TECHlink

GM

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A monthly publication for GM Dealership Service Professionals

# Battery Charging Tips

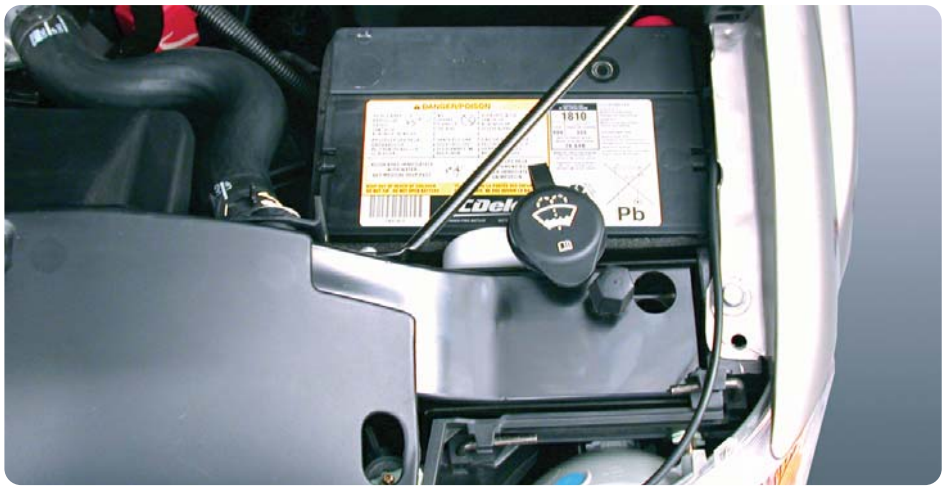
Many customers don't give a thought to their vehicle's battery until… one day they turn the key and nothing happens. No crank, no start. All of a sudden, they have a "bad" battery.

If you've been following some of the earlier TechLink stories (Midtronics Tester, May 2000 and April 2002; Parasitic Drains, April 2002; Generator Troubleshooting, May 2002), you know that it can be a mistake to condemn a battery as "bad" without further investigation.

*TIP:* Always ensure good connections of the battery tester, and use proper adapters when testing out of the vehicle.

When you test a battery with your Midtronics conductance tester J-42000 or J-42000-EU, there are five typical outcomes:

- good battery
- good – recharge
- charge & retest
- replace battery
- bad cell – replace.



You'll notice that battery charging is called for in two of these outcomes. That's why we're taking a closer look at charging and chargers this month.

## What's Involved in Charging?

Briefly, charging involves applying sufficient voltage across the battery to cause current to flow through the battery. This causes chemical changes both in the

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## Techline News

# Service & Warranty Repairs for Tech 2

Effective August 1, 2002, Vetronix will be assuming responsibilities for service, repair, and warranty work for the Tech 2 in the U.S. and Canada.

Aside from the change in address, all other service related terms and conditions remain intact.

### Repair/Service Process:

If you suspect that a problem exists with your Tech 2, follow the Self Test Procedures as outlined in the product Operator's Manual. If a problem exists, contact the Techline Customer Support Center (800.828.6860). There, a technical support representative will help diagnose the problem and will recommend a course of action. If repair is needed, the next step depends on the warranty status of your Tech 2.

**If your Tech 2 is under warranty, or is covered by a service contract**, TCSC will contact Vetronix. Vetronix will send a


replacement Tech 2 to you overnight. When the replacement arrives, you will send the original back to Vetronix in the same packaging, postpaid.

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GM Service and Parts Operations

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**If your Tech 2 is not covered by warranty or service contract**, TCSC will help with the diagnosis. You will then send the Tech 2 to Vetronix. Vetronix will inform you of the amount of the service fee and return freight costs. Payment may be made by C.O.D. or credit card. When you authorize repairs, the unit will be repaired and returned to you.

### Product Support

- Extensive on-board self-test capability
- Service centers in U.S. and Canada
- Toll-free 800.828.6860 (Techline Customer Support Center)
- Expedited return shipping on warranty and contract units, available on others.

**The Vetronix Service Centers are located:**

**United States**

Vetronix Corporation
Attn: Service Center
2030 Alameda Padre Serra
Santa Barbara, California 93103-1716

**Canada:**

Vetronix Service Center, Ontario (Canada)
c/o Custone Electromotive Inc.
1150 Champlain Court
Whitby, Ontario LIN 6K9, Canada

*– Thanks to Mark Palmer*

# Buick Rendezvous Floor Console Service

Additional parts are now available for servicing the Buick Rendezvous floor console. It will no longer be necessary to replace the rear trim plate as a complete assembly in order to only replace the components listed below.

### Air Deflector

88891359 Center – Gray
88891360 Center – Oak
88891361 Outer – Gray
88891362 Outer – Oak

*TIP:* Read SI Document 877952 before replacing the deflectors. The procedure tells you how to properly do the replacement without damaging the deflectors.

