

# 2015+ SUBARU STI FRONT-MOUNT INTERCOOLER PARTS LIST AND INSTALLATION GUIDE



## PARTS INCLUDED

- 1PC | ALUMINUM INTAKE PIPE
- 1PC | BAR-AND-PLATE INTERCOOLER
- 1PC | STEEL CRASH BAR W/ MOUNTING HARDWARE
- 2PC | HOT-SIDE INTERCOOLER PIPES
- 2PC | COLD-SIDE INTERCOOLER PIPES
- 1PC | BPV FLANGE ADAPTER
- 1PC | TURBO TO HOT-PIPE COUPLER (FOR STOCK TURBO)
- 1PC | TURBO TO HOT-PIPE COUPLER (FOR AFTERMARKET TURBO)
- 1PC | 2.25"-2.5" SILICONE TRANSITION HOSE
- 1PC | 2.5"-2.75" TRANSITION COUPLER
- 1PC | 2.75" STRAIGHT COUPLER
- 2PC | 2.5"-2.75" INTERCOOLER TO PIPE HOSES
- 1PC | BPV RECIRCULATION HOSE
- 2PC | 1.5" T-BOLT CLAMPS
- 1PC | 2" T-BOLT CLAMP
- 2PC | 2.5" T-BOLT CLAMPS
- 4PC | 2.75" T-BOLT CLAMPS
- 5PC | 3" T-BOLT CLAMPS
- 1PC | BYPASS VALVE GASKET
- 2PC | 6" OF THERMAL WRAP
- 1PC | SOUND-SYMPOSER PLUG

## TOOLS NEEDED

FLATHEAD SCREWDRIVER	3/8" DRIVE RATCHET
PANEL TOOL	2.5MM ALLEN KEY OR SOCKET
POP-CLIP PLIERS	LINESMAN PLIERS
12MM SOCKET	CHANNELLOCK PLIERS
10MM SOCKET	COOLANT FUNNEL (OPTIONAL)

## INSTALL TIME **5+ HOURS**

## INSTALL DIFFICULTY

## DISCLAIMER

- Raise vehicle only on jack stands or on a vehicle lift.
- Allow vehicle to cool completely prior to attempting installation.
- Do not run the engine or drive the vehicle while overheating; serious damage can occur.
- Please dispose of any liquids properly.
- Mishimoto is not responsible for any vehicle damage or personal injury due to installation errors, misuse, or removal of Mishimoto products.
- Mishimoto suggests that a trained professional install all Mishimoto products.

## CAUTION

Never work on the cooling system when it is hot. The coolant temperature in the radiator can be considerably higher than boiling, and the system may be under pressure. Opening a cooling system that is hot or under pressure can result in serious injury. Always wait until the system has cooled completely before servicing it in any way.

## INSTALL PROCEDURE

01. Set the vehicle on an automotive lift, or raise it with a jack and place it securely on jack stands. Refer to your owner's manual for safe lift points if you are unsure.
02. Remove the six 10mm bolts that secure the top of the bumper cover to the radiator support. (6x 10mm bolts)
03. Remove the three pop-clips that secure the top of the bumper cover to the radiator support. These pop-clips can be a bit tricky. They are designed to be partially spread when the center pin is pulled all the way out. Push the center pin in slightly after you release the clip to remove them smoothly. (3x pop-clips)

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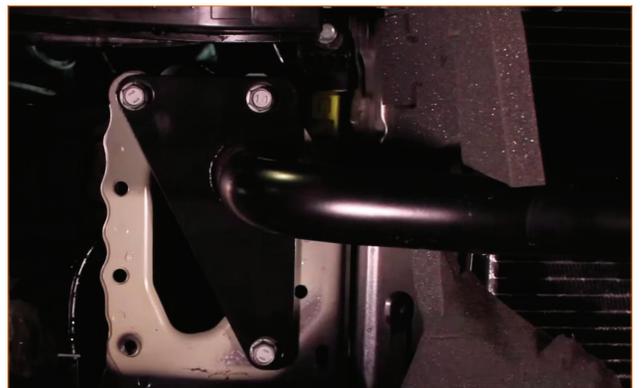


