



**FRONT MOUNT INTERCOOLER 2002-  
2007 Subaru WRX/STi v3 (WS-FMIC  
and WS-FMIC-0607)**



Thank you for purchasing the TURBOXS front mount intercooler system for your 2002-2007 Subaru WRX/STI. Please check the box contents to make certain that you have received all parts and read these instructions **from start to finish** before beginning installation. Read the IMPORTANT NOTES section below carefully before beginning installation.

**This document is meant to be used as a guide for an experienced mechanic or car enthusiast during the installation of the TurboXS WRX/STi Front Mount Intercooler Kit.** While the guide offers a straightforward, step-by-step procedure, it does not go into fine detail on how to complete each step. The use of factory service manuals is highly recommended.

### IMPORTANT NOTES:

- The stock intake system on the 2002-2007 WRX and STi will NOT work with the TurboXS front mount intercooler. TURBOXS Intake part # WS-INTAKE or similar is required in order to install that TURBOXS Front Mount Intercooler Kit.
- **There is no bumper-support beam needed to install this kit. The bumper support mounts are on the intercooler core.**
- Installation of the WS-FMIC and WS-FMIC-0607 will require you to cut out parts of your bumper in order to fit the intercooler core.
- Fog lights remain intact for both the WRX and STi

### Parts Included with the TurboXS Front Mount Intercooler:

Item #	Part Description	Quantity
1	Front Mount Intercooler Core Assembly w/ integrated bumper support mounts	1
<b>Intercooler Pipe Kit</b>		
2	Pipe 1; Out of Turbocharger	1
3	Pipe 2; Driver Side towards core	1
4	Pipe 3; Core, Driver Side	1
5	Pipe 4; Core; Passenger Side	1
6	Pipe 5; Through Fenderwell	1
7	Pipe 6; Into Throttle Body	1
<b>Silicone Hose and T-clamp Kit</b>		
8	Silicone Hoses inside diameter 63mm p/n# SC-63	6
9	Silicone Hose Elbow inside diameter 50 to 63mm p/n# ER-5163T	1
10	Silicone Hose inside diameter 70mm p/n# SC-70S	1
11	67 to 73 mm Stainless Steel Hose Clamps	13
12	74 to 80 mm Stainless Steel Hose Clamps	2
13	55 to 61 mm Stainless Steel Hose Clamps	1
<b>Accessory Packet</b>		
14	"L" Bracket for Pipe #2	1
15	Edge Strip Length 310 mm long	1
16	Fuel Line 5/16" by 250 mm long	1
17	1/2" T-piece	1
18	Washer M8	4
19	Bolt M8 x 16mm	4
<b>Miscellaneous Hardware</b>		
20	Radiator Overflow Bottle	1
21	1/2" Vacuum Line; 660mm	1

## **Installation Instructions**

### **1 Remove Factory Top Mount intercooler**

- 1.1 Remove the key from the vehicle's ignition and disconnect the battery terminals.
- 1.2 Disconnect the cam cover breather hoses from the top mount intercooler.
- 1.3 Disconnect the vacuum/pressure supply hose from the top of the bypass valve.
- 1.4 Remove the bolts that secure the bypass valve to intercooler.
- 1.5 Remove the bolts that secure the intercooler to mounting brackets on LH and RH sides.
- 1.6 Loosen the hose clamp that secures the intercooler y-piece to the turbocharger outlet.
- 1.7 Loosen the hose clamp that secures the intercooler outlet coupler to the throttle body inlet.
- 1.8 Remove factory top mount intercooler from the car.
- 1.9 Remove the factory bypass valve from intake return hose. Retain the spring clamp for later use.
- 1.10 Remove the LH and RH side intercooler mounting brackets. Retain bolts for later use.
- 1.11 Remove clamp and hose fitted onto throttle body.
- 1.12 Take the replacement throttle body silicone hose, labeled SC70S, and secure to the throttle body using one (1) of the supplied T73-81 clamps.
- 1.13 Take the replacement silicone elbow hose, labeled E5063T, place the smallest replacement hose clamp over the smaller end and loosely fit it onto the turbocharger outlet.
- 1.14 Remove the intercooler air splitter located on the underside of the hood.

