TECHlink
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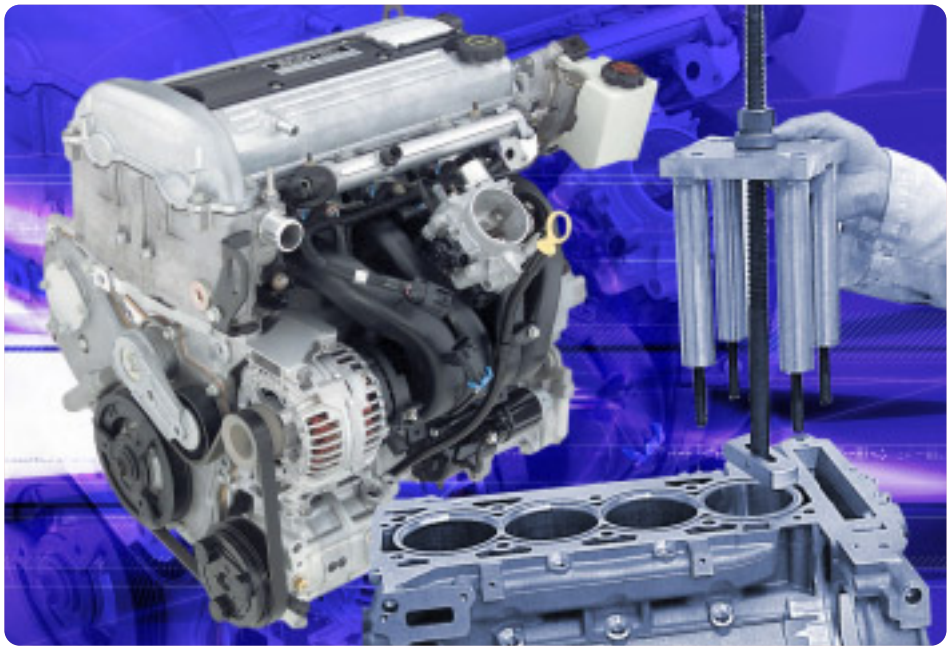
Cylinder Bore Liner Replacement

A new tool EN-45680-850 has recently been released to replace cylinder bore liners in the 2.2L Ecotec four-cylinder engine (RPO L61 VIN F or D).

Background

The cylinder block of the Ecotec engine is lost-foam cast aluminum alloy, with pressed-in centrifugally-cast grey-iron cylinder bore liners.



In production, the liners are pressed into the block, then the deck of the block and liners are machined all at the same time. The production specification calls for the liners to be flush with the block, to + 0.02 mm (0.0008 in.) above deck.

The cylinder liner is beveled at the bottom end to help guide the liner into the block bore. And the top of the liner is slightly flanged, fitting into a counterbore in the block. This ensures that the liner is properly seated when it is pressed into place.

Cylinder Damage

A cylinder bore of any engine can be damaged by a broken piston ring, a loose wrist pin or clip, or piston debris caused by detonation damage. The Ecotec is susceptible to the same kinds of hazards. In the Ecotec engine, the

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Techline News

Does Your Dealership Have Enough Techline PCs?

Today, a Techline PC is just as important a service tool as a toolbox. All Service Information (SI), as well as diagnostic and programming tools (TIS), is accessed using the Techline PC. A Techline PC must be used to ensure that all service repairs are fixed right the first time. Many technicians waste critical time waiting in line or walking a long distance to use their Techline PC. Imagine if a technician needed to wait 10 minutes to gain access to his/her toolbox for each job, every day. This wait time quickly adds up, and results in lost productivity.

The ideal ratio is 1 PC for every 2 technicians (1:2), which provides the least amount of wait time to complete a job.

Recently, GM Service and Parts Operations teamed up with PC Source to run a Multiple PC Pilot. Dealerships were provided with enough PCs to meet the PC to Technician ratio (1:2) for a 90-day trial. These PCs were new Techline-ready, Business grade machines. Each PC was connected to the GM ACCESS network with wireless LAN cards, which eliminated the need to install new hard-wire for the network.

The dealerships evaluated the productivity gains from having the proper equipment accessible to their technicians, and at the end of the 90 days had a choice to purchase or return the equipment. Every dealership recognized the initial cost of purchasing the equipment was quickly made up by faster access to the most current service information. Every dealership purchased the equipment at the end of the pilot.

A PC that meets the current PC Hardware Specification is now far more competitive in price than it was 3 years

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ago. Your Techline consultant can help with a Return on Investment (ROI) analysis to demonstrate how quickly the ROI on a Techline PC purchase will be realized.

