

# Choosing the Right Spark Plug

Spark plug design, specifications and performance vary widely depending on each application. Using the correct spark plug for the engine application is critical to proper operation.

When selecting the right spark plug for an engine, manufacturers must consider many factors that affect plug performance, such as heat range, conventional or precious metal, extended length insulators, tapered electrodes and gap size. All of these features are addressed by the wide range of available ACDelco spark plugs.



Conventional spark plug R45TS is identified as:

- R = Resistor
- 4 = 14 mm Thread
- 5 = Heat Range
- T = Tapered Seat
- S = Extended Tip

Prefixes and suffixes are sometimes combined to further define the plug's identification.



**Conventional spark plug**

continued on page 2

## Numbering System



**Double platinum spark plug**

ACDelco precious metal spark plugs — platinum and iridium — use an all-numeric identification code. The numeric code does not correspond to the heat range of the plug as it does with conventional spark plugs. This numbering system was developed to avoid any confusion between precious metal plugs. When replacing a precious metal plug, it is not recommended to select a plug with a different code number.

For example, spark plug 41-806 can be identified as:

- 41 = ACDelco product line (41 is the spark plug line)
- 806 = Type of spark plug

The type of spark plugs are:

- 100–199 = Iridium\*
- 600–699 = Resistor
- 800–999 = Double Platinum
- (\*Exception: 41-985 is an iridium plug)

RAPIDFIRE® spark plugs use a modified identification code that features a simple numbering system of numbers 1–12 and 14.

For ACDelco conventional spark plugs, the prefix and suffix letters identify a specific type of plug. The numbers relate to the thread size and heat range.

## IN THIS ISSUE

Choosing the Right Spark Plug .....	1
Oil Life, Part 2 .....	3
New Suspension Seminar Covers Basics, Latest Technology .....	4
2008 Annual MACS Convention .....	4
National TSS Advisory Council Meeting ..	5
ACDelco Partners with ASE .....	5
DuraStop Caliper Label Indicators .....	5
New Product Information and Search Tool .....	6
Bulletin Categories .....	6
New ACDelco Silicone Brake Lubricant ..	6
Tech Tips .....	7
Winter Maintenance Top 10 .....	8
The Training Update .....	8

## ON THE WEB

- [acdelcotechconnect.com](http://acdelcotechconnect.com); go to Training
- Log on to ACDelco LMS; go to Resources
- *TechConnect* Magazine Online

# Choosing the Right Spark Plug -

continued from page 1

The first number denotes thread size and the second number indicates heat range.

Thread sizes are:

- 4 = 14 mm
- 8 = 18 mm
- 10 = 10 mm
- 12 = 12 mm
- 2 = 1/2 inch taper
- 5 = 1/2 inch
- 6 = 3/4 inch
- 7 = 7/8 inch

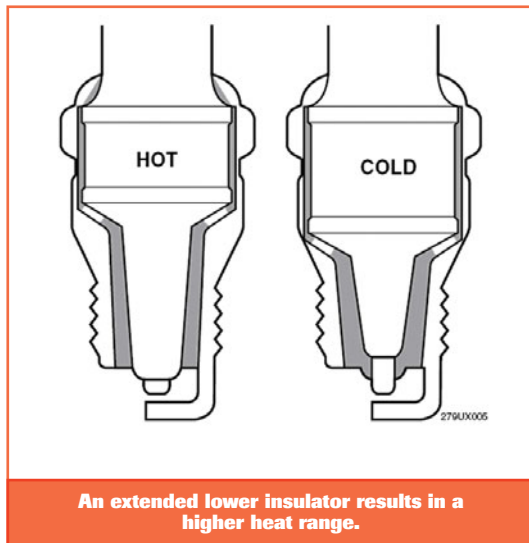
Heat ranges are:

0-1-2-3-4-5-6-7-8-9

Cold ————— Hot

The higher the second number, the hotter the plug.

## Heat Range



Heat range is the measure of the spark plug's capability to transfer heat from the engine combustion chamber to the cylinder head. The rate of heat transfer is based on the spark plug design, primarily the length of the lower insulator and the conductivity of the center electrode. An extended insulator tip takes longer to transfer heat, resulting in a higher heat range.

