



GrimmSpeed Install Guide Series
Installing the GrimmSpeed 02-07 Top Mount Intercooler (TMIC)
Updated 3/25/13

Introduction: This guide will illustrate the installation of the GrimmSpeed Top Mount Intercooler on your 02-07 Subaru. This install is moderately challenging, so if this is your first TMIC swap, set aside at least a few hours so that you can take your time and do it right. A seasoned veteran may only spend 30min on the installation.

Tools: The tools listed below are suggested for this task (figure 1). Optional tools are noted.

- Pliers
- 8mm socket (if you're also installing the GrimmSpeed splitter)
- 10mm socket
- 12mm socket (deep-well or extension recommended)
- Ratchet
- Flathead screwdriver

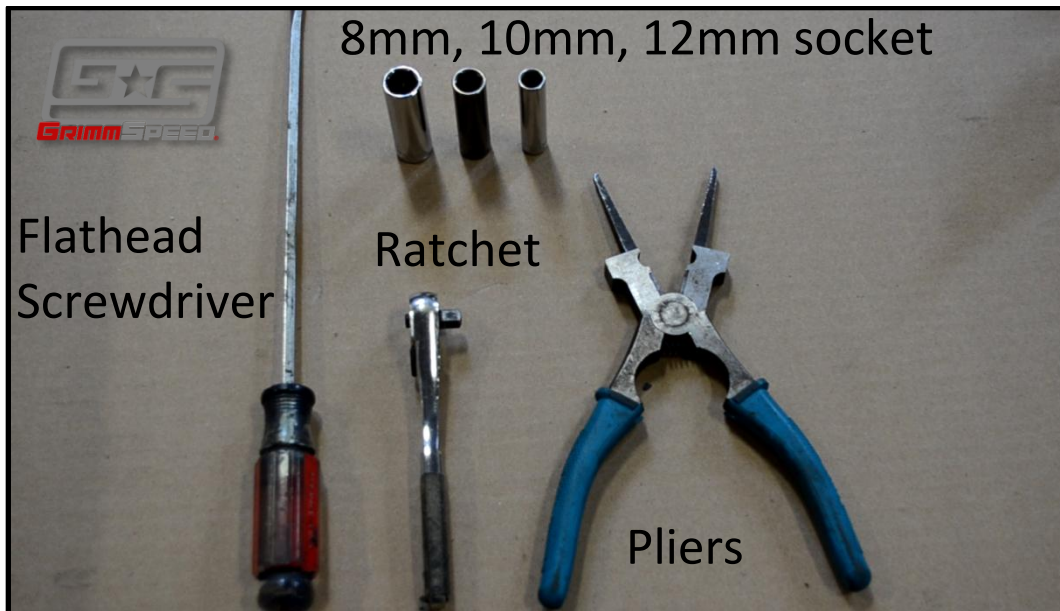


Figure 1: Tools

Tips: Using an extension will help give you more space to spin the ratchet and avoid damaging parts or your hands.

Procedure:

1. Begin by collecting your tools and popping your hood.
2. The first step will be to remove your stock/existing top mount intercooler. There are a few primary points of connection and we'll step through those before pulling the TMIC. Use the figure below to identify each of these points and familiarize yourself with the procedure.

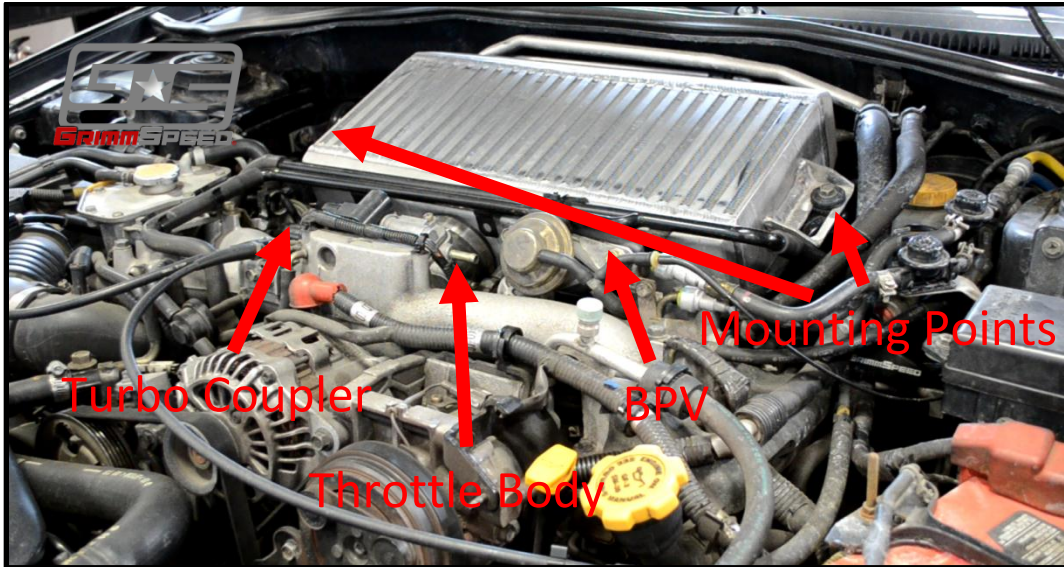


Figure 2: TMIC Mounting Points

3. First, begin by removing the three (3) 10mm screws holding your valve cover breather hard lines to the factory TMIC. Optionally, pop the hardline out of the hose on the driver's side and pull it out of the way.

