



New MTS 4100 NVH Analyzer Identifies Vibration Sources

Ask any group of auto technicians to name their most challenging diagnostic situations, and you can count on somebody mentioning vibration analysis. Over the years, a number of diagnostic tools and procedures have been developed to help locate and resolve vibrations. Technicians with the most notches in their toolboxes can name quite a few — the reed tachometer, driveline inclinometer, multiple orders of vibration, strobe, Chassis Ear, match-mounting, radial force variation, the EVA, and others.

New diagnostic aids always have been developed to take advantage of the new technology that is available. At the present, designers have a lot to work with — powerful computers, data collection capability, precision accelerometers, high resolution graphic displays, and the vehicle's own serial data. The new MTS 4100 NVH Analyzer and GM Dealer Equipment can now offer this capability.



What is the MTS 4100?

The MTS 4100 is an NVH (noise, vibration, harshness) analyzer combining all of the tools required to diagnose the most challenging vehicle NVH conditions.

TIP: For now, the MTS 4100 is not mentioned in Service Information (SI) procedures, but it can be used in place of the EVA (Electronic Vibration Analyzer) with greater effectiveness.

The MTS 4100 allows technicians to find the root cause of vibrations without having to experimentally replace part after part, and without the need for making time-consuming calculations. The MTS 4100 can also perform system driveline balance without the need to remove a single part from the vehicle being tested.

The MTS 4100 employs a 320 x 240 LCD graphic display and 22 function keys to monitor and control its various functions. It accepts inputs from multiple accelerometers, a microphone, and vehicle serial data (using the J-1962 connector). It can output

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MTS 4100 NVH Analyzer Kit

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Customer Care and Aftersales

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data to a printer or a PC using an RS232 port. The MTS 4100 also works with a strobe and a photo tachometer for rotational speed measurements and a remote trigger switch.

Operation is simplified by multiple menus and automated data collection. The MTS 4100 specifically identifies the vehicle subsystem that is causing the excess noise or vibration and, in many cases, the actual component within that subsystem.

What are the Advantages of the MTS 4100?

When compared with the EVA, the MTS 4100 offers several important features and advantages.

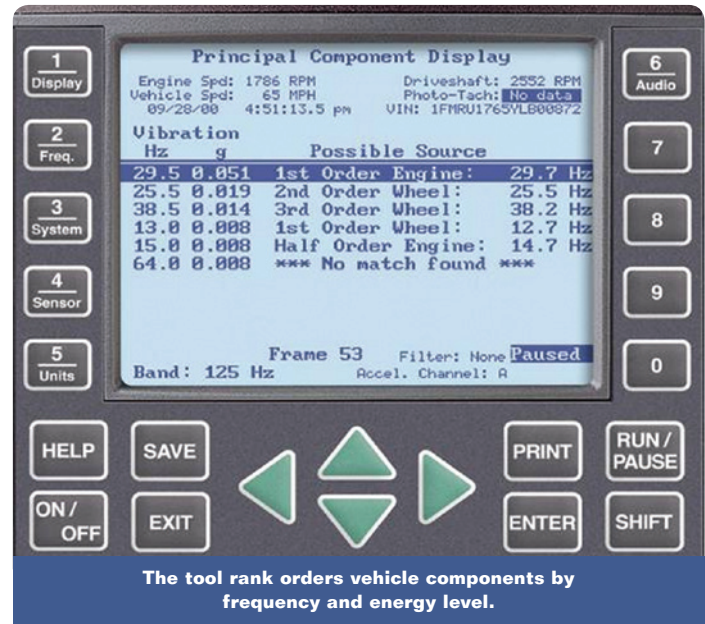
- Direct connection to vehicle data communication – provides vehicle speed, engine speed, driveshaft speed, and wheel speed at a given road speed to correlate different sources of vibration
- On-screen, step-by-step instructions
- Accurate isolation – accurately isolates the source of vibration or noise related to tires, wheel assemblies, engine, drivetrain and engine accessories
- Capability to tie vibration to each source – driveline, tire/wheel, engine, and engine accessories
- Suggests corrective action
- Operates quickly – enables one technician to balance a driveline in only 15 minutes
- Multiple vibration channels – allows the vehicle to be divided into zones so the vibration can be isolated
- Better sensitivity – the accelerometers are more sensitive and can detect lower levels of vibration
- Can track multiple vibration sources
- Intelligent displays – includes rank-order of vibration sources and a graphic display that shows each source and its intensity
- No technician calculation of vibration required
- Driveline balancing feature – for single or dual plane prop shafts
- Complements radial force variance machines – by identifying the problem area with no additional technician time
- Storage and playback of road test events – so data can be reviewed off-line by technician and customer
- Available high resolution microphone

How is the MTS 4100 Used?

