www.snabb.us

Ultimate Volvo Intercooler Kit S60-V70

Installation Instructions.

Expected Time: 6-8 Hrs. - Technical Difficulty: 7 out of 10

Equipment/tools needed:

½" Drive socket set (recommended)
1/8th Drive socket with wobble extensions
7/16th deep socket for Tbolts
Black Spray Paint (optional to conceal A/C Dryer)
Chanel Locks (large)
Drill and drill bits up to 3/8"
Impact Driver (If available though not necessary)
Marker
Measuring tape
Metal File, Angle Grinder **or**
Dremmel with grind wheel (ideal)
Metric socket set
Plastic Bone Tool (bumper trim)
Screw drivers
Torx driver set
Thread sealant
Zip Ties

Abbreviations:

CLP – Cold Lower Pipe
DS – Drivers Side
IAT Sensor– Intake Air Temperature Sensor
IC – Intercooler
MAP Sensor – Manifold Absolute Pressure
PS – Passenger Side
TB – Throttle Body
UCP – Upper Charge Pipe

WD-40 or soapy lubricant will aid in the positioning of pipes and silicone. Without lubricant it will be difficult to position the parts for correct assembly.

Included in Kit

Piping & IC
(1) 22"x 13"x 2.75" Bar and Plate Intercooler **or**
(1) 22"x 9"x 3" Bar and Plate Intercooler
(1) polished 2.75" 6061 Aluminum straight pipe
(3) polished 2.5" 6061 Aluminum pipes
- upper charge pipe
- cold side S-pipe
- hot side 9.5" straight pipe

Silicone
(1) 2.5" silicone hump hose coupler
(1) 2.5" 180° silicone coupler (Hot side to end tank)
(1)2.5" 90° silicone coupler (Cold Side from end tank)
(1) 2.75">2.5" silicone reducing coupler
(1) 3"> 2.75" silicone coupler (Throttle body)

Clamps
(8) 2.88" Tbolt clamps
(2) 3.25" Tbolt clamps
(1) 2.25" Tbolt clamp (Not with K24 V-band turbo)
(1) #48 worm clamp (throttle Body)

Hardware
(2) Stainless Steel Support Brackets
(2) M8 X 14mm bolts (brackets to IC)
(2) Stainless 5/16th lock washers
(4) #12x1" Self Tapping Screws (For IC Brackets, upper/lower)
(1) 1/8th NPT nut (H20 injection port plug)
(4) M6x30mm bolts (replaces longer mounting bolts)
(1) M6x12mm bolt with washer (early, dual sensor adapter) **or**
(1) M5x20mm bolt with washer (late, combined adapters)

Turbo Coupler Options (Depending on Style)
- 2.5">2" angled coupler (Mitsubishi TD04Hl Turbo) **or**
- 2.5">2" straight coupler (K24- 06+ R, TDO4l turbos - 13t 14t) **or**
- **K24 V- Band Flange Adapter Setup (Extra Charge)**

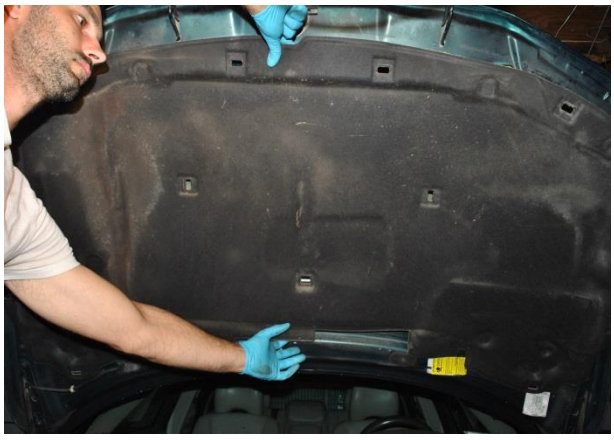
(1) Aluminum Billet Flange Adapter
(1) 2.5 > 2" Silicone Coupler
(1) 2.5" Oeticker spring Worm Clamp
(1) Viton O Ring

**** BEFORE STARTING WORK -Remove negative terminal from battery****

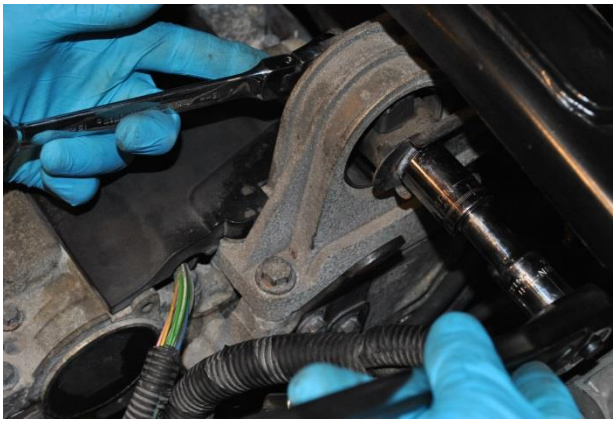
Jack up the front of your car. Always use a floor jack **plus** 2 jack-stands to make sure you have three points of contact for safety in case the jack fails. You will want to place the jack-stands under the side rails of the sub frame so that they are not in the way for your installation.

