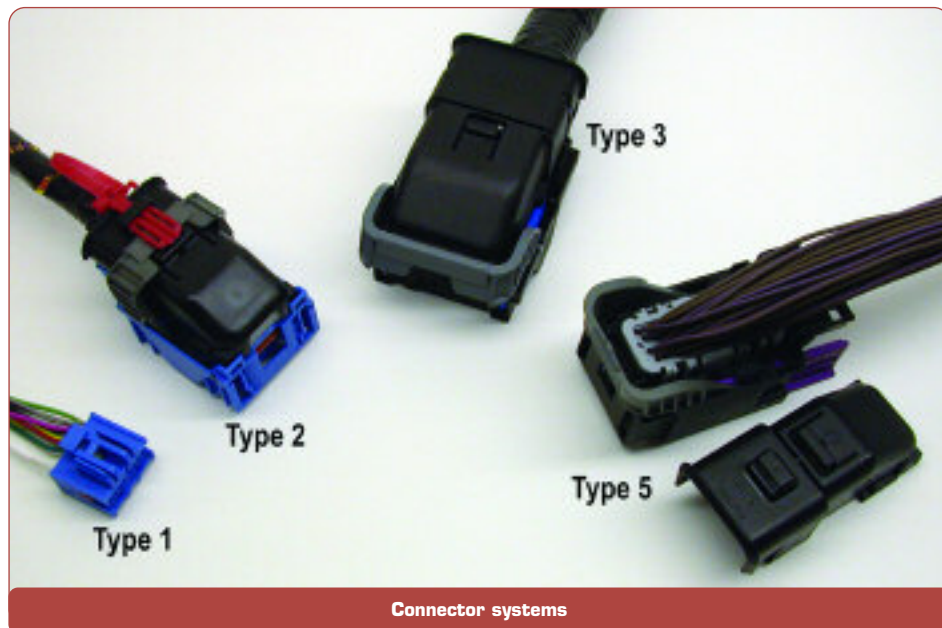


Proper Terminal Removal Procedures for the Delphi .64 Connection System



If you've been following the various stories in TechLink about electrical terminals, you know that over the past few years, numerous new types of terminal and connector systems have been introduced (TechLink, Sept. 2002, June 2003, Feb. 2004 and Jan. 2005).

In the January issue of TechLink, we reviewed the various suppliers of .64 terminals now in use in GM vehicles, and the slight differences between them.

We reviewed the J-35616-64A and the J-35616-65 test probes and the fact that the J-35616-64A (male) and J-35616-65 (female) test probes are correctly sized to work with both the round and square styles of .64 terminals.

We reviewed various connector types from various suppliers that use .64 terminals.

This article is about the proper terminal removal process for Delphi .64 connector

continued on page 4

Techline News

Truck Body Controller Replacement

This information applies to 2002-04 GMT 360/370 (TrailBlazer, Rainier, Envoy and Bravada).

If replacing TBC (Truck Body Controller) part number 09352135 with a TBC part number 15065293, 15114669 or 15122670, you MUST contact Techline Customer Support Center

(800.828.6860) for assistance or the TBC will be permanently damaged.

TIP: Before programming, remove LGM/DSM (Liftgate Module/Driver Seat Module) fuse 6 from the rear fuse block, or programming errors may result.

- Thanks to Craig Jones

New Tech 2 Cable

A new, more-robust Tech 2 DLC cable is now available for purchase. It can be obtained from GMDE by ordering GM p/n 3000095.

TIP: Warranty replacement cables are available on exchange from Vetronix.

These are the improvements:

- Added a "dog-ear clamp" on both

connectors to help prevent the cable from detaching from the connector.

- Improved strain relief by strengthening ribs.
- Reduced hardness of the cable's PVC material. The new cable is more flexible and forgiving, putting less stress on a given point.
- A new wire "lay" results in a more flexible cable.

- Thanks to Mark Stesney

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Driver Information Center Language Choice

The procedure for changing the DIC language on the Colorado/Canyon is correct in the owner's and service manuals but some owners apparently are omitting the last step, which is critical. This has led to unnecessary warranty claims.

TIP: This information will also apply to the upcoming Hummer H3.

Before servicing the system, be sure the owner is following this procedure.

