Volkswagen Cabriolet DIY Guide
K-Jetronic Injector Servicing

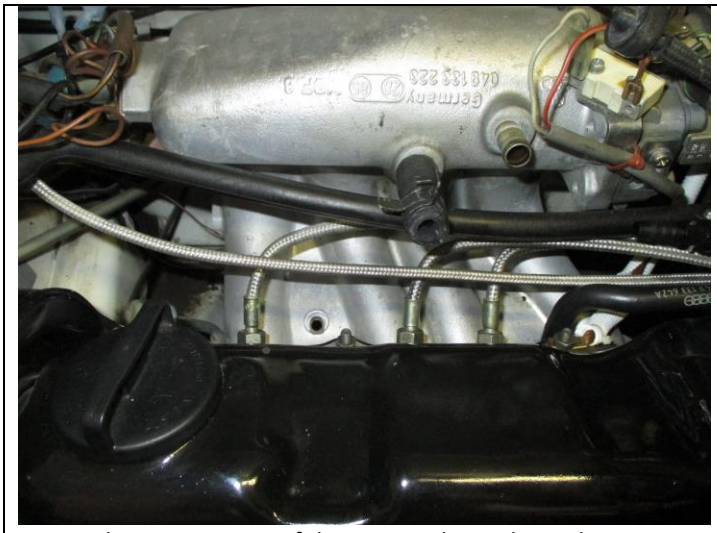
Phase 1: Injector Removal

Tools & Supplies:

 Injector Puller	 Wrenches: 12mm, 14mm	 Dead Blow Hammer & Small Block of Wood
 Large, Long Slotted Screwdriver	 PB Blaster (or similar) Penetrating Catalyst	 Shop Rags/Towels

Unless you like tempting fate, always have a working fire extinguisher handy when working on the fuel system!

Procedure:

 Optional: Remove most of the vacuum lines above the injectors. Recommended: Remove zip ties from the bundle of stainless hoses. If you don't do this, it may be more difficult than need be to disconnect the #4 injector hose.	 Place your handy injector removal tool onto an injector, between the two hex nuts.

Protect your valve cover (if desired) with a towel/rag.

With one hand holding the removal tool in place, use your free hand to insert your large screwdriver into one of the slots on the removal tool, and, using the valve cover as a fulcrum, firmly push down on the screwdriver handle. You may need to sharply hit the handle with your hand or the dead blow hammer.

For additional fulcrum and/or valve cover protection, use a small block of wood, as shown above. Repeat for remaining three injectors.

[If any are stubborn, spray PB Blaster around the large upper (Viton) O-ring and let sit for a few hours/overnight. Note: If your hatted injectors do not have C-clips and the O-rings get stuck, the injectors may pull out, leaving the hats behind down inside the injector holder, which you'll have to fish out – it's not magnetic! – if not removing the holders.]

Put an injector onto a rag to catch any gasoline that may drain out of the hose. Place your 14mm wrench on the hose nut and your 12mm wrench on the injector nut and loosen the two. Injectors are not reverse-threaded, therefore, lefty-loosey still applies: The *injector* will rotate counterclockwise.

If the threads are rusted, corroded, or haven't seen a wrench in decades, you may need to use your dead blow hammer again, this time sharply hitting your 12mm wrench while the 14mm is firmly against your wood block, as shown.

Allow any fuel in the hose to drain into your rag and set the injector aside. Repeat hose removal process for remaining injectors.

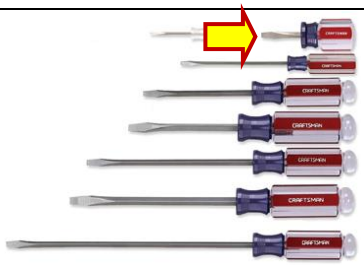
To see this process in live-action, visit https://www.youtube.com/watch?v=sj7AZaI5wpw .

Phase II: Injector Holder Removal & Replacement

Phase III: Injector Cleaning

Note: If your injectors are ancient, you should just go ahead and replace them. However, if you're in a situation in which new injectors are not an immediate possibility, cleaning the old ones up should get you by (unless any of them leak, or fail to atomize fuel correctly following cleaning) until you can replace them.

