TECHlink

GM

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A Monthly Publication for GM Dealership Service Professionals

Navigating the Upgrades in SI for 2005

First, a Little History

GM on-board computer systems have come a long way since the Computer Command Control (CCC) system first appeared in the early 1980s.

As time passed, additional modules were added to operate anti-lock brakes, air bags, body control functions, HVAC, entertainment, and other functions.

Sophistication was multiplied when the modules were allowed to communicate with each other using the Class 2 network, and more recently GMLAN.

The original CCC-era ECM was reprogrammed by removing the PROM "chip" (programmable read-only memory) and plugging in a replacement. Many of the current modules need to be programmed or set-up before use. Often, this requires use of a scan tool and downloading data from the Techline terminal.

Through all of this hardware evolution, the service manuals also evolved, from paper manuals to the present web-based SI, and from having the electronics isolated in their own service category to having them distributed among the sub-systems they affect.

Moving Forward

Now, access to all control module integration information will be in one central place in SI.

Beginning with the 2005 model year, the SI material for Vehicle Control Systems is being considerably enhanced for each and every vehicle line. We'll focus on the Chevrolet Equinox because it is the first 2005 model available in SI.

TIP: Even though you may not work on Equinox vehicles, we suggest you follow along in the Equinox sections of SI. As other 2005 vehicles are available in SI, the reorganization information will apply to them as well.

TIP: SI will contain more information than before, but because some service categories are being moved and condensed, you

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Techline News

Service Information Discontinues Win 98 Support

Late last year, GM Service and Parts Operations announced the Techline end-of-life support policy for Windows 98 starting January 15, 2004 (see TechLink Dec. 2003). A minimum PC specification and browser information were included as part of this communication. This change ensures optimal performance for Techline applications.

Until now, the impact has been minimal. However, in May, a new set of Service Information (SI) CDs will be shipped to all US dealers. Instructions will indicate the compatible operating systems (Windows 2000 and XP Professional) and the minimum PC hardware configuration.

During installation of the application, SI will detect the operating system. If Windows 98 or ME are detected, SI will not load. Instead, SI will advise the user that the operating system is incompatible.

Going forward, all releases of SI and LTG will be affected by this change including the June 1, 2004 GM Labor Time Guide.

If you plan to upgrade your PC, please follow these tips:

TIP: Before upgrading PC hardware or the operating system, review the Techline minimum PC specification on http://service.gm.com

TIP: It is recommended to use a full operating system installation rather than an upgrade. Use of an upgrade may affect proper functionality of SI.

TIP: Those who wish to continue using Windows 98 (or ME) are encouraged to use the SI web site.

Additional information can be found at http://service.gm.com under the Techline tab.

- Thanks to Lisa Scott

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TECHlink GM

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GM Service and Parts Operations

Programming Corner

New TIS/Tech 2 Programming Feature

An article in the October 2003 issue of TechLink explained a new Tech 2 feature implemented in Diagnostics. It permits you to go directly to Request Information in the Special Function menu. You don't have to leave Diagnostics, you won't have to "re-build" the vehicle, and only the module you're working on is commanded to download information.

The feature described in October was the first of several steps being taken to make your Tech 2 more efficient to use.

Now, another step is being taken, effective with satellite-broadcast TIS application version 4.1, released March 22. This software version must be installed for this feature to work. The Tech 2 should be updated to the latest version, 24.001.

Once Request Information is performed on the new module you've just installed, you will then have to connect your Tech 2 to TIS to download the latest calibrations.

TIP: This new feature is not dependent on module replacement; it will work on existing modules as well.

Here's the new feature. The only controller you will see in the Supported Controller list in TIS is the one you are working on. You will not have to look for it.

TIP: When you reconnect the Tech 2 to the vehicle to program the module, you must use the Service Programming System menu. As always, follow all cautions through the programming process. Also remember to check for any Set Up, Crank Learn, Adapt Learn ABS and other procedures necessary to complete the programming process.

- Thanks to Mark Stesney

Techline News — *from page 1*

TIS Version Explanation

You may be wondering how to determine the version number for various parts of TIS (Techline Information System). For instance, Blockpoint, Satellite Data Release, Tech 2 version, and month of release.

TIP: This information applies to all GM Dealers networked through GM ACCESS. Stand-alone users rely on CDs and web access for updates.

To check these version numbers, open the TIS application and go to "Help/About TIS 2000" to locate the following list.