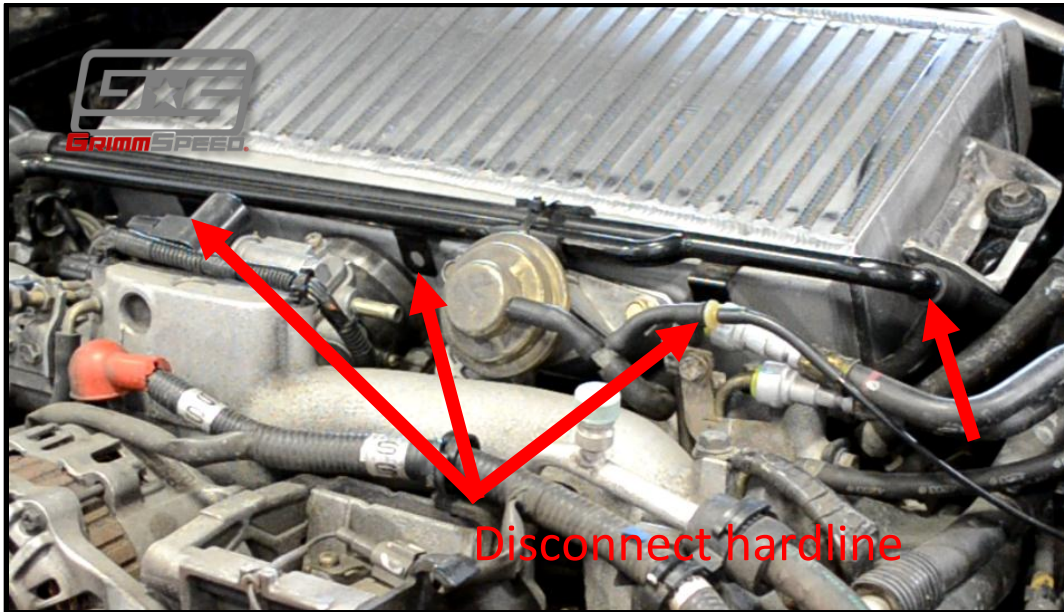


Figure 3: Remove OEM radiator stay brackets

4. Next, remove the two (2) 12mm bolts holding the TMIC to its brackets on either side of the engine bay.

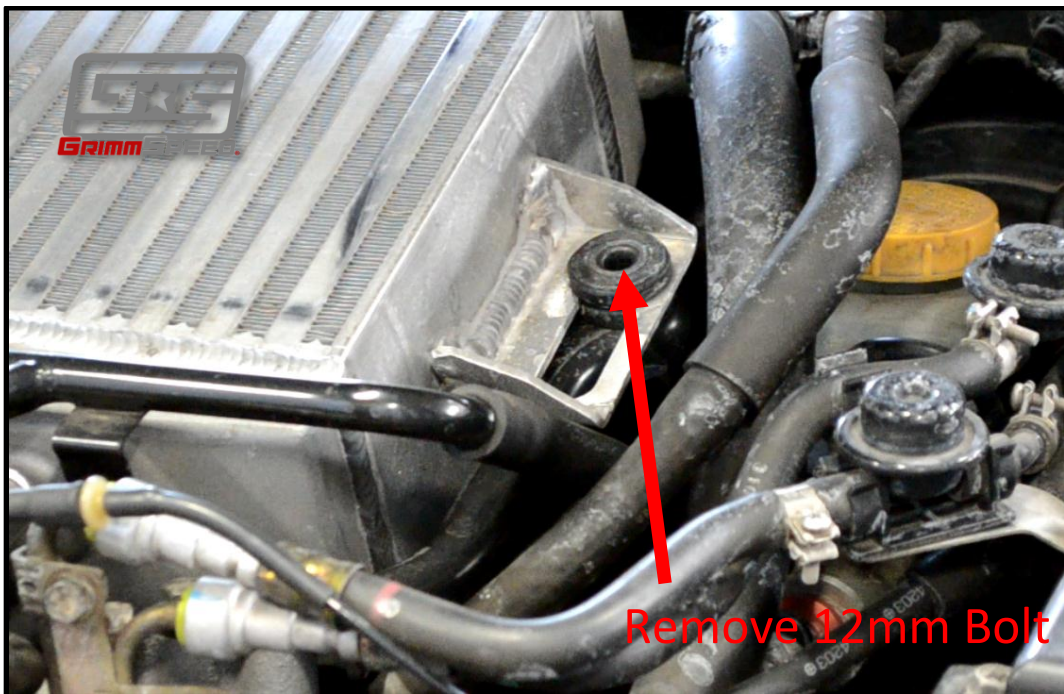


Figure 5: Removing 12mm bolts

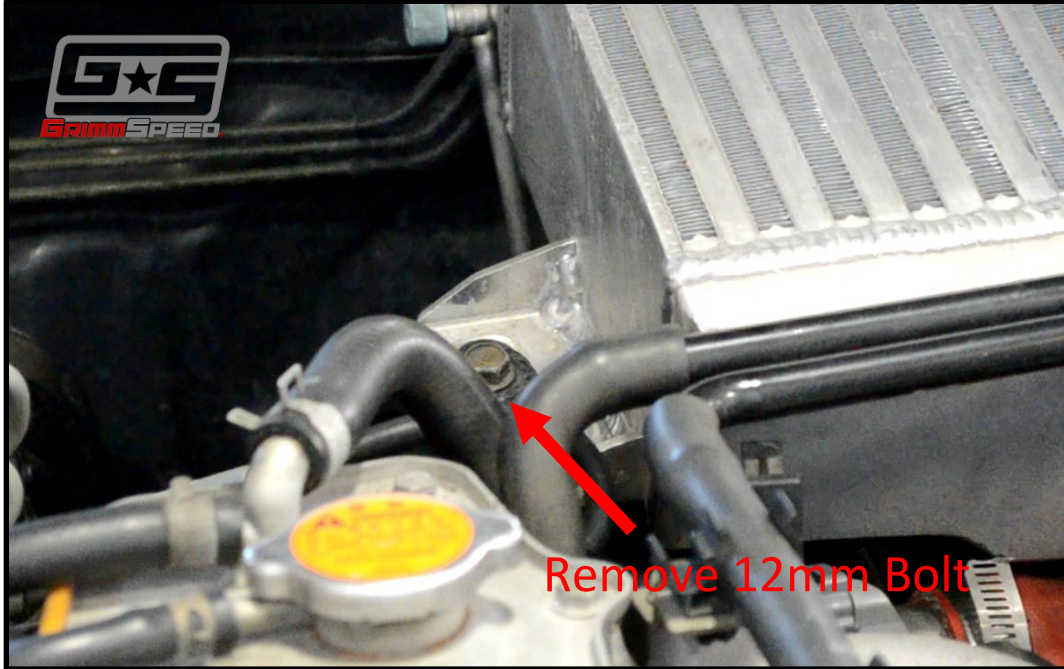


Figure 6: Remove 12mm bolts

5. Next, we'll unbolt the stock bypass valve. Again, you'll use your 12mm socket to remove two bolts. Be sure to grab the gasket as you remove the bolts.

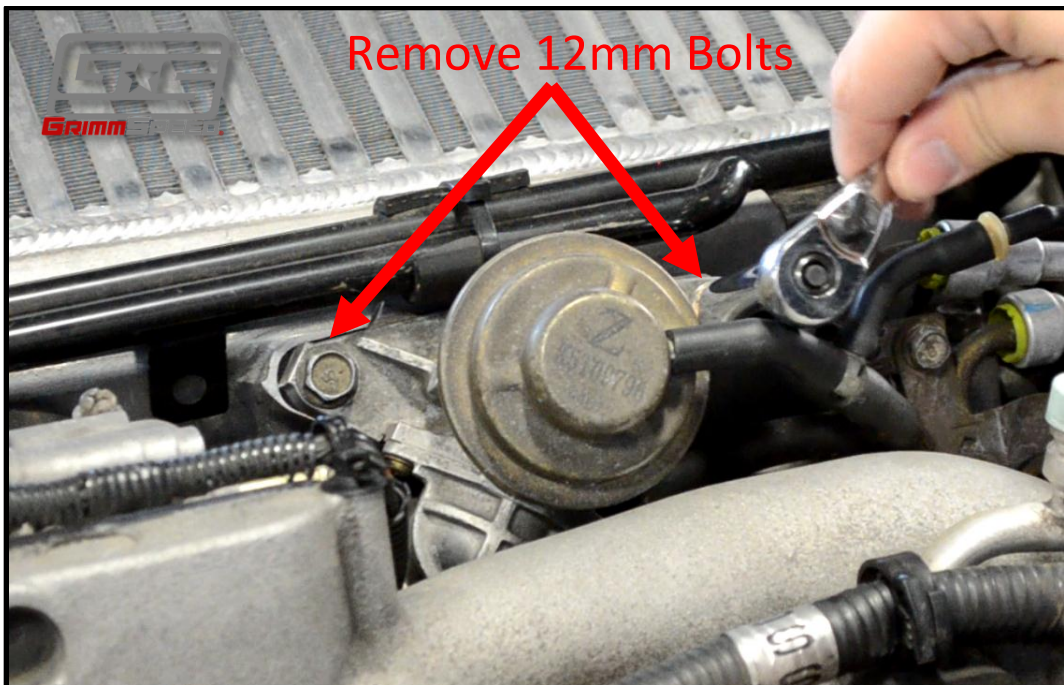


Figure 7: Remove bolts for BPV

6. Lastly, loosen the hose clamps for your throttle body coupler as well as the compressor housing. Loosening both throttle body clamps will greatly ease in uninstalling your factory TMIC.

