



A Monthly Publication for GM Dealership Service Professionals

Saturn ASTRA



For 2008, Saturn is introducing the ASTRA, a contemporary European-inspired vehicle available in two body styles and two trim levels.

	3-Door	5-Door
XE	n/a	X
XR	X	X

The layout features short overhangs, a long wheelbase and a wide track.

POWERTRAIN

Engine

ASTRA uses a 1.8L Ecotec DOHC engine, offering 138 hp and 125 lb.ft. of torque. Variable valve timing and two-stage intake manifold are used to

enhance engine performance. A rotary valve in the intake manifold (instead of conventional flaps) transitions between low- and high-rpm operation.

The long-life maintenance intervals are:

Timing belt	100,000 miles
Spark plugs	35,000 miles
Solid lifter adjustment	100,000 miles
DEX-Cool coolant	140,000 miles/ 5 years
Engine air filter	50,000 miles

The Oil Life System monitors conditions and engine operation, not mileage alone, to determine the optimum time for an oil change. This simplifies the maintenance schedule and minimizes environmental waste.

TIP: See the Oil Life sidebar for resetting details.

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Techline News

Instrument Cluster Programming

Odometer and Hour Meter

Here are some helpful hints about replacing instrument panel cluster (IPC) units as explained in Bulletin 07-08-49-015.

TIP: 2003-07 H2 vehicles are now supported in TIS2WEB under IPC Setup and IPC Setup (J2534). Bulletin 07-08-49-015 has been revised to include these and other changes.

In the past, when an IPC had to be replaced on one of these vehicles, the

dealer provided odometer and engine hour values to the Electronic Service Center (ESC). The ESC then programmed the values into the replacement IPC before shipping it to the dealer.

The vehicle had to be parked so no additional mileage was accumulated while the new IPC was on order.

Improvements to the TIS2WEB SPS application now allow IPC odometer and engine hour programming to be performed by the dealer as an additional function of the IPC programming event. An important benefit is that the vehicle can be returned to the customer and driven while waiting for the replacement IPC to arrive at the dealership.

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Service and Parts Operations

Odometer and Engine Hour Programming Procedure

TIP: The odometer and engine hour programming function is available in TIS2WEB beginning with version 8.5 released on August 19, 2007.

1. Before the original IPC is disconnected from the vehicle, record the odometer value and, if applicable, the engine hour value.

TIP: If the original IPC odometer value cannot be obtained from the customer's vehicle, follow local and federal regulations regarding unknown odometer mileage situations.

2. Install the replacement IPC obtained from the ESC, following the IPC replacement procedure in SI.
3. In order to perform the procedures outlined in Bulletin 07-08-49-015, all replacement IPC units received from your local ESC must be pre-set to 0 (zero) miles.

TIP: You may experience a message during the odometer programming that says "Not A New Controller." This will happen if the ESC doesn't zero the mileage after repairing a IPC. If you experience this concern, you must obtain another IPC from the ESC.

4. Mileage/engine hour entry – Enter the appropriate mileage and engine hours as applicable. Always review the mileage and all other details at the Verification screen before proceeding.

TIP: The odometer entry defaults to miles. In Canada, it is necessary to select kilometers, then input values in kilometers.

TIP: This is your last chance to check your mileage, etc. Once you complete the Setup, the mileage is locked and cannot be changed.

5. NEW RECOMMENDATION – It is now possible to use the J2534 Tech 2 selection in TIS2WEB when performing the procedures in Bulletin 07-08-49-015. Use these steps.
 - From the Diagnostic Tool Menu, select J2534 Tech 2.
 - From the Supported Controllers Menu, select IPC Setup (J2534).
 - Complete Setup and Programming as outlined in the Bulletin.

TIP: The standard IPC programming and setup choice must also be run in order to program calibration files and operating software.

- Thanks to Mark Stesney and Paul Radzvilowicz

MDI Rollout Begins

Shipment of the the first 500 GM Multiple Diagnostic Interface (MDI) units went out the week of September 17th. Additional batches of 500 units will be shipped every 2 weeks, in this divisional order: Cadillac, Buick, Chevrolet, Canada, Pontiac/GMC Truck/Hummer, Saturn, and Saab.