Fully integrated PCs are available through the PC Source at 1.800.233.0040. Other PCs are available through GM Dealer Equipment at 1.800.GMTOOLS. PCs from other vendors may be used, but must meet the PC Hardware Specification located on http://service.gm.com. PCs that do not meet the Techline specification may not work properly and will not be supported. Your Techline consultant can provide additional help in deciding what is needed to maximize the hardware in your service department.

- Thanks to Sam Hutson

Reprogramming Passenger Door Module

Owners of some 2003 Chevrolet and GMC full-size pickups and utilities, Cadillac Escalade models and Hummer H2 may have concerns that the RKE key fob does not function, the front passenger door power window, lock, mirror and heated seat are inoperative.

Affected vehicles fall into one of three categories:

- Those built before 01/03 -- refer to Bulletin 03-08-52-001C.
- Those built during 01/03 -- refer to Customer Satisfaction Bulletin 03-011.
- Those built 02/03 or later -- refer to published Service Information for the symptom experienced by the customer.

TIP: Various names are used to describe the component involved in this condition. The Door Lock and Side Window Switch contains a microprocessor called the Passenger Door Module (PDM). The condition and repair procedure involve the PDM.

Instead of replacing the Door Lock and Side Window Switch, you can now refresh and reprogram the PDM using your Tech 2.

TIP: Your Tech 2 must contain software 23.001 (CD 3) or newer, released March 8. If it does not, you must download this software before proceeding.

Depending on the vehicle's build date, follow the procedure in the appropriate bulletin to diagnose the conditions and refresh and reprogram the module.

TIP: You MUST identify the applicable bulletin for the truck you're working on. And once you have identified the correct bulletin, you MUST perform the procedures described in it, in the order given, and do not skip any steps.

- Thanks to Doug Daugherty

Fuel Gauge Erratic or Inaccurate

This information applies to 2001 S-10 and Sonoma Crew Cab Pickup models. Refer to bulletin 03-08-49-003 for details.

On these models, the fuel gauge may be erratic, inaccurate, or go from 1/4 to empty too quickly. The cause may be an improperly calibrated fuel gauge. The length of the float arm may also affect gauge operation.

The correction is to install a new fuel level sensor 25353298 and reprogram the PCM with a new calibration. Call TCSC at 1.800.828.6860 (English) or 1.800.503.3222 (French) for a VCI number to allow installation of the new calibration.

- Thanks to Dan Oden

DTC Master List

When diagnosing a vehicle, it may be helpful to know all of the DTCs that pertain to the modules on that vehicle.

To obtain this list, go to SI on the web, and follow this path.

- "Build" the vehicle
- Service Manual/Bulletins
- Vehicle Control Systems
- Vehicle DTC Information
- Diagnostic Information and Procedures
- Diagnostic Trouble Code (DTC) List -- Vehicle

This will display a DTC list for that vehicle, including all possible codes in categories B, C, P and U. Each DTC in the list is followed by a brief descriptor of the circuit or component.

You can then print out the list for reference in your work area

- Thanks to Mark Haning

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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General Motors service tips are intended for use by professional technicians, not a "do-it-yourselfer." They are written to inform those 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 a General Motors dealer servicing your brand of General Motors vehicle for information on whether your vehicle may benefit from the information.

Inclusion in this publication is not necessarily an endorsement of the individual or the company.

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liners are thin-wall castings, on the order of 1.5 mm (1/16-inch) thick, so overboring is not a possibility.

Up until now, if a liner became damaged, it was necessary to replace the entire engine assembly.

With the introduction of the EN-45680 L61 (L850) Cylinder Bore Liner R & I Kit, it is now possible to replace a damaged liner. This procedure can even be done with the engine remaining in the vehicle on several vehicle product lines.

Although only the damaged liner(s) must be replaced, always inspect all of the cylinders.

Detailed instructions are included with the tool kit, and are also available in SI. These are the highlights.

Attaching fixture using head bolts

Liner Removal

The cylinder head must be removed, along with the piston and rod from the affected cylinder(s). Follow SI procedures.

The fixture assembly is attached above the cylinder bore with previously-used cylinder head bolts.

TIP: Cylinder head bolts must not be reused.

The fixture is installed from above, with the shoe positioned flat against the bottom of the cylinder liner.

A nut on the puller is turned to pull the liner from the block.

TIP: Do not use any power tools to turn the removal tool nut, to avoid damage to the block.

Liner Installation

After inserting a replacement liner into the top of the cylinder bore, position the fixture above the cylinder bore and attach with the four used cylinder head bolts.

An installation assembly is used to press the liner into place.

TIP: Do not use any power tools to turn the arbor screw, to avoid damage to the liner.

Pressing liner into place

When the liner is installed to within 1/16-inch (1.6 mm) of the block deck face, use a torque wrench to tighten the arbor to specification. When the flange of the liner seats into the counterbore of the block, a minimal portion of the liner remains above the deck surface.