ACDelco plugs are designed to operate at specific heat ranges and in various types of driving. The spark plug tip must operate at a high enough temperature to prevent fouling, yet remain cold enough to avoid pre-ignition.

A "hot" plug transfers heat more slowly and operates at a higher temperature while a "cold" plug has a faster rate of heat transfer and operates at a cooler temperature when installed in

the same engine and operated under the same conditions. A cold plug may be best suited for heavy-load or high-speed driving. A hot plug may be better for prolonged idling or stop-and-go traffic.

Installing hot spark plugs in the wrong engine application can result in pre-ignition and possible piston damage. And installing cold plugs in the wrong engine application can lead to fouling, loss of power and higher exhaust emission levels.

## Installation Tips

The spark plug gap of ACDelco iridium and platinum spark plugs is set during manufacturing and should not be changed. A new spark plug found to not be properly gapped should not be used.

When gapping conventional spark plugs, refer to the exact measurement specified by the engine manufacturer. Only the side electrode should be moved, not the center electrode. An incorrect gap can cause the spark plug to misfire or foul.

When installing a spark plug, screw the plug in the cylinder head until it is finger tight. Then use a torque wrench to tighten the plug to the proper torque recommended by the engine manufacturer. The threads on the spark plug and port must be clean, smooth and dry.

Overtightening a spark plug can cause stretching of the plug shell and may allow blow-by to pass between the shell and insulator.

Some other common spark plug installation problems include:

- Installing a spark plug without a gasket, causing overheating and spark knock
- Installing a spark plug with two gaskets, leading to poor heat transfer and spark knock
- Installing a long reach spark plug in a cylinder head designed for one with a shorter reach, resulting in threads filled with residue and possible piston damage
- Installing a short reach spark plug in a cylinder head designed for one with a longer reach, causing fouling, misfires, and residue-filled threads.

— Thanks to Mike DeSander

ACDelco *TechConnect* is published bi-monthly for retail technicians to provide timely service information, increase knowledge and improve the performance of the TSS service center.

### Publisher:

Dennis Kissack

ACDelco

**E-mail**

dennis.c.kissack@gm.com

### Editor:

Mike DeSander

ACDelco

**E-mail**

mike.desander@gm.com

### Technical Editors:

Mark Spencer

**E-mail**

m Spencer@gpworldwide.com

Jim Horner

**E-mail**

jhorner@gpworldwide.com

### Production Manager:

Marie Meredith

### Desktop Publishing:

Supreme Graphics, Inc.

**E-mail**

supremeinc@supremeg.com

### Write to:

ACDelco TechConnect  
P.O. Box 500  
Troy, MI 48007-0500

### On the Web:

To read and search recent issues of *TechConnect* online:

- Go to [acdelcotechconnect.com](http://acdelcotechconnect.com); click on Training
- Log on to ACDelco LMS; click on Resources
- Click on *TechConnect* Magazine Online

ACDelco 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, it cannot be assumed that the information applies to all vehicles or that all vehicles will have that condition.

All materials and programs described in this magazine are subject to change. Submission of materials implies the right to edit and publish. Inclusion in the publication is not necessarily an endorsement of the individual or the company.

*TechConnect* is published for ACDelco by Sandy Corporation, Troy, MI.

©2007 ACDelco. All rights reserved.

## Oil Life, Part 2

Engine oil is made up of two components. First is a base stock of either mineral or synthetic oil. The second part is the additives that turn the oil into a lubricant as well as serve as detergents, friction modifiers, anti-wear agents and other purposes.

In the last issue of *TechConnect*, oil consumption and oil life were reviewed. Continuing with oil life, here's a look at oil conservation efforts, including the fundamentals of engine oil and the oil life system used in many new vehicles today.

### In the Beginning

Straight mineral oil is not an ideal lubricant in an engine. A number of additives are needed to give the oil properties it does not naturally have or to enhance its natural properties. These additives include:

- Viscosity modifiers, to keep the oil the proper thickness over a wide range of operating temperatures
- Anti-oxidant agents, to keep the oil from thickening
- Corrosion inhibitors, to protect engine components
- Anti-wear agents, to prevent metal-to-metal contact between parts
- Detergents and dispersants, to suspend solid particles and minimize sludge buildup.

