

A Monthly Publication for GM Dealership Service Professionals

Active Fuel Injector Tester

A new essential CH-47976 Active Fuel Injector Tester (AFIT) has been released by SPX Kent-Moore. Shipment of this tool begins in June and is being rolled out initially to all Cadillac dealers (US and Canada), Tier 1 and 2 Chevrolet and GMC dealers in the US, and high volume Chevrolet and GMC dealers in Canada. The AFIT will be an available tool for all other dealers at essential pricing.

WHY A NEW TESTER WAS DEVELOPED

The AFIT was developed to address important issues concerning diagnosing today's gasoline fuel injection systems –

- Improve the accuracy of diagnostics for the new AFIM (Air Fuel Imbalance Monitor) system due to increasing emission requirements. Codes P1174 and P1175 are new for AFIM diagnostics.
- Tech 2 output control for the Fuel Injector Balance Test does not work on vehicles equipped with Theft Immobilizer system (see sidebar on page 5).

Existing SI procedures using a pressure gauge and Tech 2 are not reliable enough to determine the root cause of certain



driveabilty issues. Needless replacement of injectors can occur if not diagnosed correctly.

TIP: The AFIT can perform multiple fuel system tests, including the Fuel Injector Coil Test, Fuel Pump Pressure Leakdown Test, and the Fuel Injector Balance Test.

continued on page 4

Techline News

Using Jumper Pack During Programming

The length of time it takes to program a module has increased dramatically. Some applications can take as much as 30 minutes. This is due to larger calibration files and GMLAN controllers that take longer to program.

During programming, the ignition key must be turned on, without the engine running, which means the vehicle's systems are operating from the vehicle battery. If system voltage drops below 12 volts, programming is interrupted.

To prevent this from happening, a supplemental external power source would be desirable. However, because clean, stable voltage is critical during module programming, the power source must be carefully selected. Any fluctuation, spiking or loss of voltage can interrupt programming, which could cause the controller to lock up. A battery charger uses a rectifier to convert AC to DC. In many chargers, the rectifier does not filter out all of the AC, which results in "dirty" DC that is not suitable for programming.

One suitable battery charger that has been validated by GM was introduced in the July 2005 issue of TechLink. The Midtronics 165-PSC charger is available in two amp ratings from GM Dealer Equipment.

The Jumper Pack Solution

Here's another solution to the problem. Many dealerships own a portable 12v jumper pack to supply remote power, for instance to jump-start vehicles in the storage lot. These are also sometimes called battery packs or booster packs.

The 12v jumper pack may be suitable for use during module programming.

There are a few precautions you need to be aware of. First, be sure the jumper pack is fully charged before you use it. The purpose of the jumper pack is to supplement the vehicle's battery, so the pack must be up to the task. continued on page 2

TECHtink .

Contents

Active Fuel Injector Tester	.1
Using Jumper Pack	
During Programming	.1
CH 48106 Suspension Thread	
Repair Kit Update	.2
Battery Drain with Retractable	
Hardtop	.2
HVAC Sensors and Actuators	.З
Diagnosing Fuel Injectors	
with Tech 2	.5
Parking Brake	.5
Test Probe and Terminal	
Repair Kit on Web	.5
Cruise Control and Check	
Gauges Lights	.6
Luggage Carrier Siderails	.6
Using Tech 2 to	
Diagnose Service Stability Light	.6
Navigation Radio Concerns	.6
Multiple Glow Plug DTCs	.7
Turbocharger Oil Supply	.7
Transmission Fluid Leak	.7
HVAC Control Head	.7
Fix It Right the First Time	.8
Know How Broadcasts for July	g
	.0

GM Service and Parts Operations

Techline News — from page 1

Second, do not have the jumper pack plugged into an AC outlet during the programming event. This may introduce stray AC or other fluctuations into the system, which can interrupt the programming process.

TIP: Vehicles with a high number of modules, such as the 2007 C/K trucks, can draw as much as 10 amps with the ignition on, engine off. Under these conditions, a jumper pack will eventually discharge. So, if you are planning to program multiple modules, it may be advisable to use a battery charger such as the Midtronics 165-PSC.

These jumper packs are available from GM Dealer Equipment (1.800.GM.TOOLS).