About TIS 2000
1. North American Operations 04.1
2. Satellite Update/Mise a jour 4.0
3. Tech 2 Version 24.001
4. TIS2000 - NAO DATA-CD GM DAT 03/2004

1. The 04.1 is your **blockpoint or software application version** number. The 04 indicates the year of the broadcast, and the .1 indicates the version within that year. Blockpoints are normally broadcast on a quarterly basis and include items for service and sales applications in your GM dealership. Service applications include TIS (Techline Information Systems) and SI (Service Information).
2. **Satellite updates** are data related, are also broadcast and vary from monthly to bi-weekly. The first digit usually indicates the month (1 = Jan, 2 = Feb) and the second digit indicates the version number. Odd-numbered data updates (1.0, 3.0, 5.0) are broadcast every second month. These odd-numbered data updates include new VINs, calibrations and, most important, updates for your Tech 2. Look for updates for your Tech 2 when you see an odd number.

   Even-numbered data updates (2.0, 4.0, 6.0) include VINs and calibrations. Incremental updates (3.25, 3.5) usually include VINs and calibrations. Occasionally, a special or interim Tech 2 update will be included.
3. It's important to know your **Tech 2 version**. As described above, the Tech 2 must be updated on a regular basis. Tech 2 updates include added vehicle coverage, new applications and functionality, fixes when necessary, and much more. Knowing the version number is helpful when troubleshooting an issue with TCSC (Techline Customer Support Center) or engineering. Numbering usually re-starts with .001 each year. For instance, 24.001 was the first Tech 2 version release for this year. 23.011 was an interim release this year to address some special issues.
4. The 03/2004 indicates the month this particular data was released.

Bottom line: To make the most of your Techline software, which includes TIS and SI, be sure you are working with the most current update.

- Thanks to Mark Stesney

GM TechLink

GM *TechLink* is a monthly magazine for all GM retail technicians and service consultants providing timely information to help increase knowledge about GM products and improve the performance of the service department.

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may not find the information where you expect to find it. Here are the details.

How the New Organization Works

For this example, begin by "building" the vehicle in SI. In the category choices, you will see Vehicle Control Systems. This should always be your starting point. The paths look like this (the heading lists here have been abbreviated for simplicity):

- "Build" the vehicle
- Select the Service Manual
- Vehicle Control Systems
  - Vehicle DTC Information
    - Diagnostic Information and Procedures
      - Diagnostic Starting Point – Vehicle
      - Diagnostic System Check – Vehicle
      - Diagnostic Trouble Code (DTC) List – Vehicle
      - Symptoms – Vehicle
  - Computer/Integrating Systems
    - Diagnostic Information and Procedures
      - Diagnostic Starting Point
      - Scan Tool Information
      - DTCs and Symptoms for:
        - Body Control Systems
        - RAP
        - Data Link Communications
      - Control Module References
      - Data Link References
    - Repair Instructions
  - Programming and Setup

TIP: There appear to be some redundancies in the above list, such as Diagnostic Starting Point being listed two places. They're linked to the same place, so no matter where you start, you'll end up in the correct place.

In the following paragraphs, we'll describe some of the highlights of this new organization.

Computer/Integrating Systems

Let's get this one covered right away. When you look for the Body Control Systems, Data Link Communications, and Retained Accessory Power information in Body, you'll discover that these service categories are no longer in the index.

Don't panic. The details are still there; they've just been moved to Computer/Integrating Systems in Vehicle Control Systems.

Focus on the Vehicle

Traditionally, you've begun diagnosing a system by performing a Diagnostic System Check. Because systems are now thoroughly integrated (interrelated), systems no longer operate independently of other systems. Most everything is a part of a vehicle-wide network. Diagnostic System Checks have been deleted from individual service categories. So, diagnosis now starts with a **Diagnostic Starting Point – Vehicle** and is followed by the **Diagnostic System Check – Vehicle**. The Diagnostic Starting points will also remain in the various service categories to guide you to the **Diagnostic System Check – Vehicle** in the event that you don't know where to start.

TIP: The Vehicle Diagnostic System Check looks specifically for vehicle-wide conditions that can affect operation of more than one module, such as communication problems and voltage problems.

If a DTC is set, you will be directed to the **Diagnostic Trouble Code (DTC) List – Vehicle**. This list contains every DTC that can be set by any module on the vehicle. Simply scroll the list to reach the desired DTC.

TIP: Because the DTC list is quite long, you may wish to use the search function to locate the desired DTC. Press Control F. Fill in what you want to search for, specify matching parameters if necessary, and select which direction to search. Click the Find Next button to begin your search.

The DTC list contains two important and useful features. First, it includes a **descriptor** for each code. Second, it includes a **link to the diagnostic procedure** needed to determine why the DTC was set.

TIP: DTC lists have been deleted from individual service categories.

DTC Descriptors

In addition to being on the DTC List – Vehicle, the descriptor for each DTC will be included in the facing page of its diagnostic table document. The descriptor is a text description of what the DTC number represents.