1. With the engine off, turn the key to ON.

TIP: You can't get to the LANGUAGE screen if there are messages on the DIC.

2. Close all doors. Ensure that NONE of the following messages is displayed in the DIC:

DOORS

PORTES

PUERTAS.

If so, check the doors again.

3. For 2004-05 vehicles, disengage the park brake. Ensure that NONE of the following messages is displayed in the DIC (Colorado/Canyon only):

PARK BRK

FREIN A MAIN

FRENO DE MANO.

4. Press and release the reset stem until the language is shown on the DIC display.

5. To view the next available language, press and hold the reset stem for approximately 2 seconds. Release the reset stem and press and hold again to view each language. You can choose from English (default), Spanish or French.

TIP: For 2004-05 vehicles, not all languages are available. You can choose from English (default) and Spanish for clusters with miles as the major speedometer scale, or English (default) and French for clusters with Km as the major speedometer scale.

6. **Once the desired language is displayed on the DIC, briefly press the reset stem to set your choice.**

Users are not performing step 6 and are just cycling the ignition once the language of their choice is displayed.

- Thanks to Anna West

SSR Hydraulic Clutch Bleeding

The hydraulic clutch bleeding procedure has been changed for the SSR. Follow the improved bleeding procedure in SI document 1550985.

The procedure involves using Mity Vac J-35555 and adapter J-43485 to apply a vacuum to the clutch reservoir. This draws air from the system. Refer to the document for specifics.

TIP: This procedure applies to all 2005 and prior passenger cars, light duty trucks, and T-Series MD Tilt Cab models.

- Thanks to Dan Oden

HomeLink Transmitter

Unlike other GM vehicles, the 2005 LaCrosse (Allure in Canada) must have the engine running or the ignition key in the run position before the HomeLink transmitter can be programmed or operated.

TIP: This is normal operation, and no repair is required.

- Thanks to Wayne Zigler

Debris in Spacer Plate

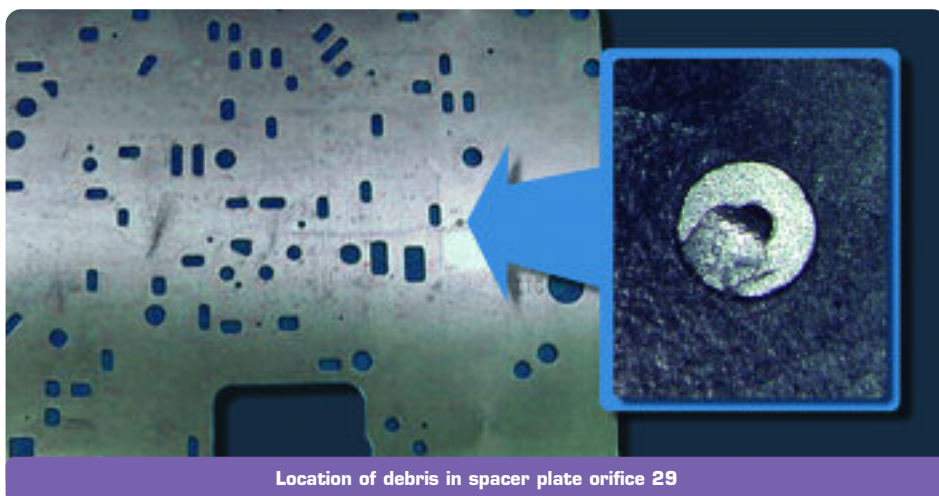
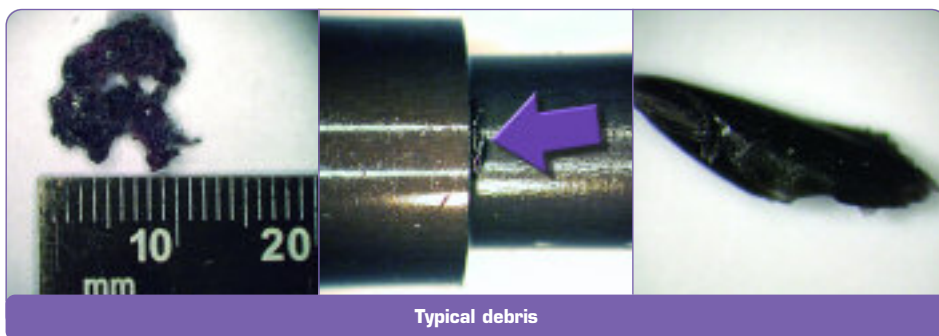
According to bulletin 01-07-30-036D, there are several reasons for a 4L60E (RPO M30) or 4L65E (RPO M32) transmission to set a DTC P0756 (2-3 Shift Solenoid Performance).