The MTS 4100 NVH Analyzer provides four main operating modes:

- Vibration diagnostics
- Noise diagnostics
- Driveshaft balancing
- Strobe light capability

For vibration diagnostics, the MTS 4100 measures data from a single accelerometer or simultaneously from two accelerometers, and obtains OBD II data from the vehicle's network. It then performs a frequency analysis on the accelerometer data,



and compares the vibration frequencies with the frequencies associated with various rotating components within the vehicle (driveshaft, engine RPM or wheels/tires). After the MTS 4100 has correlated the vibration data with the vehicle's OBD II data, it provides recommendations regarding possible causes of the vibration.

The noise diagnostics function is similar to the vibration diagnostics function but the MTS 4100 measures noise from one or two microphones instead of accelerometers that measure vibration.

Support for either one-plane or two-plane driveshaft balancing is provided by one or two accelerometers and a photo tachometer connected to the MTS 4100. The accelerometers measure the vibrations at both ends of the driveshaft, while the photo tachometer measures the rotational speed of the driveshaft and provides a position reference. The MTS 4100 directs the technician through a step-by-step balancing procedure, and then provides a graphical indication of where to mount the balancing weight. A final step verifies that the driveshaft has been adequately balanced.

The MTS 4100 also can control output to a strobe light, such as a standard timing light. The flashes of the strobe light, synchronized with the vibration, help isolate the source of the vibration. The technician can select the frequency of the strobe output and have the analyzer output a frequency that is related to the frequencies of the rotating components of the vehicle. For example, a strobe can be generated that is half the frequency of the engine RPM (i.e., rotation rate of the camshaft).

How is the MTS 4100 Obtained?

The new Vetronix MTS 4100 NVH Analyzer is now available from GM Dealer Equipment. For more information, visit www.gmdesolutions.com.

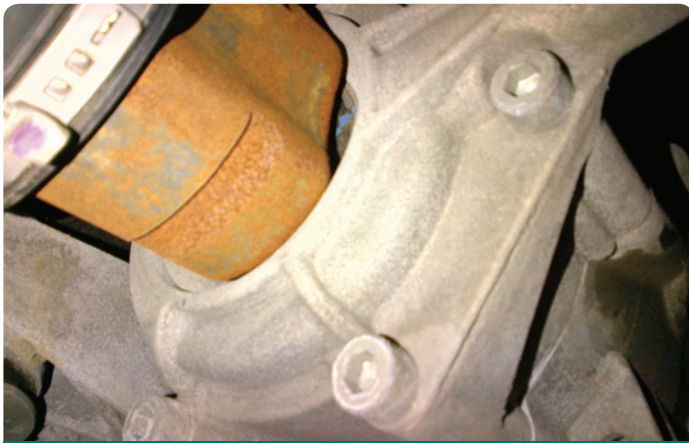
🙏 Thanks to David MacGillis

New Design Rear Axle Output Seal and Axle Shaft

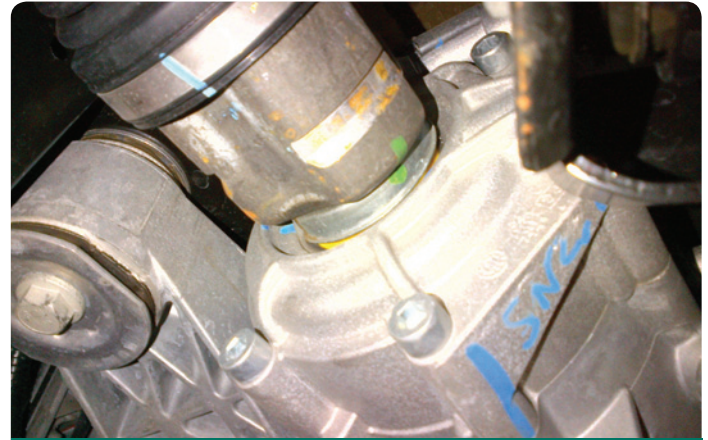
During the 2012 model year, a seal change and an axle shaft change were made on the rear axle output seals on AWD versions of the 2012 LaCrosse and SRX.

