

Audi B8 A4/A5 2.0T Charge Pipe/Intercooler Kit Installation Instructions













INTRODUCTION

Audi B8 A4/A5 2.0T Charge Pipe/Intercooler Kits

COOL air. LOTS of it. It's what every engine craves, and to produce as much power as it can, it's what every engine needs. From the factory, your Audi's intake system is designed to work in perfect harmony with the rest of the stock engine operating systems, but we all know there is a lot of untapped performance potential with the 2.0T. Whether this is your starting point, or just another addition to your list of performance upgrades, our Audi B8 A4/A5 2.0T Charge Pipe/Intercooler kits are a perfect modification. The charge pipe only kit fits with your stock intercooler and boasts mandrel bent aluminum charge pipes, smooth flowing silicone couplers, a CNC machined, 6160 T-6 aluminum turbo outlet adapter, and stainless steel T-bolt clamps. The complete kit with a high flow intercooler yields maximum performance while also adding a sleek yet menacing look through the grille. The increased air flow and reduced turbulence of this system will boost your stock performance, and allow you to get the maximum benefit from any additional performance modifications.

ECS Difficulty Gauge



2 - Moderate Advanced - 3

Attractive and easy to install, you can have this system in place in just a few hours or less. Whether you have purchased the charge pipe only kit or the complete kit with our ECS Tuning intercooler, you'll have everything you need for a trouble free installation. Thank you for looking to ECS Tuning for all your performance and repair needs. We appreciate your business!



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KIT CONTENTS - COMPLETE INTERCOOLER/CHARGE PIPE KIT



Intercooler Outlet Pipe QTY 1



Throttle Body Pipe QTY 1



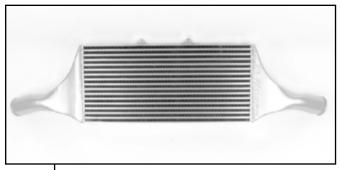
Turbo Outlet Pipe QTY 1



Turbo Outlet Adapter QTY 1



M5 x 16 Map Sensor Screw QTY 2



Intercooler QTY 1



T-Bolt Clamps 67-75mm QTY 10



Hump Coupler QTY 2



2.5" Straight Coupler QTY 3



Intercooler Bracket QTY 1







M6 x 20 Bolt **QTY 2**



M8 x 16 Bolt **QTY 2**



KIT CONTENTS - CHARGE PIPE KIT WITH STOCK INTERCOOLER



Intercooler Outlet Pipe QTY 1



Throttle Body Pipe QTY 1



Turbo Outlet Pipe QTY 1



Turbo Outlet Adapter QTY 1



M5 x 16 Map Sensor Screw QTY 2



T-Bolt Clamps 60-68mm QTY 2



T-Bolt Clamps 67-75mm QTY 8



2.5" Hump Coupler QTY 2



2.5" to 2.25" Reducing Coupler QTY 2



2.5" Straight Coupler QTY 1



REQUIRED TOOLS

Note: For quick reference the fastener size will be listed by each step number where applicable.

Standard Automotive Tools

Required For This Install

Available On Our Website

Protecta-Sockets (for lug nuts) ES#2221243	• 1/4" Drive Ratchet <u>ES#2823235</u>
• 3/8" Drive Ratchet	• 1/4" Drive Deep and Shallow Sockets ES#2823235
• 3/8" Drive Torque Wrench <u>ES#2221245</u>	• 1/4" Drive Extensions <u>ES#2823235</u>
• 3/8" Drive Deep and Shallow Sockets <u>ES#2763772</u>	• 1⁄4" Drive Torque Wrench
• 3/8" Drive Extensions	• Plier and Cutter Set <u>ES#2804496</u>
Hydraulic Floor Jack <u>ES#240941</u>	• Flat and Phillips Screwdrivers <u>ES#2225921</u>
Torx Drivers and Sockets ES#11417/8	• Jack Stands <u>ES#2763355</u>
• ½" Drive Deep and Shallow Sockets <u>ES#2839106</u>	Ball Pein Hammers
• ½" Drive Ratchet	• Pry Bar Set <u>ES#1899378</u>
• ½" Drive Extensions	• Electric/Cordless Drill
• ½" Drive Torque Wrench ES#2221244	Wire Strippers/Crimpers
• ½" Drive Breaker Bar <u>ES#2776653</u>	 Adjustable (Crescent) Type Wrenches
• File Set	• Drill Bits
Air Nozzle/Blow Gun	 Punch and Chisel Set
Bench Mounted Vise	Hex Bit (Allen) Wrenches and Sockets ES#11420
Crows Foot Wrenches	• Thread Repair Tools <u>ES#1306824</u>
Hook and Pick Tool Set ES#2778980	Open/Boxed End Wrench Set <u>ES#2765907</u>