Control Module References

This heading, found under Computer/Integrating Systems is the heart of the new organization. Click on this link and you will see a table that includes every module that can be installed on the vehicle you're working on. For each module, you will find links to schematics, repair instructions and programming and setup.

TIP: This table includes every component that has "Control Module" in its name, regardless of whether the component can be programmed, set-up or configured. It also includes every other component that can be programmed, set-up or configured, even though "Control Module" is not a part of its name.

TIP: If you begin your repair by following diagnostic steps, you will be brought to the Control Module References table, if the diagnostic directs you to replace or reprogram a control module..

Schematic Links – Clicking on a link will take you to the wiring schematic that includes the selected module. You may find this information useful both in diagnosis and in repair.

Repair Instruction Links – Clicking on a link will take you to the appropriate document in SI for replacement instructions for the selected module.

Programming and Setup Links – Clicking on a link will take you to the appropriate procedure for either programming or setting up the selected module. If no programming or set-up is required, you will be told this as well. You will not be left wondering.

Data Link References

Vehicles that have multiple data communication links include this feature. This document details which control modules communicate on which data links (i.e., Class 2, GMLAN, etc.) and link you to the appropriate diagnostic for a communication problem for that control module.

Programming and Setup

The simplest way to describe the changes here is to say that access to all the information you need to make the vehicle perform properly, after a control module repair, is conveniently organized.

TIP: This section was previously called Programming and contained only generic SPS programming information.

TIP: You can reach this section either by selecting it directly from Vehicle Control Systems, or you can be led here from the Control Module References table.

Here, you'll find instructions for programming or setting-up each module that requires such a procedure.

TIP: Diagnostics assume that you start with a vehicle that has the correct control modules with the correct calibrations and configurations. A recent component replacement or reprogramming event without the proper programming or setup procedures may be the source of the concern with the vehicle.

- Thanks to Kevin Fondaw and Andrew Fegan

Rear Cupholder Latch

1999-2002 Chevrolet Avalanche, Silverado, Tahoe, Suburban, GMC, Sierra, Yukon, Yukon XL and Cadillac Escalade, EXT equipped with a rear cupholder in the center console may experience a broken cupholder latch. Do not replace the middle console assembly. Order part number 88934982 Front Floor Console Cupholder Latch in catalog group 16.650 and replace the latch.

- Thanks to Wesley Wood

Sensing and Diagnostic Module (SDM) Connector

When servicing an air bag (SIR) system, here's how to remove and install the SDM electrical connector without causing damage.

IMPORTANT

TIP: Observe safety cautions in SI to avoid SIR deployment, personal injury, or unnecessary SIR system repairs.

TIP: Disable the SIR system. Refer to SIR Disabling and Enabling Zone in SIR.

TIP: Refer to the appropriate section in SI for the complete procedure. This may involve removing other vehicle components for access to the sensing and diagnostic module (SDM).

SDM Connector Removal

1 Pull out the red connector position assurance (CPA) from the SDM connector.

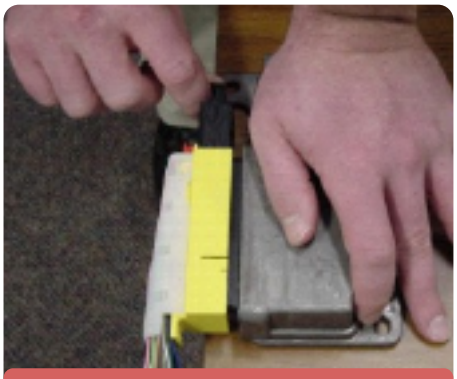
2. Pull the slide retaining lock fully open from the SDM connector.

3. Grasp the SDM yellow connector by the connector housing.

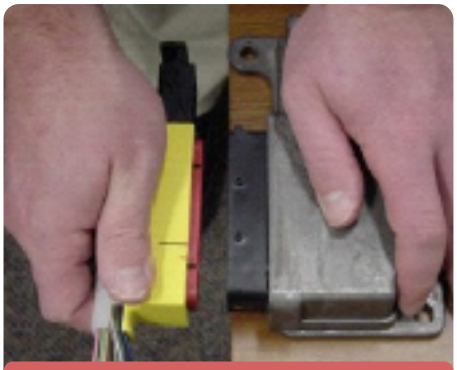
TIP: Do not grasp slide retaining lock or wire bundle for removal.

4. Remove the SDM connector from the SDM while carefully maintaining axial alignment.

TIP: Be careful not to twist or rotate excessively when removing the connector, which could cause damage.



Connector position assurance (CPA)



SDM connector alignment

SDM Connector Installation

The SDM must be installed to the vehicle according to SI procedures before performing these steps.

TIP: Be careful not to rotate the connector excessively when installing the connector into position. Maintain proper alignment during the installation process.

1. Align and install the SDM connector onto the SDM.
2. Push the slide retaining lock fully closed to lock the SDM connector onto the SDM.

