TECHlink
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Brake Service Part 1 – Background, Measuring, and Cleaning

Earlier this year, bulletin 00-05-22-002D was released for the purpose of updating and centralizing all of GM's standard brake service procedures and policy guidelines for brake rotor and brake pad service and wear. If you haven't already done so, refer to this bulletin before performing your next GM brake service.

Over the next few months, TechLink will provide several brake articles featuring information from this bulletin, and in some cases expanding on it. *You must observe the practices contained in the bulletin and in SI.*

WHAT CONSTITUTES A SUCCESSFUL BRAKE SERVICE?

Five steps must be performed to complete a successful brake service.

1. Measure and document rotor thickness – specifications in SI
2. Clean hub, rotor and wheel mating surfaces
3. Perform proper rotor refinish and documentation
4. Measure, document and correct lateral run out (LRO)
5. Reassemble with proper torque and document final rotor thickness

NECESSARY AND UNNECESSARY BRAKE SERVICE

Rotors

Contrary to general understanding, many rotors can be resurfaced rather than replaced. Rotors should not be replaced for "lot rot." In a recent study, low mileage rotors were cleaned up with minimum of 77% of life remaining.

Rotors should not be replaced for pulsation. In a recent study, rotors under 12,000 miles (19,000 km) were cleaned up with minimum of 70% of life remaining.

TIP: Replacement for rotor flaking should be handled on a case by case basis.

Pads

Pads should not be replaced unless excessively worn, contaminated or damaged.

TIP: If replacement is necessary, always replace disc brake pads in axle sets using OEM pads if repaired under warranty.

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Door Module Programming

This information applies to the 2005 Cadillac CTS and SRX. Although these two vehicles share the same part number for the Door Zone Module (DZM), their outside rearview mirrors are wired differently. So, the production DZM is configured to identify which vehicle it's installed in and ensures proper mirror operation.

The service replacement DZM is defaulted to the SRX. If a service replacement DZM is installed in a CTS, the mirrors will not operate properly.

To ensure proper mirror operation, the service replacement DZM needs to be configured by performing the following module set up procedure.

- Connect the Tech 2 to the vehicle
- Build the vehicle (either SRX or CTS)
- Body
- Door Modules
- Select Driver Door Module or Passenger Door Module
- Set Options
- Vehicle Type

TIP: The service replacement DZM will be defaulted to SRX. Select CTS to configure the DZM for use in a CTS.

Although the DZM does not ordinarily need programming for use in the SRX, provision exists in the Tech 2. This will be needed in case a module is moved from a CTS to an SRX.

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TECHlink GM

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GM Service and Parts Operations

Oil Life System Reset Procedures – Trucks (revised)

2004- 05 Canyon
2004- 05 Colorado

The following information clears up some confusion regarding how to reset the Oil Life System on these trucks. There are two methods.

TIP: The Driver Information Center (DIC) is standard equipment and is located in the lower center of the IP cluster.

Reset Stem Method

1. Turn the ignition to RUN but with the engine off.
2. Press and release the reset stem in the lower center of the IP until the Oil Life message is displayed.
3. Once the alternating Oil Life and Reset message appears in the display, press and hold the reset stem until several beeps sound. This confirms the oil life system has been reset
4. Turn the key to Lock.

If the CHANGE/OIL message comes on when you start the engine, the engine oil life system has not reset. Repeat the procedure.

Alternate Method

1. Turn the ignition key to RUN with the engine off.
2. Fully press and release the accelerator pedal 3 times within 5 seconds. Several beeps sound. This confirms the oil life system has been reset
3. If the CHANGE/OIL message comes back on when you start the engine, the engine oil life system has not reset. Repeat the procedure.

- Thanks to Bret Marshall at Applegate Chevrolet, Flint MI and Jerry Garfield

Water Drip on Driver's Foot

Owners of some Cadillac CTS, STS and SRX models may experience water drips falling on the driver's right foot. This results from condensation forming on the TXV assembly above the accelerator pedal.

To correct this condition, install a piece of butyl, p/n 89023394. This doubles the amount of butyl originally installed on the TXV assembly, to further insulate it and prevent moisture buildup.

TIP: Do not R&R or repair the HVAC module to address this condition.