Liner Trimming

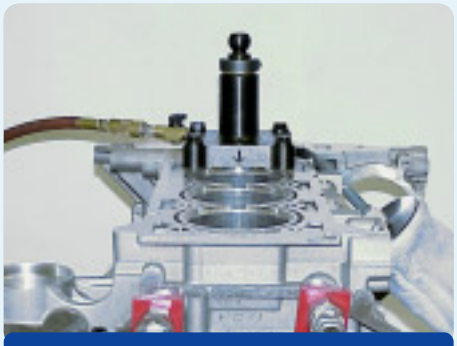
The kit includes debris plugs to be installed in the affected cylinder and adjacent cylinder(s).

The service liner is very similar to the ones used in production. To complete the installation, it's necessary to machine the top of the liner to production height specification, flush with the block deck to + 0.02 mm (0.0008 in.) above deck.

It is also necessary to avoid damage to the block deck surface. This requires proper setup of the cylinder liner trim tool.

TIP: Follow the instructions exactly to set up the cutting blades of the cylinder liner trim tool, using the set gage ring supplied.

The cylinder liner trim tool is installed to the block over the affected cylinder. An electric drill motor with specific power rating and rpm must be used to operate



Trimming cylinder liner

the trimmer. And compressed air operates the venturi vacuum that catches the metal shavings as the liner is trimmed.

If multiple cylinder liners are being replaced, move the cylinder liner trim tool and debris plugs from cylinder to cylinder as required.

Additional Information

The new tool was discussed at an Emerging Issues IDL broadcast on May 30, 2003. If you missed it, check the schedule for future re-broadcasts. Also refer to bulletin 03-06-01-018 (June 2003).

- Thanks to Ed Cheung and Joe Sraj

Switch Plate Bezel Removal

This is a reminder to follow the service procedure when removing the Switch Plate Bezel from the front doors of 2000-04 full-size Pickups and Utilities. Several door trims have been damaged by trying to take out the bezel incorrectly.

TIP: You must first remove the door trim and the screw holding the bezel in place.

TIP: Do not pry on the bezel from the top in an attempt to remove the switch. The bezel and/or trim panel could be damaged.

Refer to SI documents 849812 and 849813 for the correct way to remove the bezel.

1. Remove the front door trim panel.
2. Disconnect the electrical connectors.
3. Remove the screw that retains the switch panel bezel from the front door panel.
4. Remove the switch panel bezel from the door panel using a flat-bladed tool.

- Thanks to Jack Cady and Mark Freigruber

Parts Restriction on PCM

The 2004 Pontiac Grand Prix is equipped with a new PCM. To provide feedback and increased customer satisfaction, a parts restriction is in effect through August 1, 2003. During this time, the PCM must be ordered through TAC. When you call TAC, be prepared to provide Dealer Code, VIN, mileage, RO number and results of diagnosis. Refer to bulletin 03-06-04-027A.

Returned parts will be analyzed by engineering to determine root-causes of conditions. This information will help improve future products.

- Thanks to John Fletcher

Timing Tensioner Kit

Owners may comment about a noise coming from the engine between 1800 and 2200 rpm on some 1996-2003 Chevrolet and GMC trucks with the 4.3L V6 engine.

The rattle noise may be caused by torsional vibration of the balance shaft. A timing chain tensioner kit has been released to deal with this condition. The tensioner consists of a bracket which holds a nylon blade against the timing chain.

Tensioner

A Front cover
B Tensioner bracket
C Nylon blade
D Washer
E Dowel pin
F J-46165 Pin Driver

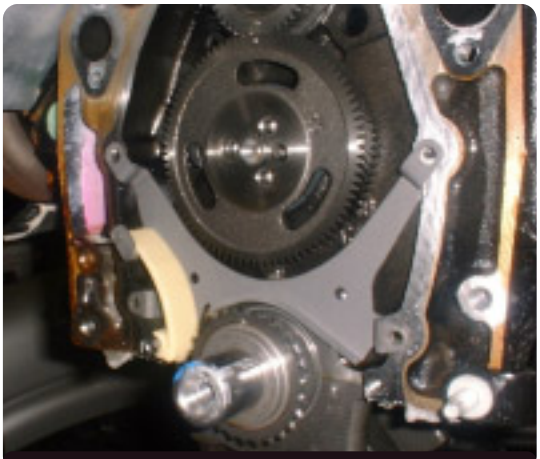
TIP: The noise may resemble detonation or spark knock, which must be ruled out before installing the tensioner kit.

Here are some of the highlights of the procedure. An upcoming bulletin and an IDL broadcast will provide additional information.

