How-To: GM 1.4L LUV/LUJ PCV Fix Kit V2 Install

Overview:
For details and ordering information on the PCV Fix kits, go to: www.CruzeKits.com

This thread provides instructions for installing the V2 PCV Fix Kit for the 2011-2016 Limited Chevy Cruze, as well as the Chevy Sonic/Trax and the Buick Encore.

Tools Required:
- A step bit that can drill down to 9/16"
- A cordless drill
- 2 adjustable wrenches
- Pipe thread sealant (teflon tape would also work)
- A file
- An Allen wrench set
- A #2 phillips screwdriver witha 6"+ shaft, or a screwdriver with interchangeable bits and an extension that can get you the same length (this will be needed to install the plug)
- A GOOD, strong degreaser that leaves no residue. Brake clean may work.
- A plastic brush (an old toothbrush will work)
- A hole punch
- A hammer
- A flathead screwdriver or comparable tool to mix and apply epoxy
- A paper towel to wipe the epoxy off the applicator tool
- In-lb torque wrench

Note: these are only the tools that will be required to install this fix. You will need other tools to get the intake manifold off.

Parts Required:
- PCV Fix Kit V2

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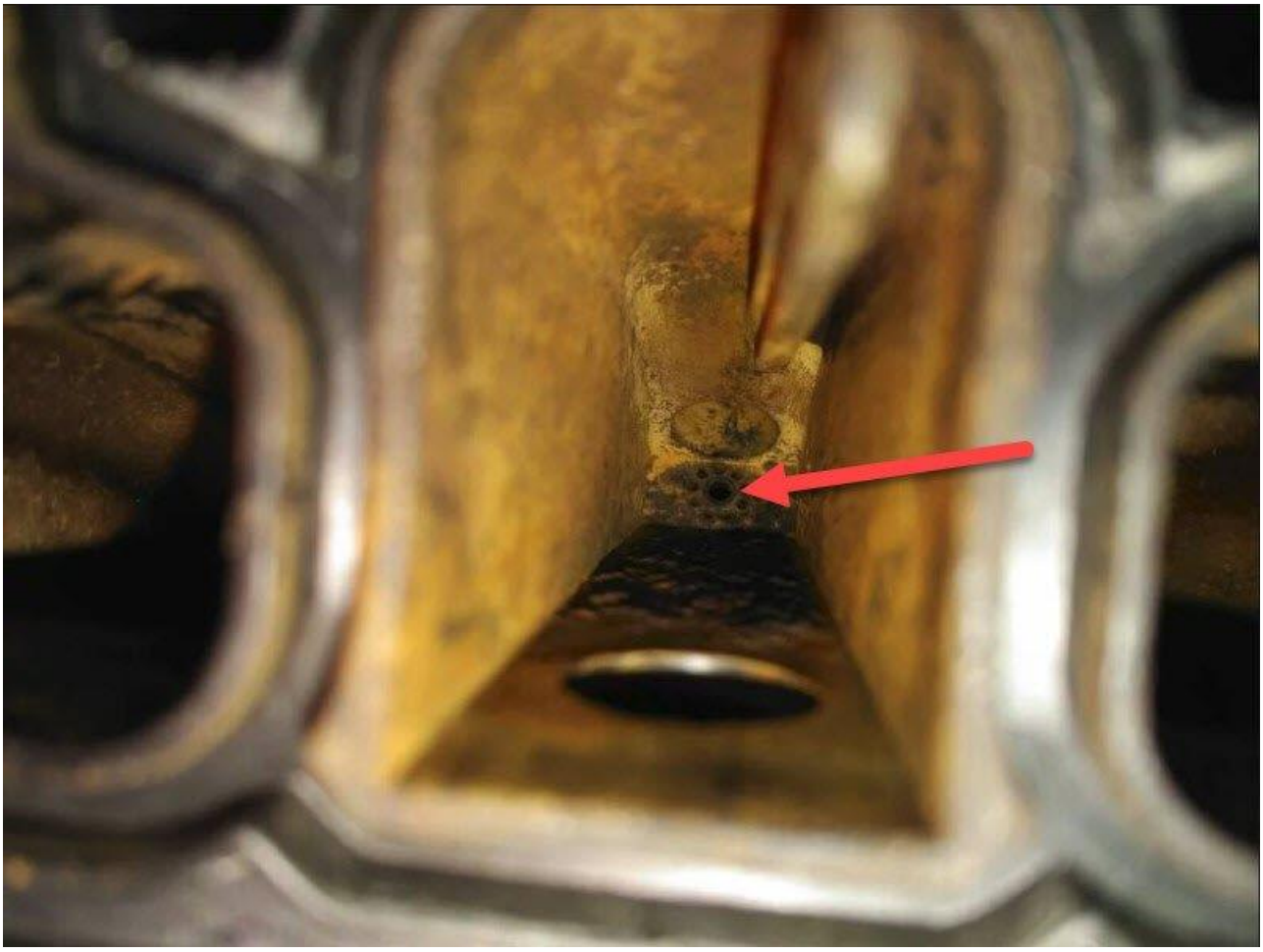
Procedure:

Note: if you've never worked with NPT fittings before, just remember; you can keep tightening, but you should not back out unless you're disconnecting and re-connecting (with new thread sealer). Also note: don't be afraid to use a lot of sealant tape. You should be making at least 5 laps around the threads with the tape.

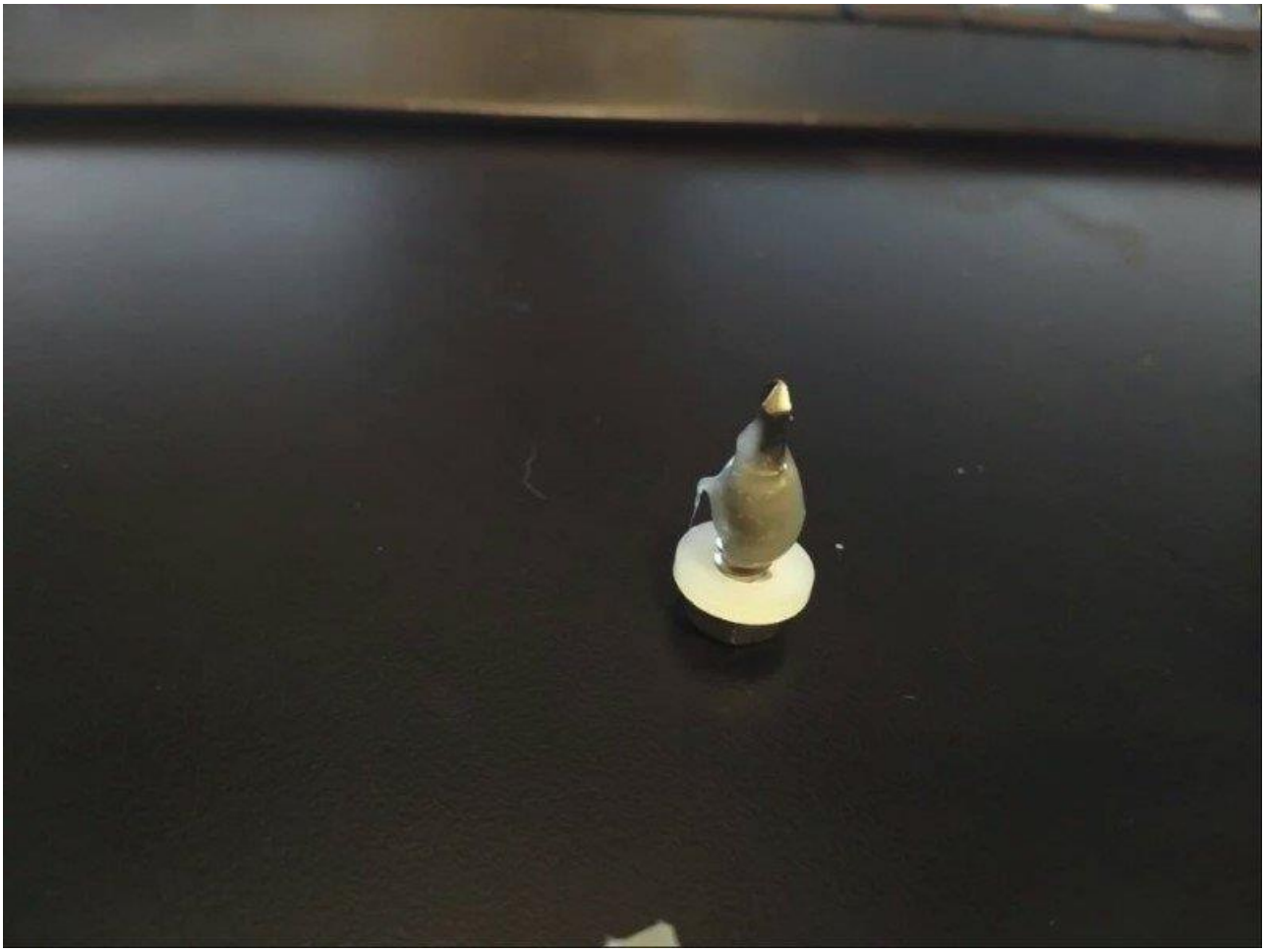
1. Remove intake manifold from vehicle, and remove throttle body from manifold. Tutorial for removing the intake manifold can be found here: https://www.cruzetalk.com/forum/129-gen1-engine-transmission-tutorials/190442-how-remove-intake-manifold.html