- Thanks to Chris Semanisin

Add tape to exposed tubes on TXV assembly

Top Tier Gasoline Update

Three additional gasoline brands from the ConocoPhillips group have been added to the Top Tier list. Gasolines marketed under the brands of Conoco, Phillips, and 76 all meet the Top Tier detergent criteria.

These brands have been added to the running list on the TechLink website.

- Thanks to Jay Dankovich

Automatic Climate Control

Owners of some 2004-05 LeSabre or Bonneville vehicles with automatic climate control may comment that it is difficult to maintain the inside temperature or that the blower speed stays too high.

Remove material as shown

Maintaining Temperature – In some cases, the aspirator hose may fall off the aspirator due to the size of the hose and the aspirator tube. If you should encounter such a condition, remove 0.5mm of material from the locking tab on the aspirator to allow a tighter fit. If the aspirator hose is connected, the blower module will need to be reprogrammed.

Blower Speed – A service bulletin will be released to address the high blower speed concern.

- Thanks to Bill Metoyer

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Returnless Fuel Systems

Increasingly stringent evaporative emission regulations have caused GM to introduce returnless fuel systems. In a returnless design, no fuel is sent back to the fuel tank from the engine. All fuel leaving the tank flows through the fuel injectors.

Returnless systems have been in production since 1998 (Trans Am, Camaro and Corvette). A significant migration toward returnless fuel systems began in the 2004 model year. By 2007, the majority of GM vehicles will be converted to the returnless design.

Any contamination (including rust) that is built into or forms in the fuel line will find its way to the fuel injectors. A filter at the inlet to the fuel injector filters out small contaminants, including rust. If enough debris accumulates on the injector filter, it will start to restrict flow. This will have a negative effect on performance and driveabilty.

For the 2004 model year, there has been an increase in the number of injectors returned with rust in the injector filter. The rust appears to be coming from several sources:

– the chassis fuel line

– the crossover pipe on the Gen III fuel rail.

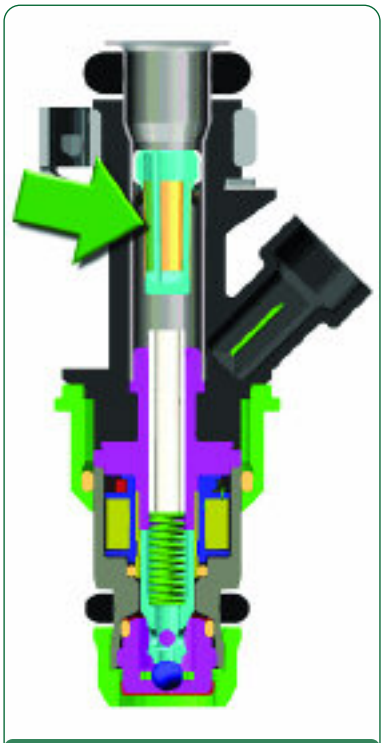
Both pipes are made of low-carbon steel, and the inside of the pipe is not coated. If water gets into the fuel system, it has the potential to rust the line.

When diagnosing driveability symptoms due to clogged fuel injectors, follow the procedures outlined in bulletin 03-06-04-030A. If the bulletin procedures lead to replacing an injector, inspect the removed injector for evidence of rust contamination. If rust is plugging the fuel injector, replace it, because a procedure for removing rust from the injector filter has not been developed.

If rust remains in the fuel line, there is a chance that the injector filter will plug up again. Whenever rust is observed in an injector, flush the fuel lines. If the fuel line cannot be completely flushed of rust, replace it.

A small amount of rust in the fuel tank will typically not cause a problem. The fuel filter will prevent the rust from getting to the injectors. The capacity of the filter is large enough to keep it from plugging up. There is also a strainer ("sock") at the inlet to the fuel pump. The strainer prevents contamination from getting into the fuel pump and causing problems. However, rust in the fuel tank is a sign that water may be in the tank. If rust is observed in the fuel tank, empty it and flush with hot water, according to SI procedures.

