



## **Z1 Motorsports 300zx 2.5" Upgraded piping & BA SMIC Install Guide**

Congratulations on your new upgraded piping and intercooler kit, this kit has proven to provide the lowest intake air temps to date on our dyno with improved response and reduced pressure drop when compared to standard piping kits or other intercoolers we have tested. This install guide should be a helpful tool for installation, but this install is considered advanced and should be completed by a qualified mechanic. This install guide is written with the assumption that the installer has a good understanding of all associated systems on the car and the proper use of tools and equipment to service them. Cars with air conditioning will require a refrigerant recovery machine to properly remove the factory piping from the car.



Upon receiving the kit check all the parts to make sure you have everything you need.

The kit includes the following parts:

- 8 pc piping kit (described below)
- 4 pcs 2.5" 45° elbow
- 2 pcs 2.5" straight coupler
- 4 pcs Boost hose set (formed hoses)
- 2 pcs turbo outlet hose set (either for stock size turbo outlets or larger frame turbos)
- 22 pcs -044 clamps
- 2 pcs -032 clamps

Tools Required:

- 6 point Sockets: 8mm, 10mm, 12mm, 14mm, 17mm, and 21mm (1/4" drive for 8mm-12mm and shallow and deep along with swivel sockets will make life much easier)
- Assorted extensions
- Ratchet
- 8, 10, 12, 22, and 24mm combination wrenches
- #2 Phillips screwdriver
- Boost leak tester & Compressed Air
- Coolant drain pan
- Cutoff wheel or Large Tin snips for trimming intercooler ducts
- Hack saw, or band saw to modify turn signals.

**\*The AC System on your car is under pressure, venting to the atmosphere is not only illegal it is bad for the environment. Personal bodily injury or death could result. If you don't have access to an AC refrigerant recovery machine but you want to perform the install yourself you should take your car in to a shop to have the AC recovered.** It shouldn't cost much and if your AC is functioning it should keep you from having to purchase refrigerant when you are done, you will simply have to pay for the service of recover, a system vacuum and a recharge once you are finished.



Start with a safe & level space to work. Raise and safely support the vehicle, disconnect the battery, remove the radiator cap and remove the front wheels. Remove all the lower shrouds, and the forward fender liner lower bolt. Tools needed: 10mm,12mm, 14mm, and 17mm sockets ratchet and short extension.



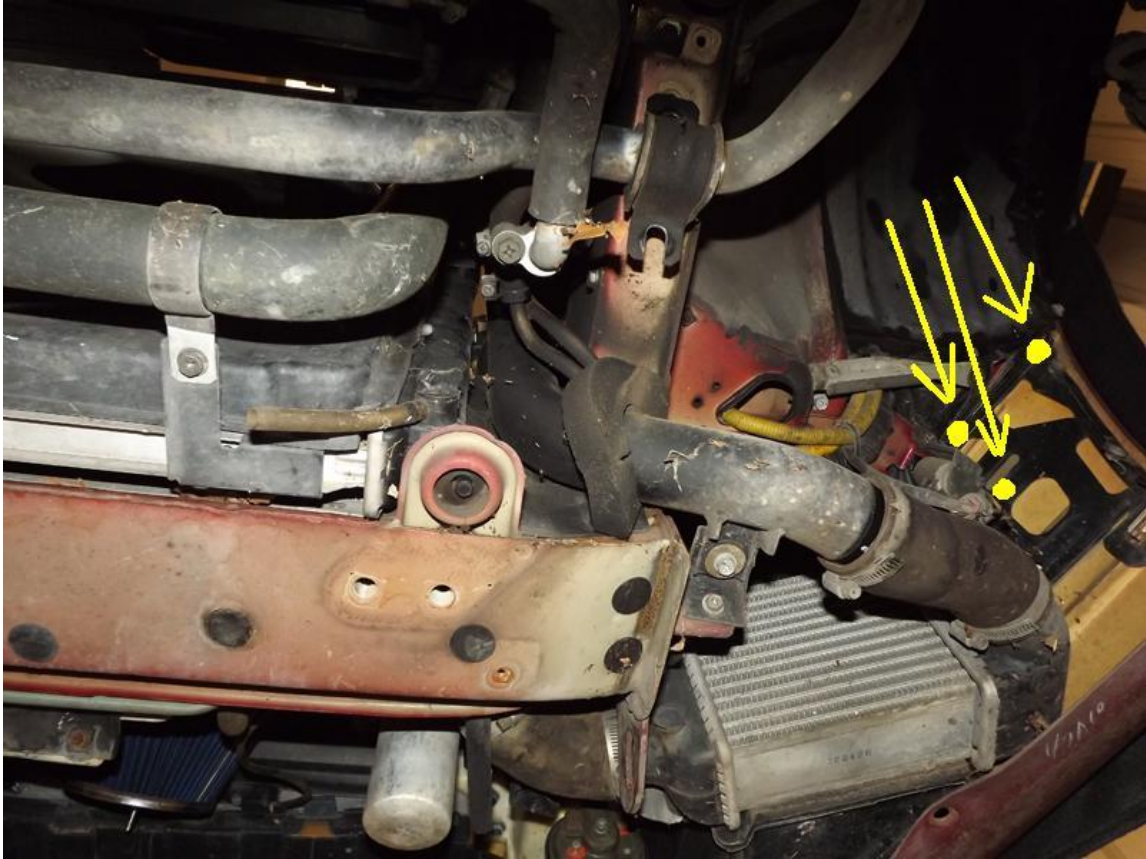
After you have removed the lower shrouds you will have access to the bottom of the radiator. Remove the lower fan shroud by unsnapping it. Next drain the coolant from the radiator, remove the lower hose, and free it from the support bracket. While the Radiator is draining remove the tension rods with their brackets.