2. Using degreaser and a toothbrush, thoroughly clean and de-grease the original check valve openings, surrounding area, and a few inches into the bottom of the PCV port (the flat area). The original PCV opening must be free from any contaminants and must be bone dry in order for the epoxy to adhere permanently. If using a strong solvent like brake clean, I'd recommend removing the gasket surrounding the ports first. Make sure the PCV port is dry before proceeding.

3. Below is where you will be installing the screw and washer. The idea is that if your check valve is missing that hole needs to be plugged up as it's creating a boost leak. First, drive the screw half way into the center hole for the check valve dry (without any epoxy) to start the thread, then back out.



4. Place the washer over the screw, and liberally coat the screw thread with epoxy. The more you can pile on there, the better. Have at least as much as shown below, more if possible.



5. Next, carefully, being sure not to touch the walls, drive the screw back into the hole all the way to the end. Once the screw starts drilling itself in, it will start to go in straight. IMPORTANT NOTE: don't over-tighten the screw.

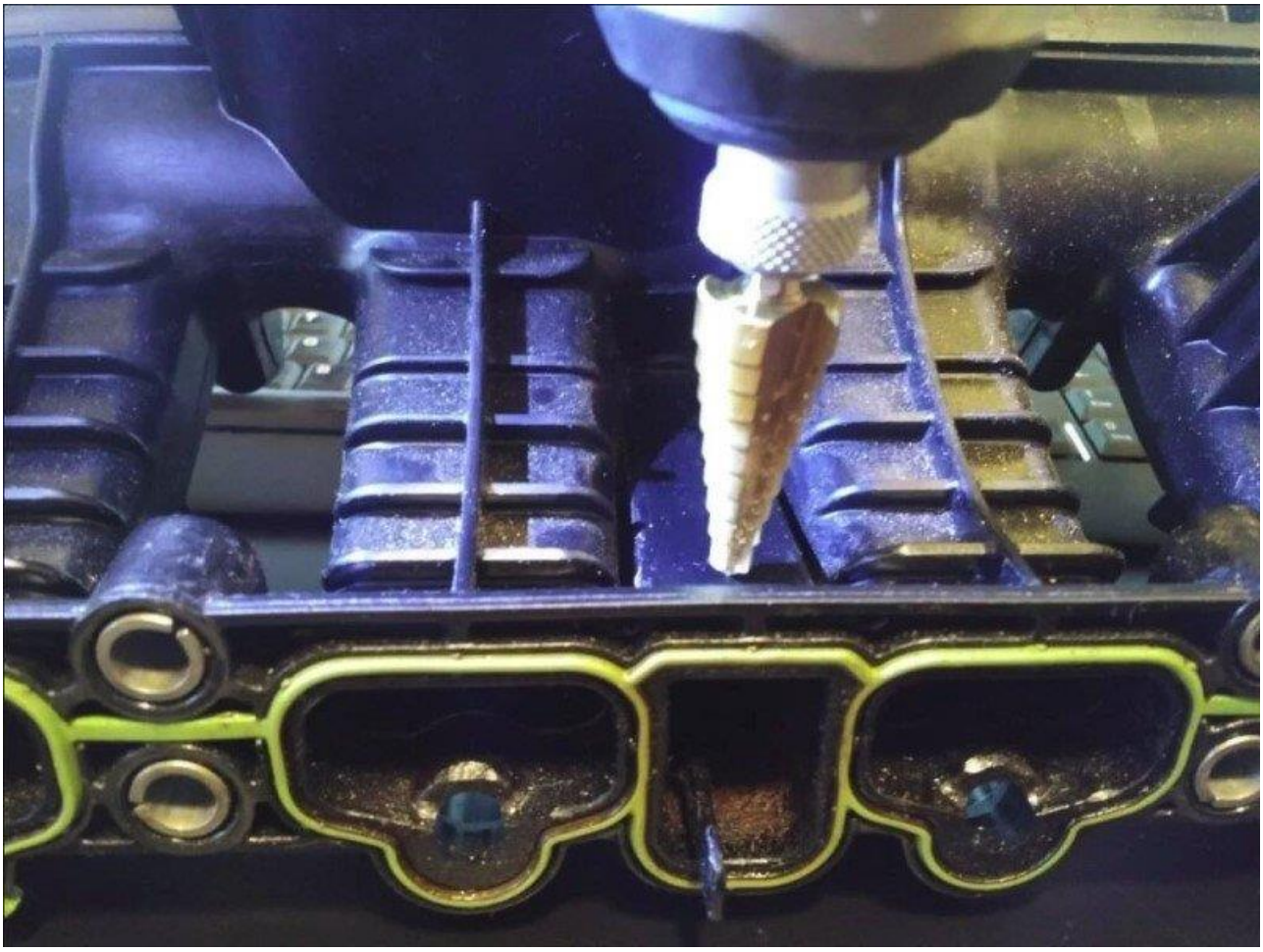
6. Screw it in till it hits the end, then lightly tighten until it's snug. If you over-tighten, the screw will strip the plastic. This is just to hold the washer in place, the epoxy will do the sealing and holding.

