

## Technical Committee – November 2008

Keeping your Corvette to the point where maintenance becomes an issue. If you are the owner of a C1, C2 and early C3 Corvette, retaining ownership of that vehicle is almost a gimme. Such cars are really an investment and increased maintenance is part of that investment. Naturally, maintenance for these really old 'Vettes is a truly specialized task. Mechanical fuel injection, carburetion and some of the other antiquated systems on these vehicles often requires special parts or reproduction items and a mechanic with gray hair.

But suppose you own a relatively newer C5 and wish to keep it? Although many owners of these newer generation Corvettes often trade them in after a few years, the current financial market has led more of us to consider keeping them a bit longer. You might wonder what can be done to make it ready for many more years of cruising? Such a question has been recently posed to me by the membership.

As usual, I will again set the parameters of my article or we could go on for dozens of pages. We will not discuss mechanical or electrical breakdowns for items that have no preventive servicing. So, failures of power windows, CD/radios, turn signals, etc. are not a consideration. These systems may last more than 20 years without a failure, or they can actually break under factory warranty. There is no servicing with such parts and tearing them down to repair the internal works is really not an option. Exceptions exist, however, and I will cover them later. Also, preventive maintenance on very complicated systems like power steering, air conditioning, special reactive suspension systems, etc. is also not up for discussion. These systems basically must fail first since it is economically detrimental to replace selective sub-parts prior to system failure. Finally, I will not talk about the obvious and continual maintenance servicing such as oil changes, tire rotation, wiper blade replacement, and so forth.

Over the years, Chevrolet has done much to make routine maintenance more infrequent. As an example, many fluids have a very long lifespan compared to cars produced just 20 years earlier. So, the maintenance schedule for a C5 or C6 may not indicate you have to do much if you keep your vehicle with 40, 50 or even 60,000 miles. The steps I might recommend are not meant to replace the factory maintenance schedule and will never exceed the factory recommended intervals. However, I believe peace of mind is a relatively inexpensive item to buy when you are looking at keeping your 40,000-mile Corvette for another 40,000 miles. Using this example, those maintenance items that need be considered for trouble-free extended life mostly fall into three basic categories: Fluids, belts and hoses.

First, let's discuss fluids other than motor oil. The C5 factory manual recommends changing the automatic transmission fluid at 50,000 or 100,000 miles depending on driving conditions and generally never to change the manual transmission fluid. Well, if you remember my January 2008 article, stick shift C5s have experienced difficulty with shifting. Changing the manual transmission fluid often corrects this problem and results in a smooth shifting transmission. Also, I doubt anyone with an automatic transmission accurately keeps track of his or her driving conditions. So, my recommendation is to change the tranny fluid regardless of whether or not you have a clutch. Also, the rear axle fluid does not have a factory specified change interval. However, as long as the mechanic is underneath the car you can have him change that as well. C5's have a notorious side seal leak problem on the differential and the C6s an issue with grinding noises in tight turns. As a minimum an inspection is in order, but I would replace the fluid as well.

Brake fluid changing is actually an ongoing maintenance issue with all vehicles, but it is generally not specified in the maintenance program. If you wish to keep your 'Vette for many more years, I would definitely recommend changing out the old brake fluid with fresh fluid. Since 1986, Corvettes use ABS brake systems, so if you change out the fluid in these models you should use either a DOT3 or better yet, a DOT4 fluid. Never use a DOT5 silicone based fluid in any ABS system. DOT3 and DOT4 fluids have one bad characteristic: They are hydroscopic, that is, they absorb water. Over the years, this can cause some corrosion and worse yet, performance degradation. DOT3 fluids can take only 7% water, but at even 3% saturation, the braking performance can degrade 30%. Refreshing fluid can be done at home, without system disassembly, by a total system bleed. However, remember this, bleeding ABS brakes takes special procedures compared to doing so on the simpler C1 – C3 brake systems. If you're not an expert, I recommend letting a trained mechanic refresh the brake fluid. Brakes are nothing to fool around with if you're in the learning mode.

Next, let's consider the engine coolant. Modern GM coolants can last up to 150,000 miles. However, the manual recommends that mileage OR five years whichever comes first. If you hit the 40,000 or 50,000-mile point and are considering keeping the car, I do not think it's unreasonable to drain and flush the system even if the car is less than five years old. Finally, I do not believe power steering fluid would present any problem at such a low mileage, so if you wish to skip changing this fluid, you're probably okay.

I need to reiterate a recommendation from the August 2007 Tech article. If you're not regularly using Top Tier gasolines, you should strongly consider adding a fuel system cleaner such as Chevron's Techron. Most C5s are prone to fuel indication system malfunctions associated with sulfur deposits on the fuel sensors. You are basically overdue for this problem by 40,000 miles if you are a non-Top Tier gas customer. Addition of a good fuel system cleaner (generally less than \$10) and continued use of it is a very worthwhile investment as you get into the extended years of your Corvette.