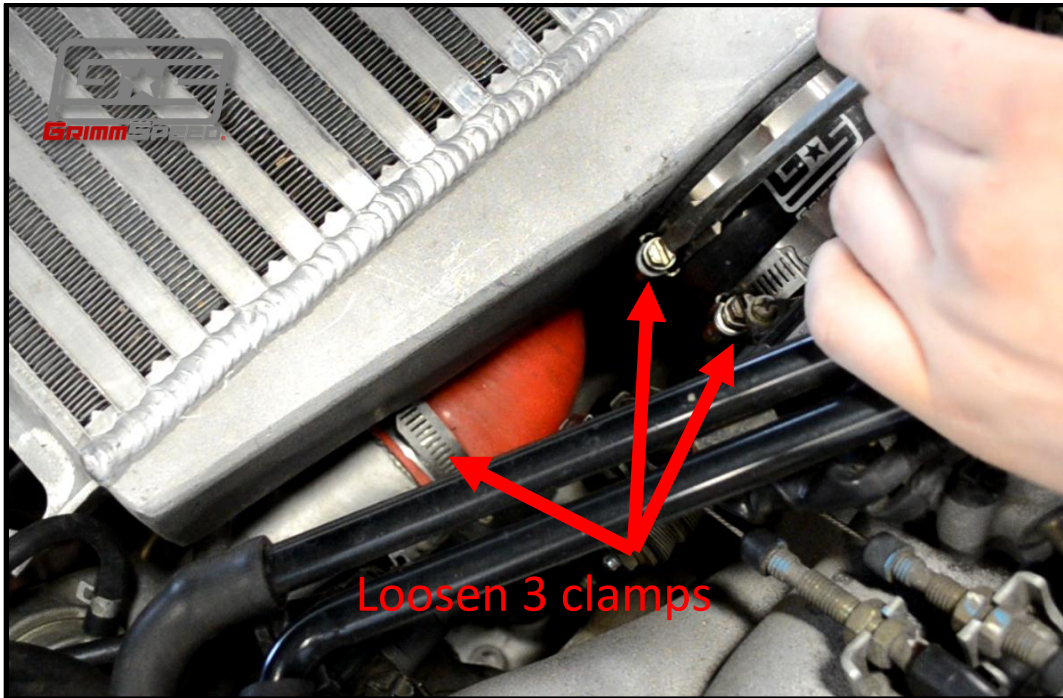


Figure 9: Loosen stock worm gear clamps

7. Now, your intercooler should be ready to pull. This can take some finesse, but shouldn't be too hard. Rotate the top right corner of the TMIC towards you in order to work the couplers off of your turbo and throttle body.



Figure 10: Remove TMIC

8. Next, we'll prep the GrimmSpeed unit for installation. Unbox the thing already! Start by removing the protective seals on the inlet ports. We'll attach the y-pipe first. Remove the y-pipe pieces from their packaging and identify the three (3) T-Bolt clamps marked 51-59mm. Loosely assemble them with the straight coupler as shown below.

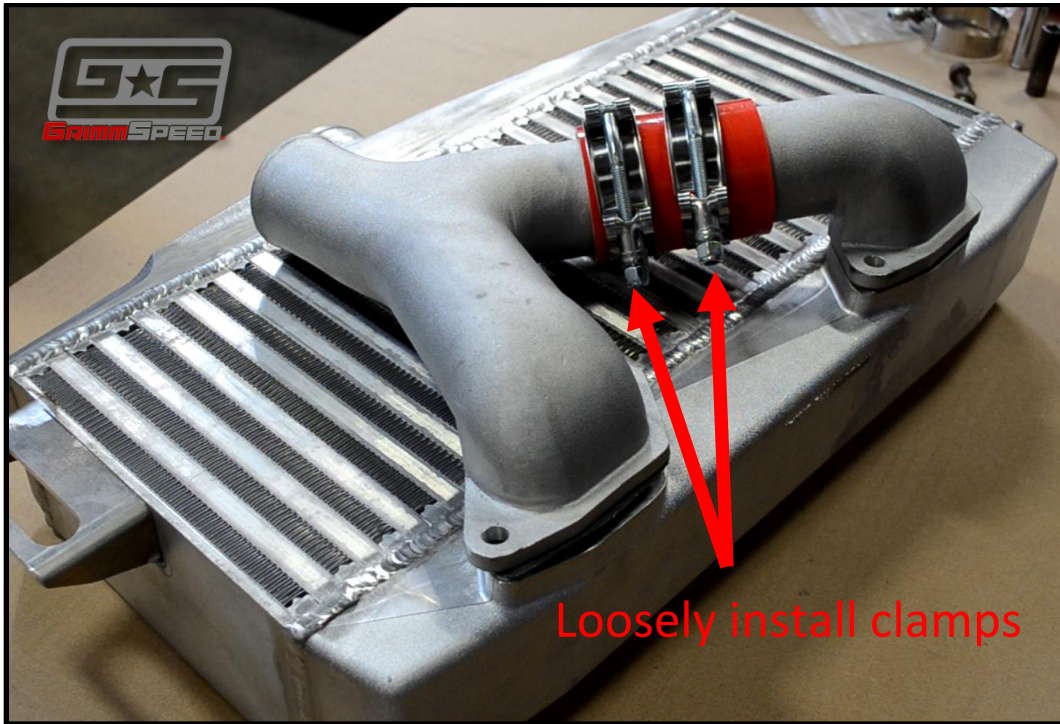


Figure 11: Assemble y-pipe

9. Now use the four (4) 12mm bolts from your factory intercooler to attach the new GrimmSpeed y-pipe to the GrimmSpeed TMIC. Be sure to place one of the included gaskets under each flange before assembly.

