

A monthly publication for GM Dealership Service Professionals

Magnetic Ride Control



The 2002 Cadillac Seville STS has been chosen to introduce an evolutionary new suspension system technology. It's called Magnetic Ride Control RPO F55), and it will replace the Continuously Variable Road Sensing Suspension System (CVRSS, RPO F45) beginning in January, 2002.

Although systems with variable dampers have existed in the past, this is the first one to dispense with electromechanical valves and small moving parts.

Traditionally, dampers (shock absorbers/ struts) have relied on the movement of a piston through a fluid-filled chamber. Piston movement is resisted and controlled by mechanical valves that limit the amount of fluid that can flow past the piston. In more sophisticated systems, computer controlled electromechanical valves are used to vary the flow rate.

Now, the Magnetic Ride Control system eliminates even the valves. The principle being used sounds like it's taken from the pages of science fiction.

Magneto-Rheological (MR) Fluid

Magneto-rheological (MR) fluid is named for rheology, the science dealing with the deformation and flow of matter.

MR fluid consists of microspherical iron particles suspended in a synthetic hydro carbon base fluid. It can change from

magnetic field is applied.

Without a magnetic field, the fluid is not magnetized and the iron particles are scattered randomly.

But when the magnetic field is turned on, the metal particles align into fibrous structures, changing the fluid rheology. This essentially instantaneous thinning or thickening of the fluid regulates the damping properties of the struts.

You can observe how MR fluid behaves on the web at www.rheonetic.com. An animated graphic shows how the particles align. Then you can click on the link to play a 5-second video clip showing the fluid thinning at the push of a button.



Operation of the Magnetic Ride Control

There's an electromagnetic coil installed in the piston of each damper, in the center of the passageway through which the fluid moves when the damper is stroked.

The control module sends an electrical command 1000 times per second to the electromagnetic coils in each damper to change the flow characteristics of the damping fluid. Because the fluid can react within 1 millisecond, the Magnetic Ride Control dampers react up to 5 times faster than the previous damper.

The control module receives inputs from several sensors:

- steering wheel angle
- lift/dive
- vehicle speed
- rotary position sensor at each wheel
- outside air temperature

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Benefits of Magnetic Ride Control

The Magnetic Ride Control system provides heave, pitch and roll control, using three damping coefficients which change automatically and continuously as a function of body response to road inputs.

Each damper is controlled individually, so there's continuously variable independent damper control at each wheel.

Some of the benefits include:

- higher maximum damping forces for superior levels of body motion control (better handling)
- lower minimum damping forces for improved isolation, rolling smoothness and impact harshness (better ride)
- specific amount of damping customized for each set of conditions to optimize ride comfort (continuously variable realtime damping)
- compatible with rear leveling capability,

uses existing compressor and inflator valve.

Service and Training

Follow this path to locate diagnostic and repair information in SI 2000:

- 2002 Cadillac Seville
- Suspension
- Electronic Suspension Control

The control module is located on the bay board in the rear storage compartment. The rotary position sensors are located on the front and rear suspension components as before.

SI 2000 also provides scan tool data for use with the Tech 2 when diagnosis is required.

Magnetic Ride Control will be discussed in the the February Emerging Issues IDL broadcast.

> – Thanks to Russ Gilbert and Mark Jackson

CD Player will not accept a CD – addition

The October 2001 issue of TechLink mentioned a condition in which the CD player will not accept a CD.

We have learned that the condition also affects some Oldsmobile Aleros, Intrigues and Silhouettes.

The condition has been linked to vehicles in which the battery cable has been disconnected and reconnected. When the battery cable is connected, high voltage transients may occur momentarily in the vehicle's electrical system. This may cause the CD player to lose its ability to identify the presence of a CD.

TIP: This procedure applies only to vehicles built before early September 2001, when a software correction was put into production.

To reset the radio, remove the fuse that supplies power to the radio for 30 seconds, then reinstall it. This should correct the condition

> – Thanks to Zaher Fayyad and Gary McAdam



U1300 – Class 2 Data Link Low, and U1301 – Class 2 Data Link High, are used to help determine if the Class 2 bus has shorted. However, if the short is a hard fault, these codes cannot be read, because a short to ground or battery causes the entire data bus to go down. No communications can occur between the Tech 2 and the onboard computers.

A hard fault of this kind will have to be diagnosed using the symptoms associated with the problem, the most common of which will be a No-Start or No-Start/No-Crank.

So if the U1300 and U1301 can't be used for the failures they are trying to alert us to,

what good are they? These codes are usable when the problem is intermittent. A typical customer concern might be "The dash board went wacky on me last week, but hasn't done it since, and this was the first chance I had to bring it in".