Specialty Tools

• Wheel Hanger.....<u>ES#2636260</u>



SHOP SUPPLIES AND MATERIALS

Standard Shop Supply Recommendations: We recommend that you have a standard inventory of automotive shop supplies before beginning this or any automotive repair procedure. The following list outlines the basic shop supplies that we like to keep on hand. Shop supplies with a hyperlink are available on our website.

- Hand Cleaner/Degreaser Click Here
- Pig Mats for protecting your garage floor and work area from spills and stains Click Here
- Spray detailer for rapid cleaning of anything that comes into contact with your paint such as brake fluid Click Here
- Micro Fiber Towels for cleaning the paint on your car Click Here
- Latex Gloves for the extra oily and dirty jobs Click Here
- Medium and High Strength Loctite Thread lock compound to prevent bolts from backing out <u>Click Here</u>
- Anti-Seize Compound to prevent seizing, galling, and corrosion of fasteners <u>Click Here</u>
- Aerosol Brake/Parts Cleaner for cleaning and degreasing parts
- Shop Rags used for wiping hands, tools, and parts
- Penetrating oil for helping to free rusted or stuck bolts and nuts
- Mechanics wire for securing components out of the way
- Silicone spray lube for rubber components such as exhaust hangers
- Paint Marker for marking installation positions or bolts during a torquing sequence
- Plastic Wire Ties/Zip Ties for routing and securing wiring harnesses or vacuum hoses
- Electrical tape for wrapping wiring harnesses or temporary securing of small components



INSTALLATION NOTES

- **RH** refers to the *passenger side* of the vehicle.
- **LH** refers to the *driver side* of the vehicle.
- Always use the proper torque specifications.
- If applicable to this installation, torque specifications will be listed throughout the document and at the end as well.
- Please read all of these instructions and familiarize yourself with the complete process **BEFORE** you begin.

PREPARATION AND SAFETY INFORMATION

ECS Tuning cares about your health and safety. Please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- ALWAYS wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.
- If using an automotive lift, be sure and utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.
- When lifting a vehicle using a jack, always utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear. **ALWAYS** support the vehicle with jack stands.
- ALWAYS read and follow all safety information and warnings for the equipment you are using.

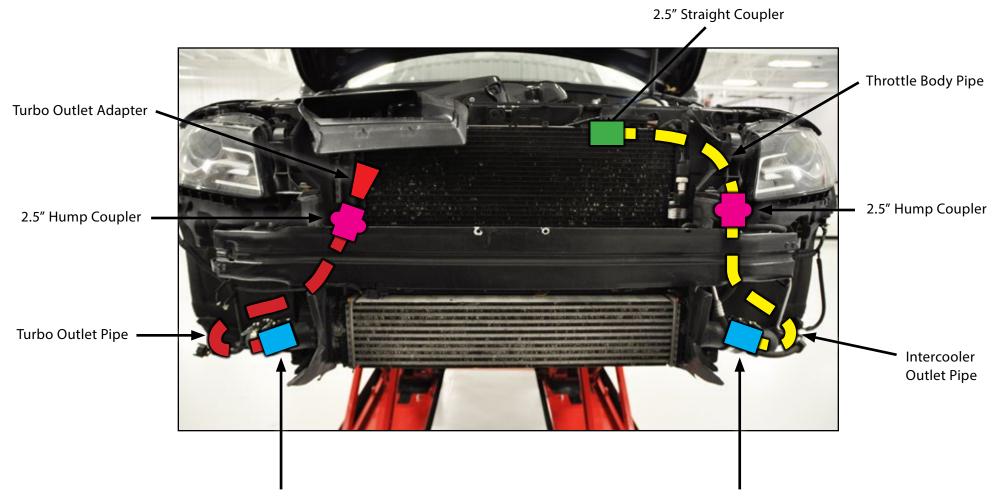


Never get underneath a vehicle that is supported only by a jack. Always make sure that the vehicle is securely supported on jack stands.



