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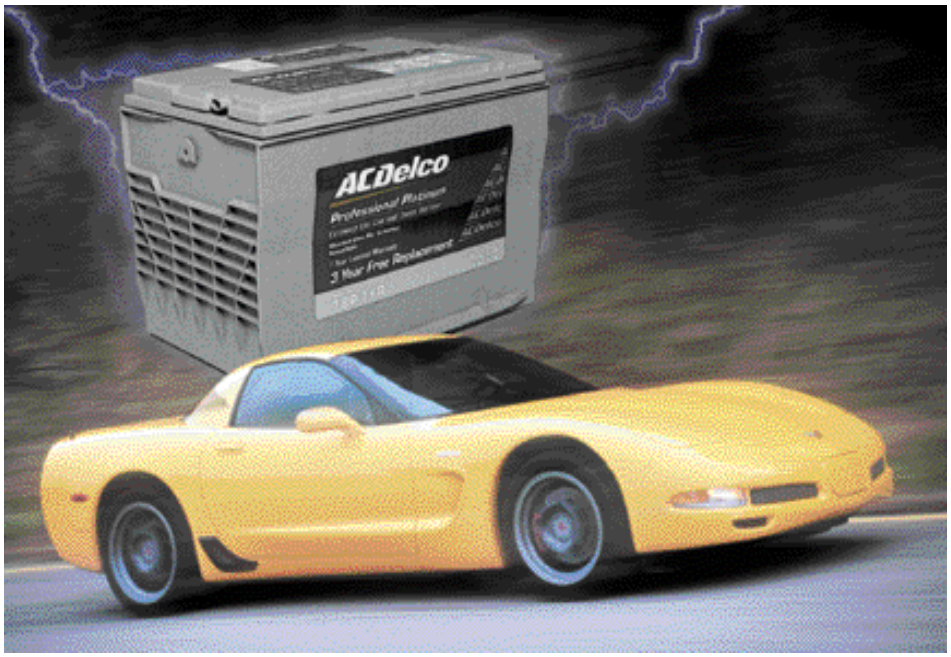
New-Style Battery to Appear in 2001 Corvette



We have several books in our technical library dated 1918, with descriptions of the batteries in use at that time. They consisted of lead plates, separated by pieces of Port Orford cedar, contained in "jars" made of bituminous compounds (a tarlike substance). A number of these jars, or cells, were then assembled inside a stout wooden box. Battery service included checking the specific gravity and adjusting the electrolyte level every week. The average motorist had to be a part-time chemist!

Great strides have been made in automotive batteries since then. With each improvement, batteries have become more reliable and have required less maintenance. But, despite major advances in manufacturing processes and materials, an auto battery has always contained lead plates submerged in a liquid electrolyte.

Until now.

Delphi Automotive Systems is now announcing the Absorbent Glass Mat (AGM) battery, which eliminates the need to immerse the plates. This technology has been proven and successfully used in the Electric S10 truck and GM's EV vehicles.

Benefits

The elimination of free electrolyte results in a battery that is lighter and smaller for the amount of power it can produce. Additionally, the AGM battery is more resistant to the effects of high temperature environments, and, according to Delco test results, the life of the AGM battery can be as much as double that of an equivalent flooded-cell battery.

How the AGM Battery Works

When the AGM battery is manufactured, a lifetime supply of electrolyte is absorbed and held in contact with the lead plates by glass mat separators

A conventional chemical reaction takes place between the sulfuric acid in the electrolyte and the lead dioxide and sponge lead plates to create electrical flow.

Two natural byproducts of a lead acid battery are hydrogen and oxygen. These elements are produced when water in the electrolyte decomposes during charging. In a non-sealed battery, these elements are allowed to escape as gases, so periodically water must be added to maintain the proper electrolyte level. In the sealed AGM battery, gas recombinant technology causes the hydrogen and oxygen to convert directly back into water, so the absorbed electrolyte replenishes itself.

The AGM battery's molded polypropylene case and cover are heat-sealed. A built-in one-way valve prevents loss of internal gases and prevents external elements from entering the battery and upsetting the chemical balance. If internal pressure exceeds 2

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GM Service Operations

The Three Cs of a Repair Order

Condition. Cause. Correction. Everyone knows that these are the three Cs that describe the vehicle repair process on a repair order. But it's the details behind the three Cs that make all the difference for an efficient, proper repair. Detailed information is needed by the technician as well as for appropriate warranty reimbursement from GM and for the GM Product Problem Identification and Resolution Process.

Bulletin 00-00-89-015 discusses the three Cs and the details that are needed to properly complete a repair order. Guidelines are provided for effective documentation on a repair order, including good and poor examples of the three Cs.

Condition

In order to provide the detail a technician requires to quickly and accurately resolve a vehicle condition, the service consultant needs to interview the customer to get the whole story. The bulletin suggests these guidelines:

- **Listen** to the customer's description of the condition.
- **Ask** questions in order to define the condition.
- **Verify** the condition. (In many instances, the condition may be a normal vehicle function.)
- **Clearly document** the condition on the repair order.

A poorly worded description such as "noise in dash" does not provide enough information to help the technician in diagnosing and repairing the vehicle. A better description with all the details adds to the diagnostic process, such as "squeak noise from right side of dash near A/C outlet when going over bumps, worse when cold."