Preliminary Details. Note: Where applicable, 01-04 vehicles use 12mm and 10mm bolts, while 05-09 vehicles have downsized spec to 8mm bolts.

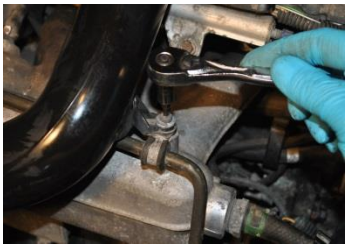
It is recommended that you remove the hood insulation to eliminate potential rubbing on the UCP. Although not necessary for installation this will eliminate rubbing on the UCP. Remove tabs (below left) and lift insulation off hood (below right).



Remove (4) 13 mm strut bar mount bolts; two on each side which connect the strut bar mounting bracket to the strut tower. Remove 15 mm bolt and 18 mm nut from stabilizer bushing on engine head (below left). Lift bar and remove from engine bay. This will give access to turbo housing and stock UCP. On later cars remove the (2) bolts securing the air guide to the underside of the cross brace (below right).



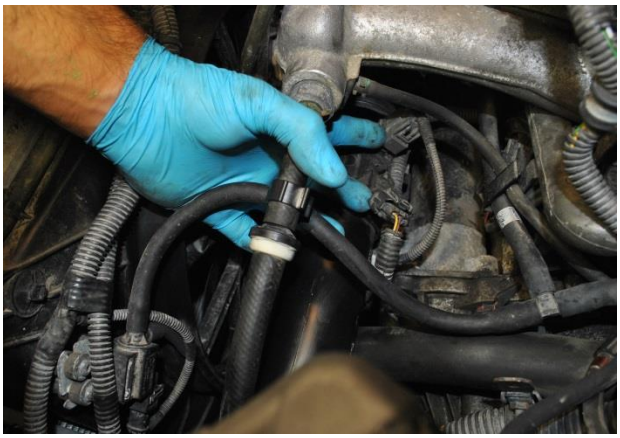
Remove existing intercooler piping and hoses. Remove (2) T-25 Torx screws securing factory UCP to front of intake manifold. On R cars there are (3) T-25 Torx screws with the extra one towards the rear of the engine head.

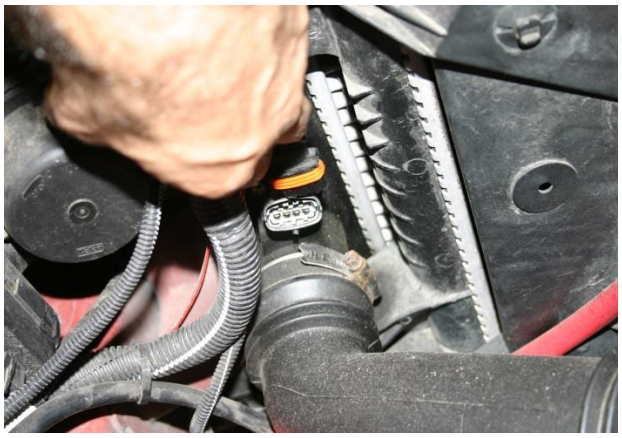


Loosen 7mm turbo coupler clamp with 1/8” drive deep socket and separate coupler from turbo outlet (below left) If turbo setup consists of a K24 Turbo outlet with V-band clamp, remove V-band with T-30 Torx Socket (below right). Save the V-band save for reinstallation.

Loosen 7mm clamp from lower side of UCP (Below Left). Lift factory UCP from engine and remove. Loosen 7mm clamp from hot (PS) of IC and remove coupler from IC (Below Right).

