TECHlink
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Remote Vehicle Start

The all new 2004 Chevrolet Malibu is GM's first production vehicle with a Remote Vehicle Start (RVS) system. The option is available on vehicles equipped with RPO AP3. The system has a range of up to 197 feet (60 meters).

RVS provides several customer-satisfying features:

- Saves time normally spent scraping ice off windows
- Comfort of entering a pre-heated or pre-cooled vehicle

RVS is integrated with the current anti-theft and RFA systems to provide a very robust system. And it provides user feedback of the event and the ability to enable/disable the feature.

Enable and Disable Procedure

The current state of the RVS function can be viewed through the driver information center (DIC) display. Press the Menu button on the DIC until REMOTE START appears. The display will read ON or OFF, depending on the last setting.

To enable the RVS function:

1. Turn ON the ignition, with the engine OFF.
2. Press the Menu button on the DIC until REMOTE START is displayed.
3. Press the Enter button on the DIC until ON is displayed.

To disable the RVS function:

1. Turn ON the ignition, with the engine OFF.
2. Press the Menu button on the DIC until REMOTE START is displayed.
3. Press the Enter button on the DIC until OFF is displayed.

Operation

TIP: The system must be enabled to operate.

To operate the function, first press and release the LOCK button on the key fob, then press the RVS button for 2 seconds.

When the remote control door lock receiver receives the start signal, it sends a GMLAN message to the BCM, and the BCM enables the Run/Crank relay. Once the relay is turned on, the BCM sends a message to the PCM to start the engine. The PCM then performs a starter-based algorithm to start the engine.

The vehicle park lamps will be illuminated to indicate that the engine is running. The vehicle doors will be able to be unlocked.

If the engine does not start within three attempts to crank the engine, RVS will not attempt another start until it is reset. Reset consists of inserting the ignition key and rotating it to the Run position.

The RVS function is allowed to start the vehicle for two 10-minute intervals. If the BCM receives a second request for an RVS event while already operating in RVS, the second timer starts immediately. For example, if the RVS button was pressed for the first time and then 7 minutes later the RVS button was pressed a second time, the total time for the RVS event would be 17 minutes.

To drive the vehicle, the door must be unlocked, and the ignition must be placed in the RUN position. This unlocks the gear selector lever.

The RVS event can be deactivated:

- by pressing the RVS button on the key fob
- by turning the ignition key from the OFF position to any other position, then back to the OFF position
- by pressing the hazard switch to the ON position.

There are other safety and security features built into the system. The following conditions must be met in order for the RVS function to operate:

- The hood switch inputs to the BCM must indicate that the hood is closed.
- The accelerator pedal is not being pressed during the event.
- There is no current PCM DTC
- There is no current DTC set for the hood switch, hazard switch or the brake transmission shift interlock (BTSI).
- The hazard switch is in the OFF position.

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GM Service and Parts Operations

Programming Corner

Unable to Program Replacement PCM

According to PI01357, when servicing a 1999 Chevrolet Camaro or 1999 Pontiac Firebird, the following diagnosis might be helpful if the vehicle exhibits these symptoms: Crank No Start, Hesitate, Idles Rough, MIL / DTC, No Start, Runs Rough, Stall.

The original or service replacement PCM may not be programmed successfully. There may also be a DTC P0606 and or a P1516 set. The concern is with the PCM replacement part numbers.

- Part number 09374997 is mislabeled on the PCM and is part number 09361735, which is for a non ETC 3800 V-6 application.
- PCM part number 09374997 is for an ETC application but was changed to part number 12209624.
- PCM part number 12209624 is for a non-ETC application.
- At this time, GMSPO does not have a PCM available for a 3800 V6 ETC application.

If you are trying to program PCM part number 12209624, 09361735 or 09374997, call TCSC (1.800.828.6860) and advise the TCSC helpdesk coordinator that you are not able to program the replacement PCM. TCSC will send an archive file, which is a software patch that will reset the EEPROM map for the 1999 F-car. The GM dealer should accept a new PCM part number to be released into GMSPO service in the near future.

Please follow this diagnosis process thoroughly and complete each step. If the condition exhibited is resolved without completing every step, the remaining steps do not need to be performed. If these steps do not resolve the condition, please contact GM TAC for further diagnostic assistance. This diagnostic approach was developed for the vehicle with the VIN you entered and should not automatically be used for other vehicles with similar symptoms.