04. Remove the upper trim piece from the bumper cover.
05. Remove the pop-clip that secures the front bumper cover to the fender liner. One pop-clip is located in each wheel well where the fender and bumper cover meet. To release the pop-clip, press the center pin in, and pull out the whole clip. (2x pop-clips)



06. Release the bumper cover from its retaining clips by pulling it out from the corner. Do this on both sides.
07. Remove the nine pop-clips that secure the front edge of the bumper cover to the splash shield. (9x pop-clips)
08. Gently pull on the edges of the bumper cover to fully release the retaining clips along the fender and under the headlights. Lift up on the top of the bumper cover so it clears the radiator support, and slide the whole bumper forward.
09. At this point, the bumper is still connected by the wiring harness for the fog and signal lights. Disconnect the lighting harnesses from the lights.
10. Remove the two pop-clips that secure the intake air duct to the radiator support; then remove the intake duct. (2x pop-clips)
11. Disconnect the mass airflow sensor by depressing the locking tab on the connector and sliding the connector apart.
12. Loosen the clamp where the rubber intake pipe meets the turbo inlet housing, and remove the intake pipe.

13. Loosen the clamp on the sound generator where it meets the sound generator valve (on the passenger side of the intercooler). Remove the sound generator tube from the valve.
14. Remove the two 10mm nuts that secure the airbox mounting bracket to the passenger-side fender. (2x 10mm nuts)
15. Remove the 10mm bolt that secures the airbox to the frame rail. (1x 10mm bolt)
16. Remove the entire airbox and intake piping assembly from the vehicle by lifting it upward.
17. Remove and set aside the screws that secure the mass airflow sensor to the stock airbox. Slide the sensor out of the airbox, and install it on the Mishimoto intake using the two supplied Allen bolts. The sensor can be installed only one way. (2x 2.5mm Allen bolts)
18. Remove the foam impact bumper by pulling it forward.
19. Remove the eight 12mm bolts that secure the crash beam, and remove the crash beam from the vehicle. **Warning:** the crash beam is heavy, so be ready to support the weight as you remove the bolts. (8x 12mm bolts)
20. Install the Mishimoto crash beam using six of the eight original 12mm bolts. Orient the crash beam so that the intercooler mounting bolts are on the top side of the crash beam. (6x 12mm bolts)



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21. Install the intercooler. Slide the intercooler up from behind the Mishimoto crash beam, and secure it with the supplied hardware, but do not fully tighten. Fold the foam insulation toward the outside of the vehicle to avoid blocking airflow through the radiator. (2x 12mm bolts)



22. Locate the hot-side intercooler pipe. This pipe has the most bends in the set. Feed the end with the shallowest bend under the driver-side headlight, next to the washer tank. This pipe must be rotated as it is fed through to avoid the water neck on the washer bottle. Take your time with this; there is no need to force the pipe.
23. Relocate the horn assembly. Disconnect the module on the passenger side, next to the horn. Remove the 12mm bolt that secures the horn assembly. Using the supplied 12mm nut and the original bolt, install the horn assembly in the open hole above the original mounting location, and reconnect the module. (1x 12mm nut, 1x 12mm bolt)