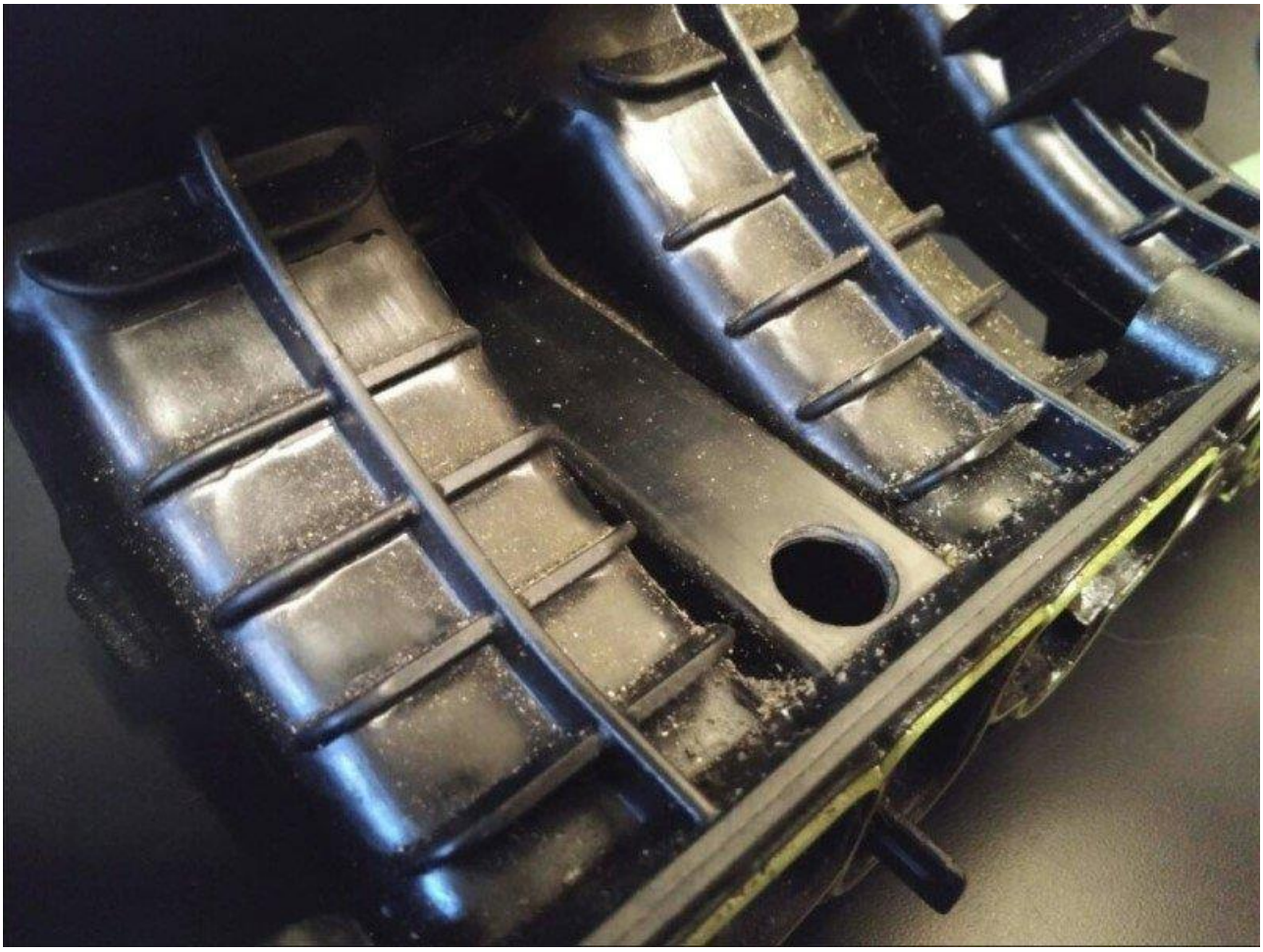
7. At this point, the epoxy should have bonded to the screw, the washer, the surface of the port, and should have been pressed through the outer holes on the port to produce an excellent bond. However, if you want to more remaining epoxy on your mix surface, feel free to add around the screw for good measure. Once the epoxy cures, it's never coming off. **Note: do not block off the port coming up out of the manifold that the corrugated hose connects to!**