- Thanks to Hassan Abdallah

Passkey III+ Key Data Retrieval

This information applies to the 2004 Chevrolet Malibu.

SI document 1352053 contains two procedures for setting up a new Theft Deterrent Module, within Programming Theft Deterrent System Components. One procedure uses existing keys and one uses new keys.

IMPORTANT: The procedure called "Set Up a New Theft Deterrent Module (TDM) Using Existing Keys" may not function correctly. The corrected software will not be available on the Scan Tool until CD release 13. This is due to be broadcast to dealers on December 15. The CD will be shipped to dealers on approximately December 19.

Until this scan tool release is available, and when using the "Set Up a New Theft Deterrent Module (TDM) Using Existing Keys" procedure, it will be necessary to contact Technical Assistance for the necessary Tech 2 software.

TIP: If the "Set Up a New Theft Deterrent Module (TDM) Using New Keys" is performed, the current scan tool setup procedure will function correctly. If a new Theft Deterrent Module has to be special-ordered, be sure the required number of keys will be available at the time the new module is installed.

- Thanks to Brent Drendall and Mike McClure

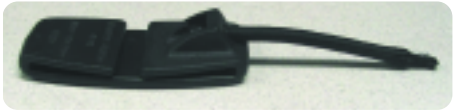
Child Comfort Clip

On Venture, Silhouette, and Montana vehicles, a child comfort clip is sewn into the rear seats, and is tucked into a fold on the outboard shoulder seam. This clip may get damaged or pull out.

A replacement service clip for 2002-03 vehicles is available from the Warranty Parts Center, according to Bulletin 03-09-50-001. It explains how to get the part and how to install it.

TIP: Install the replacement clip rather than replacing the seat back cover.

- Thanks to Tom Geist



GM TechLink

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- There is not a key in ignition input to the BCM.
- The BCM has not lost communication with the PCM.
- The transmission must be in the PARK position.

If any of these conditions are present during an RVS event, the vehicle park lamps will flash to indicate that the signal was received and the operation is disabled.

During an RVS event, the engine will be turned OFF if any of the following conditions are met (the first four serve as anti-theft provisions):

- Throttle position is greater than 10% for 2 seconds.
- Engine speed is greater than 2000 RPM for 30 seconds.
- Engine speed is greater than 4000 RPM for 2 seconds.
- Vehicle speed is greater than 0 km/h
- Engine crank time is greater than 30 seconds
- Engine oil pressure is low.
- Engine is overheating.
- A DTC is set that causes the MIL to illuminate.
- Engine run time has exceeded 10 minutes
- A BTSI Auto Trans Shift Lock Control fault has occurred
- Content theft system is activated

- Hazard switch is turned ON
- The hood is opened
- An ignition switch input fault is detected
- A low voltage condition is detected by the PCM

HVAC Operation, RVS Enabled

The HVAC control module receives 3 separate GMLAN messages from the BCM to enable HVAC operation during an RVS event. They include:

Remote Start Status	ACTIVE
Power Mode Message	OFF
Power Mode Validity	VALID

If there is a communication failure between the BCM and the HVAC control module during an RVS event, the HVAC function will be inoperative.

While in an RVS event, the HVAC control module will not respond to input of a button press or the turning of a control knob. The LED display will display AS, referring to the vehicle being in an Auto Start mode. All other HVAC displays will be disabled. If the A/C is activated, the LED will not be turned on.

TIP: During the RVS event, the HVAC system will operate according to the following tables. However, if the HVAC was turned off the previous time the vehicle was driven, it will return to OFF as soon as the RVS event ends.

The HVAC control module is programmed to take the following actions when in an RVS event:

Inside Air Temperature Input Below 22°C (72°F)	
Blower motor	High speed
Mode door	Defrost
Temperature door	Full hot
Recirculation door	Outside air

Inside Air Temperature Input Above 26°C (79°F)	
Blower motor	High speed
Mode door	Panel
Temperature door	Full cold
Request A/C compressor operation	
Recirculation door	Outside air

Inside Air Temperature Input Between 22°c (72°f) and 26°c (79°f)	
Blower motor	Medium speed
Mode door	Panel
Temperature door	Full cold
Request A/C compressor operation	
Recirculation door	Outside air

Once the ignition key is placed in the RUN position, the HVAC system reverts to its last know setting.

Diagnosis

Refer to SI for appropriate diagnostic procedures. Basically, diagnostics of the RVS system are based on inputs from other systems, and the RVS diagnostic tables contain links to faults in those systems.