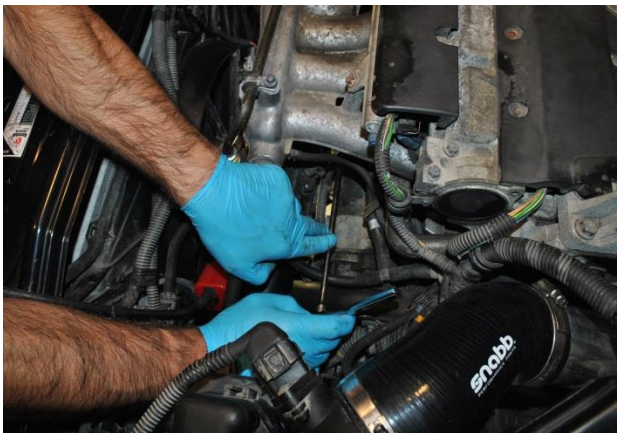
Carefully remove clips holding MAP and IAT sensors from factory CLP. **Note:** 01-02 vehicles have separate sensors (see below left), while 03-07/09 vehicles have a combined sensor mounted on the factory IC, (see below right)

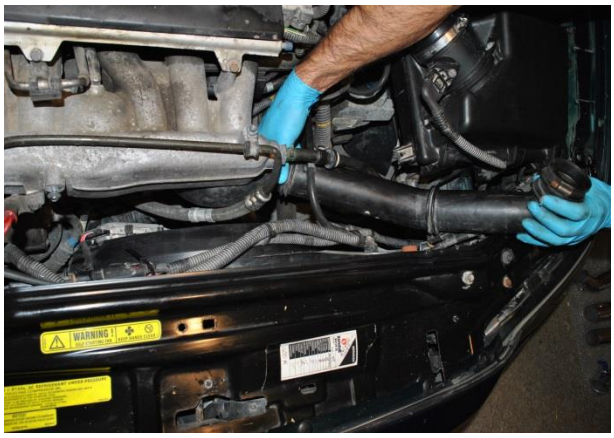




NOTE: For throttle body pipe removal the clamp is typically facing forward (toward the fan shroud) on a factory vehicle. We recommend using a 7mm socket to get to this. The space is tight you have to reach under the intake manifold to get to this clamp. It is *very* helpful to have a mirror to locate the clamp head before you get started.

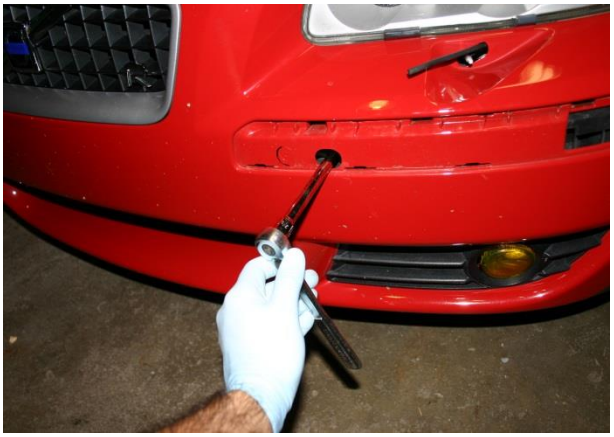
Some vehicles may have throttle body clamp oriented facing towards DS tire. Throttle body clamps in this situation can be accessed from the side of the intake manifold with a 1/8” drive socket and 14” extension, as seen on the next page (below left).



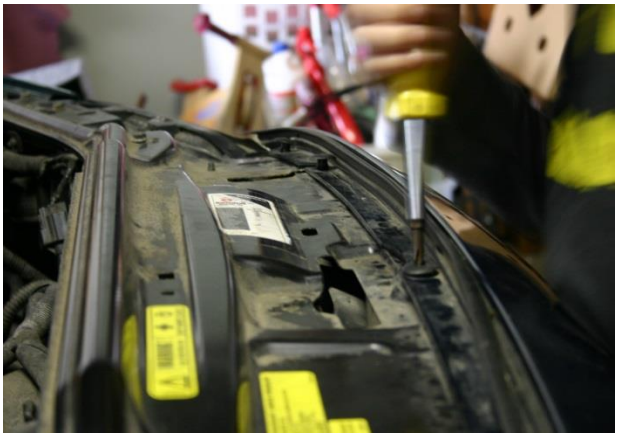


Remove Bumper Cover. Note: A helper is recommended and will make removing the bumper cover much easier

Remove (2) 12mm or 10mm bolts accessed behind trim pieces on the front of the bumper cover, one on each side (below right). It will help to gently pry the trim piece out at the corner with a plastic trim tool or bone tool to get a finger hold, the trim will then unsnap from the bumper cover(below left). Using a flat plastic tool will help to prevent damaging the surface of the bumper.



Remove (6) push-clips (bulkhead rivets) from top of bumper cover (below left). Un-clip fog light harnesses from underneath vehicle (below right).



