



Exhaust System Installation
3" Turbo-Back Exhaust System
Volkswagen GLI MK.VI
Single Rear Exit w/Twin 3.0" Tips
FE100046

Please take the time to read and understand installation instructions.

APR recommends that installation of this system be performed by a qualified service center or professional muffler installer who has the necessary equipment, tools and experienced personnel. However, if you decide to perform this install, the use of a hoist and an additional person will be required.

CAUTION: Never work on a hot exhaust system. Allow time for the vehicle to cool. Always wear eye protection when working under a vehicle.

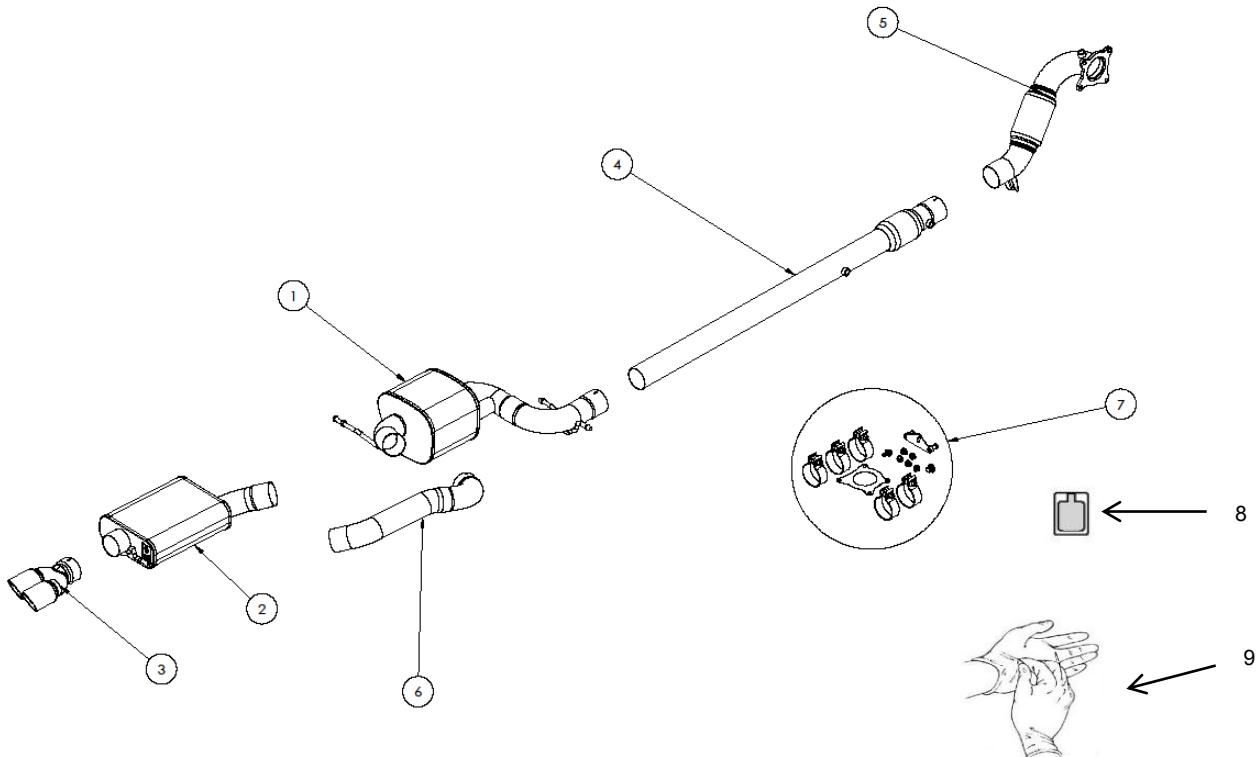
Please confirm that all parts are present before beginning the factory exhaust system removal and APR exhaust system installation.

