it is possible to create a new solder joint that is equal to or stronger than the original. The generic procedure below is not very time intensive but does include minor preparation work to create a good bonding surface. Be sure to follow each of the steps as combined they will produce the strongest bond possible. Please consider the following before attempting the repair:

^ Soldering introduces significant heat to the glass window of the vehicle. When performing the re-connection of the tab use only the heat required to do the job. Pre-Heat the soldering iron have the solder in your other hand ready to go the moment you have enough heat to melt the solder.

^ If it is winter; bring the vehicle into the service garage and remove any snow from the back window area. Allow time for the glass to warm to the temperature inside the building. Soldering creates a "hot spot" in the glass. DO NOT solder on cold glass.

Caution:

Heating the glass excessively or repeatedly without time to cool may result in glass breakage. ALWAYS wear safety glasses when performing this repair!

^ You must use a Silver-Bearing Solder to make the connection. DO NOT attempt this repair with conventional Lead / Tin solders. Silver Bearing Solder will adhere to the electrical buss bar making a strong and lasting repair.

^ Protect surfaces under the area to be soldered. It is very easy to drip solder when performing this repair. Just placing a shop towel under the soldering area is sufficient protection.

Soldering Procedure

1. In many cases the terminal tab will still be in the connector when you examine the vehicle. For Chevrolet Tahoe, Suburban, GMC Yukon, and Cadillac Escalade vehicles (with moveable glass) always replace the defroster tab (GM P/N 25916031). For all other vehicles please reconnect the original defroster tab.

Important:

DO NOT re-use the existing defroster tab on new style utility (GMT900) vehicles with moveable glass.



2. Prepare the surface of the used defroster tab (Not required for new tabs on new style utility models (GMT 900) and the defroster buss bar with fine grain (500 grit) sandpaper or Emery cloth. It is not necessary to remove all of the original solder but it should be scuffed sufficiently so that no oxidation is present. The photo above shows a close up of a properly prepared surface.

Tip

You may want to mask the glass around the contact area with tape. This is easy to do and will allow you to safely prepare the contact surface without the risk of scratching the glass or the black painted shading.

Important:

Most rear glass has a black painted masking around the edge of the glass. When cleaning up the connection surface be very careful not to damage the surface of the black shading or the surface of the glass.



3. Wipe the newly prepared contact area with Kent Automotive Acrysol (or equivalent) to remove any residual oil or dirt.



Important:

You must use a Silver-Bearing Solder to make the solder joint. DO NOT attempt this repair with conventional Lead / Tin solders. Most suppliers have this type of solder available, and it is available nationally at Radio Shack. It is sold in several diameters and either are acceptable for this repair.

4. For this step it is permitted that two technicians be used if required. Heat the new contact on the surface of the buss bar that is to be soldered. Long nose pliers are suggested to hold the contact in place. Keep the solder ready and begin flowing out the solder as soon as the melting temperature has been reached.

Tip

If a single technician is attempting this repair it is sometimes beneficial to wrap one turn of the solder around the new contacts base. In this manner as the melting point of the solder is reached a layer is deposited on the bottom side of the contact.

Important:

Try to align the new contact so that it is positioned with the same attitude as the original contact.



5. The photo above pictures an ideal finished solder joint. Additional stray solder will not harm the performance of the bond however while it is unlikely that customers may refer to the appearance of the rear window defroster and its components as a positive styling feature of the vehicle interior it is easy to elicit the opposite reaction due to a poor cosmetic application.
6. Remove and replace the rear defogger electrical power connector by crimping a new connector to the feed wire. The proper connector can be found in the Packard Electrical Assortment Tray 18 Position 5. The connector is P/N 12034110.
7. Apply a small amount of GM Vehicle Care Dielectric Lubricant to the rear defogger connector.
8. Connect the electrical connector to the defroster tab. Be sure to fully engage the connector. An improperly seated connector may cause excessive resistance and hamper proper operation of the defroster.

Acrysol can be ordered directly from Kent Automotive at 1-800-654-6333 (in Canada, 1-800-563-1717).

Radio Shack products can be found nationally at retail locations, www.radioshack.com, or at 1-800-843-7422.

In Canada, use The Source by Circuit City — www.thesourcecc.ca or 1-866-454-4426 (English) or 1-866-544-4431 (French).

The balance of the parts list can be ordered through GMSP0.

Part Number	Description
25916031	Tab, Defroster Power (new style utility models (GMT900))
12034110 (Tray 18, Position 5)	Rear Defroster Electrical Power Connector (Packard Electrical Assortment Only)
64-013E	Radio Shack Silver Solder (0.22 dia)
64-026E	Radio Shack Silver Solder (0.62 dia)
P20005	Kent Automotive Acrysol Solvent (32 fl. oz.) 946 ml
12377900 (U.S.)	GM Vehicle Care Dielectric Lubricant (2 fl. oz.)
10953529 (Canada)	

Parts Information

Warranty Information (excluding Saab U.S. Models)

Labor Operation	Description	Labor Time
N9577*	Defroster, Electrical Connection — Reattach	0.3 hr
*This is a unique labor operation for bulletin use only. It will not be published in the Labor Time Guide.		

For vehicles repaired under warranty, use the table.

Warranty Information (Saab U.S. Models)

Labor Operation	Description	Failed Object	Fault/Reason Code	Location Code	Warranty Type	Repair/Action Code	Labor Time
8435305	Defroster, Rear Grid – Repair	84353	61	0	01	05	0.3 hr

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # **01-05-23-001B**

Date: **080131**

Brakes - Rotor Lateral Runout Correction Information

Bulletin No.: 01-05-23-001B

Date: January 31, 2008

INFORMATION

Subject:

Brake Align(R) System for Brake Rotor Lateral Runout Correction

Models:

2008 and Prior Passenger Cars

Supersede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 01-05-23-001A (Section 05 - Brakes).

This bulletin is being issued to update General Motors position on correcting brake rotor lateral runout (Refer to Corporate Bulletin Number 00-05-22-002B for additional brake rotor service procedures).

Certain conditions may apply to individual vehicles regarding specific repairs. Refer to those specific repairs in applicable service bulletins. Make sure other possible sources of brake pulsation, such as ABS pedal feedback, have been addressed before checking rotor runout.

Anytime a new or refinished rotor is installed on a vehicle, the rotor must have .050 mm (.002 in) or less of lateral runout. This specification is important to prevent comebacks for brake pulsation. Until now, the only acceptable methods to correct brake rotor runout were to index or replace the rotor or to refinish the rotor using an on-vehicle brake lathe.

GM has approved a new technology for the correction of lateral runout on new or refinished rotors. This new method is called Brake align(R)*. It will allow the technician to meet the .050 mm (.002 in) or less requirement for lateral runout by installing a specially selected, tapered correction plate between the rotor and the hub. The Brake Align(R) Correction system does NOT require the use of an on-vehicle brake lathe to correct for lateral runout.

*We believe this source and their products to be reliable. There may be additional manufacturers of such products. General Motors does not endorse, indicate any preference for or assume any responsibility for the products from this firm or for any such items which may be available from other sources.

The Brake Align(R) Starter Kit will include an ample supply of Correction Plates, in various correction sizes, that will cover most current GM passenger car applications. It will also include a Brake Align(R) tool kit containing a dial indicator and retaining washers along with other useful tools.

Service Procedure

Follow all the procedures referred to in Corporate Bulletin Number 00-05-22-002B. Dealers who have purchased the Brake Align(R) Starter Kit may

use the following simplified runout correction procedure:

The existing rotors must first be machined on an approved, well-maintained bench lathe to guarantee smooth, flat, and parallel surfaces. Should the rotors require replacement, please note that it is not necessary to machine new rotors.

Make sure all the mating surfaces of the rotor and the hub are clean, using the J 42450-A wheel Hub Cleaning Kit. Mount the new or refinished rotor onto the vehicle hub using the retaining washers provided in the kit. Do not reinstall the caliper or wheel at this time.

Tighten all the wheel nuts to the proper specification, using J 39544 Torque Socket or the equivalent.

Fasten the dial indicator to the steering knuckle so that the indicator needle contacts the rotor friction surface approximately 12.7 mm (1/2 in) from the rotors outer edge.

Rotate the rotor and observe the total lateral runout.

Index the rotor on the hub to achieve the lowest amount of lateral runout. This will require removal and reassembly of the rotor until the lowest total lateral runout reading is obtained. If this reading is .050 mm (.002 in) or less, the assembled rotor is within specification. The brake system may be reassembled.

If total lateral runout is greater than .050 mm (.002 in), proceed with determining the correct Brake Align(R) Correction as follows:

Rotate the rotor to locate the lowest dial indicator reading and set the dial to zero. Rotate the rotor to determine and locate the highest amount of lateral runout.

Note the AMOUNT and LOCATION of the "high spot" on the rotor and mark the closest wheel stud relative to this location.

Remove the rotor.

Select the appropriate Brake Align(R) Runout Correction Plate for this vehicle using the Application Chart. Make sure the selection corrects the amount of runout that was diagnosed.

Never attempt to stack two or more Correction Plates together on one hub.

Never attempt to re-use a previously installed Correction Plate.

Following the Brake Align(R) procedures and diagram, install the Correction Plate onto the vehicle between the hub and the rotor. The V-notch in the Correction Plate is to be installed and aligned with the noted location of the "high spot" on the vehicle hub and marked wheel stud.

Install the rotor onto the vehicle with the Correction Plate placed between the hub and the rotor. Be sure to install the rotor onto the hub in the same location as identified in Step 7.

The rotor should then be secured onto the hub and tightened to the proper specification. The rotor should be dial indicated once more to assure that the rotor is now within specification.

The brake system is now ready for the remaining service and assembly. Once the caliper has been installed, check to ensure that the rotor rotates freely.

Parts Information

Dealer Equipment and Services

Brake Align® LLC

Brake Align(R) Runout Correction Plates are available through the suppliers shown.