Search the Class 2 DTC check to determine which controllers have codes stored, then program to each of these controllers looking for codes U1300 and U1301 in particular. However, these two codes won't be set in current memory. Because the problem is intermittent and you are able to pull codes, the U1300 and U1301 will have been placed in history.

– Thanks to Mark Harris



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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.

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Changes to the Gen III Engine Family Fuel Injection System

In 2001 the Gen III engine family was comprised of the 4.8L RPO LR4 (VIN V), 5.3L RPO LM7 (VIN T), and 6.0L RPO LQ4 (VIN U). For 2002, the 6.0L RPO LQ9 (VIN N) and the 5.3L L59 (VIN Z) are being added to the list.

The 5.3L L59 is equipped with an E85 compatible fuel system, which can handle fuel that is up to 85% ethanol. Fuel system components are specially designed to survive in this environment. Because of this, fuel rail service is different from the other Gen III engines.

Changes Specific to L59

The L59 uses Denso injectors that are not interchangeable with the Multec 2 injectors used in the other Gen III applications. The internal parts of this injector, as well as its O-rings, are able to withstand the lower lubricity E85 fuel. If you replace the O-rings, be sure they are specific to this injector. Also notice that the Denso injector is longer than the Multec 2.



The L59 fuel rail is made of a special material that is resistant to degradation from E85 fuel. Special thread-cutting screws hold the fuel crossover in place. Do not remove these screws. Re-installing them will cut new threads, destroying the former threads and creating a possibility of failure. Because of this, the right fuel rail, left fuel rail and fuel crossover pipe are available only as a complete assembly.

The fuel pressure regulator is also specific to the E85 fuel rail. It is larger in



diameter than those used in the other Gen III engine applications and uses a special diaphragm that is compatible with E85 fuels. The fuel pressure is different for this application – 334 to 375 kPa (48 to 54 psi).

General Changes

Three different fuel pressure regulators are used this year. Each one is held in place on the fuel rail by a unique retainer. The retainer diameter and window dimensions are different for each. Use the correct retainer to ensure adequate retention of the fuel pressure regulator. Note the ID tabs on the sides of two of the retainers.



For 2002, there will be early and late model intake air fuel modules (IAFM), consisting of the throttle body, fuel rail and injectors, and intake manifold. The early IAFMs will be the same as 2001. Later manifolds have several design changes. The late throttle body has an increase in shipping air due to a change in the PCV system. The PCV valve will be changed from a variable valve to a fixed orifice.



The shipping air of the throttle body is matched to the air flow of the PVC valve. So, the PCV valves and throttle bodies must not be interchanged. To match the appropriate PCV valve and throttle body, check the part number stamped on the lower right bottom corner of the throttle body housing and compare to the OE part numbers listed in the charts.

(A\T)17200027	C/K
(M\T)17200018	4.8L and 5.3L Engines
(A\T)17200028	C/K
(M\T)17200019	6.0L Engine

Early Production with Variable PCV

(A\T) 17202039	C/K
(M\T) 17202040	4.8L and 5.3L Engines
(A\T) 17202041	C/K
(M\T)17202042	6.0L Engine

Late Production with Fixed Orifice PCV

Also the late production IAFMs on engines that do not require EGR will have a cast-over EGR port. All service replacement manifolds for 2002 will have an open EGR port. If the manifold you are replacing does not have EGR, you must install the supplied plug and screw, following the instructions in the parts package.



EGR Plug



- Thanks to Randy Pearl

Oil Life System Reset Procedures – Cars

Many GM cars and trucks are equipped with an oil life system which determines when an oil change is required. After the oil has been changed, it's necessary to reset the system.

In the February and March 2000 issues of TechLink, you were provided instructions on resetting all of the systems in existence at that time. The following list brings you up to date. Due to space limitations only 2001, 2002 and limited 2003 resetting procedures for passenger cars are published here. Trucks will be published next month.

The information for this article is the same as you will find in the applicable owner or service manual.

To find this information in SI 2000: Select the vehicle

Select category General Information Select category Maintenance and Lubrication Select category Maintenance and then GM Oil Life System-Resetting.

You may be able to use the Search function using the words Oil Life System Resetting.

TIP: You can find copies of the earlier charts on the TechLink website on the Internet at http://service.gm.com.

2001 Seville, 2001 DeVille 2002 Seville, 2002 DeVille

- 1. Turn the ignition to ON but with the engine off.
- Display the Oil Life message by pressing the Info button.
- 3. Press and hold the Reset button until the display shows 100% Engine Oil Life. This resets the oil life index.

