

Things to consider when Buying / Servicing / Replacing / Upgrading a 993.

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Disclaimer: I am not a professional automotive technician please feel free to use this list of items at your own risk. Many times a lot can be learned by simply watching a qualified professional work on your 993:

IF Items as in “if not done yet or by” – or if symptoms exist, many of the items, below can be done at home with basic tools:

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- **Clutch** - IF not done once in the past. All sorts of shifting issues can present when a clutch is at the end of its life including slipping on acceleration, a hard to actuate clutch even dinging gears when shifting. A 993 should shift as easily as a Honda Civic. If this is not your experience have it looked at.
- **Secondary Air Injector Pump** - While the clutch is out inspect wiring that leads to the SAI pump where it attaches to a connector on a bracket above the air pump. These wires are known to suffer insulation failure and are easier to deal with when there is access to the back of the engine.
- **1st & 2nd gear synchros** – IF the gears tend to grind slightly while shifting especially in cool weather when the car is cold. Grinding is a sound and feel of the system slipping over multiple synchro teeth with every shift into a specific gear. This is not a common occurrence, just an experience I had. If the gears exhibit a single ding or two when cold that is mitigated by slightly slower shifting and it disappears completely once the tranny warms up this seems to be normal for many of these cars as the transmission ages. However if the gears grind and the problem only gets worse with a gear lubricant refresh it is a dead giveaway you have this issue. This was an 80K+ odometer item for me.

I have read endless circular discussions on Rennlist concerning shifting feel and various brands and viscosities of gear lubricant. My view is as the synchronizer friction rings become worn their ability to grip and synchronize the gears is diminished very very gradually over many miles of use. At some point their ability to grip is so tenuous that very small changes in lube viscosity or temperature can result in significant differences in shifting acceptability. At this point I feel looking for a gear lubricant one likes better may not be the answer. The transmission may simply need to be serviced and have its worn synchros replaced. On the up side, unlike earlier 911s the 993 does not require the engine to be removed to service the transmission.

- **Differential repair** – When the transmission is open for synchro replacement on a base model Carrera one of the gears on the differential may exhibit some chips missing from its face. Any shop that does a reasonable amount of Porsche transmission work will have a used or repaired standard differential on hand. This is because many times when a previous customer upgraded to a limited slip differential the shop retained the original. These parts may be available at a very low cost to you. I have an unsubstantiated theory that when a base Carrera is pushed to the point of wheel spin it jackhammers the standard differential gears and may be the cause of rather large steel gouged chips from the gear face showing up at the lubricant drain plug.
- **Steering rack rebuild** - IF leaking - inspect with the under body cover off; a little weeping of the fluid at the rack ends is OK as the end boots really do not seal very well and even less so with age. Substantial dripping on the underbody cover suggests an established leak. This seems to be somewhat of a chronological age related issue. It is likely accelerated by corrosion on the rack rod ends as the inside tie-rod end boots lose their sealing ability and road moisture & debris can get inside the boots contaminating the rack. Replacing the inside tie-rod boots may forestall this issue to some limited extent. Here are some comprehensive notes on removing and installing the rack on Rennlist.com "[Steering rack replacement notes](#)"

There are significant service life advantages to sending in your own rack for a rebuild rather than accepting a swap-out from the rebuilder's inventory of racks. See Rennlist.com posting "[Steering](#)"

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[rack replacement notes](#)" also see p-car.com's posting ["How to jack the car up safely"](#) safely, remember As the French say "to die for love" is a good thing however I think they are speaking of this while under something other than a car!

(Send out rack for rebuild, remove & install yourself on jack stands, very messy two session job - one day to pull the rack, a week later a day to put the rebuild back in.)





- **Replace power steering belt** - IF not done once in past by 80K miles, a skilled technician can replace this belt without removing the engine;
- **Replacement of hydraulic lifter cartridges** - IF noisy at startup after sitting for a day or two; if car sits for an extended period such as a month and the sound presents on the first startup but quiets down after an extended drive and does not return on a subsequent restart this is a sign that the lifter cartridge seals may leak a bit but have not progressed to the point where cartridge replacement is indicated. This seems to be a chronological age related issue related to the cartridge seals losing elasticity and slipping off.
- **Replace ignition wires** - IF not done once in the past by 60K miles;
- **Replace plugs** - IF not done once in past by 80K miles;
- **Replace rotor & cap** – IF there is a concern about rough idling. 993 does not exhibit a perfectly smooth idle so what is normal is learned with experience. I found that caps and rotors seem to be a two to three year repeat item on my car. If I leave them longer at some point I get a check engine light and a misfire diagnostic code.
- **Replace Strut cartridges and or springs** - IF car bounces on rebound while driving, the suspension sits low or seems harsh on brick or cobblestone roads.