It's important to note all the information provided by customers in their own words on the repair order. A service consultant should not try to interpret how the customer has described the condition.

Cause

Once a technician receives the repair order with a good description of the condition, the next step is to properly document the cause. The repair order should include any diagnostic trouble codes (DTCs), test results and circuit numbers when performing diagnosis to determine the cause.

A detailed description of the cause of a vehicle condition provides GM engineers with the necessary information to help identify and resolve product problems faster.

A poor description, such as "battery not charging," does not provide as much information as necessary. A better description would include all the diagnostic steps taken and their results, such as "checked charging system and found battery failed load test. Charged battery, retested and failed second time with load. Battery test code 5JRG-RN."

Correction

The correction description on a repair order should not be limited to the R&R information. Any descriptive locations and relevant observations also can be included.

Instead of noting "correct bad ground connection," a good example of a detailed correction description would be "removed G102 ground cable under battery tray, cleaned cable and added star washer."

Comprehensive cause and correction information not only provides GM engineers with more information to identify product problems, it also is useful when making warranty claims. Much of the information can be used by the dealership's warranty claim personnel to apply for the appropriate warranty reimbursement. In addition, this information is helpful when parts are returned to the Warranty Parts Center (WPC) in the problem resolution process.

Condition. Cause. Correction. It's the detailed documentation of the three Cs that helps everyone in the proper repair of a vehicle.

– Mark Stesney

GM TechLink is a monthly magazine for all GM retail technicians and service consultants providing timely information to help increase knowledge about GM products and improve the performance of the service department. This magazine is a companion to the GM Edge publication.

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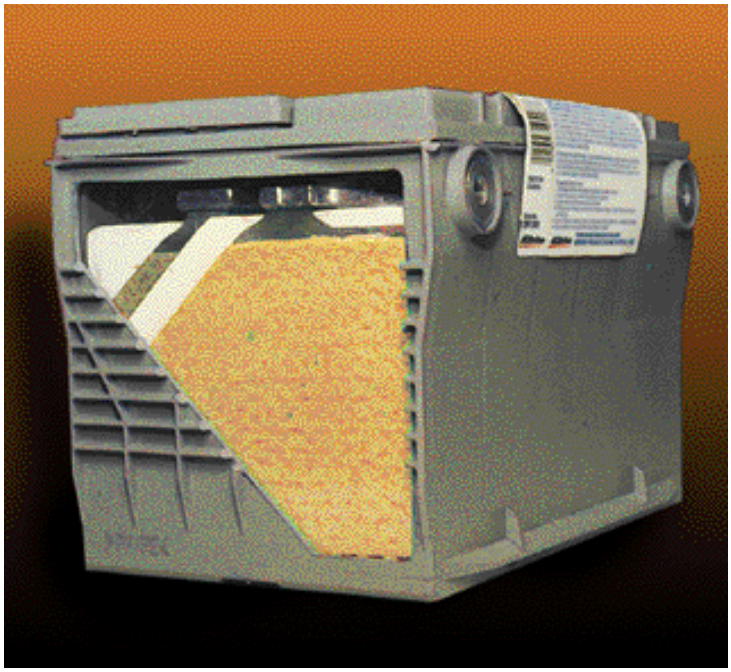
New-Style Battery, continued



The lead plates (TAN) in the AGM battery are separated by fiberglass mats (WHITE).

psi (from excessive overcharging for instance), the valve vents the excess gases. Although not recommended, the AGM battery can be turned completely upside down without spilling electrolyte.

Because there is no reservoir of liquid in the battery to operate the familiar "green eye" hydrometer, none is fitted.

Service and Precautions

Observe all safety precautions in the service manual and on the battery label. The AGM battery still contains lead and acid, and can at times vent explosive gases. These precautions are the same for the AGM battery as for other batteries.

The AGM battery can be installed using conventional top or bottom hold-downs; the standard thermal insulator must be used if applicable.

The terminals are labeled with plus and minus symbols. Always observe correct cable polarity, and connect the positive terminal first. If vinyl-sealed cable connectors are used, there is no need for periodic disassembly and cleaning. When installing a new AGM battery, you should use a wire brush on the contact surfaces to remove any protective film or oxidation that would inhibit current flow.

The AGM battery is maintenance-free and sealed for life. Do not attempt to open the case or add water or electrolyte.

The AGM battery may be used in place of conventional batteries. Just be sure to match the Cold Cranking Amp and Reserve Capacity ratings.

Testing

Most electronic testers require the correct CCA rating for evaluating the battery. The essential J-42000 Battery Conductance Tester should be used to evaluate the AGM battery, with one important change to the procedure.

NOTE: This procedure applies only to testing the AGM battery with the J-42000 tester. Making this modification for other testers or other batteries will result in incorrect test results. Other testers may be capable of testing the AGM battery without modifying the procedure. Refer to the tester manufacturer's instructions.

When the J-42000 prompts you to enter the CCA value, add 100 amps to the rating on the battery. For instance if the battery's CCA rating is 500, add 100 and enter 600 CCA into the tester.