2001 Eldorado, 2002 Eldorado

- 1. Turn the ignition to Run but with the engine off.
- 2. Display the OIL LIFE LEFT message by repeatedly pressing the SKIP INFO button.
- 3. Press and hold the NO INFO RESET button until the display show 100% Engine Oil Life. This resets the oil life index.

2003 CTS

Base Audio System

- 1. Press the up or down arrow on the INFO button located to the right of the DIC display to access the DIC menu.
- 2. Once XXX% ENGINE OIL LIFE menu item is highlighted, press and hold the CLR button.
- 3. The percentage will return to 100, and the oil life indicator will be reset.
- 4. Repeat the steps if the percentage does not return to 100.

Navigation System

- 1. Turn the system on by pressing the PWR/ VOL knob once. The PWR/VOL knob is located to the lower left of the DIC display.
- 2. Press the INFO button located to the left of the display to access the Vehicle Info menu.
- Turn the TUNE/SEL knob located to the lower right of the display until Engine Oil Life is highlighted. Press the knob once to select it.
- Once XXX% Engine Oil Life is displayed, press the multi-function button next to the Reset prompt in the upper right corner of the display.

- 5. The percentage will return to 100, and the oil life indicator will be reset.
- 6. Repeat the steps if the percentage does not return to 100.

2001 Impala, 2002 Impala

Using the Radio

- 1. Turn the ignition to ACC or ON, with the radio off.
- Press and hold the TUNE DISP button on the radio for at least five seconds until SETTINGS is displayed.
- 3. Press the SEEK PTYPE up or down arrow to scroll through the main menu.
- 4. Scroll until OIL LIFE appears on the display.
- 5. Press the 1 PREV or 2 NEXT button to enter the submenu. RESET will be displayed.
- Press the TUNE DISP button to reset. A chime will be heard to verify the new setting and DONE will be displayed for one second.
- 7. Once the message has been reset, scroll until EXIT appears on the display.
- Press the TUNE DISP button to exit programming. A chime will be heard to verify the exit.

Using the Accelerator Pedal

- 1. Turn the ignition to ON, with the engine off.
- 2. Fully press and release the accelerator pedal three times within five seconds.
- If the CHANGE ENGINE OIL message flashes, the system is reset. However, if it stays on, it did not reset. You'll need to repeat the procedure.

2001 Monte Carlo, 2002 Monte Carlo *Using the Radio*

- 1. Turn the ignition to ACC or ON, with the radio off.
- Press and hold the TUNE DISP button on the radio for at least five seconds until SETTINGS is displayed.
- 3. Press the SEEK PSCAN up or down arrow to scroll through the main menu.
- 4. Scroll until OIL LIFE appears on the display.
- 5. Press the 1 PREV or 2 NEXT button to enter the submenu. RESET will be displayed.
- Press the TUNE DISP button to reset. A chime will be heard to verify the new setting and DONE will be displayed for one second.
- 7. Once the message has been reset, scroll until EXIT appears on the display.
- 8. Press the TUNE DISP button to exit programming. A chime will be heard to verify the exit.

Using the Accelerator Pedal

- 1. Turn the ignition to ON, with the engine off.
- 2. Fully press and release the accelerator pedal
- three times within five seconds.
 If the CHANGE ENGINE OIL message flashes, the system is reset. However, if it stays on, it did not reset. You'll need to repeat the procedure.

2001 Intrigue, 2002 Intrigue

- 1. Turn the ignition to ON, with the engine off.
- 2. Fully press and release the accelerator pedal three times within five seconds.
- 3. If the CHANGE OIL light flashes, the system is resetting.
- 4. Turn the key to OFF after the light has finished flashing, then start the vehicle.
- 5. If the CHANGE OIL light comes back on, the

engine oil life system did not reset. Repeat the procedure.

2001 Grand Prix, 2002 Grand Prix

- 1. Turn the ignition to RUN, with the engine off.
- 2. Fully press and release the accelerator pedal three times within five seconds.
- 3. If the CHANGE OIL SOON light flashes, the system is resetting.
- 4. Turn the key to OFF after the light has finished flashing, then start the vehicle.
- If the CHANGE OIL SOON light comes back on, the engine oil life system did not reset. Repeat the procedure.

2001 Grand Prix (With Trip Computer) 2002 Grand Prix (With Trip Computer)

- 1. Press the MODE button until the light appears lit next to OIL LIFE.
- Press and hold the RESET button for three seconds. The oil life percentage should change to 100%.