If a car has over 60K miles on it, as most examples have by now, it likely has replacement (upgraded) aftermarket struts already that are good-to-go as is. If the aftermarket struts the previous owner put on your car are H&R or Bilstein (most common brands) and some time in the future need replacement, they can be rebuilt at a substantial savings over buying new – saving potentially \$1500 over a new set. Come to think of it this is a very good reason to replace with one of these two brands in the first place.

Many US cars have had their **springs** swapped out with aftermarket springs early in their life to lower the suspension to a more sporting height. Over time these aftermarket springs can sag. Replacing struts, springs or both as a complete coil-over kit is a surprisingly easy job done with jack stands and one of these: "MacPherson Strut Spring Compressor Set" transforming the ride of the car. Also see p-car.com's posting ["How to jack the car up"](#) safely. An inexpensive height adjustable coil-over option I have had great daily driver results with for the last several years is the [H&R Street Performance Coil-Over kit](#) 29954-1 on hrsprings.com , both springs and matched struts for all four wheel-ends, cost < \$2000 if you shop around, I got mine on e-Bay. You can reuse the existing rear anti-sway bar down-links with this kit. The only additional parts you will need for the job is 16 replacement M8 lock-nuts (900.380.005.09) for where the strut mounts attach to the body at the

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top. Lots of aspiring track guys buy kits with adjustable valving for a considerable premium over this kit, to each his own I say.

- **Replace Tie rod ends** IF play is present - IF only the end boots are cracked just replace the boots. See: "[Energy Suspension Tie Rod End Dust Boots](#)" on [summitracing.com](#). Simple tool to do this at home; See "[Tie Rod and Pitman Arm Puller](#)" on [Harborfreight.com](#) 
- **Replace suspension bushings** - IF car does not feel tight after a known good alignment the bushings should be evaluated for play.
- **Replace distributor belt** - IF by 80K miles it has not been done once in the past; A broken belt can cause significant consequential damage to the engine so checking for a working belt should be done regularly on all cars and any time you perceive a change in engine performance, idle or other ignition issue. I do a quick check once a year just to be on the safe side. To test just unplug the primary distributor's coil, the one leading to the distributor where the base of the distributor bolts to the engine case. If the car starts and runs at all with only the secondary distributor's coil wire attached the belt is in place, if not it is most likely broken. If the belt is found to be broken and you must drive the car to have it serviced leave only the primary distributor's coil attached to minimize the risk of out of timing cylinder detonation damaging the engine.
- **Replace Odometer gears** - IF odometer is not working or if not done once in past. The advantage of doing this repair as a preventative fix is you won't have to fish around and find the tiny broken gear teeth that if not found can jamb the mechanism once it is reinstalled. This seems to be an age related issue as the plastic internal gears become brittle, easy kitchen table project. See "[How to repair a broken odometer](#)" on [p-car.com](#). 
- **Cleaning the Idle valve** – IF not done in the last 30K miles or the engine seems to idle roughly. The idle valve should never need replacement, just spray-out cleaning until the valve internals rotate freely when you shake the unit. See "[993 Idle Stabilizer Valve \(ISV\) Cleanout](#)" on [p-car.com](#). Unlike in this DIY the last time I cleaned my car's valve I used CRC Electronic Parts Cleaner spray to good effect vs brake cleaner, a rather strong petroleum solvent. 
- **Cleaning the air flow sensor** - IF not done in the last 60K miles or so. It must be cleaned with a Q-tip in conjunction with "CRC Mass Air Flow Sensor Cleaner" just spraying it out will not always release the grey debris coating on the sensor element, the element when clean looks like a white circuit board. See Rennlist posting: "Mass Air Flow Sensor MAF Cleaning does it work?", 
- **Rerouting the clutch vent pipe** – It is interesting that on the manual transmission 993 there is a clutch vent pipe that runs up along the passenger side of the engine to a rubber hose that directs the venting to the pre-filter side of the engine air intake box. An emission control idea?? Seems to me this arrangement has three value-added features. First it clogs the filter with any abrasive debris that comes out of the pipe. It also allows any abrasive friction material that gets past the filter into the

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engine and it ensures when the clutch is not used carefully the burning friction odor is immediately released into the engine bay and sucked into the cabin heating system adding a certain something special to the driving experience. At this point I am considering rerouting the hose out under the car where it probably belonged in the first place.

- **Door check strap fix** - IF making a loud “click” or “pop” when the door is opened or closed. You may



have no “pop” sound but observe the strap mounting point on the A pillar shifting slightly as you open or close the door, a sign of future failure. This is a long standing 911 universal body part weakness with a relatively expensive (body shop) fix however it is very easy to avoid. There is a DIY to modify the check strap reducing forces and greatly reducing the likelihood of the check strap progressing to failure going forward. I would do this DIY

modification as soon as I get the car. See: “[Modifying] 993 Door Check-Strap Detent Assembly” on p-car.com

- **Door seal repair** – If you notice that the door seals on your car look worn where you foot passes over

the threshold there is an inexpensive fix. The replacement seal is staggeringly expensive and some find using the 964 for a tight door fit. For \$50 you can buy a door seal made to 1984 to 1988 Carreras. You can cut a section out of it as a replace the worn section on your 993’s seal. The profile is finish differs slightly, no biggie. One seal is long enough for jobs. If you have a concern about joining new to old you can section of vacuum or fish tank air hose slipped into the joined ends to make the mating look perfect.