### Hinge

10430118

### Compartment Door Latch

88987023 Gray
88987024 Oak

### Compartment Door Without Hinge

88987026 Gray
88987027 Oak

### Rear Plate – Vehicle Equipped With Rear Seat Audio (UK6)

88986932 Gray
88986933 Oak

### Rear Plate – Vehicle Not Equipped With Rear Seat Audio

88987032 Gray
88987033 Oak

*– Thanks to Tom Russell and Jerry Garfield*


On vehicles using the star configuration for the Class 2 bus (see June 2002 TechLink) terminal A on the splice pack (star connector) connects the Class 2 bus to terminal 2 of the Data Link Connector (DLC). In other words, terminal A connects the Tech 2 to the rest of the controllers, via the splice pack. This important fact can be used in the diagnosis of many Class 2 bus related problems. A 2002 Bravada is used for the following example.

Using a jumper wire with the proper mating terminal to jumper between terminals A and B of the splice pack will connect the Tech 2 to the PCM while disconnecting the rest of the controllers. Normally you would see Active on the Class 2 Message Monitor when the PCM is working properly.

Moving the jumper from terminal B to terminal M disconnects the PCM and connects the BCM to the Tech 2. If the BCM does not show up on the list given by the Class 2 Message Monitor, the cause may be an open on the Class 2 bus, loss of power or ground to the BCM, or a faulty BCM.

Finally, moving the jumper from terminal M to terminal E disconnects the BCM and connects the EBCM to the Tech 2. If the Tech 2 display changes to No Communications while the jumper is connected to terminal E, the circuit from the splice pack to the EBCM is shorted to ground or B+ or the EBCM has internally shorted the Class 2 bus.

*– Thanks to Mark Harris*

GM TechLink

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battery's plates and in the electrolyte. If the battery is simply discharged, but otherwise good, and you apply suitable voltage for enough time, the battery will eventually become as fully charged as is chemically possible. Continued application of voltage can lead to overheating, loss of electrolyte, and shortened battery life.

The charging process requires two things: time and current. If you multiply the charging rate in amps by the number of hours, the result will be the ampere-hours of charge you've applied to the battery. To bring a battery to full charge will require roughly the same number of ampere-hours at a low charge rate as it does at a high rate. Put another way, a higher rate will take less time.

Because time is valuable, and many customers want something done about it right away, it's often desirable to get the charging job done quickly by using a high charge rate. Before doing this, though, you need to know a little more about the process.

## GR-1


Manufacturer:
- Midtronics.

Automatic features:
- Fully automated diagnostics before, during and after charging
- Just input the battery's rating and press ENTER; the GR-1 diagnoses and either rejects or charges the battery.

Safety features:
- Minimizes hazards by accepting only good batteries for charging
- Reverse polarity protection.

Diagnostic features:
- All features of J-42000 tester are in the charger
- GM warranty code display.

Claimed charging time:
- Less than an hour, often around 30 minutes.

Charging type:
- Constant voltage, high rate, 80 peak amps.

Charging monitor:
- Conductance Controlled Charging Technology uses the same principles as the J-42000 to continually check the battery's condition and charging progress.

Display
- Battery diagnostic decision
- Time remaining
- Amp-hours put into battery
- Voltage
- CCA.

Other
- Built-in algorithm for AGM batteries.

### State of Charge

| OCV (conventional flooded-cell battery) | OCV (AGM battery) | % Charge at 0°C (32°F) | % Charge at 25°C (75°F) |
|---|---|---|---|
| 12.75 | 12.8 | 100% | 100% |
| 12.70 | – | 100% | 90% |
| 12.60 | – | 90% | 75% |
| – | 12.6 | 100% | 75% |
| 12.45 | 12.4 | 75% | 65% |
| 12.20 | 12.3 | 65% | 45% |
| 12.00 | 12.1 | 40% | 20% |

## State of Charge

It is not possible to measure a battery's state of charge in ampere-hours, so another method must be used. Open circuit voltage (OCV), measured across the battery's terminals, relates to the battery's state of charge. The voltmeter must be capable of reading to the nearest 0.01 volt.

If the battery has not been charged or used in a vehicle within 12 hours, the reading may be taken.

If the battery has been charged or discharged within 12 hours, connect a carbon pile and discharge the battery at 300 amperes for 15 seconds, wait 15 seconds, then take the reading.

*TIP:* The OCV reading is accurate +/- 10%.

A battery with a state of charge of 65% or greater ("green eye" showing) is charged enough to be returned to **normal** service. In slow traffic or short drive times, or in very cold or very hot conditions, the battery should be at least 90% of full charge before returning to service.