TIP: If the slide retaining lock is difficult to push, squeeze the center of the yellow harness connector housing, to overcome a slight plastic interference fit during the slide retaining lock assembly step.

3. Push in the red CPA into the SDM connector.

IMPORTANT

TIP: Refer to the appropriate SIR section in SI for the complete procedure. This may involve installing other vehicle components removed for access to the sensing and diagnostic module (SDM).

TIP: Before applying power to the SDM, make sure it is securely fastened, with the arrow facing toward the front of the vehicle.

Enable the SIR system. Refer to SIR Disabling and Enabling Zone in SIR.

The AIR BAG indicator may remain ON after the SDM has been replaced. DTC B1001 may set, requiring the SDM part number to be set in multiple modules. If the indicator remains ON after enabling the SIR system, perform the diagnostic system check and follow the steps thoroughly to ensure that the SDM is set properly.

- Thanks to Wesley Wood

Do Not Swap BCMs

Although most of us have done it occasionally, using parts from other vehicles for test purposes has never been recommended. As vehicle systems become more integrated, there are many instances where this practice is unacceptable. In some cases installing parts from one vehicle into another will have a negative effect not only on the test component(s) but on other components in the vehicle. In some circumstances, this can lead to replacing components that functioned perfectly before the test.

The following information applies to one specific instance – the 2004 Colorado and Canyon pickups.

When diagnosing conditions in systems that involve the Body Control Module (BCM), some technicians take a diagnostic shortcut by swapping a known-good BCM into the vehicle being diagnosed.

IMPORTANT: DO NOT swap the BCM from one vehicle to another for any reason.

First, this is not an acceptable procedure. Always follow the diagnostic steps presented in SI.

Second, in the case of the Colorado/Canyon, swapping the BCM will cause the following to occur:

- The radio will lock up.
- The Powertrain Control Module (PCM) will reset the Oil Life System to 100.
- The PCM will set a P0315 (crank variation learn).

TIP: If a P0315 is set, you must run the crank variation relearn using the Tech 2 to relearn the crank variation parameters.

The PCM will retain these conditions even if the original BCM is put back into the vehicle. The radio will unlock, however.

IMPORTANT: DO NOT swap the BCM from one vehicle to another for any reason.

- Thanks to Devin Koski

Parking Brake Cable Noise

This information applies to Venture, Montana, and Silhouette models. During 2003, the rear parking brake cable retainer was repositioned to eliminate rattle concerns. In some cases it may result in a metallic noise from the left rear. This may be more pronounced on vehicles that do not have electronic load leveler control, option G67. The parking brake cable retainer is positioned directly above the rear trailing arm axle tie rod and in some circumstances, contact may occur. If you encounter this condition, install retainer part number 10408652. This park brake cable retainer will avoid contact with the tie rod.

TIP: On vehicles equipped with G67 load leveler, make sure the parking brake cable does not rub on the position sensor or associated wiring. It may be necessary to add conduit or tape to protect the wiring.

- Thanks to Tom Geist

Interchangeable Control Arms

Engineering has changed the design of the lower control arm used on C/K HD trucks and the HUMMER H2.

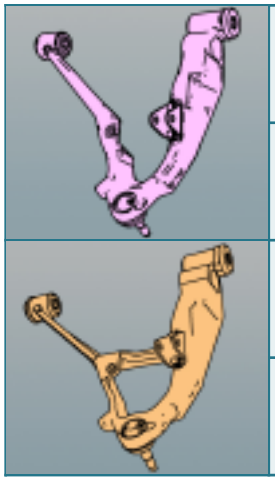
The original A-shaped arms for the C/K HD were p/n 12475475/76 and 88982348/49 for the H2. The service arms for all vehicles are now the V-shaped arms.

The V-shaped arms are direct bolt-in replacements and require no special treatment; they simply look different.

The new V-shaped arms are p/n 15103878/79 for the C/K HD and 15103880/81 for the H2.

TIP: These are the production as well as service part numbers and should not be mixed. The bushing rate for the H2 arm is much firmer than that of the C/K HD.

- Thanks to Steve Love and Dan Stress



Service V Arm	C/K	15103878/79
Service V Arm	HUMMER H2	15103880/81
Original Service A Arm	C/K	12475475/76
Original Service A Arm	HUMMER H2	88982348/49

XLR HVAC After-blow

A new software version for the HVAC module is available on the XLR to update the functionality of the after-blow. The following procedure allows you to offer this update to the customer.

TIP: After-blow permits the HVAC blower to run for a pre-determined time period after the ignition is turned off, to assist in drying the evaporator, to minimize odor.

Before programming, follow these steps to check the current software status.