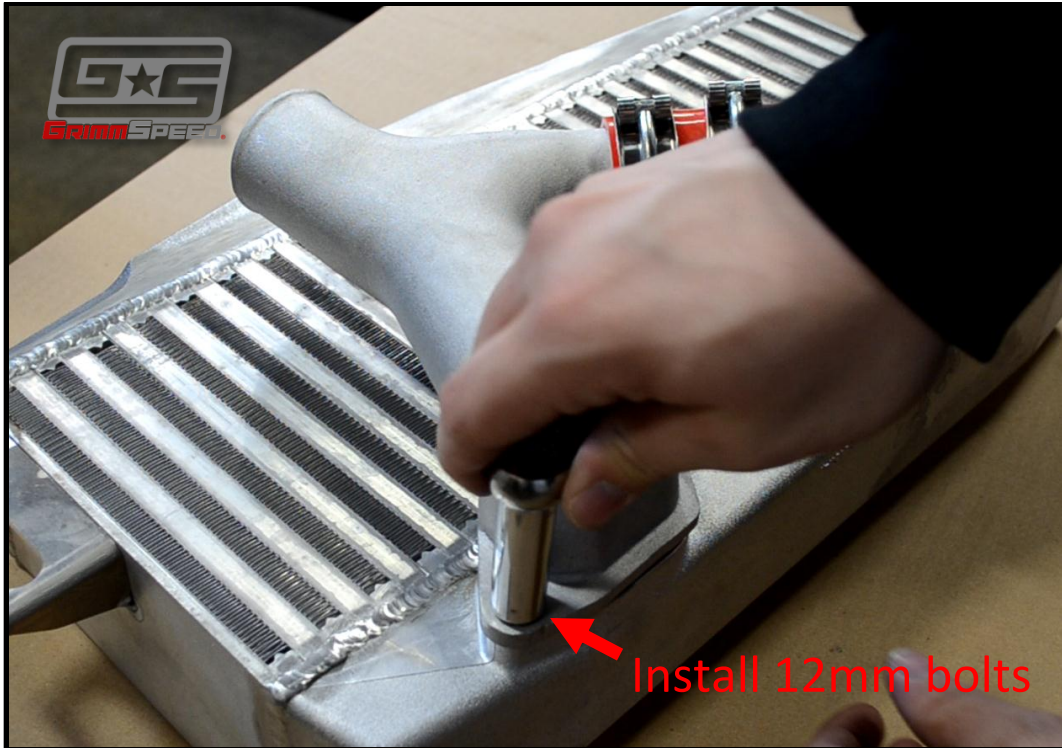


Figure 12: Assemble y-pipe

10. At this point, you can make sure that the straight silicone coupler is centered between the two y-pipe pieces before tightening the t-bolt clamps. Orient the t-bolt clamps as shown below to ensure proper clearance in the engine bay. Make sure that the t-bolt is sealing behind the bead on the cast parts, not on the bead.

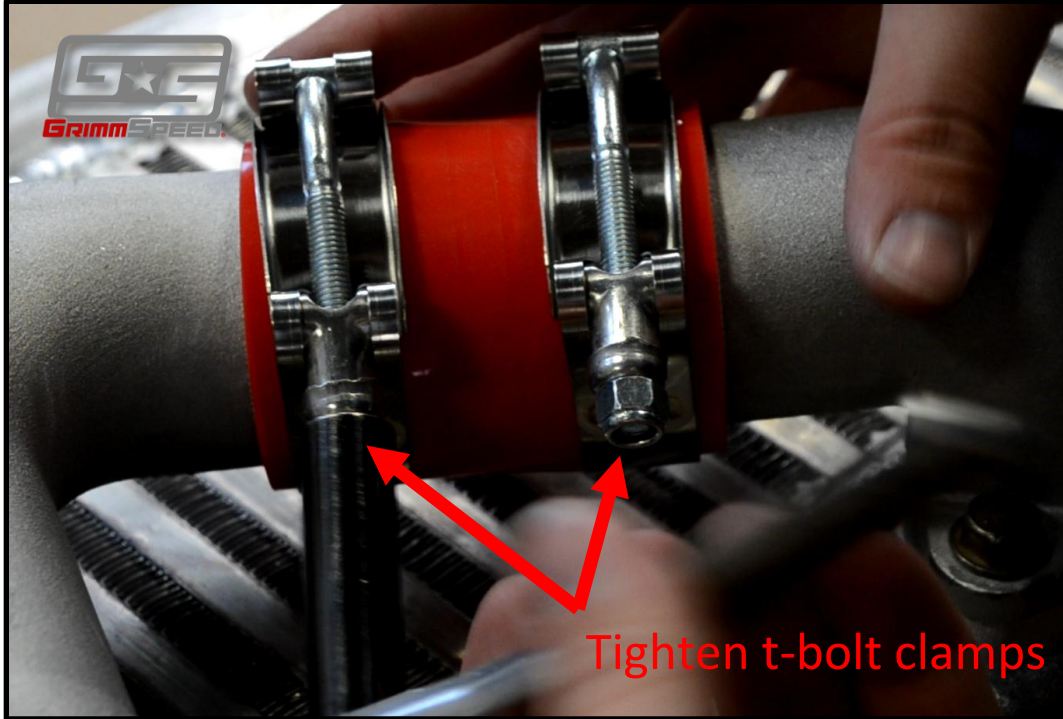


Figure 13: Tighten clamps

11. Attach the 90 degree coupler to the y-pipe using the third 51-59mm clamp as shown below. Not that the longer portion of the coupler is the end connected to the y-pipe. Depending on your particular installation, you may find that the angle and how far you push the coupler on need adjustment. We've made the couplers extra-long to allow for maximum adjustability and even trimming, if necessary.



Figure 14: Install 90 degree coupler

12. Pop the rubber bushings and steel cores out of your stock TMIC and fit them to your shiny new GrimmSpeed TMIC. This is a very important step! You will need to remove the steel core to be able to remove the rubber bushing and transfer it to our TMIC. Reinstall steel core after you swap the bushing.

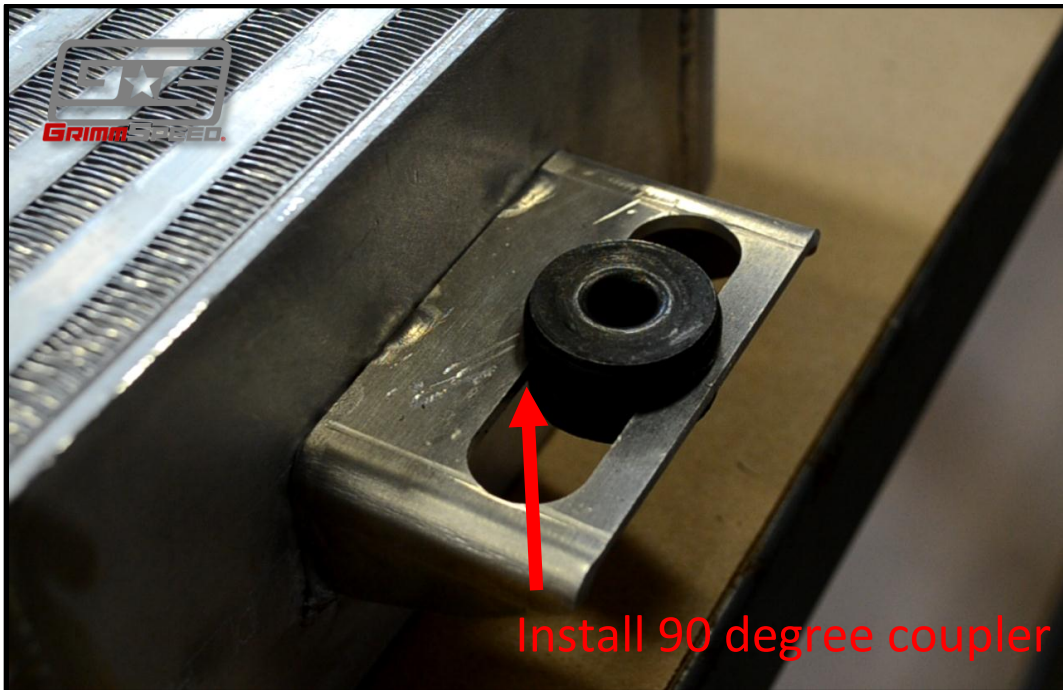


Figure 15: Transfer rubber bushings

13. The last step before installing your TMIC is to replace the factory BPV recirc hose. This is the longest of the four silicone couplers in the kit. Remove your stock unit by compressing the tension clamps on either end and sliding them down before pulling the hose off. You may choose to reuse the stock tension clamps on your reinstall, but we've also provided t-bolt clamps. It may be a tight fit on your stock BPV connection, so be patient. It can help to wet the coupler slightly.