993 specific seal can make fit an earlier donor to the same, the several repair use a small

- **Oil Filler Bellows** – IF it is still present. There may be an oil filling bellows tube nested inside the oil filler neck in the engine compartment. It originally was designed to pull out making an oil fill easier. This bellows tends to break down and bits of plastic can fall down the filler tube into the engine oil. On many cars this bellows was removed long ago. If you see it inside under the oil filler cap you can pull it out and throw it away. Unfortunately if it is still in place once you pull it out what debris that remains will need to be flushed out and the oil changed.

- **Check engine light** – IF the secondary air injector ports are clogged. I have no experience with this however the previous owner of my car did. I have read antidotal notes such as it shows up more in cars that have spent most of their life in hot climates and that it is related to valve guide wear as the original guides are made of a slightly too soft metal. I have also read that once the valve guides are replaced the problem seems to not return. There is more than one approaches to fix this issue or simply getting the light to stay off:

- Remove the exhaust manifold & air supply and clean the passages/ports with a wire snake attached to a hand drill & flushing with cleaning solvent. With this process you will replace the check valve, some do this as a DIY project;
- Add electronics so engine management thinks the clog does not exist, something that may not be legal as well as a disclosure issue when you sell your car, also a DIY item or;

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- Disassemble the engine to clean the ports/passages and replace the valve guides. The official Porsche solution, the one your friendly neighborhood automotive shop will \$love\$ to recommend.

My gut tells me that by now many 993s have had their valve guides replaced, on my car it was done in-warranty years ago. If you do experience this problem you may be able to forestall a full-on disassembly & valve guide replacement for tens of thousands of miles if not indefinitely by engaging in one of the less invasive fixes.

Also a bad air check valve, leaking air hose, faulty air pump, or deteriorated wires (known issue) on the back side of the engine leading to and clamped above the air pump can also cause the same light to come on. In the case of the wire deterioration I would check this any time you have access to the back of the engine for example during a clutch replacement.

- **Dual Mass Flywheel** - This is a very very uncommon issue. - IF your car seems to idle a bit too rough and you have been experiencing:
 - The check engine light and;
 - A reoccurring non-cylinder or;
 - Multiple named cylinder "emission relevant misfire OBDC code.

AND you have addressed the other less invasive sources of this such as:

- Run the quick, unplug-the-primary-distributor, belt test,
- Verifying there is not a vacuum leak on the engine,
- Cleaning the idle valve,
- Replacing the distributor caps and rotors and,
- Addressed any cylinder specific reoccurring misfire codes, wires, plugs, and injector (done after the items above and a clearing of the codes with the misfire code still returning).

You may have a problem with the dual mass flywheel (DMF).

The reason for the DMF in the 993 is to address the engine's ignition-induced rotational speed irregularity cause of vibration in the driveline. At certain speeds ignition timing matches the natural vibrations of the driveline amplifying the vibration causing transmission rattle and body boom.

I am told the litmus test for a failing DMF is to use the PSTII (Porsche tool), put the car in the air and with the car in gear, read the speed sensor directly. I'm told that it will rapidly slow and speed up out of sync with the engine RPM. Also LuK offers a DMF testing tool that physically tests the flywheel once the transmission is removed. If the flywheel needs to be replaced light weight non-dual mass flywheels are widely discussed on this board as a replacement option.

I researched the **non-dual mass flywheel** option and found that if you replace the flywheel with a light weigh single mass flywheel be aware that you should expect a good bit of additional noise, per Luk testing data and Rennlist postings. Some who have done this like the concept and throttle feel of the simpler flywheel and feel it is a good tradeoff for a perception of improved performance. Others have found the noise bothersome. Testing has shown installing a single mass

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flywheel can accelerate wear on engine/drive line components due to increased torsional impact loads to the engine and transmission. Some have experienced idle problems with the light weight flywheel requiring DME software changes to fully address.

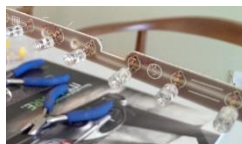
My gut tells me that if you car is tracked regularly a single mass flywheel or refreshing the DMF flywheel during a clutch replacement may be worth considering. However for street driven cars that are not exhibiting a rattling sound when the ignition is switched off and have passed the definitive test above should retain your existing installed OEM DMF at clutch servicing if it is still dimensionally within specification.