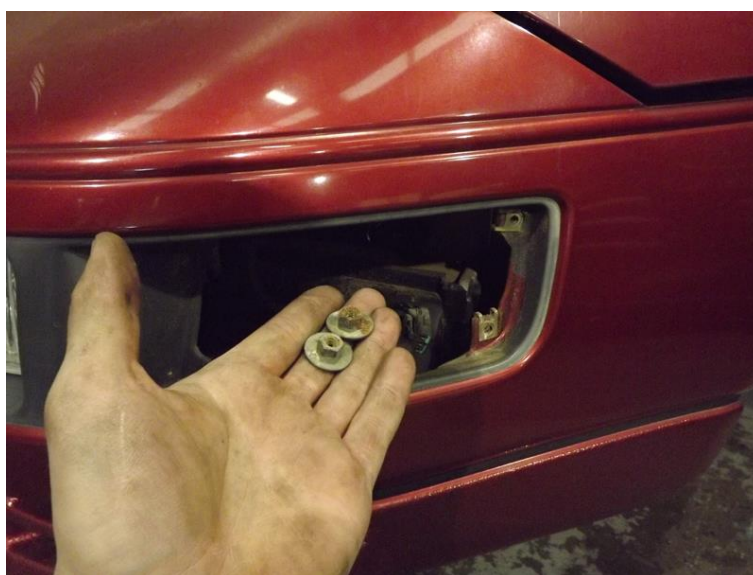
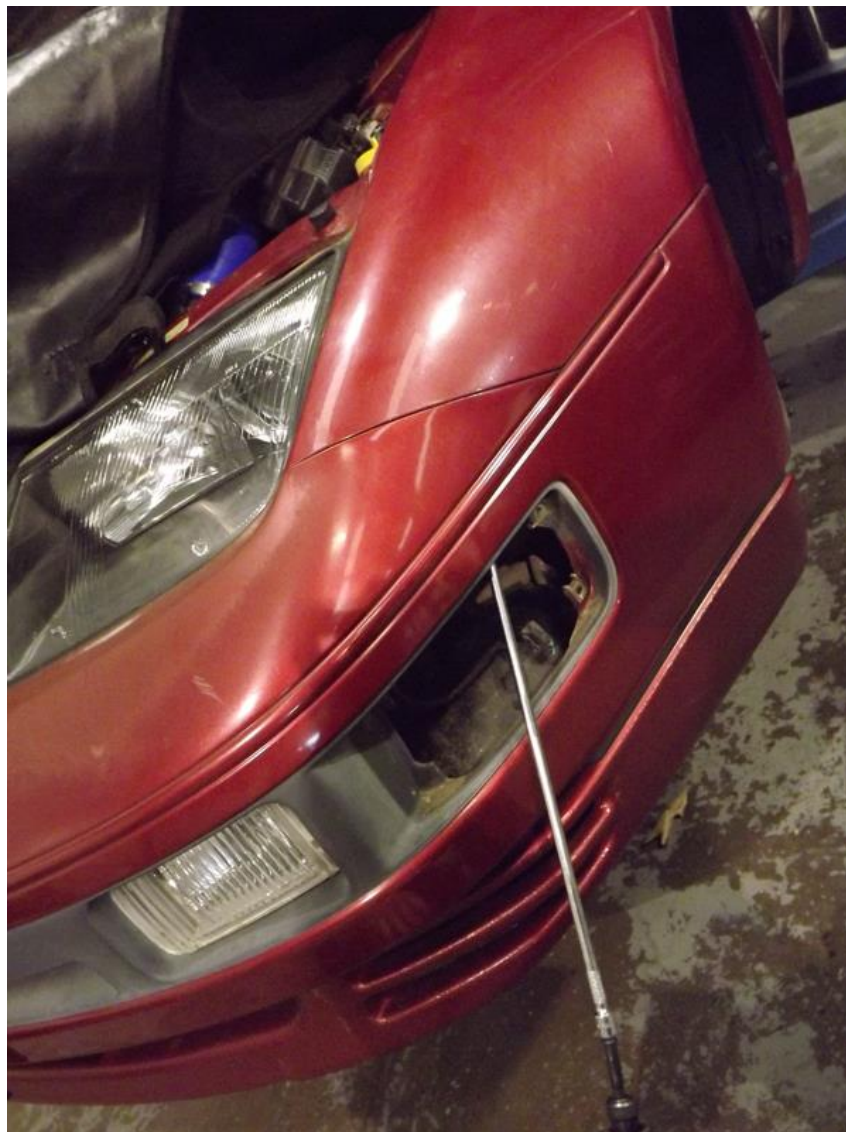
Remove the remaining fasteners from the forward fender liners and remove the fender liners. Loosen all lower intercooler hose clamps, and remove the lower IC piping bolts and brackets from each side.