## Battery Charging and the Reality of the Service Lane

The customer with the "bad" battery mentioned at the beginning of the article typically expects something to be done "right now." The apparent contradiction of a good but discharged battery may be alien to some customers. So, to get back on the road quickly, they may be inclined to demand a new battery under warranty.

There are two things wrong with this. One, if the battery is otherwise serviceable, it may only need a recharge to return it to health. Second, unless the cause of the battery becoming discharged is resolved, neither a new battery nor recharging the original will permanently solve the problem. But that's a subject for another time.

So, let's see what can be done to recharge the customer's battery quickly. How quickly can this be done, and is a really quick charge safe for the battery?

## Automatic Battery Chargers

With a modern battery charger, the customer won't have to wait long. A typical good-but-discharged battery (as indicated by your J-42000 tester) can be returned to at least 85% state of charge in 20 to 40 minutes using a quick charger.

Modern chargers have sophisticated control systems that monitor and automatically regulate the charging process. These controls maximize the charger's output based on the battery status, while protecting the battery from overcharge. This shortens the overall time by making the most effective use of the charger's output capability.

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## PDQ Service Express


Manufacturer:
- Christie Automotive Products.

Automatic features:
- Just connect battery and turn on
- Checks for correct polarity
- Checks state of charge
- Performs load test
- Looks for faults
- Charges if appropriate.

Safety features:
- Temperature sensing
- Reverse polarity protection (will not work when reversed)
- Voltage surge protection
- Self-diagnostics.

Diagnostic features:
- Checks at beginning of and during charging cycles
- Detects open cells, short cells, high sulfation, already charged.

Claimed charging time:
- 20 to 40 minutes.

Charging type:
- Constant current, high rate, 80 amps continuous.

Charging monitor:
- Computer controlled charging monitor.



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## XM Satellite Radio Update

XM Satellite Radio was first introduced on the 2002 Cadillac Seville and DeVille (TechLink Oct. 2001). For 2003, it will be offered on over 20 additional models, including: Alero, Avalanche, Aztek, Bonneville, Cavalier, CTS, Denali, Escalade, Grand Am, LeSabre, Monte Carlo, Rendezvous, Sierra, Silverado, Suburban, Sunfire, Tahoe, and Yukon.

XM Satellite Radio broadcasts 100 different stations from a pair of satellites, one over each coast of the USA. In selected geographic areas with tall buildings, mountains, and other obstructions, land-based repeater antennas provide supplemental signals.

An XM-equipped vehicle will receive continuous programming, regardless of where it is driven.

*TIP:* As with FM radio, the digital XM signal may occasionally be obstructed, despite the ground-based repeaters. A message will temporarily appear on the radio display.

### XM SATELLITE RADIO COMPONENTS

In addition to the radio head in the instrument panel, three additional components are used to receive the satellite signal: a roof-mounted digital radio antenna, a digital radio receiver, and a coaxial cable that connects the digital receiver to the antenna.

The digital radio looks and functions like a conventional radio and continues to offer the familiar AM and FM bands, in addition to the new XM band.

In XM mode, the digital radio is capable of displaying four types of information:

- Artist Name/Feature
- Song/Program Title
- Channel Category
- Other information, which varies by channel.

### SERVICE TIPS

*TIP:* You will find XM Satellite Radio diagnostic and repair information in SI by selecting Body and Accessories, then Entertainment. Here you can view service information for the digital radio (RPO U2K), digital radio receiver, digital radio antenna, and cable.

The digital antenna is positioned on the roof in various locations, depending on the model. The antenna was tested and validated in its current location.

Original antenna

Low profile antenna

*TIP:* Do not attempt to relocate the antenna; a degradation in reception quality will occur.

Two different antennas are in use for 2003. Cars use a new low-profile style, while trucks will initially use the original taller style. In a running change during the 2003 model year, trucks will switch to the lower style as well.

Both styles of antenna are positioned by a locating pin. The headliner will need to be lowered for access to the antenna attaching part. The original style is retained by a nut threaded to the antenna's built-in stud. The nut must be torqued to 3.5 Nm (31 lb in). The new low-profile antenna is retained by a metal washer that expands when the attaching bolt is tightened. The bolt must be torqued to 6.0 Nm (53 lb in). Do not overtighten or damage may occur.

*TIP:* The antenna is molded of black plastic. Do not attempt to apply paint or clearcoat to the antenna; doing so will cause loss of reception.

*TIP:* The antenna needs to be attached to a solid metal surface for optimal performance. Cloth roof covers are not recommended for vehicles with XM Satellite Radio. Adding a cloth roof cover may cause performance degradation and potential water leaks.

*TIP:* Do not attempt to swap digital receivers between vehicles. Each receiver learns the VIN of the vehicle it is installed in, and will not operate in another vehicle. A message (XM Lock, XM Locked, or XM Theftlocked) will be displayed if this is attempted.