- **Alarm light on door** - Flashes in couplets when the car is locked using the remote key fob – This is an indication that the battery is not providing adequate voltage to the system, one of the dome/trunk/engine lid bulbs is out or its switch is bent or broken, the rocker switch on one of the dome light switches is not in the light-out-when-door-open position, a wire is loose or broken or something is wrong with another component in the door lock / alarm / ignition kill system. This symptom should be investigated as it can be something as simple as a battery that needs charging or replacement to a bad component in the door related electronics or a bad alternator/ voltage regulator that results in inadequate battery charging. Although this issue would not cause me to not consider a car for purchase I would be aware of its implications. The quick and simple sequence to diagnose readily repaired items include:

- Verify that battery is fully charged @ 12.5 volts or greater when standing after just being charged;
- Disconnect and inspect both the ground and the plus connections on the battery ensuring that their clamping points and conductors are clean and good;
- Ensure the trunk, engine lid and dome lights all work properly – that they illuminate and extinguish when the doors/lids are closed;
- Verify the batteries in your remotes are fresh, the battery contacts are clean and the light on the fob illuminates when you press the button. Many newly purchase batteries are actually old and out of date stock. Be sure to check for this to make sure they are fresh.

Minor inspection items:

- **High mounted tail light** - Missing some missing teeth illumination, a common item. The lamp housing is easily disassembled and if replacement bulbs are purchased from a non-automotive on-line supplier it is inexpensive, <\$10, to replace the entire set. This is table top DIY soldering iron job and is very easy. There seems to be lots of DIY discussions of replacing the bulbs with LEDs. In fact there is a kit that includes the proper LEDs with attached resistors to make the changeover a simple kitchen DIY project. Contact Tore at Bergvillfx.com . Seeing that the bulbs have a 10 year + service life it's a personal decision as to if one wants to do the LED conversion.
- **Airbag light is on** - In many cases this is a non-deployment related **airbag system** error identified by the air bag warning light in the the car is started. The error light or using Durametric Diagnostic menu) to reset the light. If this on the back of the clock solves



clock extinguishing after a short while after is easily reset by disconnecting the battery software under the 964 menu (not the 993 does not work re-soldering the circuit board this issue for some. The soldering is a table

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top DIY job. See: "[Airbag light fix experience](#)" on rennlist.com

- **High mounted stop light not working** – This is a common electrical issue related to a failed connection where the wire passes through the glass. An easy fix with several well documented DIY methods to fix it on the rennlist.com web forum. See: "[High Mounted Cyclops light wire fix](#)" on rennlist.com
- **Window up/down switch non-functional** - Switch number 964.613.621.00 is slightly different from the older model 911 switches. They have pin connectors for a dedicated wire plug unlike the older cars that had generic paddle connections on the switch backs. For this reason the replacement switches are dedicated to 964 & 993 and so are expensive at \$50 +/- each.

In most cases the pivot on one side of the rocker paddle shears off causing the switch to malfunction.

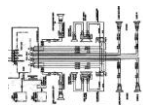
It turns out you can pry off the switch bezel from the original OE switch body and gain access to the paddle handle and fix it. Seeing that the original switches can last 15 years or longer vs. the aftermarket switches that seem to last just a few years the below fix should last a long time! A well documented fix on Rennlist.com. See: "[how to repair broken 964 and 993 window switches](#)" on rennlist.com

- **Replace the car audio speakers** - IF they have not already been replaced. The 993 audio systems in these cars are now over 16 years old. By now all the speaker cones are dried out, have lost their rigidity and can even exhibit rips. The exact vintage replacement speaker components are readily available however, in my opinion even, a refresh with the least expensive modern aftermarket components are an improvement over the original stock drivers.

For the non-premium system a direct door speaker replacement involves just four screws. For the Premium system as in my car I jettisoned the base reflex boxes under the door speaker covers and replaced them with 5-1/2" two way aftermarket speakers in conjunction with one inch extension rings. I would not recommend the least expensive aftermarket speaker as they use a simple capacitor as a cross-over and can sound rather harsh. An alternative is to just install a woofer in the door and use it in conjunction with an aftermarket hi-low signal split passive cross-over and the existing OE tweeter up by the window. I covered up the new stuff with the existing padded OEM Premium speaker cover. Looks stock and sounds much better.


For the rear original Premium Sound speakers getting a speaker with a proper fit is a challenge. Instead of replacing the entire premium speaker fixture I chose to just replaced the internal cone speaker with an aftermarket 4" coaxial one and disconnected the existing tweeter. Had to drill new speaker mounting holes in the existing rectangular fixture and calk the edges to seal the new speaker frame in once the speaker was screwed to the fixture. Remounted on the rear deck the assembly looked OE stock.

