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## FMIC for 850 T5, 98 70 series T5 Installation Instructions.

Equipment/tools needed:	Included in Kit:
Metric socket set Standard 7/16 <sup>th</sup> deep socket for Tbolts Sharp cutting tool, box cutter etc. Marker Drill and drill bits up to 3/8" Torx driver set Srew drivers Measuring tape Thread locker	500 cfm Bar and Plate Intercooler 4 polished 6061 Aluminum pipes (3) 2.5">2.25" silicone couplers (1) 2.5" silicone coupler (Turbo Throttle body) OR (1) 2.9">2.5" silicone coupler (NA throttle body) (1) 3.5" silicone coupler (to protect AC dryer) (1) 2.25" silicone coupler (1) 2.25">2" silicone coupler (turbo to Upper pipe) (1) Lower Idle Air Hose (3) 2.88" Tbolts (6) 2.56" Tbolts (1) 2.25" Tbolt (1) #48 worm clamp (NA throttle Body) OR (1) #44 worm clamp (turbo throttle body) (1) 16-27mm worm clamp & (1) 26-38mm worm clamp (2) M8 X 14mm bolts (bracket to IC) (2) 5/16 <sup>th</sup> x 1" bolts (bracket to mounting point on car) (2) Stainless 5/16 <sup>th</sup> washers (mounting point on car) (2) mounting brackets with Captive 5/16 <sup>th</sup> nut (1) 1/8 <sup>th</sup> NPT plug (H2O injection port plug) (4) 5/16 <sup>th</sup> lock washers

**Remove existing intercooler piping and hoses.** All factory clamps use a 7mm head and can be removed with a 7mm socket or with a flathead screwdriver. If you are tackling this installation over a couple of days make sure to cover your turbo outlet so that debris does not fall into it.

**OPTIONAL: remove existing intercooler.** In order to remove the factory intercooler you will have to drain the radiator, empty the AC condenser and completely remove the radiator, intercooler and AC condenser. This is an optional step and will add 1-2 hours to the process. Additionally you will need to recharge your AC after.

**Remove battery and battery tray.** Note: Always disconnect the negative terminal first when taking out a battery.

**OPTIONAL: remove strut tie bar.** If you have a strut bar you may want to remove it to make access to the turbo and Charge air pipe easier.

**For 97-98 cars Remove SAS:** The Secondary Air System must be removed in order for the FMIC to be installed as the Pump is in the way of the piping. **Tampering with factory emissions systems is a violation of Federal and State law** and should only be done on cars that are intended for off-road use. For off road vehicles there are two ways to bypass SAS.

1. The first option is done by soldering in a diode either in the ECU itself or in the wiring harness. More details are available at [http://volvospeed.com/install\\_performance\\_parts\\_how\\_tos/performance\\_guides/sas-delete\\_air-pump.html](http://volvospeed.com/install_performance_parts_how_tos/performance_guides/sas-delete_air-pump.html).
2. The second option is to order an SAS delete software upgrade from Snabb.us, you will need to purchase an ARD remap through Snabb first in order to do this. There is an additional \$85 charge to delete the SAS. With either method you will want to remove the SAS system (pump, check valve, etc) from the vehicle.

### **Remove front bumper/ cover:**

For 850's:

- Clip off the 4 plastic/metal rivets that attach the fender liner to the bumper cover using side-cutters.
- Remove fog lights if applicable.
- Remove the (7) T25 screws under the bumper bar: there are two above each small grill and 3 in the middle opening.
- Remove Spoiler: Once you have all the fasteners off, gently pull out on the spoiler starting from one side and working across the front removing the spoiler from the black upper section.
- To take off bumper bar: remove 4 recessed 15mm bolts and then (2) 10mm bolts, one on either side of the bumper.

For 98 70series:

- Clip off the 4 plastic/metal rivets that attach the fender liner into the bumper cover using side-cutters.
- Remove (3) T25 torx that secures the small air guide (black tabs) located in center bumper opening
- Remove grill covers around fog lights.
- Remove headlight wiper arms.
- Disconnect Fog light electrical connectors
- Remove (2) long 14 mm bolts from under the bumper. These are behind the bumper cover and under the bumper bar slightly inboard of the fog lights. Pull the long bolts down and out (they pass through the entire bumper up into the frame to hold it in place. Now the entire bumper should pull right off.

**Jack up the front of your car.** Always use a floor jack **plus** 2 jack-stands to make sure you have three points of contact for safety incase the jack fails. You will want to place the jack-stands under the side rails of the subframe so that they are not in the way for your installation.

### **Mark and drill the holes for the Brackets:**

Attach the L brackets to the intercooler using the metric M8x14mm bolts but do not tighten all the way. Use a measuring tape and a Sharpie to mark the center of the intercooler and then the panel that the intercooler will mount to. Hold the intercooler up with the horizontal length of the bracket up against the bottom of the panel and use the reference marks you created to center it. The vertical section of the L bracket should be in front of the panel for the purpose of marking the drill locations through the hole in the bracket. Double check: The Bottom of the intercooler should measure approximately 6.75 inches below the panel. Next mark your hole locations with a marker, punch or drill.



Drill out your holes to 3/8" using a step drill or a standard 3/8" drill bit will work fine also. You will want to drill slightly outboard of the center of the holes so the brackets line up correctly when you place them behind the panel to mount them. 3/8" is slightly oversized so that you have some adjustment if your brackets don't line up perfectly. You can drill them out even larger if you need to but remove the smallest amount of material needed to get the job done. \* Make sure not to drill into the AC condenser! Deburr the holes if needed.