- Thanks to Mark Stesney and Dave Roland



Kwikstart Model 6225 Part No. 110-6225

- 18 Amp Hour Battery
- 1000 Peak Amps
- 250 Cold Cranking Amps
- 32" 4 Gauge Cables
- LEDs for battery state of charge
- External Charger
- Overcharge protection
- 400 Amp Clamps
- 18 lbs.



Kwikstart Model 6250 Part No. 110-6250

- Hi-Performance 17 Amp Hour Battery
- 1650 Peak Amps
- 650 Boost Amps
- 360 cold cranking Amps
- 32" 4 Gauge cables
- LEDs for battery state of charge
- External charger
- Overcharge protection
- 400 Amp clamps
- 20 lbs.

CH 48106 Suspension Thread Repair Kit Update

Here's the current photo of the CH 48106 Suspension Thread Repair Kit, to replace the one published in the June issue of TechLink.

CH 48106 Suspension Thread Repair Kit

Battery Drain with Retractable Hard Top

This information applies to the 2006 Pontiac G6 Convertible (Retractable Hard Top).

The vehicle should be started and the engine running when demonstrating and cycling the top multiple times.

This will prevent a retractable hard top operational issue caused by a low battery state of charge.



For further information on this and other top operational issues, refer to the Retractable Top Operational Card shipped with every vehicle and the Know How Course 12442.10V on a CD which was shipped to every Pontiac service department in mid April of 2006.

- Thanks to Ray Romeo



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.

Manager, Product Readiness:

R. M. (Bob) Savo GM Service and Parts Operations Bob.Savo@GM.com

Publisher & Editor:

- Mark Stesney
 - GM Service and Parts Operations Mark.Stesney@GM.com

Technical Editor:

Jim Horner

Sim_Horner@ADP.com 1-248-816-3641

Production Manager: Marie Meredith

Desktop Publishing:

- Supreme Graphics, Inc.
- FAX number:

1-248-649-5465

Write to: 🖂

TechLink PO Box 500 Troy, MI 48007-0500

GM TechLink on the Web:

GM DealerWorld

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.

Inclusion in this publication is not necessarily an endorsement of the individual or the company.

Copyright© 2006 General Motors Corporation All rights reserved.

HVAC Sensors and Actuators

Here's some supplemental information to use when diagnosing DTC fault codes on the HVAC system in the 2007 full-size utilities.

TIP: Always follow the diagnostics presented in SI for the vehicle you're working on.

The two illustrations show the locations of all sensors and actuators for front and rear units. The accompanying table includes a complete listing of DTCs, the components they represent, and additional notes.

TIP: This material is also available in the Reference Guide on the TechLink website. – *Thanks to Jim Frett*



Front HVAC unit - CJ2/CJ3

- A Sensor 1 Air Temperature Sensor – Upper Left Side
- B Sensor 3 Air Temperature Sensor – Upper Right Side
- C Actuator 3 Air Temperature Actuator Right
- D Recirculation Actuator
- E Mode Actuator
- F Sensor 2 Air Temperature Sensor Lower Left Side
- G Sensor 4 Air Temperature Sensor Lower Right Side
- H Actuator 1 Air Temperature Actuator Left
- J Linear Power Module



- A Sensor 1 Inside Air Temperature Sensor Assembly (front of headliner, not shown)
- B Sensor 2 Inside Air Temperature Sensor Assembly – Auxiliary (top left of C pillar, not
- shown) C Sensor 6 – Air Temperature Sensor – Upper Auxiliary
- D Sensor 7 Air Temperature Sensor Lower Auxiliary
- E Mode Actuator Auxiliary
- F Air Temperature Actuator Auxiliary
- G Linear Power Module

Note: Actuators are located on the outboard side of the RR HVAC on Tahoe/Yukon/Denali/Escalade

Module: GMT900 CJ2 HVAC Head (Chevy-GMC-Cadillac)