The old style seal is black and the axle shaft that mates with it does not have a slinger. The black (first design) seal is GM P/N 20986535.

The new style seal material is yellow and it mates with an axle shaft that has an integral slinger. The yellow (second design) seal is GM P/N 22845699.



Old style black seal



New style yellow seal

TIP: Do not mix the different seals and axle shafts. Installing first design seals with the second design axle shafts OR installing second design seals with first design axle shafts will result in a leak.

If a rear axle component is incorrectly ordered and it comes with a seal that is incompatible with the vehicle's axle shafts, it is not necessary to return the part. Simply get the axle seal that matches the existing axle shafts and replace the seal(s) using the seal replacement procedure in the appropriate Service Information.

🙏 Thanks to David MacGillis

Under Body Noise on Uneven Road Surface

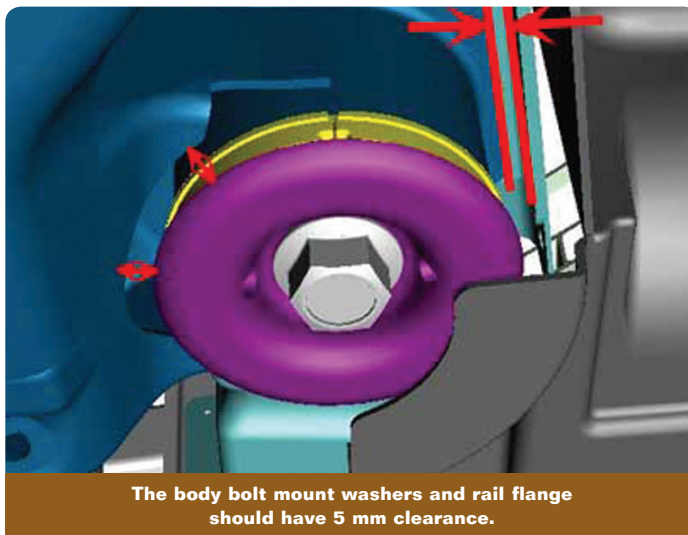
2008-2012 Malibu models may experience a noise heard from under the front of the body or suspension area. The pop, snap, creak or clunk noise may be present on braking, turning or driving on an uneven road surface.

The noise may be caused by the front cradle body mount bolt washers or cradle making contact with the frame rail.

Inspect the washer-to-cradle clearance and the cradle-to-frame rail flange clearance. Inspect for any witness marks. The body bolt mount washers and rail flange should have 5 mm clearance.

Loosen all cradle mount bolts, center the cradles as needed, and torque to specification. Then perform a 4-wheel alignment.

🙏 Thanks to David Roat



Inspect the washer-to-cradle clearance and the cradle-to-frame rail flange clearance.

New 8-Pin Mass Air Flow, Humidity, BARO and Intake Air Temperature 1 and 2 Sensor in Gasoline and Duramax Diesel Engines

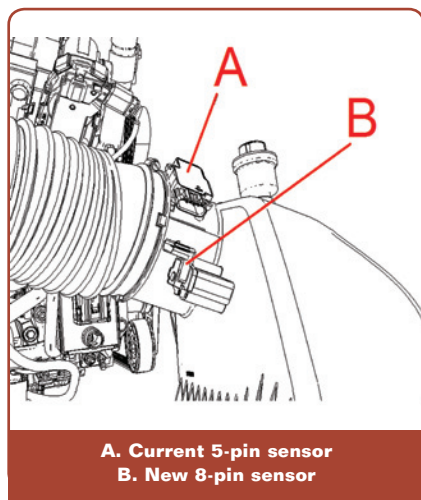
Beginning with the 2012 model year, a new 8-pin Mass Air Flow (MAF), Humidity, Barometer (BARO) and Intake Air Temperature (IAT) 1 & 2 sensor is being used on some gasoline engines.

There are two suppliers of the 8-pin sensor, Bosch and Hitachi. The Hitachi sensor is used on most of the applications at this time. The sensors are also known as the Multifunction Intake Air sensor or mini-weather station sensor.

