



# **APIKOL AAN INTAKE MANIFOLD INSTALLATION INSTRUCTIONS**



Estimated Installation Time: Approximately 2 hours

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**Parts that will need to be modified/removed (Details provided later in the instructions):**

- Intercooler to throttle body hose will need to be shortened to prevent kinks.
- Dipstick tube needs to be bent to clear the intake manifold
- Fuel rail lines might need to be bent slightly to clear the manifold
- As of now the cruise control will not fit anymore as the linkage does not clear the manifold. We are looking into a solution for this.

**Tools Needed:**

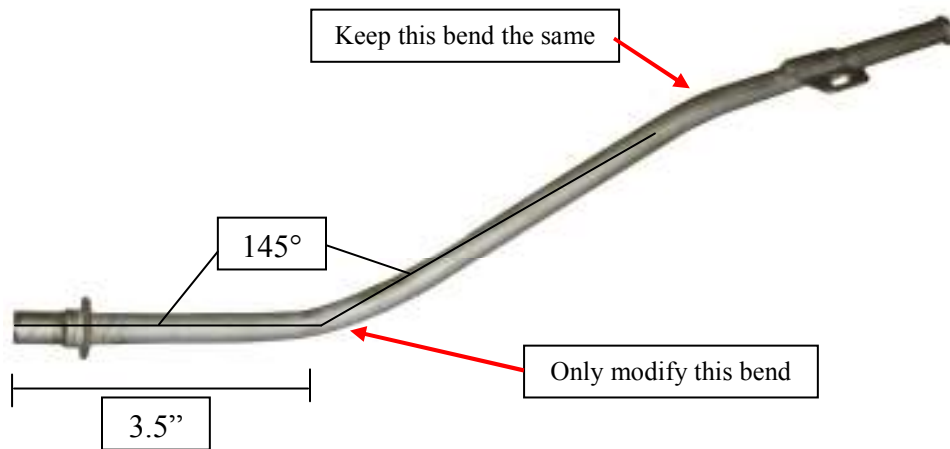
- **Small ¼” Drive Ratchet**
- **Short Ball End 6mm Allen Head Socket (1/4” drive)**
- **Long 6mm Allen Head Socket**
- **5mm Allen Head Socket**
- **10mm socket**
- **Pliers**
- **Razor Blade**
- **Vice**
- **Diagonal Cutters**

**Installation Instructions:****Removing Old Intake Manifold:**

- 1) Start by removing the cover over the fuel rail by taking out the two allen head bolts. There should be two bolts securing the fuel rail that need to be taken out. The fuel rail is still pressurized so make sure that you pull the injectors out of the manifold and not out of the fuel rail. Gently pull up on each injector until they are free. The stock injectors are very brittle so be careful during this step.
- 2) Disconnect any vacuum lines and ground connections that are attached to the old manifold. There is a hose on the bottom of the manifold that is hard to see but needs to be disconnected as well. It is usually easier to remove this hose after you have pulled the manifold partially out so you have better access to cut the clamp. Take the intercooler to throttle body hose off of the throttle body. Remove the intake air temp sensor (IAT) and throttle position sensor (TPS) connectors.
- 3) Disconnect the throttle body from the stock intake manifold by removing the four allen head bolts with a 5mm allen head socket. Remove the throttle cable mount by taking out the two 5mm allen head bolts that attach it to the manifold. Slide the rubber mount for the carbon canister solenoid off of the bracket so it can stay in the car.
- 4) Many times the intake manifold is very dirty at the base. It is a good idea to clean around the injectors and at the base of the intake manifold with a toothbrush or vacuum to remove the dirt. This will prevent the dirt from falling into the engine when the manifold is removed. Remove all of the allen head bolts that secure the manifold to the head. You will need a long 6mm allen head socket to get the lower bolts. If you do not have a long 6mm allen head socket you can use a short ball end 6mm allen head socket on a ¼” drive ratchet. Take the manifold out of the car.