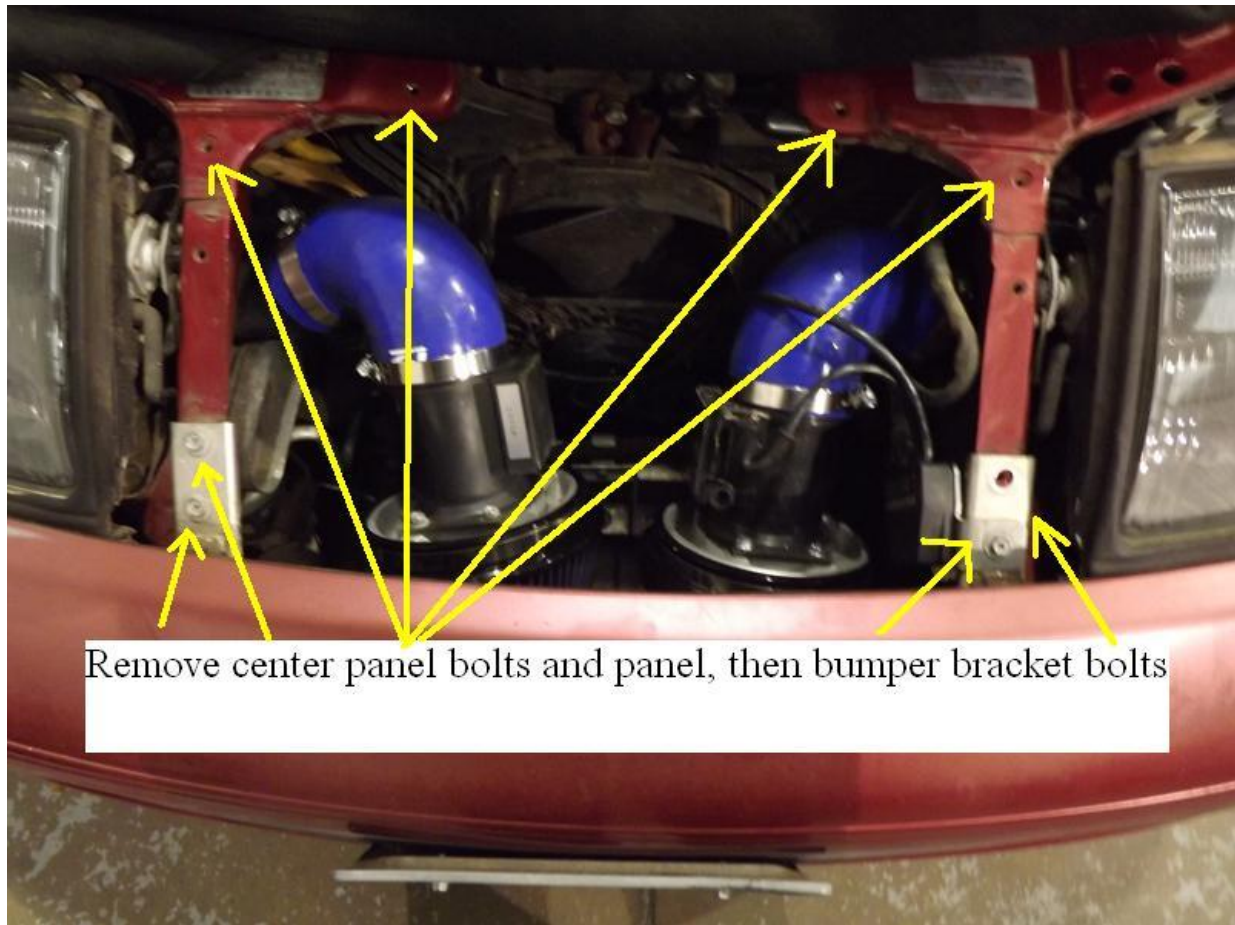
Remove the 2 vertical screws holding the bumper bracket into the outer edge of the fenders, and the single bracket support nut from each side.



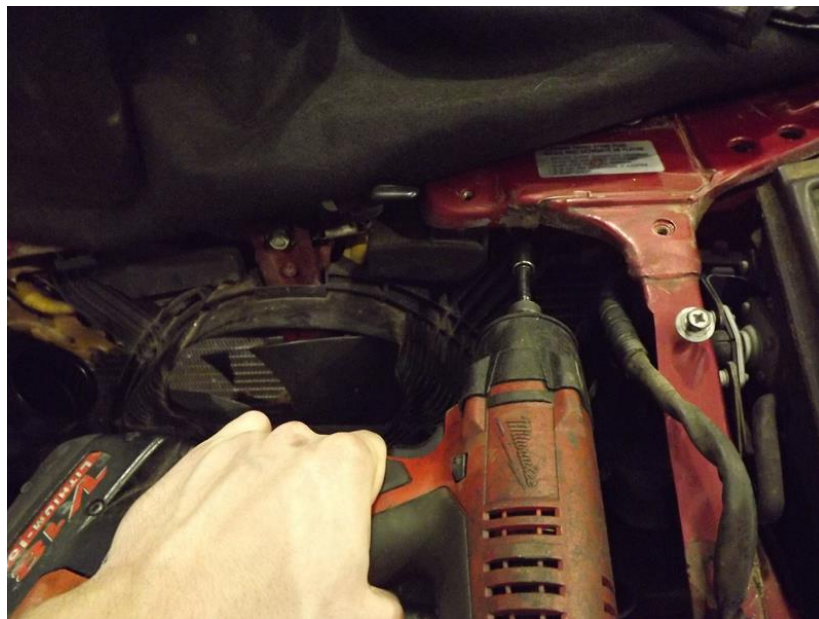
Lower the car, remove the corner lights. Then remove the remaining bumper fasteners from the corners and center of the bumper.