- Thanks to Matt Hamilton

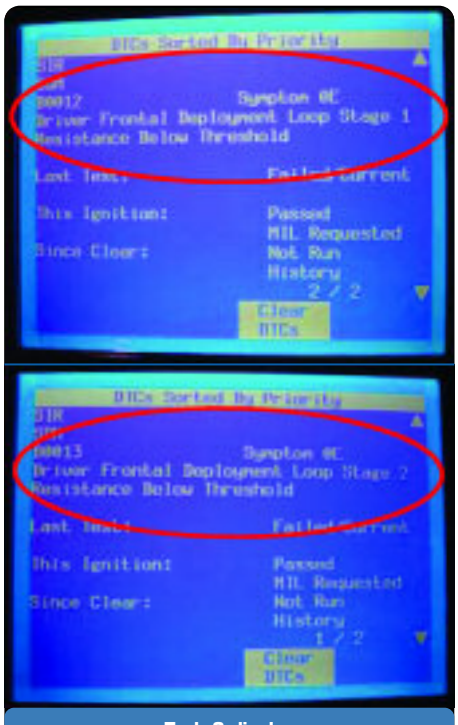


Filter at injector inlet

CPA Incorrectly Installed

This information applies to the 2004 Chevrolet Malibu, 2005 Chevrolet Cobalt and Pontiac G6, and future applications.

The condition begins with the SIR lamp being displayed, and codes for driver stage 1 and stage 2 are current.



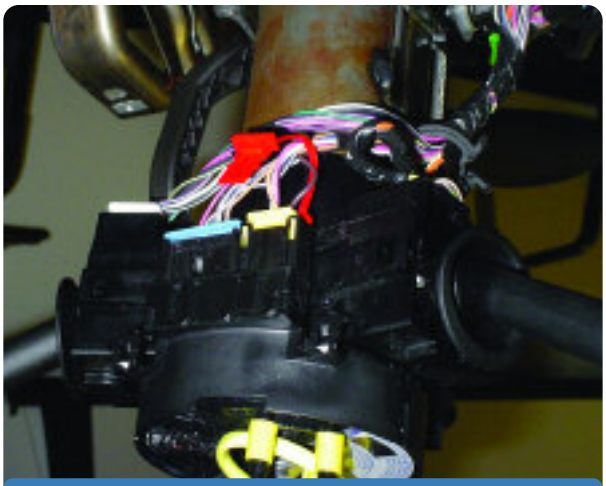
Tech 2 display

During SIR system diagnosis, the Tech 2 may display "driver frontal deployment loop stage 1 resistance below threshold," along with "driver frontal deployment loop stage 2 resistance below threshold." These are diagnostic codes B0012 and B0013 with symptom code 0E.

TIP: There are two deployment loops, for stage 1 and stage 2. Each loop has a separate circuit, but they share the same connector to the steering wheel module coil.

If this condition exists, it may be caused by a missing or incorrectly installed connector position assurance (CPA) in the steering wheel module coil connector. When the CPA is removed, the shorting bars that "safe" the driver airbag from deployment make contact to both circuits causing the below-threshold DTCs to set.

TIP: If the connector is entirely unplugged, the Tech 2 display message is "driver frontal deployment loop stage 1 open circuit," along with "driver frontal deployment loop stage 2 open circuit." These are diagnostic codes B0012 and B0013 with symptom code 04.



Unseated CPA

This is the connector on the top of the steering column that connects the steering wheel module coil to the vehicle harness.

TIP: The CPA is bright red.

Be sure the CPA is completely plugged into the connector. Refer to SI for the proper procedures.

TIP: Be sure to follow the instructions for disabling and enabling zone 3 in the SIR system while servicing the coil connector.

- Thanks to Chad O'Brien

Replace pads in axle sets.

Brake pad replacement necessary under warranty:

- Substantial premature pad wear (see specific pad specifications/gaps/wear sensor information in SI).
- Damaged pad friction surfaces (cracks, fractures, separation from mounting plates or other issues that could impair brake performance).
- Uneven vehicle side-to-side/ premature pad wear due to caliper issue requiring repair.
- Pad material contamination (oil, grease, etc.)

TIP: If pad replacement for one of these causes is performed, also perform and document repair to correct the cause of the concern.

Brake pad replacement unnecessary under warranty:

- Pads generally should not be replaced for noise concerns, unless specifically directed by a Bulletin addressing customer's concern
- Pads should not be replaced just because rotors are being serviced.

DEFINITIONS OF CORROSION

Corrosion is caused by normal oxidation (rust) that is not cleaned off of the rotor by the pad but is impacted into the rotor.