To Order Call 1.800.GM.TOOLS or Fax To 1.866.259.1241

Bill To:				Ship To:							
Dealership:				Dealership:							
Attention:				Attention:							
Street Address:				Street Address:							
City:		State:		Zip:		City:		State:		Zip:	
Phone:				Phone:							
Dealer Code:				PO Number:							
Correction Plates — 5 Packs				Correction Plates — Single Plates				Accessories:			
Qty.	Part #	Price/Ea.	Ext Price	Qty.	Part #	Price/Ea.	Ext Price	Qty.	Part #	Price/Ea.	Ext Price
	411-801-03-05	\$46.00			411-801-03-01	\$11.00			411-951000 Compl ete Tool Kit	\$265.00	
	411-801-06-05	\$46.00			411-801-06-01	\$11.00					

	411-8 01-09 -05	\$46.00			411-80 1-09-01	\$11.00			411-95 1020Vi ce Grip Dial Ind	\$196.00	
	411-8 02-03 -05	\$46.00			411-80 2-03-01	\$11.00					
	411-8 02-06 -05	\$46.00			411-80 2-06-01	\$11.00			411-95 1021R eplac ement Guage	\$64.00	
	411-8 02-09 -05	\$46.00			411-80 2-09-01	\$11.00					
	411-8 03-03 -05	\$46.00			411-80 3-03-01	\$11.00			411-95 012010 Conical Washes	\$21.00	
	411-8 03-06 -05	\$46.00			411-80 3-06-01	\$11.00					
	411-8 03-09 -05	\$46.00			411-80 3-09-01	\$11.00			411-95 0600A pplicat ion Chart	\$9.00	
	411-8 04-03 -05	\$46.00			411-80 4-03-01	\$11.00					
	411-8 04-06 -05	\$46.00			411-80 4-06-01	\$11.00			411-95 0300C ar Hub Cleaner w/Pads	\$44.00	
	411-8 04-09 -05	\$46.00			411-80 4-09-01	\$11.00					
	411-8 05-03 -05	\$46.00			411-80 5-03-01	\$11.00			411-95 0400C	\$26.00	


	411-8 05-06 -05	\$46.00			411-80 5-06-01	\$11.00			ar Pads (10 Pack)		
	411-8 05-09 -05	\$46.00			411-80 5-09-01	\$11.00			411-95 0500M arker	\$4.00	
	411-8 06-03 -05	\$72.00			411-80 6-03-01	\$16.00					
	411-8 06-06 -05	\$72.00			411-80 6-06-01	\$16.00			411-95 1350In structi onal DVD	\$13.00	
	411-8 06-09 -05	\$72.00			411-80 6-09-01	\$16.00					
	411-8 07-03 -05	\$72.00			411-80 7-03-01	\$16.00			411-95 1400T ruck Hub Cleaner w/Pads	\$87.00	
	411-8 07-06 -05	\$72.00			411-80 7-06-01	\$16.00					
	411-8 07-09 -05	\$72.00			411-80 7-09-01	\$16.00			411-95 1375T ruck Pads (10-Pa ck)	\$31.00	
	411-8 08-03 -05	\$72.00			411-80 8-03-01	\$16.00					
	411-8 08-06 -05	\$72.00			411-80 8-06-01	\$16.00			411-95 1260C ustomer Brochu re (20)	\$9.00	
	411-8 08-09 -05	\$72.00			411-80 8-09-01	\$16.00					

	411-8 09-03 -05	\$72.00			411-80 9-03-01	\$16.00			411-95 0250H onion Stone	\$36.00	
	411-8 09-06 -05	\$72.00			411-80 9-06-01	\$16.00					
	411-8 09-09 -05	\$72.00			411-80 9-09-01	\$16.00		Other Items			
	411-8 10-03 -05	\$86.00			411-81 0-03-01	\$19.00					
	411-8 10-06 -05	\$86.00			411-81 0-06-01	\$19.00					
	411-8 10-09 -05	\$86.00			411-81 0-09-01	\$19.00					
	411-8 11-03 -05	\$72.00			411-81 1-03-01	\$16.00					
	411-8 11-06 -05	\$72.00			411-81 1-06-01	\$16.00					
	411-8 11-09 -05	\$72.00			411-81 1-09-01	\$16.00					
	411-8 12-03 -05	\$46.00			411-81 2-03-01	\$11.00					
	411-8 12-06 -05	\$46.00			411-81 2-06-01	\$11.00					

411-8 12-09 -05	\$46.00			411-81 2-09-01	\$11.00				
411-8 13-03 -05	\$46.00			411-81 3-03-01	\$11.00				
411-8 13-06 -05	\$46.00			411-81 3-06-01	\$11.00				
411-8 13-09 -05	\$46.00			411-81 3-09-01	\$11.00				
411-8 14-03 -05	\$46.00			411-81 4-03-01	\$11.00				
411-8 14-06 -05	\$46.00			411-81 4-06-01	\$11.00				
411-8 14-09 -05	\$46.00			411-81 4-09-01	\$11.00				
411-8 15-03 -05	\$46.00			411-81 5-03-01	\$11.00				
(\$40.00 Minimum Order)						Grand Total:			
Notes and/or Comments:									
Signature:						Date:			
Disclosures: Taxes, Freight Charges, Installation Charges will be billed when applicable By signing above, Dealer accepts all terms and conditions sale which are contained within the GM Dealer Equipment Program Catalog									

Brake Align Order Form

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Disclaimer
Technical Service Bulletin # 08-09-41-003

Date: 080225

Restraints - Usage of Used/Salvaged/Imitation Components
INFORMATION

Bulletin No.: 08-09-41-003

Date: February 25, 2008

Subject:
General Motors Position Statement on Installation of Used Salvaged or Imitation Air Bag System Components

Models:
2008 and Prior GM Cars and Light Duty Trucks (Including Saturn and Saab)
2008 and Prior HUMMER H2, H3

Due to the critical nature of the design of Supplemental Inflatable Restraint Systems (SIR) (also known as air bag systems) GM does not support the use of any used salvage or imitation parts for repair. Only new genuine GM warranted parts should be used in repair.

Proper operation of the air bag system requires that any repairs to the vehicle be made with new GM warranted parts. Never use air bag parts from another vehicle or source. The reasons for this policy and practice within GM include the following:

Occupant Protection

Air bag system components are carefully developed and specifically tuned for the specific vehicle environment. Corresponding air bag system components from other models or other model years may appear similar from the outside and may even fit the vehicle but different internal elements or calibrations may result in degraded restraint performance.

Regulatory Compliance

All new GM vehicles are designed and built to meet or exceed all applicable Canadian and U.S. Federal Motor Vehicle Safety Standards. Use of air bag system components other than those specified could result in degraded restraint performance and under some circumstances could render the system inoperative. A repair establishment that knowingly makes a regulated safety system inoperative violates the Safety Act and becomes liable accordingly. The repair establishment also risks liability for losses or damage resulting from the repair.

Reliability

Reuse of used or salvaged components brings into question the conditions under which the components were obtained and stored prior to use.

Components could have been damaged or stored under unfavorable conditions that could compromise performance and reliability.

Warranty

The use of new parts is consistent with the vehicle factory warranty and extended warranty programs.

In summary new GM parts remain General Motors recommendation for repairs involving air bags systems and components. Air bag systems can best be returned to appropriate levels of performance when new GM parts are used.

(This information is also available online at: www.techinfo.gmgoodwrench.com.)

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Disclaimer
Technical Service Bulletin # **08-07-30-008A**

Date: **080320**

A/T - Diagnostic Information for DTC P0894 and P1870 INFORMATION

Bulletin No.: 08-07-30-008A

Date: March 20, 2008

Subject:
Diagnostic Information on Diagnostic Trouble Code (DTC) P0894 and P1870

Models:

2002-2007 GM Passenger Cars and Light Duty Trucks

2003-2007 HUMMER H2

2006-2007 HUMMER H3

2005-2007 Saab 9-7X

with 4L60-E, 4L65-E or 4L70-E Automatic Transmission (RPOs M30, M32 or M70)

Supercede:

This bulletin is being revised to provide information on the turbine shaft 0-ring seal. Please discard Corporate Bulletin Number 08-07-30-008 (Section 07 - Transmission/Transaxle).

Diagnostic trouble codes (DTC) P0894 and P1870, Transmission Component Slipping, may have different root causes. The following diagnostic tips are provided to assist in accurately repairing the condition.

- ^ Corporate Bulletin Number 06-07-30-007 is intended for 2006 vehicles only. This bulletin provides diagnostic procedures to determine if the TCC enable solenoid is cracked.
- ^ Slip speeds ranging from approximately 100 to 400 RPM at steady state light load driving are usually caused by the TCC not applying.
- ^ Slip speeds greater than about 400 RPM at steady state driving are usually caused by a slipping clutch or band. Inspect the oil pan for the presence of excess clutch debris.
- ^ A plugged or restricted TCC apply fluid orifice (238, located in the pump) may cause DTC P0894 or P1870, especially in low mileage vehicles with less than 8,000 km (5,000 mi).
- ^ A converter clutch valve (224, located in the pump), which does not have full travel of 13 mm (0.5 in) or is stuck in the off position may cause DTC P0894 or P1870. Inspect the valve for chips, debris, nicks or burrs. Also inspect the springs (225 and 226) to make sure they are not limiting valve travel. A spring that is not fully wound may catch in the bore, limit valve travel and cause DTC P0894 or P1870.
- ^ A cut, damaged or missing turbine shaft 0-ring seal (615) may cause these DTCs. When installing this 0-ring to the turbine shaft, make sure it is fully seated on the groove all the way around the turbine shaft and can be easily rotated with the thumb and forefinger. Failure to fully seat this 0-ring may result in cutting when the torque converter is installed.
- ^ A cracked or leaking TCC solenoid (part of harness 66) may cause DTC P0894 or P1870. Use solenoid test kit J 44246 to test the operation of this solenoid.
- ^ A cracked or leaking TCC PWM solenoid (396) may also cause DTC P0894 or P1870.
- ^ If the vehicle has 24,000 miles (38,600 km) or more, and diagnostics have not determined another cause of the DTC, the torque converter should be replaced.

When attempting to diagnose a DTC P0894 or P1870, it is important to also refer to the appropriate Service Information (SI) document for further possible causes of this condition.

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Disclaimer Technical Service Bulletin # **00-08-48-005C**

Date: **080201**

Body - Vehicle Glass Distortion Information

Bulletin No.: 00-08-48-005C

Date: February 01, 2008

INFORMATION

Subject:

Distortion in Outer Surface of Vehicle Glass

Models:

2008 and Prior GM Passenger Cars and Trucks (including Saturn)

2008 and Prior HUMMER H2 H3

2005-2008 Saab 9-7X

Supersede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 00-08-48-005B (Section 08 - Body and Accessories).

Distortion in the outer surface of the windshield glass door glass or backlite glass may appear after the vehicle has:

accumulated some mileage

been frequently washed in automatic car washes (particularly "touchless" car washes)

This distortion may look like a subtle orange peel pattern, or may look like a drip or sag etched into the surface of the glass.