Once you have removed all the fasteners from the bumper remove the intakes and cap them off to prevent debris from entering the turbo inlet track. Don't forget to check the front center of the bumper for fasteners. This vehicle had two 10mm bolts with the tag bracket and 2 plastic fasteners.



Remove the auxiliary fan by disconnecting it and removing the 2 top retaining bolts. Rock the fan forward and remove from the lower core support by pulling out (watch to make sure you do not lose the lower bushing mounts).





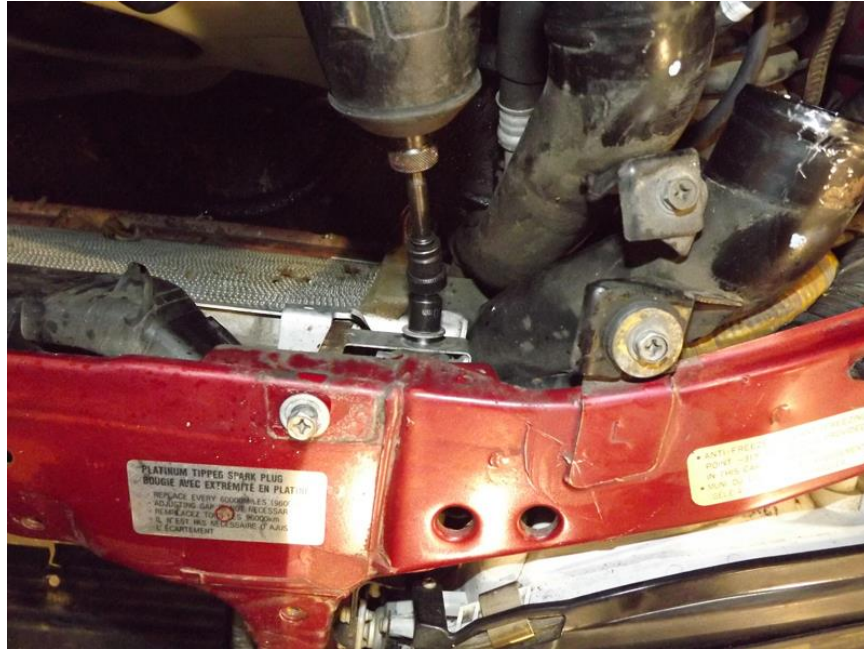
If you are using your own machine to recover the AC refrigerant you should do that now, while the machine is working you can remove the upper radiator hose and radiator.



After recovering the system use your 22 and 24mm wrench to disconnect the AC lines from the AC Condenser and pull them free. It is okay to bend them a little if needed to free them, just try not to crimp them. Carefully remove the o-rings from the pipes and set them to the side so you can match replacements to them later.



Unbolt the AC condenser and remove the bolts and tab brackets from inside the engine bay. Rotate the top of the condenser back and lift it out. Like the fan, watch for the rubber mount inserts and make sure not to lose them.



Now your car should look like this and you are ready to remove the stock piping. Remove the upper bracket bolts (just to the right of the picture above). Remove the factory recirc valves by removing their clamps and the two 12mm bolts on each valve.



Remove the mid pipe bracket bolt on the forward charge pipe.



Remove the 4 boost hoses from the throttles and turbo charge pipes in the engine bay. Remove the boost control solenoid reference hose from the charge pipe just "upstream" from the throttle body. Confirm all clamps for IC connecting hoses are loose and wiggle the pipes until they come free. Remove all 4 pipes.