### **2 Install Replacement 1/2" PCV Hose**

Note: The factory top mount intercooler has a hard metal pipe that runs along the front of the TMIC that is part of the PCV system. Since you are removing the factory TMIC, this hard pipe is replaced with the supplied 1/2" diameter vacuum line and T-piece.

- 2.1 Remove the vacuum air bypass hose which runs from the LH side rocker cover. Note, this was the hose removed from the intercooler in procedure 1.2.
- 2.2 Insert the supplied 1/2" T-piece into the vacuum air bypass hose from the RH side rocker cover and the vacuum hose running into the factory intake as per the picture below. Note, these are the hoses removed from the intercooler in procedure 1.2.



- 2.3 Insert the supplied ½" vacuum hose supplied onto the remaining leg of the supplied ½" T-piece and connect it back to the LH side rocker cover vacuum port from where the factory hose was removed.

### 3 Remove Factory Intake/Airbox

Note: The TurboXS Front Mount Intercooler Kit has been design to work with the TurboXS WRX Intake (WRX-INTAKE). However, other similarly designed intakes may also work. If you have a TurboXS WRX Intake or similarly designed product installed, remove it now. If you do not, you will need to purchase a TurboXS WRX Intake in order to complete the FMIC installation. To remove the factory air box and intake assembly follow these steps.

- 3.1 Remove the two (2) bolts that secure the factory air scoop and remove the air scoop.
- 3.2 Disconnect the connector from the mass air flow sensor.
- 3.3 Loosen the hose clamp that secures the flexible air intake pipe to the intake duct that runs underneath the intake manifold.
- 3.4 Unclip the two (2) clips that secure the top of the air box and remove the air box cover.
- 3.5 Remove the two (2) bolts that secure the lower parts of the air box and remove the lower air box. Re-install the bolt that secures to bracket for the anti-lock braking unit.

- 3.6 Remove the flexible air intake pipe from the top of the air box and re-secure it to the turbo inlet hose that runs underneath the intake manifold to the turbocharger inlet.

#### **4 Replace Factory Radiator Overflow Bottle**

- 4.1 Remove the cap from the factory radiator overflow bottle and install it onto the supplied overflow bottle.
- 4.2 Remove the radiator over flow hose from the factory over flow bottle.
- 4.3 Remove the two (2) bolts that secure the factory radiator overflow bottle and remove the bottle. Retain one (1) of the bolts for later use.
- 4.4 Cut off the plastic lower mounting support that locates the bottom of the factory radiator overflow bottle. This needs to be removed to provide room for the intercooler piping.
- 4.5 Install the TurboXS radiator overflow bottle using the available mounting hole located in front and to the right of the battery. Use one (1) of the bolts from the factory over flow bottle to secure the supplied TurboXS overflow bottle close in behind the radiator.
- 4.6 Re-insert the radiator over flow hose into the hole on top of the TurboXS



*Illustration 1: Radiator Overflow Bottle Installed*  
radiator over flow bottle.

#### **5 Remove Front Grill and Headlights**

- 5.1 Remove the four (4) clips along the top of the grille.
- 5.2 Using a thin bladed long screwdriver, unlatch the two (2) hooks at either end of the grille. Gently pull the grill forward to remove.
- 5.3 (MY02 and MY03 only) Remove the plastic cover panels next to each of the headlights by unclipping the three (3) retaining clips.
- 5.4 (MY02 and MY03 only) Remove the headlights by unplugging the electrical connectors and removing the mounting bolts. Place headlights in safe location so they do not get damaged.