The new sensor measures the intake air's humidity. A second air temperature sensor is housed in the assembly to accurately measure the air temperature at or very near the humidity sensor. The ECM uses the air temperature to calculate the air humidity, which is displayed by the scan tool as Intake Air Humidity (%). The signal is transmitted on the circuit as duty cycle (%). The intake air temperature sensor 2 is transmitted to the ECM as a frequency (Hz), on the same circuit as the humidity signal. The scan tool displays the IAT sensor 2 in degrees (°C /°F) and frequency (Hz).

Harness and internal sensor differences do not permit interchangeability between the Hitachi and Bosch sensors. However, both have the following functions:

- MAF sensor
- IAT sensor 1
- BARO sensor (Throttle Inlet Air Pressure – TIAP)
- Humidity sensor
- IAT sensor 2 (Humidity Air Temperature)



A. Current 5-pin sensor
B. New 8-pin sensor

The Hitachi sensor terminals are connected to the vehicle and the ECM as follows:

- Pin 1 – Signal, IAT 1
- Pin 2 – +5V Reference
- Pin 3 – Low Reference
- Pin 4 – Signal, BARO (TIAP)
- Pin 5 – Ignition, +12V
- Pin 6 – Signal, MAF
- Pin 7 – Ground, Chassis
- Pin 8 – Signal, Humidity (duty cycle – %) and IAT 1 (frequency – Hz)

The Bosch sensor terminals are connected to the vehicle and the ECM as follows:

- Pin 1 – Signal, Humidity (duty cycle – %) and IAT 1 (frequency – Hz)
- Pin 2 – +5V Reference
- Pin 3 – Signal, MAF
- Pin 4 – Ground, Chassis
- Pin 5 – Ignition, +12V
- Pin 6 – Signal, BARO (TIAP)
- Pin 7 – Low Reference
- Pin 8 – Signal, IAT 1

The gasoline engines replace the Mass Air Flow/Intake Air Temperature (MAF/IAT) 5-pin sensor with the 8-pin Multifunction Intake Air sensor.

The 6.6L Duramax diesel engines (RPOs LML, LGH) will use the new Hitachi 8-pin sensor for the first time in the 2013 model year. For diesels, the Multifunction Intake Air sensor is used with the existing MAF/IAT 5-pin sensor.

The new sensor is in the diesel's air stream, ahead of the existing MAF/IAT, requiring a shift of some intake air sensor names:

- New IAT sensor (integrated with the Humidity sensor) is IAT 1
- Old IAT sensor 1 (integrated with the MAF sensor) becomes IAT 2
- Old IAT 2 (located before the inlet to the Charge Air Cooler) becomes IAT 3

The diesel engines use three of the eight pins of the Hitachi sensor:

- Pin 5 – Ignition voltage
- Pin 7 – Ground
- Pin 8 – Signal, Humidity (duty cycle – %) and IAT 1 (frequency – Hz)

The diesel engines use two of the sensor's functions:

- Humidity sensor
- IAT sensor 1 (Humidity Air Temperature)

TIP: The diesels use different/new DTCs for similar sensors used on gasoline engines.

For a list of 2012 and 2013 DTCs for Multifunction Intake Air Sensors, go to GM TechLink on GlobalConnect.

🔗 Thanks to W. Michael Schallmo

Wheel Alignment Specifications Updated in 2012

Recently in *TechLink*, (March 2012) the importance of double-checking wheel alignment specifications was highlighted. The only recommended source of current, accurate wheel alignment specifications (both targets and tolerances) is the Service Information. The specifications indicated on the wheel alignment rack should always be verified with the appropriate Service Information.

In the first quarter of 2012, the following models had updated/changed wheel alignment specifications:

- 2007-2012 Acadia
- 2007-2012 Enclave
- 2009-2012 Traverse
- 2010-2012 Corvette
- 2010-2012 LaCrosse
- 2011-2012 Regal

Check the alignment specifications for these models in the appropriate Service Information against the alignment machine specifications before performing an alignment. Be sure to take into account all related option content on the vehicle, including tire and suspension RPOs. These updated specifications most likely will not be included in the latest specifications from alignment machine manufacturers.