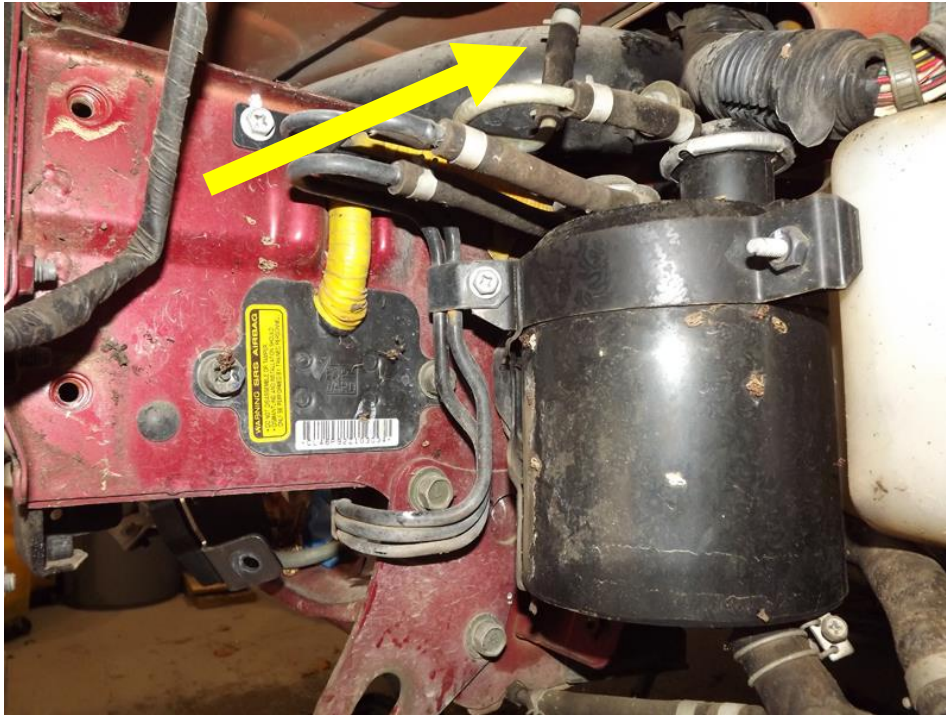
Remove the factory intercoolers with their brackets and ducting still attached.



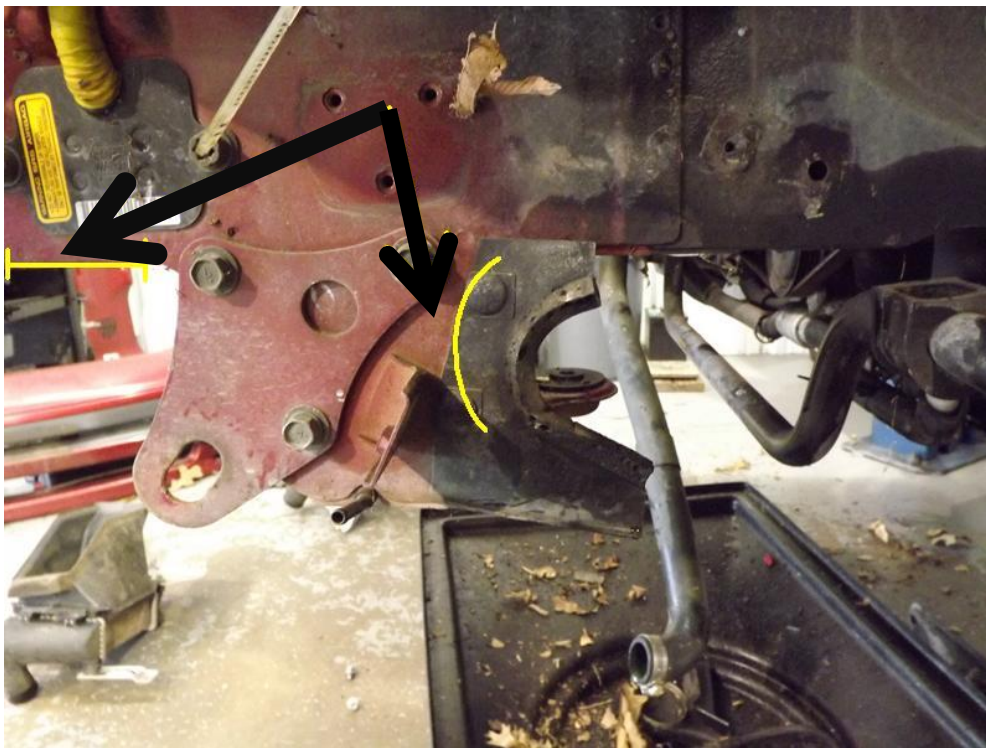
Removal of the charcoal canister will be required to fit the larger piping and IC. Start with the removal of the hard lines.



Remove the plastic air guides while you are at it. Then remove the canister and the bracket. You will need to cap off the EVAP canister vent line on the intake pipe underneath the headlight (top of picture).