1. In Tech 2 Diagnostics, follow this path.
   - 2004
   - Passenger car
   - Cadillac
   - Y
   - Vehicle Control Systems
   - Computer/Integrating Systems
   - ECU Identification Information
   - HVAC
   - Module Information 2
2. Observe the part numbers listed in Module Information 2. If the Software Part Number displayed is 00BACD05 or the Calibration ID number displayed is 00BACD06, perform steps 3, 4 and 5. If the Software Part Number displayed is 00BAE5EA or the Calibration ID number displayed is 00BAE5EB, go directly to step 5.
3. Go to TIS terminal and perform SPS calibration download procedure for HVAC.
4. Go back to the vehicle and download new software into the vehicle.
5. Perform the Afterblow Enable Procedure in HVAC Systems-Automatic, to enable after-blow on the HVAC module.

- Thanks to Trish Zambo and Nolan Steinert

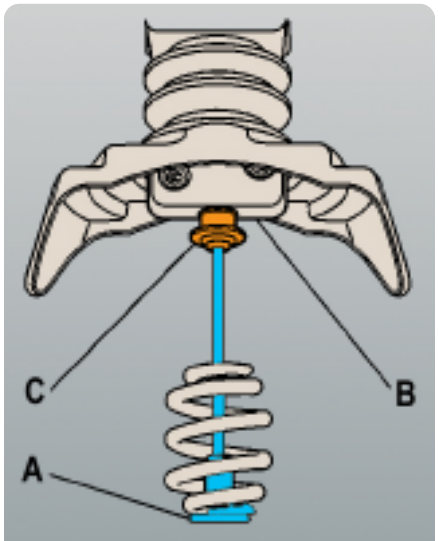
Tire Hoist

On 2003-04 C/K trucks, If the spare tire hoist has been fully raised without a spare tire in place, the secondary latch mechanism may have become engaged. If this has occurred, the hoist will not lower and the following procedure will have to be performed. Refer to the illustration for parts identification.

Turn the hoist shaft counterclockwise until approximately 15 cm (6 in) of cable is exposed (A).

While holding the latch pin (B), fully depress the latch button (C) and release the secondary latch from the hoist assembly. Some side-to-side and/or up-and-down movement may be necessary to disengage the latch mechanism.

Continue turning the hoist shaft counterclockwise to lower the hoist the rest of the way.



Tire hoist secondary latch mechanism

- Thanks to Kiley Stites

Quad-Band Antenna

A new antenna will appear on the Cadillac SRX beginning this month. It has a plastic base and a stubby 3-inch (7.6 cm) mast. It is expected that this antenna will see widespread use in future model years.

The antenna is called a quad-band because it incorporates four separate antennas into one unit:

- XM radio
- OnStar GPS
- OnStar analog
- OnStar digital

Another similar unit, the tri-band, incorporates only the three OnStar antennas.

TIP: This antenna is not used for conventional AM/FM reception.

The quad-band antenna is installed to the vehicle's roof much like the typical XM antenna, although it has multiple cables.

TIP: Do NOT apply paint or clear coat to the radio antenna. This will damage the function of the antenna, causing poor reception or loss of reception of the XM digital signal.

- Thanks to Jim Hughes

Creak Noise at Low Speed

This information pertains to 2004 Pontiac Bonneville, Buick LeSabre and Cadillac DeVille.

Customers may comment about a creak noise that can be heard coming from the rear end of the vehicle when driving at low speeds and making turns. This noise can also be heard when performing parking-lot type maneuvers.

The noise may be caused by the electronic level control sensor link ball sockets. Clean and lubricate the sockets with a non-water soluble type grease to eliminate the noise.

GM Vehicle Care Lubriplate	89021668 (89021674 in Canada)
GM Vehicle Care Super Lube	12346241 (10953474 in Canada)

- Thanks to Bill Metoyer

Odometer Programming

Starting with model year 2004, odometer information for the Grand Prix is stored in the Driver's Information Center (DIC) instead of the Instrument Panel Cluster (IPC). When ordering a replacement DIC for a 2004 Grand Prix, be sure you obtain the vehicle's mileage and provide it to the Electronic Service Center (ESC).

TIP: The odometer cannot be programmed into the DIC in the field. The mileage must be programmed by the ESC before sending the DIC to the dealer.

- Thanks to Steve Falko

Pictorial Service Information, Part 2

As promised last month, here's a sample of the new pictorial approach being developed for SI.

A procedure printed from the SI website will typically run 2-3 pages, considerably fewer than needed to print a procedure in the old format.

This example represents how Pictorial will look on the web version of SI. Here are some highlights.

A Repair Title

B Illustration – Disassembled view of the components involved in the repair, shown in "vehicle context" to indicate where they're located. A callout number on each item corresponds with a part in the procedure.