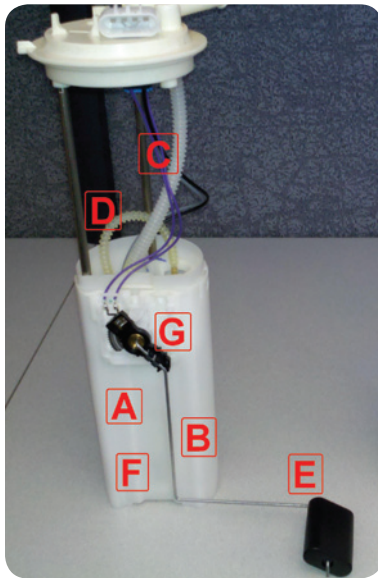
Not using the correct specifications as shown in the Service Information may result in a warranty claim being subject to review.

🔗 Thanks to David MacGillis

New Fuel Module Design

ACDelco recently made changes to several fuel modules to further enhance their performance. The timing of the changes for each part number has varied, but implementation of the changes began last summer.

When replacing a fuel module, you may have noticed some of these new design changes:



- A. The pump changed from a Gerotor pump to a Generation 4 Turbine pump, which is quieter and more durable.
- B. The module plastic material changed to a more fuel resistant Acetyl plastic that provides an improved high alcohol fuel tolerance.
- C. Guide rods were reduced from 3 to 2, which retains proper alignment while reducing pinching.
- D. Jet pump has been added to help maintain fuel in the reservoir.
- E. The float material is more fuel resistant for longer life.
- F. The external strainer has been moved inside the fuel module to help reduce the chance of puncture.
- G. Some float arms and pivot points have changed; however, the fuel level sensor output has not changed.

While the appearance of the fuel modules has changed, the fit, form and function has not. In addition, the part numbers did not change.

To address any concerns regarding the product changes, a special notice is included inside each box explaining that the module has undergone changes.

🙏 Thanks to Dan Carter

Leak Diagnosis Using Leak Trace Powder

Continued refinement of engineering, materials, and manufacturing processes has greatly reduced the occurrence of fluid leaks (engine oil, transmission fluid, coolant, power steering fluid, and brake fluid). Although rare, fluid leaks occasionally occur, so locating the source of fluid leaks remains an important skill for technicians to master.

There is some important information about leak diagnosis in the Service Information. In addition, leak diagnosis was discussed in the April 2012 Emerging Issues seminar.

One of the methods mentioned requires the use of leak trace powder. Here are some highlights.

Because the customer has probably driven the vehicle for awhile with the leak, the fluid will be splattered about and the source of the fluid leak will not be obvious. Attempt to identify the type of fluid from the color, smell and feel of the fluid. Then, thoroughly wipe the suspected leak area with a shop towel.

TIP: Do not use brake cleaner or other reactive solvents. These solvents can damage rubber gaskets, seals and bushings.

After cleaning the suspected leak area, spray aerosol-type leak tracing powder to cover the area.

Drive the vehicle for 15–20 minutes under city driving conditions until normal operating temperatures are reached. Do not drive at highway speeds because this will cause the leaking fluid to spread.

Trace the leak path through the powder back to the source of the leak and make the necessary repairs.

Additional Uses for Leak Trace Powder

Leak trace powder also can be used to determine if proper contact is being made between seals on weatherstrips around doors, trunks, hatches, and sunroofs.

Spray the powder on the frame where the seal should make contact and then gently close the panel. Open the panel and inspect the seal. The powder will transfer to the seal where contact is made. Gaps in the powder on the seal indicate a possible wind or water leak area.

🙏 Thanks to Dave Peacy



A leak can be traced through the powder back to the source.

Multi-Axis Acceleration Sensor Module Sets History DTC

When performing a DTC check using a scan tool on the 2013 Malibu, the Multi-Axis Acceleration Sensor Module may have a DTC U0121 (Loss of Communication with the EBCM) set in history. If the DTC is cleared, it may set again and immediately go to history during the next

ignition cycle. No messages or warning lamps will display.

This is a characteristic of normal operation. Do not replace any parts or attempt to repair. At key-up, the Multi-Axis Acceleration Sensor Module is looking

for a response from the Electronic Brake Control Module (EBCM) right away. Because it does not receive the response immediately, it sets DTC U0121 momentarily and then goes to history.