## **6 Remove of Front Undertray and Intake Resonator**

- 6.1 Raise the front of the car on jack stands.
- 6.2 Remove the bolts and clips that secure the front undertray and remove the undertray.
- 6.3 Remove the forward clips that secure the inner mudguards on the LH and RH sides of the vehicle. There is no need to remove all of these clips as the inner mudguards are not removed.
- 6.4 Fold the forward portion of the inner mudguard down in order to gain access to the area.
- 6.5 On each of the LH and RH side inner mudguards there is a vertical flap located on the inner side of each guard. On the LH side inner mudguard cut this vertical side off using a pair of tin snips.
- 6.6 Remove the two (2) bolts that secure the intake resonator chamber located in the RH side wheel well. One can be accessed from in the engine bay to other from underneath.
- 6.7 Remove the intake resonator chamber.
- 6.8 Take the 310 mm long edge strip and fit along to edge of the round hole on the RH side wheel well in which the intake resonator chamber and the air box interfaced.

## **7 Remove Front Bumper and Bumper Beam.**

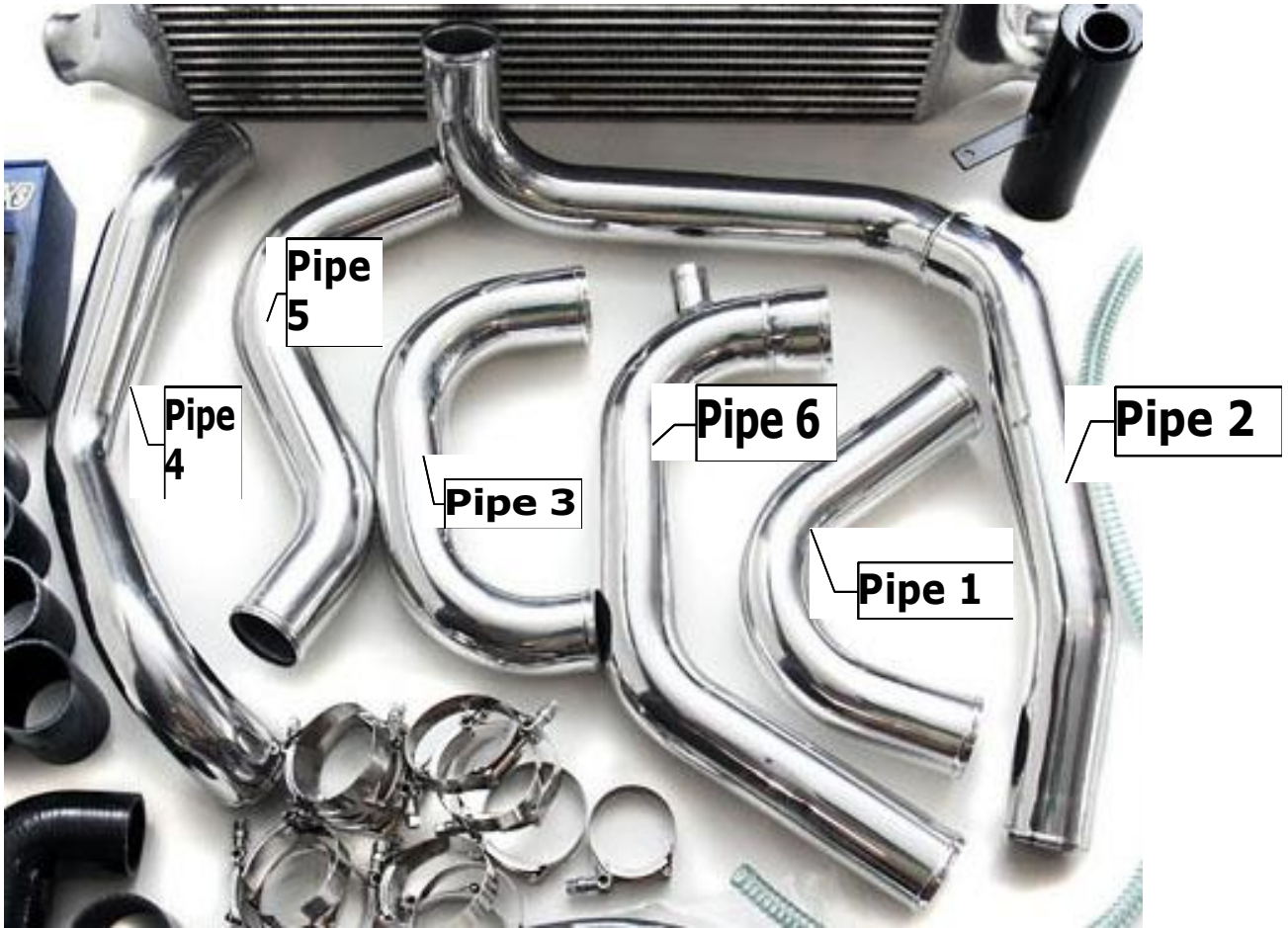
- 7.1 Unplug the fog lights that are mounted in the front bumper.
- 7.2 Remove the clips that secure the front bumper. There are several along the top (the # varies depending upon vehicle model/year), three (3) on the bottom and two (2) at either end on the sides.
- 7.3 Remove the four (4) nuts and four (4) bolts that secure the front bumper support beam. Retain the four (4) nuts for later use.
- 7.4 Remove the front bumper support beam from the vehicle.
- 7.5 The rail running across the very front of the vehicle is called the front chassis rail. There may be a small metal tab located at the very front of this rail. Cut this tab off using either an angle grinder or hacksaw.