- Thanks to Jim Mauney

Outer Tie Rod End Service Kit

This information applies to:

1997-2001 Buick Century, Regal, Chevrolet Venture, Oldsmobile Silhouette, Pontiac Grand Prix, Montana

1997-2003 Cadillac Seville

1998-2001 Oldsmobile Intrigue

2000-01 Chevrolet Impala, Monte Carlo

2000-03 Buick LeSabre, Park Avenue, Cadillac DeVille, Pontiac Bonneville

2001-2003 Oldsmobile Aurora

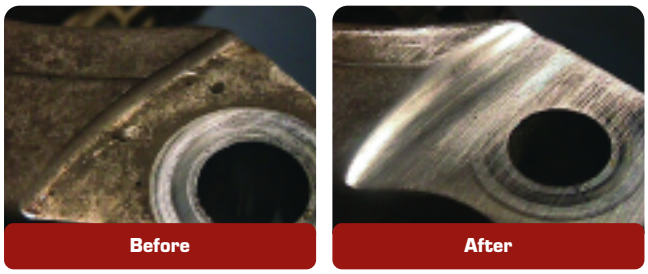
2001 Pontiac Aztek

A new outer tie rod end service kit has been released which is the same tie rod end that went into production on the vehicles listed above. The kit includes:

- a revised tie rod end with improved boot that eliminates the possibility of water intrusion into the tie rod end which can cause premature wear out condition
- emory cloth
- an instruction sheet.

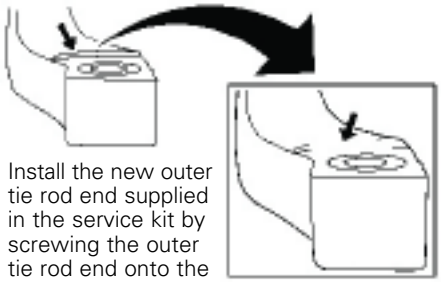
When replacing the outer tie rod ends, use the improved tie rod end service kit and modify the knuckles according to this procedure.

- Remove the outer tie rod end from the inner tie rod assembly; count the number of revolutions it takes to remove the outer tie rod from the inner tie rod and record it. Discard the outer tie rod end.
- Use the emery cloth supplied in the service kit to remove the sharp edge on the knuckle. The photos show the knuckle before sanding and after sanding.



IMPORTANT: When sanding the knuckle, AVOID REMOVING excessive material. USE ONLY the emery cloth supplied in the service kit. DO NOT use any other abrasive, which may remove excessive material from the knuckle.

- Ensure that the sharp edge and the flashing on the knuckle are removed from the outer tie rod end boot/seal area.



- Install the new outer tie rod end supplied in the service kit by screwing the outer tie rod end onto the inner tie rod end assembly.
- Turn the outer tie rod end as many turns as it took to remove the old outer tie rod end from the inner tie rod end assembly.
- Install the prevailing torque nut to the outer tie rod assembly.
- Inspect the front toe and adjust if necessary. Refer to Front Toe Adjustment, SI Document 580777.

- Thanks to Gary McAdam

Outer Tie Rod End Service Kit	
89047698	Grand Prix, Montana, Silhouette, Venture
89047749	Park Avenue, DeVille, Seville, Bonneville, LeSabre, Aurora
89047697	Century, Regal, Impala, Monte Carlo, Intrigue
89047756	Aztek

Using "Getting to Know" Materials Effectively

"Getting To Know" your vehicle guides are included in the glove box of most GM car and trucks sold in the US. In addition, some vehicles, like the 2004 Trailblazer, will include a "Getting To Know" your vehicle CD. The GTK guides are designed to provide a convenient overview of the operation of the vehicle – specifically, its features and controls. It is not intended to take the place of the Owner's Manual.

TIP: New vehicle preparation personnel should take care to be sure the GTK guide and/or CD is in the vehicle.

A clear understanding of a vehicle's operation and features contributes greatly to a customer's satisfaction with their new vehicle, and that's reflected in J.D. Power and CSI survey results.

GTK materials provide the salesperson an excellent aid when explaining the features of a new vehicle to the owner during delivery. In the same way, service advisors and technicians can gain quick insight into a vehicle's operating features, from an owner's standpoint, by studying the GTK guides.