Two possible causes described in the bulletin are a cracked, broken or leaking 2-3 shift solenoid and a stuck or hung-up 2-3 shift valve.

Another possible cause is chips or debris plugging the filtered AFL oil at orifice 29 on the top of the spacer plate. Because this orifice is so small, it can be plugged by a very small amount of foreign material.

Remove the spacer plate and inspect orifice 29 and the immediate area for the presence of chips or debris. Also, inspect the transmission case passage directly above this orifice and the valve body passage directly below. Clean the area of any chips or debris found.

- Thanks to Mike Johnson



Proper Terminal Removal Procedures for the Delphi .64 Connection System — from page 1

systems, of which there are five different types. Type 4 (not shown) is not used in North America at this time.

The Wire Dress Cover

On all but Type 1, start the disassembly process by removing the wire dress cover (if used), which requires a small screwdriver. There are two popular versions, with one tab or two.

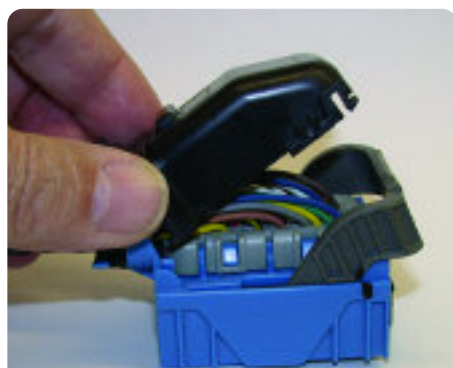
After loosening the tab(s), simply rock the cover up and off.



Single tab version



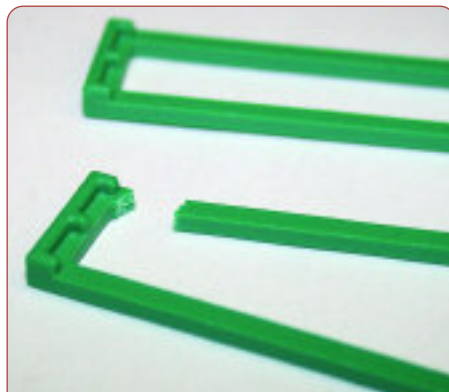
Loosening tab on two-tab version



Rock cover up and off

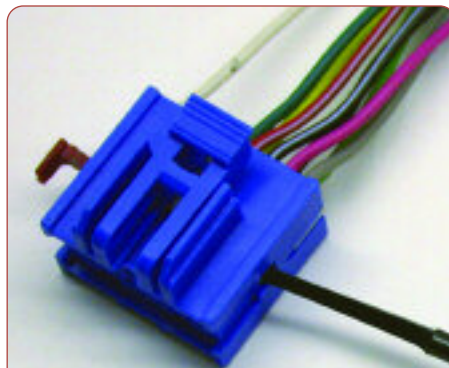
Terminal Position Assurance (TPA)

The next step is removal of the comb style TPA (Terminal Position Assurance). Be very careful, because the TPA can break very easily, particularly if you try to pry the head of the TPA out of the connector.



Broken TPA

On Type 1 connectors, push the TPA from the end of the connector opposite the head. This will get the TPA past the detent that retains it in the connector. Then grasp the head and pull the TPA out of the connector.



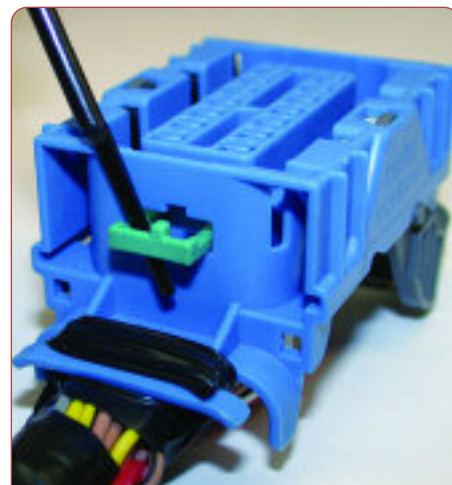
Pushing TPA from Type 1 connector

On the other types, use a prying tool to reach inside the connector to push the TPA loose from the end opposite the



Loosening TPA on Type 2

head. Once the TPA is loosened, you can use the tool to extract it through the hole in the connector body.