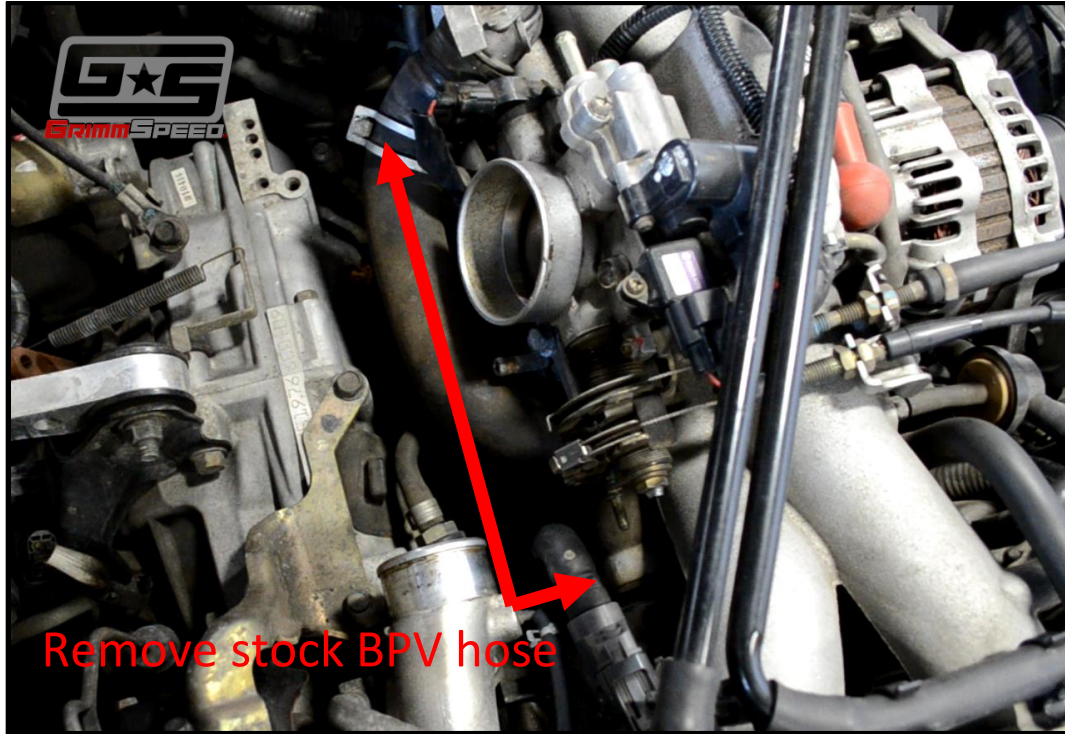


Figure 16: Remove stock BPV hose

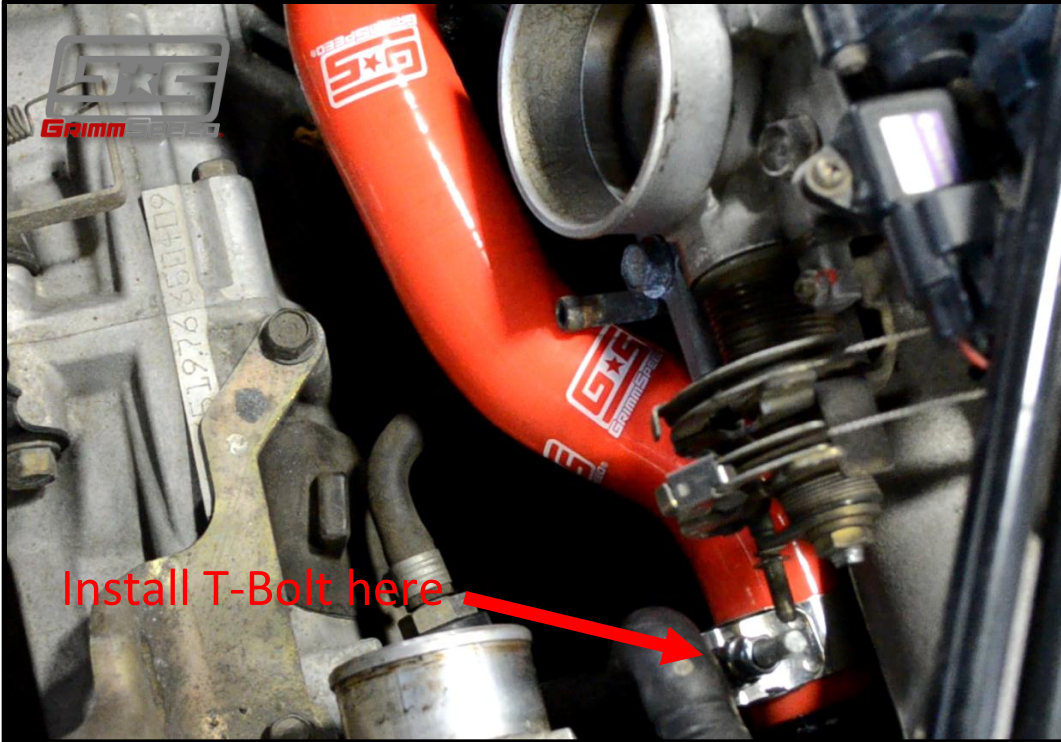


Figure 17: Install GrimmSpeed BPV hose



Figure 18: Install GrimmSpeed BPV hose

14. Remove the protective cap on the throttle body of the GrimmSpeed TMIC as well as the protective seal on the BOV flange. Slip the GrimmSpeed throttle body coupler over your throttle body and loosely place the two large t-bolt clamps over it. You'll also need to choose whether you'd prefer to run a t-bolt or worm gear clamp on your compressor housing. The worm gear is an easier install and both should work just fine; it's a matter of personal preference. Place that clamp loosely over the coupler as well. (In this photo, I've chosen to slip the second throttle body clamp on afterwards. You may choose to do the same if you have trouble getting the TMIC into position.