Some car wash solutions contain a buffered solution of hydrofluoric acid which is used to clean the glass. This should not cause a problem if used in the correct concentration. However, if not used correctly, hydrofluoric acid will attack the glass, and over time, will cause visual distortion in the outer surface of the glass which cannot be removed by scraping or polishing.

If this condition is suspected, look at the area of the windshield under the wipers or below the belt seal on the side glass. The area of the glass below the wipers or belt seal will not be affected and what looks like a drip or sag may be apparent at the edge of the wiper or belt seal. You may also see a line on the glass where the wiper blade or the belt seal contacts the glass.

The repair will require replacing the affected glass and is not a result of a defect in material or workmanship. Therefore, is not covered by New Vehicle Warranty.

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Technical Service Bulletin # **08-07-30-009A**

Date: **080312**

A/T - L/H Front Axle Seal Leak/A/T Slips in Gear

TECHNICAL

Bulletin No.: 08-07-30-009A

Date: March 12, 2008

Subject:

HYDRA-MATIC(R) Front Wheel Drive 4T80-E (MH1) Left Front Axle Seal Leak, Transmission Slips in Gear (Replace Third Clutch Housing with Revised Service Part)

Models:

2001-2008 GM Passenger Cars

with HYDRA-MATIC(R) Front Wheel Drive 4T80-E Automatic Transmission (RPO - MH1)

Supersede:

This bulletin is being revised to change the location of the transmission fluid leak from the right front axle to the left front axle. Please discard Corporate Bulletin Number 08-07-30-009 (Section 07 - Transmission/Transaxle).

Condition

Some customers may comment on a transmission oil leak and/or that the transmission slips in gear.

Cause

An oil leak may be caused by bushing wear in the third clutch housing causing excessive fluid build-up at axle seal.

Correction

Important:

DO NOT replace the transmission for above concerns.

Replace the third clutch housing with service P/N 8682114 which has revised bushing material to extend life and reduce left front axle seal leaks. Refer to Automatic/Transaxle - 4T80-E Transmission Off-Vehicle Repair Instructions for the replacement of the third clutch housing in SI.

Part Number	Description	Qty
8682114	Housing, Third Clutch	1


Parts Information

Warranty Information

Labor Operation	Description	Labor Time
K7532	Clutch, Third – R&R or Replace	Use Published Labor Operation Time

For vehicles repaired under warranty, use the table.

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Technical Service Bulletin # 03-07-30-007D

Date: 080320

A/T - Apparent Delayed Engagement Information
INFORMATION

Bulletin No.: 03-07-30-007D

Date: March 20, 2008

Subject:

Engagement Time of Electronically Controlled Transmissions in General Motors Vehicles (Garage Shifts, Park to Reverse, Neutral to Drive, Neutral to Reverse, Park to Drive, Delayed Engagement)

Models:

- 2000-2002 Chevrolet Camaro
- 2000-2005 Chevrolet Corvette
- 2000-2002 Pontiac Firebird
- 2004-2006 Pontiac GTO
- 2000-2007 All GM Light Duty Trucks
- 2003-2007 HUMMER H2
- 2006-2007 HUMMER H3
- 2005-2007 Saab 9-7X

with 4L60-E (RPO M30) or 4L65-E (RPO M32) Automatic Transmission

Supersede:

This bulletin is being revised to remove 2006-2007 Chevrolet Corvettes. Please discard Corporate Bulletin Number 03-07-30-007C (Section 07 - Transmission/Transaxle).

Park/Neutral to Reverse or Drive (commonly called garage shift) engagement times may be different from what many customers might be accustomed to especially if they have recently traded for a General Motors vehicle.

Normal Park/Neutral to Reverse or Drive engagement time will be in the vicinity of one (1) second if the automatic transmission fluid (ATF) is above 0

°C (32°F) . When the ATF is colder than 0°C (32°F), the engagement time will become longer the colder the transmission fluid. A time limit factor cannot be placed on proper engagement times because the factors that affect transmission operation are many.

At the moment of engine start, for economy and emission requirements, the transmission line pressure is maintained at low levels. This allows a lower cold idle engine RPM (the colder the oil is the higher the energy level (engine torque output) required to pressurize the oil).

When the driver moves the shift lever from "Park/Neutral" to "Reverse" or any "Drive" range the following actions must occur for the powertrain control module (PCM) to determine at what pressure to control the transmission line pressure.

The module will look at the following items:

1. The voltage readings of the engine coolant temperature sensor (ECT).
2. The voltage reading of the transmission fluid temperature sensor (TFT).
3. Whether or not air conditioning is requested.
4. Movement of the shift lever and controls engine RPM based on the gear position selected. The module will adjust the engine RPM in response to the torque requirements needed to increase transmission line pressure.

When the module determines the status of the above items, the module will apply the appropriate signal to the PWM pressure control solenoid, thereby controlling the application of the required clutch(es) depending on the drivers selection.

Controlling transmission apply pressures allows the transmission to engage in a smooth manner, thus reducing the potential of abrupt/harsh engagement of the transmission.

All of the above actions happen very quickly; however the resultant time interval may be approximately one second.

When determining if shift times are excessive, the exact conditions that the vehicle was in at the time the extended garage shift occurred must be duplicated. The following are several possible conditions.

- ^ Was the vehicle outside or in a heated garage?
- ^ What was the temperature of the environment at the time of the occurrence?
- ^ Length of time the vehicle sat unused, such as overnight or a weekend, etc.? A vehicle that has been driven to the service facility cannot be tested for this concern because the transmission, the engine oil and the coolant are no longer at the temperature they were when the customer experienced the condition.

No attempts to repair should occur unless the condition can be duplicated under the conditions the customer experienced.

Road test the vehicle following the steps below until the vehicle engine and transmission temperatures are at normal operating temperatures. This is approximately 16 km (10 mi) of driving.

1. In a safe manner, bring the vehicle to a complete stop.
2. Place the shift lever in Neutral and wait five seconds.
3. Place the shift lever in Drive. A delayed engagement of approximately one (1) second will occur. **THIS IS NORMAL.** This time may be extended if the engine RPM is above the base idle, controlled by the drivers foot rather than the control module.
4. Drive the vehicle for a distance of not less than a tenth of a mile (160 m).
5. In a safe manner, bring the vehicle to a complete stop.
6. Place the shift lever in Neutral and wait five seconds.
7. Place the shift lever in Reverse. A delayed engagement of approximately one (1) second will occur. **THIS IS NORMAL.** This time may be extended if the engine RPM is above the base idle, controlled by the drivers foot rather than the control module.
8. Place the shift lever in Neutral and wait five seconds.
9. Place the shift lever in Drive. A delayed engagement of approximately one (1) second will occur. **THIS IS NORMAL.** This time may be extended if the engine RPM is above the base idle, controlled by the drivers foot rather than the control module.

If an out of line condition (excessively long time, over two seconds, to engage a gear) is observed, the following components within the

transmission should be inspected for the cause of the concern.

- ^ Forward clutch piston seals (delay to drive)
- ^ Forward accumulator piston and seal for damage (delay to drive)
- ^ Low and reverse clutch piston seals (delay to reverse)
- ^ Reverse input clutch piston seals (delay to reverse)
- ^ Stator shaft to reverse input drum seals (delay to reverse)

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Technical Service Bulletin # **08-06-01-008**

Date: **080327**

Engine - Accessory Drive Belt Noise Diagnostics/Tool INFORMATION

Bulletin No.: 08-06-01-008

Date: March 27, 2008

Subject:

Diagnosing Accessory Drive Belt/Serpentine Belt Noise and Availability and Use of Kent-Moore EN-49228 Laser Alignment Tool - Drive Belt

Models:

2009 and Prior GM Passenger Cars and Trucks (Including Saturn)

2009 and Prior HUMMER H2, H3 Vehicles

2009 and Prior Saab 9-7X

Background

Several aftermarket companies offer laser alignment tools for accessory drive systems that can be very helpful in eliminating drive belt noise as a result of misaligned pulleys. Typically pricing ranges from \$160 -\$200.

EN49228 Laser Alignment Tool - Drive Belt

The GM Tool program has now made available a competitive, simple to use and time-saving laser tool to assist in achieving precise alignment of the drive belt pulleys. This optional tool removes the guesswork from proper pulley alignment and may serve to reduce comebacks from:

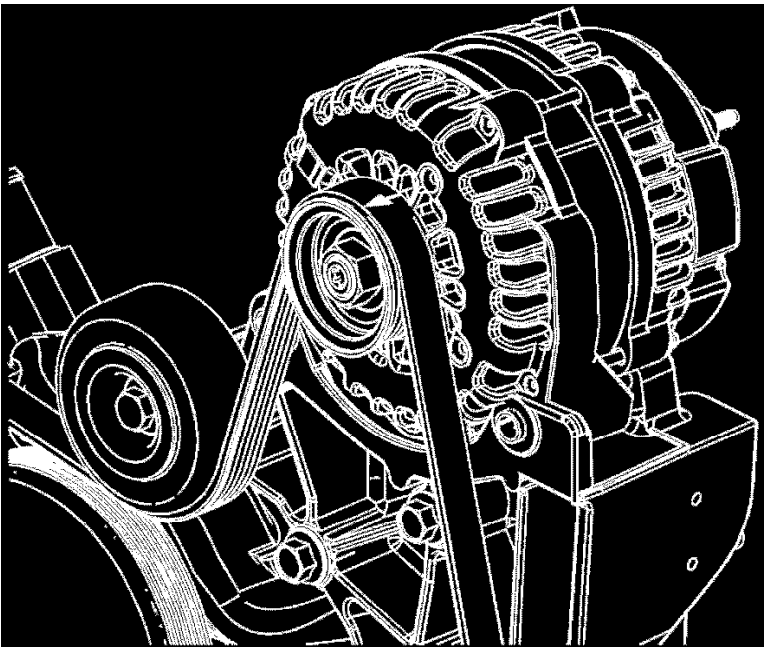
- ^ Drive Belt Noise
- ^ Accelerated Drive Belt Wear
- ^ Drive Belt Slippage