The wiring diagram in the 993 Shop the existing speakers are wired making it existing wiring harness. The upgrade can





manual is clear and concise as to how easy to tap the new speakers into the cost less than \$100 using four inexpensive two-way speakers or the sky is the limit through Best Buy, Crutchfield or other suppliers depending on what level of sound quality you desire.

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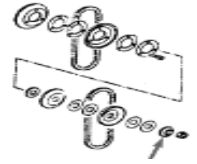
- **Hard back sports seat leather** cover edges detached – Two related fixes for this. One is to add additional clips, part number 999.507.526.01, used to pin the edge behind the mounting lip on the hard seat back. The other is to spray Lexol leather conditioner to the back of the leather softening it up and allowing the leather to stretch a little more, reducing the tension that seems to pull the leather edge out of place. If the leather is split on one of the seats there are several ways to have a repair done, anything from replacing the section of leather by an upholstery shop to a DIY solution of gluing a matching leather patch behind the rip.

- **Ignition Lock** Issues – Somewhere along the way the ignition lock / steering column deadbolt will encounter mechanical issues such as sticking or electrical issues with the switch. Be aware that in most cases hosing out the lock and mechanism with CRC Electronic Parts Cleaner and re-lubing it with a very little WD40 while in the dash fixes mechanical issues. A new lock cost \$1000 and your car's lock should never ever need replacing as in the worse case it can be taken to a local automotive lock smith who can make it as good as new for a lot less than ordering a replacement from Deutschland. The ignition electrical switch is an easily plug it in place part.

Emergency Essentials:

- **DME Relay** failure - 993s like all cars have known failure items that usually show up in the most inopportune moments. For this reason I keep a spare DME fuel injection pump relay part number 993.615.227.00 in my car. This relay has internal solder joints that fail from vibration without notice. If you car's starter turns over engine but it won't start 99% of the time it is this relay located in the relay box in the frunk of your car. If you have access to a soldering iron this relay is easy to pop open and reheat the solder joints for a quick fix.

- **Belts** Shredding – It is advisable to keep a set of fresh replacement belts as they also fail without notice and you will probably find that an on the road garage does not have these specific belts on hand. I also augment my factory tool kit with the few additional tools to make belt changes easy. In this way if I am stuck out in middle of nowhere I can replace the belts DIY. A special splined wrench that fits on the fan center shaft is needed to replace the belts. Many times this tool, supplied with the tool kit, goes missing. Check your kit and make sure you have it or a similar spline socket tool in case you or a technician needs to replace you belts when you are on the road. Recently I have read that some aftermarket alternators use a slightly different from OE style of spline socket on the end of the Alternator shaft. For this reason verify that the tool you have fits into the end of your vehicles alternator/fan pulley shaft. Use care to make sure you have removed all the belt shrapnel from the failed belt(s) including debris that may have gotten into the fan when replacing the belts. If you ever replace the belts yourself on-the-road use care to reassemble the pulley components, including the shims, in exactly the order they were on originally as to not inadvertently lock the alternator pulley to the fan pulley. When you put it all back together verify that the two engine pulleys spin independently before tightening the belts down.


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In addition to the above one can consider the pulley update listed in Porsche Service bulletin 1378, "In case of alternator belt failure or belt noises in conjunction with pulley"



Parts include:

- Same belt to be used on Carrera (1 ea.) 999 192 343 50 (760 mm long)
- Updated belt to be used on Turbo (1 ea.) 999 192 372 50 (757 mm long)
- Pulley halves (2 ea.) 993 106 268 01 (Cast, Yellow, chromate color)
- Shim (0.5 mm) 964 106 268 31 (as required)
- Shim (0.7 mm) 964 106 268 32 (as required)

You will know if this update has been applied to your vehicle as the upgraded pulley halves are cast metal and gold in color where the original pulley halves are stamped sheet metal. One of the up-sides of this update is that the new arrangement does not allow for the storage of the extra shims on the hub of the installed pulley eliminating potential causes of confusion during belt changes.

- **Key & Fob** – An extra key, fob and fob battery are always good things to have on hand for a number of reasons. Any Porsche dealer can cut you a fresh key stalk from you VIN number.






The dealer may require proof of ownership (a title and/or registration) before placing an order for you. The electronic fob/key switchblade can purchased new or used ones can be found on eBay. Be sure to get one specific to the 993 referencing the same FCC number compliance number printed on it as the one you use with your car. Many owners rehouse the fob electronics in a 944 fob housing and use it in conjunction with the really nice classic Porsche flashlight key cap. Both of these can be purchased on-line as well. In fact the housing can be had from eBay in color. My electronic key fob is Speed Yellow; take a guess what color my car is? Mating the key fob to you car so the wireless lock works is quite easy. Here is an easy to follow step by step: "[updated-programming-key-fob-switchblade-key](#)" on rennlist.com