Each dealership will receive one essential unit. Additional units can be ordered by calling 1.800.GM.TOOLS using prompts 1 or 4.

Extensive details have been published about the MDI in the January and June 2007 issues of *TechLink*. Here are a few reminders.

- The MDI can be used as a Pass-Thru programming device back to model year 1996.
- Programming with the MDI is 20 to 70% faster than using the Tech 2.
- Using the MDI for programming will free up your Tech 2 for diagnostic use.
- MDI Familiarization course 16048.25W is available on the GM Training website as of late September.
- Connecting the MDI to a network by means of a wired ethernet or wireless connection will require the assistance of your Network Administrator.

Note to Network Administrators – To minimize wireless connectivity issues, turn off the auto channel select feature on wireless access points.

- Thanks to Matt Singer

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.

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Another Key Design is Coming

Usage of a European style key design, already seen on the Pontiac GTO and Saab 9-3 and 9-5, is being expanded in 2008 with the introduction of the Saturn ASTRA and the Pontiac G8.

The key is already in use on many premium vehicles around the world. It is typically referred to as a "flip" key, due to the way the blade stores in the key fob and flips out for use when a button is pressed.



ASTRA flip key fob



G8 flip key fob

The proper term for these keys is "high security," or "side-milled," which describes the location of the security cut, a groove milled into the wide side of the key blade. A traditional key has the security cut on the edge of the blade.

TIP: The ASTRA key follows the European milling style. The G8 key is milled in a variation of the style. Both keys can be milled on the same equipment.



Side milled groove in ASTRA key blade



Side milled G8 key blade

One key fits all locks on the vehicle (doors, luggage compartment, ignition switch, glove box). Due to the symmetrical design of the key blade, it can be inserted into the lock either way; there is no "top" or "bottom."

Advantages of Side Milling

There are three main advantages to the side milled key. All three advantages are related to the shape of the key blade and the location of the security cut in the side of the blade.

Security – A side-milled key is much more difficult to duplicate. Duplication requires a unique key-cutting device known as a computer-controlled end mill. No hand cutter is capable of cutting the groove for this style key. The key code remains 5 digits. The ignition lock cylinder has 8 tumblers. The key has 8 cuts, each with 4 possible depths.

Tumbler Actuation – The traditional edge cut key activates the tumblers in the lock cylinder by moving each tumbler against a small spring. The side-milled key positively locates the tumblers during insertion; the tumblers still have springs, but they play no role in location. Tests at the Milford Proving Ground showed that 30% of ignition lock failures are the result of debris in the lock cylinder causing tumblers to stick. This problem is eliminated by the side-mill design.

Hang Load Tolerance – Due to the sturdy rectangular shape of the blade, a side-milled key has a larger load bearing area. This increases tolerance to the heavy hang load of a key chain full of keys and trinkets.

Service Considerations of the Side-Milled Key

Replacement keys may be obtained several ways. As introduced with the GTO, a replacement key may be ordered through the normal GM parts channel, using the key code. The code is available from the vehicle security card or from the DealerWorld key code lookup system (in Canada, the GM Parts Locator and Information Services application). If the key vendor has the request by noon, a replacement will be shipped the next day through normal GMSPD shipping channels.

A dealer may choose to purchase the key milling equipment. Although it is expensive, it can have a favorably short payback period. Because side-milled keys are already used on a wide variety of vehicles, there is a ready market for replacements, including vehicles on your used car lot. Data memory cards for the key cutter are available for the vehicles of various manufacturers.

Replacement lock cylinder kits are available, as they already are for edge-cut keys. Refer to SI for the lock cylinder coding procedure.

– Thanks to Will Godfrey and Bob Hiser

Side Milled Key Equipment

Contact GM Dealer Equipment for information on these cutting devices for side milled keys.



Barnes Distribution
BD Laser Code Cut and Duplicator



Kaba Ilco Tricode HS Code Cut and Duplicator



Kaba Ilco Matrix S Duplicator

Saturn ASTRA – continued from page 1

Transmissions

The ASTRA offers two transmissions. A manual 5-speed is standard on all models, and a 4-speed automatic is available on all models.