Tools & Supplies:

 Wrenches: 9mm, 10mm Socket: 21mm or 22mm	 Utility Knife (or Dremel)	 Largish Bar Clamp
 Smallish Slotted Screwdriver	 Toothbrush	 Narrow Tip Forceps Tweezers
 Upholstery Thread (about 12" or more in length)	 Berryman B-12 Chemtool Carb & Throttle Body Cleaner	 Shop Rags & Scott Paper Towels
 Nitrile Gloves	 Safety Glasses	 Injector Seal Kit (or just the Viton O-ring, if your injectors aren't ancient)
 Air Compressor with Rubber-tipped Blow Gun	 Fuel Hose Length: 10-12", Inside Diameter: 12mm	 Hose Clamp

Optional: Throw-away roasting pan and kitty litter, silicone lubricant, silver sealant. A spare fuel pump can be used in place of an air compressor.

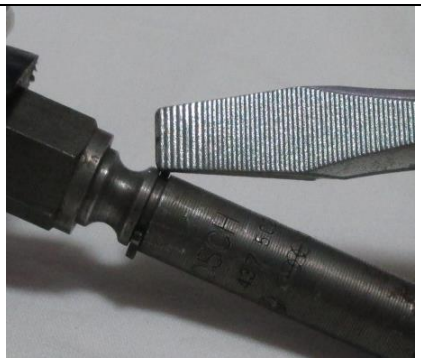
Procedure:

First and foremost, **put your safety glasses on**! Unless you enjoy volatile chemicals shooting into your eyes, **wear safety glasses**! You should also be wearing gloves.

Place your 10mm wrench against the hat. Place your 9mm wrench against the O-ring or injector nut. In between the two wrenches, place your 21mm (or 22mm) socket, up toward the injector body. Squeeze the wrench ends together and the hat should slide off the injector.

If your injectors are ancient, the hats and pintle area could very well look like those pictured. 🤮

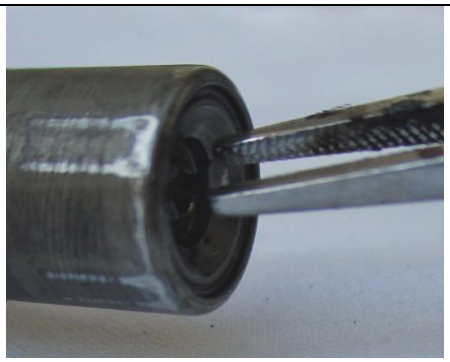
If the O-rings are ancient and/or are hard as rocks, remove them. A utility knife may not be enough to cut through them, but give it a go; if it doesn't work, get your Dremel-type tool out and carefully (slow setting) cut a slit into the O-ring, just enough to fit a screwdriver into it to break the O-ring apart.



Using your smallish screwdriver, carefully pop the O-ring circlip off (if installed). Try to do this just above your floor or workbench so that it will drop off; if you don't, fair warning, it could go flying across your garage.

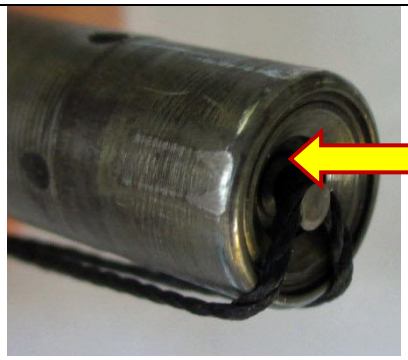
Using the B-12 Chemtool, liberally spray the exterior of an injector hat (if your injectors have them). If need be, use your toothbrush to scrub the hat, inside and out; use a corner of a paper towel wetted with Chemtool to wipe off/out what remains behind. When done, it should like new as seen above.

Using the B-12 Chemtool, liberally spray the exterior of an injector, including pintle area. If need be, use your toothbrush to scrub the injector. Use a paper towel wetted with Chemtool to wipe off/out what remains behind. When done, it should like relatively clean, as seen above.



Place the injector into a vice or between your feet (which are wearing shoes). Grab your narrow tweezers, clamp onto the pintle, and gently pull it out a bit.

While the pintle is out, wrap a piece of upholstery thread around it 2 – 3 times and keep tension on it (or tie it off where the O-ring sits, or between the nut and threads), to keep it pulled out of the injector.

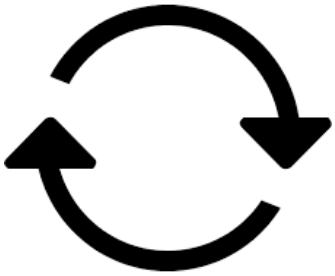


Place the Chemtool nozzle extension into the pintle opening and spray a liberal amount of the cleaner into the injector, until it runs clear out of the threaded end. This is backflushing the injector, removing any debris that may be stuck on/in the filter screen.