Corrosion may cause owner complaints of pulsation or noise.

Corrosion may range from very light to heavy scaling

Light Corrosion

Rusting on the rotor braking surfaces may occur when a vehicle is not driven for extended periods. Light surface rust is often cosmetic and can be eliminated during a few normal driving stops.

Perform 15 moderate stops from 35-40 mph (62-75 km/h) with cooling time between stops.

Light "Delamination"

"Delamination" looks like a layer of paint flaking off the rotor. This layer is composed of rust and pad material. "Delamination" is NOT rotor surface degradation. Light flaking can normally be corrected by refinishing the rotor.

TIP: Pads generally do not require replacement for this condition

Heavy Corrosion / Delamination

Heavy corrosion is characterized by rust scaling and deep pitting. This type of rotor corrosion may be too deep to machine and may require replacement of the rotor.

WHEN SHOULD A ROTOR BE REPLACED?

A rotor **should not** be replaced or refinished for:

- Noise/squeal
- Cosmetic corrosion
- Routine pad replacement
- Discoloration/hard spots

A rotor **should be** refinished for:

Severe scoring – depth in excess of 0.060 inch (1.5 mm).

Pulsation concerns from:

- Thickness variation in excess of 0.001 inch (0.025 mm).
- Excessive corrosion on rotor braking surfaces.

BRAKE PULSATION

Pulsation is caused by thickness variation. Thickness variation is caused by corrosion or rotor lateral run-out.

Remember, a caliper floats in the steering knuckle. Parallel surfaces (no thickness variation) will NOT produce brake pulsation even with 0.010 inch (0.25 mm) or more lateral run-out.

Wear-induced thickness variation usually occurs 2,000-10,000 miles (3,200-16,000 km) after rotor service. Lateral run-out can be cut into the rotor with an improperly maintained brake lathe.

On brake apply, a rotor with thickness variation will push the brake pads apart resulting in hydraulic movement through brake piping to the master cylinder and to the brake pedal.

CRITICAL DIMENSIONS OF A ROTOR

Brake micrometer

Here are some details about measuring a rotor.

TIP: Thickness measurements should be done with a brake micrometer, which has a pointed anvil and a deep throat.

Brake Rotor Thickness

SI provides three dimensions:

- New (original)
- Minimum after machining
- Discard

TIP: If you subtract the minimum thickness after refinishing from the new thickness, the result is the amount of useful rotor life left.

Discard thickness

TIP: Brake rotor thickness should be checked a final time just before you put the wheel back on the vehicle.

Rotor Thickness Variation

TIP: This measurement is used when addressing brake pulsation concerns.

The rotor should be measured in at least four places in the pad contact surface area.

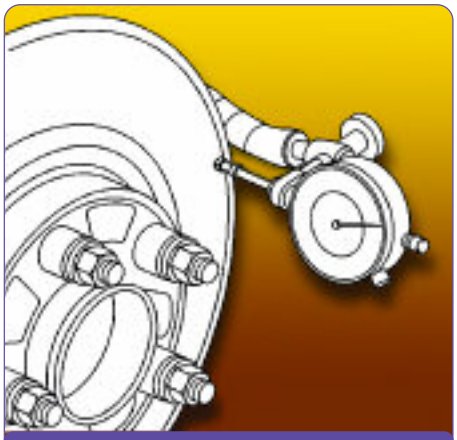
SI calls for correction if the thickness variation exceeds 0.001 inch (0.025 mm).

Brake Rotor Scoring

Scoring greater than 0.060 inch (1.5 mm) requires correction. Scoring greater than 0.060 inch (1.5 mm) after machining requires rotor replacement.

Lateral Run-Out

Install a dial indicator, following SI procedures. Generally, the indicator is attached to the steering knuckle, with the plunger contacting the rotor braking surface at a right angle, and 0.25 inch (6.35 mm) from the outer edge.



Checking lateral run-out

On most GM passenger cars, if LRO is 0.002 inch (0.050 mm) or less, no correction is necessary.

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If LRO is over 0.002 inch (0.055 mm), correction is required.

TIP: An exception is the N-car specfication of 0.0015 inch (0.038 mm). Always check SI for specifications for the vehicle you're working on.