Hoses are a difficult call. Modern day hoses are clearly superior to the one produced in the early days of the Corvette. At a minimum a trained Corvette mechanic should carefully inspect all hoses. The main upper and lower radiator hoses will create overheating and breakdown if they fail. I would not hesitate changing them if there were any sign of bulging, chaffing or cracking. Power steering hoses are another point requiring close inspection. Unfortunately, detection leaks the hoses associated with the air conditioning system can require more than the naked eye and indiscriminate replacement of these hoses is expensive because you have to drain and flush the system with refrigerant and that procedure generally includes a dryer change.

Belts. Well in C4 Corvettes, the better term is "belt" as it only has a single serpentine belt that runs everything. C5 and C6 cars have an improved design with a serpentine belt and an additional belt to run the Air Conditioning compressor. The serpentine belt is a roughly \$50-75 part (no labor) and the AC belt costs even less. At a minimum I would change the serpentine belt in a heartbeat at the 5-year/50,000 mile point especially in a hot climate such as we have in Florida. While you're there, though, you might as well put on a new AC belt as well.

Now, let's look at a few specialized Corvette systems that continue to create havoc on owners. First the C5 seat. You will have a rocking issue sooner or later. You can refer to the November 2007 article. You have a choice: Wait until one fails, then fix both or preemptively replace both before a failure. My recommendation is this: If the either seat is rocking fix both now. It's easier to remember how to do the procedure if you do both at the same time. Fortunately, the fix cited in my Tech article is inexpensive, but the GM recommended seat track replacement is not. So, if you cannot do the cited fix on your own or cannot get someone to do it for you reasonably, this preemptive repair may be economically impractical.

Next, is a problem encountered with almost all headlight-flipping Corvettes, especially the C4 and C5 models. GM made the gears out of a plastic. They are failure prone. Replacing the actual headlight motors is relatively expensive. Fortunately, there are very inexpensive and effective replacement gear kits available. I had a failure on my C5, which was still under extended warranty when the problem occurred. However, without such warranty protection, I would seriously considering a proactive stance with the headlight motors. The parts to fix both motors in either a C4 or C5 cost under \$100 and once you do it, the fix is much more permanent than replacing the motors with GM parts.

The factory OEM battery, which was generally a side-post, liquid acid type, posed a special problem for C5s. Most C5 factory OEM batteries were prone to crack around the positive terminal. If the crack created a leak, a battery would naturally fail. But, in most C5s, battery leakage could also take out the PCM (Power Control Module) since it is located directly beneath the battery compartment. There are some exceptions to the general rule because in the 2001 models, Chevrolet experimented with an AGM (Absorbent Glass Mat), or electrolyte starved, unit for the Corvette and in 2004 'Vettes, batteries were top-post designs. But for the most part, OEM and replacement C5 batteries are side-post, liquid acid type and they have a precarious location above the PCM. I would consider replacing such a battery with a unit that is leak-proof. If your battery is getting old-in-the-tooth when you have made the decision to keep your 'Vette, I would replace it with an AGM battery or a gel battery, as soon as practical.

Finally, let's talk about the dreaded steering column lock in the C5. On all C5s, except automatic transmission 2001 and later models, the steering column security lock is susceptible to failure. Yeah, I know, GM recalled C5 Corvettes not once, but twice, to fix the problem. Unfortunately, the fix removed the steering column lock plate, which means the column will never lock even if the bolt fails in the extended position. The problem is that the throw bolt has an internal sensor within. If the bolt remains out after you start the car, the steering will be free, but once you hit 2 mph, the internal sensor will fault the fuel control and you will stop dead. This issue is a time bomb for early auto trans and all stick C5. There is a \$50 aftermarket part that you can install on the harness to fool the car into thinking the bolt is always withdrawn. Another easy fix for a potential headache.

If you wish to keep your present Corvette and chose to "get out in front" of potential problems, I strongly recommend you do this all at once. First of all, you are apt to get a better price from your mechanic if everything is done simultaneously than if you take the car in every month or so to do these things piece-meal. Secondly, doing everything at once commits you to the process. Once you start writing individual checks, the tendency is to throttle back. When the subsequent system fails because you didn't do the preventive maintenance, the next check you write may be for a higher cost than if you had done everything all at once. Finally, I would recommend using a mechanic familiar with Corvettes. Compared to a regular mechanic, they generally have a knowledge database stored in the cranial cavity under their hat, which can often spot potential problems using the most inconspicuous clue, or know which potential problems exist on different model years of the same car.

So there you have it. With a little preventive maintenance, your Corvette can easily cruise you to another trouble-free 40,000+ miles...