The oil used in modern engines is a far cry from early engine oil. In 1911, the Society of Automotive Engineers (SAE) developed a system that classified engine oils by viscosity only. The classification system that we know today got its beginnings in 1947, when the American Petroleum Institute (API) designated three types of engine oils: regular (straight mineral oil), premium (oil plus oxidation inhibitors) and heavy-duty (oil plus oxidation inhibitors and detergent-dispersant additives).

By 1970, a new classification system would be established to identify the changing maintenance and lubrication requirements of the automotive industry. The SAE and API identified eight engine Service Categories with "S" designations for passenger car engine oils.

Over the years the Service Categories became technically obsolete and in 1993 the GF1 specification was created, followed by GF2, GF3, and the latest GF4 specification that was introduced in 2004. Each specification category has

resulted in progressively higher quality oils.

The API starburst certification label is used to help identify the engine oils that meet these new specifications for oxidation resistance, deposit protection, wear protection, low temperature performance and energy conservation.

### Middle Age

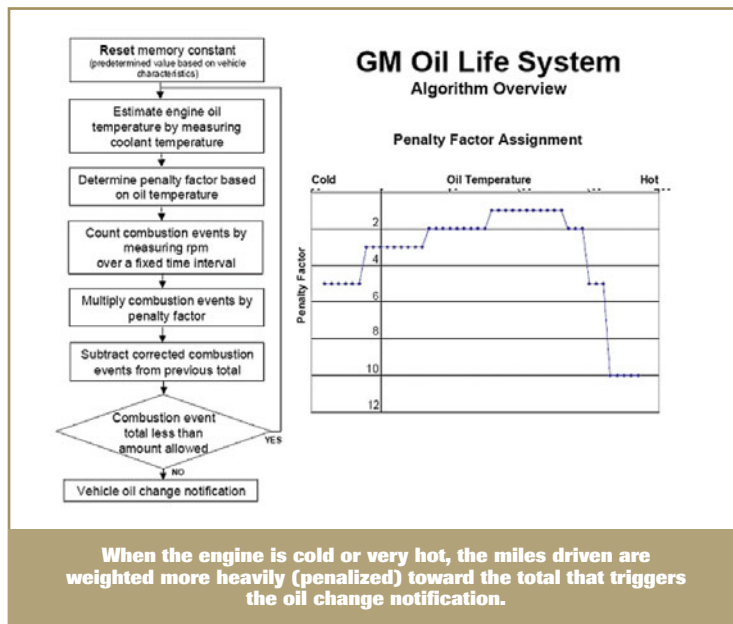
The North American market used 757 million gallons of engine oil in 2006. The GM Oil Life System, which measures oil degradation, not mileage, can extend oil change intervals and reduce oil use. In the past, useful oil life was thought to be approximately 3,000 to 5,000 miles. It turns out that mileage is actually middle age in the oil lifespan of a typical passenger car.

OEMs have long understood that mileage is not a fundamental factor in oil degradation. The primary factor that influences oil life is engine combustion events. A secondary factor is engine oil temperature. Ideally, engine oil change intervals should be determined by these factors.

The average oil change interval using the GM Oil Life System is approximately 8,500 miles. If all customers followed the Oil Life System intervals, an estimated 7 million gallons of oil could be saved.

There also is a movement toward more synthetic oil use. By 2009, it's estimated that synthetic and specialty oils may account for over 20% of all engine oil sold. All 2008 Cadillac models, for example, will be factory-filled with Mobil 1 synthetic oil.

The GM Oil Life System takes a number of factors into consideration when determining the right time to change the engine oil. The oil life monitoring technology involves computerized analysis of engine revolutions, operating temperature, and other factors to optimize the change interval selection.



Because of advances in engine technology and engine oil, the system is calibrated to allow more engine revolutions between oil changes, resulting in increased mileage. The vehicle build — transmission gear ratios, final drive/rear axle ratios, tire size — also plays a role in how hard the engine is working. Finally, customer use is analyzed, including highway and city driving, heavy loads and extreme short trips.

The Oil Life System does not actually monitor the physical properties of the oil. It applies a highly sophisticated mathematical model based on the known influence of oil service temperature and engine revolutions to determine the remaining useful oil life. It's important to note that when the Oil Life System indicates 0% oil life remaining, there is a 20% safety factor.

### Golden Years

In the end, it's good to look at things as not getting older, but getting better. Engine oil formulas continue to get better, expanding useful oil life.