CLEANING BRAKE COMPONENTS

One of the causes of excess lateral run out is foreign material between mating surfaces of rotor, hub, and wheel. These include debris, corrosion, flaking and grease.

Corroded mating surface

You need to obtain clean metal-to-metal contact to get repeatable results. Pits aren't so much of a problem as raised surfaces.

Clean rotor to hub mating surfaces using J-42450 Wheel Hub Resurfacing Kit. The configuration of the tool permits it to fit over the mounting stud, to remove corrosion that cannot be reached by other methods.

Using J-42450

And, 80-grit abrasive discs and holder are available in the J-41013 Wheel Hub Cleaning Kit. This is useful in cleaning mounting surfaces in general.

Using abrasive disc

FUTURE ARTICLES

Watch for future articles that will cover refinishing, LRO correction, final measurement and final assembly tips.

- *Thanks to North Central Region Service Engineers and Field Warranty Specialists*

Engine Coolant Heater and P0116

Owners of some 2005 V8 trucks and V6 cars with the factory optional engine coolant heater (also known as a block heater) may comment that the heater does not work unless the air temperature is very low. This is normal operation, intended to avoid setting a DTC P0116.

TIP: This operation is described in the owner's manual.

The power cord has a built-in thermostat that allows operation only if the temperature of the surrounding air is at or below 0°F (-17°C). Also, the heating element has a low power rating to limit the amount of heat in generates.

TIP: The air temperature thermostat is part of the cord set, not the heater.

A DTC P0116 may set if the vehicle has an aftermarket engine block heater installed that is more powerful than the factory-installed one and/or that is not equipped with the thermostatic AC power cord.

Explanation of Rationality Check

The P0116 diagnostic (engine coolant temperature sensor rationality check) can fail if the indicated coolant temperature is too high at engine startup, after an extended time sitting without the engine running.

After a vehicle has been parked for a number of hours, the engine coolant temperature is typically very close to ambient air temperature. This is the definition of a cold start. After startup, OBD regulations require that the PCM look at the rate at which the coolant temperature sensor heats up, from a certain starting point. If the coolant temperature sensor does not heat up according to expectations, a DTC P0116 will set.

The new heater described above has been designed to keep the coolant temperature sensor operation outside the range that would cause a DTC to set.

- *Thanks to Jack Woodward and Guy Winohradsky*

Roof Rack Cross Rail

Some customers may comment about wind noise generated by the presence of roof rack cross rails on 2005 Trailblazer/Trailblazer EXT, GMC Envoy/Envoy XL/Envoy XUV, and Buick Rainier. The disturbance becomes more noticeable if the cross rails are placed in positions over the driver and passenger seating areas.

The optimal locations of the cross rails to minimize wind disturbance are:

- front cross rail in line with the rear edge of the rear door
- rear cross rail 2 inches (5 cm) forward of the rear edge of the side rail.

Cross rails will be placed in these locations in production on vehicles ordered with them.

TIP: Roof rack cross rails for the GMC XUV are a Regular Production Accessory, and will be received at your dealership separately for your installation before delivery. Use these cross rail positions when roof rack cross rails are installed during predelivery inspection.

- *Thanks to BJ Lackey*

Squeaks and Rattles

Owners of some Buick LeSabres may encounter noises. GM's Squeak and Rattle Task Force has identified the following areas.

Instrument Panel Squeak – Applying clear plastic tape or equivalent between the trim panels will eliminate the noise.

Place clear plastic tape in location shown (typical)

Under-Hood Clunking Noise – This noise may be caused by excessive clearance between the radiator hold down retainer and bushing. To correct this condition, split another bushing and install to eliminate the excessive clearance.

Add bushing in location shown.

- *Thanks to Bill Metoyer*

AIR Pump Ingesting Water

Owners of some 2000-04 DeVilles may comment that the MIL is being illuminated, accompanied by the following:

– DTC P0410 is set

– evidence of water in the AIR pump

– pump shorted or seized.

This condition may be due to water being ingested at the AIR pump inlet hose, causing the pump to short out or seize up. A new inlet hose p/n 25768965 has been developed and released to repair this condition.

Refer to bulletin 02-06-04-024A for details.