The manual 5-speed transmission is accompanied by hydraulic (instead of solid) fluid-filled engine mounts, for better isolation of drivetrain vibrations from the chassis.

The clutch hydraulic fluid is drained, flushed and refilled every two years, using DOT-4 fluid.

The 4-speed Aisin automatic transmission is electronically controlled. The transmission control module (TCM) is mounted below the heater unit.

Neutral Idle – The automatic transmission shifts into neutral at complete stops to help reduce fuel consumption when the vehicle is not moving. The neutral idle function is activated when the transmission is in Drive (D), the brake pedal is depressed, the vehicle is stationary, the accelerator is not depressed and the transmission fluid temperature is greater than 32° F (0° C). The transmission automatically engages when the brake pedal is released.

Downhill Grade Braking – The transmission automatically shifts to a lower gear on a downhill grade when the transmission controller detects an increase in speed when the brake pedal is applied over a specified period of time. An increase in engine RPM will occur when the transmission downshifts.

Winter Driving Mode – Press the Winter Driving Mode button, located on the center console, to turn the winter driving mode on or off. The Winter Driving Mode light on the instrument panel cluster illuminates when the winter driving mode is active. The amount of torque at the front wheels is reduced and the transmission is directed to start in third gear. This reduces the tendency for the drive wheels to slip on low-traction surfaces.

Once the vehicle is moving, the transmission will shift normally. Winter driving mode is deactivated if the transmission is manually shifted to second or first gear.

The automatic transmission is filled with Dexron 6 fluid, which is replaced at 100,000 miles (50,000 miles severe).

CHASSIS

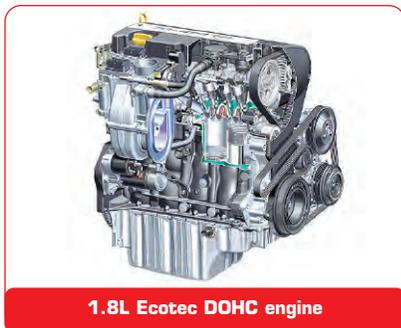
Brakes

ASTRA is equipped with 4-wheel disc brakes, ABS and dual-rate booster. Front rotors are vented 12.1-inch, rear rotors are 10.4-inch.

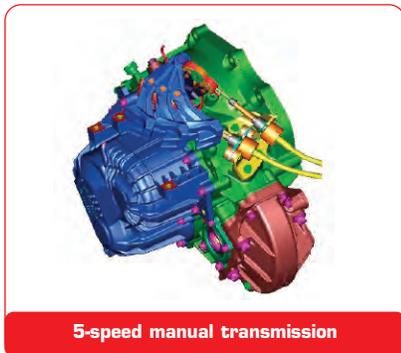
Brake service facts:

- Brake fluid must be changed at 24 month intervals.
- Use only Super DOT-4 brake fluid GM p/n 88958860 (89021186 Canada).

IMPORTANT: Do not replace DOT-4 with DOT-3 fluid. This is



1.8L Ecotec DOHC engine



5-speed manual transmission

indicated in the maintenance schedule and owner manual.

Suspension

Front suspension uses an enhanced McPherson system mounted to a hydroformed subframe. The subframe is, in turn, isolated from the underbody.

This suspension design uses side load-compensated coil springs and a stabilizer bar.

Rear suspension uses a semi-independent torsion link axle. It includes coil springs, shock absorbers and stabilizer bar. The compact design does not intrude into the luggage space as it does in some other vehicles.

Steering

ASTRA is equipped with electro-hydraulic power steering (EHPS). An electrically driven hydraulic pump provides boost instead of an engine belt-driven pump, working only when needed.

Some models also include variable assist and a quicker ratio (14:1 vs 15:1).

The EHPS unit is sealed and contains no serviceable components. The unit is bled by starting and stopping the engine three times with a brief pause before each restart. The hydraulic system is bled by starting the engine, then turning the steering wheel from left stop to right stop three times.

EHPS has a diagnostics line on the HS CAN, and can set 11 DTCs.