### DEACTIVATION/ACTIVATION

If the digital radio receiver requires replacement, the faulty receiver must be deactivated and the new receiver activated. This can be done with one phone call to XM Radio at 1.800.852.XMXM (1.800.852.9696).

Before activation, satellite reception can be confirmed by tuning to preview channel 1.

After installing the new receiver, you must park the vehicle outside with an unobstructed view of the southern sky. This must be done within 24 hours of the deactivation/activation phone call. Leave the vehicle outside with the ignition switch in the accessory position and the radio on for 30 minutes. After activation, the remaining XM Radio channels will be received.

You can learn more about XM Satellite Radio on the www.xmradio.com website.

*– Thanks to Doug McKibbon*

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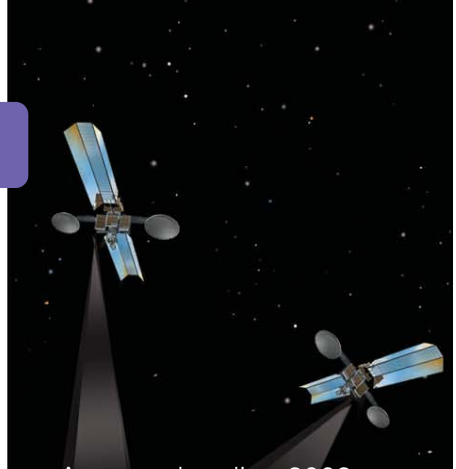


As stated earlier, 2002 vehicles equipped with XM radio have the original, taller style antenna. After February 7, 2002, a revised antenna was released in production. It was also the taller style.

When following SI diagnostics for poor or no reception, or for a DTC B1259, you may be asked to test the resistance of the antenna.

SI is being revised to include the new information.

| Tall Style Antenna | Resistance |
|---|---|
| Before breakpoint | 190-210 ohms |
| After breakpoint | 9-11 K ohms |

*– Thanks to Jim Hughes*

## Battery Charging Tips continued from page 3

So, you can confidently use chargers with the highest output ratings, so long as the charger makes the necessary adjustments as the battery approaches full charge.

### Diagnostic Battery Chargers

The diagnostic charger carries the idea of automation a step further. A diagnostic charger first performs tests on the battery to determine if it is suitable for charging. Eliminating a defective battery before attempting to charge it potentially saves technician time and customer time, but also avoids the dangers inherent in applying a charge to a battery with internal shorts or other defects.

Once the diagnostic charger determines that the battery is suitable for charging, it then follows the principles explained earlier for automatic charging, to provide a serviceable battery in the shortest possible time.

### Manual Battery Chargers

Non-automatic battery chargers do not offer the self-limiting features of the latest equipment. It's up to you, the operator, to control the charging process. With careful monitoring, you can use a manual charger to successfully charge maintenance-free batteries.

Monitor both charging current and voltage every 30 minutes. Because voltage is not held constant, it will rise as the battery becomes charged.

When voltage reaches 16 volts, you must reduce the charging current to 5 amperes. When the voltage reaches 16 volts again, at the 5 amp current, the battery is fully charged.

### Conditions that Affect Charging

A completely discharged battery will take more than twice as long as a half-charged battery. The electrolyte in a discharged battery is largely water, which is a poor conductor. The battery may accept such a small amount of current at first that it appears not to take a charge.

Chemical reactions in a battery are slower at low temperatures. So a very cold battery will take longer to charge than one at room temperature.

And of course, a larger battery will take longer to charge than a small one.

### Special Considerations for AGM Batteries

The Absorbent Glass Mat (AGM) battery uses absorbent glass mats to hold a small amount of electrolyte in contact with the plates (August 2000 TechLink). The battery uses gas recombinant technology, which means the gases produced at the plates are recombined to form water before they escape. This battery design offers higher power for lower weight, and is more resistant to high temperatures, vibration and cycling, making it ideal for the Chevrolet Corvette.

The AGM battery may be charged using the automatic battery charger, as described above.

However, when using a conventional charger, limit the rate to 10 amperes or less. Do not allow the battery to charge at 3 amperes or more for longer than 10 hours, or 10 amperes or more for longer than 5 hours. When these limits are reached, allow the battery to stand overnight, then resume charging, if further charging is required.

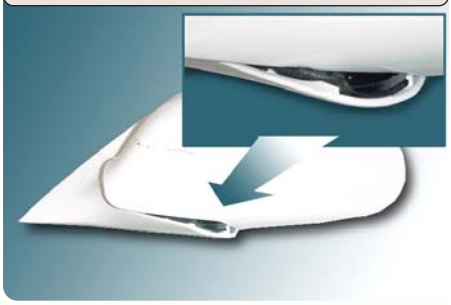
Check the voltage every 30 minutes and remove the battery from charge when the voltage reaches 15 volts at 3-10 amperes. The state of charge is now at 90 to 95%.