TIP: Pay particular attention to the key five J.D. Power customer dissatisfiers: RKE Operation, HVAC Controls, Audio Systems, Memory and Personalization Features, and Perceived Fuel Economy.

Electronic copies of the 2004 GTK guides can be obtained by US dealers on the web at www.gmcommontraining.com.

- Thanks to Diana Sancya

"Rotten Egg" Exhaust Odor

Three conditions are necessary for "rotten egg" or hydrogen sulfide odor to be present in exhaust gasses:

- Hot catalytic converter
- Sulfur in the fuel
- Rich air-fuel ratio, at least momentarily.

Of these three, the quantity of sulfur present in the fuel is the most variable, and most difficult to control for both a vehicle manufacturer and a customer.

High amounts of sulfur in fuel can cause not only a rotten egg odor in exhaust gasses, but also certain re-active sulfurs can corrode silver contacts in the fuel level sender, causing erroneous fuel gauge readings.

At present, there is no EPA requirement for the level of sulfur in fuel, outside of the state of California, and the ASTM (American Society for Testing and Materials) specification limit is 1000 parts per million (PPM). To put that number into perspective, the current limit for sulfur in California phase 2 gasolines requires an average of less than 30 PPM.

In 2004, the EPA will begin limiting the sulfur content in gasoline. In 2004, the EPA limit for the corporate average sulfur content will be 120 ppm, and no single gasoline can exceed 300 ppm (except for small refiner exemptions). By 2006, the corporate average will be limited to 30 ppm (the current California limit), with a maximum of 80 ppm (except for small refiner delays). California Phase 3 gasoline, which will be available next year, will have a maximum sulfur content of 15 ppm.

In the absence of an identified vehicle condition, customers can be advised to temporarily change to a premium grade brand of fuel from a major supplier such as Shell, Exxon, Texaco or Chevron. Premium fuels in general have been found to have lower sulfur levels. However, even these suppliers can be susceptible in areas where base fuels are delivered either by pipeline or from the same refinery.

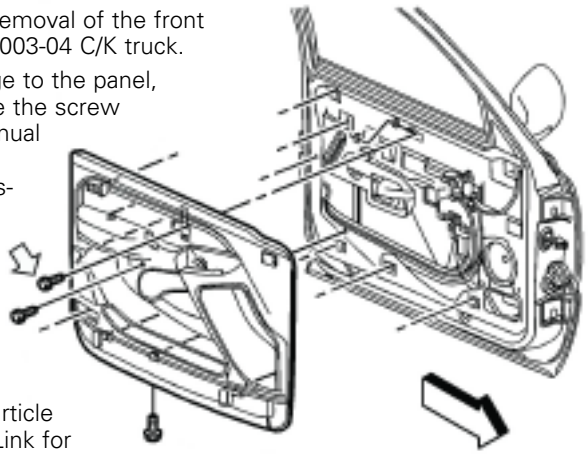
TIP: Dealers should refrain from attempting repairs or replacing catalytic converters for odor complaints, unless there is a MIL indicating a part deficiency.

- Thanks to Bob Furey and Jay Dankovich

Trim Panel Removal

This applies to the removal of the front door trim panel on a 2003-04 C/K truck.

TIP: To avoid damage to the panel, don't forget to remove the screw hidden behind the manual lock lever, indicated in the accompanying illustration.



This screw is referred to as number 2 in the SI procedure.

TIP: Also refer to the Switch Plate Bezel Removal article in the July 2003 TechLink for more information on servicing these door panels properly.

- Thanks to Mark Freigruber

Squeaking Seatback Clip

On Buick LeSabres, the rear upper seat back may squeak when pressure is applied to the back. This is caused by metal to metal contact between the seat anchor clip and the seat cross brace.

Install mylar or equivalent tape over the seat clip anchor hole, then reinstall the seat back.

- Thanks to Bill Metoyer

Envoy XUV Rear Wiper

The 2004 Envoy XUV features a unique power sliding rear roof and dual function end gate with sliding power window.

The rear wiper system for this vehicle is designed to park the wiper arm in a depression, or pocket, in the end gate applique.

"Timing" Procedure

If the wiper arm is removed for any reason, it's necessary to "time" the motor assembly before installing the wiper arm to the vehicle.

TIP: If the timing is not done, the wiper arm will not park properly, and may interfere with the operation of the end gate window.