Removing TPA

TIP: On the Type 3, there is no access hole for loosening the TPA. Instead, use the tool as a lever to pry the TPA loose.



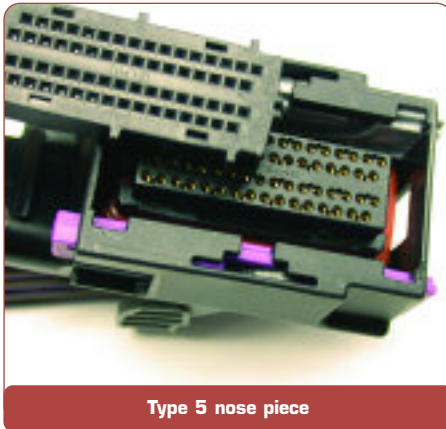
Levering the TPA loose in Type 3

Nose Piece (Type 5 only)

In the Saturn LS only, a 64-way Delphi .64 connection system is used on a Bosch ECM. For this application only, the Type 5 connector uses a nose piece that covers the release holes for the terminals.

Pry the nose piece off for access to the TPA, which is similar to the Type 3. Once it is removed, you can remove the terminals.

TIP: The Type 5 connection system uses a .64 terminal p/n 15410621 found in tray 4 position 24. This is slightly different from all other .64 terminals, which are p/n 15359541.



Type 5 nose piece

Terminal Removal

For all four connector types, use the 15381651-2 terminal release tool. Push it into the small hole positioned between the two terminal cavities. In some small .64 connectors with one row of terminals, the terminal release hole is just to the side of the terminal cavity.



Release tool in small hole

Assembly

After replacing the terminal, assemble the connector in the order opposite to disassembly.

TIP: The TPA has an lug which must be

aligned with the corresponding depression in the connector. This assures that the detents on the TPA contact the detents in the connector body, to retain the TPA.



Align lug on TPA with depression in connector

Recovery

TIP: Do not disassemble the Delphi connector body beyond removing the dress cover, the TPA and the nose piece (if equipped).

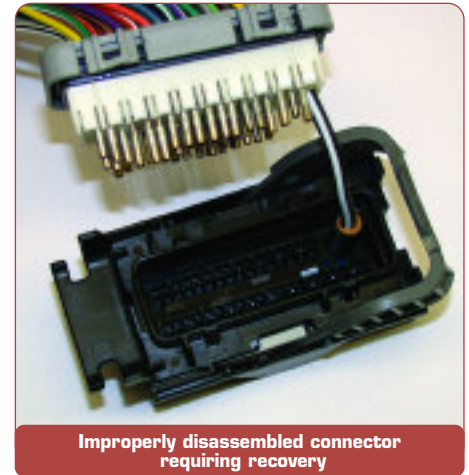
If for some reason a Delphi .64 connection system has been disassembled incorrectly, this is the process for getting it all back together.

Remove all the wires with their terminals from the connector. Reassemble the connector, leaving the TPA and wire dress cover off. Using the Connector End View information in SI, reassemble the wires into the connector, starting with the shortest wires and ending with the longest. Once the circuits have been correctly placed

into the connector, replace the TPA and dress cover.

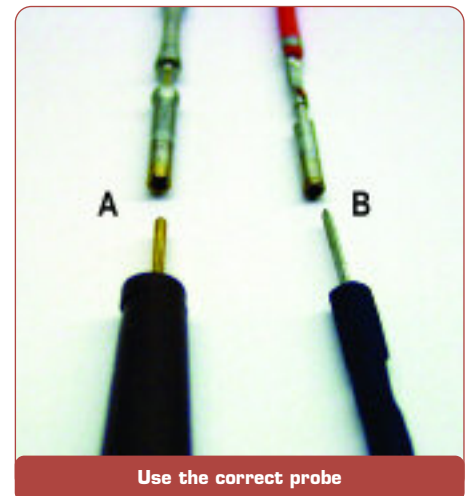
A Final Word About Testing a Round .64 Terminal

The .64 terminal is very small and will



Improperly disassembled connector requiring recovery

not withstand excessive probing, especially with an incorrect tool. The ability of the J-35616-64A Test Probe to "hang" in a round type .64 terminal will be minimal. The drag that you feel is much less than you're accustomed to in a larger terminal.