🙏 Thanks to Christopher Crumb

Radio Frequency Interference and Vehicle Security

An intermittent no crank or start-stall condition with the security light illuminated on some 2008-2012 Enclave; 2010-2012 LaCrosse; 2012 Verano, Regal; 2008-2012 CTS; 2007-2011 DTS, STS; 2011-2012 Cruze; 2012 Sonic; 2009-2012 Traverse; 2007-2012 Acadia; and 2007-2010 Outlook models may be due to Radio Frequency Interference (RFI) with the vehicle security system.

DTCs B3055 (No Transponder Modulation or No Transponder), B3060 (Unprogrammed Transponder Identification Code Received), and/or B3935 (Transponder Authentication Error) may be set in history. In most cases, the condition cannot be duplicated.

On vehicles equipped with Passive Entry/Passive Start (RPOs ATH, BTH), it is also possible the vehicle may have a condition where the passive entry is inoperative and/or there is a No Fob Detected message, but the vehicle will start with the key fob placed in the fob pocket.

Do not replace any parts for this condition prior to duplicating the condition.

With the advancements in today's technology, there has been a great increase in the number of Radio Frequency Identification Devices (RFID) found across many communities, businesses, and automobiles. It is possible that another RFID device may

interfere with the Passkey system. The range of the interference can vary based on the strength of the RFID, which may affect the key-to-exciter module communication. The most common devices found are: vehicle immobilizer keys from other vehicles, keyless access transmitters from other vehicles, highway/bridge toll passes, gate passes, community/parking access cards, fuel station speed passes, and building access swipe cards/transponder devices.

In addition, verify the vehicle owner is not inducing the concern by flipping the key while cranking the engine. Refer to #PIT5030 for more information.



Common Radio Frequency Identification Devices

For vehicles with Passive Entry/Passive Start, it is possible to get RFI from



transponders or other frequency-emitting devices in the area. An aftermarket RFI meter can be used as an aid to locate the stray RFI signals.

TIP: Direct owners to the appropriate section in their Owner Manuals for information about how a device complies with Part 15 of the FCC Rules. Examples of where this information may be found depends on the model and/or year, but in most manuals, refer to the Immobilizer Operation, Keyless Entry, Keyless Access, or Radio Frequency Statement sections.

Thanks to Ernest Haller

Blower Motor Inoperative after Blower Control Module Replacement

After replacing the Blower Motor Control Module with part number 89019351 on some 2004-2007 Rainier; 2003-2006 Escalade models; 2003-2006 Avalanche, Suburban, Tahoe; 2003-2007 Silverado Classic, Trailblazer XL; 2003-2009 Trailblazer; 2003-2007 Envoy XL, Envoy XUV, Sierra Classic; 2003-2009 Envoy; 2003-2006 Yukon models; and 2003-2004 Bravada models equipped with automatic climate control, the blower motor may be inoperative. This condition may occur if the blower motor speed is set to any speed position, except for Low, when the key is turned off. Upon the next key on, the blower motor may be inoperative.

An updated blower motor control module has been released to address this condition. If this condition is present, replace the previously installed Blower Motor Control Module (part number 89019351) with the updated Blower Motor Control Module (part number 19260762).

Thanks to Jim Will

Intermittent Service Power Steering Message with DTC U0131

On some 2011-2012 Lacrosse, 2012 Regal, and 2013 Malibu models with electric power steering (RPO NJ1), there may be an intermittent Service Power Steering message displayed on the Driver Information Center along with a set DTC U0131 (Lost Communication With Power Steering Control Module).

This condition may be caused by a loose B+ feed at the X50A Underhood Fuse Block or the 80A fuse retaining bolts in the Underhood Fuse Block. The battery feed is X6 on the LaCrosse and Malibu and X8 on the Regal. The condition also may be caused by a loose connection at G111.

Secure the B+ feed or fuse nuts as needed. In addition, check the connection at G111.


Thanks to Christopher Crumb




Location of loose connection (2013 Malibu shown)

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Waiting to Initialize Message

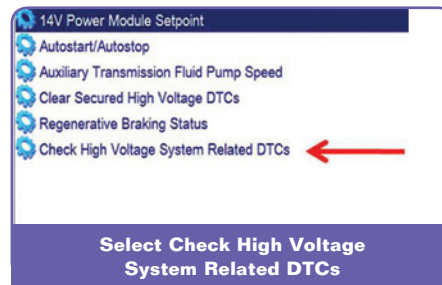
Some 2011-2012 Volts may have a no crank condition with a Waiting to Initialize message displayed on the Driver Information Center. The condition also may be accompanied by DTC P0AFA (Hybrid/EV Battery System Voltage Low) set in the Hybrid Powertrain Control Module 2 (HPCM 2).