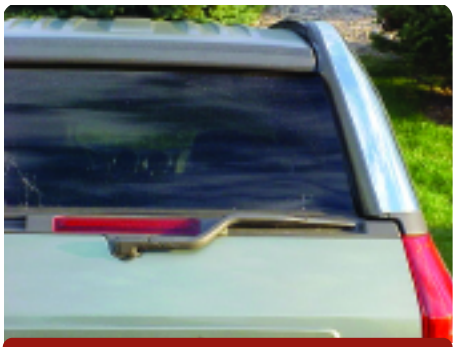
1. With the rear wiper arm removed, turn the ignition to RUN, with the engine OFF.
2. Turn the rear wiper switch to full speed (position 3) and verify that the wiper arm pivot shaft is functioning.
3. Locate and remove the rear wiper fuse No. 9, located under the LI rear seat. Verify that the wiper arm pivot shaft is NOT functioning.
4. Turn the wiper switch OFF.
5. Install fuse No. 9.
6. Turn the ignition to LOCK OFF.

IMPORTANT: Do not turn on or cycle the rear wiper after step 6 until the wiper arm nut is fully torqued. If the vehicle is turned on, start over at step 1.

7. Install the washer hose end connection into the end gate, route the hose clockwise around the shaft and connect to the elbow.
8. Install the rear wiper arm. Align the park finger of the arm into the park pocket in the applique.
9. Tighten the nut to 6-10 N.m (55-89 in.lb.).
10. Secure the wiper arm nut cover.
11. Turn the ignition to RUN, engine OFF.
12. Cycle the rear wiper and verify the park location of the wiper arm into the applique pocket.
13. Inspect the operation of the end gate window.

TIP: SI document 1326065 is being revised to include this procedure.

- Thanks to Brandon Snyder and John Force



Wiper arm parked in applique pocket

Interior Light Override Feature

Customers continue to be confused by the operation of their vehicle's interior lights. Many cars and trucks have override switches, which disable the function of interior lights, when light is not wanted. Customers who are unaware of the switches may assume the vehicle doesn't have interior lights or that they are malfunctioning.

Two things will help minimize this confusion.

TIP: On PDI, be sure the override switch is off, so the interior lights are not disabled.

TIP: Be sure the customer understands the functioning of all systems when the vehicle is delivered.

- Thanks to Tom Geist

Seat Belt Extender

A change was made to the seat belt system on Venture, Silhouette, and Montana models in October, 2002. Model year 2003 vehicles built before October 7 had 2002 parts, and those built after October 7 have the new parts. The parts are not interchangeable. New retractor-side and buckle-side belts give better insertion effort and improve customer satisfaction with seat belt operation.

Seat belt extenders are now available for the new design seat belt system. If a customer has a vehicle built after 10/7/02 and needs a seat belt extender, use the new part numbers listed below.

Part Number	Description
88956963	Extension Kit, F/Seat Belt (9 inch)
88956964	Extension Kit, F/Seat Belt (15 inch)

- Thanks to Tom Geist

Resistance Calculated Oxygen Sensor Heater Temperature (RCOHT)

On some vehicles, GM is using a relatively new oxygen sensor temperature control strategy called RCOHT (Resistance Calculated Oxygen Sensor Heater Temperature).

TIP: It's important to perform a reset procedure after replacing an oxygen sensor on a vehicle using RCOHT.

How does RCOHT work?

The RCOHT strategy will learn the resistance of the oxygen sensor heater circuit, at start-up, after a cold soak has occurred. At start-up, the engine controller briefly samples the oxygen sensor heater current; it then calculates the resistance of the oxygen sensor heater, based on the sampled current and the measured supply voltage (system voltage). Once the initial resistance is known, a resistance-to-temperature model can be followed as the calculated resistance changes during operation. From this model, the engine controller can very accurately control the temperature of the oxygen sensor heater.

An expected range of oxygen sensor heater resistance characteristics is stored within the engine controller for that specific package. The engine controller must know the initial resistance of the heater in order to determine which resistance model to follow. The initial resistance calculation can be made only after an extended soak period, so the engine controller can accurately determine the equivalent "room temperature resistance" of the oxygen sensor heater. This "room temperature" is based on the engine coolant temperature sensor (ECT) and intake air temperature sensor (IAT) values. In other words, the engine controller can safely assume that when the extended soak conditions have been met, the oxygen sensor will be at the same temperature as the ECT and IAT. Although not specific to any particular platform, an extended soak can be roughly defined as: The engine has been off for more than 10 hours AND the ECT and IAT are within 8° C (14.4° F) of each other at start-up.