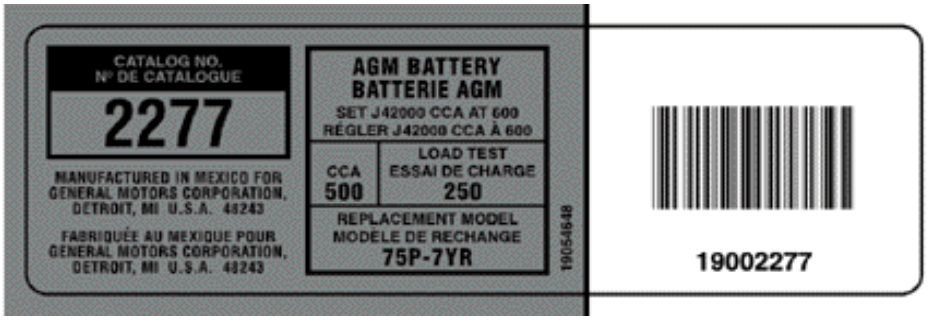
When you have completed the test, locate the diagnostic code provided by the J-42000 readout and record it on the repair order for warranty purposes. Remember that a battery that fails an in-vehicle test must be retested out of the vehicle to confirm that the battery should be replaced. Record only the results of the out-of-vehicle test on the repair order.

Because the AGM battery is not flooded with electrolyte, a built-in hydrometer couldn't be used. You must determine state of charge indirectly by interpreting the open circuit voltage. Refer to the service manual for details. A battery may be returned to normal service if it has a state of charge above 65%.

Charging

Use a taper-rate charger. This type of charger reduces the charging rate as the battery approaches full charge, then stops the charge or switches to a float charge status when full charge is reached. Avoid causing the internal valve to open, allowing gasses to escape.

– Dave Roland, Brad Thacher and Charley Gipe contributed to this story.



A corrected CCA must be used when testing the AGM battery with the J-42000 Conductance Tester.

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The Second Time Around: What "Remanufactured" Really Means

After numerous meter checks, operating checks, and yes/no decisions, the diagnostic chart finally tells you to replace the Powertrain Control Module (PCM). At the parts counter, you turn in the original, fill out the paperwork and receive a replacement. On the way back to your work area you notice that the replacement PCM is marked "remanufactured." What does that mean?

If it's a Delphi Delco PCM, here's what it goes through before it's allowed to wear the Delphi Delco Electronics Systems remanufactured stamp.

After traveling the parts return channel from your dealership, the PCM arrives at one of several strategically placed Remanufacturing Centers around the country. The locations were selected to maximize the service to you and ensure the availability of the PCM. The centers are independent businesses whose people have been trained and certified by Delphi Delco Electronics Systems Corporation. From here on, our tour guide will be C.C. "Chip" McCoy - Supervisor of Customer and Technical Support for Delphi Delco Electronic Systems.

Chip points out that electronic components of all kinds come here for processing – ECM/PCMs, radios, cassette and CD players, ABS controllers, instrument panel displays – the list goes on and on.

He further explains, "For every part that comes back, a technician, somewhere, has performed a diagnostic procedure and has decided that the component was the cause of the condition. So Delphi Delco Electronics Systems has to assume that each and every component returned contains the fault listed on the return ticket."

But, the unpleasant fact is that the vast majority of components coming in are NTF (no trouble found). Exact percentages vary with product line, of course, but they're all very high. We'll come back to that situation later.

Original equipment must pass rigorous inspection and testing at the end of the assembly line to be sure the component meets all of the engineers' design and manufacturing intents. A remanufactured part, however, must go through a different kind of testing. The reasoning is that the component failed to perform as intended while installed in a vehicle in the real world, so the testing must be far more rigorous to simulate the vehicle conditions.

Rigorous Testing

A computer-controlled ATE (Automated Test Equipment) sends signals to the product and measures the outputs to assure correct performance. Memory tests, input and output tests, factory tests (the same as the production factory), and vehicle simulation tests using a vehicle calibration are just some of the tests performed by the ATE to search for any problem. This automated testing is performed while the product is vibrated, heated, and cooled when needed to simulate a vehicle environment.

Once the fault has been detected, the necessary repairs are made. The repair technician at the Reman Center will perform any Remanufacture Bulletins that have been issued for this piece of equipment at this time also. Repairs include circuit board repairs, solder joint repairs, component replacement, terminal repairs, and whatever else is needed to ensure that the remanufactured product is functionally identical to the original "new" product. After any needed repair, the product is re-tested before continuing through the process.

GM is so confident with the remanufacturing process that remanufactured parts carry the same warranty as the original parts if the vehicle is within warranty. If the vehicle is past the original warranty period, GM provides a 12 month/12,000 mile warranty for those components.

NTF Parts

Chip McCoy has a theory about parts returned in error, which sounds plausible to us. Having been an instructor for 10 years at the Chicago GM Training Center, he does have a little insight into these issues. After a technician has used a diagnostic chart several times, a certain familiarity with the procedure creates a false sense of comfort. Without conscious thought, shortcuts are taken. Steps are overlooked. And a perfectly good component ends up at the Remanufacturing Center door as an NTF. In addition to this, many times the problem is a connection that has become oxidized and consequently an insulated terminal. The simple act of plugging and unplugging the components to replace it has actually "fixed" the problem.