TIP: Use GM Hydraulic Power Steering Fluid p/n 89021184 (89021186 Canada).

The steering wheel is adjustable for tilt (40 mm) and telescope (50mm) using a single clamping lever below the column. The steering wheel has a magnesium frame for reduced mass, and is equipped with accessory controls.

TIP: The steering wheel controls include a unique thumb wheel on the left spoke, which can be operated by rotating up or down as well as by depressing.

Wheels and Tires

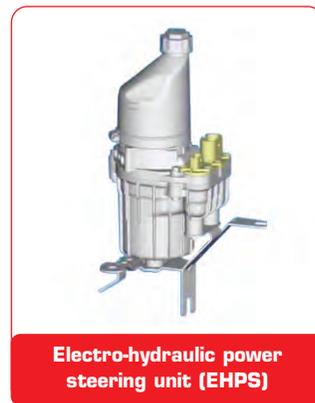
Wheel offerings range from 16-inch steel to 17- and 18-inch alloy wheels.



Front suspension



Rear axle



Electro-hydraulic power steering unit (EHPS)

TIP: Summer-only performance tires available on the 3-door XR MUST be replaced with winter tires in northern climates. They are not designed for snow/ice-covered pavement.

COMMUNICATION NETWORK

ASTRA uses three different car area networks (CAN):

Name	Acronym	Speed (kilobytes per second)	Number of wires	Functions
High-Speed	HSCAN	500 kbps	2	Powertrain
Mid-Speed	MSCAN	95.24 kbps	2	Electronic climate control and entertainment
Low-Speed	LSCAN	33.3 kbps	1	Body and comfort

The CAN buses are connected together by two gateway modules, which act as signal converters. Signals must be converted so low speed data can be transmitted on the high speed bus.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

DLC Terminal Designations

1	LSCAN	6	HSCAN – high
3	MSCAN – high	11	MSCAN – low
4	Ground	14	HSCAN – low
5	Ground	16	Battery power

USING THE TECH 2

Separate ASTRA-only software must be downloaded onto a Flash card for use in the Tech 2. See the accompanying article for details and precautions.

IMPORTANT: Do not operate the Tech 2 with both a 32MB and a 10MB card installed at the same time.

BODY AND FEATURES

ASTRA provides halogen headlamps with automatic control to turn lamps on when needed. This includes a 20-second delay off feature. XR models also provide integral halogen projector beam fog lamps.

Tech 2 Diagnostic Software For The 2008 Saturn ASTRA

The 2008 Saturn ASTRA will require the use of a separate Tech 2 software version to perform Service Programming (SPS) and Diagnostics. This version contains only support for the Saturn ASTRA and is standalone from the regular North American (N.A.) software. Additionally, the N.A. Tech 2 software will not contain diagnostic support for the ASTRA.

The Saturn ASTRA software can be loaded onto either a 32MB or 10MB Tech 2 flash card. The 10MB cards were used by Saturn retailers when the Tech 2 was first released. Using the 10MB card for the Saturn ASTRA will allow you to keep the N.A. Tech 2 software separately on the 32MB card.

How to Reset the ASTRA Engine Oil Life System

The Engine Oil Life System calculates when to change the engine oil and filter based on vehicle use.

After changing the engine oil, reset the system so it can calculate when the next oil change is required.

1. Turn the ignition key to LOCK/OFF.
2. Press the instrument panel cluster stem until the odometer is displayed.
3. Press and hold the cluster stem until the letters InSP are displayed.
4. Hold the cluster stem down and turn the ignition key to ON/RUN.
5. The letters InSP in the instrument panel cluster display will flash.
6. Keep the cluster stem down for at least 20 seconds.

If the letters InSP and the remaining mileage for the next oil change appear in the instrument panel cluster display, the system is properly reset.

TIP: If a situation occurs where the oil is changed before the letters InSP appear in the odometer display, reset the system.

Rainsense™ wipers are standard equipment. They automatically adjust wiper operation depending on the amount of water on the windshield. Flat blades are used to conform to the shape of the windshield, for better wiping. They also resist ice buildup.

The cabin air filter has a service interval of 35,000 miles.