- **Battery** -- The 993 likes a fully charged battery with a voltage of 12.5 volts at rest after the engine has been just turned off and can creep down to 12V over an extended sit with the alarm energized. It seems the system door led flashing, go volts with the engine lights on in the car draws less current sitting with the alarm on and the figure? The system voltage should be in excess of 13.5 running. On occasion I have accidentally left the dome over night necessitating the need for a battery charge. I purchased an inexpensive 1.5 amp float charger and cut the end off an old cigarette lighter phone power cord to make an adapter for use in the car. Now on the occasions where a mishap results in a discharged battery I simply plug the charger into the cigarette lighter close the door on the 12 volt wire, the dome lights goes out, plug the charger into the wall and in and 4 hours the car starts right up. Since the charging rate is slow one does not have to worry about overheating the battery or any additional venting. The 12 volt charging cord adapter I made can also be made from a plug that comes with the charger and additional parts & wire easily purchased at RadioShack.



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Safety Upgrades:




- **Illuminated Rear Center Reflector** - The 993 sold in some ROW countries included rear facing fog lights. These are not present on the USA cars. As a result the center section on USA cars have unused lamp positions under the red  lens. These two positions can be filled with two bulbs wired to the marker and stop light wires on the left or right tail light. By illuminating these two additional positions the 993 benefits from greatly increased visibility at night from the rear. Here is a fun DIY project to add this simple lighting upgrade on rennlist.com: "[how to illuminate the unused us center reflector positions](#)".
- **High Intensity Discharge Headlights (HID)** , As you are probably aware the headlamp units pop right out of the 993 using the release levers on each side in the frunk. You may not be aware that when doing a low beam HID conversion on the Carrera  most any aftermarket HID lamp kit that includes the "slim" ballast will fit completely inside the headlight unit and is fully reversible. Here are some useful notes if you plan to do this very satisfying DIY project on rennlist.com: "[Installing High Intensity Discharge \(HID\) headlights on 993 the gotchas](#)". In this posting it is mentioned the reaming out of the existing halogen lamp socket. It turns out this is not necessary in most cases. It only becomes an issue if the replacement xenon bulb has a slightly oversized glass envelope, most don't. Getting headlight pod back in and the electrical plug lined up can be a bit of a trick. Spray some Teflon lube on the tracks the pods slide in on and rub some of the lube around the edges of the electrical socket. Having done this the thing should slid right in and fully seat no problemo! Recently aftermarket LED headlamp bulbs have become available. White LEDs emit a line emission spectra at specific points along the visible band blending to approximate white light where halogen & High Intensity Discharge bulbs emit a broad spectrum of light much like the sun. This property of White LEDs may result in differences in perception while driving under this illumination.
- **Automatic door locking** -- Since the 993 already has electric door locks and a readily accessible door locking switch on the center console this is an easy DIY upgrade. Several  adjustable time delay relay switch kits in solder-it-yourself kits and at the kitchen table put it together in about half an hour. It requires only 4 wires two to the console door lock rocker switch, one to the ignition switch and one to ground. The timer is adjustable. I set mine so once the ignition is powered 10 seconds later the door lock switch is pulsed. I packaged the board in a drugstore travel soap box and tied it up under the dash. Has now been working for years and we don't even think about locking the doors anymore. The down side is you will have to disable it when programming key fobs and if you start the car while not sitting in it and quickly close the door you can lock yourself out with the engine running. Ask me how I know this. Both of these issues can be mitigated by making the delay to lock time shorter where it times-out and fails to lock the door because the door is still open and the addition of an in-line disabling toggle switch to the hot wire from the ignition switch. I added notes as to this issue in my owner's book so some time in the future some future owner does not go berserk trying to program key fobs or worse yet goes out and purchases an unneeded and expensive replacement controller.
- **LED Marker/Turn/Stop lights** - When upgrading incandescent marker/turn/stop lamps on a 993 to Light Emitting Diode (LED) based lights be aware that you will be adding complexity:

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LEDs draw substantially less current than a bulb and unlike bulbs current passing through a diode only goes in one direction, called the forward direction. Current trying to flow the reverse direction is blocked. If the voltage across a diode is negative, no current can flow, and the diode looks like an open circuit.

- Reported issues that have workarounds posted on Rennlist related to LED upgrades include:
- The high mounted stop light illuminating very faintly with ignition-on while not pressing the brake;
- When tail brake lights are converted over to LED's, the cruise control ceases to function.
- If you are an adventurous soul and are willing to sort out the issues that arise when replacing resistive load bulbs with diode based illumination, have at it. Over time, I believe the LED solutions will become more robust, not having symptoms requiring workarounds.