DTC NO.	FTB	Description	Comments Specific to DTC
B0158	02	Outside Air Temperature Sensor Circuit Short to Ground	OAT sensor
B0158	05	Outside Air Temperature	Sensor Circuit Short to Battery or Open
B0163	02	Passenger Compartment Temp Sensor 1 Circuit Short to Ground (Frt Headliner)	Front PCAT
B0163	05	Passenger Compartment Temp Sensor 1 Circuit Short to Battery or Open (Frt Headliner)	Front PCAT
B0168	02	Passenger Compartment Temp Sensor 2 Circuit Short to Ground (RR Headliner)	Rear PCAT
B0168	05	Passenger Compartment Temp Sensor 2 Circuit Short to Battery or Open (RR Headliner)	Rear PCAT
B0173	02	Output Air Temperature Sensor 1 Circuit Short to Ground	Driver duct panel sensor
B0173	05	Output Air Temperature Sensor 1 Circuit Short to Battery or Open	Driver duct panel sensor
B0178	02	Output Air Temperature Sensor 2 Circuit Short to Short to Ground	Driver duct floor sensor
B0178	05	Output Air Temperature Sensor 2 Circuit Short to Short to Battery	Driver duct floor sensor
B0183	02	Solar Load Sensor 1 Circuit Short to Ground	Driver solar sensor
B0183	05	Solar Load Sensor 1 Circuit Short to Short to Battery or Open	Driver solar sensor
B0188	02	Solar Load Sensor 2 Circuit Short to Ground	Passenger solar sensor
B0188	05	Solar Load Sensor 2 Circuit Short to Short to Battery or Open	Passenger solar sensor
B0228	02	Recirculate Position Feedback Circuit Short to Ground	Recirc actuator
B0228	05	Recirculate Position Feedback Circuit Short to Battery or Open	Recirc actuator
B0228	61	Recirculate Position actuator stuck	Recirc actuator
B0283	02	Electric Rear Defrost Circuit Short Ground	
B0413	02	Temperature Control 1 Feedback Circuit Short to Ground	Driver temp actuator
B0413	05	Temperature Control 1 Feedback Circuit Short to Battery or Open	Driver temp actuator
B0413	61	Temperature Control 1 actuator stuck	Driver temp actuator
B0410	01	Temperature Control 2 Feedback Circuit Short to Ground	Passenger temp actuator
D0423	02	Temperature Control 2 Feedback Circuit Short to Bottony or Open	Passanger tomp actuator
D0423	0J G1	Temperature Control 2 recuback Circuit Short to Battery of Open	
D0423	01	Temperature Control 2 Coodback Circuit Chart to Cround	
B0433		Temperature Control 3 Feedback Circuit Short to Ground	Rear temp actuator
B0433	05	Temperature Control 3 Feedback Circuit Short to Battery or Open	Rear temp actuator
B0433	61	Temperature Control 3 actuator stuck	Rear temp actuator
B0203	02	Output Air Temperature Sensor 3 Circuit Short to Ground	Passenger duct panel senor
B0509	05	Output Air Temperature Sensor 3 Circuit Short to Battery or Open	Passenger duct panel senor
B0514	02	Output Air Temperature Sensor 4 Circuit Short to Ground	Passenger duct floor sensor
B3578	02	Output Air Temperature Sensor 6 Circuit Short to Ground	Rear duct panel sensor
B3578	05	Output Air Temperature Sensor 6 Circuit Short to Battery or Open	Rear duct panel sensor
B3583	05	Output Air Temperature Sensor 7 Circuit Short to Battery or Open	Rear duct floor sensor
B3779	02	Air Flow Control 9 Feedback Circuit Short to Ground	Mode actuator
B3779	05	Air Flow Control 9 Feedback Circuit Short to Battery or Open	Mode actuator
B3782	02	Air Flow Control 10 Feedback Circuit Short to Ground	Rear mode actuator
B3782	05	Air Flow Control 10 Feedback Circuit Short to Battery or Open	Rear mode actuator
B3782	61	Air Flow Control 10 actuator stuck	Rear mode actuator
B3933	02	Air Conditioning (A/C) Evaporator Temperature Sensor Circuit Short to Ground	
B3933	05	Air Conditioning (A/C) Evaporator Temperature Sensor Circuit Short to Battery or Open	
U0073		Control Module Communication Bus Off	
U0020		Low Speed Can Communication Bus Performance	
U0140		Loss of Communication with BCM	
U0155		Loss of Communication with IPC	
U0208		Loss of Communication with MSM	
U0209		Loss of Communication with HVSM	
U0165		Loss of Communication with RCC	There is no RCC in GMT900
U0249		Loss of Communication with RSA	
U2100		Controller Area Network (CAN) Bus Communication	
U2103		Fewer Controllers On Bus Than Programmed	
B1000		Electronic Control Unit (ECU) performance	
	1		1

Note: There are not any sensors numbered 5 or 8 The Outside air temp sensor on the radiator does not have a number since there is only one OAT.