Instructions

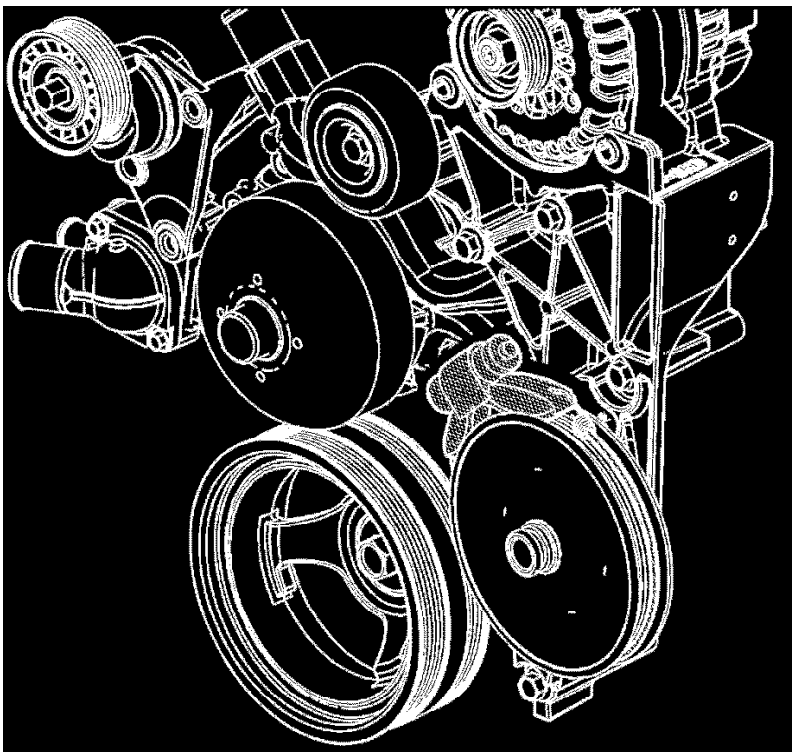
The instructions below are specific only to the truck Gen IV V-8 family of engines. These instructions are only for illustrative purposes to show how the tool may be used. Universal instructions are included in the box with the Laser Alignment Tool - Drive Belt.

Caution:

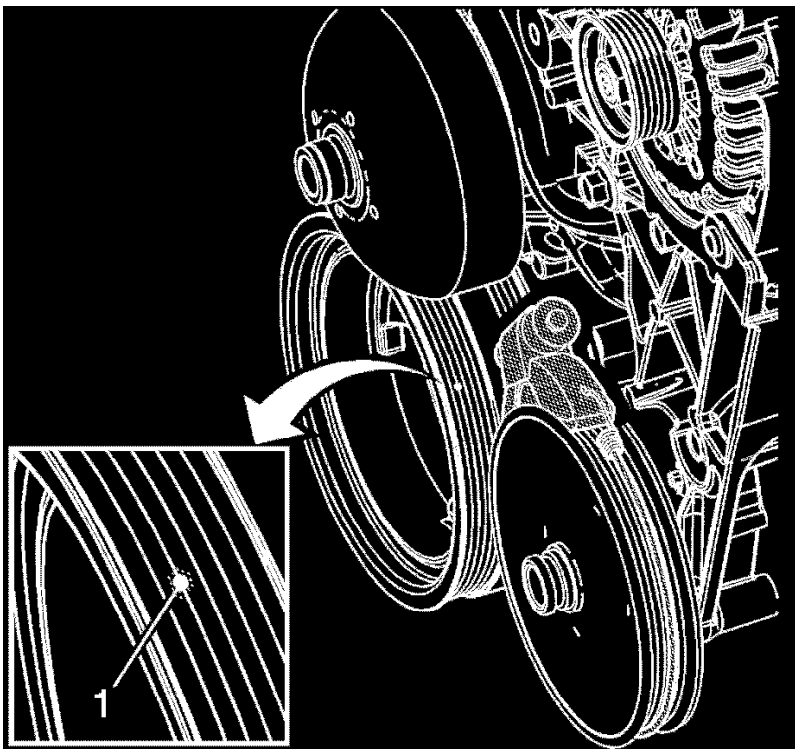
- ^ Do not look directly into the beam projected from the laser.
- ^ Use caution when shining the laser on highly polished or reflective surfaces. Laser safety glasses help reduce laser beam glare in many circumstances.
- ^ Always use laser safety glasses when using the laser. Laser safety glasses are not designed to protect eyes from direct laser exposure.



1. Observe and mark the serpentine belt orientation.
2. Remove the serpentine belt from the accessory drive system.



3. Install the tool onto the power steering pulley. Position the legs of the tool into the outer grooves of the pulley, farthest from the front of the engine.
4. Install the retaining cord around the pulley and to the legs of the tool.



5. Put on the laser safety glasses provided with the tool.
6. Depress the switch on the rear of the tool to activate the light beam.
7. Rotate the power steering pulley as required to project the light beam onto the crankshaft balancer pulley grooves.
8. Inspect for proper power steering pulley alignment.
 - ^ If the laser beam projects onto the second rib or raised area (1) the pulleys are aligned properly.
 - ^ If the laser beam projects more than one-quarter rib 0.9 mm (0.035 in) mis-alignment, adjust the position of the power steering pulley as required.
 - ^ Refer to SI for Power Steering Pulley Removal and Installation procedures.
9. Install the serpentine belt to the accessory drive system in the original orientation.
10. Operate the vehicle and verify that the belt noise concern is no longer present.

GM Tool Number	Description
EN-49228	Laser Alignment Tool – Drive Belt

Parts Information

Please contact 1-800-GM-TOOLS or visit the GM service tool website at <https://gmspecialservicetools.spx.com/> for pricing information or to place your order for this tool.

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Disclaimer Technical Service Bulletin # **05-00-89-078B**

Date: **080206**

Fuel System - GM Fuel System Treatment PLUS(R) Info.

Bulletin No.: 05-00-89-078B

Date: February 06, 2008

INFORMATION

Subject:
GM Fuel System Treatment PLUS Fuel Sending Unit Corrosion and Fuel System Deposits

Models:
2008 and Prior GM Passenger Cars and Trucks (including Saturn)
2008 and Prior HUMMER H2, H3
2005-2008 Saab 9-7X

Supercede:
This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 05-00-89-078A (Section 00 - General Information).

The GM Fuel System Treatment PLUS is not recommended for use with diesel fuel. The GM Fuel System Treatment PLUS is specially formulated for use in gasoline and/or E85 fuels.

GM Fuel System Treatment PLUS

GM Fuel System Treatment PLUS P/N 88861011 (for U.S. ACDelco(R) use 88861013) (in Canada 88861012) is now available for use in gasoline engines.

Added Benefits and Uses

The PLUS portion of GM Fuel System Treatment PLUS is the addition of a filmer additive that when used regularly can protect fuel system sending units from the corrosive effects of certain sulfur contaminants found in some of today's gasoline.

Sulfur contamination can disrupt electrical continuity of certain fuel sending units and lead to erratic or false fuel gauge readings. With scheduled usage GM Fuel System Treatment PLUS protects against the effects of harmful sulfurs in gasoline.

The Four Benefits


Just pour in one bottle of the GM Fuel System Treatment PLUS into the fuel tank when refueling around each oil change interval:

- Cleans - Sulfur corrosion from fuel gauge sending units.
- Prevents - Harmful sulfur components from attacking sensitive fuel system electronics.
- Protects - By coating metallic surfaces of the fuel system.
- Removes - Engine deposits left from use of poor quality fuels.

Part Number	Description
88861011 (for U.S. ACDelco, use 88861013) (in Canada, 88861012)	GM Fuel System Treatment PLUS

Parts Information

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Fuel System - E85 Fuel Usage Precaution

Bulletin No.: 06-06-04-035A

Date: February 05, 2008

INFORMATION

Subject:

Use of E85 Fuels in Vehicles Not Certified by GM as being FlexFuel Compatible / Aftermarket Conversion of Vehicles to Operate on E85 Fuels

Models:

2008 and Prior GM Passenger Cars and Trucks NOT FlexFuel (E85) Compatible (including Saturn)

2008 and Prior HUMMER H2, H3

2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 06-06-04-035 (Section 06 - Engine/Propulsion System).

Aftermarket Conversions of Vehicles to Use E85 Fuels

General Motors has become aware of several companies that claim to be able to convert vehicles equipped with gasoline engines to be compatible with E85 Fuels.

Vehicles certified by GM as being FlexFuel (E85) compatible contain numerous calibration and component differences that are not conducive to an aftermarket retrofit.

General Motors DOES NOT support or endorse conversions that may alter the emissions and related emissions components of its vehicles.

Repairs that may result from changes to GM built components and repairs that result from the use of improper fuel such as the use of gasoline containing more than 10% Ethanol in a non-FlexFuel certified vehicle are not covered under the terms of the New Vehicle Warranty.

E85 Compatible Vehicles

2000-2002 S-Series pickups with 2.2L (VIN 5- RPO L43)
2002-2005 full-size pickups and utilities with 5.3L (VIN Z — L59)
2006 Chevrolet Avalanche, Silverado, Suburban, Tahoe with 5.3L (VIN Z — RPO L59)
2006 Chevrolet Impala, Monte Carlo with 3.5L (VIN K — RPO LZE)
2006 GMC Sierra, Yukon, Yukon XL with 5.3L (VIN Z — RPO L59)
2007 Chevrolet Express with 5.3L (VIN Z -- RPO L59)
2007 Chevrolet Avalanche, Silverado, Suburban, Tahoe with 5.3L (VINs 0, 3 — RPOs LMG, LC9)
2007 GMC Savana with 5.3L (VIN Z -- RPO L59)
2007 GMC Sierra, Yukon, Yukon XL with 5.3L (VINs 0, 3 — RPOs LMG, LC9)
2007 Chevrolet Impala, Monte Carlo with 3.5L (VIN K — RPO LZE)
2007 Saturn Relay, Buick Terraza, Chevrolet Uplander, Pontiac Montana SV6 (Canada Only) with 3.9L (VIN W — RPO LGD)
2008 Chevrolet Impala with 3.5L (VIN K — RPO LZE) and 3.9L (VIN 1- RPO LZG)
2008 Pontiac Montana SV6, Chevrolet Uplander 3.9L (VIN W — RPO LGD)
2008 Chevrolet Express, GMC Savana with 5.3L (VIN 4 — RPO LMF)
2008 Chevrolet Avalanche, Suburban, Silverado, GMC Yukon, Sierra with 5.3L (VIN 3 — RPO LC9)
2008 Chevrolet Avalanche, Suburban, Silverado, Tahoe, GMC Yukon, Yukon XL, Sierra with 5.3L (VIN 0 — RPO LMG)

The only E85 compatible vehicles produced by General Motors are shown above.