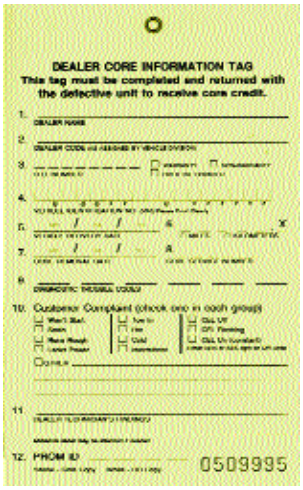
So, what can you do about it? The same thing all professional airline pilots do when they step into a plane. Follow the checklist. Explicitly. Every step. Every time. No shortcuts. No assumptions.

What about the times when you follow that diagnostic chart to the end, and the condition is still there? The wrong thing to do is simply to start replacing things, creating an even greater flow of returns to the Remanufacturing Center.

Instead call your Technical Assistance (TAC) hotline. The TAC advisors will often be able to answer your questions immediately. However, if you have a really tough problem, they can also help by putting you in contact with more specialized advisors. For example, for engine system problems, GM Powertrain has advisors who work only with a single engine family; they are engine system experts. If it turns out that your problem is related more specifically to the PCM, Delphi Delco Electronics Systems has advisors in the Technical Assistance Groups that are available for helping dealers that are involved in a car division's TAC cases. This network of information is available to you, simply by having your Service Manager contacting the TAC hotline.

The Core Tag

Recording accurate and complete data on the core tag is also an important part of the job. The information on this tag helps the Remanufacturing Center technician in two ways. First, it gives important clues about what in the unit may be failing. This is especially important for pinpointing the source of intermittent problems. Second, it indicates where to concentrate special attention if the trouble is not easily found. Additional testing, different or longer temperature conditioning, and other techniques can be and are used when a valid failure appears to have been recorded on the core tag. The repair technicians can be incredibly persistent when they know that a fault exists in the unit.


DEALER CORE INFORMATION TAG
This tag must be completed and returned with the defective unit to receive core credit.
0509995

The process for completing the core tag is simple, and you can help assure quality remanufactured units by:

1. Making sure you obtain a blank core tag when you obtain your replacement unit.

2. Completing the information requested. Instructions are located on the back of the card.

3. Attaching the yellow copy of the completed tag to the unit to be returned and the white copy to the repair order (RO).

4. Shipping the part back in the same container the replacement part came from. The coding on the container is important to the Remanufacturing Center.

– Janice Harmeyer and C.C. "Chip" McCoy contributed to this article.

Bulletin 00-06-04-026, dated June 2000, explains the current parts return and documentation process for PCMs replaced under warranty. According to the bulletin, this information is required on the repair order:

- detailed customer concern
- MIL illuminated?
- what DTCs were set?
- Cal ID number
- SI2000 document number that led to replacement

See the bulletin for full details.

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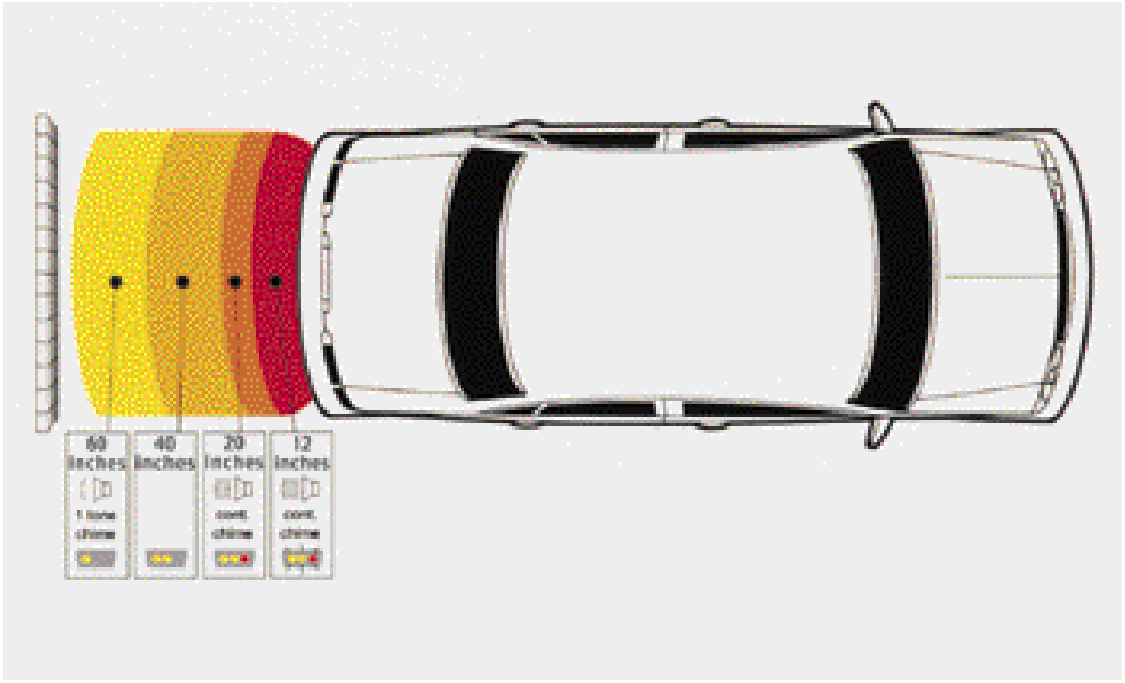
Understanding the Rear Parking Assist System

For the 2001 model year, the Montana, Silhouette, and Venture vans join the DeVille and Seville in offering the Rear Parking Assist (RPA) system. The Cadillac service manual refers to this as the Ultrasonic Rear Park Assist (URPA) system.