ASTRA uses a convenient flip-key with integral remote entry fob. A side-milled blade provides greater security. See the Keys article elsewhere in this issue for more details.

– Thanks to Dan Fernandez

Downloading Saturn ASTRA Version 27.001

From the TIS 2 Web application, select Tech 2 Software Download (SWDL).

TIP: The Tech 2 must be connected to the Techline PC before beginning SWDL.

Once in SWDL select Custom from the Update Mode selection and select Next. From the Select Applications screen, scroll to the Saturn ASTRA 27.001 folder in the Applications For Downloading box, select the folder and then Download to begin the download to the Tech 2.

IMPORTANT: Do not operate the Tech 2 with the 32MB and 10MB cards inserted into the Tech 2 at the same time. You may experience intermittent programming or diagnostic errors when trying to perform functions on the 32MB card. Run the 10MB card separately and always remove the 10MB card when not in use.

– Thanks to Mark Stesney

Odometer Programming Tip

When replacing an Instrument Panel Cluster (IPC), the season odometer value needs to be programmed into the new IPC. A table in an upcoming service bulletin can be used as a reference guide to help identify what odometer programming method to use. The table lists most 2003-07 passenger cars and trucks (including Saturn), HUMMER H2, and HUMMER H3.

The table lists the component where the season odometer value is stored.

At present, there are three programming methods used:

- the Service Programming System (SPS)
- using the Electronic Service Center (ESC)
- the Tech 2 - used to program the season odometer value in an exchanged BCM. An exchanged IPC receives and displays the odometer value from the BCM, over the serial data circuit, after cycling the ignition or driving the vehicle.

TIP: The table will be available in the Reference Guide of the *TechLink* website.

- Thanks to Harold Kiel

Model	Model Year	Odometer Value Storage	Odometer Programming Method
BUICK			
Century	2003-2005	IPC	ESC
Enclave	2008	IPC	ESC
LaCrosse/Allure	2005-2008	IPC	ESC
Lucerne	2006-2008	IPC	ESC
LeSabre	2003-2005	IPC	ESC
Park Avenue	2003-2005	IPC	ESC
Rainier	2004-2007	IPC	SPS
Regal	2003-2004	IPC	ESC
Rendezvous	2003-2007	IPC	ESC
Terraza	2005-2008	IPC	ESC
CADILLAC			
CTS	2003-2008	IPC	ESC
DeVille	2003-2005	IPC	ESC
DTS	2006-2008	IPC	ESC
Escalade	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
Seville	2003-2004	IPC	ESC
SRX	2004-2008	IPC	ESC
STS	2005-2008	IPC	ESC
XLR	2004-2008	IPC	ESC
CHEVROLET			
Astro	2003-2005	IPC	ESC
Avalanche	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
Aveo	2004-2008	IPC	ESC
Blazer	2003-2005	IPC	ESC
Colorado	2004-2008	IBCM	Tech 2
Cavalier	2003-2005	IBCM	Tech 2
Cobalt	2005-2008	IBCM	Tech 2
Corvette	2004-2008	IPC	ESC
Epica	2004-2006	IPC	ESC
	2005-2006	IBCM	Tech 2
	2007-2008	IPC	ESC
Express	2003-2008	IPC	ESC
HHR	2006-2008	IBCM	Tech 2
Impala	2003-2008	IPC	ESC
Kodiak	2003-2008	IPC	ESC
Malibu	2003	IPC	ESC
	2004-2008	IBCM	Tech 2
Monte Carlo	2006-2007	IPC	ESC
Optra	2004-2007	IPC	ESC
S-10	2003-2004	IPC	ESC
Silverado	2007-2008	IPC	ESC
Silverado Classic	2003-2007	IPC	SPS
SSR	2003-2006	IPC	ESC
Suburban	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
TrailBlazer	2003-2008	IPC	SPS