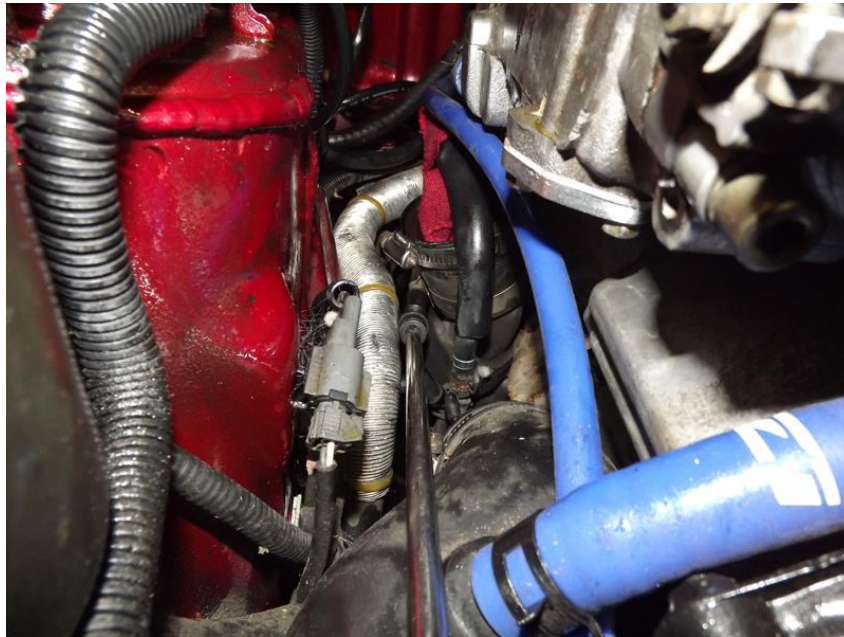


It is recommended that you clearance the unibody seam under the frame rail to allow clearance for the piping and couplers. Some cars may require this while others do not. We are recommending it to make the work easier and to keep from leaving a sharp seam that can wear through the piping or couplers over time.



You can notch the frame with a saw, chisel, or cutoff wheel if you like but usually the seam can just be rolled over and flattened with a hammer. In front of the core support we roll the seam outboard, and behind the core support in the curved section we roll the seam inboard.

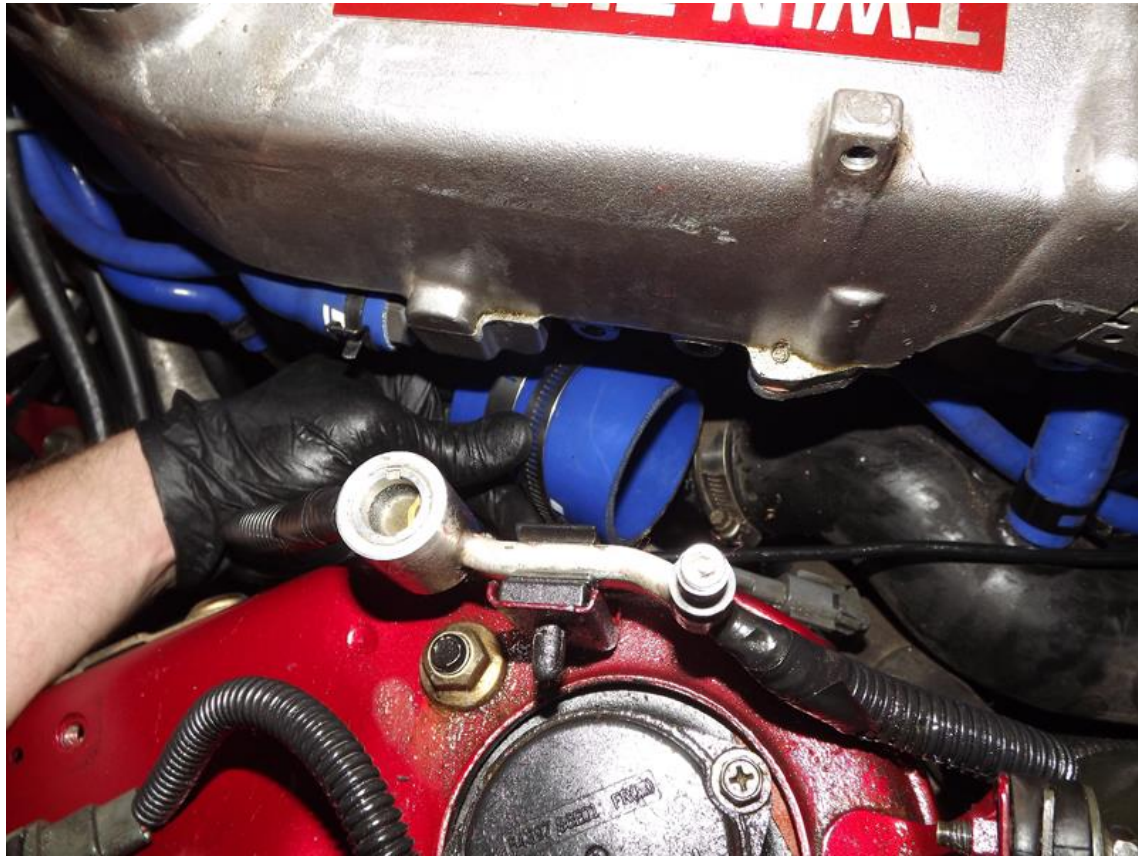
Now move up into the engine bay and remove the turbo discharge pipes. Depending on the clocking of these clamps you may have to get creative to access them. Usually a combination of an extension and a swivel socket or use of a universal joint gets the job done best. Removal of the battery can also help make room to access stubborn clamps. Once the upper clamp and pipe is removed; take the lower clamp loose and remove the coupler.



It is recommended that you remove the factory plenum side brackets or shave them down. To remove them you will need a 12mm wrench or low profile socket and ratchet.



Double check all connections like wastegate lines while you are in the area. Then begin to install the new discharge pipes with the appropriate couplers. On the Bank 1 side (or Passenger on LHD vehicles), you will have to assemble the coupler and pipe under the plenum first then slide the assembled parts onto the turbo and tighten the clamps.