Some owners may misunderstand proper system operation. Here are some tips to help you decide whether their concerns indicate a system malfunction. Always consult the proper service manual for full details.

First, the RPA is intended as a parking assist, not as a rear obstacle detection device. That is, it helps the driver know how close the rear bumper is to an object when backing up.



RPA operates on ultrasonic sound – it's not detectable by the human ear. An array of four object sensors in the rear bumper transmit ultrasonic sounds, which bounce off any objects within range. By comparing signals that return to the four object sensors, the RPA control module can calculate how far away the object is. The normal range extends about five feet behind the vehicle, from ten inches above ground level to the top of the bumper. RPA responds to an object at least 3 inches wide.

A display of telltale lamps, two amber and one red, is located above the rear window and is visible in the rear view mirror.

RPA operates when the shift lever is moved to Reverse and the vehicle is moving below 3 mph (on the vans the disable switch must be off). Initially, all three lamps come on momentarily to indicate that the system is working.

When the vehicle backs up and RPA detects an object 5 feet behind the vehicle, the first amber light comes on. At 40 inches, the second amber light comes on. At 20 inches the red light comes on, and a chime sounds. At 12 inches, all three lights flash and the chime continues.

Special Operating Conditions

The RPA lamp will flash red in Reverse if there is a trailer attached to the vehicle, or if there is an object such as a bicycle extending from the luggage compartment. The lamp will continue to flash until the vehicle is driven forward above 15 mph with the obstruction removed. This condition can be avoided in the vans by disabling the RPA system with the disable switch.

The lamp may flash red if the ultrasonic sensors are not kept clean. Be sure to remove mud, dirt, ice or slush. The lamp will also flash if the vehicle is driven above 3 mph in Reverse.

Be aware that some conditions outside the vehicle may cause the red lamp to flash. These include vibrations from a jackhammer or the operation of air brakes on a very large truck.

All of these flashing lamp conditions are normal and do not require repair.

Diagnosis

If there is a fault, the lamp display flashes red and the system is disabled.

The RPA control module is capable of detecting faults and storing diagnostic trouble codes. You can put the control module into the code display mode by grounding the diagnostic connector at the control module, turning the ignition on, and shifting to Reverse within 5 seconds. The lamps then display codes using various light patterns. Refer to the service manual to interpret the codes.

To erase diagnostic codes, be sure the diagnostic connector is not grounded. Driving the vehicle forward at least 15 mph, then stopping and turning the ignition off will clear codes. Codes may also be cleared by turning the ignition on, shifting to Reverse within 5 seconds, and turning the ignition off.

Refinishing Tip

Here's an important tip regarding paint. The object sensors are sensitive to paint thickness. So, if the paint is damaged, do not attempt to refinish the sensor; replace it. When painting a replacement sensor, refer to basecoat/clearcoat paint procedures. Be sure the paint thickness does not exceed 6 mils, as determined by a non-ferrous paint thickness gauge.

- Tom Burlingame, Russ Gilbert and Chris Graham contributed to this article.

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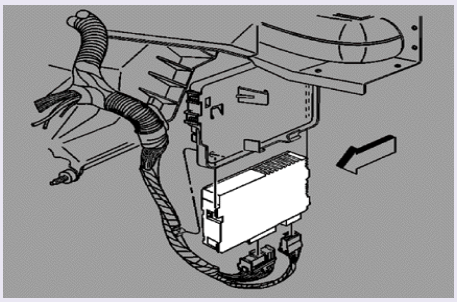
Setup Procedures for New Configurable Modules

Automatic door locks, automatic headlamp control, keyless entry, vehicle theft deterrent and content theft deterrent – these are just some of the vehicle functions either controlled by the Body Control Module (BCM) or that rely on information from the BCM over the Class 2 data bus in order to function properly. In the June issue of TechLink, we covered how to diagnose some Class 2 data bus conditions that could affect these vehicle functions.



If your diagnosis of any Class 2 data bus conditions leads you to replace the BCM, there are several setup procedures that must be performed in order for everything to work together properly. Because the control modules of other vehicle systems are looking for information from the BCM, setup procedures must be completed when a new module is installed. The BCM will not function properly if the setup procedure is not performed. The theft deterrent system components also must be programmed after finishing the new BCM setup procedure, otherwise the vehicle will not be protected by the Passlock system and the engine will not crank or start.

As the first step in the setup procedures before replacing the BCM, be sure to write down any personalization features that were set on the vehicle. The new BCM should be programmed with these settings. Personalization features can be viewed under the Personalization Option selection of the Body Diagnostics menu on the Tech 2.

Following are the setup procedures for several BCM-controlled modules that need to be set up after replacing the module on various models. We'll cover the setup procedures for additional vehicles in an upcoming issue.