4. Be sure to wipe off the screwdriver you're using after every single application. That stuff dries fast and you'll be scraping it off later. Full cure takes 24 hours but if you start with this part first, you'll be fine getting the intake manifold back together and starting the car, since it will be dry to the touch within an hour. No need to wait overnight before you start up the car.

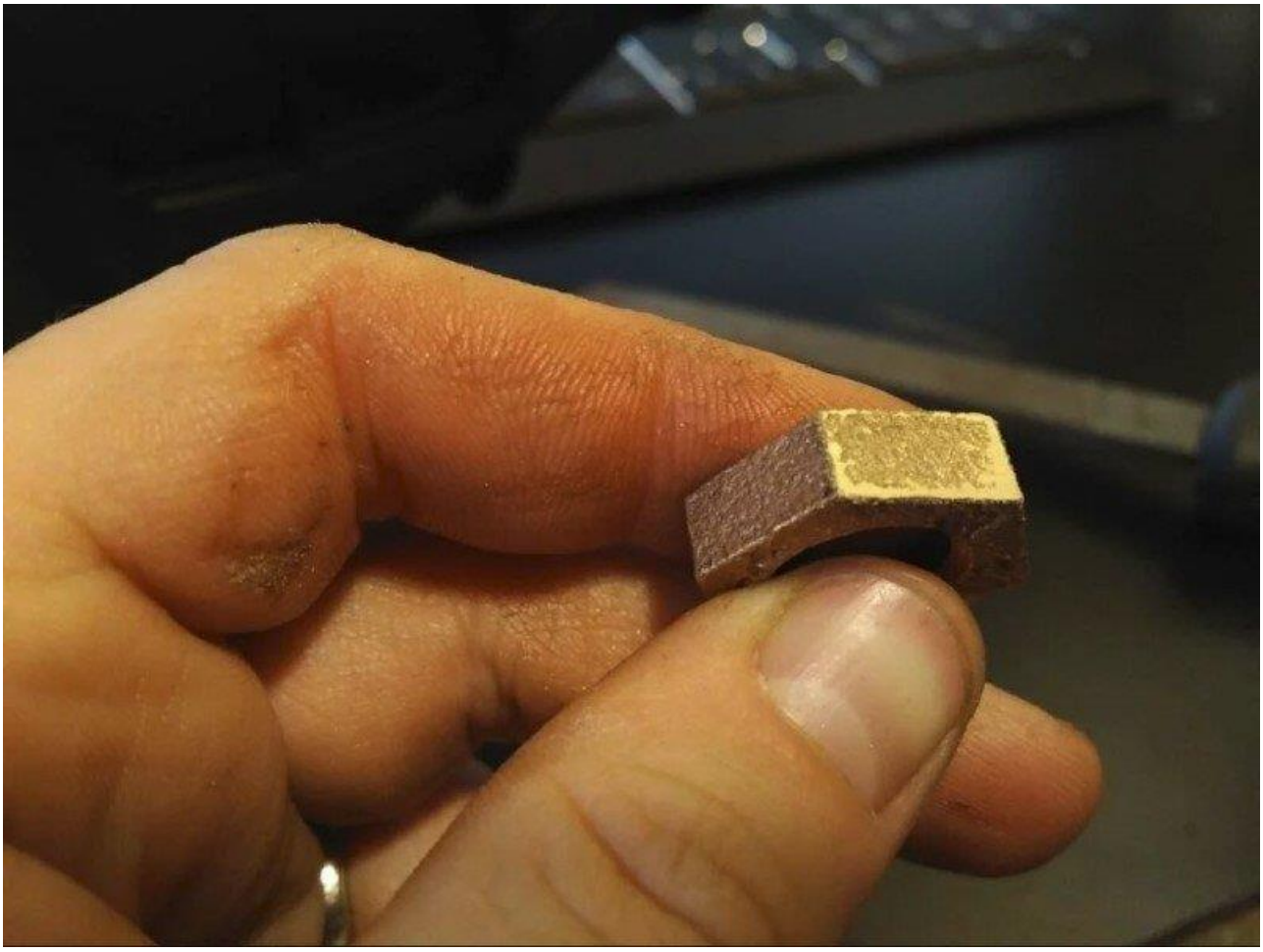
5. Flip the intake manifold upside down and place a washer centered on the flat side. Make sure it is centered horizontally. I'd recommend starting 1/4" or so further back than I did in this picture to give yourself some flexibility in case the hole gets too close while you're drilling. Use a hole punch and hammer to make an indentation where the thread will be starting. Note: as of January 2019, I've been shipping kits out with a larger flat washer for the outside; make sure you drill the hole a tad further back than needed to ensure the washer lays flat on the runner.