The extended drain intervals reduce the demand for oil. The environmental benefits are less used oil handling and disposal as well as increased conservation of oil resources. Some European companies are now calling for oil changes at 20,000 miles.

The future of oil life points toward longer-lasting oil with a better resistance to degradation and an emphasis on continued conservation.

— Thanks to Mike DeSander



# New Suspension Seminar Covers Basics, Latest Technology

The new ACDelco seminar, Suspension Technology: Yesterday . . . Today . . . Tomorrow (SS-UC-01.01), provides the latest information about automotive suspension technology and electronic chassis components along with their related service issues.

The main topics covered in the seminar include:

- Suspension functions
- Electronic suspension inputs and outputs
- Electronic suspension diagnostics
- Suspension/chassis technology

## Suspension Basics

The seminar begins with a review of the suspension, from the origins of a coach suspended by leather straps mounted to a frame to later innovations such as struts and semi-elliptical springs. Typical suspension components that are highlighted include ball joints, coil springs, tie rods, stabilizer bars, shock absorbers, control arms and others.



The ACDelco ball joint, left, offers a number of innovations not found on competitors, right.

ACDelco's product offerings of these suspension and chassis components feature a number of innovations and the

features and benefits of ACDelco products are discussed. One comparison looks at ACDelco ball joints, which are designed with a permanently attached boot, a full ball stud and patented two-piece cylindrical wedge bearing, and a one-piece forged housing.

## Electronic Systems

The seminar also delves into the variety of electronic suspension systems available on vehicles today. This includes information about the how and why behind typical electronic systems such as Selectable Ride, Automatic Level Control, Air Suspension, Computer Command Ride, Real Time Damping and Road Sensing Suspension, and Vehicle Stability Enhancement System.

In addition, the seminar provides details about controlling all of these electronic components, explaining the roles of various inputs and outputs to the system control modules. These sensors and inputs include:

- Shock/strut position sensors
- Steering wheel position sensor
- Lateral accelerometer
- Yaw sensor
- Driver select switch for suspension settings
- Vehicle/wheel speed sensors
- Actuated dampers
- Suspension control module
- Suspension level sensor

An in-depth look at two systems provides additional details about electronic controls of the suspension and related components. The VW Jetta's Continental Teves Electronic Suspension operates

with an electronic stability program that integrates braking and steering maneuvers. The Cadillac XLR uses on-vehicle data communications to control modules that operate the transmission, suspension, brakes and steering.

## Diagnostics

The seminar reviews chassis service information and diagnostic tips on Diagnostic Trouble Codes (DTC), input

Vehicle Speed	6 km/h
RF Position Sensor	3.99 Volts
LF Position Sensor	3.65 Volts
RR Position Sensor	2.75 Volts
LR Position Sensor	2.92 Volts
RF Damper Actuator Conn	2 %
LF Damper Actuator Conn	0 %
RR Damper Actuator Conn	2 %
LR Damper Actuator Conn	2 %
2 / 18	

**Scan tool data parameters for several suspension components**

data parameters, output controls and symptom-based diagnosis of the suspension and related systems and components.

A look into the future concludes the seminar with details about how leading technology will impact tomorrow's suspension systems. An active stabilizer bar, for example, will be able to respond in real time to driving conditions. In addition, a linear electromagnetic motor strut can precisely control wheel motion for a smoother ride.

## More Information

To learn more about the Suspension Technology: Yesterday . . . Today . . . Tomorrow seminar as well as other ACDelco seminars being held in your area, contact your local ACDelco distributor.

– Thanks to Jim Resutek

# 2008 Annual MACS Convention

The annual Mobile Air Conditioning Society (MACS) convention and trade show will take place January 30 – February 2 at Walt Disney World's Coronado Springs Resort in Orlando, Fla.

The theme for the 2008 convention is "Current Events" and will focus on the latest in modern data management and electronics training.

ACDelco is a proud sponsor of the convention. Featured programs include:

- Off the Charts Service: Your Secret Weapon in the Battle for Customers
- Solving On-Board Vehicle Communication Problems on Bus Circuits
- Essential Electrical Checks
- Airbag Safety & A/C Service
- Getting to Know Computers
- Essential Hybrid Knowledge for the A/C and Heat Transfer Technician



For more information about the MACS 2008 convention and trade show, visit the MACS website at [www.macs.org](http://www.macs.org).