## **8 Install Front Mount Intercooler Core**

- 8.1 Beneath the under side of the front chassis rail are two (2) bolts that secure it to the engine subframe. These bolts shall be used to secure the front mount intercooler to the front chassis rail. Remove these two (2) bolts. Retain the bolts as they will be re-used.
- 8.2 Raise the front mount intercooler into place using a jack. Secure the intercooler in place by re-installing the two (2) bolts from the front chassis rail.

## **9 Install Intercooler Piping**

There are six (6) pieces of intercooler piping included with the kit. Each pipe is identified by number in the picture below:



NOTE: For Part # WS-FMIC-0607 Pipe 2 and Pipe 3 above are replaced with slightly different pipes.

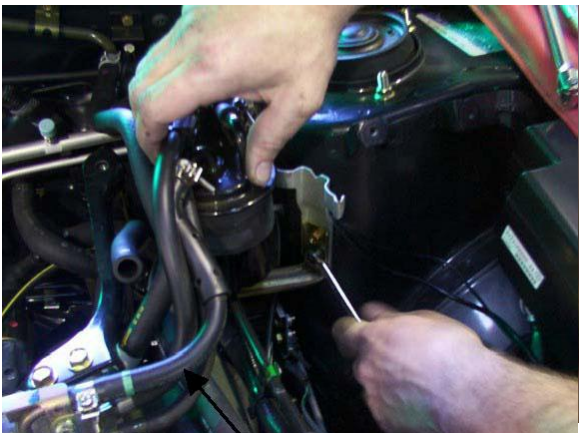
**INSTALLATION TIP: When installing the IC pipes, be sure to slide T-clamps over the pipes before installing the next pipe into the silicone coupler. Also, wait until ALL pipes are installed and moved into their final positions before tightening ANY of the hose clamps. This will save you a lot of tedious tightening/loosening of T-clamps.**

- 9.1 Install silicone coupler ER-5163T and T55-61 T-clamp onto the turbocharger outlet. Turn coupler so that the outlet is facing the firewall.
- 9.2 Take Pipe #1 and insert the shorter end of the pipe into the ER-5163T coupler on the turbocharger. Slide 1x T67-73 T-clamp into rough position. Place an SC-63 silicone coupler and 2 x T67-73 T-clamp over the other end of Pipe #1.
- 9.3 Pipe #2 has a mounting lug nearest one end. Find it. Feed the OTHER end to the mounting lug of Pipe #2 down between the radiator and the LH side cam cover in the engine bay. See picture below of installation on a 2002 WRX.