The engine front cover must be removed for access to the crankshaft and camshaft sprockets and chain. The camshaft chain must be removed. Depending on model year, either the cam gear or crankshaft sprocket must be removed to do this. Follow standard SI procedures.

The tensioner bracket fits over four existing holes. The upper two are the front cover center bolt holes. And the lower two are front cover alignment holes.

TIP: The nylon blade must be temporarily removed from the bracket.


Bracket shown in mounting location

With the tensioner bracket in position, use J-46165 Pin Driver to drive dowel pins into the two bottom holes to retain the bracket.

Follow the bulletin procedure to complete the installation of the chain, nylon blade and sprockets.

TIP: The kit includes two washers. Place them under the two center cover bolts, which extend through the tensioner bracket. These are required to maintain proper crush on the engine front cover seal.

- Thanks to George Kaganac and Marty Case

Terminal and Connector Reference Guide

If you saw the Terminal Repair Kit Update article in the June 2003 issue of TechLink, you may now have some questions about the proper way to remove, install, and otherwise service terminals and connectors.

The answer is found on the internet, at the following address (no spaces except as noted).

https://www.gmcommontraining.com/images/Terminals_and_Connectors_022003.pdf

This will provide you with the General Motors Terminals & Connectors Reference Guide, 18043.05B. It's a 56 page manual, offered in PDF format. There are plans to update this Reference Guide as needed.

TIP: If you do not have the necessary software to download a PDF, go to www.adobe.com for a free version of the Adobe Acrobat Reader.

The manual includes several subsections. In Standard Terminal Replacement, you will find:

- crimp tools
- splice crimp tools
- splice clip application
- visual inspection standards
- and more.

In Terminals and Connectors, you will find Delphi connector identification and Yazaki connector identification. The information is presented using full-color illustrations.

Connectors
- photos
- terminal position assurance lock (TPA), if equipped
- location of the entry canal for insertion of the removal tool

Replacement Terminals
- photos
- part number(s)

Removal Tools
- photos
- tool number
- Kent-Moore J-number

Crimper Tools
- photos
- tool number
- Kent-Moore J-number

For convenience and future reference, you may print your own copy of this manual, using your computer's Print function.

- Thanks to John Roberts

Availability of Electrical Terminals

According to parts bulletin IB03-044, a select group of terminals are no longer offered by GM Parts, but are available directly from SPX Kent-Moore. 38 part numbers are affected.

- Thanks to GMSPO

TransFlow Heater Blanket

Kent-Moore has just released an optional accessory for the J-45096 Transmission Oil Cooler Flush and Flow Testing Kit (TechLink, Jan. 2003).

To review, the TransFlow equipment has two major functions: (1) to use Dexron III automatic transmission fluid (ATF) to

flush the transmission oil cooler and lines, and (2) to accurately perform a flow test to identify restrictions.

The Heater Blanket J-45096-10 fastens around the TransFlow's internal supply vessel. When plugged into a 110 v AC supply, the blanket will heat ATF in the supply vessel to at least 65° F (18° C). This is the minimum required operating temperature.

TIP: Below 65° F, the TransFlow will shut itself off. Below this temperature, it is difficult to accurately measure the flow of ATF.

TIP: Allow extra warming time when you replenish fluid in the supply vessel. Remember, it holds 31 quarts.

A special feature of the blanket is the thermostat, which will maintain a set temperature.

TIP: Heating blankets without temperature control (typical freon heating blanket) could affect the electronics in the TransFlow equipment.

To order, call Kent-Moore at 1.800.345.2233.

- Thanks to Dan Popoff and Rick Mills

HomeLink® Test Kit

The Homelink Wireless Control System has been available on numerous GM passenger cars and light duty trucks since 1995. It provides remote operation of garage doors, estate gates, home lighting, and other home automation devices, using a 3-channel transceiver built into the vehicle.

The J-41540-GM Transmitter Test Kit is an essential tool which is useful in diagnosing the system.The kit includes a HomeLink Tester, a Hand Held Transmitter, and a 120V-to-12V power supply. The Tester may be operated from the vehicle's accessory outlet or from the kit's power supply.

Complete instructions are supplied with the test kit, and you should follow them when performing the tests. Proper testing and diagnosis can help eliminate unnecessary replacement of parts. Here are some highlights.

Functionality Test

The Functionality Test establishes:

- That the Tester (receiver) from the kit is functioning.

- That the Hand Held Transmitter from the kit is capable of transmitting.

- That HomeLink is getting power from the vehicle.

- That HomeLink can be placed in the Default Mode. This is a special mode used only for testing. It is not the same as the Training Mode used by the customer to program HomeLink to operate different devices.

- That HomeLink is capable of transmitting.