COMPONENT LOCATION OVERVIEW

Before we begin, let's take a quick look at where the main components are located. This will make things go a lot smoother and give you a quick idea of where everything goes. Our Audi A4 is pictured here with the bumper removed.



2.5" Straight Coupler (w/ECS Intercooler)

2.5" to 2.25" Reducing Coupler (w/stock Intercooler)

2.5" Straight Coupler (w/ECS Intercooler)

2.5" to 2.25" Reducing Coupler (w/stock Intercooler)



Step 1:

Safely raise and support the vehicle.



Never get underneath a vehicle that is supported only by a jack. Always make sure that the vehicle is securely supported on jack stands or an automotive lift.



Step 2: 17mm Protecta Socket

Remove the LF wheel. Here we are using a wheel hanger to support the weight of the wheel when we remove the lug bolts and use of a Protecta Socket will prevent damage to the wheel finish.



Wheel hangers are especially helpful for cars that use lug bolts and they make wheel spacer installation much easier too. The Audi A4 requires a 14mm x 1.5 thread hanger, available on the ECS Tuning website as <u>ES#2636260</u>.





Step 3:

Flat Blade Screwdriver

Remove the lower insulation panel or skid plate, whichever you have installed.



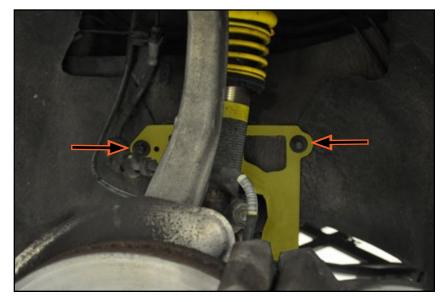
For an in depth installation guide and fastener location chart for B8 skid plates, refer to our ECS Street Shield Skid Plates, ES#2771379 or ES#2771912



Step 4:

10mm

Locate the plastic guard above the LH CV shaft. Remove the two securing nuts, then pull it forward, pivot it around the CV shaft, and remove it.

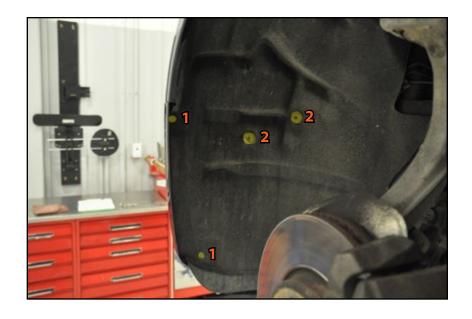




Step 5: T25 Torx, Small Angled Pick

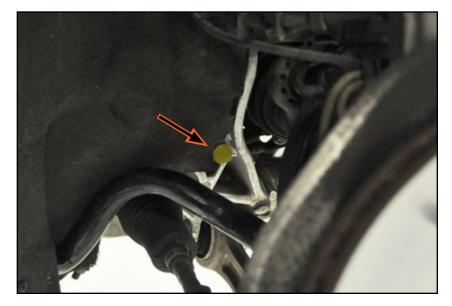
The LF fender liner needs to come out next, and it's held in place by a number of different fasteners. We'll point them all out over the next few steps.

In this step, remove the two forward screws (1) at the edge of the fender, then using a pick remove the two clips (2) just to the right.



Step 6: Small Flat Blade Screwdriver

Remove the expanding rivet that holds the fender liner to the body. It's located just forward of the CV shaft. The expanding rivet will come out in two pieces, center pin first, then the rivet body.





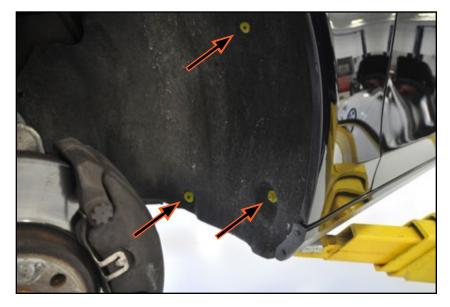
Small Angled Pick Step 7:

Remove the two clips on the top side of the fender liner, forward of the suspension strut.



10mm, Small Angled Pick Step 8:

Finally, remove the three rearward fasteners consisting of one nut and two clips. Now carefully pull the fender liner out from the lip of the fender, then downward, and remove it from the car.