Bill of Materials:

- 1. Tunnel Muffler Assembly
- 2. Rear Muffler Assembly
- 3. Tip Assembly
- 4. Lower Downpipe Assembly
- 5. Upper Downpipe Assembly
- 6. Axle Pipe Assembly
- 7. Hardware Kit
- 8. Anti-Seize Lubricant Packet
- 9. Latex Gloves

Recommended Tools:

- Safety Glasses
- 13mm socket and ratchet
- 15mm socket
- 16mm socket
- 1" socket
- Grommet pullers
- Penetrating Spray (PB Blaster or equiv.)
- Soapy water solution
- Torque wrench
- 22mm oxygen sensor wrench
- Locking style pliers
- Long extension
- Saw or chain style pipe cutter





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Removal of Stock System:

The factory exhaust will be removed in two sections: the cat-back (rear) section first, followed by the downpipe (front) section.

Cat-back Section

1. Measure from the outlet weld of the tunnel muffler and mark the axle pipe at 3 inches. **(SEE Fig. A)**
2. Using a saw or chain style pipe cutter, cut the axle pipe at the mark. This cut is necessary to enable the stock rear muffler section to be removed from over the suspension.
3. Unbolt the rear muffler hanger mount using a 13mm socket and a long extension. **(SEE Fig. B)** There are two bolts retaining the hanger mount. Next, carefully rotate and slide the factory rear section back and downwards to free it from the vehicle. **(SEE Fig. C)** With the rear muffler section on the ground, remove the factory rear muffler hanger from the rubber isolator on the hanger mount using a grommet puller or a similar device. Set aside both the rear muffler hanger mount and the retaining bolts to be reused during the installation process.

NOTE: The use of soapy water solution may aid in the removal and later installation of the hangers in the rubber isolators.

4. Carefully remove the factory rear tunnel brace. It is secured with four 13mm retaining nuts. **(SEE Fig. D)**
5. Using a 13mm socket and ratchet, loosen both nuts on the factory cat-back to downpipe clamp. **(SEE Fig. E)**
6. Using grommet pullers or a similar device, remove the grommets from the two front hangers near the front of the cat-back section. **(SEE Fig. F)**
7. Using grommet pullers or a similar device, remove the hanger from the grommet at the rear of the factory tunnel muffler. **(SEE Fig. G)** Carefully slide the factory tunnel section back from the clamping location to free it from the vehicle. This completes the removal of the cat-back section.

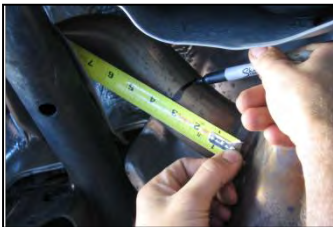


FIG. A



FIG. B



FIG. C



FIG. D



FIG. E



FIG. F

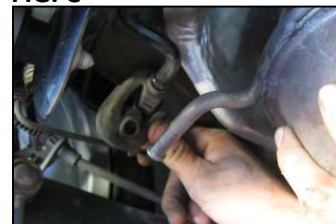


FIG. G



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Downpipe Section

1. Open the hood and disconnect the negative terminal from the battery.
2. Disconnect the MAF sensor plug near the top driver side of the engine shroud and remove the wire from the clip holding it to the flexible air tube. **(SEE Fig. H)**
3. Using a pair of locking pliers (i.e. channel locks) or a similar device, unclip the flexible air tube from the solid turbo inlet pipe. **(SEE Fig. I)** Move the flexible tube clear of the connection. Next, unclip the other end of the flexible air tube from the MAF sensor housing. **(SEE Fig. J)** Remove the flexible tube from the vehicle.
4. Unplug the upper downpipe oxygen sensor connector near the brake master cylinder on the driver side of the vehicle and remove the wire from the clip anchoring it to the firewall. **(SEE Fig. K & L)** This step will not be necessary on the CBFA versions of the vehicle.

NOTE: If you have the CCTA version of the vehicle, follow step 5. If you have the CBFA version of the vehicle, skip to step 6, as the upper oxygen sensor will be located on the turbo housing, and will not need to be removed during the install process.

5. Using a 22mm oxygen sensor wrench, remove the upper downpipe oxygen sensor from the factory downpipe. **(SEE Fig. M)** Note: Breaking the sensor loose from the factory downpipe may be easier from the underside of the vehicle.