- Thanks to Bill Denton

Master Cylinder O-Ring

Owners of some 2005 Sierra or Silverado 1500 trucks may comment that they have a Service Engine Soon light illuminated. DTC code P0171 and/or P0174 (Lean Fuel Trim) may be set.

The cause may be a damaged or missing seal (O-ring) between the master cylinder and the brake booster. At idle, the vacuum leak may be audible.

O-ring should not be in groove.

TIP: Because the engine generates sufficient vacuum to overcome a leak at the seal, the driver likely won't notice any effect on braking performance.

TIP: Here's how to diagnose for a leak at the seal. On your Tech 2, observe the fuel trim numbers. Unplug the vacuum hose from the booster and plug off the vacuum hose with your thumb. If the numbers change, there is a leak at the seal.

If the seal is missing or damaged, replace the seal (p/n 89059131). When installing the master cylinder, hold the master cylinder flush to the brake booster and torque the nuts to 36 Nm (27 lb ft).

TIP: Be sure the O-ring is against the master cylinder, not in the groove.

TIP: If the booster is being replaced, be aware that the new booster doesn't come an O-ring, which must be obtained separately.

- Thanks to Steve Love

Steering Gear Noise

This information applies to 2004 Pontiac Grand Prix. Some owners may comment about a click/tick/pop noise that occurs while turning the steering wheel when the vehicle is stopped or moving very slowly.

This condition is covered by bulletin 03-02-32-048A, which explains how to install a new two-piece sleeve and spacer to the steering gear mounts.

TIP: In the bulletin, a part number (11588641) for the 12mm nut is incorrect. **The correct part number is 11588541** and that part is available from GM SPO. The bulletin has been corrected in SI.

There are two other important facts related to this repair procedure.

1. The noise covered by the bulletin **does not occur** above parking lot maneuver speeds and is not caused by driving over uneven road surfaces or through potholes. A noise that occurs under those conditions may be caused by loose ball studs in the front stabilizer bar link. This issue has been corrected by the supplier.
2. Numerous steering gears have been replaced in an attempt to correct the condition described in the bulletin. Although gear replacement may cause the noise to go away, it is only a temporary fix because the steering gear bolts were retorqued. The noise will return in 2,000-5,000 miles (3,200-8,000 km). Do not replace the steering gears for this noise condition.

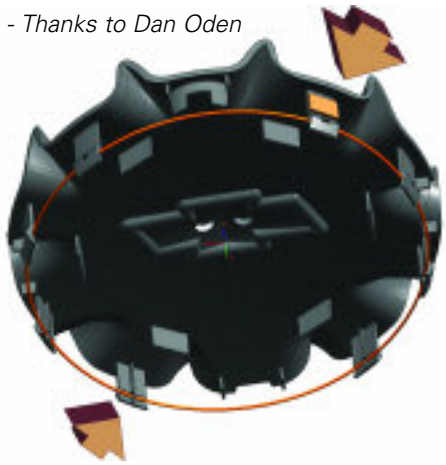
- Thanks to Fred Tebbets

SSR Center Caps Loose

On some 2004-05 Chevrolet SSRs, the center caps are loose and rotate. Then they do not align with the spokes on the wheels. This condition occurs most often on the rear wheels. Although it can happen to both painted and chrome wheels, it is much more common on chrome.

To increase rotational friction, add polyurethane tape to two opposing legs on the center cap. The recommended polyurethane tape is 3M p/n SJ-5816. Cut the tape into 8 x 10mm (0.3 x 0.4 in.) rectangles and use 2 pieces per center cap on opposing legs.

- Thanks to Dan Oden



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SI document 1554825 and the Tech 2 special function software have been revised to accommodate this condition.

TIP: The rear door modules are not affected by the Vehicle Type set up because they do not operate mirrors.

EXPORT VEHICLES

The DZMs for use in export vehicles will need a VIN Relearn performed for all four door module service parts. To learn the VIN, perform the following procedure.

– Connect Tech 2 to vehicle

– Build the vehicle

– Body

– Door Module(s)

– Select module being replaced

– Special Functions

– Door Zone Module VIN Relearn

TIP: If the door module that is being replaced is a front door module in a CTS that is an export, both the VIN Relearn and the Vehicle Type set up procedures will need to be performed.