**Mount the intercooler to the panel.**

Initially you will want to leave the bolts that secure the bracket to the intercooler loose so you can rotate the brackets into the right orientation. You want the intercooler to sit flush against the AC condenser and centered in the panel with the bottom of the intercooler measuring roughly 6.75 Inches from the bottom of the panel that it's mounted to, this will allow for the piping to clear the tow hook. Once you have them in the right orientation (flat against the curved back of the panel) you can tighten them all the way. Use thread lock and tighten to roughly 10ftlbs. Next position the intercooler and insert the 5/16<sup>th</sup> x 1" bolts through included fender washers and holes you drilled and into the captive nut on the bracket. Use thread lock and tighten to roughly 15ftlbs.



**Trim plastic tab** off bottom passenger side of radiator shroud by the bottom oil cooler bend as seen in picture. Additionally you will need to remove the small rubber flaps that are mounted to the back of the fan shroud (if your car still has them)

Before:



After:



Also note that if you have a 98 you will want to temporarily unplug the sensor shown in the picture above that is mounted to the sub-frame.

Take the Large 3" silicone hose from the kit and slip it over bottom of the AC dryer (see below left). This is to ensure that there is no metal on metal contact between the Dryer and the new IC piping. The tolerances are quite tight in that area.



Next loosen the mounting screw (see above right) on the top of the dryer and angle the bottom of the dryer towards the front of the car as much as you can and then retighten the bolt.

#### **Installing bottom intercooler inlet pipe:**

Install a 2.5" > 2.25" silicone coupler, plus a 2.88" and 2.56" T-bolt on the intercooler end of the cobra shaped pipe before you start this next step.



Next slip the pipe up through the opening where you trimmed the plastic tab earlier. (see above) You may need someone to help you with this as the power steering lines can get in the way when you are trying to push the pipe up into the engine bay. The pipe needs to be rotated slightly as shown and installed up from the bottom at an angle in order to get it into position.

...Next align the pipe to the intercooler inlet. If the intercooler position needs to be adjusted at all do that now, for aesthetics always make sure your intercooler remains level. If you do need to adjust the intercooler use new thread lock on any loosened bolts. Now connect the silicone to the inlet of the intercooler and partially tighten clamps. (see below left)

*Note: When installing Tbolts, the edge of the clamp should butt up against the side of the flare on the pipe. Make sure the Tbolt is not installed so that it is over the flare or you may not get a good seal/ your pipe may blow off leaving you stranded somewhere.*



**Installing Bottom Intercooler outlet pipe:**

Install a 2.5">2.25" coupler with 2.88" and 2.56" T-bolts on each end of the bottom FMIC outlet pipe. Snake the pipe up through the opening, attach the bottom coupler to the FMIC outlet and partially tighten the clamps. (see below left)



**Installing TB pipe and couplers:**

Install the correct coupler on your Throttle body. We include a size #40 ABA worm clamp for the Turbo throttle body and a #48 ABA worm clamp for the Big bore throttle body. If you have a standard equipment turbo throttle body, then use the short 2.5" straight coupler. If you have an upgraded NA throttle body (Big Bore Throttle Body Kit) use the 2.9">2.5" reducing coupler. \*\*NA Throttle body shown\*\* (see below left)



Position the 90 degree throttle body pipe into the Throttle body coupler and into the 2.5" coupler from the lower FMIC outlet pipe. Position it so that it is snug up against the lower coolant pipe then tighten all the clamps on the outlet side. (Remember to tighten the IC outlet clamps that you didn't tighten earlier) (below left..next page)



Next install the Lower Idle air control motor hose to the FMIC piping. The motor may need to be rotated slightly or the IC pipe may need to be moved closer to the throttle body for this to fit on. Tighten with the small (included) worm clamps. (above right)

*Also make sure that the NPT plug is installed in your IC pipe or connect your water injection supply and nozzle to the pipe in the supplied 1/8" NPT bung.*

**Installing Upper intercooler inlet pipe:**

Attach the 2" < 2.25" silicone coupler to the turbo with the supplied 2.25" Tbolt. Tighten all the way. (below left)



Install the 2.25" straight coupler to the top of the lower IC inlet pipe with a supplied 2.56" Tbolt, tighten all the way. (Above right)

Note: If you have the later style 2 o-ring dipstick the pipes should clear. If you have the older style you may need to bend the dipstick back toward the intake manifold. Easiest way to do this is to take a pipe that fits over the dipstick and gradually bend the dipstick tube back. Do this in a couple of different places so you don't kink the tube.



Install upper IC inlet pipe into the two silicone couplers along with 2.56" t-bolts on each side. Position the Tbolts as shown and tighten down all the way if everything is aligned correctly. If not, reposition as needed then, tighten clamps. Now go back and finish tightening the bottom IC inlet clamps that you left loose. (see above)

**Reinstall bumper, foglights and battery tray**

*Note> If you have an RN engine in your 850 or 98 70 series (RN=99+ engine as shown in pics) Then the upper IC pipe will have to be at a slight angle to clear the upper motor mount bracket that comes on the RN engines. Adjust as needed and tighten all the clamps securely.*

Thank you for your purchase and we hope you enjoyed your Snabb FMIC kit!