Body fluids, Andy's opinion:

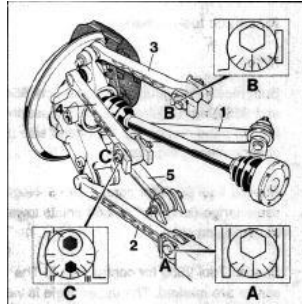
- **Oil** - I have always used called synthetic made from petroleum extensively processed to naturally occurring kept in solution by the What sold me on this oil in Cleveland winters it would take a long time, twenty minutes or more, for regular multi-grade oil to warm up enough for the oil pressure to drop into its proper pressure range. When I filled the engine with Mobil 1 it took less than 60 seconds from dead cold as in well below 32F. Most engine wear, I understand, happens at startup when an engine is not yet warm and so properly lubricated. With Mobil 1 this period is very short. As a plus Mobil 1 is stocked at Walmart, works for me. Then again has anyone, who does not track their car, ever seen a "catastrophic oil related engine failure" as fear mongered in oil advertisements? If one changes their oil regularly with the OE recommended brands and viscosities, probably not. If you believe this fear mongering dribble you may have watched Dr. Strangelove one too many times and agree with General Jack "Wacko" Ripper about bodily fluids and their adulteration as a Communist plot.

Mobil 1. Although it is technically it is not, it is but it has been remove the bulk of the substances that must be additives to avoid sludge. is that on my 86' Carrera

- **Fuel System Cleaner** - I am standing on thin ice as I have only anecdotal support of my opinion concerning this subject. I hear of issues with clogged fuel injectors and the need to remove and service or replace them from time to time on Rennlist. I have had two electronically fuel injected Carreras. The first one I drove 150K miles without a fuel related problem. My current 993 has never exhibited an injector problem. I attribute this to treating the engines twice a year with two consecutive tanks of gas where I added Chevron's Techron fuel system unlike competitive products will not produce burnt can if used in high concentration. Also Techron is in Shell branded gasoline.


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Other notes:

- **Clutch and transmission servicing** can be done on a 993 without removing the engine in many cases the labor cost for a full engine out can be avoided.
- **OBDC** - On a 993 if the ignition wires are bad or the rotor or cap are bad or the plugs are fouled the light will likely be on.

- **Kinematic Adjustment** - rear kinematic adjustment
It turns out that one of the settings need to be looked at with the adjustments slipping your vehicle. With this in mind I close of the rear suspension known good alignment and



There is lots of talk of the need for the unique to the 993 during an alignment. reasons that this and the other during a routine alignment has to do out of position primarily if you track would take a cell phone picture up-setting positions at the time of a periodically check the settings through

visual inspection. The settings for the rear suspension are labeled A, B & C in the above illustration from the shop manual. It may also be a good idea to take a Sharpie pen and mark a vertical line down each of the coil-overs on your car. In this way if a spring purchase or a sway bar mount slips you can see it.

- **Turn signals & dead batteries:** The 993 being of European origin has a feature where if the turn signal is left on the marker lamp for that side of the car remains illuminated when the ignition key is removed. North American owners' usually first encounter this feature when they go to start their 993 in the morning and the battery is dead. "It's not a bug, it's a feature!"
- **The Cabin Pollen Filter** - The 993 has two replaceable air filters that are located on the left and right side of the car below the windshield in the frunk. Their design suggests they have a long service life. Installing new filters can be very frustrating if you are unaware of the secret that the plastic alignment pin on each filter needs to be pointed towards 12:00 o'clock not 3:00 o'clock as some try to do during reassembly. Knowing this will turn a one hour job involving mutilating the filter with a mat knife into a five to ten minute job! Once I figured this out I made a note of it with a "this way up" arrow on the replacement filter with a Sharpie pen so years from now I don't have to relearn this secret.



- **Underbody Covers** - The 993 was carefully designed to have a smooth underbody. This includes three underbody covers.
 - The front under body cover is rarely removed and is solidly screwed in place.
 - The transmission cover is regularly removed during servicing. In addition to its role in aerodynamics it protects the transmission from dirt and road debris. Many of these covers have gone missing during inattentive service work and they are expensive to replace. I had this problem so now my cover has my name and a "please reinstall this" note in bright orange spray paint emblazoned on it.

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- The third cover is a tray under the engine. In my opinion it just serves to cause the engine to retain heat, hide maintenance issues such as an oil leak and make jobs such as changing the oil a lot more work. In the Fall it also helps to avoid having your car set a pile of leaves under it on fire. Don't ask me how I know this. I just leave this cover off and avoid backing over piles of raked leaves.

Inspecting a car for purchase:


If you are using this list as guidance on a prospective car purchase here are my additional thoughts:

I do not put a lot of faith in Pre-Purchase Inspections (PPI) by third parties as they will generally only capture gross mechanical issues and miss most wear related parts and body condition items.


Unfortunately every few months I read the rants of a Rennlist member who has purchased a car where the inspection was done by a Porsche dealer or independent dealer who has the vehicle for sale or the dealer or shop that has been servicing the vehicle for the previous owner. Invariably undisclosed or simply missed issues arise poisoning the relationship with the new owner and potentially sully a service provider's reputation unfairly and unnecessarily. The solution to this issue is to not have the inspected done by the selling dealer or in the case of a private sale by the previous owner's servicing entity.