*– Thanks to Charley Gipe, Rick Overman, Dave Kig, also Christie and Midtronics*

# Folding Mirror Gasket

Beginning with the 2002 model year Buick Century and Regal, a gasket is installed in the fold line of the outside rearview mirrors. This addresses a windnoise condition mentioned in bulletin 02-08-64-001.

**Mirror gasket folded out of position**



During assembly, the mirror is flexed several times. The fold line gasket may become folded and out of position, leading to a customer comment about windnoise.

To check the gasket, bend down and view the fold line straight on. If the gasket is not visible for the entire length of the line, fold the mirror inward or outward.

Then use a non-metallic tool to gently reposition the gasket. Move the mirror back to its normal position.

A bulletin is planned.

*– Thanks to Wayne Zigler*

# Cadillac CTS Overhead Console Lamp

Some dealerships have replaced the entire overhead console because the map/illumination lamp bulb was burned out; no replacement was available for the bulb, although the procedure is listed in SI.

Now, the bulb is available through GMSPO. The part number is 09442441.

*TIP:* Because this was originally a Saturn-only part, the number has only 7 digits. It is necessary to add the zero to create an 8-digit number.

*– Thanks to Kim Roux and Dave King*



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# Servicing Wheel Bearing Assemblies

*TIP:* It is very important to use the actual part number specified for your application. Do not attempt to modify a part to fit another application. Modification of the electrical connector clip may result in detachment from the bracket with resulting wire damage.

Early 2001 Pontiac Aztek FWD models used a Koyo Non-Self Retained Bearing p/n 10434253 on the front wheels as original equipment.

Although this bearing is physically interchangeable with self-retained (SRB) Koyo and Delphi bearings used on other vehicles, the non-self-retained Koyo bearing is no longer available as a service replacement part and is not recommended for any other applications.

Here's why. The Koyo Non-SRB bearing requires the use of a special lock washer (p/n 10372726), and a higher torque on the nut (260 +/- 30 vs. 160 +/- 30 Nm) than with a SRB type bearing.

The special washer is not included as part of the service kit. If you do not use this special washer, and do not torque it properly, the nut may loosen, allowing the bearing to begin to separate. This will result in noise, which would be very apparent to the driver well before the bearing separates enough to be considered dangerous.

*CAUTION:* If the bearing separates, it may cause personal injury or vehicle damage.

Appropriate service wheel bearing kits and applications are listed in the accompanying chart.

*– Thanks to Tim Dobbs and Ward Harris*

## Service Wheel Bearings

| APPLICATION | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|
| ***Front Drive Bearings*** | | | | |
| W-car & FWD U-van | 12429204 | 12429205 | 12429205 | 12429205 |
| Aztek & Rendezvous | – | 12429205 | 12429205 | 12429205 |
| AWD U-van | – | – | 12429205 | 12429205 |
| ***Rear Drive Bearings*** | | | | |
| AWD U-van | – | – | 12429204 | 12429204 |
| AWD Aztek & Rendezvous | – | – | 12429204 | 12429204 |
| ***Rear Non-Drive Bearings*** | | | | |
| FWD Rendezvous (disc brakes) | – | – | 12413031 | 12413031 |
| FWD Aztek (drum brakes) | – | 7470611 | 7470611 | 7470611 |
| FWD U-van (drum brakes) | 7470549 | 7470549 | 7470549 | 7470549 |
| FWD U-van Export (disc brakes) | 7470611 | 7470611 | 7470611 | 7470611 |
| W-car (disc brakes) | 7470611 | 7470611 | 7470611 | 7470611 |
| W-car (drum brakes) | 7470609 | 7470609 | 7470609 | 7470609 |

# Missing Seatbelt Stop-Buttons

When a seatbelt is unfastened and allowed to retract, a small plastic stop-button prevents the latch from sliding down the belt to the seat belt anchor sleeve. If this button is missing, it is inconvenient to reach down to locate the latch.

This condition was addressed in bulletin 73-16-16A, which pertained to a limited number of vehicles. The buttons listed in the bulletin and others have been released to the parts catalog. The following numbers will generally service vehicles from 1995 and up. Have the parts department check for catalog updates.

Replacing the stop-button according to the procedure in bulletin 73-16-16A is preferable to replacing the entire belt assembly if only the stop-button is missing.

Button kits are available in several colors:

| | | |
|---|---|---|
| 12453514 | (supercedes 88955720) | oak |
| 12453515 | (supercedes 88955711) | graphite |
| 12453516 | | blue |
| 12453517 | | neutral |
| 12453518 | | pewter |
| 12453519 | | teal |
| 12453520 | | red |
| 12453521 | (supercedes 88955717) | neutral |
| 12453522 | (supercedes 88955714) | pewter |

The kits consist of two male and two female button halves.