6. Using a step bit, slowly and carefully drill down to 9/16", being sure to keep it centered. If you have trouble getting it centered, you can try drilling a small 1/8" pilot hole with another drill bit first. Note that the hole on mine ended up a little too close to the opening. This is why I recommended you start further back to give you some flexibility in case this happens.

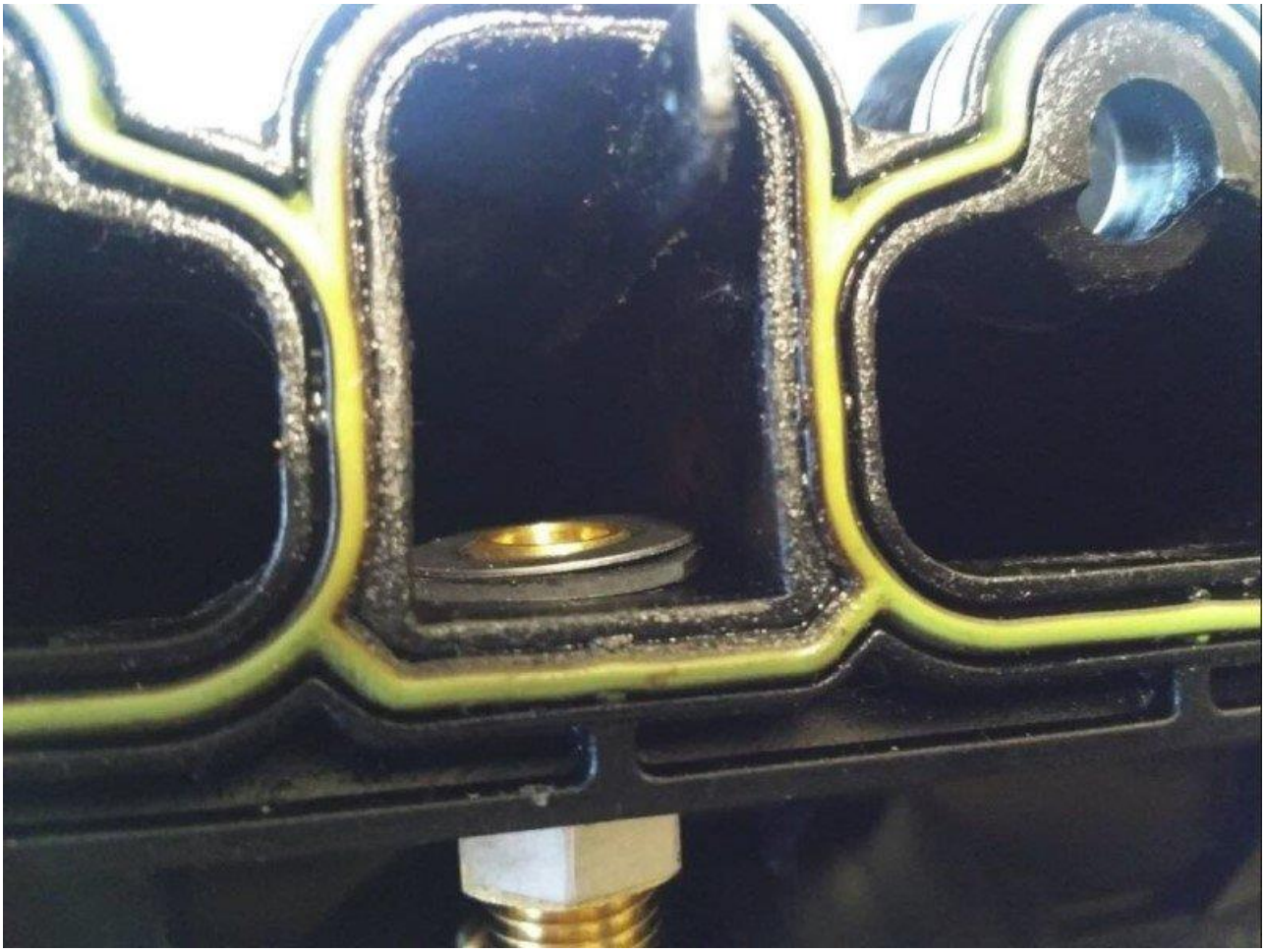




7. Using a file, file down two opposing edges of one washer until it slides through the PCV port opening. Do the same for two opposing edges of the locknut. This won't take much filing. Note, you may not have to do this if you have the newer style locknut.