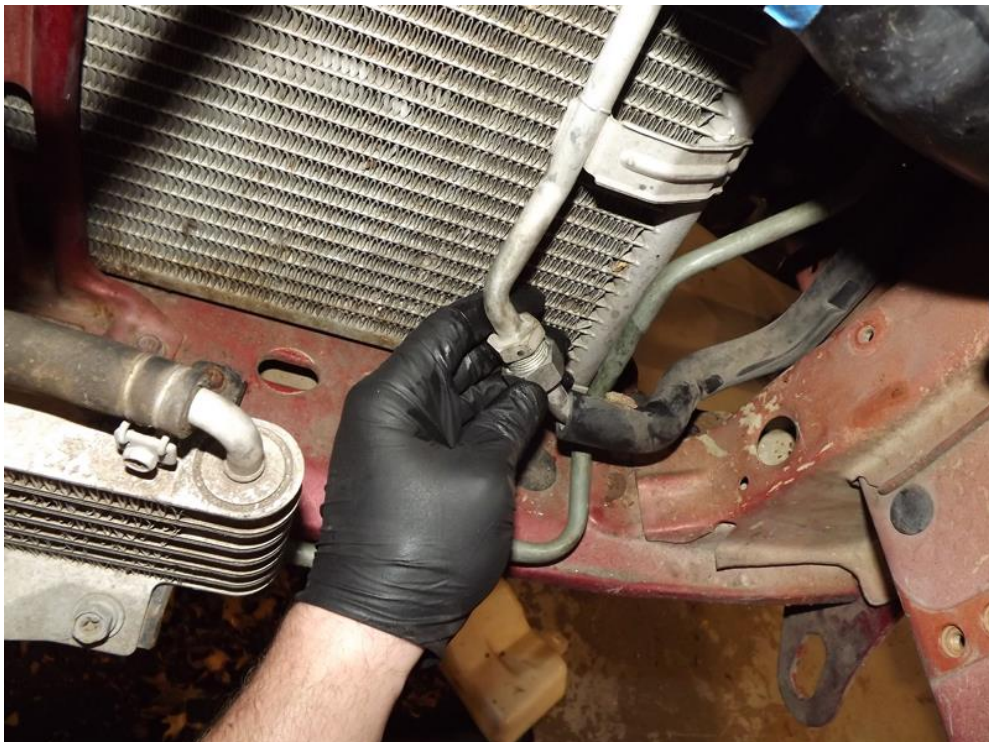




On the Bank 2 side you can mount the coupler first and then install the discharge pipe into it. Make sure to torque the clamps well and that the pipe alignment is good at the front of the pipes.



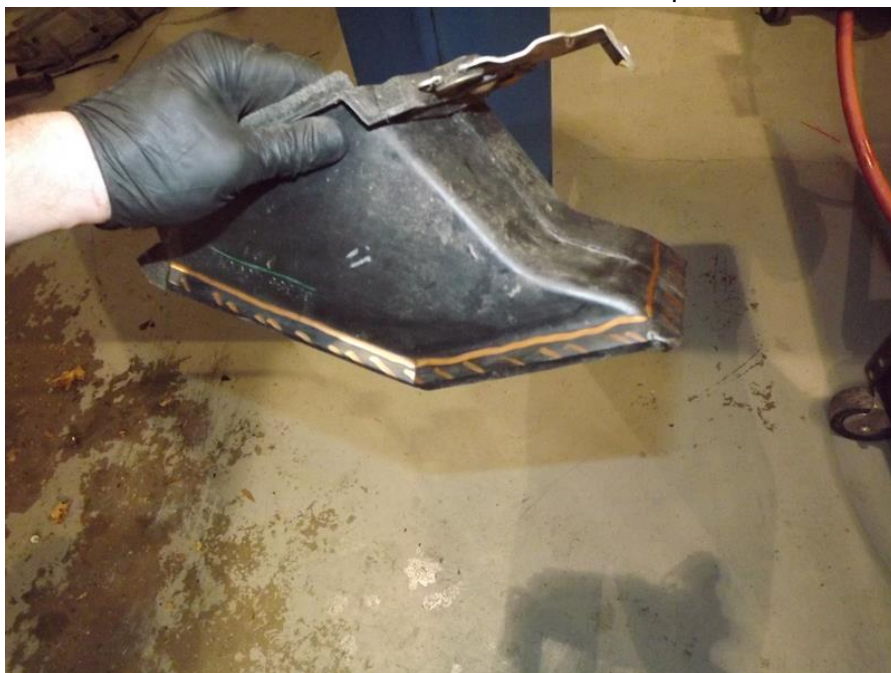
Before reinstalling the AC condenser check it to make sure it is clear of debris. If it is dirty try to blow it clear. Before attaching the fittings, size new o rings to fit and lubricate them with the appropriate system oil before installing them and tightening the fittings (a dry o ring will leak so make sure to lubricate them well).



Once the condenser is bolted in place reinstall the radiator, and the auxiliary fan.



Before transferring the brackets and intercooler ducts to your new intercoolers you will need to trim the intercooler ducts to fit behind the bumper.



Once trimmed all the way around you can transfer these ducts onto the new intercoolers with the factory hardware.