Aurora 2001, Aurora 2002

- With the ignition on, press the SELECT right arrow button on the DIC to OIL so the OIL LIFE percentage is displayed.
- Press RESET and hold for five seconds. OIL LIFE XXX% will appear and then when the button is released OIL LIFE 100% will be displayed.

Bonneville 2001, Bonneville 2002

- 1. Display OIL LIFE on the DIC.
- 2. Press and hold the RESET button for more than five seconds. The oil life will change to 100%.

2001 LeSabre, 2002 LeSabre

- Park Avenue 2001, Park Avenue 2002
- 1. Display OIL LIFE INDEX on the DIC.
- 2. Press and hold the RESET button on the DIC for more than five seconds. The oil life will change to 100%.

2001 Regal (with DIC),

2002 Regal (with DIC)

- 1. Put the oil life display on the DIC.
- 2. Press the DIC RESET button for five seconds.

2001 Corvette, 2002 Corvette

- 1. Turn the ignition to ON, with the engine off.
- 2. Press the TRIP button so the OIL LIFE percentage is displayed.
- 3. Press RESET and hold for two seconds. OIL LIFE REMAIN 100% will appear.

2001 Camaro, 2002 Camaro 2001 Firebird, 2002 Firebird

- 1. Turn the ignition to RUN but with the engine off.
- Push the Trip/Oil Reset button located on the instrument panel for 12 seconds. The Oil Change light will start to flash to confirm that the system is reset. The reset is completed when the Oil Change light goes out.

2001 Grand Am, 2002 Grand Am 2001 Alero, 2002 Alero

- 1. Turn the ignition to ON.
- 2. Push the RESET button located in the driver's side instrument panel fuse block. The CHANGE OIL light will start to flash.
- 3. Press and hold the RESET button again. The reset is complete when you hear the chimes sound and the CHANGE OIL light goes out.
- Thanks to the Owner's Information team

Torque Converter Diagnosis

A Little Background

The torque converter (TC) provides the much-needed link between the engine and the automatic transmission. The torque converter permits the engine to keep running when the vehicle is sitting still and the brakes are applied. It temporarily multiplies the engine's torque to allow the vehicle to briskly launch from standstill. And finally, it transmits engine torque to the transmission to propel the vehicle.

These three tasks are performed by transmission fluid and several sets of blades. A set of blades driven by the engine (pump) forces fluid against a second set of blades attached to the transmission input (turbine). The movement of the fluid causes the turbine to rotate, and causes the transmission to rotate as well. During vehicle launch, a third set of blades (stator) redirects the fluid from the turbine into the pump to provide torque multiplication.

And finally, a mechanical torque converter clutch (TCC) links the turbine and pump together at higher speeds to eliminate the slippage that a fluid coupling normally has, improving fuel economy.

Owner Concerns

If any of these components malfunctions, the vehicle's performance, driveability and fuel economy can suffer.

Some symptoms are readily noticed by the owner. For instance, one stator condition can lead to poor acceleration, while another may cause poor higher speed performance. And both of these can lead to overheating. The owner may also notice symptoms caused by certain malfunctions of the TCC.

Most of the torque converter components are sealed inside the housing. So there's a strong temptation to resolve a suspected torque converter condition by simply replacing it. Actually, there's nothing simple about replacing the torque converter; it requires removing the transmission, which is a major procedure.

And, it should be obvious, replacing a torque converter that's not faulty isn't going to solve anything. The original condition and its symptoms will remain.

Fortunately, GM has provided you with some excellent guidance.

Training Material

There's a video-based Service Know-How training program, course 17040.10B, called Torque Converter Clutch Diagnostic Tips. It includes a 38-minute videotape and a 58page reference booklet. In addition to explaining how torque converters and clutches work, it provides valuable information about the electronics behind TCC operation. There's also a major chapter devoted to engine concerns that may be mistaken for a torque converter malfunction. The point is, there are a lot of components that affect TCC operation which do not require torque converter replacement.

Then, the program addresses two diagnostic codes that relate directly to the TCC:

- P0741: TCC stuck off
- P0742: TCC stuck on

Again, however, there are numerous conditions outside the torque converter that can cause these codes to set. The manual explains them in great detail, and provides diagrams and photos for guidance.

Service Bulletin

Bulletin 01-07-30-010 was released in March 2001. It helps you determine whether a torque converter should be replaced. It lists five conditions under which it should NOT be replaced, including DTC P0742, which frequently points to a stuck TCC solenoid. It also lists a number of reasons a torque converter SHOULD be replaced.

A strong point made by the bulletin is that the condition of the fluid can be used as a diagnostic aid. The converter should not be replaced if the fluid has an odor or is discolored, without metal contamination. Also fine metal traces or grey color are not a reason for converter replacement.