The instructions explain how to perform each of these tests and what to do in case of a failure.

Range Test

The Range Test establishes:

- That the signal from HomeLink extends from

the vehicle for a distance of 15-30 m (50-100 ft.).

The instructions explain how to perform the test and what to do in case of a failure.

Training Test

The Training Test establishes:

- That HomeLink is capable of being trained (programmed), in this case using the Hand Held Transmitter from the kit.

- That the trained HomeLink is capable of operating the appropriate device (in this case, the Tester from the kit) from a distance of 15-30 m (50-100 ft.).

The instructions explain how to perform each of these tests and what to do in case of a failure.

TIP: Garage door openers manufactured before 1982 may not be compatible with the HomeLink system. The fact that HomeLink passes the test procedure does not guarantee that it will work with an older system. A universal receiver or fix kit (for some older systems that were not manufactured before 1982) is available for purchase at www.homelink.com or by calling 1.800.355.3515.

Once you have used the test kit to establish that HomeLink is functioning properly, be sure the owner understands how to train HomeLink, using their own hand held transmitter for the device they are programming.

TIP: You may offer to train HomeLink for them, using the customer's hand held transmitter, as a special service. If you successfully train the hand held transmitter to HomeLink, it doesn't guarantee that the device will operate when they return home. Some garage door openers and gates are equipped with rolling codes. The customer will need to perform additional steps for HomeLink to activate these devices.

To determine if HomeLink has learned a rolling code, press the HomeLink button. If the LED flashes rapidly for 2 seconds, then turns solid, additional programming steps are needed.

Owners who require special programming assistance, who want to purchase HomeLink accessories or learn about compatible products, may call 1.800.355.3515, or visit the website at www.homelink.com.

TIP: A dealer specific website is also available at www.dealerlink.homelink.com.

- Thanks to Kobie Glenn and Marci Brogan

Tool Numbering System Changed

See bulletin 03-00-89-005 for details. Here are the highlights.

Effective immediately, all new essential and available tools will be numbered according to a global numbering scheme.

TIP: Existing J-numbered tools will not be re-numbered.

Each tool will be placed in one of six categories according to function:

Function Code	Category
GE	General, including HVAC
EN	Engine
DT	Transmission, differential
CH	Chassis
EL	Electrical, including SIR
BO	Body, frame, trim

The two-character function code will be followed by a five-digit number sequence:

EN-12345

As before, an alpha suffix indicates a revision:

EN-12345-A

A numerical suffix indicates a part of a kit:

EN-12345-1

TIP: Use the first two characters to help you organize your new tools.

- Thanks to Dave Roland and Derek Trimble

P-Codes with Warranty Claims

The OBDII (On-Board Diagnostics) system is capable of providing a great deal of diagnostic information when vehicles are repaired because the Malfunction Indicator Lamp (MIL) is illuminated. You are requested to pass along as much of this information as possible.

Technicians – On the repair order, record the OBDII P-codes, technician observations, and customer comments. (GM Service Policies and Procedures Manual, article 1.6.2)

Warranty Claims Administrator – Enter the same information in the comment section on the warranty claim for submission. (GM Claims Processing Manual, Section 4.2.g)

This information is continually analyzed by GM Powertrain Engineering. This process will provide engineers with accurate, detailed information on a more timely basis. The idea is to identify and resolve potential product concerns as early as possible.

If you will provide P-codes, your observations, and customer comments on every vehicle you repair for an OBDII related code, Engineering can begin to better understand what is causing the MIL to illuminate.

The inclusion of P-codes on repair orders varies from year to year. In 2002, 36% of repair orders did not include P-codes. So far this year, it's dropped slightly to 32%. But there's still a lot of room for improvement. Engineering asks for your cooperation.

- Thanks to Kiet Nguyen

Proper Removal of O2 Sensors

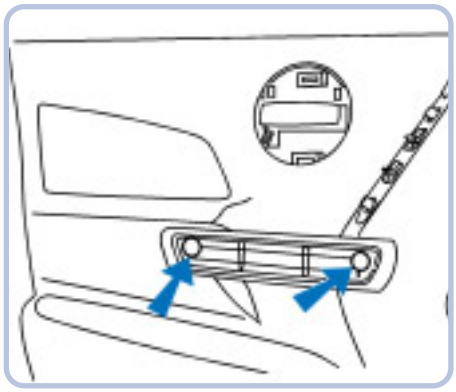
This reminder applies to all vehicle lines and model years, and is about proper oxygen sensor removal techniques. Some of the oxygen sensors returned to the Warranty Parts Center have been damaged during removal, which means they cannot be analyzed.