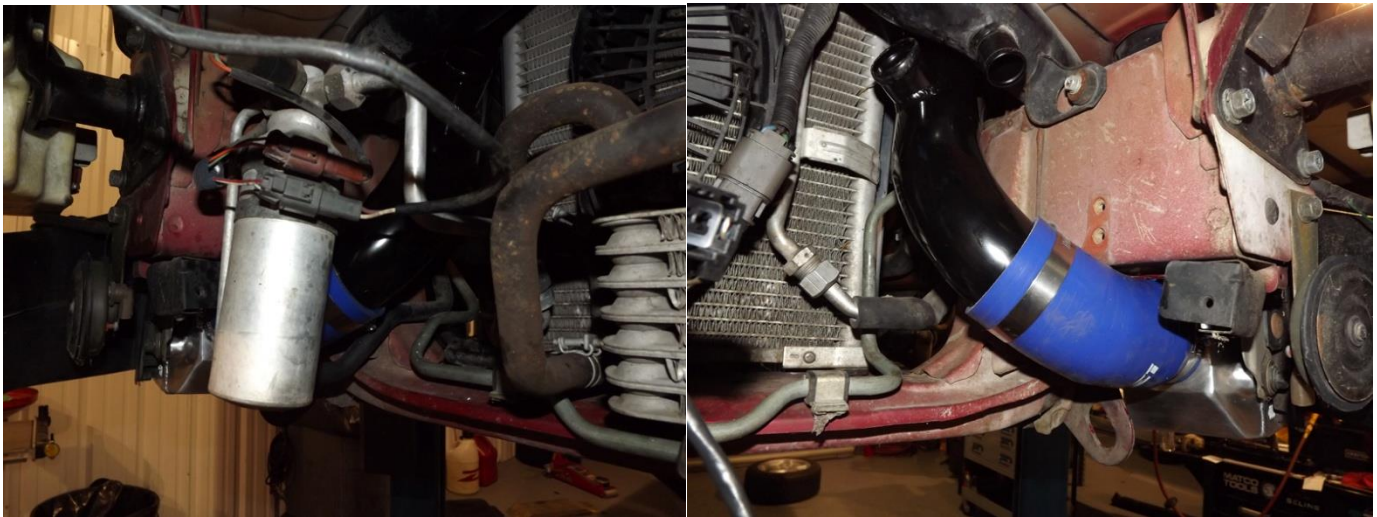
With both intercoolers you can begin installing the main piping and remaining couplers. Start from down below in front of the condenser and pass the piping through the gap between the frame rail and the condenser. A can of silicone spray lubricant will make life much better when working with these couplers.



These center pipes will connect the inner ports of the intercoolers to the outer hose in the engine bay (the turbo discharge pipes.) Before installing the pipe fully, lubricate the 45° silicone coupler for the IC connection and slide it onto the pipe. Position the pipe and then slide the 45° coupler onto the IC.



Once in place temporarily tighten the clamps. The driver side is easy and spacious, but the passenger side will take a little work around the AC dryer. You may need to bend the pipes a little for clearance, just make sure not to crimp them or to leave them rubbing anything.



Now install the TB supply pipes. These can be slid into position with the radiator installed. On the passenger side reach into the bay to make sure the HICAS hose from the PS pump doesn't complicate the install. You should be able to steer the pipe right into position as long as you do not get hung up on this hose. On the driver side you will need to steer the pipe past the PS return pipe and the AC pipe.



Once installed connect the intercooler to the TB charge pipe with the short straight pipe, one 45° coupler and one straight coupler.



Snug down the clamps and move to the topside to install the boost reference hoses for your boost controller/wastegate actuators. Once these hoses are in place make sure to zip tie them or clamp them securely in place.



Install the 4 boost hoses. They should install in this orientation if looking down from the front center of the car.



If you are reinstalling BOV's you can fit them now. Revisions to how they were previously mounted on the stock piping is likely, but all known valves on the market are compatible. Reusing the factory hoses can be quite difficult and new silicone hoses will be much easier to work with. If using the factory recirc valves follow the guide below for modifying them to work.

Start with a standard set and remove the retaining screw on the recirc outlet elbow. See the stock configuration on top in the picture. You will remove the steel elbow and switch it from one valve to another. It should look like the picture below when finished.

Stock Configuration



Modified Configuration



Install the recirc valves inverted with the vacuum port facing down.





Now attach the recirc hose. It make take some clocking to get the best configuration.



You can now reinstall your intakes, it is recommended that you perform a boost leak test at this point and make any necessary repairs or adjustments needed.

Fill and bleed the cooling system, recharge the AC system and test its operation.

Reinstall the Lower shrouds, fender liners and front bumper. If using a US spec front bumper or bumper running US spec corner lights they will require modification to clear the larger intercoolers. There are a number of published methods on the internet, our in house method is described below. Light housings are cut with a band saw or hack saw, rotated 180° and then plastic welded back together. Make your cut along the indicated cut line.



Once cut rotate the housing, plastic weld, or epoxy back together. If the marker light is to be retained grid a hole that matches its mounting shape on the inboard face to mount it.



Now you can reinstall the corner lights without any fitment issues.

Reinstall your wheels and torque to spec (87 Ft-lbs) and double check over your work.

You should be road ready at this point.

**If you need additional technical support, feel free to contact us!**

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