2001 Pontiac Aztek BCM Setup Procedures after BCM Replacement:

- Record Personalization settings prior to BCM replacement
- Run new VIN under BCM > Special Functions on Tech 2
- Run BCM Reprogramming under BCM > Special Functions on Tech 2
- Run Option Configuration under BCM > Special Functions > Set Options on Tech 2
- Run Point of Sale under BCM > Special Functions > Set Options on Tech 2
- Set Personalization settings
- Perform Vehicle Theft Relearn under SPS Function or manual method
- Clear all DTCs (Other modules will set DTCs against the BCM prior to entering the new VIN)

2001 Pontiac Aztek Radio Setup Procedures after Radio Replacement:

- Record Radio AM & FM Preset Stations
- Set Country Code under Radio > Special Functions on Tech 2
- Run Radio Setup under Radio > Special Functions on Tech 2
- Run new VIN under Radio > Special Functions on Tech 2
- Reset Radio Preset Stations and Time

1999–2001 Chevrolet/Pontiac F-Car IPC Setup Procedures after IPC Replacement:

- Synchronize IPC and SIR under IPC > Special Functions on Tech 2
- Clear IPC DTCs

2000–01 Chevrolet Impala/Monte Carlo BCM Setup Procedures after BCM Replacement:

- Record Personalization settings under Personalization > Set Options prior to BCM replacement
- Run new VIN under BCM > Special Functions on Tech 2
- Run BCM Reprogramming under BCM > Special Functions on Tech 2
- Run Option Configuration under BCM > Special Functions > Set Options on Tech 2
- Run Point of Sale under BCM > Special Functions > Set Options on Tech 2
- Set Personalization settings under Personalization > Set Options on Tech 2
- Perform Vehicle Theft Relearn under SPS Function or manual method
- Clear all DTCs (Other modules will set DTCs against the BCM prior to entering the new VIN)

2000–01 Chevrolet Impala/Monte Carlo Radio Setup Procedures after Radio Replacement:

- Record Radio AM & FM Preset Stations
- Set Country Code under Radio > Special Functions on Tech 2
- Run Radio Setup under Radio > Special Functions on Tech 2
- Run Chime Settings under Radio > Special Functions > Set Options on Tech 2
- Reset Radio Preset Stations and Time

1997–2000 Chevrolet Lumina Module Setup Procedures:

- There are no Body modules that require setup. Check the service manual for instructions on PCM replacement.

1999–2001 Pontiac Grand Prix VTD Setup Procedures after VTD Replacement:

- Perform Vehicle Theft Relearn under SPS Function or manual method

1998–99 Oldsmobile Intrigue BCM Setup Procedures after BCM Replacement:

- Record Personalization settings under Personalization > Set Options prior to BCM replacement
- Run BCM Reprogramming under BCM > Special Functions on Tech 2
- Run Point of Sale under BCM > Special Functions > Set Options on Tech 2
- Set Personalization settings under Personalization > Set Options on Tech 2
- Perform Vehicle Theft Relearn under SPS Function or manual method
- Clear all DTCs (Other modules will set DTCs against the BCM prior to entering the new VIN)

2000–01 Oldsmobile Intrigue BCM Setup Procedures after BCM Replacement:

- Record Personalization settings under Personalization > Set Options prior to BCM replacement
- Run new VIN under BCM > Special Functions on Tech 2
- Run BCM Reprogramming under BCM > Special Functions on Tech 2
- Run Point of Sale under BCM > Special Functions > Set Options on Tech 2
- Set Personalization settings under Personalization > Set Options on Tech 2
- Perform Vehicle Theft Relearn under SPS Function or manual method
- Clear all DTCs (Other modules will set DTCs against the BCM prior to entering the new VIN)

1997–98 Buick Century/Regal BCM Setup Procedures after BCM Replacement:

- Record Personalization settings under Personalization > Set Options prior to BCM replacement
- Run BCM Reprogramming under BCM > Special Functions on Tech 2
- Run Point of Sale under BCM > Special Functions > Set Options on Tech 2
- Set Personalization settings under Personalization > Set Options on Tech 2
- Perform Vehicle Theft Relearn under SPS Function or manual method
- Clear all DTCs (Other modules will set DTCs against the BCM prior to entering the new VIN)

1999–2001 Buick Century/Regal BCM Setup Procedures after BCM Replacement:

- Record Personalization settings under Personalization > Set Options prior to

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TAC Tips

2000 LeSabre, Bonneville Side-to-Side HVAC Temperature Difference

There may be a side-to-side HVAC temperature difference from the outlets in the C68 system equipped on some 2000 Buick LeSabre and Pontiac Bonneville models.

This condition may be a result of a low refrigerant charge. Use a refrigerant charge over 2.0 lbs. for the 2000 LeSabre and 2000 Bonneville models. The previous critical charge amount was 1.5 to 1.6 lbs. with a 0.5 lb. reserve and the recommended charge was a total of 2.0 lbs. A recommended charge of 2.2 lbs. is now specified. Additional research is being conducted on charge determination before a final production charge is released. For the present, the A/C charge to use as the specified charge is 2.2 lbs. for the 2000 LeSabre and 2000 Bonneville.

1999-2000 Cadillac Catera Poor AM Radio Reception

Some owners of 1999-2000 Cadillac Cateras may express a concern regarding poor AM radio reception. This condition may be caused by corrosion at the antenna cable connections that can develop in as little as 5000 miles, leading to high shielding resistance and causing a reduction in the AM radio signal at the radio receiver.

A new cable, part number 9120443 (radio to amplifier), has been released with improved connector crimps and an "opalloy" coating. Vehicles built after VIN W06VR52RXYR117966 have been produced with the improved cable.