Model	Model Year	Odometer Value Storage	Odometer Programming Method
Uplander	2005-2008	IPC	ESC
Venture	2003-2005	IPC	ESC
GMC			
Acadia	2007-2008	IPC	ESC
Canyon	2004-2008	IBCM	Tech 2
Envoy	2003-2008	IPC	SPS
Jimmy/Envoy	2004-2005	IPC	ESC
Safari	2003-2005	IPC	ESC
Savana	2003-2008	IPC	ESC
Sierra	2007-2008	IPC	ESC
Sierra Classic	2003-2007	IPC	SPS
Sonoma	2003-2004	IPC	ESC
TopKick	2003-2008	IPC	ESC
Yukon	2003-2006	IPC	SPS
	2007-2008	IPC	ESC
OLDSMOBILE			
Alero	2003-2004	IPC	ESC
Bravada	2003-2004	IPC	SPS
Silhouette	2003-2004	IPC	ESC
PONTIAC			
Aztek	2003-2005	IPC	ESC
Bonneville	2003-2005	IPC	ESC
G5	2007-2008	IBCM	Tech 2
G6	2005-2008	IBCM	Tech 2
Grand Am	2003-2005	IBCM	Tech 2
Grand Prix	2004-2005	DIC	ESC
GTO	2004-2006	IPC	ESC
Montana	2003-2005	IPC	ESC
Montana SV6	2005-2008	IPC	ESC
Pursuit	2005-2006	IBCM	Tech 2
Solstice	2006-2008	IBCM	Tech 2
Sunfire	2003-2005	IBCM	Tech 2
	2006	IBCM	Tech 2
	2007-2008	IPC	ESC
Vibe	2003-2008	IPC	ESC
Wave	2005-2008	IPC	ESC
HUMMER			
H2	2003-2007	IPC	SPS
	2008	IPC	ESC
H3	2006-2008	IBCM	Tech 2
SAAB			
9-7x	2005-2008	IPC	SPS
SATURN			
AURA	2007-2008	IBCM	Tech 2
ION	2003-2007	IBCM	Tech 2
L-Series	2003-2005	IBCM	Tech 2
OUTLOOK	2007-2008	IPC	ESC
RELAY	2005-2007	IPC	ESC
SKY	2007-2008	IBCM	Tech 2
VUE	2005-2007	IBCM	Tech 2
	2008	IPC	SPS

Driver Airbag Module Removal

On the 2008 Chevrolet Malibu, use the following tips to aid in removal of the driver airbag module (DAB).

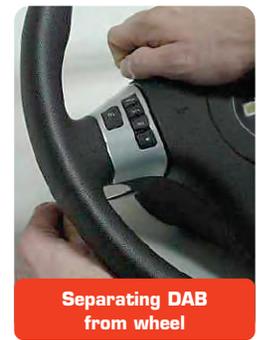
Insert a flat ended 4mm Allen wrench or similar blunt ended tool into one of



Inserting Allen key

the back cover holes (either side) until it touches the DAB wire.

Apply pressure to the Allen key so the DAB wire is displaced about 5mm and simultaneously pull the DAB cover away from the horn towers.



Separating DAB from wheel

TIP: Using a quick pull will help separate the DAB from the wheel.

- Thanks to Joel Ebner

EVAP Canister Damage

This information applies to the G6, AURA, Malibu, Malibu Maxx (between 2004-07) and the new 2008 Malibu. Refer to bulletin 05-06-04-004B for details.

When the vehicle is lifted on a hoist for service, it is important to position the lift pads according to SI procedure.

An incorrectly placed lift pad at the right rear may contact the EVAP canister, causing damage. A cracked or leaking canister can set one or both of these DTCs:

- DTC P0442 - small EVAP leak detected
- DTC P0455 - large EVAP leak detected

- Thanks to Ron Caponey

Diagnostic Code Sets in PARK

The 2008 Buick Enclave may have an intermittent DTC P0723.

Check freeze frame data to see if the code set in Park.

If the DTC set while the vehicle was in Park,

the cause is noise (EMI) on the sensor circuit. Reprogram the TCM and the ECM. The Techline terminal should automatically perform both calibrations once the TCM update has been selected.

- Thanks to Ronald Mitchell

Denso Navigation Information

Unwanted Noise from Navigation Radio

Some customers may comment that there is unusual or unwanted noise coming from the navigation radio in their 2006-07 DTS, 2007 Avalanche, Silverado, Suburban, Tahoe or Yukon. The noise has been described as a fan sound or hearing a disc spinning. Customers may hear the disc spinning sound even if a CD or DVD is not inserted.