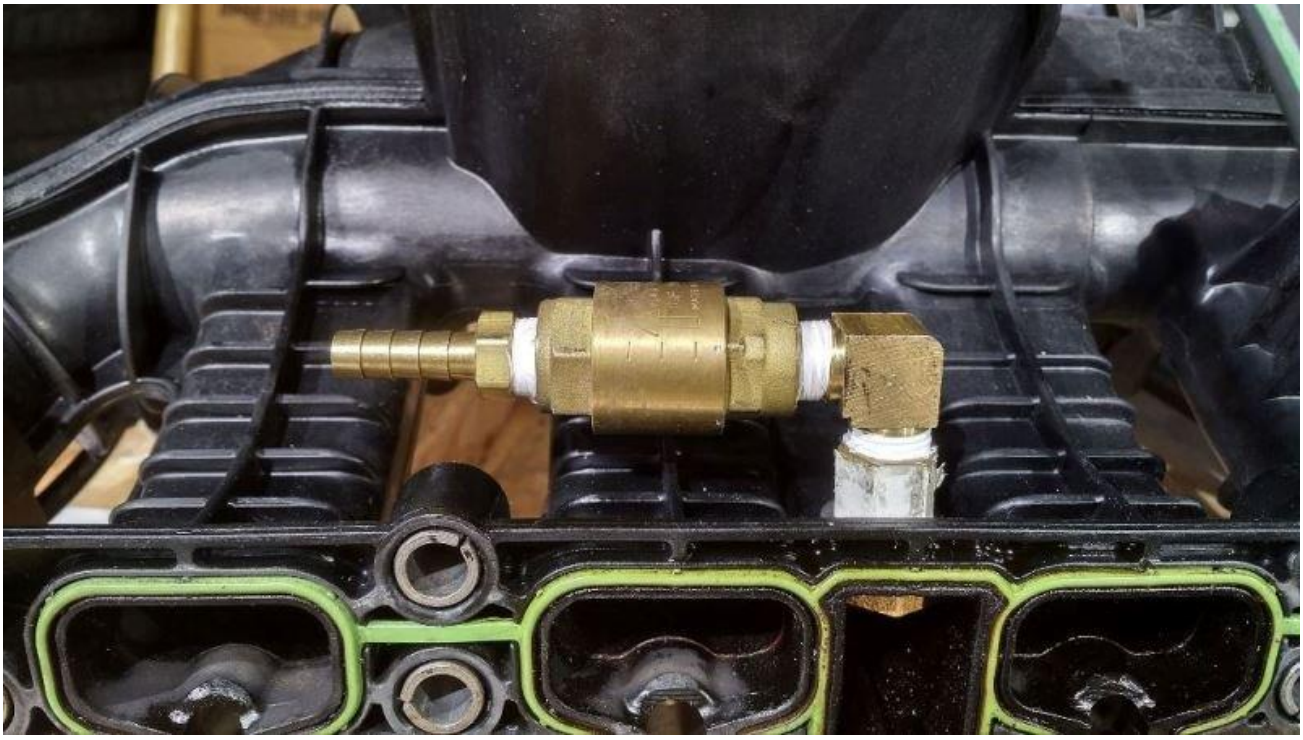
8. Fit another un-modified washer over the NTP adapter, and fit the adapter trough the hole. Fit the nitrile gasket over the threads, followed by the washer you filed down.