Active Fuel Injector Tester — from page 1

TIP: 2004-06 Cadillac SRX and XLR, and 2006 Cadillac STS with LH2 engine require the DLC cable and an additional injector harness connector supplied with the AFIT. The Tech 2 is not able to initiate an Injector Balance Test on these vehicles.

TIP: On vehicles with Theft Immobilizer system and the LH2 vehicles listed above, the AFIT prompts the user to install a fuel injector harness adapter.

HOW THE AFIT WORKS

The CH-47976 Active Fuel Injector Tester (AFIT) is a necessary diagnostic component for today's gasoline fuel injector technology. This new device uses a microprocessor and software program to completely automate the test procedure. It eliminates variations in test results due to individual testing methods or physical property changes of the fuel.

A Main Control Unit

B Fuel Management Unit

C DLC Adapter

All measurements and calculations are performed by the AFIT software, which eliminates the possibility of human error.

The AFIT connects to the DLC with a cable. Certain applications with the Theft



Immobilizer system or LH2 engine mentioned above also require the supplied adapter harness. These harnesses connect directly to the injectors or to the vehicle injector harness connector

The AFIT is equipped with a reference injector with a known standard flow rate. This reference injector is used to monitor changes within the fuel system during the balance test. Dynamic changes in fuel properties can occur during the test when cold fuel from the fuel tank enters a hot fuel rail. This can cause the pressure drop measurements to fluctuate from one injector to the other. The AFIT software compensates for these fluctuations by using the reference injector flow measurement within the calculations to determine the vehicle's injector flow rate. To ensure a fixed reference point for the test, the pressure drop for the reference injector is measured three times for each vehicle injector tested.

The AFIT will determine if the injectors are within the GM design and operating specifications for each specific engine. Each injector is identified as GOOD or BAD, using the balance graph. When the test results are downloaded to the TechLine PC, a red bar on the balance graph identifies a suspect injector, a green bar identifies a good injector.

COMPARISON of PRESSURE DROP MEASUREMENT vs. AFIT TIME MEASUREMENT

Current Pressure Drop Measurement Using Tech 2

- Measurement is based on starting and ending fuel rail pressures
- Fuel pressure gauge must be recorded manually
- Dynamic fuel properties during the test may affect readings

- Consistent timing of each step in the procedure is difficult to maintain across all of the injectors. This can lead to differences in the
- conditions under which each injector was tested, resulting in an overall poor technical test.
- Fuel injector flow properties are determined indirectly through the fuel pressure drop of each injector.



AFIT Time Measurement

- The amount of time it takes for the fuel pressure to sweep through the 90% - 60% of available fuel pressure is measured. This is the window in which fuel injectors operate most of the time.
- The injectors are all tested and compared at the same pressure points and the timing of each step in the process is consistent.
- All measurements are captured digitally, and the sequence is fully automated.
- Time measurement strategy is a better indication of the injector flow properties.



- The AFIT user interface is easier to operate.

USING THE AFIT

The AFIT accurately determines if the fuel system is the cause of a condition. If test results show injector clogging, injectors are to be cleaned or replaced. Refer to SI for the proper cleaning or replacement procedure for the vehicle you are working on. Run the test again to verify that the cleaning or replacement has been successful. A comparison of the before and after test results can be used to document that the repair was successful.

TIP: Not all injectors can be cleaned. Refer to SI or GM Bulletin 03-06-04-030A to determine which injectors can be cleaned.

During the re-test, the AFIT again pinpoints any faulty injector(s) that were not improved. If cleaning was performed, these injector(s) will now need to be replaced. If all of the injectors now test good, the condition has likely been repaired. It is recommended that the vehicle be operated to fully verify the repair.

Complete test results, including balance percentages and flow rates, can be downloaded to the Techline PC for printing and attachment to the repair order for repair verification purposes.

- Thanks to Russ Dobson, Kevin Suhajda and Brian Echtinaw

Diagnosing Fuel Injectors with Tech 2

In a typical fuel injector balance test, the Tech 2 is used to pulse a single injector on a non-running engine (key on) to test the flow of that injector. A fuel pressure gauge connected to the fuel rail indicates the pressure drop resulting from the pulse of each injector.

Comparing the pressure drops of all of the injectors on the same vehicle indicates if all injectors are operating properly. This test can be done without vehicle disassembly and serves as a quick troubleshooting step during vehicle repair.