WARNING: Be careful to not contaminate the sensor end of the oxygen sensors with dirt, grease, etc as it may prevent them from functioning properly.

6. Spray the downpipe flange mounting nuts using PB Blaster or an equivalent rust penetrating spray. Allow the product to soak in per product recommendations, then remove the two upper downpipe flange nuts using a 16mm socket and ratchet. **(SEE Fig. N)**



FIG. H



FIG. I



FIG. J



FIG. K

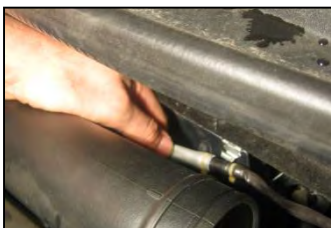


FIG. L



FIG. M



FIG. N



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7. Remove the CV shaft heat shield from the rear of the engine using a 16mm socket and ratchet. **(SEE Fig. O)**. Remove the two lower downpipe flange nuts using a 16mm socket and ratchet. **(SEE Fig. P)**
8. Use the 22mm oxygen sensor wrench to remove the lower oxygen sensor from the downpipe. This sensor is located in the tunnel underneath the vehicle and is downstream of the last factory catalytic converter. **(SEE Fig. Q)**



FIG.O

NOTE: If you have the CBFA version of the vehicle, follow step 9. If you have the CCTA version of the vehicle, skip to step 10, as the additional oxygen sensor upstream of the last factory catalytic converter will not be present.

9. Use the 22mm oxygen sensor wrench to remove the second lower oxygen sensor from the downpipe. This sensor is also located in the tunnel underneath the vehicle, and is upstream of the last factory catalytic converter. **(SEE Fig. R)**



FIG.P

10. Unbolt the downpipe grommet bracket from the vehicle by removing the two bolts with a 13mm socket and ratchet. **(SEE Fig. S)**
11. Carefully remove the front tunnel brace. This brace is secured with four 13mm nuts. The downpipe section will most likely droop when this brace is removed.
12. Remove the downpipe from the vehicle by sliding the mounting flange off of the studs coming from the turbo. Remove the downpipe grommet bracket from the factory downpipe hangers. **(SEE Fig. T)** This completes the removal of the downpipe section.



FIG. Q



FIG. R



FIG. S



FIG. T



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Installation of APR Exhaust System:

NOTE: Apply the anti-seize lubricant (supplied) to the threads **ONLY** of all the clamps and flange bolts. Failure to follow this procedure can cause nuts to seize on clamps and potentially destroy threads. After applying anti-seize lubricant, be sure to thoroughly clean hands as lubricant will tarnish stainless steel.

Align all clamps so that the center of the clamp bolt is 90 degrees from the notch on the pipe (SEE Fig. A)

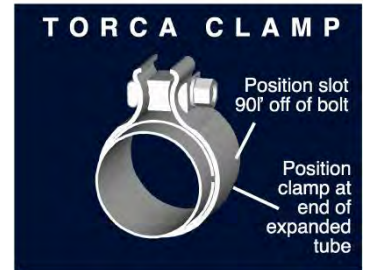


FIG.A

NOTE: All clamps should be tightened using a properly calibrated Torque Wrench. Using an air impact gun will damage the clamp and reduce its ability to effectively seal the joint. It may also cause the joint to separate thereby causing damage to your exhaust system and your vehicle.

1. Remove all exhaust system components for the shipping carton, including the five 3.0" clamps, the M10 flange bolt, the five M10 flange nuts, the M18 oxygen sensor port block off bolt, and the downpipe flange gasket.
2. Locate the APR upper downpipe assembly, four of the M10 flange nuts, and the downpipe flange gasket. Place the new OEM downpipe flange gasket over the studs coming out of the turbo. (SEE Fig. B) Then slide the mounting flange of the upper downpipe assembly over the mounting studs. Hand thread on the four M10 flange nuts. Tighten the two lower downpipe flange mounting nuts using a 15mm socket and ratchet. (SEE Fig. C)
3. Tighten the two upper downpipe flange mounting nuts with the 15mm socket and ratchet. (SEE Fig. D) Torque all flange mounting nuts to 22 ft-lbs (30 N-m).