Water, engine oil, coolant or metal chips in the fluid point to a need for further diagnosis and possible converter replacement.

Diagnostic Aids

TIP: At present, the following information applies to the 4T65-E transaxle; there are plans to expand it to other transmissions and transaxles in the future.

Recently, an extensive diagnostic chart has been added to SI 2000, called the Torque Converter Replacement Guide. It focuses on conditions and appropriate actions in four areas affecting torque converter performance:

- Fluid
- Function/appearance
- Driveability--non TCC
- Noise/vibration.

Torque converter replacement is called for in the Action column only when the described Condition warrants it. In other cases, other actions are prescribed.

To locate the chart in SI 2000:

- Specify the vehicle
- Transmission/Transaxle
- Automatic Transmission
- 4T65-E
- Diagnostic Information and Procedures
- Torque Converter Replacement Guide (document ID 784615)

– Thanks to Rick Vykydal and Chris Anderson

Tilt Steering Column Locking

On 2000-02 Buick Century or Regal, the tilt steering column may lock in the No. 4 or full-up position. There are two different causes for this condition.

Condition 1 – Tilt steering column locks in the No. 4 position.

The No. 4 position is the next position up (5° up) from the steering wheel level position. The root cause for this condition is the tilt lever. To unlock the tilt mechanism when in this position, grasp the steering wheel and push the tilt lever forward and then down.

Condition 2 – The tilt steering column

locks in the extreme up position.

The root cause for this condition is the up-stop bumper collapsing. To unlock the tilt mechanism from this position, grasp the steering wheel and apply pressure toward the front of the vehicle (a considerable amount may be required) and then pull on the tilt lever.

Both issues will be corrected in production vehicles, and a service bulletin with repair parts for both conditions will be provided in the near future.

Two Theft Deterrent Subsections in Service Manuals

Some 2002 and 2003 service manuals will contain two Theft Deterrent subsections. Use ONLY the subsection titled Theft Deterrent for diagnosing the theft deterrent system.

The subsection titled Theft Deterrent -Immobilizer is for vehicles sold outside the United States or Canada. DO NOT use it for vehicles operated within the United States or Canada.

– Thanks to Wayne Zigler

Downshift Flare

Some customers with 2001 – 2002 Chevrolet Silverado and GMC Sierra trucks equipped with the Allison LCT1000 transmission may experience a very harsh 2-1 downshift at a stop, or near stop, on throttle reapply. The condition may occur more often on an incline.

There will not be any DTCs and the dealer may have a hard time duplicating the condition. A Clutch Test will not reveal any mechanical concerns and fluid condition will be good. Inspection of the transmission pan, if removed, will not show any unusual debris.

If the customer can demonstrate the condition, it might be noted that the customer is a "two-footed" driver or may be using the torque converter to hold the vehicle on a hill while stopped. A Tech 2 snapshot may show that the transmission is being commanded to stay in second gear with 0 or very low output speed.

The Allison LCT1000 transmission will not command a 2-1 downshift if the TCM senses a throttle input between approximately 12.5% and 50% (diesel engine) and 12.5% and 68% (gas engine) even at 0 rpm output speed. This condition can be induced by stopping the vehicle with the brake pedal while holding the throttle angle open (over about 12.5%) and then releasing the brake and accelerating at the same time. Many customers are holding the vehicle on an uphill grade while loaded with the throttle (basically holding it with the torque converter). The transmission will then downshift on the throttle reapply when throttle angle goes above approximately 50% on diesel the engine and 68% on the gasoline engine.

The design of the LCT1000 transmission has a natural flare between shifts. This, combined with sudden throttle application, will cause a perceived transmission concern due to the noise and feel.

> – Thanks to GM Technical Assistance

Transmission Cold Shift Conditions

Some 1999 – 2000 vehicles equipped with the 4T65E automatic transmission may experience one or several delayed, slip, flare, or extended shifts during cold operation. These symptoms could effect the 1-2, 2-3 or 3-4 shifts. One or both of the shift solenoids not exhausting could be the cause of these concerns. This condition can last up to several shift patterns. These symptoms can return after the vehicle sits, usually 6 or more hours or overnight.

Replacing the shift solenoids will usually correct this concern. Changing the valve body has not corrected this condition. GMSPO currently has stock of this solenoid.

– Thanks to GM Technical Assistance

Radio Speaker Noise with Brakes Applied

On 2002 TrailBlazer, Envoy and Bravada, the radio speaker may make noise with the brakes applied, even if the radio is not on.

This may be caused by the center high mounted stop lamp (CHMSL) operating voltage causing interference though the lower AM radio frequencies. This condition happens only when the brake pedal is applied, and primarily when the vehicle is cold.