Use the correct probe

TIP: Square style .64 terminals will have a much better test probe feel relative to their size than the round style.

A J-35616-6 probe with 100 terminal

B J-35616-64A probe with .64 terminal

- Thanks to John Roberts

Cold 4th Gear Upshifts

The Chevrolet Aveo/Pontiac Wave automatic transmission prevents 4th gear upshifts when the transmission fluid temperature is below 15°C (59°F). This is intended to improve vehicle emissions and heater performance.

No corrective action is necessary. Replacing the ECM or TCM will not correct this condition. Refer to SI document 1339794 for additional information.

- Thanks to John Bowman

SSR Center Caps Loose – Update

An article in the December 2004 TechLink explained how to repair center caps that are loose and rotate, then do not align with the wheel spokes.

This involves adding pieces of polyurethane tape to two opposing legs of the center cap 180° apart.

According to PIT3196A, the tape is now available by filling out the template at the bottom of the PI and faxing it to the WPC. The WPC will send out a service kit that consists of 8 pieces of polyurethane tape (2 pieces per wheel). The part number of this kit is TAC 306.

- Thanks to Dan Oden



Crankcase and Subsystem Flushing

Bulletin 04-06-01-029 was recently released to reinforce GM's position on system-flushing tools, equipment and procedures.

Please read the bulletin in detail and observe its contents. Highlights are mentioned here.

Flushing Not in Maintenance Schedule

In normal usage, GM vehicles do not require additional procedures or additives beyond what's presented in the former Vehicle Maintenance Schedules and the current Simplified Maintenance Schedules. Maintenance schedules do not call for flushing of engine crankcases, fuel injectors, A/C lines, radiators, transmission coolers, brake systems, or power steering systems as a part of regular scheduled maintenance.

TIP: Do not confuse aftermarket flushing machines with the fluid-changing equipment available from Kent-Moore/SPX. Fluid-changing equipment is designed to aid and accelerate fluid changing when required, as part of a specific repair performed, or when directed to do so in the former Vehicle Maintenance Schedule or current Simplified Maintenance Schedule.

GM Service Instructions

If a specific model vehicle or power-train need is identified, GM will issue an Authorized Service Document specifying the procedure, machine, tool or chemical needed to accomplish the proper vehicle servicing.

An example of this is fuel injector cleaning, which may be necessary due to fuel quality in different parts of the country. Under normal circumstances, though, this is not part of the scheduled maintenance requirements.

Crankcase Flushing

Crankcase flushing is not endorsed or recommended for any GM gasoline or diesel engine. Some aftermarket materials for this purpose may be incompatible with engine components, and may damage some engine seals and bearings. Damage of this sort is not covered under the new vehicle warranty.

Other Systems

Other subsystems, such as power steering, A/C, or cooling systems may be flushed after catastrophic failure or extreme corrosion. Specific bulletins or procedures in SI exist to cover these conditions. Routine flushing of these systems is not part of the scheduled maintenance requirements.

Opening Trunk without Lock Cylinder

These cars don't have rear compartment (trunk) lid lock cylinders:

- 2004 1/2 - 05 Monte Carlo
- 2005 LaCrosse/Allure
- 2005 Grand Prix
- 2005 Cadillac STS

The following procedures explain how to open the lid on these vehicles in case of an electrical fault that prevents opening the lid with the remote keyless transmitter or the interior release switch.

With fold-down rear seat back:

Fold down the seat back. Using a long tool that will reach the rear compartment latch, operate the release handle and open the lid.

With rear seat back-to-rear compartment access door:

Fold down the access door. Using a long tool that will reach the rear compartment latch, operate the release handle and open the lid.

Without fold-down rear seat back or access door:

Remove the rear seat cushion, seat back and rear compartment-to-seat back panel.