- Thanks to Tom Lawther

Lift Gate Handle Flex

Owners of some 2004-05 Cadillac SRX vehicles may have concerns of liftgate handle flex and/or high pull effort.

This condition can be verified by a simple test: First, unlock the vehicle doors by activating the RKE fob twice, or use the interior door trim power unlock switch.

TIP: Customers should be aware that the liftgate is unlocked only when the rear doors are unlocked.

Second, attempt to open the gate with your hand or fingers on the left-most part of the lift gate handle. If the handle flexes and the lift gate does not open from the left-most position (but does open when pulled from the center or right side of the handle), and may exhibit a popping noise as it opens, perform the following procedure.

TIP: Do not replace the liftgate latch or the handle.

To correct this condition, adjust the liftgate striker. Refer to SI document 896082 to gain access the striker. Note the location of the striker, then loosen the fasteners enough to allow adjustment.

TIP: The striker location is fixed with spring pressure as well as the fasteners and may require additional force to move it.

The striker is adjustable both fore and aft as well as left to right. Relocate the striker a few millimeters rearward to prevent the latch bind condition. In rare cases, the liftgate interior trim may need to be removed to inspect the latch-to-striker position and to finesse the location of the striker to obtain the best fit.

After the opening and closing effort has been corrected by striker adjustment, the liftgate wedgeblocks on either side of the liftgate opening may require re-adjustment: Loosen the wedge blocks in the liftgate opening and move them to the most rearward position. Close the liftgate to locate them in the correct position. Open the gate and tighten the fasteners to specifications.

TIP: If closing effort is high, or pop noise is heard when opening, the wedges are over-adjusted. Be sure to check for proper liftgate weathersrip compression after adjustments are completed.

- Thanks to Dave King

Unable to Remove Ignition Key

Some owners of 2004-05 Cadillac SRX vehicles may not be able to rotate the ignition key to the Lock position in order to remove the key, but can rotate the key to other positions.

TIP: Do not confuse this condition with a jammed ignition lock cylinder, in which the key cannot rotate in any direction at all.

The ignition lock cylinder actuator in the steering column allows the key to rotate to Lock only when the transmission is in Park. Refer to SI document 1326309 for schematics and 826492 for description and operation.

Most cases of this condition are caused by low battery voltage, transmission linkage misadjusted, or transmission shifter problems. On V8 equipped SRXs, do not replace the ECM or TCM for this condition.

- Thanks to Dave King

TAC*Tips*

Setting Radio Clock

Owners of some 2005 Corvettes may state that the clock reads in 24 hour time (military time) on vehicles equipped with the RPO US8 or US9 radios.

If the customer wishes to switch between military time and 12 hour time, follow this procedure.

1. Press and hold the hours button for 2-3 seconds.
2. Turn the radio tuner knob left or right to toggle between military time and regular time. Release the knob for 30 seconds for the change to occur.

TIP: The Navigation radio (RPO U3U) can be changed from military time to regular time by accessing the clock menu.

- Thanks to Paul Radzwilowicz

Clunk Noise On Start In Park

Some 2001-05 full-size trucks equipped with the Allison LCT1000 transmission may experience a clunk type noise on start up with the vehicle in Park. The condition may be intermittent.

The noise is a result of internal transmission clutch drag, which is sufficient enough to load the output planetary carrier. The resultant load on the output planetary carrier can result in park pawl gear tooth impact against the park pawl and cause the clunk noise. The magnitude of the noise is dependent on the position of the park pawl gear relative to the park pawl.

This condition is considered an operating characteristic of the Allison LCT1000 transmission. Repairs or replacement of the transmission will not correct this condition.

- Thanks to Rusty Sampsel

Rear Wiper Arm Position

This information applies to the 2004 GMC Envoy XUV.

The rear endgate wiper arm may not rest in the park position, and in some cases may be found in any position of the wipe pattern.

If the wiper arm is stripped at the motor output shaft, replace the arm as necessary. Also replace the wiper arm nut with p/n 11516075 and torque to 71 lb. in. (8 Nm).

- Thanks to Dino Poulos

UV Glass

This information applies to 1999-2005 Chevrolet/GMC/Cadillac Full Size Trucks and Utilities.

Owners may question the percentage of UV protection offered by the windshield or side glass.