Step 9:

T25 Torx

On the RH (passenger) side, remove the two forward fender liner screws at the edge of the fender. It is not necessary to remove the fender liner or the wheel on this side.



Step 10:

On **both** sides, reach in behind the bumper and disconnect the fog lamps (LH shown).





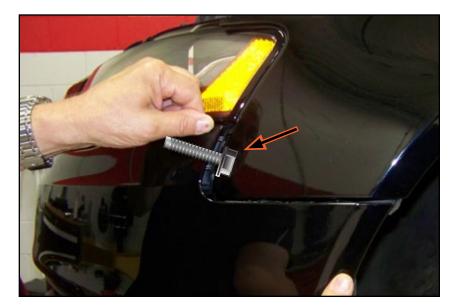
Step 11: T30 Torx

Remove the four screws along the rear edge of the lower radiator shroud.



Step 12:

Inspect the side view of the bumper cover/fender on the right. There is a bolt on each side that secures the bumper cover to the fender. We have overlaid the bolt in this illustration so you can visualize its location.



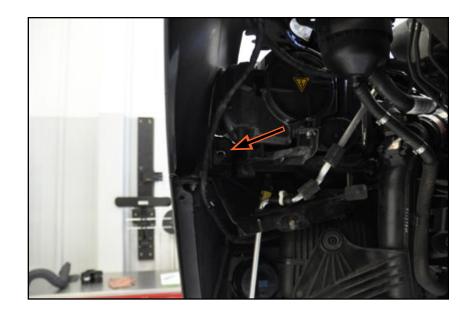


Step 13: 10mm

Remove the bolt on *each* side that secures the bumper cover to the fender (see the illustration in step 12). On the RH side, you can access the bolt by pulling back the edge of the fender liner.



Depending on model and production date, your vehicle may have two bolts on each side that will have to be removed prior to pulling off the bumper cover.



Step 14:

Pull out on both rear edges of the bumper cover as shown to release them from the clips on the fender.





Step 15: T30 Torx

Remove the four upper radiator shroud screws.



Step 16:

Lift up on the rear edge of the radiator shroud, then pull it rearwards to unhook it from the grille, and remove it.





Step 17:

Look down between the grille and radiator and disconnect any components that are attached to the back side of the grille.

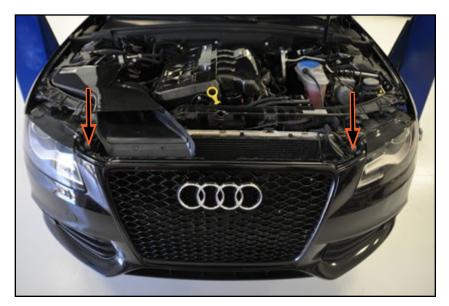
Depending on model, you may find the following:

- Homelink Transmitter
- Ambient Air Temperature Sensor



Step 18: T25 Torx

Remove the two screws at the top corners of the grille.





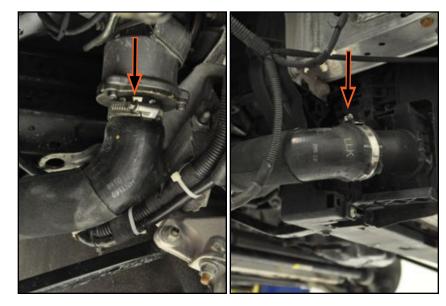
Step 19:

Remove the bumper cover by pulling it straight forward. It's not heavy but slightly awkward. If you're careful you can balance it in the middle, but it's much easier if you have a friend help you with it.



Step 20: Flat Blade Screwdriver

With the bumper cover removed, we're ready to start on the charge pipes. Let's start with the turbo outlet pipe. Loosen the hose clamps on the original turbo outlet hose at the turbo damper on one end, and the intercooler inlet on the other. Pull the hose off and remove it.





Step 21: 5mm Allen

Remove the three screws on the original turbo damper, and remove it from the turbo outlet. Be careful not to lose the small o-ring seal between the two.



Step 22:

Thoroughly clean the o-ring and the seal groove, then install the o-ring into the groove on the turbo outlet, using light grease to hold it in place.





Step 23: 5mm Allen

Install the new turbo outlet adapter using the original screws.