There are a variety of special tools and slotted sockets available for oxygen sensor removal which will not damage the pigtail. If space allows, a crowfoot wrench is also appropriate. A suitable tool is needed for installation of the new sensor. Using it for removal as well will eliminate damaging the wires on the sensor being removed.

The rate of damaged O2 sensors returned for analysis has been cut in half so far this year. Engineering appreciates your help and asks that you continue to take care not to damage them during removal.

- Thanks to Kiet Nguyen

Typical O2 Sensor Damage



Door Trim Panel Removal

When removing the door trim panel on the 2004 Grand Prix, do not use a standard socket to remove the hexhead screws located in the pull handle of the front or rear door trim panels. Some of the tubes are too narrow and the standard socket, when pushed down onto the screw will split the plastic tubes.

A thin walled 10 mm socket must be used. Early production vehicles use a screw with a hex head. Later production vehicles have a screw that has a combination of hex head and Torx head. This screw can be removed with either a thin walled 10 mm socket or a T30 Torx head driver.

- Thanks to Mel Spresney

Transmission Shift Conditions

Owners of some 2002-2003 LeSabres, Park Avenues and Bonnevilles may experience no transmission upshifts, erratic shifts, and/or slipping from the transmission. This condition may be caused by a poor electrical connection inside of the underhood fuse box or Bussed Electrical Center. The terminal that feeds the transmission fuse may be spread too large.

TIP: If you discover a deformed terminal, follow SI procedures to replace it.

On the LeSabre and Bonneville, the terminal at connector C3 pin E7 is at fault. On the Park Avenue, connector C2 pin E4 is the faulty terminal. The DTCs are P0753 and P1860.

- Thanks to Bill Metoyer

Electrically Folding Mirrors

There are some misunderstandings about the operation of RPO DL3 mirrors on 2003 full size pickups and utilities.

The mirrors in this option can be folded inboard electrically (when entering a car wash, or parking in a confined space, for instance) using the same switches normally used for adjusting the individual mirrors. Place the L/R toggle switch in neutral. Then use the pad to fold the mirrors in or out.

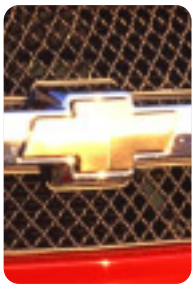
These mirrors must always be moved electrically. If a mirror is folded inward manually, and then moved back outboard manually, the mirror will not latch into the detent. The result is that the mirror may move and/or shake.

TIP: If the mirror displays these conditions, simply cycle the mirror inboard and back outboard using the electric controls. This will cause the mirrors to click into the proper detents.

New vehicle prep technicians should be made aware of these procedures and should verify proper operation of the mirrors before delivery.

TIP: Be sure the customer also understands mirror operation.

- Thanks to Steve Love



Grille Bowtie

The Chevrolet front grille bowtie emblem on 2000-03 Tahoe and Suburban (new body style) or 2003 Silverado may peel, delaminate or not properly adhere. This emblem can be serviced by ordering just the bowtie and not the entire front grille.

TIP: The upper grille baffle must be removed to replace the emblem. Refer to SI document 1327886 for the procedure.

The service part number for the 2003 Silverado bowtie emblem is 12335700. The service part number for the Tahoe and Suburban bowtie emblem is 12335633. Parts are currently available from GMSPO

- Thanks to Doug Daugherty

TAC*Tips*

Performance of XM Radio System with Sunroof

Owners of 2003 Chevrolet Monte Carlo and 2004 Pontiac Grand Prix may experience poor XM signal reception with the sunroof fully opened.

Because the sunroof travels over the XM antenna at the rear of the roof, the signal may be blocked. This is a characteristic of this antenna and sunroof system.

This statement is contained in the vehicle owners manual. "Your XM Satellite Radio antenna is located on the roof of your vehicle. Keep this antenna clear of snow and ice build-up for clear radio reception. The performance of your XM system may be affected if your sunroof is open."

TIP: Suggest that the customer move the sunroof forward enough to allow the XM signal a direct line from the satellite/repeater to the antenna.

- Thanks to GM Technical Assistance

Wire Harness Stretched

Affected Models:

98-02 Buick Century, Regal, Park Avenue, Le Sabre, Chevrolet Monte Carlo, Venture, Oldsmobile Intrigue, Aurora, Silhouette, Pontiac Grand Prix, Bonneville, Montana

98-99 Buick Riviera, Oldsmobile Eighty Eight

98-01 Chevrolet Lumina

01-02 Chevrolet Impala, Pontiac Aztek

02 Buick Rendezvous

On the listed vehicles, the 4T65E Pressure Control Solenoid (PCS) wire harness may be stretched, or the PCS may not be oriented in the same position, after installing a service replacement valve body assembly.

TIP: The service valve body casting is different from the original casting. The casting difference does not affect operation.

