



## THE VETTE GAZETTE

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I found this while doing one of my many searches and thought I would share this information with all of you. After I read this I went out to the garage and did the check on my coolant hoses and I am still in pretty good shape, as I hope most of your cars are as well!

This is a great article on why coolant hoses fail. The point I want to stress is the quality of the parts we buy for our Corvettes can vary greatly. Just because things look the same does not always mean they are. The use of inferior materials and low tech production processes often means the difference between a few dollars in savings to the customer. Competition is the driving factor for manufactures when making replacement parts. Being the lowest price can often be the only goal for these companies. Quality parts will almost always cost more. So how do you know what quality a part is? When shopping for parts look for warranty information.

Trivia :1

What year were seat belts not factory installed in the Corvette but mounting provisions were offered for?

Often this is an indicator of how the manufacturer stands behind its product. If they know it's going to fail at a higher rate they may only put a 1 year warranty on it.

### Trivia : 2

What was the first year for the “350ci” displacement engines, a steering column ignition switch as well as a 8” wheel width and headlight washers?

ACDelco parts are almost always the same or better OEM manufacturing standards as what came on our Corvettes from the factory.

On a side note: One of the biggest differences between aviation and automotive parts manufactures are the standardization of parts. In the aviation world replacement parts are federally regulated to meet a set standard or TSO. A TSO is a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. When authorized to manufacture a material, part, or appliances to a TSO standard, this is referred to as TSO authorization. Every single part installed on all airplanes starts life living to this standard. Anybody can

make the part as long as they do it to that standard. This is also one of the reasons why airplanes cost so much! Chris Trautman [www.corvette-web-central.com](http://www.corvette-web-central.com)

## Checking Coolant Hoses and why they Fail

By: Mike Militello from AC Delco Tech Connect

What is the best way to check the condition of the coolant hoses on an engine? If you answered X-ray vision, you’re right. That would allow you to see inside the hose to view the tiny cracks on the inside walls of the hose where damage begins. The second best, and more realistic way, to check any coolant hose is with the squeeze test. The squeeze test can be used to inspect any coolant hose for the negative effects of Electro Chemical Degradation (ECD), which is the primary culprit of coolant hose failure. ECD creates fine cracks, or striations, in the tube wall inside the hose. The fine cracks extend from the inside to the outside of the hose tube near one or both ends of the hose and weaken the structure of the tube.

### Regular Maintenance

Evidence of ECD depends on the quality of the hose, time and vehicle use, so there is no readily identifiable maintenance interval to follow. The squeeze test of coolant hoses should be included as part of a vehicle’s regular maintenance. To perform a squeeze test, squeeze the hose near the clamps or connection using the following procedures:

- Make sure the engine is cool
- Use your finger and thumb, not your whole hand, to check for softness
- Squeeze near the connections. ECD occurs within two inches of the ends of the hose, not in the middle.
- If the ends feel soft or mushy but the middle feels firm, the hose is under attack from ECD

## Electro Chemical Degradation

ECD is an electrochemical attack on the tube compound. Different metals found in an engine system release an ionic discharge, generating 5 to 150 millivolts. The coolant contacts the various metals, picks up the charge and discharges the electrical energy into the hose. The voltage discharge initiates an electrochemical process that ultimately creates small cracks or striations (markings with parallel grooves) in the hose tube. Over time, these cracks widen, resulting in pinhole leaks and, eventually, leading to catastrophic failure. Heat does not cause the failure, but it does accelerate the electro chemical degradation process.

### Trivia: 3

What was the first auto sold by GM to feature the passive keyless entry system aka PKE?

Inferior hoses are more susceptible to ECD. It is recommended to change these hoses every four years or sooner if used in a fleet application. Some standard hoses have revealed damage and failures as early as 20,000 miles in fleet applications. To beat the effects of ECD, a new innovative tube material has been developed that is Electro Chemically Resistant (ECR). In testing, the ECR hose has been shown to last 200,000 miles. In addition to ECD damage, during a routine inspection of coolant hoses, always check for any heat damage, oil damage, and abrasive ozone damage (caused by pollution attacking bonds in rubber components that appears as tiny cracks at curves and bends) of the hoses



The race for the GT class victory in the season-ending Petit Le Mans came down to speed versus fuel economy. With the No. 3 Compuware Corvette C6.R driven by Jan Magnussen, Antonio Garcia, and Jordan Taylor cutting seconds from the No. 01 Ferrari's lead with every lap, Ferrari driver Toni Vilander made it to the finish without a final fuel stop. Thus the No. 3 Corvette finished second for the fifth time in 10 American Le Mans Series races this season.

The winning Ferrari and the runner-up Corvette both completed 375 laps on the 2.54-mile Road Atlanta circuit, with the Ferrari 30.676 seconds ahead at the checkered flag after nine hours and 37 minutes of intense racing. The championship-winning No. 4

Compuware Corvette of Oliver Gavin, Tommy Milner, and Richard Westbrook pitted from the lead just before the six-hour mark with a steering problem, and lost 26 laps to the leaders while the Corvette crew replaced the rack, ultimately finishing 12th. "It was a good gamble for them," Garcia said. "At the end they stretched it, and they got the victory. Corvette Racing did what we had to do, we ran our plan perfectly, and all three drivers did all we could."

"I learned a lot this year, and I appreciate all that the team did for me," said the Spaniard after his first full season with Corvette Racing. "We just need to learn and come back stronger next year."

"It's hard not to be a little disappointed, but that's how it is," Magnussen said.

"Tonight's result was an indication of how our season has gone - so close and yet so far. We had a fantastic car; we just missed out at the end."



The Corvettes started third and fourth on the grid after the pole-winning No. 02 Ferrari was disqualified for an infraction in post-qualifying technical inspection. At the green flag, Gavin grabbed second behind Scott Sharp in the No. 01 Ferrari, while Garcia made it safely through the first lap in sixth. Garcia methodically moved forward, gaining fifth on lap six, fourth on lap eight, and third on lap 12. Gavin and Garcia were then running second and third behind the No. 01 Ferrari. Gavin took the lead at the 40-minute mark with a pass in Turn 7.

"Everything was going to plan, and then something happened with the steering," Milner said. "I had a big dead zone turning left that made the car very difficult to drive. More importantly, if there was something broken internally, it could put our car and other racers at risk. They made the right decision to replace the steering rack, and we went back out. This team never gives up!"

The No. 3 Corvette C6.R won the 2012 Michelin Green X Challenge championship in the GT class. Overseen by the Green Racing steering group comprised of representatives of the U.S. Department of Energy, the Environmental Protection Agency, SAE International and the sanctioning International Motor Sports Association, Corvette Racing won the "race within the race" with the best score for clean, fast, and efficient performance.



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