Using a long tool that will reach the rear compartment latch, operate the release handle and open the lid.

- Thanks to the GM SPO Interior Partition

Hidden I/P Trim Screw

On the 2005 Buick LaCrosse (Allure in Canada), the instrument panel trim plate bezel is retained by four clips, one nut and one screw. These are shown

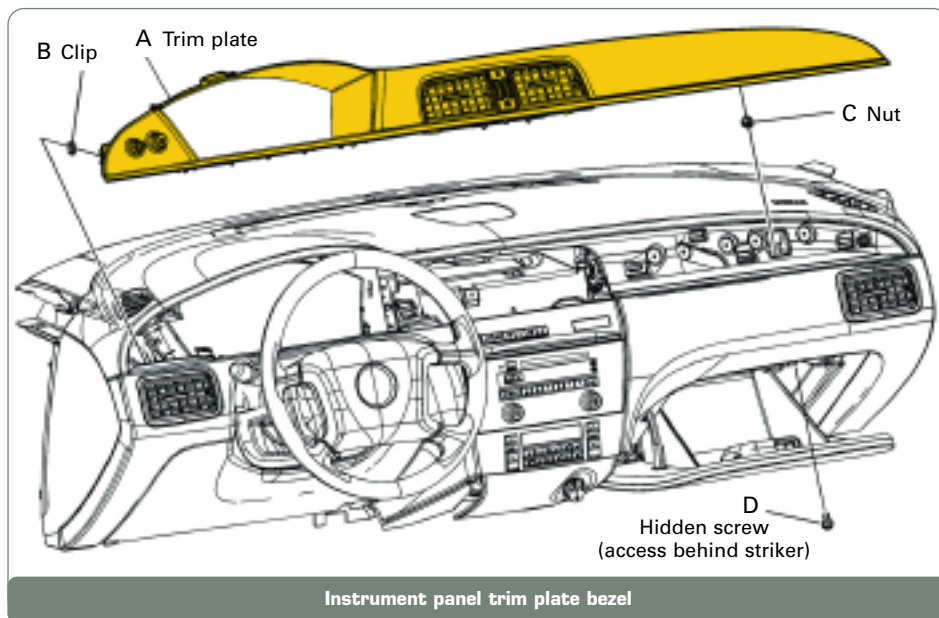
in SI document 1538590.

Open the I/P compartment door and release the check strap. Refer to SI document 1538593 for procedures.

Use a 10mm socket and extension to remove the hidden screw through the access hole behind the door latch striker (SI document 1538602, item 4).

TIP: If this hidden screw is not removed, the trim plate bezel will be damaged.

- Thanks to Wayne Zigler



Roof Beacon Switch Indicator

A 2003-05 Chevrolet or GMC Full Size Truck equipped with VYU option (Snow Plow Provision Package) may not have the roof beacon light connected. If the customer inadvertently presses the roof beacon switch to the ON position, the roof beacon indicator will illuminate on the switch.

If the ignition is turned off and the beacon switch is left on, a battery draw (140 Ma) will occur, eventually causing battery discharge.

The roof beacon switch indicator will

not illuminate when the key is turned off. However, the roof beacon relay is still energized. It's suggested that the roof beacon switch be turned off before turning the ignition off to avoid a battery drain.

TIP: If the roof beacon is not being used, pull the SEO B1 fuse to disable the relay. This can be done on all vehicles with VYU option except vehicles equipped with option 8S8 (Speedometer Security) or have an overhead universal garage door opener.

Console Cupholder and Ashtray

Owners of some 2003 -05 GMC Sierra Denali, Yukon Denali/XL and Cadillac Escalade/EXT/ESV may comment that the center console cupholder and ashtray lid will not close.

When opening the cover, customers may be incorrectly pulling up on the cover as opposed to pushing down on the cover to let the automatic release work properly. During the pull-up motion of the cover, an over-design force is applied, causing the latch to be pulled out of the retainer while it is in the lock position.

Replace the latch assembly with p/n 89040109, as well as both the ashtray door and cupholder door latches. This will eliminate the customer returning with the same condition.

TIP: Do not re-use any latch that has become loose. Do not replace the lower bezel assembly. If the latch is missing during diagnostics, inspect the area inside the lower console and remove the broken latches, to prevent squeaks and rattles.