Disconnect the CHMSL power feed and verify that the noise is eliminated. Replace the CHMSL if all other known diagnosis does not lead to a solution.

- Thanks to GM Technical Assistance

A/C Compressor Runs with Switch Off or Recirc Inoperative

On some 2000 Chevrolet Silverado and GMC Sierra trucks built through approximately October 1999, the A/C compressor will run whenever Recirc mode is selected. The A/C indicator will not illuminate unless selected on by the driver.

Additionally, Recirc will not be available with HVAC in Floor, Defrost or any combination of Floor and Defrost. The Recirc indicator will flash 3 times to indicate this. HVAC will automatically switch out of Recirc when any Floor/Defrost position is selected.

All replacement Control Heads for model

year 1999 to present will operate in this way.

Operating the A/C compressor in Recirc mode will improve dehumidification and assist in minimizing the chances of fogging. Not allowing Recirc in modes that will direct airflow to the windshield or floor will reduce the amount of moist interior air being distributed on glass surfaces.

Original Part Number	New Part Number
09361345 w/rear defog	15753263 w/rear defog
09361355 w/o	15753264 w/o
	· · · · · · · · · · · · · · · · · ·

- Thanks to GM Technical Assistance

Intermittent Battery Drain

Owners of 2000-02 full size pickups and utility models may comment on an intermittent battery drain. This drain may occur overnight.

The A/C compressor relay may stick causing the battery to drain. The current recommendation is to replace the relay.

- Thanks to GM Technical Assistance

Side Cargo Door Hinges

If the side cargo door hinges bind on 1996-2002 Chevrolet Express or GMC Savana, replace the hinge pins with hinge pin kit part number 12376725.

TIP: You will need J-41226 to remove and replace the hinge pins.

- Thanks to GM Technical Assistance

TAC Receives 5 Millionth Call

A lot has changed since the first phone call was placed to the Technical Assistance Center at Buick Motor Division in 1982.

The individual divisional centers are now combined into one Technical Assistance Center for the USA. It's staffed with technicians like you, who have worked in the field and understand what it takes to fix vehicles and satisfy customers.

Hours of operation have expanded to serve three time zones from 8:00 AM to 5:00 PM Monday through Friday.

The database holds more information that is easier to access.

And now as its 20th anniversary approaches, TAC has just received its 5,000,000th call.

In that time, some things haven't changed. Customer satisfaction is still the driving force behind everything TAC does. Vehicles continue to become more sophisticated and complex every year. Ongoing training is still required for technicians on both ends of the phone. Accurate service information still needs to be distributed to the field in a timely and efficient manner. TAC is still answering the phone, trying to help the dealers in any way they can.

Help TAC Help You

There are two things you can do that will greatly improve TAC's ability to help you when you call.

Be Prepared: Have the following information available before you call:

- Dealer Code
- Vehicle VIN, Mileage, Repair Order Number
- How many times in for the same repair?
- How many days down?
- Vehicle modified, after-market equipment?
- Complaint duplicated?
- Compared with another vehicle?
- Any related DTCs stored?

- Basic diagnostics performed so far?
- Parts replaced?
- Service Information TSB/PI Search done?

Follow-up: Let TAC know what happens after you call:

- Log and track your calls to TAC
- Call back if you need additional assistance
- Close cases with detailed information: circuit/connector numbers, wire colors, locations
- Labor operation number

No one knows what the future holds, but some things will likely carry on. Customer satisfaction will drive continuous improvements in all areas of our business, including Technical Assistance. Remember, TAC can't do it without your help. Be prepared and follow up to help TAC work for you on the 10,000,000th call and beyond.

- Thanks to GM Technical Assistance

News and Views

Seat Mounted Air Bags

For vehicles with the Side Air Bag Inflator Module in the front seats, the following caution has been updated in SI 2000.

Caution: Following the deployment of a frontal or of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary.

- Seat back trim, if damaged
- Seat back pad, if damaged
- Seat back frame
- Seat cushion frame
- Seat adjuster
- Seat recliner, if equipped

Failure to do so may cause future personal injury.

– Thanks to Jerry Garfield

Seat Recliner Assembly

In October, 2000, a more robust seat recliner assembly went into production for 1998-2001 Chevrolet Blazer, S-10; GMC Envoy, Sonoma and Jimmy; and Oldsmobile Bravada. All recliner assemblies in SPO inventory are of the improved design.

The handle on the redesigned recliner assembly is attached with a No. 20 Torx with a shank length of 20mm. When replacing a 1998-2001 old style seat recliner, do not reuse the screw that attached the original handle as it has a shank length of 25mm. The longer screw may weaken the recliner assembly shaft.