Why use a new strategy?

RCOHT provides much more accurate control of the oxygen sensor heater temperature. Other temperature control strategies attempted to "predict" the oxygen sensor temperature by using some form of a temperature prediction model.

RCOHT allows accurate oxygen sensor heater control even if there is a resistance variation between newly manufactured oxygen sensors or if the resistance changes as the sensor ages. One problem faced in the past was the possibility of over predicting the heater temperatures of a high resistance oxygen sensor and the possibility of under predicting the heater temperatures of a low resistance oxygen sensor. Because the engine controller is now calculating the resistance of the oxygen sensor after each extended soak, the temperature of the sensor heater can be more accurately controlled throughout the life of the sensor.

What happens if there is a failure with the heater circuit or the engine controller does not learn the sensor resistance?

A gross failure (open, short to ground, short to voltage) on the heater circuit should set a heater driver code (P0030-0058) and/or a heater current monitor code (P0135, P0155, P0141, P0161).
If there is a high resistance condition within the heater circuit, it is possible the engine controller will learn an incorrect heater resistance value and not set one of the above DTCs. At this time, no dedicated DTC will set for this particular failure! On some applications, a failed learn or an incorrect learn will cause DTC P0135, P0155, P0141, or P0161
to set. The diagnostic tables for these DTCs have taken this possibility into account and will provide appropriate testing procedures. Some vehicle applications do not report a failed or incorrect resistance learn to the previously mentioned DTCs. In these applications, the following DTCs may set in the event of heater degradation or failure: P0133, P0153, P0136, P0156, P0140, P0160.

On certain applications, starting in the 2005 model year, there will be specific DTCs (P0053, P0054, P0059 and P0060) for a failed learn or a learned resistance that is out of range.

What to do when an oxygen sensor is replaced?

When a new oxygen sensor with the same part number is installed, it may have a different heater resistance than the previous sensor. In most cases, an extended soak does not occur, nor is it realistic to expect it to occur, immediately after oxygen sensor replacement. However, we do not want the engine controller to control the new sensor based on the calculated resistance of the old sensor. This may cause under or over prediction of the heater temperature of the new sensor. Therefore, some type of reset procedure is required to prevent the possibility of heater damage (high temperature) to the new oxygen sensor. This will allow the vehicle to be returned to service as quickly as possible.

TIP: To reset the oxygen sensor learned resistance, a code clear is required. The reset procedure is required after the sensor is replaced, REGARDLESS OF WHETHER OR NOT ANY DTCs ARE PRESENT!

When a reset procedure is performed, a default resistance value will be used until an extended soak occurs. This default resistance will allow the new sensor to operate without the possibility of heater damage until an extended soak occurs.

Summary

More and more engine applications will incorporate the use of the RCOHT strategy.

TIP: Refer to the appropriate service manual oxygen sensor diagnostic information and replacement procedures for the vehicle you're servicing. This will provide you with a notice to perform a code clear after sensor replacement.

In the future, there will be a scan tool feature available to reset the learned resistance without performing a code clear.

- Thanks to Jim Hanna,
O2S Signal Delivery Subsystem Team

Memory Seat Calibration

On vehicles with memory seats, the memory seat module uses position sensor inputs to establish soft stop locations for the adjuster motors, several millimeters ahead of the physical limits of the adjuster assembly. After replacing a memory seat module or adjuster components, it may be necessary to reset the adjuster motor soft stop locations. When the repair procedure has been completed, operate the seat adjuster switch in every direction until the seat adjuster reaches its mechanical hard stop, by repeatedly pressing and releasing the switch as necessary.