24. Locate the cold-side intercooler pipe. The side with the 90° bend will connect the intercooler. Feed the other end into the engine bay.
25. Locate the 90° transition coupler. Slip a T-bolt clamp over the wider end of this coupler, and install it onto the passenger side of the intercooler. (1x T-bolt clamp)
26. Slip a T-bolt clamp over the other end of this coupler, and insert the cold-side intercooler pipe, but do not tighten it yet. (1x T-bolt clamp)
27. Locate the other transition elbow in your kit, and install the wider end onto the driver side of the intercooler. Slip a T-bolt clamp over the connection, but do not tighten it yet. (1x T-bolt clamp)
28. Slip a T-bolt clamp over the other end of this coupler, and insert the cold-side intercooler pipe, but do not tighten it yet. (1x T-bolt clamp)
29. Remove the sound-amplifier valve. There are two 10mm bolts that secure it on the passenger side of the stock intercooler. Remove the bolts, and pull the hose and fitting from the firewall. (2x 10mm bolts)
30. Locate the sound-amplifier delete plug in your kit, and insert it into the empty firewall grommet. (1x CNC-machined plug)
31. Remove the two 12mm bolts that secure the stock intercooler to the engine. (2x 12mm bolts)
32. Remove the two 12mm bolts that secure the bypass valve to the stock intercooler. (2x 12mm bolts)
33. The bypass valve can remain in the vehicle for now. There is a gasket between the bypass valve and the intercooler; a replacement gasket is included with the kit.
34. Loosen the clamps at the turbo outlet.
35. Loosen the clamps at the throttle body coupler.
36. Remove the passenger-side intercooler mounting bracket that is held in by two bolts.

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37. Remove the intercooler. Slide the intercooler back toward the firewall to remove it from the throttle body, and then, slide it toward the driver side to remove it from the turbo. Lift the intercooler out of the vehicle.
38. Remove the throttle-body and turbo outlet couplers if they did not come out with the intercooler.
39. Remove the bypass valve gasket if it did not come out with the intercooler.
40. Locate the silicone coolant bypass hose in your kit. This hose replaces the uppermost coolant bypass hose located on the coolant expansion tank. The stock hose is held on by two clamps. Use pliers to compress the clamps and move them down the hose. (2x constant-tension clamps)
41. Place a small container under the coolant bypass hose connection at the radiator. Pull the hose off the radiator connection, and allow the coolant to drain into the container. Alternatively, you can drain coolant from the radiator until it is below this connection.
42. Remove the stock hose, and transfer the clamps to the Mishimoto silicone coolant hose. Install the new hose in the original location. (2x constant-tension clamps)
43. Locate the long transition coupler in your kit. Slip a T-bolt clamp over the wider end, and install the coupler over the hot-side piping that comes up from the driver side, but do not tighten the clamp yet. Be sure to place the clamp in a direction that makes it easy to access. (1x T-bolt clamp)
44. Locate the heat wrap in your kit. This heat wrap contains fiberglass, so wear gloves when you are handling it. Cut the heat wrap into two equal-length pieces. Remove the adhesive strip cover and install the heat wrap around the fuel lines where the intercooler piping will pass through.
45. Locate the 90° intercooler pipe. Route the shorter end of this pipe under the vacuum line for the brake booster and between the two fuel lines. Slip a T-bolt clamp over the coupler, and insert the 90° pipe into the coupler, but do not tighten it yet. Turn the T-bolt clamp so it will clear the hood. (1x T-bolt clamp)



46. Locate the turbocharger outlet coupler. This coupler has an indentation. Slip a T-bolt clamp on each end, and install the narrow end onto the turbocharger. Insert the free end of the 90° pipe into the other side. (2x T-bolt clamps)
47. Locate the straight transition coupler in your kit. Slide a T-bolt clamp over the narrow end, and install the coupler onto the cold-side pipe on the passenger side of the engine bay. (1x T-bolt clamp)
48. Take the last pipe and position it in the engine bay so that the end with the 90° bend is near the throttle body. Slip a T-bolt clamp onto the end near the transition coupler, and insert the pipe into the coupler. (1x T-bolt clamp)
49. Locate the mounting bracket on the intercooler pipe. Thread in the original 12mm intercooler mounting bolt where the pipe meets the mounting bracket, but do not tighten completely. (1x 12mm bolt)