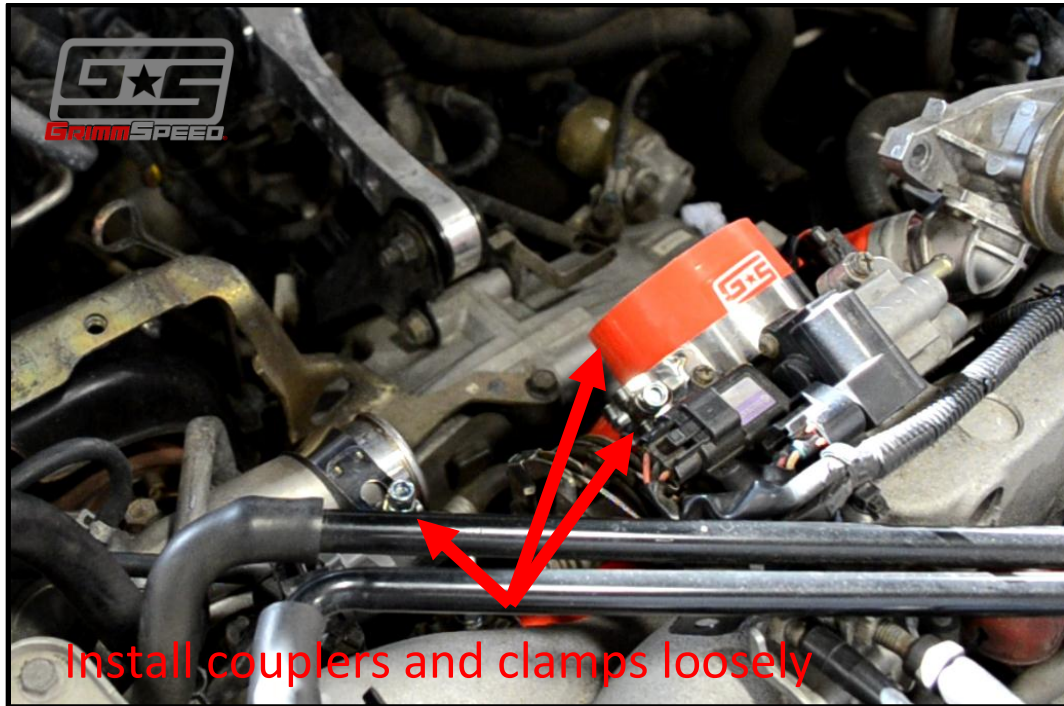


Figure 19: Place coupler and clamps

15. Grab your TMIC assembly by the mounting tabs and get it into position. We recommend tipping the TMIC towards you as shown and then working your two coupler points into position. Get the 90 degree coupler over your compressor housing, keeping an eye on the throttle body coupler. After you've got the coupler started on the turbo, you should be able to maneuver the TMIC onto the throttle body. Make sure the coupler is seated all the way around, not folded in at any point. On the turbo side, you will need to maneuver your chosen clamp into place over the coupler.

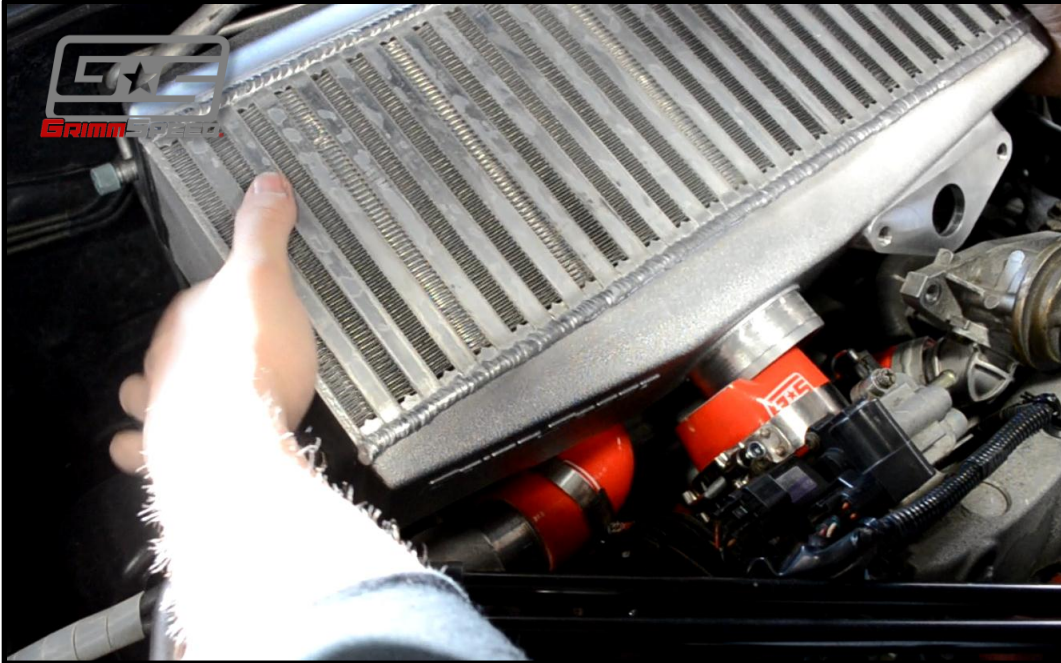


Figure 20: Position TMIC

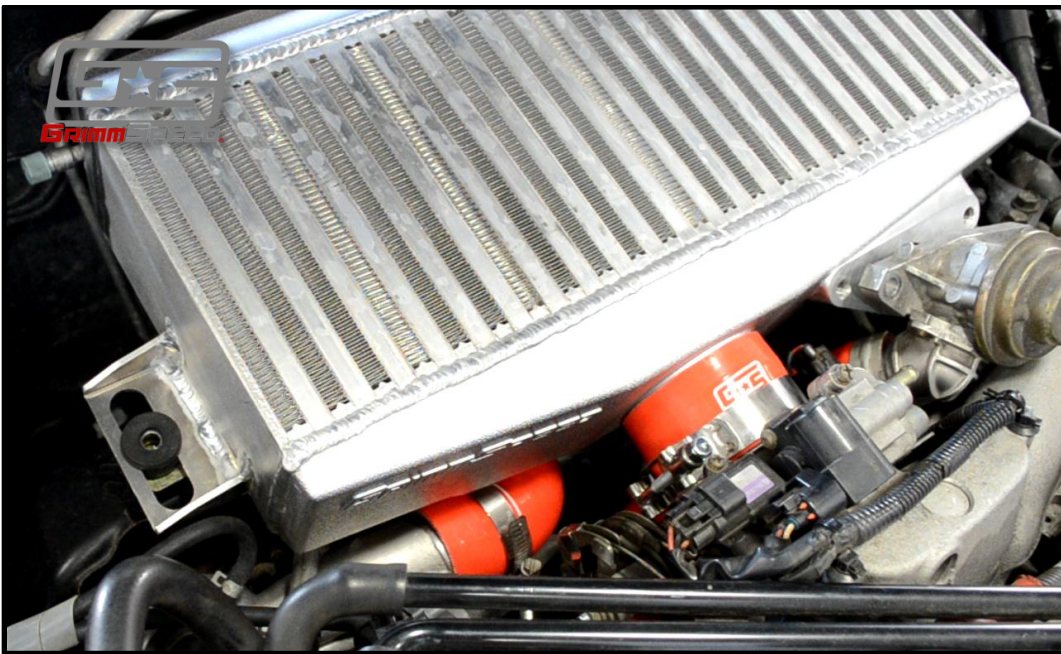


Figure 21: Position TMIC

16. If, like me, you opted to leave one of the throttle body clamps off, you'll want to remove the nut, pull it apart and sneak it around. Now is the appropriate time to snug up your clamps on both the throttle body and the turbo, checking again to make sure that your coupler makes a nice seal all the way around.