C Fastener Notice link – Leads to standard statement in Cautions and Notices

D Fastener Tightening Specifications link – Leads to standard tightening statement

E Component Replacement

F Preliminary Procedures – Steps that take place before performing the repair. Lifting and Jacking is a good example.

G Callouts – Each line in the repair table contains information relevant to the numbered item shown in the illustration. The item is named, noun first, using parts manual nomenclature.

The callouts may include supplemental information, such as:

H Tightening Specification

I Tip – Insights and helps, as though being shared by an experienced technician.

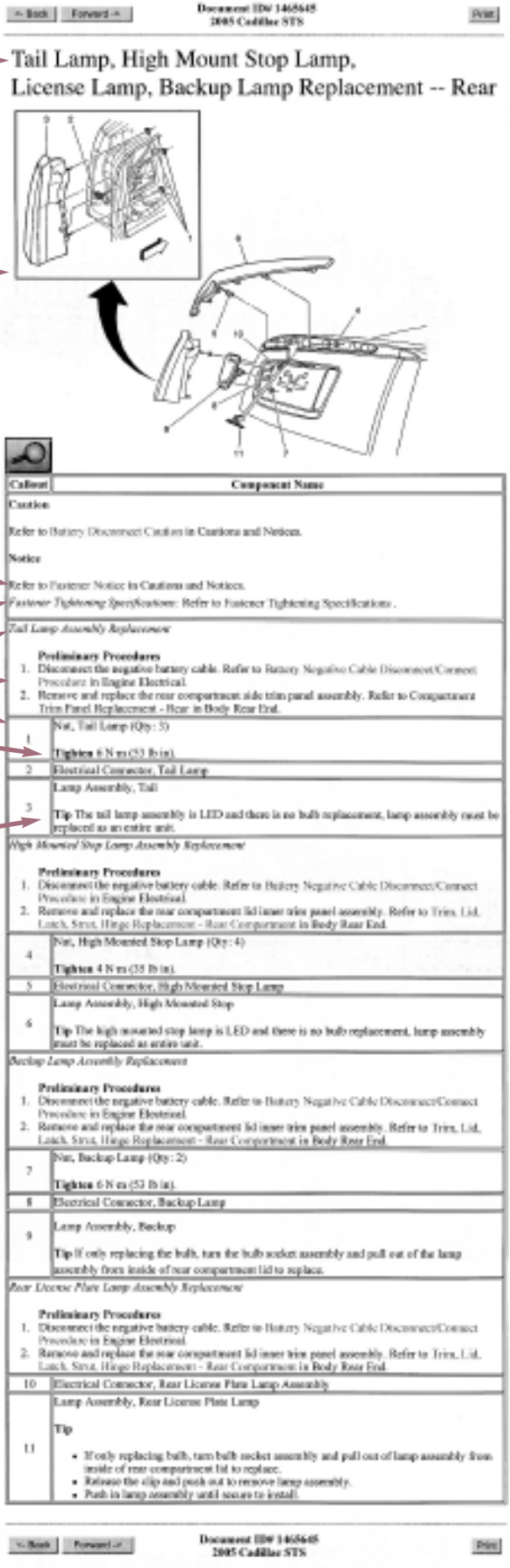
Caution, Notice

Special Tool Number

This new approach will be introduced this fall for the following vehicles:

- 2005 Cadillac STS
- 2005 Chevrolet Corvette
- 2005 Chevrolet Cobalt
- 2005 Mini Vans

- Thanks to Bob Scherer



Memory Seat Modules

This information applies to 2004 C/K trucks with memory seat modules.

Modules are being replaced unnecessarily, perhaps due to misunderstanding of proper operation. Here are some tips. This is a two-step process.

Enabling Using DIC

Seat memory is enabled using the DIC (Driver Information Center). When the vehicle leaves the factory, the Seat Position Recall is set to the OFF mode, which is the default. The Easy Exit Seat is also set to the OFF mode, which is the default.

The Seat Position Recall moves the seat to the driver's preferred position according to which mode is enabled using the DIC:

OFF – seat position is recalled when memory button 1 or 2 is pressed.

KEY FOB – seat position is recalled when the key fob button is pressed

KEY IN – seat position is recalled when when the ignition key is installed.

When enabled, Easy Exit moves the seat rearward when the ignition key is removed.

For the Seat Position Recall to function automatically, it's necessary to select either Key Fob or Key-In. For the Easy Exit Seat to function, it's necessary to select ON.

Setting Position in Memory

Setting the driver's chosen seat position into memory is a separate step. Adjust the seat to the desired position (also adjust mirrors, radio presets, and other related functions if available), then press and hold the Driver 1 button to store the information in memory. Repeat for Driver 2.

TIP: Observe if the seat memories are operative before proceeding with diagnostic steps for memory seat module replacement.