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Technical Service Bulletin # **08-03-10-004**

Date: **080325**

Wheels/Tires - Accessory Wheel/Tire Mounting/Balancing INFORMATION

Bulletin No.: 08-03-10-004

Date: March 25, 2008

Subject:

Mounting, Balancing and Installation of Accessory Wheels and Tires Available Through GM Accessories

Models:

2009 and Prior GM Passenger Cars and Light Duty Trucks (Including Saturn)

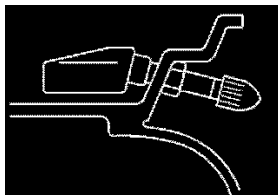
2003-2009 HUMMER H2

2006-2009 HUMMER H3

This bulletin is intended to offer comprehensive instructions to GM Dealers and authorized GM Accessory Distributor/Installers as to the proper methods for mounting, balancing and installing accessory wheels and tires. Adherence to these methods will ensure that the vehicle delivered to the customer is of the highest quality.

Tire Pressure Monitor (TPM) Sensor Installation

1. Clean any dirt or debris from the grommet sealing area.



2. Insert the sensor in the wheel hole with the air passage facing away from the wheel.
3. Install the sensor nut and position the sensor body parallel to the inside wheel surface while tightening the nut.

Tighten

Tighten the sensor nut to 7 N.m (62 lb in).

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Tire Mounting

Tire Mounting

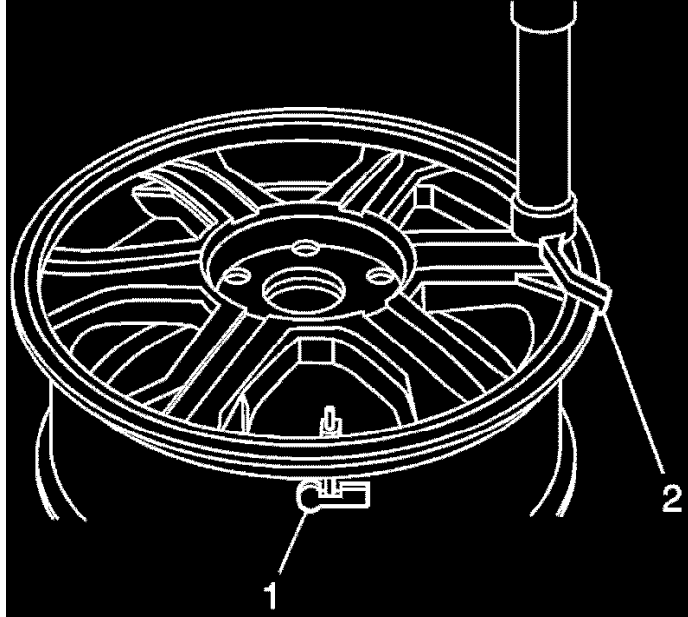
Important:

When mounting the tires, use the approved tire mounting lubricant. DO NOT use silicon or corrosive base compounds to lubricate the tire bead and the wheel rim. A silicon base compound can allow the tire to slip on the rim resulting in imbalance or braking failure. A corrosive type compound can cause tire or rim deterioration.

1. Verify that the tire is at least 15°C (60°F) prior to mounting and inflating.
2. Apply GM Vehicle Care Rubber Lubricant, P/N 12345884 (Canadian P/N 5728223), to both of the tire beads and both of the wheel bead hump areas for full circumference.

Important:

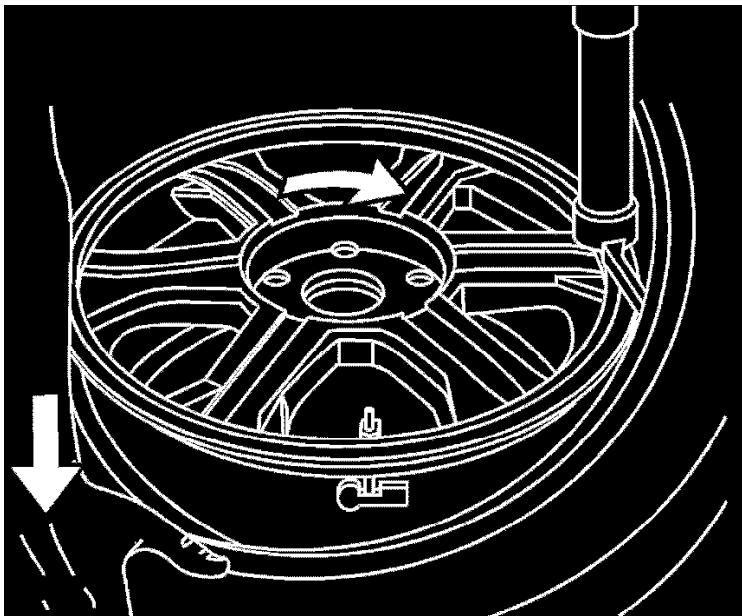
Mounting operation and wheel assembly must be completed within 15 minutes of applying lubricant to ensure proper assembly and inflation. Excess lubricant (drips and runs) in the tire must be avoided as it affects balance and may cause tire slippage on wheels during vehicle operation.



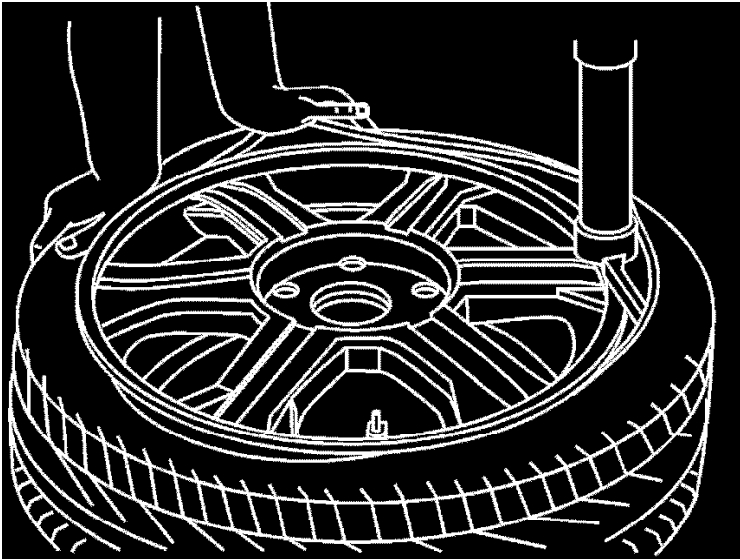
3. Position the rim so the TPM valve stem (1) is situated at the 3 o'clock position relative to the head (2). This will protect the TPM sensor body by ensuring that the bead is under the least amount of tension when it passes over it.

Important:

Some GM Accessory wheels have a "reverse-rim" design and will be marked as such. "Reverse-rim" wheels should be positioned face-down for tire mounting, taking care not to damage the face of the wheel.



4. Using the tire changer, rotate the tire/wheel assembly clockwise when transferring the tire bead to the inside of the wheel rim.
5. After the bottom bead is on the wheel, reposition the wheel and tire so that the TPM valve stem is again situated at the 3 o'clock position relative to the head. This will protect the sensor while mounting the tire bead to the outside of the wheel.



- Using the tire changer, rotate the tire/wheel assembly clockwise when transferring the tire bead to the inside of the wheel rim.

Danger:

To avoid serious personal injury, do not stand over the tire when inflating. The bead may break when the bead snaps over the safety hump. Do not exceed 40 psi (275 kPa) pressure when inflating any tire if beads are not seated. If 40 psi (275 kPa) pressure will not seat the beads, deflate, relubricate the beads and reinflate. If greater than 40 psi (275 kPa) is required to install the tire on the wheel, a safety cage must be used. Overinflation may cause the bead to break and cause serious personal injury.

- Inflate the tire until it passes the bead humps. Be sure that the valve core is not installed at this time.
- Install the valve core to the TPM's valve stem.
- Set the inflation pressure to 40 psi (275 kPa). It will be readjusted to the proper placard pressure when it is installed on the vehicle. This higher pressure allows for losses due to temperature change or any leakage that may occur prior to installation on the vehicle.

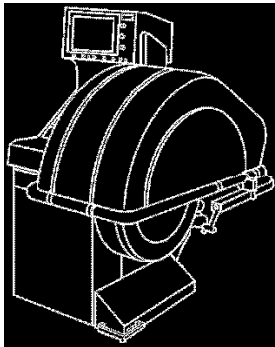
Important:

Aggressive accelerating and braking should be avoided for the first 24 hours after the tires have been mounted to avoid the tire slipping on the rim.

Calibration of Tire/Wheel Balancer

Calibration of Tire/Wheel Balancer

Tire/wheel balancing equipment should be checked for proper calibration every two weeks. Check the calibration of the tire and wheel assembly balancer according to the manufacturers recommendations or perform the following test:

**Important:**

If the balancer fails any of the steps in this calibration test, the balancer should be calibrated according to the manufacturer's instructions. If the balancer cannot be calibrated, contact the manufacturer for assistance.

- Spin the balancer without a wheel or any of the adapters on the shaft.
- Inspect the balancer readings.

Specification

Zero within 0.25 oz (7 g).

3. If the balancer is within the specification range, balance a tire and wheel assembly - that is within radial and lateral runout tolerances - to ZERO, using the same balancer.
4. After the tire and wheel assembly has been balanced, add a 3 oz (85 g) test weight to the wheel at any location.
5. Spin the tire and wheel assembly again. Note the readings.
 - ^ In the static and dynamic modes, the balancer should call for 3 oz (85 g) of weight, 180 degrees opposite the test weight.
 - ^ In the dynamic mode, the weight should be called for on the flange of the wheel opposite the test weight.
6. With the assembly imbalanced to 3 oz (85 g), cycle the balancer five times.

7. Inspect the balancer readings:

Specification

Maximum variation: 0.25 oz (7 g).

8. Index the tire and wheel assembly on the balancer shaft 90 degrees from the previous location.
9. Cycle the balancer with the assembly at the new location.
10. Inspect the balancer readings:

Specification

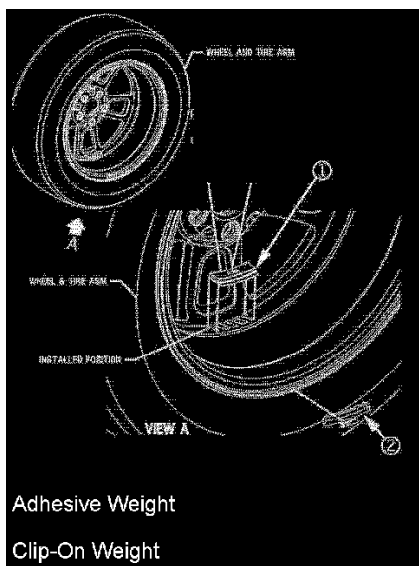
Maximum variation: 0.25 oz (7 g).