– Thanks to Dennis Kissack



**From left: Jeff Spitzer, Director – SPO Field & Sales Operations, Nancy McLean, Director – ACDelco Marketing, Paul Johnson, General Director – Global Independent Aftermarket, and outgoing TSS Advisory Council members Mark Hyde, Bob Wills, and Dave Christopher**

## National TSS Advisory Council Looks to the Future, Recognizes the Past

The recent ACDelco National Total Service Support (TSS) Advisory Council meeting held in Grand Blanc, Mich., in late September

was an opportunity to recognize the valuable input of several long-standing council members as well as develop plans for continuous improvement of the TSS program.

Council members worked with ACDelco representatives on how to enhance the TSS program and offer new benefits and opportunities for TSS members. Council members provided input, based on their work with local zone advisory councils recently formed in all 10 zones in the country, on ACDelco's plans for marketing, e-business, and training.

In these areas, ACDelco is working toward an improved scholarship program and an association with ASE. In addition, new training classes, both on the web and instructor-led, are being developed. Further enhancements are also in the works for ACDelco e-business initiatives WIP, WISE and TIS2Web.

Another aspect of the future, increasing competitiveness in the aftermarket, was highlighted during the meeting with presentations from Paul Johnson, General Director – Global Independent Aftermarket, and Brent Snelson, U.S. Director – Independent Aftermarket, on how global operations impact the United States.

### Council Recognition

ACDelco recognized three outgoing TSS Advisory Council members for the valuable input they have provided in the growth and success of the TSS program. They are Mark Hyde of Hyde Auto Service, Oklahoma City, Okla., Bob Wills of

Wills Auto Service, Battle Creek, Mich., and Dave Christopher of Christopher's Car Care, Tallmadge, Ohio.

Four new members of the TSS Advisory Council are Rob Abbott of Abbott's Auto Care, Lexington, S.C., Rick Jindra of Dependable Automotive, Binghamton, N.Y., Bob Stout of Fuerst Automotive, Cleveland, Ohio, and Kay Wynter of Terry Wynter Auto, Fort Myers, Fla.

The TSS Advisory Council also recognized the efforts of ACDelco with the ACDelco Employees' Appreciation Award, which was presented by the council to the entire ACDelco organization as a thank you for their hard work in supporting the TSS program.

Nancy McLean, Director – ACDelco Marketing, was recognized by the council as well with the Dedicated Service Award.

ACDelco would like to thank all TSS Advisory Council members — both national and zone — for all of their contributions in making the TSS program one of the best in the industry.

– Thanks to Staci Shelton

## ACDelco Partners with ASE

ACDelco is pleased to announce an agreement with the National Institute for Automotive Service Excellence (ASE) to work together toward increasing technician certification.

Technicians at participating U.S. ACDelco TSS service centers are eligible for a significantly discounted registration fee on the certification tests of the Blue Seal of Excellence Recognition Program.

Registration for the tests and additional information can be found at [www.ase.com](http://www.ase.com). To receive the TSS discount when registering, enter a dash and TSS (–TSS) after your business name.

## DuraStop Caliper Label Indicators

ACDelco has incorporated identifiers on DuraStop caliper labels to make it easier to identify the friction material included with loaded calipers and if a bracket is included with loaded and Friction Ready Calipers. The friction indicators C, M and O will be displayed on the label.

The following are the loaded caliper friction type indicators and definitions:

- C — Loaded caliper contains Ceramic Friction material
- M — Loaded caliper contains Semi-Metallic Friction material
- O — Loaded caliper contains Non-Asbestos Organic material

– Thanks to Betty Stuart



# New Product Information and Search Tool on acdelcotechconnect.com

New information on wiring sockets and pigtails as well as air conditioning products has been added to [www.acdelcotechconnect.com](http://www.acdelcotechconnect.com).

**Wiring Sockets and Pigtails Search Tool** — This new search tool makes it easier to identify wiring sockets and pigtails for GM and non-GM vehicles. The on-line reference source offers a menu-driven search feature with photos of each pigtail and wiring socket so you can match the part you are replacing with the new part number.