Step 24:

Now let's move on to the intercooler outlet and throttle body pipes on the LH side of the vehicle. Look down in front of the ABS pump, locate the MAP sensor (on the top end of the intercooler outlet pipe) and disconnect it.





Step 25:

Pull the power steering hose out of the clip on the top end of the intercooler outlet pipe.



Step 26: Flat Blade Screwdriver

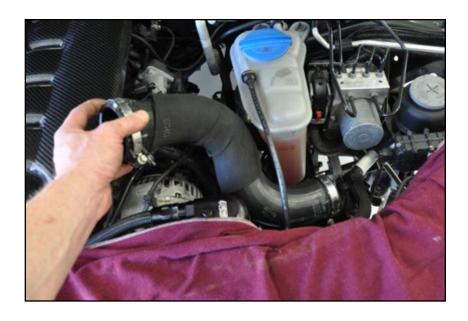
Loosen the hose clamp on each end of the original throttle body hose.





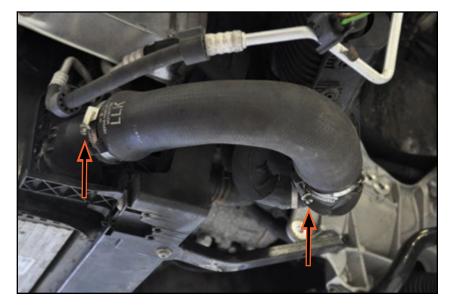
Step 27:

Pull the throttle body hose off each end and remove it from the car.



Step 28: Flat Blade Screwdriver

Loosen both hose clamps on the original intercooler outlet hose, then pull it off both ends and remove it.





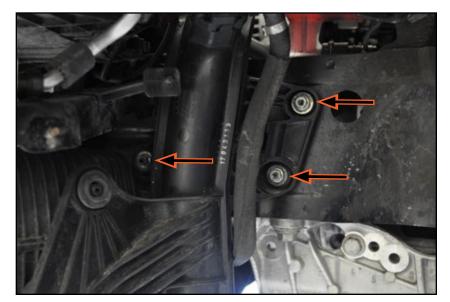
Step 29:

Pull the power steering hose out of the clip on the side of the intercooler outlet pipe.



Step 30: 10mm

Remove the three mounting nuts, then remove the original intercooler outlet pipe from the car.





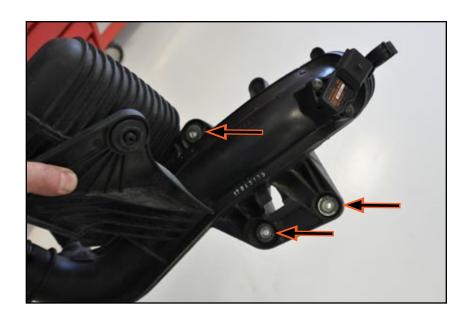
Step 31:

Remove the three mounting bushings from the original intercooler outlet pipe in the following manner:

- A) Slide out the metal sleeve washer from each one
- B) Pull the rubber bushings out of the intercooler pipe bracket



Each of the three bushings is a different size and only fits in its corresponding location.



Step 32:

Install the original bushings and sleeves into the new intercooler outlet pipe bracket.



Note the different size and shape of the mounting holes in the bracket. Make sure each of the three bushings is installed in its correct location.







Step 33: T20 Torx

Remove the two screws, then carefully remove the MAP sensor from the original intercooler outlet pipe.



Step 34: 4mm Allen Wrench

Install the MAP sensor into the new intercooler outlet pipe using the new screws provided with the kit.



If you have purchased the complete kit and are installing a new ECS Tuning intercooler, skip to Page 35 to install the intercooler at this time.

If you are installing the charge pipes only, continue on the next page.





Step 35:

Loosely place a hose clamp onto each end of the correct silicone coupler for the intercooler you are using (see below), then push the coupler onto the intercooler outlet.

Stock Intercooler:

Coupler: 2.5" to 2.25" Reducing, small end located on intercooler.

Clamps: 60-68mm located on intercooler side, 67-75mm located on pipe side.

ECS Intercooler:

Coupler: 2.5" Straight.

Clamps: 67-75mm on both ends.