In many cases, the described noises are normal. When the occupant enters the vehicle, the map DVD will start to read and load information in the navigation system before the vehicle is turned on. Once the vehicle is turned off and RAP has ended, the navigation system will remain on (with the display off) to store data that is needed for the next power cycle. The navigation unit's fan will also remain on for a time after the vehicle is turned off to ensure the navigation unit cools down.

Navigation Radio DVD Movie and Audio Compatibility

Some customers may comment that their 2006-07 DTS, 2007 Avalanche, Silverado, Suburban, Tahoe or Yukon navigation system will not play audio or video DVDs.

Two navigation radios are released for the 2007 models listed above. The navigation radios look identical but have different functions internally.

If the navigation radio is listed on the RPO sticker as UVB, the

navigation radio is capable of playing DVD movies and DVD audio.

If the navigation radio is listed on the RPO sticker as U3U, the navigation system is not able to play DVD movies or DVD audio.

Accessing/Ejecting the Navigation Radio Map DVD Correctly

Some customers may comment that they can not remove the map DVD from their 2006-07 DTS, 2007 Avalanche, Silverado, Suburban, Tahoe or Yukon navigation system.

Accessing the map DVD on the listed models is performed differently than on other models. The map DVD is accessed by pressing the MENU hard key and then using the touch screen. Touch the NAV icon followed by the Map Database Information icon and then the Change icon.

Inaccurate Navigation Radio Map Information

Some customers may report that information is missing or inaccurate in their navigation radio map software.

This is caused by incorrect or missing information in the map database used to create the map DVD. Replacing the navigation system will not correct the customer's concern. Check to see if a map DVD update is available.

– *Thanks to Katul Patel and Steve Falko*

Photos with Field Product Reports

Dealers play a key role in reporting product issues through the Field Product Reporting process (refer to bulletin 02-00-89-002F). In many cases, photographs can better illustrate an issue or provide additional detail than just the product report alone and help GM identify and solve problems quicker.

Here are some photo taking tips.

- To better explain product concerns, include a digital photo with the Field Product Report, when appropriate. For concerns such as mis-routed wiring and hoses, paint blemishes, window glass issues, mis-aligned components, and others a picture really is worth a thousand words.
- U.S. dealers can E-mail product reports with digital photos to electronicproductreport@gm.com. The product report form is available through DealerWorld on the Service tab under Service Forms.
- Canadian dealers can attach digital photos to the electronic Product Information Report (PIR) form available on GM infoNET.
- Save photographs in JPEG file format.
- Do not add text to any photo.
- Use the highest resolution available; the higher the setting the better the photo quality.
- Take multiple photographs. In most cases, a close-up shot of the part and an overall shot of where the part is located are required. The close-up shot provides a detailed look at the concern. The overall shot gives some perspective as to where the part is located on the vehicle.
- The camera's macro mode is best for small objects and close-up images. On many cameras, this is represented by a flower symbol.
- Use adequate lighting. Poor lighting conditions result in poor quality photos. In low light situations, take the picture with and without flash to determine which image is best. If the image appears washed out, it may be due to too much light. Use a flashlight, shop light or other light

source instead of the flash. If the image appears too dark or lacks contrast, use flash plus additional light sources.

- Hold the camera steady. If necessary, brace yourself against a wall or other sturdy object. Press the shutter button gently, making sure not to jerk the camera. Even small movements can cause the image to blur.
- Lock the focus to create sharp images of off-center items. Most digital cameras simply focus on what's in the center of the frame. If you need to photograph something that's not dead center, point the camera at the item, press the shutter button half way down to lock the focus, re-frame the picture while still holding the shutter button, and then finish by pressing the shutter button all the way.
- If the object has been removed from the vehicle, place it on a neutral, uncluttered background for best clarity.
- Refer to your camera's instruction manual for more tips on how to take successful images.