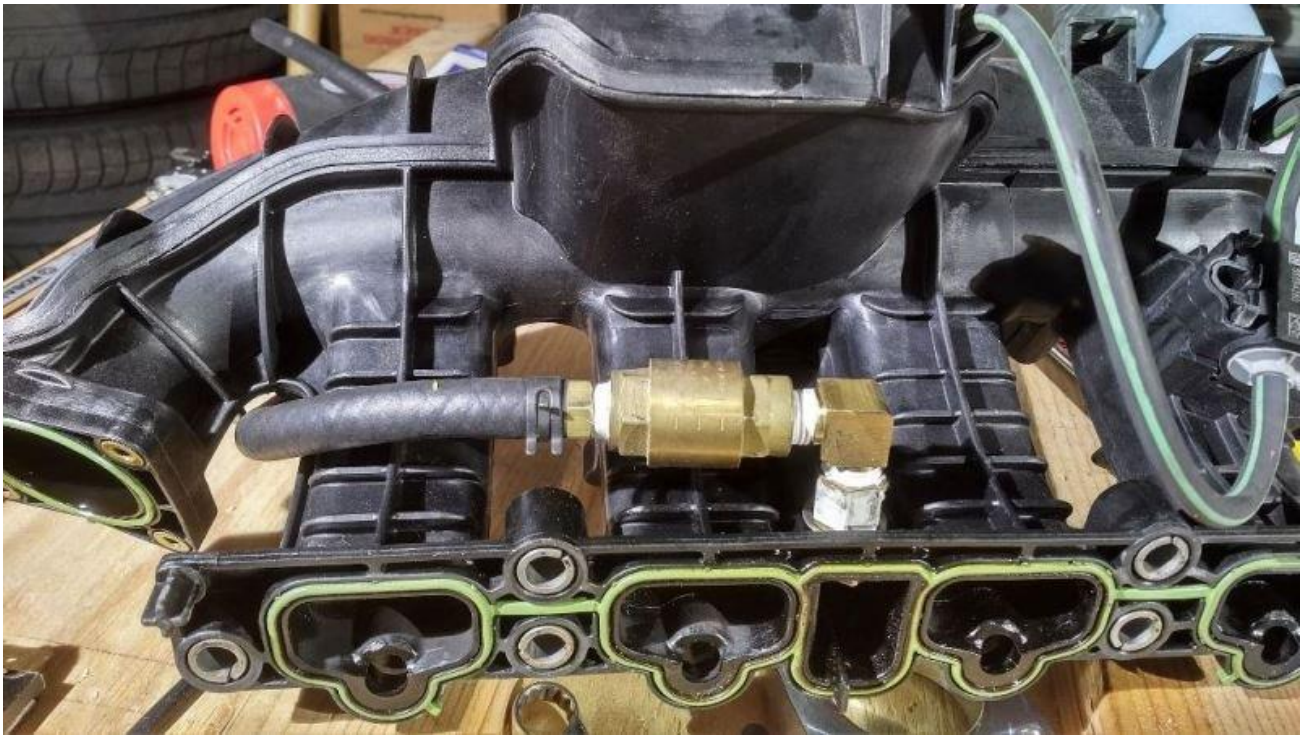
9. Slide the locknut through onto the top of the thread, and begin tightening the adapter against the thread. It may help to fit the elbow onto the adapter for this part to get more leverage. If the rubber seal starts to press out, you've tightened it too far.

10. Remove the 90 degree elbow, apply some thread sealer to both threads, and tighten it against the adapter using the two wrenches while also positioning the barb to point toward the throttle body. Note: if you run out of space to turn, DO NOT OVER-TIGHTEN THE ADAPTER. The plastic on the manifold is pretty thick but it can still crack if you get crazy. You can tell if you're going too far when the rubber seal starts to press outward. Back out the adapter, remove the locknut, turn it clockwise one step, and put it back in. This will give you another 60 degrees before it gets too tight again, which should be plenty. At this point, the first washer you slid onto the adapter may start flaring upward. That's OK, its primary purpose was to distribute the force of the adapter against the plastic on the intake manifold so it doesn't crack; it is the nitrile seal on the inside that will keep this from producing any leaks.

11. Once the elbow is attached, apply some thread sealer to the barbed fitting, and attach that to the check valve to the end the arrow is pointing to. Next, attach the check valve to the elbow. **Important Note: When tightening the check valve, be sure to use a wrench to hold the elbow, and do not place any weight on the intake manifold itself. If you fail to do this, you will apply too much axial pressure on the adapter and may crack the intake manifold.** Do not use the manifold for leverage when tightening the check valve; instead, hold the adapter with a wrench.



12. Measure and ensure that the length of your hose is ~10.5". Slide the hose clamps about 2" over each end of the hose clamp. Then, push the hose clamp over the barbed fitting while holding the check valve. Do not hold the intake manifold while doing this as you may apply too much axial pressure to adapter and crack the manifold. It helps to coat the barb with some silicone grease/spray, or soapy water if you have a tough time getting it on. Once you have the hose on, use some pliers to slide the hose clamp over the the wider section of the hose that the barb is going through.



13. Lastly, attach the brake booster tee fitting to the hose in the same fashion as in the last step, and install the fitting on the intake manifold as shown below.

Note: The hose supplied with the kit should measure approximately 11". I measured an ideal length of 10.5" on my own intake manifold. Trim the hose if you find that it is too long.