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50. Locate the coupler for the throttle body. Slip two T-bolt clamps over the intercooler pipe where it meets the throttle body, install the coupler over the throttle body, and insert the intercooler pipe. Now fully tighten the 12mm bolt that secures the intercooler pipe. (2x T-bolt clamps, 12mm bolt)
51. Locate the bypass hose and bypass valve adapter in your kit. Install the bypass hose onto the valve, and slip two T-bolt clamps over the hose. Install the bypass hose and adapter onto the intercooler pipe. (2x T-bolt clamps)
52. If the bypass valve does not line up with the bypass valve adapter, you can turn it by squeezing the clamp at the base and sliding it down the hose, and then, twist the bypass valve to reposition it. Remember to move the clamp back into position after you do this.
53. Locate the new bypass valve gasket. Using the original 12mm bolts, install the bypass valve adapter to the bypass valve with the new gasket sandwiched inbetween. (2x 12mm bolts)
54. Fully tighten the bypass valve hose and throttle body clamps. (4x 10mm T-bolt clamps)
55. Fully tighten the clamps on the turbo outlet coupler. (2x 10mm T-bolt clamps)
56. If you have the stock CCV pipe, install the supplied support bracket using the original 10mm bolt for the intercooler mounting bracket on the passenger side of the intake manifold. If you have already installed a Mishimoto silicone vent hose, you will not need this bracket. (1x 10mm bolt)
57. Apply painters tape to the fender where it meets the bumper. This will prevent the paint from getting scratched when installing the front bumper.
58. Test fit the front bumper. Slide the bumper into place to check for clearance issues. The fitment of the intercooler piping is particularly tight around the fog light housings. Look from underneath the vehicle to check these areas.
59. If the bumper cover does not fit well, make sure the intercooler pipes are fully seated inside the couplers at the intercooler. Also make sure that the T-bolt clamps are not contacting the bumper cover. Turn the T-bolt clamps so they will not interfere with the bumper cover. The intercooler itself can also be shifted to the left or right for more clearance.
60. Once you have confirmed that the bumper cover will fit, fully tighten all the T-bolt clamps under the bumper.
61. Install the front bumper cover. Position the bumper cover in front of the vehicle, and connect the wiring harness for the lights. Slide the top of the bumper cover into place, and temporarily secure it with a few mounting bolts. Simply thread in the screws, but do not fully tighten.
62. Starting underneath the headlight, clip the bumper into place by firmly pressing it into the mounting clips.
63. Remove the mounting bolts you threaded in before, and install the upper trim piece. Secure it with the three pop-clips and six 10mm bolts. (3x pop-clips, 6x 10mm bolts)
64. Secure the bumper cover where it connects to the fenders. Push the pin back through the pop-clip, insert the pop-clip, and push the pin in until it is flush with the rest of the clip. Do this on both sides. (2x pop-clips)
65. Secure the splash shield and the lower lip of the bumper cover with the nine original pop-clips. (9x pop-clips)
66. Fully tighten the remaining T-bolt clamps.
67. Remove the bolt for the timing cover from the upper passenger side of the engine. (1x 10mm bolt)
68. Install the air filter onto the intake pipe. Install the transition coupler onto the intake pipe, and slip on two worm-gear clamps. Install the intake pipe onto the turbocharger inlet pipe. (2x worm-gear clamps)

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- 69. Connect the mass airflow sensor. Install the bracket for the intake pipe using the supplied 10mm bolt and the timing cover bolt. Rotate the intake pipe until the bracket is flush with the timing cover and mounting flange for the intake pipe before tightening completely. (1x 10mm bolt, 1x 10mm timing cover bolt)
- 70. Tighten the clamps on the coupler and the clamp on the air filter.
- 71. Install a coolant funnel (optional), and top off the cooling system. Start the engine and allow it to idle with the cap off. Turn the heater control valve on the vehicle's HVAC unit to full hot, and put the fan on low. Monitor the engine temperature

and coolant level in the reservoir. Add coolant as needed to maintain proper level in the reservoir, and check your connections for leaks. If the vehicle begins to overheat or coolant starts to overflow from the reservoir, shut off the engine and allow it to cool before continuing. Once the vehicle is fully warmed up and the coolant level has stabilized, allow the vehicle to cool off completely, and top off the coolant level.

**Congrats! You just finished installing the 2015+ Subaru STI Front-Mount Intercooler.**

