

Questions & Answers

BY TONY CALLAS AND TOM PRINE

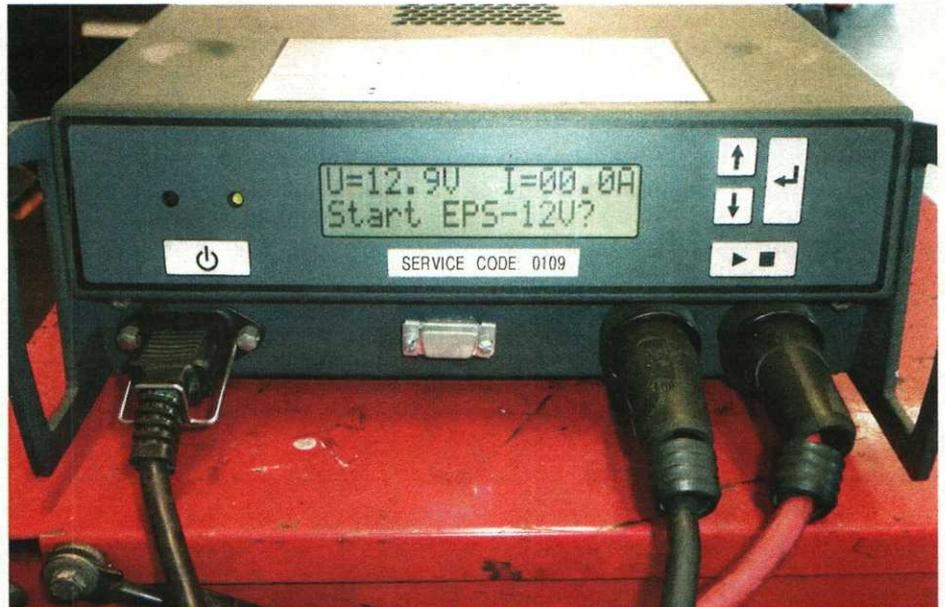
I have a 2007 911. I read the November 2010 *Tech Forum* and found the information relating to battery disconnection particularly interesting. I have read other publications that do not discourage battery disconnection or changing the battery on the later cars; they do not suggest the need for a back-up power source.

I have also read that navigation systems and radios will retain their security codes even if the battery is disconnected. I'd appreciate any clarification that you might offer relative to this apparent disagreement of procedure.

There are many opinions within this area of discussion. However, we feel there is a high probability that problems will occur if you disconnect your 2007 911's (B+) battery power or allow its battery to go completely dead. The information you read — which said the radio/navigation/PCM units in the newer cars have a built-in structure to retain their anti-theft codes — is correct. However, did the author mention that this is a very short window of opportunity, one that will last for approximately five minutes following the disconnection of B+ power? After that, volatile RAM memory will be lost.

Is it possible to disconnect B+ power for longer than the five-minute timeframe with no ill effects? Yes, it is possible, but we feel that it is not probable. There are many potential anomalies and ramifications to losing B+ power, which can include issues with your 997's Digital Motor Electronics (DME) as well as its other control units, such as its Tire Pressure Monitoring System, Gateway, and Instrument Cluster — not to mention the possibility of propagating unusual issues relating to seat heaters, mirrors, and other electrical components. Such unusual issues mainly occur with 2005-and-newer cars.

Additionally, problems are more likely if a control unit or system in your 911 already had some underlying issue(s) prior to battery disconnection. To eliminate this problem altogether, we recommend utiliz-



Above: The backup power supply we use to ensure that volatile memory is retained whenever battery disconnection is required. If, however, airbag/POSIP/MRS systems require work, the car must be powered down with no backup power to ensure safety when handling explosive components. Afterwards, the car's volatile memory must be reestablished.

ing a memory-saving device that plugs into the cigarette lighter. These devices operate with a standard 9V battery to retain all control unit capacitors' voltage, preserving the volatile RAM memory. You can obtain one of these devices from various suppliers for approximately \$10.

We find that many technicians are not up to date on the changes and sensitivities of the newer-generation Porsches. Their CAN Bus communication architecture is highly complex, and the electronic systems in 997 models are far more advanced than those in the 986s and 996s were. We hope that, in time, everyone will become more aware of these potential issues.

Your recommendation in the November 2010 *Tech Forum* to avoid disconnecting the battery without first connecting an alternate power source has me puzzled with regards to work on airbag-related

systems. The factory maintenance manuals for my last several cars all recommend disconnecting the battery and waiting ten minutes or more before performing such maintenance to preclude an inadvertent airbag deployment. How does Porsche address these concerns?

We consider all airbag-related repairs, including Porsche Occupant Side Impact Protection (POSIP) and Multiple Restraint System (MRS), to be of the most sensitive in nature. For that reason, we feel they should only be performed by a certified technician. The dangers involved are potentially life-threatening if such repairs are not handled properly.