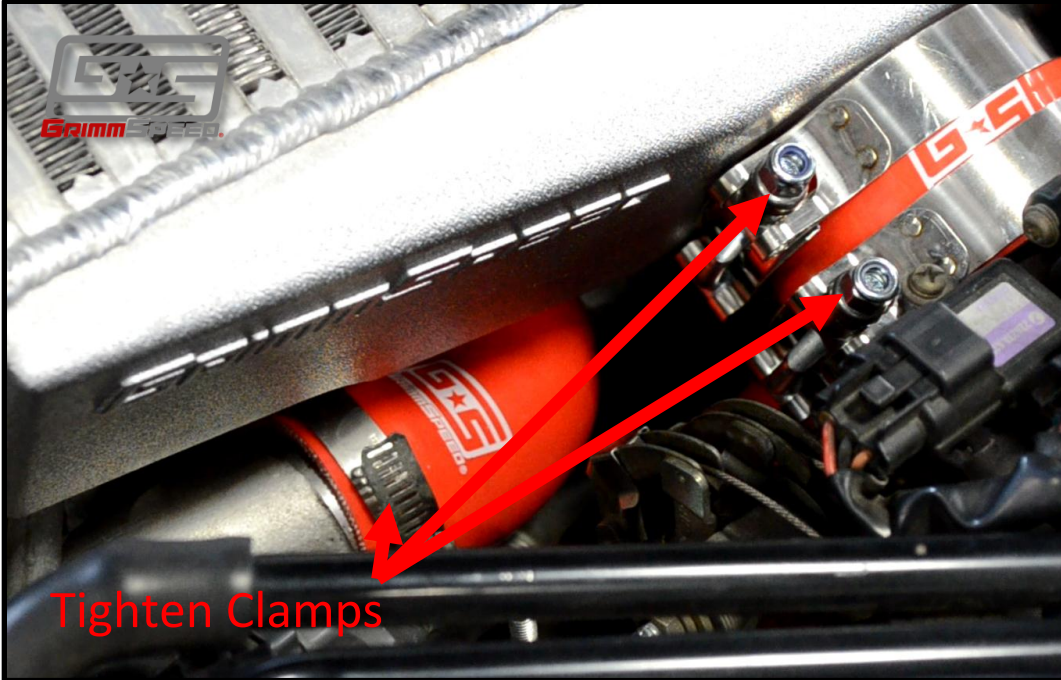


Figure 22: Tighten Clamps

17. Now, reinstall your bypass valve using the stock fasteners. Make sure to also use the included gasket to ensure a perfect seal. Get things snug, but no need to go crazy. On some drive by cable vehicles, the recirculation port and your throttle body may be a very tight fit. This is to ensure that there's plenty of clearance for larger valves with the intake manifold and hood.

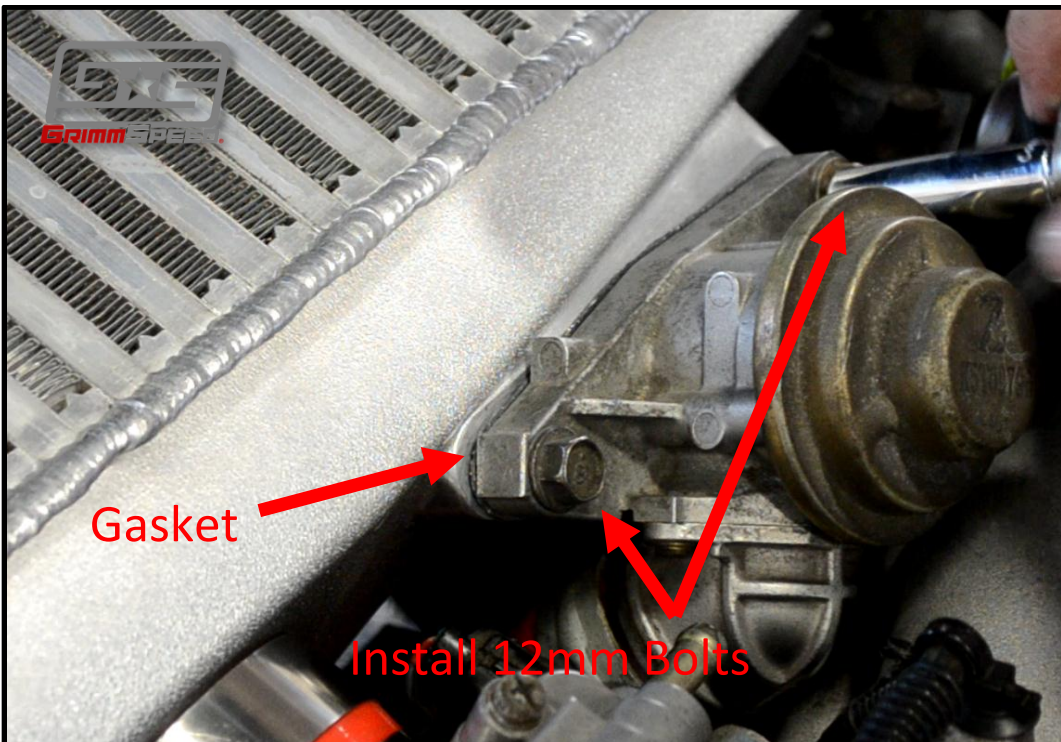


Figure 23: Reinstall BPV

18. Finally, use the two longer 12mm bolts to bolt the entire assembly back into place on the stock brackets. Get both bolts in loosely before tightening anything down. The driver's side bracket has some adjustment as you loosen it from the intake manifold. Some cars have had these brackets adjusted over the years, so you may need to do the same.