**Air Conditioning Product Information** — The A/C technical product information enables you to identify associated parts for a repair. It also provides service tips and information needed to maintain the warranty on installed parts. The product information covers seals, compressor lubrication, leak detection/dyes, filters/screens, and flushing.

To access the wiring sockets and pigtails search tool or the A/C technical product information, go to [acdelcotechconnect.com](http://acdelcotechconnect.com) and click on the Automotive Systems tab and the Product Information link.

— Thanks to Bob Stewart



## Bulletin Categories

Service bulletins provide the latest information on a lot of different subjects. Keeping track of them all can be quite a job. Here is a list of the current bulletin categories found in the GM Service Information.

**Informational** bulletins convey information about a particular subject and include installation information; repair tips for use of tools, adhesives, etc.; new parts information, and more.

**Service Manual Update (SMU)** bulletins are published when a very significant change has been made to a procedure in the Service Information after the printed service manual is available.

**Technical** bulletins address the 3 Cs — complaint, cause and correction. They provide specific repair instructions and contain necessary parts and labor operation information.

**Field Product Reminder** bulletins are published monthly. They provide a summary of top issues for cars and trucks with a reference to the specific bulletin.

**Exchange** bulletins pertain to part restrictions or situations in which the parts cannot be scrapped and must be returned to General Motors.

**Warranty Administration** bulletins provide information related to submission of warranty claims.

**Engineering Information (EI)** bulletins are published on issues in which engineering is unable to determine a root cause due to returned parts being NTF (no trouble found) and/or unable to duplicate the customer concern. Engineering Information bulletins are technical in nature and request information from the technician during diagnosis.

— Thanks to Ann Briedis

## New ACDelco Silicone Brake Lubricant

ACDelco announces a new Silicone Brake Lubricant, part number 10-4019. The new lubricant comes in an 8 oz. can with an applicator brush. The brush enables the lubricant to be easily applied on brake components. This product replaces the 5.3 oz. tube of Silicone Brake Lubricant, part number 10-4022.

ACDelco Silicone Brake Lubricant is a Polytetrafluoroethylene (PTFE)

thickened silicone compound containing specially selected premium silicone oils and high levels of PTFE. This product combines the excellent temperature, corrosion, and water resistance typical of silicone compounds with the outstanding lubrication properties of PTFE.

Silicone Brake Lubricant:

- Is compatible with most plastic and rubber compounds

- Has a high percentage of PTFE that lowers friction and “stick” slip
- Contains proprietary additives that make it more shear stable than other silicone compounds
- Combines the water spray-out properties of most caliper lubes with the long term wear potential of general backing-plate lubricants

— Thanks to Catherine Cullins



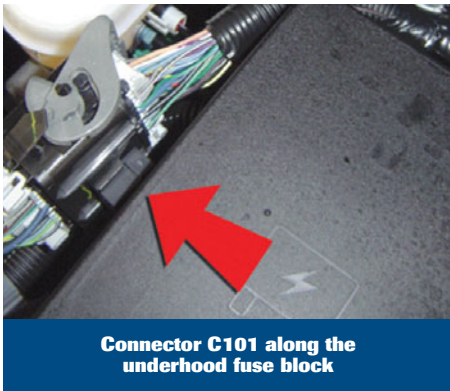
The following technical tips provide repair information about specific conditions on a variety of vehicles. If you have a tough or unusual service repair, the **TSS Technical Assistance Hot Line** can help. Call **1-800-825-5886, prompt #2**, to speak with a technical expert with the latest OEM information.

## Loose Connection

2004-06 Buick Rainier, Chevrolet Trailblazer, GMC Envoy; 2002-04 Oldsmobile Bravada; 2005-06 Saab 9-7x.

These vehicles may exhibit 4WD inoperative, SIR lamp, erratic fuel gauge operation and/or a Service Stability Message. Possible Diagnostic Trouble Codes (DTCs) are C0186, C0196, C0327, C0455, P0452, P0453, P0461, P0462, P0464 and/or U1088.

A possible cause of these symptoms is a loose connection or backed out terminal(s) at the C101 connector, a 38-way connector mounted along the underhood fuse block. This harness may be routed tightly around the Underhood Accessory Wiring Junction Block (also called the UBEC) that could induce any of the concerns listed.