There is a small tab on the pintle end of the solenoid windings. Bend this tab in slightly toward the pintle. DO NOT remove it. Bending the tab inward will allow the PCS to rotate in the bore and orient the connector in the same position as the original PCS. This relieves the wire harness strain.

- Thanks to GM Technical Assistance

Water Leak in Front Floor Carpet Area

Affects 1998-2003 Chevrolet S-10 and Blazer, 1998-2001 Oldsmobile Bravada, 1998-2003 GMC Sonoma, 1998-2001 GMC Jimmy (US), 1998-2003 GMC Jimmy (Canada Only), 1998-2001 GMC Envoy

Some of the above vehicles may have a mildew odor or wet carpet in the front passenger seat area. Here are the most common causes and cures.

- Water backing up at the plenum drain

Too much sealer at the plenum drain area can act as a dam, allowing water to back up in the plenum and either seep around the air box seal or around the lower right air box mounting screw. If a plenum drain has a ridge of sealer higher than 1/4 inch (6.4 mm), use a utility knife to cut the sealer down to 1/4 inch (6.4 mm) in height.

- Voids in the plenum seam sealer

Use a mirror to examine the inside of the plenum for possible voids in the seam sealer where water can gain entry to the passenger compartment. Seal any voids using the procedures listed in the service manual.

- HVAC recirculation door being left open

The HVAC recirculation, or air box, door opens upward when the HVAC controls are set to MAX A/C. In extreme conditions, water can pool on top of this door and spill into the vehicle. This door can remain open if the HVAC mode is set to MAX A/C when the ignition key is cycled off. Customers should be informed of this condition and should be advised to turn the HVAC setting to the regular A/C or OFF position before turning the vehicle off.

TIP: Water may still leak into the passenger compartment, even with the recirculation door in the fresh air position. This may occur in extreme conditions (heavy downpours, etc.). Check for a hole above the air box (between the two threaded holes that retain the right front fender) for proper sealing. This hole should be sealed if found not to be sealed properly.

To prevent water leaking into the passenger compartment(s), even under heavy downpour conditions, fabricate a small plastic dam, 3/4 inch (19 mm) high x 3 inches (76 mm) long, then glue and seal it to the recirculation register under the recirculation door. This will allow small amounts of water (1/4 inch (6.4 mm) to 1/2 inch (12.7 mm)) to puddle in the HVAC case without entry into the vehicle.

- Door harness boot

Water that is found in either the driver or passenger floor at the A-pillar may have entered at the door harness boot on the A-pillar side. Make sure the boot harness if fully seated in the A-pillar.

- Plenum/Cowl/Instrument sub panel (windshield tray)

Water may enter at the three piece Plenum/Cowl/Instrument sub panel. This area must be sealed from the inside of the vehicle; the dash assembly must be removed to gain access. This area can be sealed by spraying a clear sealer (KENT brand) in a gallon commercial sprayer, up under the Plenum/Cowl/Instrument sub panel.

IMPORTANT: Please follow these diagnosis processes thoroughly and complete each step. If the condition exhibited is resolved without completing each 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. This diagnostic approach was developed for the vehicles listed and should not automatically be used for other vehicles with similar symptoms.

- Thanks to GM Technical Assistance

Radio Buzz, Pop, Static, or Whine Noise From Any Speaker

Vehicles equipped with non-class 2 amplifier (RPO UQ7, w/o Y91) may have no volume or speaker buzz, whine, distortion, pop, or static noise coming from any speaker.

Inspect the center console wire harness, approximately 5 inches (12.7 cm) from connector C306 toward the amplifier connector, for excessive twisting. If the harness has excessive twisting, the bare drain wire (ckt 2011 or 2099) may cut into the low level audio signals and cause this concern. Repair the harness as necessary.

- Thanks to GM Technical Assistance

Clunk Noise Felt Through Floor Pan

Affected Models:

1998-2003 Chevrolet S-10, Blazer

1998-2001 GMC Envoy, Sonoma, Jimmy (US), and Oldsmobile Bravada

1998-2003 GMC Jimmy (Canada)

Some owners of the listed vehicles may experience a clunk noise that can be felt through the floor pan.

This condition may be caused by the torsion bar crossmember contacting the frame rails during left or right turns or on uneven surfaces.

Determine if the clearance between the left frame rail to crossmember and right frame rail to crossmember are equal. If not, install either a washer or alignment shim between the upper mount and frame.

Refer to SI document 539243. This document includes a component diagram of the torsion bar crossmember to frame rail assembly and may provide assistance in the repair.

- Thanks to GM Technical Assistance

Car Issues -- Fix It Right the First Time

Where to Find Bulletins
The bulletin list usually found on this page is no longer being published. To find a listing of the bulletins released within the past eight weeks, consult the Latest News under Service Information on the http://service.gm.com website.