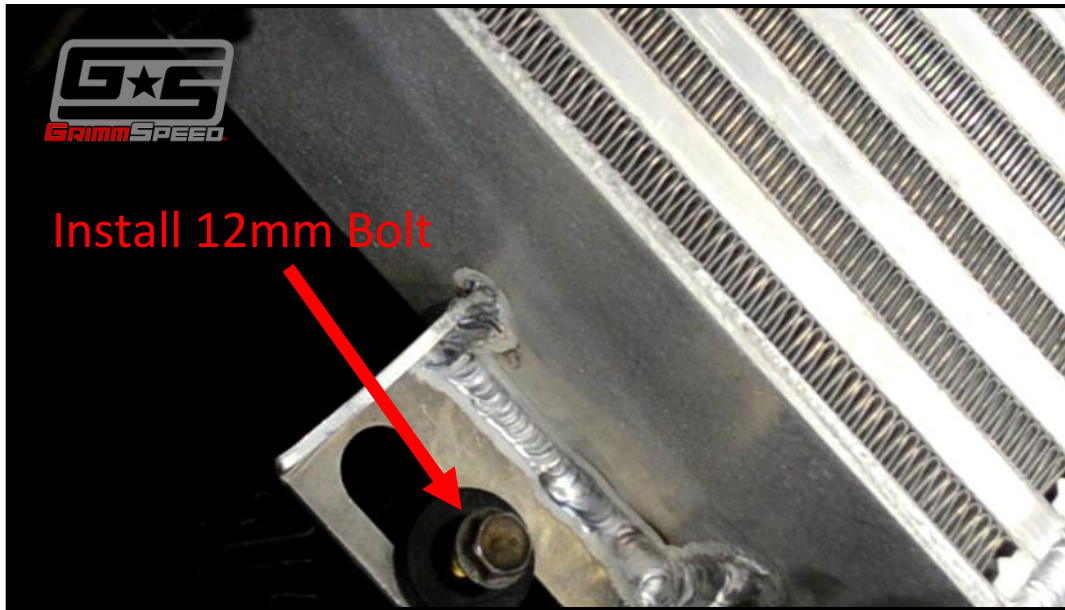


Figure 24: Bolt intercooler back down

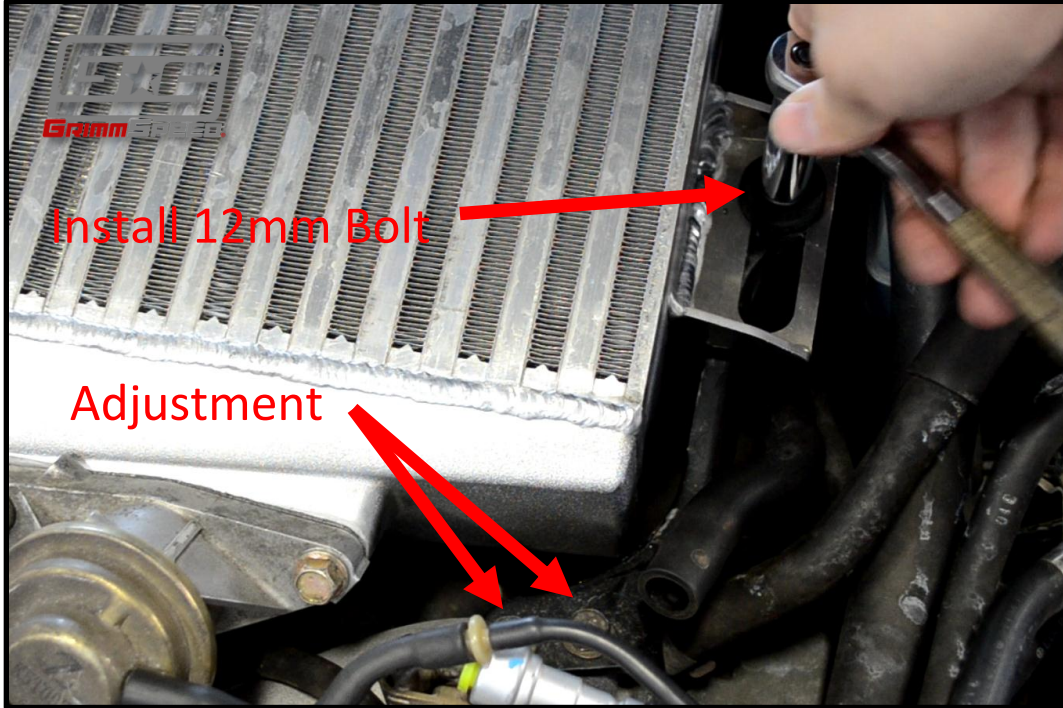


Figure 25: Bolt intercooler back down

20. At this point, the only loose end is the hardline that we disconnected for the valve cover breathers. You can choose to reattach it if you'd prefer, but we recommend using the included hoses and adaptors to replace the lines with our hose. The figure below shows the hose installation using $\frac{1}{2}$ " hose, $\frac{1}{2}$ " Tee and a $\frac{1}{2}$ " - $\frac{1}{2}$ " union. For the sake of this guide, I've used a 17" piece of hose. If you prefer, a longer piece (we include 24") can be used to sneak the hose below your tnic for a cleaner install.

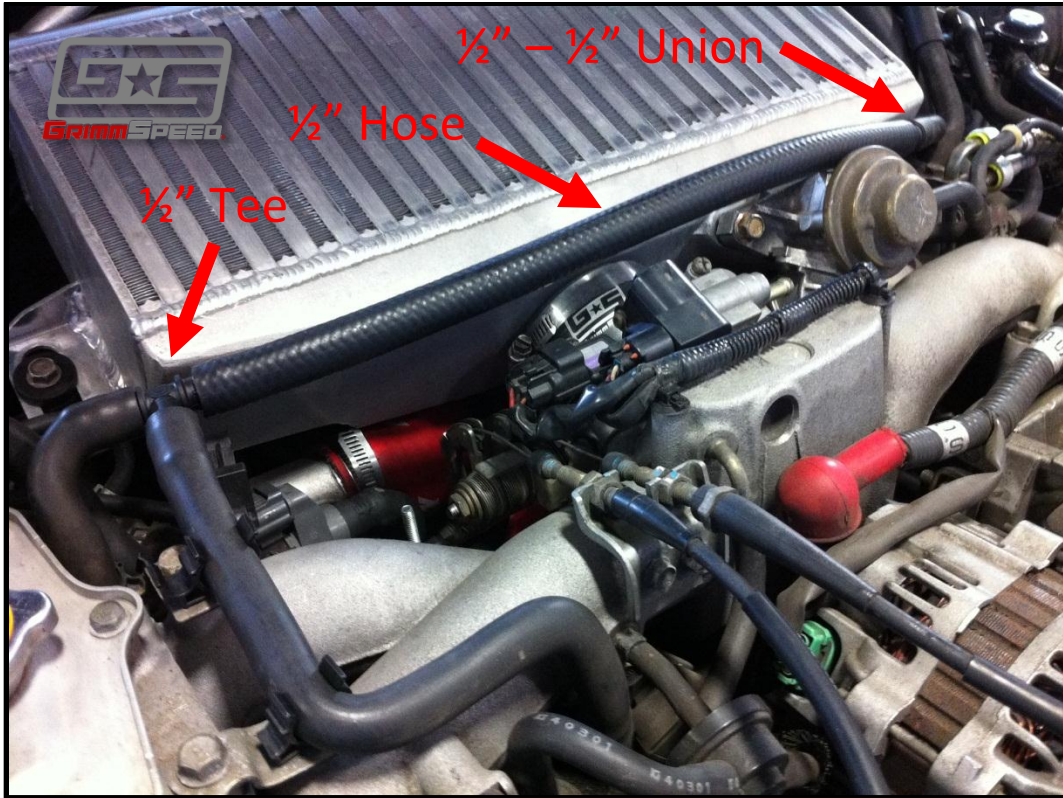


Figure 26: Replace crossover hard line

That's it! You should be all set. Take the car for a spin to listen for any leaks. As with any modification to your engine, we recommend that you visit your tuner for maximum gains and safety.