Alternate Procedure Required

The Tech 2 Fuel Injector Balance Test output control function does not work on some vehicles equipped with the PPEI 3 theft immobilizer system.

TIP: A complete listing of vehicle/engine combinations is available on the TechLink website, under the Reference Guide tab.

After one of these vehicles is in the key-on/engine-off state for 10 seconds, the immobilizer sets a fuel injector disable flag. Once the fuel injectors are disabled, the two Tech 2 output control functions are disabled (fuel injector and starter relay).

A fuel injector balance test cannot be completed within 10 seconds. So, an alternative balance test procedure is required. Refer to this heading in SI: Fuel Injector Balance Test With Special Tool.

TIP: If the AFIT (see main article) is used on these vehicles, fuel pump operation can be controlled by the tester through the DLC. However, additional jumper harnesses must be installed to the operate the injectors.

TIP: The Fuel Pump Output Control on the Tech 2 will still work.

There are two ways to tell if the vehicle is affected:

- 1. Use the list on the TechLink website under Reference Guide.
- 2. When trying to use the affected Output Controls (if available), the return message "Fuel Enable Not Set For Theft Deterrent" will be displayed on the 2.

Effective with TIS Data version 5.0 (May 1, 2006), the Fuel Injector Balance Test is removed from the Tech 2 for the vehicles mentioned above. Refer to Tech 2 version 26.004. The Starter Relay Output Control will also be removed.

 Thanks to Mark Stesney and David Schulte

Parking Brake

On the 2001-06 Chevrolet Silverado and GMC Sierra 3500 with Dual Rear Wheels (RPO R05), there have been questions about a knurled appearance of the parking brake drum-in-hat surface.

The knurling looks like fine machine cut lines across the surface of the drum-in-hat. This knurling can be found on new service replacement rotors, as well as new stock units. The purpose is to improve "green" unburnished park brake performance. As the park brake linings get burnished, the knurling wears off.

No repairs should be made. This is a normal condition.

- Thanks to Jim Will and Steve Love





Terminal Test Probe and Terminal Repair Kit Update Information on the Web

Two extensive and useful reference files have been placed in the Archive section of the TechLink website. To locate them, look at the top of any month's home page (any language). Locate the Archive tab and click. Then scroll down to locate the files described below.

TIP: These files are in PowerPoint format.

J-35616 Test Probe Kit History

The original J-35616 Test Probe Kit was shipped as an essential tool in 1986 and has been updated several times.



This presentation (25 slides) shows every update,

from the J-35616 Test Probe Kit's introduction in 1986 to the current J-35616-C Test Probe Kit.

TIP: Proper test probe information is now contained within the Connector End View of almost every connection system in SI.

Today's connection systems use many types of very small terminal sizes which can be damaged if the wrong test probe is used.

J-38125 Terminal Repair Kit Update Procedure

The original J-38125 Terminal Repair Kit was shipped as an essential tool in 1987 and has been updated numerous times.

As time has gone by, the updates have become more complex. It can be very confusing to get the J-38125 Terminal Repair Kit properly organized when left undone for more than two years.

IMPORTANT: Your J-38125 Terminal Repair Kit must be updated to the present J-38125-F level before the 2006 update, which is scheduled to ship at the end of 2006. Due to obsolescence, a number of tray cavities will have



to be emptied and new terminals will be supplied to fill the vacancies. If your kit is not in order, this will be a very difficult task for you to accomplish.

This presentation (82 slides) shows every step in the history of the J-38125 Terminal Repair Kit. But more importantly, it shows you how to organize all of the updates, resulting in the present J-38125-F.

SI directs you to a specific tray to find the service terminal you need, and itemizes the specific crimp tool(s), terminal release tool or test probe for each terminal. If the J-38125 Terminal Repair Kit is not organized as this presentation shows, it will take you much longer to locate what you need.

TIP: Service terminal information is now contained within the Connector End View of almost every connection system in SI.

– Thanks to John Roberts

Cruise Control and Check Gauges Lights Inoperative

Vehicle Stability Enhancement System (VSES) is now standard equipment on the Trailblazer and Envoy for 2006-08. This required changes to the base level instrument cluster (without DIC).

On the base level instrument cluster, the cruise indicator is replaced by the service stability indicator, and the check gauges indicator is replaced by the stability active indicator. This change does not affect the uplevel cluster with DIC (RPO U68); the cruise control light is still available.