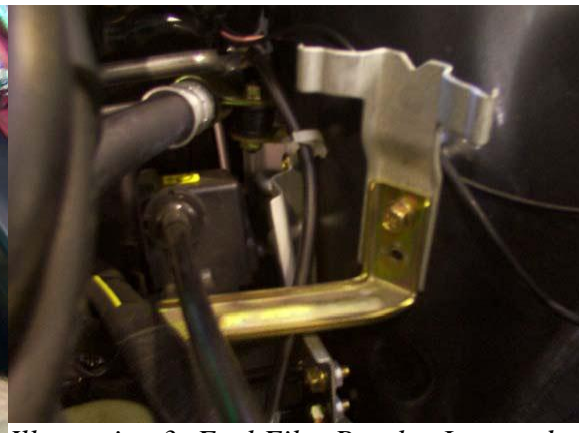


9.4 For 2002-2005 WRX/STi you can run the pipe over the fuel lines by lowering the fuel filter and extending one of the the fuel lines as per below.

9.4.1 The fuel filter mounted in the LH side of the engine bay can be lowered in order to provide more room for the intercooler piping. Unclip the fuel filter from its mount in order to provide access to its mounting bolts. With the fuel filter pulled to one side, remove the two (2) bolts used to secure the mounting bracket. Re-attach the fuel filter mounting bracket by aligning the **upper hole** in the bracket with the **lower threaded hole** and re-secure the bracket using one bolt.



*Illustration 2: Fuel Filter Removal*



*Illustration 3: Fuel Filer Bracket Lowered*

- 9.4.2 The upper fuel line running from the fuel filter to the fuel rail needs to be replaced with the supplied longer piece in order to provide enough room for the intercooler piping to sit on top of the fuel lines but not hit the hood. Take the supplied replacement 5/16 " fuel line and replace the hose shown below. Use the factory hose clamps to



*Illustration 4: Fuel Line Replaced to make room for Pipe # 2*

secure the hose. NOTE: This is for 2002-2003 WRX only.

- 9.5 For 2006-2007 WRX and Sti (WS-FMIC-0607) use a different Pipe # 2 and Pipe # 3 then WS-FMIC. The pipe routing is very similar to the WS-FMIC but due to a difference in the fuel lines, the pipand have a different routing for Pipe # 2
- 9.6 Take two (2) SC63 silicone hoses and two (2) medium size hose clamps and secure each of the hoses onto each inlet and outlet port of the front mounted intercooler.
- 9.7 Take Pipe #3 and fit the longer end into the silicone hose on the LH side of the intercooler and fit the shorter end into the silicone hose secured to Pipe #2. Two (2) medium size hoses need to be placed over Pipe #3 prior to installation. Do not tighten these clamps.
- 9.8 With Pipes # 1, 2 and 3 in position, take the L bracket provided and secure Pipe #2 to the LH side factory intercooler mount using the bolts retained from step 1/.
- 9.9 Take Pipe #5 and two (2) SC63 silicone hoses. Fit the silicone hoses onto each end of Pipe #5 and secure with medium sized hose clamps.
- 9.10 One end of Pipe #5 has a tighter bend in it than the other. Take the end with the tighter bend and thread it through the round hole in the RH side wheel well that the edge strip was fitted to.

- 9.11 Take Pipe #4 and fit between the intercooler and Pipe #5. Two (2) medium size hose clamps need to be placed over Pipe #4 prior to installation. Do not tighten these clamps.
- 9.12 Take Pipe #6 and fit between the Pipe #5 and the hose fitted to the throttle body. One (1) medium size and one (1) large hose clamp need to be placed over Pipe #6 prior to installation. Do not tighten these clamps.
- 9.13 Inspect all intercooler pipes to ensure they are well mated into neighbouring joints. If so, tighten all hose clamps.