- Thanks to Paquita Bailey

Power Window Motor

This information from bulletin 04-08-64-003A applies to 1999-2004 full sized trucks.

The power window motor assembly for the front doors can now be ordered separate from the regulator. The motor and regulator assembly continues to be available as well.

TIP: Use the bolts included with the replacement motor. Discard the original attaching parts.

- Thanks to Steve Oakley

TAC*Corner*

GMDealerworld is a fast way to access recently released recall information.

The following are the steps log onto GM Dealerworld and obtain recent bulletin, campaign and GM Messenger messages:

1. Go to the web and type http://www.gmdealerworld.com/
2. Enter your User name and password.

TIP: You may need to establish this at the dealership. The dealership has a Partner Security Coordinator that can provide or reset passwords for Dealerworld.

3. From the home page you are able to select: Recall Information, GM Messenger, GM VISS, Calibration ID and SI .

- Thanks to GM Technical Assistance

TAC*Tips*

Problem with Radio Setup

After installing a radio in a 2004 Buick Rendezvous or Pontiac Aztek, you may receive Calibrate or Error message on the radio or possibly a DTC after what appears to be a successful radio setup.

Use 2003 as the model year in the Tech 2 and you should not receive an error message or DTC.

This Tech2 software problem is being investigated for a resolution using 2004 as the model year on the above listed vehicles.

- Thanks to Phil Race

OnStar Steering Wheel Controls

After the radio is replaced in a 2003-04 CTS or 2004 SRX with a non-navigation radio option, the customer may complain that the steering wheel controls for the OnStar are inoperative. When the customer presses the SWC button to initiate OnStar Personal Calling (OPC), the radio will display AUDIO MUTE instead of PHONE and the OnStar ready prompt is not heard.

Using the Tech 2, go to the radio under special functions, set options, optional modules, then select OnStar and save options. It is necessary to cycle the ignition off and open the door to disable RAP to save programming.

- Thanks to Amy Sutherland

Loose Crankshaft Reluctor

This information applies to 2001-2004 Chevrolet and GMC C/K and MD C 4/5 trucks equipped with the 6600 Duramax LB7 Diesel Engine with rough, unstable, incorrect idle speed or stall.

After completing the published diagnostics for an engine stall or misfire with no trouble found, and the data indicates intermittent high balance rates on random cylinders, check for a loose crankshaft reluctor.

To inspect the crank reluctor, remove the right inner fender, crank sensor, and crank sensor spacer. Use a blunt probe and try to move the reluctor clockwise or counter clockwise. If the crankshaft reluctor is found loose, repair by replacing the necessary parts and be sure to include the alignment pins.

- Thanks to Jack McVoy

DVD Technical Assistance

This information applies to 2002-04 Pontiac Montana, Chevrolet Venture and Oldsmobile Silhouette.

Any calls on 2002 or newer U/X Van DVD entertainment system (that involve the part itself) should be referred to Model Electronics Technical Assistance at 800.433.9657 (in Canada, ACDelco Superstore).

- Thanks to Amy Sutherland

Fuel Sender Assembly Replacements

A 2004 Chevrolet Malibu with 3.5L LX9 engine may experience the following driveability symptoms after a fuel sender assembly replacement.

- intermittent stall
- stalls after filling with fuel
- fuel odor, or
- EVAP canister saturated with fuel

Refer to SI Document I.D Number 1245199, Fuel Sender Assembly Replacement. Verify that step number 2 of the installation procedure was performed correctly: connect the ventilation harness inside the fuel tank to the bottom of the modular fuel sender cover.