This condition may be seen after the following:

- An extremely low or dead 12-volt battery
- After removing the manual disconnect
- After replacing a major component, such as the 300V battery, drive unit, drive motor control module (TPIM), etc.
- After SPS programming several modules at one time or after major reprogramming events
- After an airbag deployment

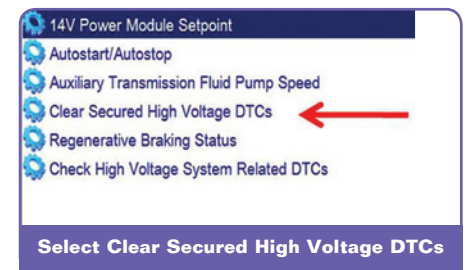
If this no crank condition with the Waiting to Initialize message is observed along with one of the symptoms listed above, follow this procedure:

- 1) Make sure the 12-volt battery is fully charged.
- 2) Connect GDS 2 and build the vehicle, select Module Diagnostics/Hybrid Powertrain Control Module/Control Functions, and then select Check High Voltage System Related DTCs. Read



through all the DTCs. When finished, back out to the previous screen.

- 3) Select Clear Secured High Voltage DTCs in the HPCM and hit the Reset button on the bottom of the screen. Wait 45 seconds before exiting the screen.
- 4) Next, select Hybrid Powertrain Control Module 2/Control Functions and then select Check High Voltage System Related DTCs. Read through all the DTCs. When finished, back out to the previous screen.
- 5) Now select Clear Secured High Voltage DTCs in the HPCM 2 and hit the Reset button on the bottom of the screen. Wait 45 seconds before exiting the screen.



- 6) Disconnect the MDI from the vehicle and turn off the ignition. Close all vehicle doors and allow the vehicle to go into a sleep mode for three minutes.
- 7) Disconnect the 12-volt positive and negative battery cables and touch the battery cables together. Re-install after 15 seconds.
- 8) Attempt to start the vehicle after a three minute waiting period.
- 9) If vehicle still doesn't crank, follow the appropriate Service Information diagnostics.

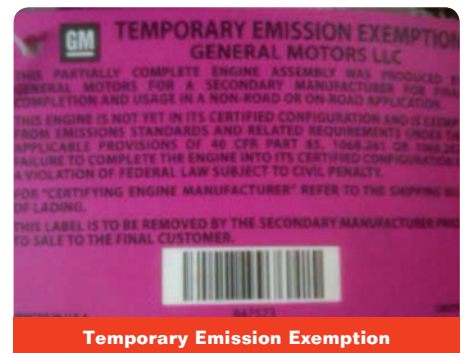
 Thanks to Paul Radzwilowicz

Service Replacement Engines with Temporary Emission Exemption Tag

A service replacement engine used on 2013 and prior GM passenger cars and trucks may contain a Temporary Emission Exemption. This label is not a concern. It is attached to service replacement engines due to a new Federal Law/Mandate.

Follow the related engine installation instructions to install the engine.

 Thanks to James Parkhurst



Potential History DTCs after Servicing a Vehicle

When servicing a vehicle, any control module that wakes up with a circuit disconnected may set a current DTC, which will go into history once the circuit is reconnected. This condition is related to how the vehicle power mode works with different control modules with the key On vs. the key Off. These DTCs often are set inadvertently by waking a control module when opening a door and will not clear until the proper self-test has been completed, which depends on operating conditions being met.

Here's an example of how a history DTC could be set on 2010-2013 vehicles that require the GDS 2 scan tool for vehicle communication (2010-2012 LaCrosse; 2011-2012 Regal; 2012 Verano; 2010-2012 SRX; 2010-2012 Camaro, Equinox; 2011-2012 Cruze, Volt; 2012 Sonic; 2013 Malibu; and 2010-2012 Terrain). A history DTC P0113 (Intake Air Temperature Sensor Circuit High Voltage) may be stored immediately after vehicle service if the Engine Control Module (ECM) wakes up (activates) while a 5-volt reference sensor is unplugged and the ignition is Off.