A 20 mm No. 20 Torx screw has been released under GM part number 88898909 to retain the handle.

– Thanks to Dan Oden

Transmission Tear Down Request for Assistance

Every day, transmissions are returned to GM as cores or are returned to the Warranty Parts Center. All units returned to the WPC and a certain percentage of units returned as cores are torn down for investigation. This information is used to improve quality and bring dealers and retail customers a better product.

Unfortunately, it's difficult to determine the root cause of the conditions affecting a

significant number of returned units, because parts are missing. Please make sure to include all parts when a transmission is returned. It may be difficult to properly reassemble a failed unit, but if you include all of the loose pieces in the shipping container, the inspectors will have a much better chance of reconstructing what happened.

– Thanks to Chris Anderson

Door Edge Guards Help Minimize Lot Damage

Rectangular foam block protectors attached to the front doors are now being installed at all car and truck assembly centers to prevent chips, dents and damage during vehicle assembly, transport and storage.

TIP: These guards were designed so they can be left in place at the dealer storage and display lots until just before the customer takes possession of the vehicle. This will help minimize lot damage at your dealership.

To remove the foam block, lift the adhesive near a corner with your fingernail. Then grasp the adhesive and block together to remove the block. If you try to pull from the middle, the block may break into pieces, making removal more difficult.

TIP: Solvents are not necessary to remove the adhesive foam blocks.

– Thanks to Fred Tebbets and John Vella

Bulletins – December 2001

This review of service bulletins released through mid-DECEMBER lists the bulletin number, superseded bulletin number (if applicable), subject and models.

HVAC:

01-01-38-011; Proper Use of HVAC System to Achieve Maximum Cooling; 1997-2002 Chevrolet Venture, Oldsmobile Silhouette, Pontiac TransSport/Montana

SUSPENSION:

01-03-10-008; False Tire Inflation Monitor (TIM) Message/Lamp Illumination (Install New Electronic Brake Traction Control Module – EBTCM); 1999-2001 Buick Century, Regal, 2000-01 Chevrolet Impala, Monte Carlo

DRIVELINE AXLE:

00-04-20-001A; replaces 00-04-20-001; 2-Cut vs. 5-Cut Rear Axle Ring and Pinion Gearsets; 2002 and prior Chevrolet and GMC LD Truck models, 1999-2000 and 2002 Cadillac Escalade with 8.6 Inch Ring Gear (3.08, 3.42, 3.73, or 4.10 Ratio) Rear Axles

01-04-20-005; Correct Vehicle Application for Eaton® NoSpin Differentials; 1990-2002 Chevrolet and GMC MD Models with Limited Slip Rear Axle (RPO G86)

ENGINE/PROPULSION SYSTEM:

01-06-01-024; Engine Exchange Program for 2.2L ECOTEC Engine (VIN F – RPO L61); 2002 Chevrolet Cavalier, Pontiac Sunfire

01-06-02-011; Engine Overheats, Temperature Gauge Reads Hot, Audible Warning Alarm Sounds, Check Gauge Lamp On (Replace Cooling Fan Blade, Fan Clutch and Radiator Shroud); 1999-2002 Chevrolet and GMC 6-7 T-Series MD Tilt Cab Models with Isuzu Diesel Engine (VIN 3 – RPO LG4)

01-06-03-010; Drive Belt Noise, Service Engine Soon/Generator Light Illuminated, Engine Will Not Start or Quits Running (Replace Generator and Reseal Windshield Water Runoff Duct); 2001 Chevrolet and GMC G-Van Models 01-06-04-037B; replaces 01-06-04-037A; Fuel Transfer Pump Inoperative (Replace Fuel Transfer Module); specified Chevrolet and GMC Truck Models

01-06-04-046; Revised Electronic Ignition System Diagnosis; 2001 Chevrolet and GMC G-Van Models with 8.1L Engine (VIN G – RPO L18)

01-06-04-047; Revised Electronic Ignition System Diagnosis; 2001 Chevrolet and GMC Pickup and Utility Models, B7 Bus Chassis, and C-Series Conv. MD Models with 8.1L Engine (VIN G – RPO L18)

01-06-04-048; Availability of New Fuel Injection Pump Oil Supply Pipe for Replacement after Removal; 1999-2002 Chevrolet and GMC W Series MD Tilt Cab Models with 4HE1-TC Isuzu Diesel Engine (VINs 4, 5 – RPOs IC3, IC2)