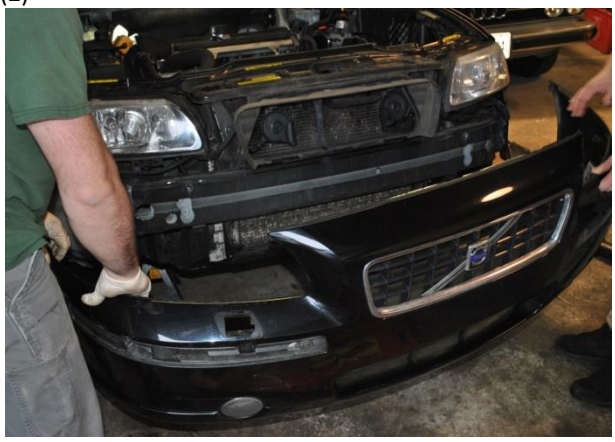
(01-04 vehicles) Loosen (2) T-25 bolts, one in each fender well, turn screw counterclockwise to loosen the retaining clips (below left). Remove (2) 8mm nuts from the headlamp wipers, remove the washer fluid hoses and take off the wipers (below right). Pull out bumper cover corners, away from fender wells and slide bumper cover off vehicle.

(05-09 vehicles) Remove (2) bolts, one on each side, from the top of the fender wells which secure the top tips of the bumper cover (pic 1). Slide the bumper cover forward just enough to access the headlamp washer jet assembly (pic 2). Remove the retaining clips (pic 3) and slide the bumper cover off the vehicle (pic 4).

(1)

(2)

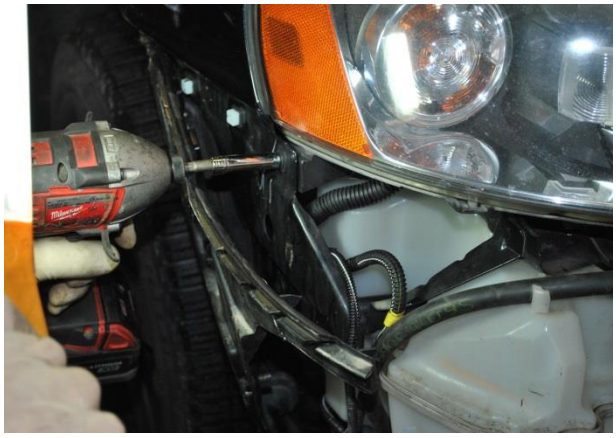
(3)



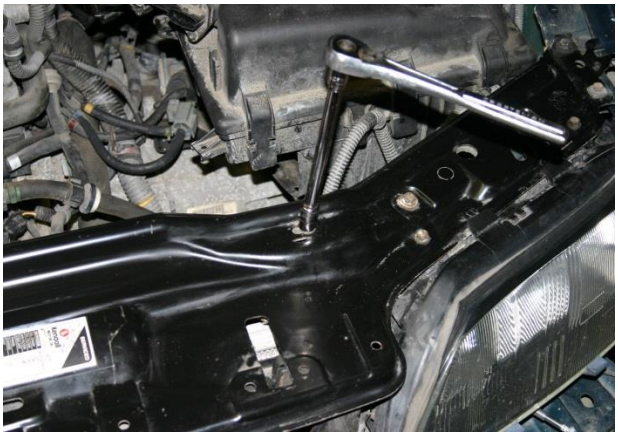
(4)

Remove Headlight Bolts. Remove (6) 10mm or 8mm headlight bolts, (2) on top of cross brace (below right) and (1) behind grill for each headlight (below left). Full removal of headlights is optional though not necessary to remove factory IC.
Note: If full headlight removal is **not** desired continue on to **Cross Brace Removal**.


Next, remove (2) T-25 bolts and 8mm or 10mm bolts securing plastic bumper cover brackets to fender wells (Below Left). You now have access to the final headlamp bolt behind the removed bracket (Below Right). Disconnect the headlamp wiring harnesses and remove headlamps.

Cross Brace Removal. Remove (10) bolts securing cross brace to frame. (8) on top, (2) on the face (see below)




Disconnect the wiring harness for the horns behind DS headlight (Below Left). Remove (4) 10mm or 8mm hood latch bolts, two on each side of cross –member face (Below Right). Pull Cross brace forward and away from securing pins on bumper, then up and off. **Hold in position**.

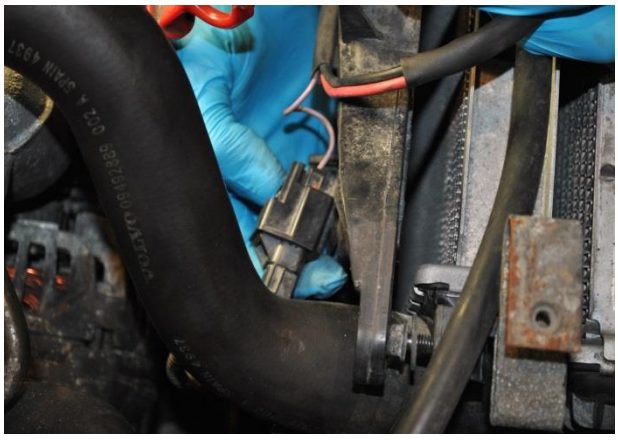
Next, on underside of cross brace (DS mounted at the top), disconnect hood latch wiring harness (below left) and remove the hood latch cable from the clips (below right) freeing the cross brace from hood latch assembly. Remove the cross brace from the vehicle. **Note:** It is a good idea to temporarily zip-tie the hood latch assembly to the front of the bumper reinforcement bar to keep it out of the way.