If a technician were to leave the Intake Air Temperature/Mass Air Flow (IAT/MAF) sensor disconnected and open the driver's door with the battery connected, ignition Off, and the ECM "asleep," the Body Control Module (BCM) would wake up the ECM, causing the ECM to sense the open IAT sensor and set a current DTC P0113. After the IAT sensor is reconnected, the DTC status will clear as a current DTC, but it will still be in stored in history.

This is just one example. There are others that may occur when other sensors are disconnected and a control module wakes up.

If this condition occurs during unrelated vehicle repairs, do not replace any parts. Simply clear the DTCs and ensure that they do not reset.

If current DTCs are stored, this information does not apply and the appropriate Service Information diagnostics should be followed.

🙏 Thanks to James Parkhurst

Service
Know-How

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TECHAssist from the menu, select Emerging Issues, and then
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Issues seminar or past programs.



Car Issues – Fix It Right the First Time

Model Year(s)	Vehicle Line(s)/Condition	Do This	Don't Do This	Reference Information/Bulletin
2010-2012	Camaro — GM Accessory and Camaro Transformer high wing spoiler Center High Mount Stop Lamp (CHMSL) cracking around fasteners	Replace the CHMSL only	Replace the spoiler	PI0685
2008-2012	Malibu — Wobble felt in vehicle acceleration from stop through 1-2 shift	Adjust powertrain mounts and replace front drive axles	Replace wheels, tires, or transmission	PI0702
2010-2012	LaCrosse, SRX — Service Rear message displayed on DIC, DTC C0407 with symptom code 64 or C0403 with symptom code 62 set	Replace eLSD Piston assembly or differential clutch oil filter	Replace eLSD clutch assembly, rear differential carrier assembly, or rear differential assembly	PI0703
2008-2012	Malibu — Noise heard from under body on braking, turning, driving on uneven road surface	Adjust cradle mount and/or cradle position	Replace suspension components or grind cradle mount area	PIC5654
2008-2011	CTS, CTS-V, CTS Sport Wagon, CTS-V Sport Wagon — Water leak at rear of sunroof, front or rear of headliner wet	Review this PI for updated corrective procedures	Work on a sunroof water leak without reviewing this bulletin first and also follow #PIE0205 if applicable	PI0436C
2007-2011	CTS, SRX, STS — Vibration felt in shifter handle if resting hand on shifter	Review this PI for clarification of applications	Use this for non-applicable vehicles/transmissions	PI0649A



Truck Issues – Fix It Right the First Time

Model Year(s)	Vehicle Line(s)/Condition	Do This	Don't Do This	Reference Information/Bulletin
2010-2011	Terrain — Windshield defroster operation	Check for new HVAC system control module service calibration reprogramming	Replace the HVAC Control Module	PI0701
2012	Canyon, Colorado, Express, Savana, Sierra, Silverado — MIL on with DTC P0741 set, harsh 1-2 shift	Replace the TCC enable solenoid and internal wiring harness	Replace the torque converter	PIP5009A
2007-2012	Avalanche, Escalade, Escalade ESV, Escalade EXT, Sierra, Silverado, Suburban, Tahoe, Yukon, Yukon Denali, Yukon XL, Yukon XL Denali — Diagnosis and repair HVAC blower function	Follow steps to diagnose the condition and replace the affected connector terminal in the instrument panel junction block	Replace the HVAC blower motor assembly to correct this condition	PI0695
2007-2011	Acadia, Enclave, Outlook, Traverse — Noise when turning steering wheel at slow speeds	Install the pinion housing kit	Replace the steering gear	PI0029G
2010-2012	Equinox, Terrain — Fluid leak from transfer case (PTU) vent	Replace the transfer case (PTU) fluid	Replace the transfer case or seals	PI0312A
2003-2007	Rainier, Escalade, Avalanche, Suburban, Tahoe, Silverado Classic, Trailblazer, Envoy, Sierra Classic, Envoy, Yukon — Blower motor inoperative after blower control module replacement	Install new blower motor control module part number 19260762	Use previous module part number 89019351	PIT5141B
1999-2010	Sierra, Silverado — Check Engine light on, fuel tank hard to fill, DTCs P0442, P0446, P0455 or P0449 set	Replace the existing EVAP canister vent valve assembly with a new assembly	Replace the EVAP canister assembly for this concern unless it fails the leak test	02-06-04-037J



Customer Care and Aftersales