In the diagnosis of poor AM reception, proper antenna cable shielding and grounding can be determined by the following method:

1. Disconnect the antenna lead-in connector from the radio receiver.

2. Using an ohmmeter, check the resistance from the cable outside crimp to the radio ground (E16 in the blue connector).

3. Reverse the leads and note the resistance again.

If the average of the two measurements exceeds 0.5 ohms, the antenna system ground/shielding is ineffective. All antenna connections, radio and amplifier grounds are possible faults. The antenna cable also should be routed along the RH side of the vehicle only and should not be tied to or in close proximity to other harnesses on the rear package shelf. Additional detailed diagnosis can be found in the Entertainment section of the service manual under "Antenna Diagnostic Check."

Corvette BCM Programming

When programming BCM RPO options with the Tech 2 on a 1997-1999 Corvette, the message "Only one of the following options can be set at a time" will appear on the Tech 2 screen. If the technician activates & saves all options, one at a time, one of the options may be deactivated. This is a possible Techline software concern.

The message "Only one of the following options can be set at a time" should be disregarded. All options should be activated at once then saved.

A software change to correct this concern will be available on the Techline Data CD release in September.

2001 C/K Trucks Programmable Door Lock Change

A change to the factory setting for the programmable door lock feature on full-size Chevrolet Silverado and GMC Sierra pickups with an automatic transmission has been implemented for the 2001 model year. The factory setting will have the auto lock/unlock feature deactivated (not operational). This feature should be explained to customers and they should be assisted with programming the setting as desired (Refer to Section 2 of the Owner's Manual). *Note:* Programming is a part of the delivery process.

OnStar Battery Drain Test

The VS-3B OnStar system may not properly power the execute mode when performing the power consumption diagnostic test from the OnStar Diagnostic Manual (DT9). As written, the power consumption diagnostic test procedure is incorrect.

Any time the OnStar VS-3B VIU has power interrupted, the technician must obtain a current GPS location. Power is removed from the unit during the second step of the test to install an ammeter in line on the main power feed to the OnStar system. When the ammeter connections are complete and power is restored to the OnStar system, the technician must have the vehicle outside and running for five to ten minutes to obtain a current GPS location. The technician should press the OnStar Services button and verify with the OnStar Center that the unit has a current GPS location. After the location has been verified, the test can then be completed as written in the OnStar Diagnostic Manual.

Affected models include all 1998-2000 models with the VS-3B OnStar system.

– GM Technical Assistance

BCM replacement
- Run new VIN under BCM > Special Functions on Tech 2
- Run BCM Reprogramming under BCM > Special Functions on Tech 2
- Run Point of Sale under BCM > Special Functions > Set Options on Tech 2
- Set Personalization settings under Personalization > Set Options on Tech 2
- Perform Vehicle Theft Relearn under SPS Function or manual method
- Clear all DTCs (Other modules will set DTCs against the BCM prior to entering the new VIN)

2000–01 Chevrolet/Pontiac/Oldsmobile U/X-Van IPC Setup Procedures after IPC Replacement:
- Synchronize IPC and SIR under IPC > Special Functions on Tech 2
- Run new VIN under IPC > Special Functions on Tech 2
- Clear all DTCs (Other modules will set DTCs against the IPC prior to entering the new VIN)

2000–01 Chevrolet/Pontiac/Oldsmobile U/X-Van VTD Setup Procedures after VTD Replacement:
- Perform Vehicle Theft Relearn under SPS Function or manual method

2000–01 Chevrolet/Pontiac/Oldsmobile U/X-Van Radio Setup Procedures after Radio Replacement:
- Record Radio AM & FM Preset Stations
- Set Country Code under Radio > Special Functions on Tech 2
- Run Radio Setup under Radio > Special Functions on Tech 2
- Run New VIN under Radio > Special Functions on Tech 2
- Reset Radio Preset Stations and Time

1997–2001 Chevrolet Corvette BCM Setup Procedures after BCM Replacement:
- Run BCM RPO Reprogram under BCM > Special Functions on Tech 2
- Perform Vehicle Theft Relearn under SPS Function or manual method
- Clear all DTCs (Other modules will set DTCs against the BCM prior to entering the new VIN)

– Mike Zambo

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Bulletins – July 2000

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

GENERAL INFORMATION:

00-00-89-013; May, 2000 Bulletin Summary; 2001 and Prior Passenger Cars and Trucks

00-00-89-014; July, 2000 Labor Time Guide Updates; 1996-2001 Passenger Cars and Trucks

STEERING:

00-02-35-003; Clunking Noise Under the Hood and can be felt in the Steering Wheel (Replace the Upper Intermediate Steering Shaft Assembly); 1999-2000 Chevrolet and GMC C2/K1/K2 Pickup Models (Silverado and Sierra), 2000 Chevrolet and GMC C/K Utility Models (Suburban, Tahoe, Yukon, Yukon XL), With Recirculating Ball-Type Steering

ENGINE/PROPULSION SYSTEM:

99-06-04-039A; Replaces 99-06-04-039; Reduced Engine Power, DTC(s) P1125, P1275, P1276, P1280, P1281, P1285 and/or P1286 May be Present (Current or in History) (Replace Accelerator Pedal Assembly); 1999 Chevrolet and GMC B7 Bus, C6-7 Conventional, P32 Medium Duty Models, With 7.4L Engine (VINs B, D – RPOs LP4, L21)