Step 36:

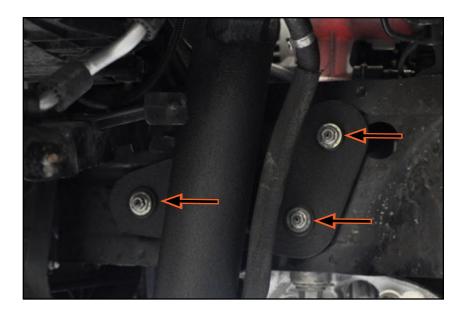
Install the new intercooler outlet pipe into place, pushing it into the coupler on the bottom and over the studs on the frame.





Step 37: 10mm

Install and tighten the three nuts on the intercooler pipe bracket.



Step 38: 10mm

Tighten both the T-bolt clamps on the silicone coupler.



You may position these clamps as desired to achieve the look you want.





Step 39:

Reconnect the MAP sensor.



Step 40:

Loosely place a 67-75mm hose clamp over each end of one of the silicone hump couplers, then push it onto the top of the intercooler outlet pipe.





Step 41:

Push the straight coupler onto one end of the new throttle body pipe, then loosely place two 67-75mm clamps over the coupler.



The throttle body pipe is the same on both ends and can be installed in either direction.



Step 42:

Install the throttle body pipe into place.





Step 43: 10mm

Make sure both silicone couplers are aligned properly, then tighten all four T-bolt clamps.



You may position these clamps as desired to achieve the look you want.



Step 44:

Now, moving back to the turbo outlet pipe, loosely place a hose clamp onto each end of the correct silicone coupler for the intercooler you are using (see below), then push the coupler onto the intercooler inlet.

Stock Intercooler:

Coupler: 2.5" to 2.25" Reducing, small end located on intercooler.

Clamps: 60-68mm located on intercooler side, 67-75mm located on pipe side.

ECS Intercooler:

Coupler: 2.5" Straight.

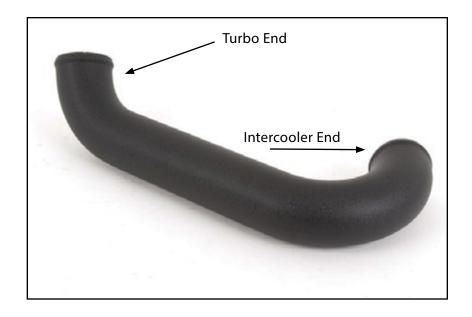
Clamps: 67-75mm on both ends.





Step 45:

Inspect the new turbo outlet pipe and identify the ends. The turbo end has a 60 degree bend on it while the intercooler inlet has a 123 degree bend.



Step 46:

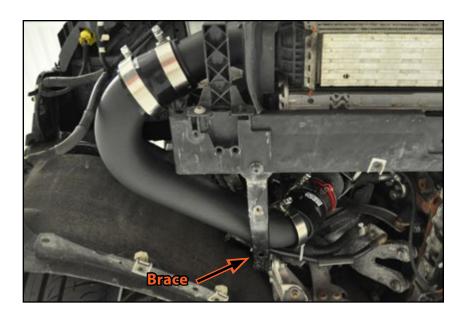
Slide the remaining hump coupler over the "turbo" end of the turbo outlet pipe, with two 67-75mm clamps loosely installed.





Step 47:

Install the new turbo outlet pipe into place, routing it *over* the core support brace.



Step 48:

Push the turbo outlet pipe up into the hump coupler, then tighten the clamps. Make sure that the pipe does not hit the brace.



You may position these clamps as desired to achieve the look you want.





Step 49: 10

10mm

Tighten the two T-bolt clamps at the intercooler.



You may position these clamps as desired to achieve the look you want.



Step 50:

Reassemble the vehicle:

Reinstall the bumper cover.

Reinstall the fender liner

Reinstall the skid plate/insulation Panel

Install and torque the LF wheel to 120 Nm (89 Ft-lbs).

Your Charge Pipe installation is complete!





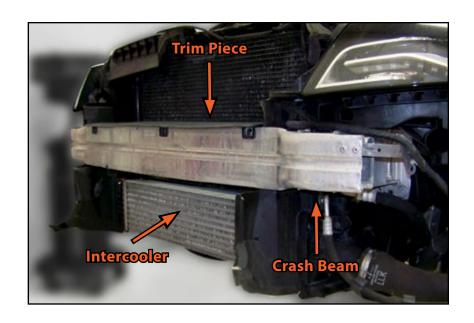
At this point you should already have the bumper off, so replacing the intercooler will be a simple task, but there are a couple points we want to touch on first:

1. There's an aesthetic trim piece clipped to the top of the crash beam. It's only there so the aluminum is not visible through the grille, and you'll have to remove it in order to install the intercooler bracket.