Model Year(s)	Vehicle Line(s) -- Condition	Do This	Don't Do This	Reference Information / Bulletin
2000-2003	3800 L36 Coolant leak at intake manifold	Replace the intermediate (upper) intake gasket	Replace the intake manifold assembly	Bulletin in process VME to field 5/30/03 Techlink article
2003	CTS -- "Service Stability System" DTC C1286	Reprogram EBCM	Replace steering wheel position sensor	02-05-25-004
2000-2003	Cavalier, Sunfire, Grand Am, Alero, Malibu -- Fuel gage accuracy and pump concerns	Replace sensor card for fuel gauge accuracy issue	Replace the fuel sender / pump assembly	01-06-04-008D
1999-2003	Grand Am / Alero – Door glass clip breakage	Replace sash clip only	Replace entire door glass assembly for broken clips	901-08-64-018
1997-2003	Grand Am / Alero / Malibu – Brake pulsation	Turn rotor and use brake align procedure	Replace rotors for pulsation	00-05-23-002 01-05-23-001 Know How #15040.01B)
1997-2003	Venture / Montana / Silhouette -- Windshield water leaks	Use correct diagnosis procedures described in service bulletin	Assume that leak came from the windshield sealing	01-08-57-006
1997-2003	Century / Regal -- HVAC "Auto" light function	Normal in full heat or cold setting	Replace HVAC control head for "Auto" light	99-01-39-007B
1999-2002	Corvette -- Fuel gauge goes to empty intermittently	Install revised software	Replace fuel senders or I/P cluster	2002 MY 02-06-04-010, 2001 MY Software released bulletin not updated
2003	All cars with 4T65E and 4T80E -- Code P0742	Replace TCC PWM Solenoid	Replace transmission or valve body assembly	02-07-30-039B
2002-2004	L61 EcoTech 4 Cylinder Engine	Replace Cylinder Bore Liner	Replace Engine	03-06-01-018

Truck Issues -- Fix It Right the First Time

Model Year(s)	Vehicle Line(s) -- Condition	Do This	Don't Do This	Reference Information / Bulletin
2003	C/K Fullsize Pickups & Utilities -- Transfer Case Service Light	Replace Encoder Motor Sensor, Reprogram TCCM	Replace Module, Encoder Motor or Transfer Case For DTCs C0327, P0836, P0500	03-04-21-001B
1999-2002	C/K Fullsize Pickups & Utilities -- Throttle Body	Clean throttle body, adjust blade and insert plugs	Replace throttle body for idle instability or increased accelerator pedal effort	02-06-04-054B & Parts Restriction
2003	C/K Fullsize Pickups 6.6L Diesel -- Engine ECM	Follow SI & Bulletins for proper Diagnostics; P0181 refer to Owner's Manual -- Block Heater and Front Cover	Replace ECM (codes P0540 & P0181) unless Diagnostics confirm need to replace	02-06-04-048 03-06-04-021 02-06-04-058 Parts Restriction
2003	C/K HD Silverado, Sierra, G Savana, Express >8600GVW -- ABS Lamp On	Re flash for code C0550	Replace ABS module	TIS 2000: 4.0 Service VME
2002-2003	Envoy, Envoy XL, Bravada, with G67m -- Low in Rear	Replace check valve service kit	Replace air suspension compressor	02-03-99-001
2002-2003	TrailBlazer, TrailBlazer EXT Envoy, Envoy XL, Bravada -- OS RVM Erratic Return	Replace mirror actuator & reprogram module	Replace OSRV-mirror	02-08-64-008 02-08-64-021
1999/2003	C/K Fullsize Utilities -- Sunroof	Install clip or mechanism kits	Replace sunroof	02-08-67-009
1999-2003	C/K Fullsize Pickups & Utilities -- Noise on Steering	Lube I-Shaft	Replace I-Shaft	00-02-35-003B
2002-2003	TrailBlazer, Envoy, Bravada, without G67 -- Moan Boom	Replace rear coil springs	Rear axle vibration boom noise that can result in vehicle repurchase	02-03-09-002A
2002-2003	TrailBlazer, TrailBlazer EXT, Envoy, Envoy XL, Bravada -- Tail Light	Replace tail lamp circuit board	Replace rear tail lamp assembly, for brake light	Service VME to use service part, listed in GMSPO catalog

Know-How Broadcasts for August

10270.08D Emerging Issues	August 14, 2003	9:00 AM, 12:30 PM, 3:30 PM Eastern Time
10270.20D – 2004 Buick New Model Features	August 23, 2003	9:00 AM, 12:30 PM, 3:30 PM Eastern Time