11. Repeat Steps 8 through 10 until the tire and wheel assembly has been cycled and checked at each of the 4 locations on the balancer shaft.

Tire and Wheel Balancing

Tire and Wheel Balancing

1. Follow the balancer manufacturers instructions to mount the wheel and tire assembly on the balancer.
2. Perform a dynamic balance on the tire and wheel per the manufacturers instructions (dynamic balance is sometimes referred to as "couple" balance). This will indicate the correct amount of balance weight to add at two positions on the wheel.



3. Install a clip-on balance weight on the inboard wheel flange per the weight indications on the balancer.

- ^ Use only MC-series polyester-coated weights at this location. GM Accessory wheels have an MC-rim contour at the inboard location.
- ^ Use only a nylon or plastic tipped hammer to avoid damaging the weight coating or the wheel finish.
- ^ Never strike a wheel weight more than twice. If it doesn't seat properly after two hits, discard it and try a new weight.



Wheel Rim Profile with Adhesive Weight Locations Shown

Important:

Some older GM Accessory wheels may be MC style rims both inboard and outboard and should, therefore, use clip-on MC weights in both positions. Some GM Accessory wheels may be flangeless on the inboard side. In this case, follow the instructions for applying adhesive balanced weights. Place the adhesive weight on the face of the rim inner surface, as far inboard as possible (2).

4. Install adhesive balance weights at the outboard location (1) on the wheel per the weight indications on the balancer.

- ^ Both the wheel and the weights must be at least 15°C (60°F).
- ^ The area where the weights will be applied must be clean and dry. Wipe the area with a 50/50 mixture, by volume, of isopropyl alcohol and clean water using a clean cloth. Allow to dry completely.
- ^ Install adhesive weights just inboard of the wheel face on the rim inner surface.
- ^ Apply a force of 21 lb (90 N) to the weights to achieve proper adhesion. This is very important to achieve proper adhesion.

Balance Weight Limits

When dynamically balancing a wheel and tire assembly, the maximum amount of balance weight that should be used at any one location on a wheel is 5 oz (141 g). This means a maximum of 5 oz (141 g) on the outboard flange (or behind the wheel face, if adhesive weight is used), and maximum of 5 oz (141 g) on the inboard flange (or on the inner rim surface).

If the balancer calls for greater than 5 oz (141 g) in either position, perform the following steps to reduce the weight:

1. Mark the valve stem location on the tire.
2. Deflate the tire/wheel assembly.
3. Remove any existing balance weights.
4. Rotate tire 180 degrees on the wheel.
5. Re-inflate tire/wheel assembly and rebalance.
6. If the tire/wheel assembly still requires more than 5 oz (141 g) per plane, repeat Steps 1-4, rotating the tire 90 degrees from its original position.
7. If the tire/wheel assembly still requires more than 5 oz (141 g) per plane, repeat Steps 1-4, rotating the tire 270 degrees from its original position.
8. If tire/wheel assembly still requires more than 5 oz (141 g) per plane, remove the tire from the wheel, remove all wheel weights and TPM sensor, and check static balance of the wheel.

Important:

This is a static balance check only. The operating mode of the balancer must be changed from "dynamic or couple" to "static". The balancer should feed back only a single weight value when in static mode.

- ^ If static balance of wheel is 4 oz (113 g) or less, re-use wheel and reject the tire for excessive imbalance.
- ^ If static balance of the wheel is greater than 4 oz (113 g), re-use the tire and reject the wheel for excessive imbalance.

When installing GM Accessory wheels and tires on a vehicle that have new TPM sensors installed in them, it is necessary to learn the new sensor identification codes/locations into the RCDLR. If the relearn procedure is not performed properly, the RCDLR will continue to try to communicate with the original sensors that were removed from the vehicle. This will result in the vehicle displaying a TPM system malfunction message once the vehicle is removed from the proximity of the original sensors for an extended period of time.

Sensor Functions Using J 46079

Each sensor has an internal low frequency coil. When the J 46079 Tire Pressure Monitor Diagnostic Tool is used in activate mode, it produces a low frequency transmission that activates the sensor. The sensor responds to an low frequency activation by transmitting in learn mode. When the RCDLR receives a learn mode transmission while in TPM learn mode, it will assign that sensor ID to the location on the vehicle relative to the order in which it was learned.

Sensor Functions Using Pressure Increase/Decrease Method

Each sensor takes a pressure measurement sample once every 30 seconds while in stationary mode. If the tire pressure increases, or decreases by more than 8.3 kPa (1.2 psi) from the last pressure measurement, another measurement will occur immediately to verify the change in pressure. If a pressure change has indeed occurred the sensor transmits in Learn mode. When the RCDLR receives a Learn mode transmission while in TPM learn mode it will assign that sensor ID to the location on the vehicle relative to the order in which it was learned.

Learn Mode Cancellation

The learn mode will cancel if the ignition is cycled to OFF or if more than 2 minutes has elapsed for any sensor that has not been learned. If the learn mode is cancelled before the first sensor is learned, the original sensor IDs will be maintained. If the learn mode is canceled after the first sensor is learned the following will occur:

- ^ All stored sensor IDs will be invalidated in the RCDLR memory.
- ^ If equipped, the DIC will display dashes instead of tire pressures.
- ^ DTC C0775 will be set.

These conditions will now require the learn procedure to be repeated for the system to function properly.

TPM Learn Procedure

Important:

Before proceeding, ensure that no other learn procedure is being performed simultaneously or that tire pressures are not being adjusted on another TPM equipped vehicle within close proximity. Stray signals from other TPM equipped vehicles just driving by can be inadvertently learned. If any random horn chirps are heard from the vehicle while performing the learn procedure, most likely a stray sensor has been learned and the procedure will need to be cancelled and repeated. Under these circumstances, performing the TPM Learn Procedure away from other vehicles would be highly recommended. In the event a particular sensor activation does not cause the horn to chirp, it may be necessary to rotate the wheel valve stem to a different position due to the sensor signal is being blocked by another component.

1. Place the ignition switch in the proper position as follows:

- ^ With standard ignition switch, place the switch in the RUN position.
- ^ With electronic keyless ignition, place the switch in the ACCY position.

2. Initiate the TPM Learn Mode using one of the following procedures:

- ^ Using a scan tool, initiate the TPM Learn Mode. A double horn chirp will sound indicating the Learn Mode has been enabled. The left front turn signal will also be illuminated.
- ^ On vehicles equipped with keyless entry, simultaneously press the keyless entry transmitters lock and unlock buttons until a double horn chirp sounds indicating the Learn Mode has been enabled. The left front turn signal will also be illuminated.
- ^ On vehicles not equipped with keyless entry, press and release the driver information center (DIC) INFO button until the RELEARN TIRE POSITIONS message appears on the DIC display. Press and hold the SET/RESET button until a double horn chirp sounds and the DIC displays a TIRE LEARNING ACTIVE message indicating the Learn Mode has been enabled. The left front turn signal will also be illuminated.
- ^ For HUMMER H3, GMC Canyon, Chevrolet Colorado ONLY: Turn the exterior lamp switch from OFF to Parking Lamps four times within four seconds. A double horn chirp will sound and the low tire pressure indicator will begin to flash, indicating the learn mode has been enabled.

3. Starting with the left front tire, learn the tire pressure using one of the following methods:
 - ^ Hold the antenna of the J 46079 aimed upward against the tire sidewall close to the wheel rim at the valve stem location. Press and release the activate button and wait for a horn chirp. Once the horn chirp has sounded, the turn signal in the next location to be learned will illuminate.
 - ^ Increase/decrease the tire pressure for 8-10 seconds then wait for a horn chirp. The horn chirp may occur before or up to 30 seconds after the 8-10 second pressure increase/decrease time period has been reached. Once the horn chirp has sounded, the turn signal in the next location to be learned will illuminate.
4. After the horn chirp has sounded and the right front turn signal is illuminated, repeat step 3 for the remaining 3 sensors in the following order:
 1. Right Front
 2. Right Rear
 3. Left Rear
5. After the LR sensor has been learned, a double horn chirp will sound indicating all sensors have been learned.
6. Turn OFF the ignition to exit the learn mode.
7. After the learn mode has been exited, adjust all tires to the recommended pressures on the Tire Inflation Pressure Placard. Refer Tire Inflation Pressure and Placards.

For additional information on TPM refer to Corporate Bulletin Number 07-03-16-004.

Tire Inflation Pressure and Placards

Tire Placard

When installing GM Accessory wheels and tires on a vehicle, the new tire pressure placard (supplied with the GM Accessory wheel kit) must be installed over the existing placard inside the drivers side door frame. This is required when the size of the GM Accessory tires is different than those being removed from the vehicle.

The new tire placard should be located within the red box, over the top of the original tire label found on the doorjamb. To locate the placard within the red box use the upper left hand edge of the red line as a guide. When properly placed, the new tire placard will obscure the original tire information. Be sure that the surface is clean and dry, and the surface temperature is not less than 21 °C (65°F).

Tire Inflation Pressure

Note the front, rear, and spare (where applicable) tire inflation pressures shown on the new tire placard. The inflation pressure of new tires on the vehicle must be adjusted to the values shown on the placard. Even if the tire size was not changed on the vehicle and the tire pressure placard was not replaced, all of the tires must have their inflation pressures adjusted to match those shown on tire pressure placard.

Reprogramming (RCDLR) For Proper Tire Inflation Pressure

Reprogramming Remote Control Door Lock Receiver (RCDLR) for Proper Tire Inflation Pressure

When GM Accessory wheels and tires are installed on a vehicle that requires a different tire inflation pressure according to the Tire Inflation Placard the RCDLR must be reprogrammed with the new pressure and tire type (P or LT). If this is not done the vehicle will incorrectly report low or high tire pressure conditions incorrectly. Follow the steps listed below to select the appropriate tire type/pressure:

1. Install the scan tool.
2. Turn ignition ON with the engine OFF.
3. Enter "Diagnostics" and build the vehicle according to model year, vehicle line, etc.
4. Select: "Body".
5. Select "RCDLR Module".
6. Select: "Module Setup".
7. Select: "Tire Type/Pressure Selection".