FIG.B

NOTE: If you have the CCTA version of the vehicle, follow step 4, then skip to step 6. If you have the CBFA version of the vehicle, skip to step 5, as the upper oxygen sensor position on the downpipe will not be utilized.

4. Install upper downpipe oxygen sensor and tighten with the 22mm oxygen sensor wrench. (SEE Fig. E) Reconnect oxygen sensor connector to the plug near the brake master cylinder and anchor the wire with the retaining clip on the firewall. (SEE Fig. F)



FIG.C



FIG. D



FIG. E



FIG. F



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5. Install the M18 oxygen sensor port block off bolt into the same mounting position that is shown in Figure E using a 1" socket and ratchet.
6. Align the flexible air tube with the MAF sensor housing. Using a pair of channel lock pliers or a similar device, install the retaining clip for the flexible tube. **(SEE Fig. G)** Align the other end of the flexible air tube to the solid turbo inlet pipe and install the other retaining clip. **(SEE Fig. H)**
7. Plug in the adjacent MAF sensor plug and anchor the sensor wire to the flexible air tube. **(SEE Fig. I)**
8. Use a 16mm socket and ratchet to mount the CV shaft heat shield to the rear of the engine. Tighten to 22 ft-lbs (30 N-m). **(SEE Fig. J)** Bolt the downpipe grommet bracket to the vehicle with a 13mm socket and ratchet. Make sure the bracket is oriented as shown. **(SEE Fig. K)** Tighten bolts to 18 ft-lbs (24 N-m).
9. Locate the APR downpipe hanger assembly, the remaining M10 flange nut, and the M10 x 20mm long bolt. Push the hanger assembly studs into the grommet bracket from step 8, with the center hole aligned with the slotted hole on the upper downpipe mounting tab. Install the M10 bolt through these holes from the engine side and secure with the M10 flange nut. Snugly tighten with a 15mm socket and ratchet. **(SEE Fig. L)**
10. Locate the lower downpipe assembly and one of the 3" clamps. Properly align the clamp (see above note) on the catalytic converter side of the lower downpipe and slide the lower downpipe inlet over the end of the upper downpipe assembly. **(SEE Fig. M)** Check the orientation of the lower downpipe, so that the oxygen sensor bungs are oriented upward and towards the passenger side of the vehicle. Snugly tighten the 3" clamp to retain the lower downpipe section. **(SEE Fig. N)**



FIG. G



FIG. H



FIG. I



FIG. J



FIG.K



FIG. L



FIG. M



FIG. N



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11. Install the two factory tunnel braces using the four retaining nuts for each brace and tighten using a 13mm socket and ratchet. Torque nuts to 18 ft-lbs (24 N-m). **(SEE Fig. O)** These two braces will help keep the lower downpipe from drooping excessively during the rest of the installation.
 12. Install the downpipe oxygen sensor in the corresponding bung behind the catalytic converter and tighten using a 22mm oxygen sensor wrench. **(SEE Fig. P)** Rotate the lower downpipe assembly (if necessary) to make sure the oxygen sensor wire has some slack in it (to prevent damage).
- Note: If you have the CBFA version of the vehicle, follow step 13, then skip to step 15. If you have the CCTA version of the vehicle, skip to step 14, as the additional oxygen sensor position upstream of the catalytic converter will not be utilized.**
13. Install the downpipe oxygen sensor in the corresponding bung in front of the catalytic converter and tighten using a 22mm oxygen sensor wrench. **(SEE Fig. Q)**
 14. Install the M18 oxygen sensor port block off bolt into the same mounting position that is shown in Figure Q using a 1" socket and ratchet.
 15. Locate the APR axle pipe assembly. Carefully route the assembly through the tunnel above the rear suspension. **(SEE Fig. R)** Make sure the expanded end of the axle pipe section faces forward in the vehicle.
 16. Locate the APR tunnel muffler assembly and a 3" clamp. Properly align the clamp on the tunnel muffler inlet and slide it over the end of the lower downpipe assembly. Insert the hangers into the corresponding rubber grommets, starting with the two front hangers and then moving to the hanger just behind the tunnel muffler. **(SEE Fig. S & T)** A soapy water solution will aid in the installation process of the hangers. Snugly tighten the 3" clamp to retain the tunnel muffler section. **(SEE Fig. U)**