If a customer is concerned that their cruise control and/or check gauges lights are inoperative, explain that these lights are not available on vehicles without the DIC. No repair is necessary. The cruise control feature still functions as in the past. Do not replace the instrument cluster.

This information is available in Preliminary Information bulletin PIT 3776A (SI Document 1815447).

- Thanks to Sonny Quan

Luggage Carrier Siderails

The luggage carrier siderails on the Chevrolet HHR feature a satin chrome finish. Recently, the manufacturer of these parts began using an environmentally friendly material to produce the finish.

As a result, the satin finish now has a slightly different appearance. This is normal, and no repair or replacement is necessary.

- Thanks to Dana Rush





A Original finish B Revised finish

TAC Tips

Using Tech 2 to Diagnose "Service Stability" Light

This information applies to the 2006 Buick Rainier, Chevrolet TrailBlazer, TrailBlazer EXT, TrailBlazer SS, GMC Envoy, Envoy XL, Envoy Denali and Saab 97x.

The Service Stability light is on and DTC C0455 is stored. When the Tech 2 is used, it lacks diagnostics capabilities. This is due to the software within the EBCM/VSES module that allows the Tech 2 to display data.

To obtain additional diagnostic data for the Steering Wheel Position Sensor, reprogram the EBCM/VSES with an updated calibration using TIS 2 WEB. Select the calibration titled *"New soft-* ware with diagnostic enhancements for DTC C0455 and changes that eliminate the need to replace the EBCM when the Yaw Rate sensor is replaced."

Once the EBCM/VSES has been reprogrammed with the new calibration, the Tech 2 will now be able to access addition stability data related to the C0455 DTC and Steering Wheel Position Sensor. This data will include:

- Steering Wheel Position Degrees
- Analog Steering Wheel Position Voltage
- Digital SWPS Phase A and Digital SWPS Phase B.

TIP: To access this additional data in the Tech 2, "build" the vehicle as a 2007 model year in the Tech 2.

If the vehicle is "built" as a 2006 model year, the additional Tech 2 data will not be available. Use the Tech 2 path below to

obtain this additional Tech 2 data.

2007 / Light Duty Truck, MPV, Incomplete / Select Product Make (Chevrolet, GMC Buick or Saab) / Select Line (S or T) / Select Product Series (Rainier, Trailblazer, Envoy or 97x) / Chassis / Electronic Brake Control Module / Data Display / Select (ABS/TCS/VSES)

TIP: Install this calibration only when attempting to diagnosis a steering wheel position/C0455 concern, replacing a yaw rate sensor or when replacing and programming a new EBCM/VSES module.

TIP: This calibration offers no performance enhancement to the stability system. It only allows parameters previously missing in the Tech 2 to be viewed and aids in diagnostics, and the ability to recalibrate yaw rate on a 2006 MY vehicle.

- Thanks to Dino Poulos

Navigation Radio Concerns

Some owners of the 2007 Chevrolet Tahoe, Suburban, GMC Yukon, Yukon XL, Denali, Denali XL with RPO U3U or UVB may experience one or more of the following navigation (U3U) and (UVB) radio concerns:

1. Low volume from the radio and/or OnStar system – Reprogram the navigation radio with the latest calibration available in TIS version 2.75 or later.

2. Radio displays "Map Disk Error" when trying to operate navigation portion of radio – This may be caused by operator

error. Be sure the map disk is installed in the correct slot, located behind the navigation screen. To access this slot, go to the Navigation menu and select the Load Map CD button.

TIP: Exact instructions and location of the slot are found in the navigation supplement owner manual.

3. Clock will not update itself when the vehicle enters a new time zone – This is normal operation and the radio should not be replaced for this concern.

TIP: The navigation supplement owner manual explains how to manually change the clock settings.

- Thanks to Paul Radzwilowicz

Multiple Glow Plug DTCs

This information applies to 2006 Chevrolet Express, Kodiak, Silverado, GMC Savanna, Sierra, and TopKick equipped with the 6.6L (RPO - LBZ or LLY) Duramax Diesel Engine.

A vehicle may have the SES light on and multiple cylinder glow plug DTCs set. Multiple glow plug DTCs may be caused by internal opens in the glow plugs.

There are two different descriptions for an internal open in a glow plug.

A fast open glow plug has an internal open circuitry, but no visual damage to the tip of the plug.