Cars equipped with Auxiliary coolant line. Disconnect (2) wiring harnesses for horns (Below Left). Remove (2) Torx bolts that secure coolant line to mounting tabs (Below Right).

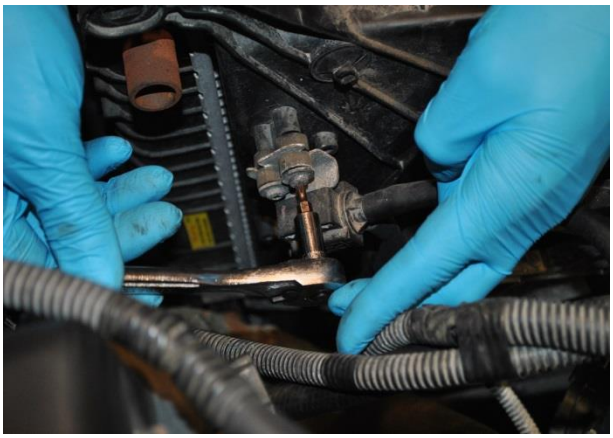
Next, un-clip the rubber tabs from the cross brace at the four corners of the auxiliary shroud (see below). Swing the coolant line and shroud out towards PS and secure away to headlight frame with zip tie.

Splash Guard Removal. Remove (2) 10 mm bolts securing each side of the splash guard to the frame (below left). Disengage the two tabs from the slots on the bottom of the bumper and remove the guard from the vehicle (below right).

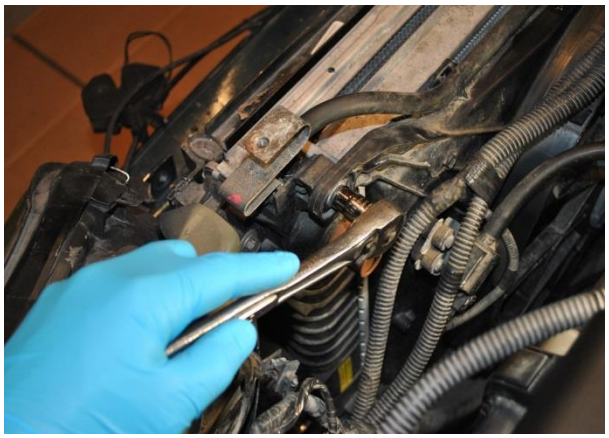
Cooling Fan Shroud. Disconnect (2) wiring harnesses, one on top (below left) and one on PS of cooling fan shroud (below right).



Remove coolant hose and loom from tabs on top of shroud, clip or disconnect any ties holding wiring to shroud and set coolant hose and loom out of the way (below left). On older cars remove (2) Torx screws holding EVAP valve to DS of shroud (below right).



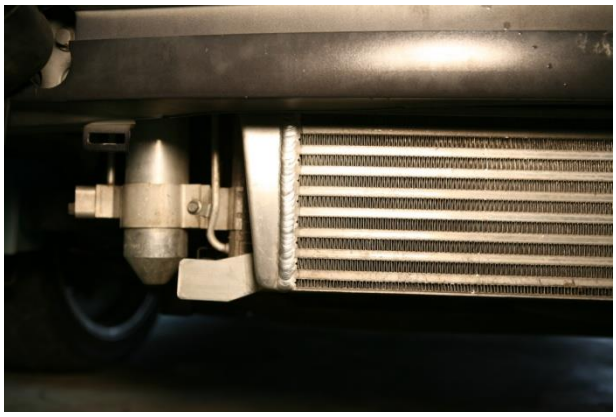
Remove (2) 10mm or 8mm bolts securing top corners of shroud to the radiator (below left). Once free of all wiring and hoses, lift shroud up and out of tabs on bottom of radiator and set aside (below right).

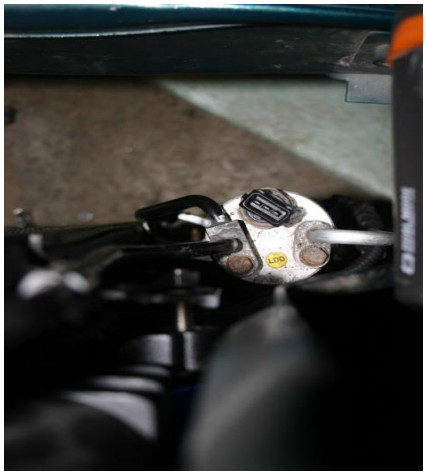


Note: On automatic vehicles the DS AC condenser line will have to be bent to create clearance for the lower transmission cooling line once the factory intercooler is removed. You will only need to compress the line to create sufficient clearance from the lower transmission cooling hard line. To do this compress the line just enough so that the A/C condenser sits tight against the radiator. A large set of channel locks is very effective for this (see below).