A very common detailing trick is to paint the crash beam black. It adds a nice sleek look to the front, especially if you have a different grille installed, such as one of our mesh style RS-4 grilles.

2. Vehicles equipped with Homelink will have the transmitter located on the back of the original grille, and this may interfere slightly with the new intercooler mounting bracket. It's very common to move this to another location if you have an aftermarket grille, so if you haven't already, simply unclip it and move it to another mounting location. Wire ties or double sided tape are both acceptable methods of mounting.

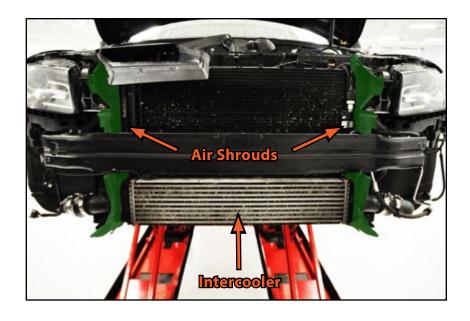






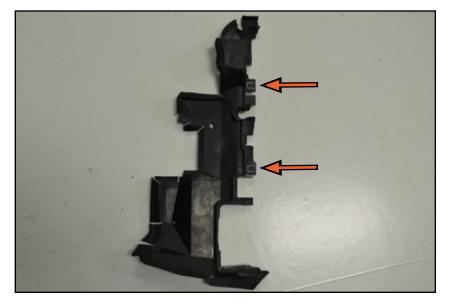
Step 1:

Here is the stock intercooler, located just below the crash beam. As you can see, we've already painted our crash beam black. The first thing you have to do is remove the left and right air shrouds (highlighted). These might look like they're really buried, but they come out easily.



Step 2:

Each air shroud is held on by two clips. One of the removed shrouds is pictured on the right so you can see the clip location. Just locate them with a flashlight or shop light, then gently release them with a screwdriver. The shrouds are very flexible and you can twist them sideways and pull them out from between the radiator and crash beam.





Step 3:

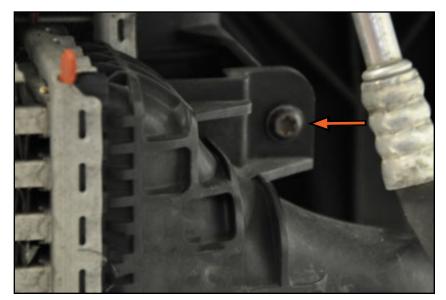
If you are installing the complete ECS Tuning charge pipe/intercooler kit, both intercooler hoses will already be removed and you can skip to the next step.

If you already had our charge pipes installed and are upgrading to our intercooler, remove both intercooler hoses from the ends of the intercooler (arrows).



Step 4: T30 Torx

On the LH (driver's) side, remove the T30 torx screw that secures the original intercooler to the radiator.





Step 5:

On the RH (passenger) side, there is a retaining clip that holds the intercooler in place. It can be released easily with a flat blade screwdriver.



Step 6:

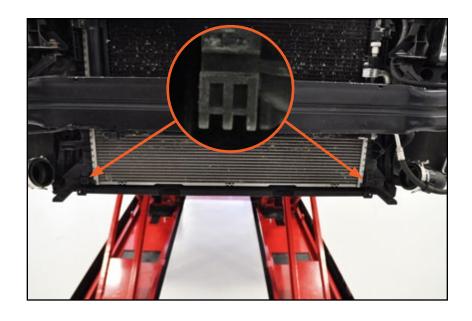
Once you have released the retaining clip, simply tilt the intercooler forward then lift it upwards and it's out!





Step 7:

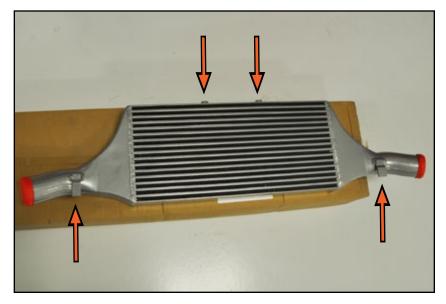
Inspect the lower corners of the radiator. You will see the mounting hooks for the feet on the original intercooler. Your new ECS intercooler will utilize these same hooks.