*– Thanks to Art Spong and Ian Doran*

# 24 Hour Concern Detection Process

A new process intended to achieve more expedient product concern resolution has recently completed its pilot phase on a limited number of car lines and is going forward with all car and truck models.

This process is driven through a daily conference call by a number of cross-functional groups – the 24 Hour Concerns Detection Process, Service Operations (Brand Quality), Engineering, Manufacturing, and Supplier Quality as examples. The intent, after a potential customer concern has been detected, is to contain all suspect vehicles at the assembly plant and implement immediate corrective action. The following sources are used to detect problems:

- Technical Assistance
- VME Field Product Reports in U.S.
- Electronic Product Information Reports (PIR) in Canada
- Regional Service Engineers
- Electronic Repair Orders
- Dealer Early Warning Reports
- 24 Hour Concerns Detection Process monitoring tools
- Part Sales
- Direct Dealer contact through conference calls

All concerns detected are tracked and action assignments are monitored on a regular basis until the issue is resolved.

In this effort to revolutionize the time it takes to resolve product concerns and minimize the number of customers affected, it is important that you play a role in it also. When you observe a concern that warrants reporting through a VME Field Product Report, do so immediately. The 24 Hour Process cannot respond to a concern until it becomes known. Any delay in reporting will impact additional buyers of our new product.

As we integrate more vehicle models into this process, you may be called upon to participate in conference calls to report on any product-related findings you may have recognized. We have already achieved quick results on a number of issues and are very optimistic about the potential of this initiative. We will appreciate your support.

*– Thanks to Terry Nicholas*



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# New Powertrain Quality Center

A new Powertrain Quality Center (PQC) is being implemented to assist dealers whenever an assembly requires replacement. Information gathered by the PQC will be used to improve the reliability of original equipment and service assemblies.

Here are some highlights.

The new process will involve all OEM assemblies replaced under warranty and policy, service assemblies (B and N claims), and over-the-counter assembly replacements beginning with repair orders written on 7-1-02.

*TIP:* Assemblies replaced under a GMPP extended service contract are not included. Continue to contact GMPP in these cases.

When servicing engines and transmissions covered under an exchange program, contact TAC as described in the exchange bulletin.

Before replacing an assembly, call the PQC at 866.654.7654. The center will be available Monday – Friday from 8:00 am to 5:00 pm in each time zone in the continental U.S. (in Canada, Eastern to Pacific Time).

When calling, please be prepared to provide detailed information.

1. Complete vehicle and assembly information, including the unit number.
2. The specific customer concern, as verified by the technician, and a description of the diagnosis already performed.
3. For assemblies previously replaced, determine who installed the prior assembly. The part number of the prior assembly will also be requested, along with the mileage and date of the installation.
4. Comparison of repair vs. replacement cost.

If normal diagnostic assistance is needed, first call the GM Technical Assistance Center. Call the PQC only when an assembly is needed.

In the case of an over-the-counter replacement, obtain as much failure information as possible. This may include involving the purchaser in the call. Do not provide the phone number to purchasers.

The PQC will review the diagnosis, offer additional direction, and when needed pre-authorize the warranty claim. The dealer will need to provide total claim details. The PQC can authorize additional time to disassemble and reassemble the unit to determine if an assembly is required.

If the technician does not have all the necessary claim information during the initial call, the assembly will be authorized and the technician provided a case number. Later, the warranty administrator will need to phone in the claim information to obtain a pre-authorization of the claim.

*TIP:* The warranty administrator MUST refer to the case number.

In situations where the assembly can be repaired, but replacement should be considered due to customer satisfaction reasons, PQC will collect the quality information and refer the dealer to the Area Service Manager (AVM) (District Service Manager in Canada) who can approve the replacement. If this occurs, the warranty claim must be H-routed for authorization.

After hours or on weekends, dealers should use their own discretion including a repair vs. replace analysis. On the next business day, call the PQC with all the required information and the claim will be pre-approved.

The four labor operation numbers that will require pre-approval from the PQC are K7000 transmission assembly replacement and J1820, J1840 and J1880 engine assembly replacements. Dealer authorization will not approve these labor operation numbers. Repairs started before 7-1-02 can still be submitted without approval.

When returning a core, attach a copy of the repair order and completed feedback form to the shipping container. Refer to bulletin 01-07-30-029 for transmission return information.

*– Thanks to Jim Colyer*

# Hydraulic Clutch Fluid Discoloration

The fluid in the hydraulic clutch system of 1997 – 2002 Chevrolet Corvettes may appear discolored. This discoloration is the result of carbon black used in the seal manufacturing process leaching out into the hydraulic fluid used in the clutch system.