A slow open glow plug has internal open circuitry, and the tip of the plug is missing or damaged.

Complete the SI diagnostics for any symptoms or DTCs found. If the diagnostics for P0671 – P0678 lead to a glow plug resistance of more than 1 ohm, replace all of the glow plugs. If any glow plug tip is missing, remove the cylinder head and remove all debris from the cylinder. When the tip of the glow plug enters the cylinder, engine damage may occur. Make any engine mechanical repairs as needed.

 A loose battery feed connection at the starter, alternator, or the Glow Plug Control Module (GPCM) may induce glow plug concerns. When the starter, generator, or GPCM battery feed circuit has a poor connection, the GPCM senses a voltage fluctuation, and induces the GPCM to power up the glow plugs. Untimed GPCM cycling may cause glow plug concerns.

Inspect the connections at the starter, generator, and both ends of the battery feed cable to the GPCM. Connector C1 terminal 1 at the GPCM is a quick disconnect connector. Make sure the terminal fit is clean and tight and the quick disconnect is seated properly.

The source or main power feed location differs depending on the vehicle being serviced.

- On C/K trucks, the power feed stud is located in the Under Hood Bussed Electrical Center (UBEC). To access this power feed stud, remove the secondary UBEC cover.
- On G vans, inspect the underhood junction block connection.
- On 4500/5500 trucks, inspect the secondary fuse block connection.
- 2. Other electrical scenarios can induce glow plug concerns. If the glow plug system senses a certain electrical noise on the power feed, the glow plugs may go open. This electrical noise may be induced by jump starting, disconnecting the batteries with the ignition in the ON position, or a battery charger being used during a module reprogramming event.
- If the glow plug DTCs have set on a very low mileage vehicle (below 1000 miles), the glow plugs may have been damaged by the start-up test conducted at the engine assembly plant.
- 4. Do not replace the GPCM for all 8 internal opened glow plugs. GPCMs have been returned and inspected with no problem found.
- 5. Complete all electrical circuit inspections and engine repairs as described above. After necessary repairs are completed, update the calibration in the GPCM. See campaign 06522. Install the new GPCM software and complete Fuel Injector Flow Rate Programming following SI procedures.

TIP: Add-on remote starter kits or alarm kits must be removed before any glow plugs are replaced. Interruptions to normal starting procedures may induce glow plug concerns.

- Thanks to Don Langer

Turbocharger Oil Supply

This information applies to 2001-06 Chevrolet, Express, Kodiak, Silverado and 2001-06 GMC Sierra, Topkick. with the 6.6 LB7, LBZ, and LLY engine.

The turbocharger oil feed line is a high pressure plastic tube protected by a stainless steel braided covering. If it is twisted or bent too far during turbocharger removal, the plastic line may fold and kink. The kink may cause an oil flow restriction or an oil leak.



TIP: If the plastic pipe becomes kinked, it will not return to its normal size and shape. The damage may not be obvious when inspected. The braided steel covering will hide the deformity.

During any type of repair that includes turbocharger oil feed line removal, do not twist or turn the line. This type of movement will immediately collapse the plastic line.

6.6 LB7 engine – The turbocharger oil feed line can be pulled directly away from the turbocharger body in a perpendicular fashion. Be careful to avoid excessive bending of the line.

6.6 LBZ or LLY engine – The EGR cooler does not allow enough perpendicular movement of the line to clear the turbocharger for removal. You can push the line straight forward of the turbocharger with less risk of kinking the line.

TIP: You may need assistance to keep the lines clear of the turbocharger during removal or installation.

- Thanks to Don Langer

Transmission Fluid Leak

Some owners of a 2006 Cadillac STS-V or XLR-V, or a Chevrolet Corvette with 6L80 (RPO - MYC) may comment on a transmission fluid leak from the transmission to cooler line connection.

The cooler line sealing washer may be missing. This washer is a flat seal that should be located between the cooler lines and the transmission.

The sealing washer is available from GMSPO as p/n 15259948. The washer is also included with the transmission oil cooler line set available from GMSPO.

Thanks to Rusty Sampel

HVAC Control Head

On the new 2007 full size utilities (Cadillac Escalade, Chevrolet Tahoe and GMC Yukon) with RPO CJ2 or CJ3, a replacement HVAC control head must be programmed using TIS.

TIP: When a replacement control head is installed, it may appear to be operational, but if not programmed some functionality will be lost.