00-06-01-014; Possible Oil Filter Damage or Oil Leak from Oil Filter Area (Install Oil Filter Adapter); 1999-2000 Chevrolet and GMC K Pickup Models with 7.4L Engine (VIN J – RPO L29) and without and oil filter adapter

00-06-03-006; California Consent Order on Settlement of Lawsuit on Batteries (Proposition 65); 2001 and Prior Passenger Cars and Trucks

00-06-04-024; Engine Misfire, Water in Fuel, Service Engine Soon Lamp Illuminates, DTC P0300 Set (Replace EVAP Canister Vent Hose Asm/Replace EVAP Canister if Necessary); 1999-2000 Chevrolet and GMC C/K Pickup Trucks (Silverado and Sierra) Built Prior to August 31, 1999

00-06-04-025; ABS Light On at High Speeds (Above 70 mph or 113 km/h), Code C0237 Set (Install New PCM); 2000 Chevrolet and GMC S/T Pickup Models with 2.2L Engine (VIN 4 – RPO LN2) and 4L60-E Automatic Transmission (RPO M30)

00-06-04-026; Powertrain Control Module (PCM) Product Feedback Program (Parts Return and Required Repair Order Documentation); 2001 and Prior Passenger Cars and Trucks

TRANSMISSION/TRANSAXLE:

00-07-30-013; Forward Clutch Piston Change on 4T40-E/4T45-E Automatic Transaxles; 1998-2000 Chevrolet Cavalier, Malibu, 1998-99 Oldsmobile Cutlass, 1999-2000 Oldsmobile Alero, 1998-2000 Pontiac Sunfire, 1999-2000 Pontiac Grand Am, With 4T40-E or 4T45-E (RPOs MN4, MN5) Automatic Transaxle

BODY AND ACCESSORIES:

00-08-42-003; Headlamp Capsule Availability; 1997-2000 Chevrolet Venture, Oldsmobile Silhouette, Pontiac Trans Sport

00-08-44-005; Generator Whine in Audio System (Install New Ground for Radio and Amplifier and/or Replace Radio); 2000 Chevrolet and GMC C/K 1500/2500 Series Utility Trucks (Suburban, Tahoe, Yukon/XL) With Uplevel Trim and Audio Package (RPO YE9) Built Prior to VIN Breakpoints

00-08-44-006; Power Antenna Not Working Properly or is Completely Inoperative (Replace Antenna O-Ring Assembly/Cap Nut & Clean Mast); 2000 Chevrolet Camaro and Corvette, Pontiac Firebird, Chevrolet and GMC G-Van

00-08-64-007; Slow/Non-Moving (Chatters/Noisy) Glass, Bent Regulator Arms or Window is Inoperative (Replace Run Channel and/or Weatherstrip); 1997-2000 Chevrolet Venture and Oldsmobile Silhouette, 1997-1999 Pontiac Trans Sport, 1999-2000 Pontiac Montana

00-08-67-002; Cleaning and Care of Fabric Convertible Tops; 2001 and Prior Chevrolet Camaro, Corvette and Pontiac Firebird

Disable Side Impact Air Bags Before Door Repairs

Technicians are reminded in Service Bulletin 00-09-41-003 that service procedures to any component within the front doors on 1998-99 Cadillac DeVille models should begin with disabling the SIR system.

1998-99 DeVilles are equipped with door-mounted Supplemental Inflatable Restraint (SIR) systems. The side impact air bags are located on the front door interior panels. The SIR system in each front door includes an inflatable restraint side impact sensing module (SISM) and an inflatable restraint side impact inflator module.

The Service Manual precautions are listed below.

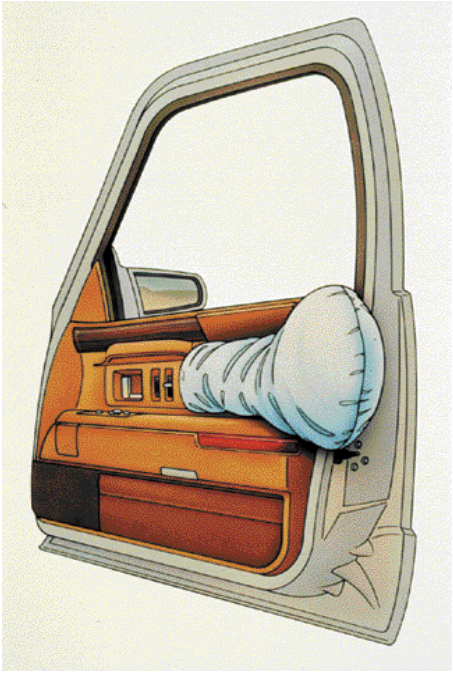
Caution: The side impact air bags ar e located on the front door interior panels. Therefore, any service to a door trim pad or any door components behind the door trim pad must be preceded by disabling the SIR system. Failure to follow the cor - rect procedure could cause air bag deploy - ment(s), personal injur y, or unnecessar y SIR system repairs.

Caution: When performing service on or near the front door components or wiring, you must disable the SIR system. To disable the SIR system, do the follow - ing:

1. **Turn the ignition key to the OFF position.**
2. **Remove the key from the ignition.**
3. **Remove the SIR fuse (20 A) from the rear compartment fuse block.**

Caution: In order to avoid deploying the air bag when troubleshooting any component within the door or the SIR sys - tem, use of the proper tools as specified in the Service Information is required.

– Jerry Garfield



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