So yes, you are correct: The battery or vehicle power supply needs to be disconnected when working around airbags. It would also be beneficial to have it disconnected for at least 30 minutes before any

repairs are performed. This is the best possible scenario in the event of a POSIP-MRS-Airbag system repair. In this case, it is not recommended to use a supplemental power source to maintain system capacitor voltage and volatile memory. Once repairs are made, the proper technique of readapting the ECU's fuel trim, throttle body, and misfire adaptations — as well as other presets and memory functions — is required to complete the repair.

Thanks for the February 2011 *Tech Forum* on GT1-based coolant line failures. This problem occurred in my 2004 996 GT3 while I was on track at Watkins Glen during a driver-education event. I guess I was lucky, as it occurred on a straightaway close to the pit entrance. A year later, a friend with an identical GT3 had the same manifold — the one behind the power-steering pump — fail at Mid-Ohio during a driver-education event.

I asked John Wright at Wright Motorsports if they had ever seen this occur on any of the 996- and 997-based race cars they service. He said they had not, but then showed me a spare engine they had just picked up. It had a fillet of what

appeared to be JB Weld epoxy around the pipe-casting joints.

Since dropping the engine and removing the suspect manifolds for welding is no small or inexpensive task, do you think that, with the engine out, one could “tack weld” each pipe to its casting without disassembling the engine? Hopefully, this would prevent a catastrophic “blow out” and limit any failure to a minor leak. I do question whether you could get the joint area clean enough so that a fillet of high-temperature epoxy would do much good, however. What do you think?

We do not see tack welding the joints without complete disassembly as a viable option. There is epoxy in the joint between the pipe and the housing; when you try to tack weld this area, the epoxy will contaminate the weld — rendering it ineffective. Another negative to tack welding the joint is the amount of heat the weld will infuse into the area, which may damage the epoxy and create the possibility of an immediate or future coolant leak.

We expect that owners of GT1-engined 911s will be trying different solutions for the coolant manifold issue for some time

to come. Only time will tell which of their approaches will prove to be most reliable over the long run.

As to the potential cost of such a repair: From a racing perspective, losing a race because of a failed coolant manifold is not an option. From a safety standpoint, a spin due to a failed coolant manifold is even less attractive. The good news: A permanent solution only needs to be done once.

I'm experiencing electrical issues with my 2001 996 Turbo. I have replaced the battery, cables, and alternator, but the electrical system is still running at about 13.5 volts or less. Is there any history of low-voltage problems with this car? Where is my engine's ground strap located?

I am also interested in daytime running lights. My car, which was built April 10, 2001, does not have them. I would like to add them if it is fairly easy to do so.

All models can suffer from low-voltage readings, but it is usually component-related. We think 13.5V is sufficient — and would be willing to state that this is a nominal specification. We don't necessarily think 13.0V is a problem, either, depend-

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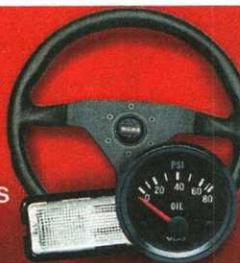
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ing on the ambient temperature and number of the car's electricity consumers that are operating. Having said that, we recommend having your Porsche's battery and alternator checked to ensure that both are performing properly.

It's best to check for a voltage drop between the battery B+ (positive) terminal and the B+ terminal at the alternator. This will test the battery's positive cable circuit completely. Please note: You must perform this test with the engine running and at operating temperature, and preferably with an electrical consumer on (i.e., the headlights). We would also check for stray A/C voltage at the battery and perform an alternator diode ripple test.

Your 911's main engine ground cable is located on the passenger side of the engine, near the top of the camshaft cover area leading to the chassis frame rail.

Unfortunately, adding daytime running lights to your 996 Turbo cannot be accomplished with a simple PIWIS code change, as it can be in a 997; you'll need to rewire your 996's parking lights. If you still want to add daytime running lights, we recommend consulting with a Porsche technician who is familiar with the modern cars.

My 1998 993 has no catalyst. Can its secondary air injection system be effectively removed? Can its secondary air injection ports be plugged?

Although you didn't mention it, we will assume you either 1) live in an area that does not require emissions testing for the renewal of your vehicle registration or 2) have a 993 that has been (or will be) converted for track use only. Removing a catalyst on any car so equipped originally, or the SAI system on any federalized, OBD-II-equipped, 1996-on road-going vehicle, is illegal. At this time, the federal mandate is that the states handle compliance through inspections. Additionally, the OBD-II system has a program called the "Task Manager" (or "Diagnostic Executive") to oversee all of the processes. This will alert the DME to turn on the Check Engine light (CEL) if anything in the emissions system is not operating or reporting properly.