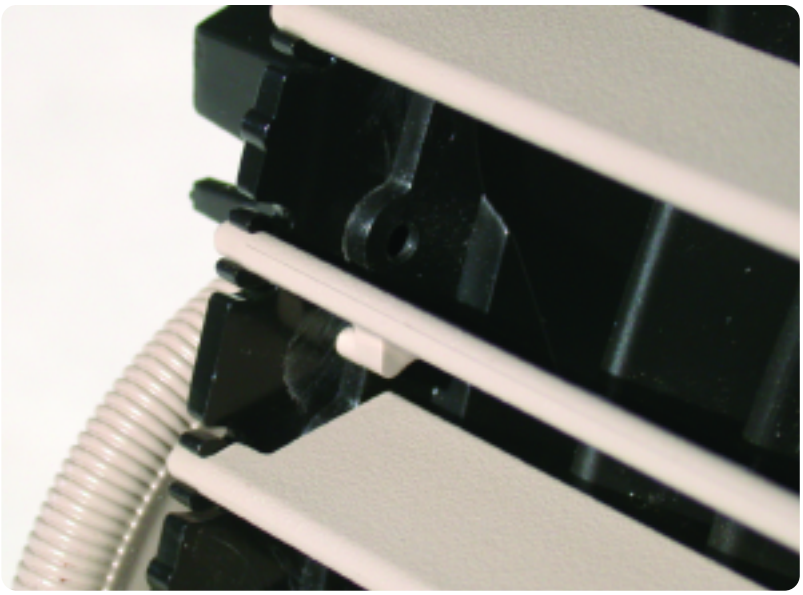
- Thanks to Devin Koski

Oil Viscosity Usage

For 2003 L36 and L67 engines, the vehicle owner's manual recommends 10W30 motor oil, while the engine oil fill cap may state to use 5W30 motor oil.

For the 2003 model year, 10W30 or 5W30 motor oil is appropriate for the L36/L67 3800 applications. The use of either 10W30 or 5W30 motor oil will provide necessary lubrication for engine component wear protection.

- Thanks to John Fletcher



AC Vent Louver Repair

The 2000-04 Impala and Monte Carlo I/P trim plate has integrated A/C vents that are not serviced separately. Many trim plates are replaced for inoperative louvers in the vent assembly.

If the round peg on the end of a louver has come out of its mating hole in the thumbwheel actuator, the louver will not open or close when the thumbwheel is turned.

To avoid unnecessary replacement of the I/P Trim Plate, shine a light into the vent and see if the inoperative louver still has the round peg on the end. If the peg is still present, flex the louver, reinstall the peg into the thumbwheel actuator, and check for correct operation.

- Thanks to Gary McAdam

TAC*Tips*

Poor HVAC Blower Vent Performance

According to bulletin 03-01-38-013, owners of some 2002- 03 Buick Rendezvous and 2001-03 Chevrolet Venture, Oldsmobile Silhouette, and Pontiac Aztek and Montana may comment that the airflow volume from the dash vents is noticeably reduced when switched from cold to hot. Also, hot airflow volume may seem less from the dash vents when compared to the floor ducts.

The following procedure may improve the above condition by disabling the temperature sub-damper door.

1. Move HVAC temperature settings to full cold position.
2. Remove passenger side lower IP trim, glovebox and door, and hush panel. The passenger side actuator should be visible.
3. Disconnect actuator connector. Remove 2 actuator screws and actuator.
4. Remove 2 screws that hold the actuator mounting plate to the module. Remove the plate, exposing the levers underneath.
5. Carefully remove the mode door lever by lifting the mode lever locking tab at the pivot point and simultaneously pry outwards on the base of the lever with a flat screwdriver. Pry as close to the shaft as possible. Remove and discard. With the mode lever removed, swing the temp sub-damper lever fully up. This opens the door fully on the inside of the HVAC case.
6. To keep the sub-damper door fully open, use a small plastic tie strap to fasten its lever to the upper actuator attachment boss. Loop the strap through the channel of the lever and around the upper actuator attachment boss. Make sure to get the strap over the side ribs, as the side ribs are the locating feature for the actuator backing plate. Ribs used as actuator backing plate locating feature must not be obstructed by the tie-strap.
7. Install actuator mounting plate.
8. Install temperature actuator.
9. Reconnect actuator wiring connector. Cycle the temperature door from full cold to full hot a few times and check proper operation.
10. Reinstall passenger side lower IP trim, glovebox and door, and hush panel.