FIG. O



FIG. P



FIG. Q



FIG. R



FIG. S



FIG. T



FIG. U



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17. Locate another 3" clamp. Properly align the clamp on the axle pipe inlet and slide the axle pipe over the end of the tunnel muffler assembly. Adjust the amount of overlap at the clamp joint, and the orientation of the axle pipe so that it has approximately the same amount of clearance on the top side to the heat shield as it does on the bottom side to the suspension components. (SEE Fig. V) While holding the axle pipe in place, snugly tighten the 3" clamp to retain this section. (SEE Fig. W)



FIG. V

18. Locate the APR rear muffler assembly, a 3" clamp, and the factory rear muffler hanger mount with its retaining bolts set aside in step 3 of the cat-back removal process. Insert the rear muffler hanger into the factory hanger mount. Make sure the mount is oriented as shown. (SEE Fig. X)

NOTE: The rear muffler installation is difficult to perform without any assistance due to only one hanger being present behind the rear suspension. We recommend having an assistant available to help position both the axle pipe and the rear muffler during this process.



FIG. W

19. Properly align the 3" clamp on the rear muffler inlet and slide the rear muffler over the end of the axle pipe assembly. Align the factory hanger mount with the mounting holes and secure with the two bolts retained from the removal process using a 13mm socket and ratchet. Torque to 18 ft-lbs (24 N-m). Verify that there is approximately the same amount of axle pipe clearance to both the heat shielding and the suspension where the pipe exits. (SEE Fig. Y)

20. Locate the APR tip assembly and the last 3" clamp. Properly align the clamp on inlet of tip assembly and slide onto rear muffler assembly. Snugly tighten clamp to retain tip assembly. (SEE Fig. Z)



FIG. X

21. Adjust the amount of overlap at the clamp joint between the rear muffler assembly and the axle pipe, and the position and rotation of the rear muffler assembly until the gap between the tips and the rear bumper cover looks even all around. (SEE Fig. AA) While holding both the rear muffler and axle pipe in place, snugly tighten the 3" clamp to retain the rear muffler section. (SEE Fig. BB) Adjust the depth and rotation of the tip assembly. Additional adjustment at either end of the axle pipe may be necessary to optimize both the pipe clearance through the suspension and the rear muffler position.



FIG. Y



FIG. Z



FIG. AA



FIG. BB



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22. Visually inspect the exhaust system position, tip alignment, clamp orientation, and exhaust pipe clearance. Make any necessary adjustments at the slip joints and at the front downpipe hanger assembly.
23. When the exhaust system is in the desired location, tighten the nuts on the clamps. Torque nuts to 45 ft-lbs (61 N-m). Tighten the M10 nut and bolt at the front downpipe hanger assembly to 22 ft-lbs (30 N-m).
24. Reconnect the negative battery terminal. Let the car sit for at least three minutes with the ignition key on and engine off. Close the hood. This completes the installation of the APR system.
25. It is **STRONGLY SUGGESTED** that all clamps be checked and re-tightened (if necessary) to the recommended torque after initial road testing of the vehicle, as thermal cycling has occurred on the system. Please wait until the system has fully cooled to perform this step.

NOTE: During cold weather start-ups, you may experience an exhaust sound that is deeper and louder in tone than usual. This is temporary and will diminish to normal levels once your engine has reached its normal operating temperature.

NOTE: Immediately following the installation of your exhaust system, you may experience a trace of smoke after initial start-up. DO NOT be alarmed. The smoke is caused by the burning of a small amount of forming oil residue used in the manufacturing process.