– *Thanks to Diana Sancya*

GM Approved Oil List on TechLink Website

Castrol GTX re-approved

An updated version of the GM6094M Approved Engine Oils list is available in the Reference Guide section of the *TechLink* website. As previously reported, GM recently conducted a test program to check several of the oils on the Approved Oils list for compliance with the GM6094M specification. During that program, one of the oils tested was found to be out of compliance. After much work by GM and Castrol, GM is now pleased to report that Castrol GTX has been re-approved to the GM6094M Approved Products List.

Watch for further updates to the GM6094M and GM4718M Approved Products list on the GM *Techlink* website.

– *Thanks to Matt Snider*



Car Issues – Fix It Right the First Time

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2006	HHR – A/C system does not cool, noise from engine compartment and/or IP	Check system refrigerant charge, replace A/C lines	Don't change A/C compressor	06-01-38-004B
2000-07	Impala, Monte Carlo – Vent vanes mispositioned, do not move uniformly	Install A/C vent vanes into locating holes	Don't replace I/P cluster trim plate assembly	06-01-39-010
2006-07	Lucerne – Poor headliner fit in rear	Repair headliner	Don't replace headliner	PIC4189
2006-07	Lucerne – Arm rest, insert, interface squeak/rubs. Map pocket insert squeaks	Install new retainers	Don't replace door trim	06-08-64-034
2005-07	STS – Seat moves sideways on corners	Put tape on sides of hook on seat cushion frame to shim gap to slot in adjuster	Don't replace seat adjuster	06-08-50-010
2005-07	XLR and Corvette – Dead battery or no crank	Reprogram RCDLR	Don't replace RCDLR	07-06-03-001B
2006-07	Lucerne – Noise when making turns at slow speeds	Align I-shaft to steering column	Don't replace intermediate shaft or steering gear	06-02-35-009D
2005-07	Malibu, G6, AURA, Grand Prix, LaCrosse, ION, VUE – Airbag light on	Remove PPS and passenger seat bottom cushion assembly and allow to air dry	Don't replace PSS cushion and module assembly	06-09-41-008A
2004-07	SRX – Turn signals flash fast, or front turn signal is out	Bulb and socket for turn signal circuit are available separately	Don't replace complete fog lamp assembly for inoperative turn signal	Parts Catalogue
2006-07	Cobalt, G5, SKY, HHR, Solstice, VUE, ION (U1C radio) – AM radio reception quality	Reprogram radio	Don't replace radio	06-08-44-016C



Truck Issues – Fix It Right the First Time

Model Year(s)	Vehicle Line(s) / Condition	Do This	Don't Do This	Reference Information / Bulletin
2002-06	Rendezvous, Terraza, Venture, Uplander, Silhouette, Aztek, Montana, RELAY – Moan or groan from RDM during turning maneuvers	Perform refill procedure	Don't replace RDM if it passes tests in SI	06-04-114-001
2007	Escalade, Yukon, Tahoe/Suburban – Clips available only with pipe bundle	Replace clip, O-rings and spacer	Don't replace heater pipe bundle	07-01-37-002
2006-07	Rainier, TrailBlazer, Envoy, 9-7X – Shift indicator does not show correct gear	Readjust shift cable	Don't replace shift cable, P/N switch, or shift assembly	PIT4108A and 06-07-30-029
2005-07	TrailBlazer, Envoy, Rainier, 9-7X – Headliner drops down and comes loose around sunroof opening	Repair headliner	Don't replace headliner	06-08-110-003A
2007	Full-size utility – Third row seat squeak in tumble position	Position escutcheon, install foam flock tape	Don't replace seat adjuster	07-08-50-004
2007	Fuel gauge erratic, displays incorrect fuel level in freezing weather, DTC P0463	Replace fuel level sensor	Don't replace PCM, fuel sender, instrument cluster, fuel tank, wiring, fuel system relay	PIT4294C
2007	Pickups and Utilities – Center seat console hinge cover breaks	Replace hinge cover only	Don't replace entire center console	07-08-50-014
2007	Full-size utilities – Airbag door not flush with instrument panel	Reposition locking tabs	Don't replace airbag	06-09-41-004B

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for
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10207.11D Emerging Issues
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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