- Thanks to Duane Raymond

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

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2001-2004	**Aztek), Rendezvous, Venture, Montana, Silhouette – Pop and/or Rattle in Exhaust Down Pipe**	**Follow procedure in bulletin using clamp P/N on down pipe**	**Don't replace converter assembly for rattle/buzz noise without completing instructions in bulletin.**	**03-06-05-003**
2000-2003	**LeSabre, Park Avenue, Regal, Impala, Monte Carlo, Bonneville, Grand Prix With 3.8L V6 Engine (RPO L36) – Loss of Coolant, Milky Colored Oil**	**Replace upper intake manifold gasket only.**	**Don't replace upper intake manifold assembly for coolant leak condition.**	**03-06-01-016**
2000-2004	All Cars with 4T40/4T45E and 4T65E – Light On/Various Transmission Codes Stores	Check transmission 20-way connector for secure connection (disconnect and reconnect).	Don't replace transmission, TCC PWM, VSS, PCS or valve body.	02-07-30-022B
1998-2004	Seville – Heated Seat Inoperative	Replace only needed heating element.	Don't replace entire seat cover if heated seat element is inoperative.	01-08-50-002C
2001-2004	Century/Regal – Intermittent SES, ABS or TCS Lamp, No Crank/No Start, Various I/P Cluster Intermittents, DTCs Set, Shifter Locked in Park (BTSI Inoperative)	Check UBEC harness connectors for damage and replace damaged terminals.	Don't replace UBEC, ignition switch, SDM, BCM, shifter assembly (Regal) or intermittently inoperative clusters.	03-08-45-004
2000-2004	Cavalier/Sunfire/Alero/Grand Am – Inoperative Sunroof Module	Retime module or replace only motor for inoperative complaints.	Don't replace entire sunroof module assembly.	03-08-67-009A
2003-2004	Cavalier/Sunfire – Air Conditioning Compressor Noisy	Inspect for ground out conditions that can cause A/C compressor noise complaints.	Don't replace A/C compressor for excessive noise complaint without inspecting for ground outs.	03-01-38-012
1999-2004	All Cars and Trucks – Brake Warranty, Service and Procedures	Issue One: Refinish brake rotor. Issue Two: Measure for LRO	Issue One: Don't replace brake rotors. Issue Two: Don't measure for LRO	00-05-22-002C
2003-2004	CTS – Variable Effort Steering (VES) "Service Steering Message," DTC C1241 or C0450	Replace only VES solenoid.	Don't replace entire steering gear.	03-02-36-001
2003	All cars with 4T40/45E, 4T65E and 4T80E – Code P0742	Replace TCC PWM Solenoid	Don't replace transmission, torque converter or valve body assembly.	02-07-30-039C

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

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2002-2004	**Fullsize and Midsize Pickups and Utilities – Sleepy New Venture Gear Transfer Case Control Module**	**Verify sleepy module as primary cause, per bulletin. Reprogram TCCM with latest software released 3/11/04.**	**Don't replace encoder motor or transfer case. Replace module only if C0550 DTC shows as current or history.**	**02-04-21-006C**
2004	**Fullsize Pickups – 6.6L LLY Diesel Engine Injectors**	**04 LLY Duramax® fuel injector is on restriction. Contact TAC before replacing injector.**	**Do not replace an LLY Duramax® injector before contacting TAC.**	**GM Messenger VSS20040067**
2002-2004	Chevrolet Avalanche and Cadillac Escalade EXT – Cargo Covers and Cladding Faded or Stained	Thoroughly clean, dry and treat components with "Armor-dillo." To order call 888.393.4722 or online at www.armor-dillo.net.	Don't replace cargo covers for this condition.	04-08-111-001
2002-2004	Fullsize and Midsize Pickups and Utilities – Transfer Case CNND Labor Operation	Use Labor Operation K9993 for transfer case issue on 4WD or AWD vehicle cannot be duplicated or resolved after diagnostic efforts.	Don't use Labor Operation K9992, which is for manual transmission concerns or Labor Operation K9995, which is for automatic transmission concerns.	Service VME VSSM20030117
1999-2003	Fullsize Pickups – Rear Leaf Spring Slap Noise	Replace inserts and rubber washers.	Don't replace leaf spring.	03-03-09-002
1993-2004	All Passenger Cars and Trucks – Air Conditioner Compressor Diagnosis	Follow SI and bulletin for diagnostic information before compressor replacement.	Don't replace air conditioning compressor	Service VME, 10/31/03, 01-01-38-013A
2002-2004 (models with HomeLink option)	All TrailBlazers, All Envoys, Bravada, Rainier with HomeLink Universal Transmitter – Programming Diagnosis	Use J 41540 – GM Integrated HomeLink Tester. Follow SI and refer customers to their Owner's Manual.	Don't replace HomeLink Transceiver without validating internal fault recognized by J 41540	01-08-97-001B
2002-2003	All TrailBlazers, Envoy, Envoy XL, Bravada – Squeak/Rub/Scrub Type Noise in Steering Column	Lubricate and remove material, per bulletin.	Don't replace upper or lower intermediate shaft.	02-02-35-006A
2003-2004	Fullsize Pickups and Utilities – Servicing Wide Load Mirrors (RPO DPF)	Replace individual parts as needed.	Don't replace the complete mirror assembly. P/Ns: 15182964-65	03-08-64-028
2002-2004	All TrailBlazers, All Envoys, Bravada, Rainier – Mirror Erratic Return	Replace mirror actuator and reprogram module	Don't replace outside mirror assembly	02-08-64-008, 02-08-64-021, 03-08-64-033

Know-How Broadcasts for June

10280.06D Emerging Issues	June 10, 2004	9:00 AM, 12:30 PM, 3:00 PM Eastern Time
10280.18D New Model Features – 2005 Pontiac, Buick and Chevrolet Cars	June 24, 2004	9:00 AM, 12:30 PM, 3:00 PM Eastern Time

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