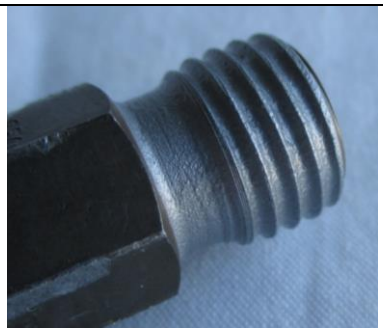
Time to clean from the other end and this is where things get tricky and, perhaps, a bit controversial. Some suggest simply sticking the Chemtool nozzle into the injector and spraying until the injector spray is a nice cone-shaped mist and that if the injector doesn't spray at all, it's shot and should be replaced. Others suggest that if the injector opens under mere aerosol can pressure that the injector is shot and should be replaced. Based on personal experience, I tend to side with the latter. These injectors have an opening pressure of 46 to 55 psi (3 to 4 bar) and their peak atomization occurs at around 78 psi. Thus, choose a method below that is best for you & ensure proper operation by reinstalling the injectors & testing them in the car as described in repair manuals.

Method 1	Method 2	Method 3
 Keep the pintle thread in place. Insert the Chemtool nozzle into the injector and spray a liberal amount of cleaner until it runs clear and produces a decent mist (it won't be a perfect cone due to the pintle's forced displacement). If desired, remove the thread and see if the Chemtool produces enough pressure to open the pintle and produce the spray shown above (photo courtesy of "tolusina"). Remove the thread. The pintle should snap back into place, centered and tight; if it doesn't, its spring is shot and the injector should be replaced.	 Install your 12mm hose onto the threaded portion of the injector. Install a hose clamp and get it at tight as you can. Power up your air compressor, set it for about 50 psi, and install a rubber-tipped blow gun nozzle. Fill the hose with Chemtool. **** !Wear your safety glasses! **** Securely and tightly insert the compressor nozzle into the hose and, **firmly holding the injector/hose assembly**, hit the nozzle's trigger until the injector no longer sprays. Repeat until process a few times.	 Have a professional service clean the injectors, ensuring the shop has a K-Jetronic injector cleaner, which is able to pressurize the injectors and backflush them. Or, buy the injector cleaning tool shown above that some pros use. https://www.youtube.com/watch?v=RnegCu5-i9M https://www.youtube.com/watch?v=-kR1Lrmi5Uw

For methods 1 and 2, if you are environmentally responsible, do the procedures over a pan of kitty litter. And, yes, it must be Berryman's B12… it is the best off-the-shelf cleaner.

 When the injector is all clean, slide a new Viton o-ring into place (you may need to use a lubricant), snap the C-clip back into place (if the injector uses one), and install a new seal on the hat (if need be and if the injector is a hatted type).	 Reinstall the hat (if equipped). It's recommended that the hats not be tapped or hit because they could become deformed. I, personally, used a bar clamp.
 The hat is fully seated when it rests just below the dot.	 Repeat procedure with remaining injectors.

Before and After



Reinstall the injectors into the fuel lines.
Use a dab of silver sealant, if desired.

Test the injectors per your repair manual. If the injectors pass the test, reinstall into the engine. Cycle the fuel pumps (turn the ignition key to "on" a few times), then start the engine. You'll probably need to feather the throttle at first. Once the engine is idling, grab a flashlight and check to see if there are any fuel leaks at the injectors and their connections. If no leaks, job well done.

Sources and additional info:
https://forums.pelicanparts.com/Porsche-911-technical-forum/483589-checking-fuel-injectors.html
https://peachparts.com/shopforum/tech-help/69652-cis-injector-test-clean-home-brew.html
https://forums.tbforums.com/showthread.php?t=246653
https://rennlist.com/forums/928-forum/712565-k-jetronic-injector-cleaning.html
https://www.clubgti.com/forums/index.php?threads/cleaning-k-jetronic-injectors-in-kr-which-orings-should-be-changed.235915/
https://rennlist.com/forums/928-forum/562628-antiseize-on-the-metal-fuel-lines-before-reassembly-2.html
https://rennlist.com/forums/928-forum/937465-new-fast-and-easy-way-to-clean-cis-injectors.html
https://www.reflectionsandshadows.com/cis-injector-cleaning/