If your 993 is strictly a track car/race car, we recommend that you consider a new engine management system without OBD-II functionality. A racing-type engine management system will provide wide-ranging setup flexibility in all operating parameters. It would also be beneficial to replace your 993's complete hydraulic valve adjustment system with a mechanical system.

Getting back to your original question, the secondary air injection pump and asso-

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ciated electricals and plumbing could be removed, but we see no considerable advantage (read: weight) in doing so on a street-driven vehicle. There is no real need to plug the SAI ports — they will plug themselves very effectively as the valve guides wear.

I just read the April 2011 *Tech Forum* on Cayenne V8 valley coolant pipes. Is my 2006 Titanium Edition affected? If so, would a dealer replace the parts under a Technical Service Bulletin or a recall? I bought an extended warranty that's good until November 2013, but I don't want all the potential collateral damage issues!

Unfortunately, all 9PA (Cayenne) models with a V8 produced up to and including MY 2006 can have valley coolant pipe problems unless they've been updated. The best way to mitigate your chances of valley coolant pipe collateral damage is to be vigilant about checking the fluid level in your coolant reservoir. Be sure the level remains consistent when the engine is cold. If any loss of coolant is discovered, it is critical to inspect your Cayenne and determine the origin of the leak — immediately.

Any coolant in the under-engine tray or on the ground confirms that a leak is present, but the source could be a water pump or external hose. It can be difficult to determine when it's the valley coolant pipes that are leaking. Coolant escaping from the two holes in the back of the engine block (fire-wall side) or between the engine and transmission is a good confirmation. If you do not have the tools or knowledge to verify what, exactly, is leaking, it's best to rely on a professional mechanic — as he or she should be able to verify this condition.

If your Cayenne is covered by its original warranty or a Porsche Certified Pre-Owned warranty, you should be covered for the total cost of the coolant valley pipe repair. If you have an aftermarket warranty, your coverage will depend on the fine print and details in your specific contract. At this time, Porsche has not released a recall for the 9PA valley coolant pipe repair, so it is entirely up to individual dealers to decide what repairs they will "goodwill" (cover under warranty or pay for).

My mechanic told me that the noise my 1999 Boxster is making is related to a chain getting loose, or a tensioner problem. The car has logged 190,000 kilometers, and the noise has evolved from a barely noticeable sound to a steady, but periodic, sound at idle. My mechanic used a stethoscope to identify where the noise is coming from. He said he is not worried that I will end up on the side of the road with a broken car.



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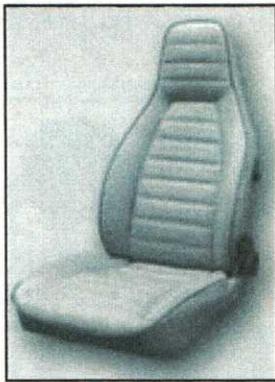
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The repair is pretty expensive, so I'd like to know how long I can drive the car this way before fixing this problem. One day? One week? One month? One year? Also, what are the consequences of a failure in the worst-case scenario?

Diagnosing mechanical engine noises via email is virtually impossible. We have to hear them, and probably in person. If we understand you correctly, your 986 has roughly 125,000 miles. Considering the fact that it has an internal engine rattle, we don't understand how your mechanic can confidently state that he is not worried.

The 986/996 engines have multiple components that can cause internal rattling noises. Of these, the most common — and crucial — is the IMS bearing. But it could also be lifters, chain-adjuster assemblies, chain tensioners, etc. When we hear any strange engine noises, the first and easiest procedure is to cut the engine's oil filter open to inspect it for any debris. The second and less intrusive procedure is to interrogate the DME engine control unit using a PST-2 or PIWIS system tester to confirm the camshaft position deviation is within specification. The information obtained from these two procedures can provide a technician with empirical data regarding the internal wear taking place as well as the general condition of your engine.

Without inspecting your engine, there is no real way to give you a worst-case scenario timeframe. We've seen these engines fail after less than 10,000 miles and we have seen them running just fine after more than 150,000 miles. If the engine noise you normally hear abruptly becomes more intense, we would suggest shutting the engine off immediately and having the car towed to a shop that can carefully diagnose what has happened. This will help to mitigate any collateral damage.

If your mechanic has not inspected the oil filter and confirmed the camshaft deviation numbers, we would highly recommend having him do so. Until then, we suggest that you carry a fully charged cell phone when driving this car.

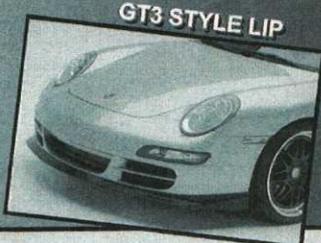
In closing, to everyone who has written us with a question, thank you very much. We enjoy the opportunity to hear from you and to respond to your thoughts or questions. Enjoy your Porsche.

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