01-06-04-050; Decreased Engine Performance/Power, Filter Minder Indicator On, Possible MIL Illuminated and DTC P0101/P0103 Set (Replace Air Cleaner/Reprogram PCM); 2002 Chevrolet and GMC C/K Pickup with 6.6L Duramax Diesel Engine (VIN 1 – RPO LB7)

01-06-05-005; Exhaust Manifold Pipe Seal Replacement; 1999-2002 Chevrolet and GMC C-Series MD Conv. Models, Chevrolet and GMC B-Series MD School Bus Models with Gas Engines (VINs B, D, E – RPOs L21, LP4, L18)

TRANSMISSION/ TRANSAXLE:

01-07-30-013A; replaces 01-07-30-013; 2-3, 3-4 Shift Characteristics During Cold Weather Operation on 4L60-E or 4L80-E Transmission; 1999-2000 Chevrolet and GMC C/K Models and Cadillac Escalade with 4.3L, 4.8L 5.3L or 6.0L Gas Engine (VINs W, V, T, U – RPOs L35, LR4, LM7, LQ4) and 4L60-E or 4L80-E Transmission

01-07-30-030; Diagnostic Information on Harsh 1-2 Upshift; 2001-02 Passenger Cars and LD Trucks with 4L60-E or 4L65-E Automatic Transmission

01-07-30-031; 1-2, 2-3, or 3-4 Shift Characteristics During Cold Weather Operation on 4L60-E or 4L80-E Transmission; 2002-2002 Chevrolet and GMC C/K Models and 2002 Cadillac Escalade with 4.3L, 4.8L 5.3L or 6.0L Gas Engine (VINs W, V, T, U – RPOs L35, LR4, LM7, LQ4) and 4L60-E or 4L80-E Transmission

01-07-30-032; Transmission Oil Leaking From Transmission Vent (Replace Transmission Case Cover Gasket/Channel Plate Gasket with New Design Gasket); specified passenger vehicles 1997-2001

01-07-30-034; 5-4 Shift 'Busyness' (Excess Shifting) While Using Cruise Control and Towing (Reprogram PCM); 2001 Chevrolet and GMC Pickup Models with 6.6L Diesel Engine (VIN 1 – RPO LB7) and Allison Series 1000 Automatic Transmission (RPO M74)

BODY AND ACCESSORIES:

01-08-44-013; Noise Heard in Radio Speakers (Replace Amplifier or Repair Wiring Harness); 2002 Chevrolet and GMC S/T Utility Models and Oldsmobile Bravada with Premium Sound (RPO UQA)

01-08-45-005; Hard Start, No Start, Stall and/or Fuel Gauge Inoperative or Fluctuates (Repair Wiring at Connector C305); 2000-2002 Buick Rendezvous, Chevrolet Venture, Oldsmobile Silhouette, Pontiac Montana and Aztek

01-08-49-014; Proper Operation of the Secondary Information Center (SIC); 2001-02 GMC Denali/Denali XL, 2001 GMC Sierra C3; 2002 Cadillac Escalade/Escalade EXT, GMC Sierra Denali

01-08-49-016; Cigarette Lighter May Be Inoperative (Install New Lighter Element); specified 2001-02 passenger cars and trucks

01-08-49-017; Center Front Floor Console Compartment Lock Cylinder and Key Replacement; specified 1999-2002 Chevrolet, GMC and Cadillac Pickups and Utility Models

01-08-57-004; Water Leak at Top of Windshield (Seal Pinhole); 1999-2002 Chevrolet and GMC M/L Van Models

01-08-66-011; Rear Roof Perforation (Install New Rear Roof Section); 1995-2001 Chevrolet and GMC S/T 4-Door Utility Models, and Oldsmobile Bravada

01-08-66-012; New End Gate Lock Cylinder; 2002 Chevrolet Avalanche

Floor Carpet Drying

All Vehicles

If the carpet or the insulator pad is wet, use the following criteria for drying or for replacing the components.

For a 1-piece carpet assembly bonded to a cotton or fiber padding, replace the entire assembly.

For a 2-piece carpet assembly with a cotton or fiber padding, replace the padding

only. While the carpet is out of the vehicle, dry the carpet using the method described below.

For a 1-piece carpet assembly bonded to a foam padding or attached to a synthetic padding, dry the assembly using the method described below.

For a 2-piece carpet assembly with a synthetic padding, dry the assembly using the method described below.

Drying Method

- 1. If you observe puddles of liquid on the carpet face, use a wet vacuum to remove excess moisture.
- Blot the face of the carpet with a towel in order to absorb as much moisture as possible.
- 3. Point a fan at the affected area and air dry the carpet.

- Thanks to Jerry Garfield