- Thanks to Jim Will

Dome Light Liftgate Operation

Owners of some 2005 Chevrolet Equinoxes may comment that intermittently the dome light does not turn on when the liftgate is opened. This will usually happen after the vehicle sits for an extended period of time. If the liftgate is opened after all the modules go to sleep, the dome light will not come

on. The liftgate ajar switch input to the BCM will not wake up the BCM once it has gone to sleep, so the dome light will not come on. Once the BCM gets an input to wake it up (from RKE or door handle), the dome light will turn on when the liftgate is opened.

This is normal operation and no repairs should be made.

- Thanks to Ron Erman

Voltmeter Fluctuation

Some customers may comment that their instrument panel voltmeter is fluctuating between 12 and 14 volts on their new 2005 model year light duty full size pickup/utility vehicle.

For 2005 model year, light duty full size pickups and utilities, are equipped with a new Regulated Voltage Control (RVC) system, covered in the September 2004 TechLink. The RVC system allows changes to vehicle voltage, up or down, under various scenarios.

Battery state of charge and the vehicle's present electrical needs are only two of numerous conditions taken into account.

This will cause the voltmeter to fluctuate between 12 and 14 volts. By comparison, conventional systems usually maintain a more consistent reading of 14 volts.

This fluctuation with the RVC system is normal system operation and no repairs should be attempted.

- Thanks to Jim Will

Fifth Wheel Trailering

The 2004-05 Chevrolet Silverado and GMC Sierra C/K 1500 Crew Cab with 5' 8" bed is not recommended for fifth wheel trailering.

With a cab-to-axle (CA) distance of 32 inches, there is no available fifth wheel hitch that will allow the truck and trailer to approach 90° articulation. This means that in parking lot maneuvers and sharp turns, there will eventually be contact between cab and trailer, and damage will result to one or both vehicles.

TIP: A CA distance of at least 52 inches is best (with 8 foot box) for fifth wheel trailing. The extended pins and sliding 5th wheels were developed in the 1990s to accommodate short box (6' 6") models with 38 inch CA lengths, but that is the lower limit.

- Thanks to Jim Will

Upper Radiator Hose Coolant Leak

On some 2004-05 Chevrolet Express and GMC Savana vehicles, the upper radiator hose may have a coolant leak, because it has rubbed through on the fan shroud.

If the upper radiator hose (p/n 25757841) needs to be replaced, it will be necessary to cut 50mm (1.9 in.) off the radiator end of the hose. This will prevent the upper radiator hose from rubbing on the fan shroud.

- Thanks to Ron Erman

Corvette I/P Compartment Door

Owners of some 2005 Corvettes may comment that the I/P compartment door appears warped and extends outward near the center IP. This may be caused by the torque sequence when the door is installed by the plant.

To correct the condition, loosen the attaching screws at the bottom of the door. Then retighten the screws, beginning with the outboard screw, the one on the right side and then the inboard screws.

- Thanks to Paul Radzwilowicz



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
2005	Equinox LT/LS (AWD Only) – Moan, Bind or Growl Coming from Rear during Low Speed Parking Lot Turns	Replace RDM coupling (clutch pack) with proper sealers. Fill with Versatrak fluid.	Don't replace complete rear drive module.	04-04-20-004
2005	Cobalt (Built Before 01-17-05) – Fuel Gauge May Not Go Completely to Full	Recalibrate ECM with updated calibration, version 1.75.	Don't replace fuel module, fuel level sensor assembly or fuel gauge.	05-08-49-002A
2003-2004	Cavalier, Sunfire – HVAC Control Head, Difficult to Adjust the Mode Dial	Replace foam delaminated from mode door which can cause bind condition.	Don't replace HVAC control head, module or cables, unless damaged.	03-01-38-005B
2002-2005	Cars and Trucks – Multiple Driveability Symptoms/Clogged Fuel Injectors	Clean fuel injectors as described in Bulletin.	Don't replace fuel injectors.	03-06-04-030A
2004-2005	Grand Prix – Outside Rearview Mirrors	Replace glass or motor, whichever is defective.	Don't replace complete mirror assembly.	04-08-64-009
2004	Grand Prix – Steering, Suspension or Cradle Click Noise	Install new two-piece sleeve and spacer to steering gear mounts.	Don't replace steering gear or cradle.	03-02-32-048A
2000-2003	Century, Regal, Lumina, Impala, Monte Carlo, Grand Prix, Intrigue with 3.8L L36 Engine – Coolant Leak	Replace upper intake manifold gasket only.	Don't replace upper intake manifold assembly for coolant leak condition.	03-06-01-016
2001-2004	Aztek (01-04), Rendezvous (FWD, 02-04), Venture/Montana/Silhouette (01-04) – Pop and/or Rattle in Exhaust Down Pipe	Follow procedure in bulletin using clamp P/N on down pipe to correct rattle/buzz noise.	Don't replace converter assembly for rattle/buzz noise without completing instructions in bulletin.	03-06-05-003
2000-2004	Cavalier/Sunfire/Alero/Grand Am – Inoperative Sunroof Module	Retime module or replace only motor.	Don't replace entire sunroof module assembly.	03-08-67-009A
1999-2004	All Cars and Trucks – Brake Warranty, Service and Procedures	Issue One: Refinish brake rotor. Issue Two: Measure for LRO	Issue One: Don't replace brake rotors. Issue Two: Don't measure for LRO.	00-05-22-002D