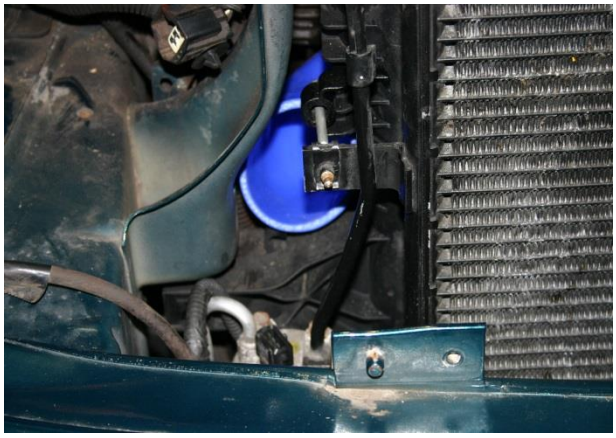
Before installing any hoses the corner tab on the PS of the A/C condenser will have to be rounded off with a file or grinder. We have found that a Dremmel tool equipped with a grinding wheel to be very effective for this (see below).

Factory IC Removal. Disconnect A/C dryer harness.
Note: There are three types of A/C condensers; If car is equipped with the early silver A/C dryer with black lines (Bottom left), it will have to be slightly rotated forward (below right), to allow it to sit tightly against the radiator when the factory IC is removed. This is most easily accomplished by grasping the mounting clamp which secures the dryer to the A/C condenser with a large pair of channel locks and bending it forward towards the bumper.





The black hard line protruding in front of the space where the hot inlet side of the factory IC was located (as seen below) will have to be bent towards the A/C condenser to make room for the new Snabb 180° coupler.



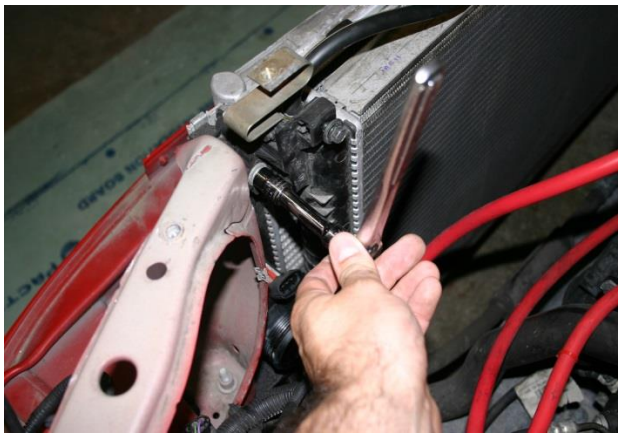
In addition, the loom around the dryer wire harness will have to be trimmed and removed (below left) and wrapped with electrical tape (below right). This will allow the wire to flex down and permit access of the 180° Snabb coupler.

If equipped with an all silver A/C dryer with silver lines (shown below), the silver line will have to be bent slightly in towards the condenser.

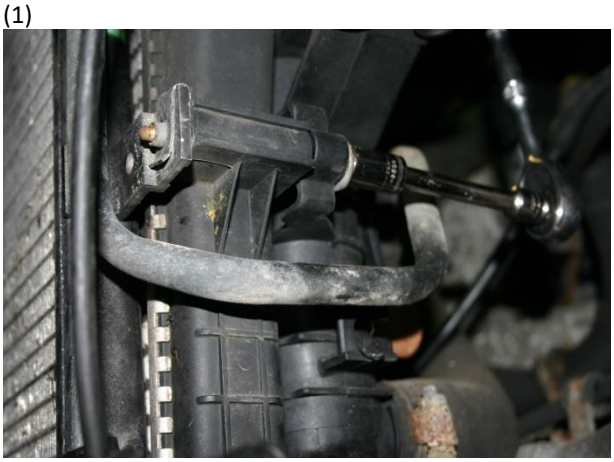
If equipped with the third type of condenser (later style shown below), with the dryer mounted on the side of the condenser no additional modification is necessary as there are no lines in the way.

Now remove (4) 10mm bolts at corners of the assembly (pics 1, 2 and 3). Remove (2) 12mm or 8mm bolts from underside of radiator freeing assembly from frame and allowing it drop down (pic 4). If headlamps were not removed from vehicle, slightly flex outward.