Windshield reduces UV rays down to 4%. Front side door glass reduces UV rays down to 35%. Rear doors or 1/4 glass reduces UV rays down to 20%.

- Thanks to Jim Will

Blower Speed Changes

Owners of some 2002-05 Chevrolet, GMC, Oldsmobile and Buick mid-sized utilities may experience the HVAC blower motor fan speed changing on its own.

The CJ3 HVAC system has the ability to open and close the fresh air door at any time. This controls evaporator temperatures and prevents evaporator freeze. When the fresh air door opens or closes, air flow rate will change in the HVAC case. The blower motor will change pitch and may sound as if it has increased or decreased blower speed. This is a normal condition and no repairs should be performed.

- Thanks to Dino Poulos

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
2002-2005	**All Cars and Trucks – Multiple Driveability Symptoms Due to Clogged Fuel Injectors**	**Clean fuel injectors as described in bulletin.**	**Don't replace fuel injectors.**	**03-06-04-030**
1999-2004	**Park Avenue, LeSabre – Ash Tray Will Not Remain Closed**	**Use I/P ash tray as service repair.**	**Don't replace complete ash tray assembly.**	**03-08-49-005 (Park Avenue) 03-08-49-016 (LeSabre)**
2004-2005	Grand Prix – Outside Rearview Mirrors	Replace mirror 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	Re-torque right steering gear mount.	Don't replace steering gear or cradle.	03-02-32-048
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 (May 2003)
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	All Cars with 4T40/4T45E and 4T65E – Light On/Various Transmission Codes Stores	Check transmission 20-way connector for secure connection (disconnect and reconnect).	Don't replace transmission, TCC PWM, VSS, PCS or valve body.	02-07-30-022B
2000-2004	Cavalier, Sunfire, Alero, Grand Am – Inoperative Sunroof Module	Retime module or replace only motor for inoperative complaints.	Don't replace entire sunroof module assembly.	03-08-67-009A
2003-2004	Cavalier, Sunfire – Air Conditioning Compressor Noisy	Inspect for ground out conditions that can cause A/C compressor noise complaints.	Don't replace A/C compressor for excessive noise complaint without inspecting for ground outs.	03-01-38-012 (August 2003)
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
2003-2005	**Tahoe, Suburban, Avalanche, Silverado, Yukon/XL, Sierra, Escalade – Snap/Popping Noise from Front of Vehicle**	**Slot left side mounting holes on front crossmember.**	**Don't replace crossmember.**	**03-08-61-002D**
2004	Fullsize Pickups, Utilities, H2 – Passenger Door Module and RKE Inoperative	Re-flash passenger door module.	Don't replace passenger door module.	04-08-52-005
2002-2004	Chevrolet Silverado, GMC Sierra – Accumulator/Accumulator Bracket	Replace accumulator and/or accumulator bracket.	Don't replace compressor.	02-01-38-007C
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 any 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 New Vehicle	Check battery's state-of-charge per revised PDI procedure using Midtronics Conductance Tester.	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 the correct labor operation that reflects the module being programmed.	Don't use K5364, which is for reprogramming a transmission control module (TCM), when reprogramming a TCCM.	02-04-21-006D 02-06-04-057D
2002-2004	Fullsize and Midsize Pickups and Utilities – Sleepy New Venture Gear Transfer Case Control Module	Verify sleepy module as primary cause. Reprogram TCCM with latest software released 3/11/04.	Don't replace encoder motor or transfer case. Replace the module only if C0550 DTC shows as current or in history.	02-04-21-006D
2002-2003	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.	04-08-111-001A
2002-2004	All TrailBlazers, Envoy, Envoy XL, Bravada – Squeak/Rub/Scrub Type Noise in Steering Column	Lubricate and remove material, per bulletin.	Don't replace upper or lower intermediate shaft.	02-02-35-006A
2001-2004	Fullsize Pickups and Utilities – Servicing Wide Load Mirrors	Replace individual parts as needed.	Don't replace complete mirror assembly.	03-08-64-028

Know-How Broadcasts for January

10290.01D Emerging Issues	January 13, 2005, 9:00 AM, 12:30 PM, and 3:00 PM Eastern Time
New Model Features and Technology Close-Up seminars	Stay tuned! These programs will return soon. Check the Service Know-How section of the GM Training website (www.gmtraining.com) for more details.

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