- Thanks to Phil Race

Tie strap around attachment boss

Car Issues -- Fix It Right the First Time

Model Year(s)	Vehicle Line(s) - Condition	Do This	Don't Do This	Reference Information / Bulletin
2000-2004	Cavalier/Sunfire – O/S Rearview Mirror Vibration	Align insulator patch and tighten nuts to specification.	Don't replace the entire mirror assembly.	03-08-64-011A
2003-2004	Venture/Montana/Silhouette – Alarm Goes Off (Non Theft Deterrent-Equipped Vehicles (UA6))	Disable the theft deterrent using the owner's manual directions.	Don't replace the MALL module.	03-08-64-004
2004	Grand Prix with Monsoon Audio System – Speaker Buzz	Re-pin the speaker wires in the I/P fuse panel connector.	Don't replace the speaker, amplifier or radio.	03-08-44-015
2000-2004	Impala/Monte Carlo – Condensation in Headlamp	Normal condition when limited to fog or fine mist appearance in high humidity conditions.	Don't replace the headlamp assembly when no water droplets are evident.	01-08-42-001 September 2000 TechLink
2003-2004	CTS – Variable Effort Steering (VES) "Service Steering Message," DTC C1241 or C0450	Replace the only the VES solenoid.	Don't replace the entire steering gear.	03-02-36-001
2003-2004	Vibe – Normal Exhaust Odor	Provide a copy of the service bulletin to the customer.	Don't replace the catalytic converter.	03-06-05-006
1998-2004	All Cars and Trucks – Wabasto Sunroof	Repair the sunroof module.	Don't replace the sunroof module.	03-08-67-004
1997-2004	Grand Am/Alero/Malibu – Brake Pulsation	Turn rotor and brake align procedure	Don't replace brake rotor for pulsation	00-05-23-002, 01-05-23-001 (Know How Video #15040.01B)
2003	All cars with 4T40/45E, 4T65E and 4T80E – Code P0742	Replace TCC PWM Solenoid	Don't replace transmission or valve body assembly	02-07-30-039B
2004	L61 EcoTech 4 Cylinder-2.2L Engine – Misfire, DTC P0300	Replace spark plug sets	Don't replace PCM or ignition cassettes	Recall 03042

Truck Issues -- Fix It Right the First Time

Model Year(s)	Vehicle Line(s) - Condition	Do This	Don't Do This	Reference Information / Bulletin
2002-2004	C/K Fullsize Pickups and Utilities – Tail Lamp Socket Circuit Board	Replace both tail lamp circuit boards with P/N 16532713 (TrailBlazer, TrailBlazer, EXT), P/N 16532716 (Envoy, Envoy XL) or P/N 16532715 (Rainier, Bravada).	Don't replace the complete tail lamp assembly.	Service VME, 9/22/03 03-08-42-006A
2003-2004	Fullsize Pickups and Utilities – Door Trim Panel	Remove the front door panel then remove the switch bezel retaining screw.	Don't pry the switch bezel out of the door trim panel without first removing the retaining screw.	Service VME 03-08-64-022
2003-2004	Fullsize Pickups and Utilities – Servicing Wide Load Mirrors (RPO DPF)	Replace individual parts as needed.	Don't replace the complete mirror assembly.	03-08-64-028
2002-2003	All TrailBlazer, All Envoy, Bravada – Windshield Washer Nozzle	Replace with windshield washer nozzle P/N 15173510	Don't replace the complete cowl assembly.	Service VME dated 06/25/2002
2003	Fullsize Pickups and Utilities – Transfer Case Service Light	Replace encoder motor sensor and reprogram TCCM	Don't replace the module, encoder motor or transfer case for DTCs C0327, P0836, P0500	03-04-21-001B
2003	Fullsize Pickups – 6.6L Diesel Engine ECM	Follow SI and bulletins for proper diagnostics for P0181. Refer to the Owner's Manual (block heater and front cover)	Don't replace ECM (DTCs P0540 and P0181) unless diagnostics confirm need to replace	02-06-04-048, 03-06-04-021, 02-06-04-058 and parts restriction
2003	Silverado, Sierra, Savana, Express > 8600 GVW – ABS Lamp On	Reflash for code C0550	Don't replace ABS module	03-05-25-003 and parts restriction
2002-2003	TrailBlazer, TrailBlazer EXT – Wavy Front Fascia	Repair fascia with Dual Lock	Don't replace front fascia	02-08-62-004
2002-2003	All TrailBlazers, All Envoys, Bravada – Mirror Erratic Return	Replace mirror actuator and reprogram module	Don't replace outside mirror assembly	02-08-64-008 02-08-64-021
2002-2003	TrailBlazer, Envoy, Bravada without G67 – Moan/Boom	Replace rear coil springs	Don't repurchase vehicle for rear axle vibration/boom noise	02-03-09-002A

Know-How Broadcasts for December

10270.12D Emerging Issues	December 11, 2003	9:00 AM, 12:30 PM, 3:30 PM Eastern Time
10270.24D - CTS-V 6-Speed Manual Transmission	December 18, 2003	9:00 AM, 12:30 PM, 3:30 PM Eastern Time

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