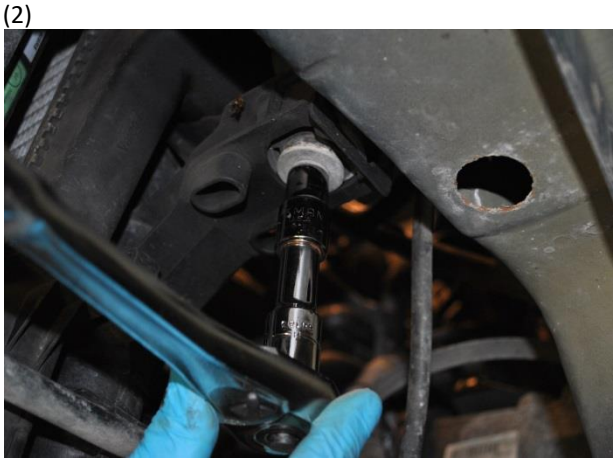
(1)



(2)

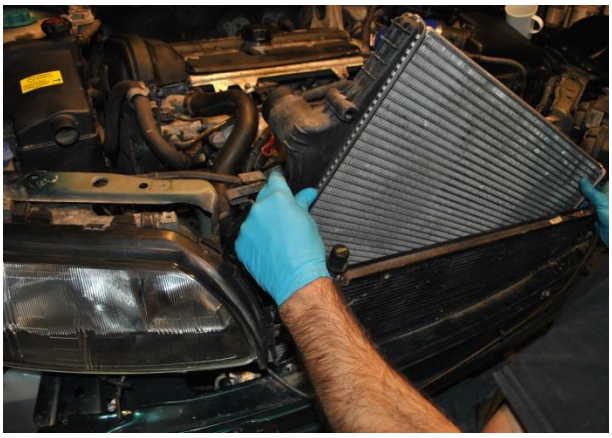


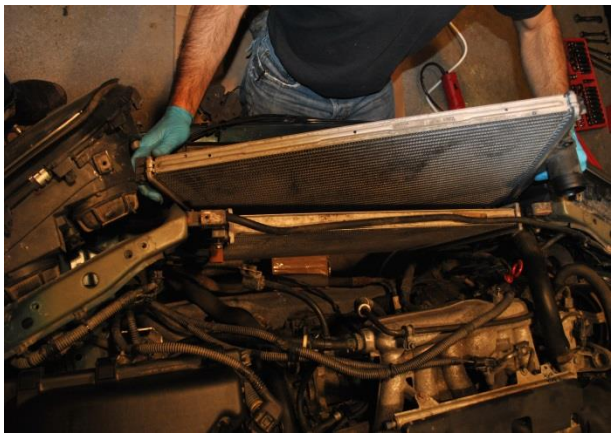
(3)



(4)

Move radiator rearwards, towards engine and A/C condenser forward towards bumper. Pull IC out from PS first, then up and out from DS. Keep manipulating IC until it clears the frame on either side (see below).

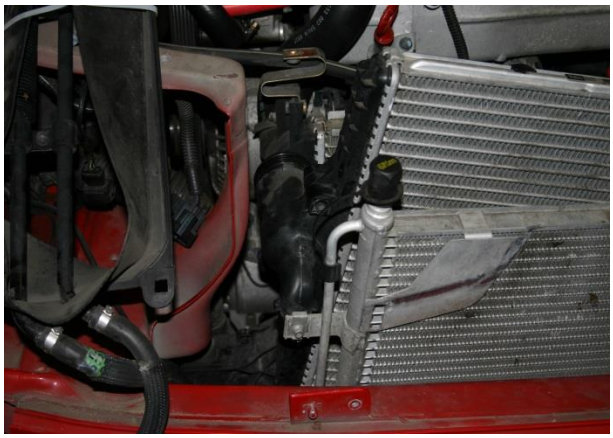




On later style cars with combined sensor located on IC outlet, remove the sensor to ease removal of IC. The sensor can be accessed by pulling IC slightly outward, (below left) and removed with a Torx socket. On vehicles equipped with a rubber gasket mounted behind the bumper, this will need to be removed to make room for the new IC (below right).

Note: On cars equipped with an auxiliary IC this will need to be removed and deleted (Below Left/right).

On Cars equipped with the auxiliary IC (as shown below) the clearances are extremely tight as there is an extra intercooler elbow. Removal is only possible in one configuration. Keep working at it and it will come out. Removal sequence is the same for all factory IC's, PS side first, then up and out from DS. It's helpful to have the radiator and condenser very loose for this process. The condenser has to be pulled toward the front of the car and the radiator has to be pushed toward the rear of the car. Keep manipulating the three pieces to free the IC from the assembly. This can be quite challenging and requires effort to get out for this style. Having an extra set of hands to move the condenser and radiator around really helps.