### Modifying Parts to be used with the New Manifold:

- 5) With the manifold taken out you should have better access to take the intercooler to throttle body hose out of the car so it can be modified. The hose needs to be cut shorter to fit the new manifold without kinking. One inch of length needs to be removed from the bottom/intercooler side of the hose. To do this carefully cut off the excess length with a razor blade. If you happen to have some spare steel or aluminum tubing around that is the right diameter it will work great as a guide. Slide the tubing into the hose to a depth of one inch and then run the razor blade up against the edge of the tubing. Without the tubing the easiest way to get a square cut is to wrap a piece of paper around the hose and use that to mark with a sharpie. Then carefully cut along the line and you will get the desired result.
- 6) Take the intake air temp sensor out so it can be installed on the new manifold. Put a small amount of oil on the o-ring to help the sensor slide into place. The o-ring can tear if oil is not used. We have supplied a new bolt to attach the sensor because the stock bolt is likely too long. A new carbon canister solenoid bracket has already been installed on the new manifold so you do not need to transfer that over.



- 7) Remove the dipstick tube so it can be modified to fit with the new manifold. It should come out fairly easily if you give it a good pull. Using the above picture as a guide, bend the tube until it matches. You can bend the tube by clamping it in a vice and just bending by hand. **Make sure that you only bend the tube in the same direction that it is originally bent. Otherwise the dipstick will bind up when sliding through the tube.** You only need to increase the lower bend angle to make the dipstick fit. It works best to bend at multiple points so the bend radius is as large as possible. To do this clamp the tube in the vice at points about 1/4" away from each other and bend slightly. If you bend the tube in just one location the dipstick might bind up when sliding through. Once the tube is bent correctly install it in place.

## Install the New Intake Manifold:



- 8) Put the new intake manifold gasket into place and start to slide the manifold onto the head. Before you actually get the manifold into place, attach the hose that goes to the bottom of the manifold when it is easier to see. Be sure to use a clamp on all hoses to prevent them from coming off. Slide the manifold onto the head and tighten a couple of the bolts.
- 9) Now you can make sure that the dipstick tube has been modified properly. If bent correctly the tube should end up next to the square mount block welded onto the manifold. Refer to the picture above to see where the tube should end up relative to the mounting block. Modify the tube slightly if it does not line up quite right. If you do need to modify the tube, you might need to loosen the two bolts holding the manifold in place to get the tube out. Once the tube is in the right location, use the provided Adel clamp (P clamp) to secure the dipstick tube. Make sure that the tube is pushed all the way down before you tighten the clamp to ensure accurate oil level readings.
- 10) Now you can install the rest of the bolts to attach the intake manifold. The lower bolts will be hard to get to because the new manifold does not have the access holes. We were able to tighten all of the bolts by using a short ball end 6mm allen socket on a small 1/4" drive ratchet.
- 11) With the manifold in place you can install the fuel rail. As you slide the fuel rail into place you

might notice that the fuel lines slightly interfere with the new manifold. If so, bend the lines by hand until they no longer interfere. Put a little oil on the injector o-rings to help them slide into place. Make sure that the injectors are seated correctly and you can put in the two mounting bolts.

- 12) Connect all of the remaining vacuum lines back to the manifold and be sure to tighten the clamps. You are now ready to install the throttle body. Be sure to use the supplied o-ring between the throttle body flange and the throttle body. You no longer need the paper gasket that was used before. Slide the carbon canister solenoid onto the new bracket. Attach the intercooler to throttle body hose and make sure that it fits without kinking. You can cut more off of the top or bottom of the hose to make the hose fit better but be careful to not cut the hose too short.
- 13) Now you are ready to install the throttle cable mount. Use the above picture to see how the throttle cable should be routed. There is a secondary bracket that holds the cable as well. You will need to slide this bracket down the hose until you can bolt this bracket to the manifold. Again, refer to the above picture to make sure you have the bracket in the right position. If the bracket does not slide very easily you can bend it open with a pair of pliers. Once you have the secondary bracket in the correct location put all of the ground ring terminals onto the bolt and attach the bracket to the mount hole on the back of the manifold (Note: Some of the grounds may have gone to a different spot on the stock manifold but that hole is not available anymore. Just attach all of the ground at the same place on the back of the manifold). Try moving the throttle pedal to make sure that it feels fine. You can move the rubber grommet on the cable to change the length if you need to.
- 14) Install the Idle Air Control Solenoid and attach the hoses on both ends. It should still fit on the stock mount. Double check that everything is connected correctly and that all clamps are tight.
- 15) Enjoy your brand new High Flow Apikol Intake Manifold.

If you have any questions or comments about these install instructions feel free to call Apikol at 303-731-3571 or send us an email at [info@apikol.com](mailto:info@apikol.com)