The discoloration may also collect on the inside of the clutch reservoir at the top of the fluid. This discoloration does not affect the operation of the clutch system and should not be considered a reason to flush the clutch hydraulic system.

*– Thanks to GM Technical Assistance*

## Bulletins continued from page 8

### BODY AND ACCESSORIES:

01-08-46-002B; replaces 01-08-46-002A; Programming of Replacement OnStar Vehicle Communication and Interface Modules (VCIM); specified 2002-03 vehicles with Generation 4 (F1) OnStar System

02-08-43-002; Windshield Wipers Park in Outwipe Position (Install Wiper Motor Crank Arm and Wiper Motor Bracket Service Kit); 2002 Buick Century, Regal, Chevrolet Impala, Monte Carlo, Oldsmobile Intrigue, Pontiac Grand Prix

02-08-44-007; Negative Impact of Dealer-Installed Cloth/Vinyl Roofs on XM Radio System; 2002-03 Passenger Cars and Trucks with XM Radio (RPO U2K)

02-08-46-008; OnStar Module Cover Retaining Tab Breaking; 2002-03 Chevrolet and GMC S/T Utility, Oldsmobile Bravada

02-08-57-004; General Waterleak Guide; 1996-2002 Chevrolet S-10, Blazer, GMC Sonoma, Jimmy, Oldsmobile Bravada

02-08-58-003; Road Noise Heard Behind Front Seats (Seal Sheet Metal Seams); 1997-2002 Chevrolet Venture, Oldsmobile Silhouette, Pontiac TranSport/Montana

02-08-64-013; Right Rear Cargo Door Handle Breaks (Replace Handle); 1993-2002 Chevrolet and GMC M/L Van

02-08-67-004; Headliner Sag at Rear of Sunroof Opening (Replace Velcro Patches); 2002 Chevrolet and GMC S/T Utility, Oldsmobile Bravada

02-08-67-005; Proper Position and Installation fo Roof Rack Cross Rails to Reduce Wind Noise; 2002 Chevrolet and GMC S/T Utility Models, Oldsmobile Bravada

02-08-67-006; Roof Perforation (Replace Roof); 1997-2002 Chevrolet Venture, Oldsmobile Silhouette, Pontiac TranSport/Montana

02-08-111-004; Incorrect Emblem Installed on Rear Doors (Replace Emblems); 2002 Chevrolet TrailBlazer EXT

### RESTRAINTS:

02-09-41-001; replaces 99-06-03-010A; B1001, B1271 or B1780 Set When Replacing/Reprogramming Other Modules; 1999-2003 Passenger Cars and Trucks with Class 2 Serial Data Communication Between Modules



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# Bulletins – July 2002

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

## GENERAL INFORMATION:

02-00-89-007; Light and Medium Duty Truck Warranty and Crossline Warranty Eligibility and Guidelines for Chevrolet and GMC Dealers; 2003 and Prior Chevrolet, GMC and Isuzu LD and MD Trucks

## SUSPENSION:

02-03-08-006; Revised Front Suspension Fastener Tightening Specifications; 1997-2002 Chevrolet Cavalier, Pontiac Sunfire

## DRIVELINE AXLE:

02-04-20-002; Revised Wheel Bearing Adjustment Procedure; 2001-02 Chevrolet and GMC C/K and G-Van Models with 10.5 and 11.5 Inch Axles

02-04-21-005; Vehicle Will Not Move When 4-Wheel Drive is Requested, Noise, Shudder, Poor Performance, Trans/Transfer Case Slips, Trans Will Not Upshift, Slips in 4-Wheel Drive (Diagnose and Repair Front Differential and Transfer Case; Specified Trucks with Autotrak Transfer Case (RPO NP8)

## BRAKES:

02-05-22-002; Revised Vacuum Brake Booster Replacement Procedure; 2001-02 Chevrolet Venture, Oldsmobile Silhouette, Pontiac Montana

02-05-22-003; Revised Vacuum Brake Booster Replacement Procedure; 2002 Buick Rendezvous, 2001-02 Pontiac Aztek

02-05-23-003; Revised Brake Rotor Lateral Runout Check Specification; 2000 Chevrolet Impala, Monte Carlo

02-05-25-002; Revised Wheel Speed Sensor Replacement Procedure; 1999-2001 Cadillac Escalade, Chevrolet Silverado, Suburban, Yukon, GMC Sierra, Suburban, Tahoe

## ENGINE/PROPULSION SYSTEM:

01-06-01-029A; replaces 01-06-01-029; Higher Than Expected Engine Oil Consumption (Replace PCV Valve); 1999-2002 Chevrolet and GMC C/K Models and 2002 Cadillac Escalade with 4.8L, 5.3L or 6.0L Engine (VINs V, T, N, U – RPOs LR4, LM7, LQ9, LQ4)