**Connector C101 along the underhood fuse block**

Check all terminal connections in this connector for integrity. Inspect female terminals for pin drag. The male terminal should be fully seated in the body cavity of the connector. Be certain that no terminals are bent or damaged in any way. Re-route the harness to prevent future harness and/or connector strain.

When servicing this connector, be careful not to damage other terminals. Fully seat the connector squarely with both hands and then latch the locking portion of the connector (CPA). Do not use the lock mechanism on the connector to pull the connector halves together, as this may cause terminals to bend or make a poor connection.

## Strut Leak

A front suspension strut oil leak can result if the strut center (rod) nut is used as a connection for the ground cable when jump starting a vehicle. The investigation by GM engineering was conducted on damaged struts from Saturn VUE, Chevrolet Equinox and Pontiac Torrent models.

An electric spark between the rod guide and rod can damage the chrome plating, which in turn damages the oil seal, contributing to oil leakage.

The remote positive terminal, prominently identified in the color red, is located at the UBEC, on the left side of the vehicle. The center nut of the nearby strut is a tempting and convenient place to connect the ground cable.

DO NOT use the strut as a ground when jump starting a vehicle. In the case of the VUE, Equinox and Torrent, a remote (unmarked) negative terminal is located in the front of the engine compartment near the engine oil dipstick. This location is shown in the owner's manual.

## Tip-in Hesitation

2004-05 Buick Rainier, Chevrolet TrailBlazer, GMC Envoy; 2004 Oldsmobile Bravada; 2005 Saab 9-7x, with 4.2L engine (VIN S, RPO LL8) and Secondary AIR Injection (RPO K18).



**Damaged chrome plating**



**Damaged oil seal**



**Negative terminal**

On rare occasions, a tip-in hesitation may be experienced when accelerating from a stop. This may happen at any engine temperature, but it is typically more apparent on light tip-in acceleration after idling for 1-2 minutes at operating temperature.

The cause may be a leaking Secondary Air Injection solenoid valve, which is mounted to the passenger side of the cylinder head.

If Service Information diagnostics do not isolate a cause for this concern, temporarily remove the hose from the Secondary Air Injection solenoid valve, start the engine, and inspect the inlet side of the valve for exhaust pulsations, with it closed at an idle. If exhaust pulsations are present, replace the Secondary Air Injection solenoid valve and evaluate the concern.

## Part Number Correction

The part number in the September/October issue of *TechConnect* for the Cooling Coil Coating kit used to address air conditioning odors should have been listed as 12346391. The kit is available only through GM dealers. A 6 oz. aerosol can, part number 12377951, also is available through GM dealers. ACDelco offers a 6 oz. bottle, part number 15-102.

## Product Assistance

For assistance and information regarding specific ACDelco products, contact these free information hotlines:

Brakes – 1-888-701-6169 (prompt #1)

Chassis – 1-888-701-6169 (prompt #2)

Clutches – 1-800-725-8625

Lift Supports – 1-800-790-5438

Shocks – 1-877-466-7752

Starters and Alternators –  
1-800-228-9672

Steering – 1-866-833-5567

Wiper Blades – 1-800-810-7096

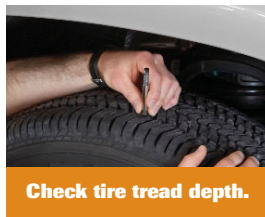
# Winter Maintenance Top 10

There's no way to avoid him, old man winter is coming. But depending on your part of the country, that may mean snow-packed roads or just a drop to cooler temperatures. Regardless of future weather forecasts, now is the ideal time to promote routine maintenance checks to encourage customers to winterize their vehicles. After all, it's not fun to be stranded on the side of the road in any type of weather.

According to the Car Care Council, more than 70 percent of motorists do not have their cars winterized in preparation for inclement weather. To help create awareness of the need for proper vehicle maintenance, the third promotion in ACDelco's 2007 Winning Hand program focuses on winter routine maintenance. It includes a \$10 consumer mail-in rebate during the consumer promotional period of November 1–December, 31.

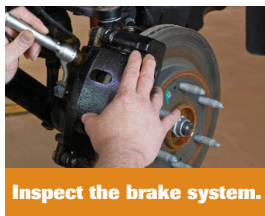
Here are the top ten maintenance items to check to get ready for the winter weather ahead.