8. Select P-Metric Standard.
9. Select the front and rear tire pressure as noted on the new vehicle driver door placard sticker for the accessory wheels/tires.
10. Verify that the selections made are correct and press the enter key. The scan tool will flash "Procedure in Progress" then display "Procedure Complete".
11. Press the "exit" key to escape.

Other Electronic Module Reprogramming

For proper vehicle operation and to ensure coverage under the provisions of the new vehicle warranty, the vehicle may require that certain control modules be reprogrammed with the correct calibrations as soon as the GM Accessory wheels and tires are installed. Examples of the modules that may be affected are Electronic Brake Control Module (for proper anti-lock brake and stability control performance) and Engine Control Module (for proper speedometer/odometer function).

Please see the Corporate Bulletin specific to the vehicle and wheel/tire application for detailed information on module reprogramming.

Technical Service Bulletin # **99-08-52-005C**

Date: **080130**

Keyless Entry System - Characteristics of Operation

Bulletin No.: 99-08-52-005C

Date: January 30, 2008

INFORMATION

Subject:

Remote Keyless Entry Operational Characteristics

Models:

1997-2008 All Passenger Cars and Trucks

2003-2008 HUMMER H2

2006-2008 HUMMER H3

2005-2008 Saab 9-7X

with Remote Keyless Entry

Supercede:

This bulletin is being revised to add model years and additional information. Please discard Corporate Bulletin Number 99-08-52-005B (Section 08 - Body and Accessories).

The following information regarding Remote Keyless Entry (RKE) operation may be given to customers as needed.

The General Motors RKE systems operate on high frequency radio signals. Therefore they may be subject to radio signal interference which will affect RKE operation. Some of the typical conditions which result in reduced RKE transmitter operation are listed below.

To prevent battery drain, RKE transmitter will lock up if any button or buttons are depressed longer than 30 seconds. The transmitter will unlock if another button is depressed. While programming the transmitter in the relearn mode, use the J 43241 tester, to confirm that the signals are being transmitted to the RCDLR. If the RKE locks up during the programming, depress another button to unlock the RKE.

Note

Always refer to SI for latest diagnostic information

If on the second press of the unlock button all doors are not unlocked it may be due to the time delay needed by the system to recognize the second press of the unlock button. In order to unlock all doors press the unlock button once pause 1-2 seconds and press the unlock button the second time.

There needs to be a pause between button presses so that the receiver can properly process the signal from the transmitter.

For many 2006 and later car lines the trunk release button requires a press and hold before the trunk lid will release.

Line of sight. The transmitter signal may be obstructed by obstacles; another vehicle building or other obstructions in the line of sight.

Proximity to radio towers airports police and fire towers.

The presence of fluorescent lighting.

Installation of some aftermarket accessories have been known to affect the RKE performance as well.

Some brands of radar detectors CB radios walkie talkies mobile radios cell phone chargers and cell phones (especially 3-watt bag phones which are placed on the floor of the vehicle) have jammed the radio frequencies of the RKE system.

Remember these devices do not have to be in the customers vehicle. They may be in another vehicle which is in close proximity. However if the customer has one of these devices in their vehicle and if the RKE system works with these aftermarket devices unplugged refer the customer to the aftermarket supplier. The aftermarket device may not meet the requirements of the FCC Code.

If the customer comments that the remote transmitter fails to operate press each button on the transmitter one at a time while observing the vehicle systems.

If only the fuel door (Cadillac) or panic button (all other vehicles) works or the transmitter fails to operated re-synchronize the system following the transmitter synchronization procedure found in the Keyless Entry sub-section of Body & Accessories in the Service Manual. If the RKE system is auto-synchronized reprogram the transmitter following the procedures in the Keyless Entry sub-section of SI.

DO NOT REPLACE ANY COMPONENTS.

Re-synchronization must be performed if the following conditions exist:

The batteries of the keyless entry transmitter have been replaced. A keyless entry transmitter is malfunctioning.

If all of the transmitter buttons fail to function check the battery and transmitter using tester J 43241. Refer to Corporate Bulletin Number 83-90-12.

If the transmitter passes the test program the RKE system following the procedures in the Keyless Entry sub-section of Body & Accessories in the Service Manual.

Remember when programming the system, all transmitters for the vehicle must be present for the programming to be successful.

On many 2006 vehicle lines RKE transmitter commands can be viewed using a scan tool (under RCDLR Data Displays).

If the transmitter fails the test with the tester J 43241 replace the batteries and retest the transmitter using the tester J 43241. If the transmitter still fails the test replace the transmitter.

THE FOLLOWING CLAIM TYPES ARE NOT COVERED UNDER THE VEHICLE WARRANTY:

The battery is considered a consumable battery and is covered for the first 12 months only. Refer to "Maintenance" in the In-Vehicle Warranty Booklet. Battery life is determined by the number of times a pad on the transmitter has been used, not by time or mileage and as such, battery replacement would be considered owner maintenance (i.e. batteries in a flash light, engine oil changes).

Transmitter replacement when all buttons work, using the tester J 43241 as outlined in Corporate Bulletin Number 83-90-12.

Personalization programming through the DIC or Tech 2(R).

Lost/replacement transmitter reprogramming.

Used car transmitter replacement programming.

Transmitter damage due to misuse, such as any liquid spilled on/in the transmitter or damage from animals chewing on the transmitter, etc.

Broken transmitter cases where the key ring attaches to the case. If the case is broken in this area, it is due to mounting the transmitter direct to the key ring without the protection of the small ring. The small ring acts like a universal joint/flex joint and helps protect the transmitter from this type of damage. Refer to Corporate Bulletin Number 03-08-52-003 for EXCEPTIONS to this rule.

Garage door opener programming.

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Technical Service Bulletin # **06-08-44-015A**

Date: **080201**

Audio System - Noise When Using Portable Playback Unit

Bulletin No.: 06-08-44-015A

Date: February 01, 2008

INFORMATION

Subject:
Information on Eliminating Noise in Audio System when Using Portable Playback Device

Models:
2008 and Prior GM Passenger Cars and Trucks (Including Saturn)
2008 and Prior HUMMER H2, H3
2005-2008 Saab 9-7X

Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 06-08-44-015 (Section 08 - Body and Accessories).

Some portable audio equipment may be susceptible to certain types of electronic noise present in the vehicle's 12V power outlet.

Here are two ways to eliminate this type of interference:

If the audio device is capable of being self-powered (battery) use it that way instead of plugging it into the vehicle's power outlet.

Have the customer purchase a Ground Loop Isolator such as *Radio Shack Catalog # 270-054. This device plugs in between the radio and the customer's audio device. It is packed with one included Y-Adapter. If purchasing the *Radio Shack product you will require an additional Y-Adapter (Catalog # 274-369). This device should be installed between the audio player and the AUX input of the vehicle radio. These catalog numbers are stocked nationally at *Radio Shack Retail Stores in the U.S. and are currently available. Other similar products are available through other electronics or car stereo retailers defined as Ground Loop Isolators.

Parts are currently available nationally in the U.S. through *Radio Shack retail locations or through the mail at Radio Shack direct ordering 1-800-843-7422. In Canada, parts are available nationally through *The Source By Circuit City retail locations or at www.thesourcecc.com.

Part Number	Description	Qty
270-054 (U.S.) 2700054 (Canada)	Ground Loop Isolator	1
274-369 (U.S.) 2740883 (Canada)	Y-Adapter	1

*We believe these sources and their products to be reliable. There may be additional manufacturers of such products/materials. General Motors does not endorse, indicate any preference for or assume any responsibility for the products or material from these firms or for any such items that may be available from other sources.

Parts Information

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Technical Service Bulletin # **08-08-51-002**

Date: **080312**

Body - TPO Fascia Cleaning Prior to Painting

INFORMATION

Bulletin No.: 08-08-51-002

Date: March 12, 2008

Subject:
New Primer For TPO Fascias and Affected Cleaning Process of Painting Operation

Models:
2009 and Prior Passenger Cars and Trucks
2009 and Prior HUMMER H2, H3

The purpose of this bulletin is to inform the technician that General Motors has made a change in the primer it uses for TPO plastic for service parts. This new primer comes in several different colors from five different suppliers. This change affects the cleaning process of the painting operation. The new process is as follows.

1. Wash with soap and water.
2. Clean with a 50% mix of isopropyl alcohol and water (or a waterborne cleaner). Check with your paint supplier for product recommendations.
3. Scuff sand per your paint suppliers recommendations.

Note:
The use of a solvent-type cleaner will soften, or begin to dissolve the primer. Base coats do not have any affect on this primer.

4. Reclean with a 50% mix of isopropyl alcohol and water (or a waterborne cleaner).

All fascias, with the exception of the Corvette, Camaro, and Cadillac XLR, are made of TPO. You may find other TPO parts with this primer. If the technician has a question as to the type of plastic they are painting, inspect the back of the part for the plastic symbol (TPO).

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Disclaimer Technical Service Bulletin # **08-01-38-001**

Date: **080125**

A/C - Refrigerant Recovery/Recycling/Equipment

Bulletin No.: 08-01-38-001

Date: January 25, 2008

INFORMATION

Subject:
Information On New GE-48800 CoolTech Refrigerant Recovery/Recharge Equipment

Models:
2008 and Prior GM Passenger Cars and Light Duty Trucks (Including Saturn)
2008 and Prior HUMMER H2, H3

2005-2008 Saab 9-7X

Attention:

This bulletin is being issued to announce the release of GM approved Air Conditioning (A/C) Refrigerant Recovery and Recharging Equipment that meets the new Society of Automotive Engineers (SAE) J2788 Refrigerant Recovery Standards. The ACR2000 (J-43600) cannot be manufactured in its current state after December 2007 and will be superseded by GE-48800.

The new J2788 standard does not require that GM Dealers replace their ACR2000 units. ACR2000's currently in use are very capable of servicing today's refrigerant systems when used correctly and can continue to be used. Details regarding the new SAE J2788 standard are outlined in GM Bulletin 07-01-38-004.

Effective February 1 2008, new A/C Refrigerant Recovery/Recharging equipment (P/N GE-48800) will be released as a required replacement for the previously essential ACR2000 (J-43600). This equipment is SAE J2788 compliant and meets GM requirements for A/C Refrigerant System Repairs on all General Motors vehicles, including Hybrid systems with Polyolester (POE) refrigerant oil. This equipment will not be shipped as an essential tool to GM Dealerships.