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

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2002-2005	Tahoe, Suburban, All Yukons, All Escalades, Avalanche, H2 – Exhaust Pop/Ping Noise	Replace heat shield.	Don't replace exhaust system.	03-06-05-008B
2005	All Escalades, Tahoe, All Yukons, Suburban, Avalanche, All TrailBlazers, All Envoys – Adjustable Pedals Don't Recall Preset Positions and/or Front Heated Seats Turn Off After 30_Seconds	Replace brake pedal position switch.	Don't replace brake pedal assembly.	05-08-143-001
2003-2005	Full Size Pickups and Utilities – Snap/Popping Noise from Front of Vehicle	Slot left side mounting holes on front crossmember using procedure in Bulletin.	Don't replace crossmember.	03-08-61-002B
2002-2004	Chevrolet Silverado, GMC Sierra – Accumulator/Accumulator Bracket	Replace accumulator and/or accumulator bracket.	Don't replace compressor.	02-01-38-007C
2004	Tahoe, Suburban, Silverado, Yukon, Yukon XL, Sierra, Escalade, Escalade EXT, Escalade ESV, H2 – Passenger Door Module and RKE Inoperative	Re-flash passenger door module.	Don't replace passenger door module.	04-08-52-005
2001-2003	Fullsize Pickups – Injector Replacement for High Flow Rates	Use Corporate Bulletin Number 04-06-04-007A for injectors with high fuel return rates. Use Special Policy 04039 for all 01-02 vehicles.	Don't replace 8 injectors for complaint other than high fuel return rates. All other injector failures are fix as failed.	Special Policy 04039
2004-2005	All Cars and Trucks – State-of-Charge Upon Delivery of a New Vehicle	Check battery's state-of-charge per revised PDI procedure using Tester, J 42000 or J 42000-EU.	Don't remove and replace battery.	02-06-03-009A
2002-2004	Fullsize and Midsize Pickups and Utilities – Labor Operation Assignments for Control Module Reprogramming	When submitting claims for reprogramming an electronic module, use correct labor operation that reflects the module being programmed.	Do not use K5364, which is for reprogramming transmission control module (TCM), when reprogramming TCCM.	02-04-21-006D 02-06-04-057D
2002-2004	Chevrolet Avalanche and Cadillac Escalade EXT – Cargo Covers and Cladding Faded or Stained	Thoroughly clean, dry and treat components with "Armor-dillo."	Don't replace cargo covers for this condition.	04-08-111-001B
2001-2004	Fullsize Pickups and Utilities – Servicing Wide Load Mirrors (RPO DPF)	Replace individual parts as needed.	Don't replace complete mirror assembly.	03-08-64-028

**Know-How
Broadcasts
for
April**

10290.04D Emerging Issues

New Model Features and
Technology Close-Up seminars

April 14, 2005, 9:00 AM, 11:30 PM, and 3:30 PM Eastern Time

Stay tuned! These programs will return soon.
Check the Service Know-How section of the GM Training
website (www.gmtraining.com) for more details.



– Thanks to Tracy Timmerman