- Thanks to Jim Will

Car Issues – Fix It Right the First Time				
Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2004-05	Mailbu and G6 - Sunvisor mirror cover breaks off at hinge pins	Replace mirror and cover assembly.	Don't replace sunshade assembly for broken mirror cover.	05-08-110-005B
2004-05	Grand Prix and LaCrosse – HVAC blower motor inoperative or intermittent or speed fluctuates	Install 330MFD capacitor between the LPM circuit and ground.	Don't replace LPM, blower motor, or HVAC control head.	05-01-39-001
2005	Chevrolet Corvette with Navigation Radio - FM radio static or no reception	No labor required. No part required.	Don't replace radio and or antenna modules.	08-44-014A
2005	Chevrolet Cobalt, Pontiac Pursuit – CD inoperative or radio displays LOCKED	Reprogram radio.	Don't replace radio assembly.	05-08-44-010A
2005 2006	Pontiac G6 Panoramic sunroof – Multiple potential noise issues	See Bulletin.	See Bulletin.	05-08-67-014
2005-06	Cobalt/Pursuit - Fabric on the door trim too short	Replace pull cup.	Don't replace entire door panel assembly.	05-08-64-036
2005	Buick LaCrosse, Chevrolet Impala, Monte Carlo, Pontiac Grand Prix – A/C compressor growl/groan noise	See Bulletin.	Don't replace A/C Compressor for noise condition.	05-01-38-015
1999 - 2006	All GM passenger cars - Brake rotor corrossion	Burnish rotors for cosmetic brake corrosion.	Don't resurface brake rotors for cosmetic corrosion.	00-05-22-002F

Truck Issues – Fix It	Right the First Time
-----------------------	-----------------------------

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2004-05	All Car and Truck – Battery state-of-charge upon delivery of new vehicle	Check battery state-of-charge using Midtronics J42000 orJ42000-EU.	Don't replace battery.	02-06-03-009A
2002-05	TrailBlazer, Envoy, Rainier, Bravada – Low volume hiss in steering column	Replace I-shaft.	Don't replace steering gear, pump or hoses.	05-02-35-006A
2002-06	Chevrolet Avalance, Silverado, Tahoe, Suburban. GMC Sierra, Yukon, Yukon XL, Cadillac EXT, ESV and Escalade – Front seat adjuster switch knob is loose or missing	Replace just missing switch cover.	Don't replace entire power seat adjuster switch.	05-08-50-017
1997-99 2000-05	Passenger Cars and Light Duty Trucks - Low tire pressure due to leaking cast aluminum wheels	Seal cast aluminum wheel.	Don't replace cast aluminum wheel.	05-03-10-003
2003-05	HUMMER H2 – Door trim panels squeak or rattle.	Replace door trim panel retainers.	Don't replace door trim panel assembly.	05-08-64-025
2005-06	All Pick-ups and Utilites, G Vans, Hummer H2 and H3 – Brake Rotor Corrosion	Burnish rotors for cosmetic brake corrosion.	Don't resurface brake rotors for cosmetic corrosion.	00-05-22-002F

Powertrain Issues - Fix It Right the First Time

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2004-05	Chevrolet TrailBlazer, GMC Envoy, and Buick Rainier – Front drive axle leak at case half	Install shim between front axle case and engine oil pan.	Don't remove and reseal or replace front axle assembly.	04-04-19-002
1997-99 2000-05	Aurora, Deville, Eldorado, Bonneville – Transmission buzz noise, decel or reverse	Inspect/replace accumulator retaining ring/clip.	Don't replace complete valve body assembly.	05-07-30-029
2005-06	C/K 1500 Silverado/Sierra – Markings make crank pulley appear out of round	Replace pulley if actually out of round.	Don't replace crank pulley if not out of round.	05-06-01-029
2003-05	C/K, GMT 610, M/L, S/T – Low power at high ambient temperatures	Upgrade engine calibration.	Don't replace engine module, catalytic converter, fuel pump, MAF sensor or O2 sensor.	05-06-04-077

 Know-How
 10206.07D Emerging Issues
 July 13, 2006
 9:30 AM and 12:30 PM Eastern Time

 Broadcasts
 New Model Features
 For Web NMF courses, log on to the GM Training Website

 (www.gmtraining.com)
 Select Service Know-How/TechAssists from the menu, then choose New Model Features for a selection of courses.



– Thanks to Tracy Rozman