- Change the engine coolant** — Clean, flush and refill the cooling system with new antifreeze/coolant. Don't forget to check the hoses for weak spots and degradation.
- Test the battery and charging system** — Cold weather is hard on batteries. Make sure the battery is in good condition and the charging system is operating properly
- Check the tires** — Tire tread depth and proper tire pressure are critical when driving on slick roads. During the winter months, tire pressure should be checked weekly.
- Change the wiper blades** — One of the most neglected maintenance items, wiper blades must be in good condition to provide a clear view of the road. Wiper blades should be replaced every six months. Also fill the windshield washer fluid reservoir.
- Check the heater and defrost systems** — Yes, it's obvious, but some motorists are still left out in the cold. Make sure these systems are working properly.
- Change the engine oil and filter** — Follow the maintenance schedule in the vehicle's owner manual. Explain to your customers that cold starts and short trips are hard on engine oil.



Check tire tread depth.

- Inspect the brakes** — The braking system is the most important safety item during poor weather conditions. Check rotors, pads and brake fluid levels to ensure proper operation.
- Check exterior lights** — Don't get left in the dark. Make sure all bulbs illuminate and headlamps are properly aimed.
- Check the exhaust system** — Look for leaks in the exhaust system, which can be especially dangerous during cold weather when the windows are closed.
- Be prepared** — Even a well-maintained vehicle can develop problems on the road, so an emergency kit in the trunk can really help if stranded for several hours.



Inspect the brake system.

– Thanks to Dennis Kissack

# The Training Update

## How to Take ACDelco Training

Go to [acdelcotechconnect.com](http://acdelcotechconnect.com) and click on the **Training tab** to log on to the ACDelco Learning Management System (LMS).

- To enroll in an **Instructor-Led Training (ILT)** course, click on the Enrollment link or the Instructor-Led Courses link.
- To launch a **Web-Based Training (WBT)** course, click on the Web-Based Courses link to view the catalog and select a specific course.
- To launch a **TechAssist (TAS)** course, click on the TechAssists link to view the catalog and select a specific course.

## Current Instructor-Led Training

ACDelco's Instructor-Led Training (ILT) courses provide hands-on instruction with the latest automotive systems. The following ILT courses are currently being held at training center locations around the country.

S-AC07-01.01ILT	HVAC Systems Diagnostics
S-AC07-02.01ILT	Automotive Air Conditioning: Advanced Refrigerant System Diagnostics
S-AC07-03.01ILT	HVAC Control System Operation and Diagnostics
S-BK05-01.01ILT	Braking Systems
S-EL06-04.01ILT	Body Control Systems Diagnostics
S-EL06-10.01ILT	Battery, Charging, & Starting
S-EL06-11.01ILT	Automotive Electrical Circuit Diagnosis and Repair
S-EP08-01.01ILT	Engine Performance
S-EP08-02.01ILT	Engine Performance: Computer Controls and Ignition System Diagnostics
S-EP08-12.01ILT	OBD II GM Diagnostics
S-EP08-81.01ILT	Duramax 6600: Diesel Engine Performance
S-SS04-01.01ILT	Vibration Correction Diagnostics
S-ST10-01.01ILT	Supplemental Restraint Systems

## New Training

Here are some of the new ACDelco training courses that are now available to technicians via the LMS.

### Instructor-Led Training:

S-AC07-02.01ILT	Automotive Air Conditioning: Advanced Refrigerant System Diagnostics
S-AC07-03.01ILT	HVAC Control System Operation and Diagnostics

### Web-Based Training:

S-EL06-01.02WBT	Electrical/Electronics Stage 1 (Spanish)
S-EL06-07.01WBT	Hybrid Introduction and Safety (Spanish)

### TechAssist Training:

S-DS11-06.01TAS	Active Fuel Injector Tester (Spanish)
S-EL06-17.01TAS	6.6L Duramax Diesel Injector Programming
S-EL06-17.01TAS	6.6L Duramax Diesel Injector Programming (French)
S-EL06-28.01TAS	GM Terminal & Connector Information (French)
S-EP08-17.01TAS	SaabTronic 8 and ME9 Fuel and Ignition Systems (Spanish)
S-EP08-19.01TAS	Vehicle Data Recorder
S-SS04-04.01TAS	Installing GM Accessory Wheels for MY 2007 (French)