02-06-01-021; Whistle Noise from Intake Manifold/Throttle Body (Replace Intake Manifold); 2001 Chevrolet Corvette with 5.7L Engine (VINs G, S – RPOs LS1, LS6)

02-06-01-022; Information on Engine Ticking; 2001-02 Chevrolet and GMC C/K Pickup Models with 6.6L Duramax Diesel Engine (VIN 2 – RPO LB7)

02-06-01-023; Oil Leak at Oil Cooler to Engine Block Mating Surface (Apply Sealant, Replace O-Rings); 2001-02 Chevrolet and GMC C/K Pickup Models, 2003 Chevrolet and GMC 4500/5500 Series Models with 6.6L Duramax Diesel Engine (VIN 1 – RPO LB7)

02-06-01-024; 7.8L/6HK1–TC Diesel Engine Cylinder Head Valve Bridge Stud Installed Height; Specified 1999-2003 MD Trucks with Isuzu 7.8L Diesel Engine (VIN 3 – RPO LG4)

02-06-02-002; Loud Whine or Roar Noise From Engine (Replace Cooling Fan Clutch); 2001-02 Chevrolet and GMC G-Van Models with 5.7L Gas Engine (VIN R – RPO L31)

02-06-02-003; Engine Oil Seepage (Replace Engine Oil Cooler Lines); 1996-2002 Chevrolet and GMC 2500/3500 Full Size Vans with 4.3L V6 Gas, 5.7L V8 Gas or 6.5L Diesel Engine (VINs W, R, F – RPOs L35, L31, L65) and Engine Oil Cooler (RPOs KC4, V16)

02-06-03-005; Service Engine Soon Light With Stored Codes P0112, P0113, P1111, or P1112 (Replace IAT Sensor Connector); 1997-2002 Chevrolet Malibu, Oldsmobile Cutlass, Alero, Pontiac Grand Am with 3.1L or 3.4L Engine (VINs M, J, E – RPOs L82, LG8, LA1)

02-06-04-026; Engine Backfire and Related Driveability Issues; 1999-2002 Chevrolet and GMC B7 School Bus Chassis and C6-7 Conventional MD Models with 7.4L or 8.1L Engine (VINs B, E – RPOs L21, L18) and IMPCO/Quantum Technologies LPG Fuel System

02-06-04-027; Revised Rough, Unstable, or Incorrect Idle and Stalling Diagnostic; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-04-028; Revised Surges/Chuggles Diagnostic; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-04-029; Revised Fuel System Diagnosis – High Pressure Side; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-04-030; Revised DTC P0087 Table; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-04-031; Fuel Leaks (Inside of Engine) and Fuel Leaks (Outside of Engine) Diagnostics; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-04-032; Revised DTC P0088 Table; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-04-033; Revised DTC P0089 Table; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-04-034; Revised DTC P0093 Table; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-04-035; Revised DTC P0094 Table; 2001 Chevrolet and GMC C/K Pickup Models with 6.6L Engine (VIN 1 – RPO LB7)

02-06-05-003; Exhaust Moan/Vibration (Install New Exhaust System Flex Pipe Kit); 1999-2000 Chevrolet Silverado and GMC Sierra 1500 Series Extended Cab or Regular Cab/Long Box Pickups with 4.3L Engine (VIN W – RPO L35) and Automatic Transmission (RPO M30)

02-06-125-002; Vehicle Drive Range Decreases (Reprogram BPCM); 1997-98 Chevrolet S-10 Electric Trucks with TP-6 Lead Acid Battery Packs

## TRANSMISSION/TRANSAXLE:

02-07-30-011A; replaces 02-07-30-011; Diagnostics for Possible Gear Indicator (PRNDL) Concerns (Blank PRNDL Display, Flashing PRNDL, Sow or No Engagement of Auto Trans, DTC U1000 or U1024 Set); 2001-02 Chevrolet and GMC C/K Pickup with Allison LCT1000 Auto Trans (RPO M74)

02-07-30-025; Harsh Shifting, Delayed Upshifts, Possible Check Trans Lamp Illuminated, Possible DTC 21 Stored in TCM Memory (Follow TPS Relearn Procedure); 1999-2003 Chevrolet and GMC W-Series MD Tilt Cab Models with Diesel Engine and Aisin Auto Trans

02-07-30-026; Launch Shudder Felt on Hard Acceleration (Replace Transmission Output Shaft Flange); 2003 Cadillac STS

02-07-30-029; cancels 99-07-30-020A; New Powertrain Quality Center for Engine and Transmission Assembly Replacement; 2003 and Prior Passenger Cars and Trucks

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