Inspections by any dealer or local servicing shop should be reviewed very carefully as items you would consider expensive repairs they may consider routine maintenance or minor nuisance items and not worth mentioning until after you have made your purchase.

Most new car Porsche dealers are no longer familiar with these older cars and therefore do not provide any enhanced inspection simply because they are a Porsche dealer;


- **Mail-order Brides** - Buying  online from an on-line or eBay based independent dealer requires special handling. The best solution for any remote buy is to negotiate the price contingent on an inspection and then fly down and look at the car. Let's face it, buying a fifteen plus year old car without personally inspecting it and driving it around a little is a train wreck in the making.

For any purchase, if at all possible, look at the car yourself with the help of a friendly local PCA member who knows how the car should drive and feel. Making a request through the 993 Technical Forum on Rennlist.com will usually turn up a PCA member in the geography where the car is located who will be more than glad to assist you.

-  **CarFax** is only as valuable as the facts they have in their system. Once out of warranty, something that happened a long time ago with these cars, they are generally serviced and repaired by their owners DIY or small independent mechanical or boutique body shops. These sources of repair almost universally do not report on their work to anyone CarFax uses as an information source. Beyond having a salvage title in its history these reports, I feel, are of little value.


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Salvage titles can be in the history of a car for a number of reasons unrelated to damage or flood


towed their fees,  recovery. For example a stolen car claim from an owner where the car was from the spot the owner illegally left it and then makes a stolen loss claim with insurance company. Six months later the tow lot owner, wanting their storage gets in touch with the now former owner who refers them to the insurance company who now has a car to sell on salvage title. It is surprising how often stuff like this happens especially way back in the 90's. So having a salvage title in a car's history can represent an outstanding value or a nightmare in the making. In such cases try to ascertain why the salvage title was issued before considering one of these cars.

- **Leak Down Testing** - I hear lots of discussion about leak-down testing of engines as a validation of engine condition. From reading the comments I have come to believe that the conditions under which such tests are in many cases uncontrolled and results vary widely making such tests unreliable as an absolute test of condition. They may be of some very very limited antidotal value in capturing variances between individual cylinders on an engine in the presence of other gross operating symptoms.

Just recently a shop that was conducting a Pre-Purchase Inspection (PPI) for a RennList member

suggested that a **“top-end” rebuild** was needed.  In investigation multiple cylinder leak-down percentages in the 75% range were found, however the dyno test of the same engine put output at 237hp at the wheels, allowing for drive train losses of 10% from the factory stated 270hp this number is quite good for a 16+ year old car that in this case runs perfectly otherwise. If the leak-down results were to be relied upon the car should barely run, exhibit the check engine light, not be able to hold idle and should be blowing more blue smoke than Jerry Garcia did in his lifetime. Go figure? What appears as general low engine output or OBDC issues can have many reasons that should be ruled out before considering cracking open the engine!

I'm going out on a limb a bit, But I feel any road driven normally aspirated 993 (Carrera) that has been used exclusively for street driving should not need any internal engine work beyond replacement valve lifter cartridges until well beyond 100K miles of use. The suggestion of such a need should always be suspect and the need validated by multiple persons via multiple diagnostic methods.

- **Body & Paint Work** - Seeing the age of these cars paint & body work is present on most examples. For example I am on my third rear bumper cover as cars have scraped and bumped my car while parked in the local shopping center. Cosmetic damage to parts that bolt onto the car are not a big deal as they can be replaced and restored to original condition, things such as hoods, doors, front ¼ panels, front & rear bumper covers.
- **Impact damage** to a door jamb or in the rear quarter panel areas can profoundly diminish the integrity of the car and so should be carefully front end or rear damage where the unibody was should not be considering the car. Such damage is  investigated. Also any serious involved signals that you identifiable by a competent body shop guy.

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As you can see above there are really just a few mandatory "IF" items that may need attention on a 993 as it gets older, a testament to the quality of the engineering and build on these cars.

If the car starts easily and runs reliably do not consider any actions that involves internal engine repairs. An occasional single cylinder OBDC misfire code after a long drive on a hot day or a slow oxygen sensor code in the cooler months require no action, just clear the code and see if it comes back. 993s tend to have a little uneven rumble at idle – this is normal. A slight cycling of the RPM on cold days, a small stumble on acceleration when the engine is cold or in very hot weather, an engine that uses some oil between oil changes, this is normal stuff.

A puff of smoke after sitting a while is OK.



Think "What would Jerry do after sitting a while?"

And most importantly don't go Neurotic, just enjoy the car!

You know the line, "accept the things I should not fix, have courage to fix the things I must and have the wisdom to know the difference"

Andy