Step 8:

Unpack your new ECS intercooler and locate the four mounting points. There are two feet that fit into the hooks on the radiator, and two mounting bosses on top where it attaches to the mounting bracket.

There are also protective caps on the intercooler inlet and outlet. Remove these just before installation.





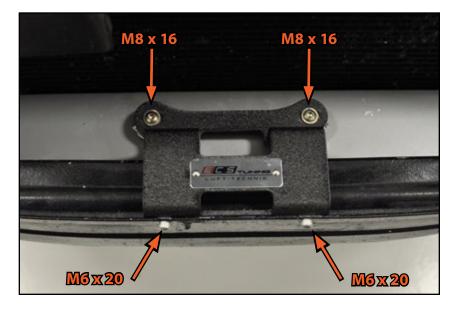
Step 9:

Lift your new ECS intercooler into place, first guiding it in between the crash beam and radiator, then setting the feet down into the hooks on the radiator.



Step 10: 5mm Allen, 10mm Wrench

Install the ECS intercooler bracket as shown, using the two M8 x 16 bolts to secure the intercooler to the bracket, and use the two M6 x 20 bolts, washers, and nyloc nuts to secure the bracket to the crash beam. Install the washers and nuts on the inside of the bracket, so the finish is not damaged during tightening.





Step 11:

Reinstall the air shrouds.



Step 12:



If you already had our charge pipes installed and are upgrading to our intercooler, reinstall both intercooler hoses onto the ends of the intercooler (arrows), then skip to Page 34 to complete the installation.

If you are installing our complete charge pipe/intercooler kit, please return to Page 27 to continue with the charge pipe installation.





TORQUING TIPS

Torque to Yield or "Stretch" Bolts

Many bolts will have a torque specification listed in the format - xx Nm (xx Ft-lbs) + xx degrees. These bolts are torque to yield bolts, commonly referred to as "stretch" bolts. The correct procedure for torquing these bolts is:

Stage One - Torque the bolt(s) to the initial Nm or Ft-lb specification. If there is more than one, be sure to torque them in the correct sequence.

Stage Two - Tighten or "stretch" the bolt(s) the additional specified number of degrees. If there is more than one, be sure to follow the correct sequence.

Note - Some bolts may have two or more stages of torquing before the final stage of "stretching" the bolts.

When tightening more than one bolt in a specified sequence, be sure to mark each fastener with paint *immediately* after performing the final stage or "stretching" of the bolts. This will ensure that you keep track of which bolts have already been "stretched".

All Torque to Yield bolts should only be used once and should be replaced each time they are removed. If they are reused, they will not be able to achieve the proper clamping force with the specified torque.

Lubrication

Torque specifications are always listed for a dry fastener (no lubrication) unless specified otherwise.

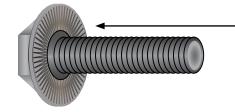
Some fasteners require lubrication on the threads -or- on the contact surface while torquing. These fasteners will be listed with the specific location and type of lubrication required. Always follow manufacturers recommendations exactly.

Lubricating a fastener that is intended to be installed dry and then torquing it to factory specifications will increase the clamping force and stress on the fastener and components, which can result in damage or failure.

Do not lubricate the threads of any fastener unless it is specifically recommended by the manufacturer.

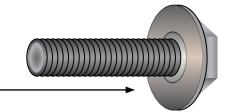
Ribbed vs. Non-Ribbed Bolts

Ribbed and Non-Ribbed bolts in the same location generally require a different torque specification.



A ribbed bolt is identified by the ribs on the contact surface

A non-ribbed bolt is identified by the smooth contact surface





TORQUE SPECIFICATIONS



SCHWABEN - BUILD THE ULTIMATE TOOL COLLECTION

At ECS Tuning, we carry a line of high quality Schwaben tools and equipment to help you build your ultimate tool collection. Never before has affordability and quality been so closely related. Our entire Schwaben line is subjected to strict in house testing for strength and durability. See what we have to offer and equip your garage without breaking the bank.



Your Charge Pipe/Intercooler installation is complete!



These instructions are provided as a courtesy by ECS Tuning

Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

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