#### **10 Re-install the factory bypass Valve.**

- 10.1 Re-use the factory bolts to secure the factory bypass to the flange on Pipe 6. Make sure to use either a gasket or some form of sealant to ensure there are no leaks
- 10.2 Insert the recirculation outlet into the factory return tube. Re-use the factory spring clamp to secure the hose to the bypass valve.
- 10.3 Re-connect the vacuum/pressure supply hose that was disconnected from the factory bypass valve in step 1 above onto the nipple on the factory bypass valve.

#### **11 Cutting of the front bumper.**

- 11.1 For this process we recommend you use an air hacksaw or hand held hacksaw. Take your time with this procedure as it is a one-way path. Once material has been removed from the front bumper it cannot be returned and the time spent here will ensure a quality finish of the final product.
- 11.2 At the top of the main front opening of the front bumper there is a black section running lengthwise along the front bumper. Cut along this line and then, in line with this black transition line, down either side and along the bottom.
- 11.3 Trial fit the front bumper to ensure the intercooler will not clash with the bumper. Remove more of the front bumper where necessary.
- 11.4 Note, some of the front bumper may need to be removed around the inner fog light housing. This is particularly the case for MY04 Station Wagons. Remove this material where necessary. Ensure that whatever material removed here will be covered up again with the fog light outer covers.
- 11.5 Once front bumper neatly fits in place, clean up the cut edges with a file.

#### **12 Installation of the front bumper, front under cover, grille and headlights.**

- 12.1 Fit the front bumper ensuring that it locates, without force, onto all mounting lugs.
- 12.2 Re-install the five (5) front clips that secure the front bumper. Note, these are the clips that were removed in step 7/.
- 12.3 In the case of the two (2) clips either side of the bumper, replace these clips with the M8x16mm bolts with locknuts and re-secure the sides of the bumper.
- 12.4 Plug in the fog lights that are mounted in the front bumper.
- 12.5 Un-fold the inner mud guards back into their original position and re-secure using the original retaining clip removed in step 6/.
- 12.6 Re-fit the front under cover and re-secure using original bolts and retaining clips.

12.7 Re-install the front grille and headlights in the reverse procedure to that defined in step 5/.

### **13 Installation of the TurboXS WRX Intake Assembly.**

13.1 Note, the TurboXS Front Mount Intercooler Kit has been design to utilise the TurboXS WRX Intake Assembly. However, other similarly designed intakes may also work. If you have a similarly designed product that was removed in step 3/, then re-install it now. Alternatively, install the TurboXS WRX Intake Assembly as per the following procedure.

13.2 Install the mounting bracket using the bolt that secured the factory lower air box casing and the anti-lock braking unit in place.

13.3 Remove the mass air flow sensor from the factory air box assembly that was removed in step 3/.

13.4 Re-install the mass air flow sensor into the TurboXS WRX Intake Assembly.

13.5 Fit the TurboXS WRX Intake Assembly into the flexible air intake boot and secure using the factory hose clamp. Ensure that the intake assembly is pointing in the correct air flow direction such that the mass air flow sensor is in the same orientation as to when it was fitted into the factory air box.

13.6 Take the pod air filter and secure it to the inlet end of the intake using the factory hose clamp.

13.7 Re-connect the connector into the mass air flow sensor that was removed in step 3.

### **14 Final Inspection.**

14.1 Review entire installation instruction to ensure all steps have been carried out.

14.2 When you are satisfied all steps have been successfully carried out, turn the car ignition to the "ON" position but do not start the car. You should hear the fuel pump prime to the fuel line system.

14.3 Inspect the fuel line assembly fitted in step 2/ to ensure there are no fuel leaks. If there are fuel leaks check that the installation procedure has been carried out correctly and if necessary re-tighten the fuel line hose clamps.

14.4 If there are no fuel leaks start the car. Inspect there is no Check Engine Light (CEL) on the dash. If there is a CEL inspect that the mass air flow sensor connector has been correctly plugged back in.

14.5 If there is no CEL, the installation is complete.