In addition, this equipment is Hybrid compliant and designed to prevent oil cross contamination when servicing Hybrid vehicles with Electric A/C Compressors that use POE refrigerant oil.

The ACR2000 (J-43600) will need to be retrofitted with a J-43600-50 (Hose - ACR2000 Oil Flush Loop) to be able to perform Hybrid A/C service work. All Hybrid dealers will receive the J-43600-50, with installation instructions, as a component of the Hybrid essential tool package. Dealerships that do not sell Hybrids, but may need to service Hybrids, can obtain J-43600-50 from SPX Kent Moore. Refer to GM Bulletin 08-01-39-001 for the ACR2000 Hose Flush procedure.

The High Voltage (HV) electric A/C compressor used on Two Mode Hybrid vehicles uses a Polyolester (POE) refrigerant oil instead of a Polyalkylene Glycol (PAG) synthetic refrigerant oil. This is due to the better electrical resistance of the POE oil and its ability to provide HV isolation.

Failure to flush the hoses before adding refrigerant to a Hybrid vehicle with an electric A/C compressor may result in an unacceptable amount of PAG oil entering the refrigerant system. It may cause a Battery Energy Control Module Hybrid Battery Voltage System Isolation Lost Diagnostic Trouble Code (DTC P1AE7) to be set. Additionally, the A/C system warranty will be voided.

Warranty Submission Requirements

The Electronically Generated Repair Data (snapshot summary) and printer functions have been eliminated from the GE-48800. The VGA display and temperature probes were eliminated to reduce equipment costs. As a result, effective immediately the 18 digit "Snapshot/Charge Summary" code is no longer required for Air Conditioning (A/C) refrigerant system repairs that are submitted for warranty reimbursement. The charge summary data from before and after system repairs will continue to be required, but documented on the repair order only. Both high and low pressures and the recovery and charge amounts should be noted during the repair and entered on the repair order. If using ACR2000 (J-43600), the "Snapshot/Charge Summary" printouts should continue to be attached to the shops copy of the repair order.

The labor codes that are affected by this requirement are D3000 through D4500.

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Technical Service Bulletin # **04-08-50-006B**

Date: **080125**

Interior - Seat Cover Wrinkle/Crease/Crack/Burn Info.

Bulletin No.: 04-08-50-006B

Date: January 25, 2008

INFORMATION**Subject:**

Minor Wrinkles/Creases, Discoloration, Cigarette Burns and Customer Induced Cuts and Stains on Front and Rear Driver and Passenger Seats with Leather, Vinyl or Cloth Seat Covers

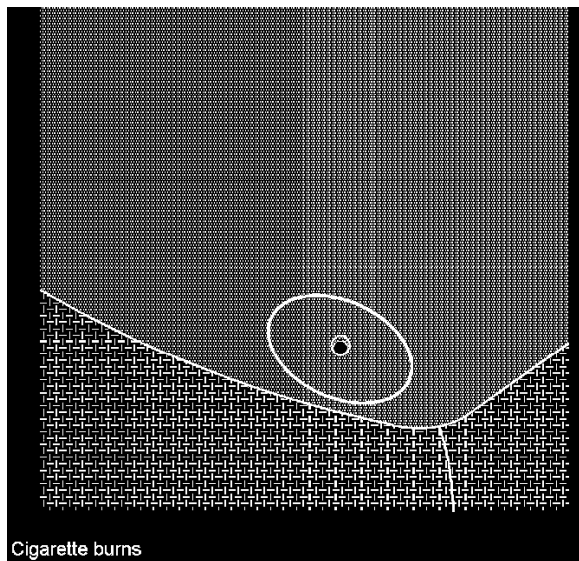
Models:

2009 and Prior GM Passenger Cars and Light Duty Trucks (Including Saturn)

2009 and Prior HUMMER H2, H3
2009 and Prior Saab 9-7X

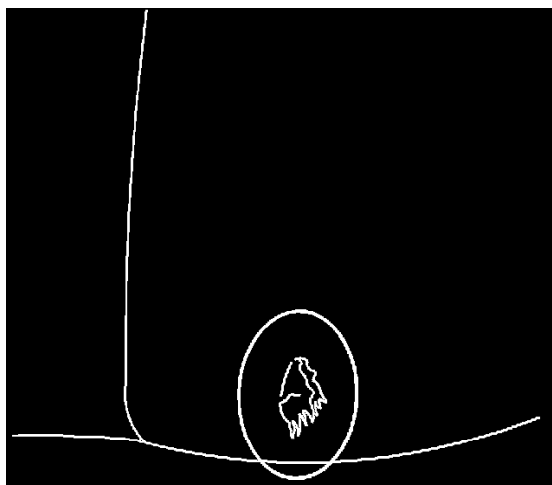
Supercede:

This bulletin is being revised to add model years. Please discard Corporate Bulletin Number 04-08-50-006A (Section 08 - Body and Accessories).



If a customer comes in to your dealership due to certain conditions of the seat covers (splits, wrinkles, loose stitching, etc.), you must examine the seat cover in order to determine the validity of the customer claim. Some components from the above listed vehicles have been returned to the Warranty Parts Center (WPC) and analysis of these parts showed "customer induced damage" or No Trouble Found (NTF).

The dealer should pay particular attention to the following conditions:



Customer induced cuts (knife cuts, cut by customer tools etc.)

Paint stains (customer should have cleaned paint stains while paint was still wet)

Coffee stains and other removable dirt

These should be cleaned as described in the Owners Manual under Appearance Care. Also refer to Corporate Bulletin Number 06-00-89-029A or later.

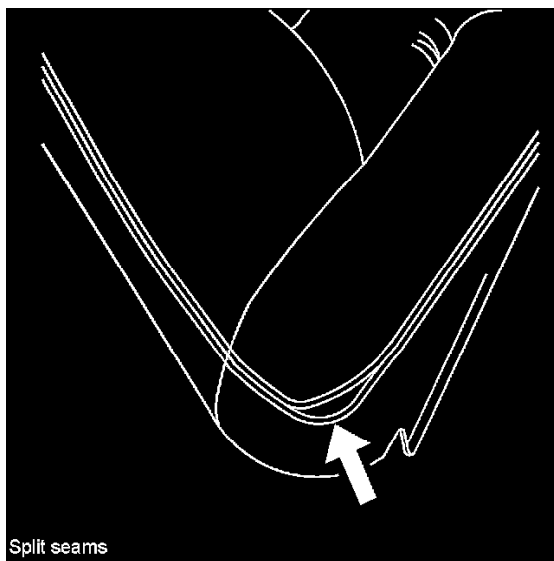
Evidence of chemicals used for cleaning other than those specified in the Owners Manual

Other chemical spills

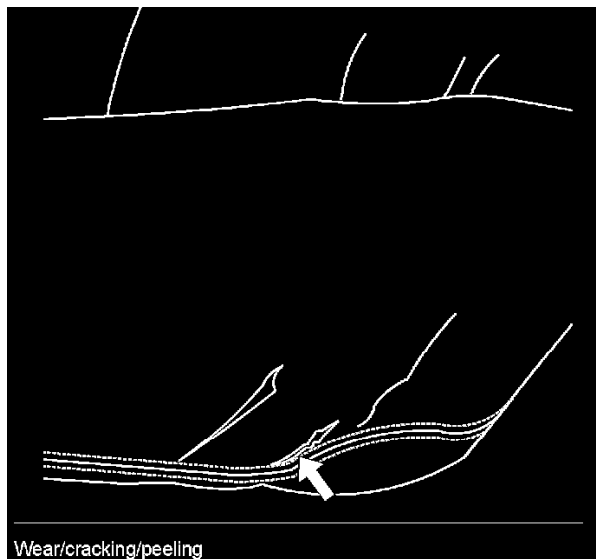
Minor and normal leather wrinkles as a result of use

Other defects to the seat cover not detected during the pre-delivery inspection (PDI).

Inform the customer that the above issues were not present when the vehicle was purchased and cannot be replaced under warranty. The covers, however, may be repaired or replaced at the customer's expense.




The following conditions are not caused by the customer and should be covered by warranty:



Discoloration/dye transfer from customer clothing (if discoloration/dye transfer is not removed after using GM Leather and Vinyl Plastic Cleaner P/N 88861401 (in Canada P/N 88861409) replace the covers.)

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Disclaimer Technical Service Bulletin # 05-08-64-032A

Date: 080130

Body - Rear Door Glass Squeal When Rolling Down

Bulletin No.: 05-08-64-032A

Date: January 30, 2008

TECHNICAL

Subject:

Rear Door Glass Squeal Noise when Rolling Down (Remove Material)

Models:

- 2004-2006 Cadillac Escalade
- 2004-2006 Chevrolet Tahoe
- 2004-2006 GMC Denali Yukon

Supercede:

This bulletin is being revised to change the Warranty Information. Please discard Corporate Bulletin Number 05-08-64-032 (Section 08 - Body and Accessories).

Condition

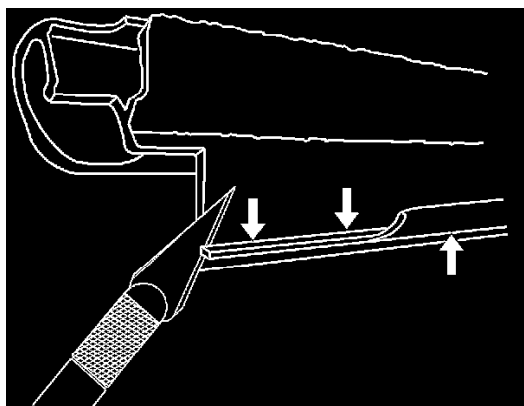
Some customers may comment that the rear door glass squeals when rolling down.

Cause

The lower lip on the outer belt sealing strip folds over exposing the non-flocked side of the strip to the glass.

Correction

Remove the outer belt sealing strip following SI Document ID # 757236.




Using an X-ACTO(R) knife remove the lower lip the full length of the strip. Refer to the illustration above. Install the outer belt sealing strip following SI Document ID # 757236.

Warranty Information

Labor Operation	Description	Labor Time
C9828*	Strip, Rear Door Window Outer Sealing –Right– Remove	0.3 hr
C9829*	Strip, Rear Door Window Outer Sealing –Left— Remove	0.3 hr
*This labor operation number is for bulletin use only. This number will not be published in the Labor Time Guide.		

For vehicles repaired under warranty, use the table.

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