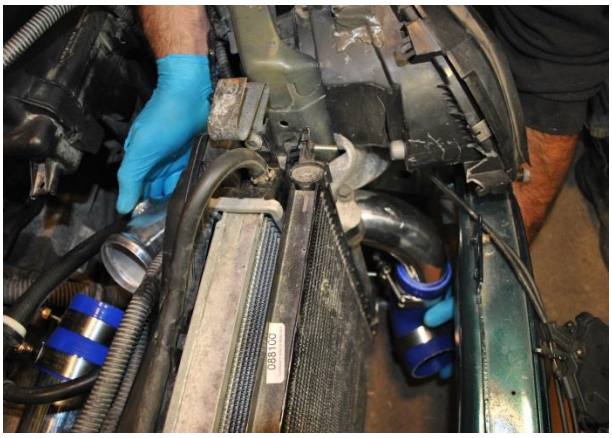


Reconnect radiator to condenser with provided M6x30 bolts. Reinstall radiator mounting bolts to frame underneath.

Note: Only tighten radiator mounting bolts half way. This will allow for ease of installation of new piping. Reinstall fan shroud, loom, cooling hose and wiring harnesses.
Install New IC Piping. Note: ****Use WD 40 or soapy water to lubricate pipe ends for ease of assembly
Assemble TB coupler, 2.75" pipe and 2.75" > 2.5" reducing coupler with 2.88" and 3.25" clamps and ½ tighten (below left). Install TB coupler onto TB with # 48 worm clamp and 1/2 tighten (below right).
Note: It is recommended to install #48 throttle body clamp with worm gear nut facing DS tire with a 1/8" drive socket and 14" extension as seen in removal pic on page 4.

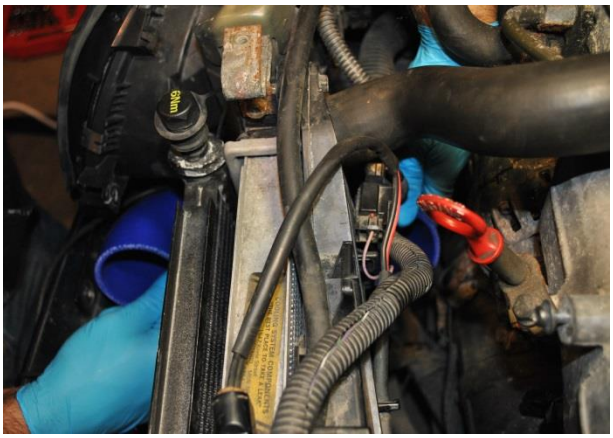
Install 90° IC coupler to bottom of S-pipe with 2.88" clamp and ½ tighten. Snake S-shaped 2.5" cold pipe through opening on DS between radiator and frame (below left). **Note:** It is a good idea to wrap S-pipe with foam to prevent scratching the pipe when it is guided through the opening. Once in place remove wrapping. Connect top of S-pipe to TB reducing coupler with 2.88" clamps and ½ tighten (below right).

Note: Make sure fan shroud wiring harness is located above S-pipe before connection is made.



Slide 180° coupler through PS opening, between frame and radiator, with the long leg towards the inside of the engine bay (below left).

Note: Lubricate outside of 180 ° coupler to allow it to slide more freely through opening (below right). Place a 2.88” clamp on the engine side of the 180° coupler.

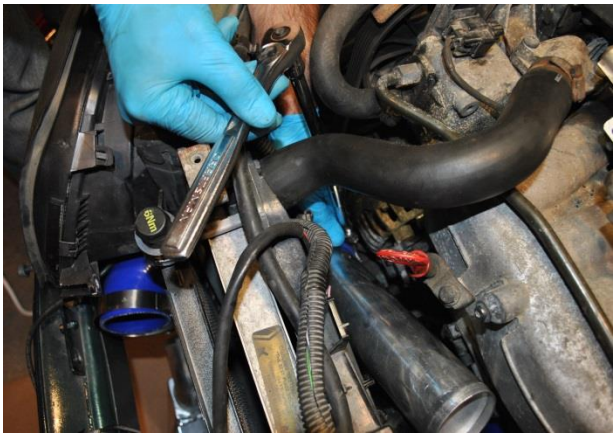


Now tighten mounting bolts on underside of radiator the rest of the way (see below).

Install 9.5” straight pipe in to engine side of 180° coupler and ½ tighten clamp (next page, pic 1). Install hump hose coupler to top of 9.5” straight pipe (next page, pic 2). Install UCP to Turbo coupler with 2.88” clamps ½ tighten. Install top section of UCP to Turbo with the 2.25” clamp and bottom section to hump hose coupler with 2.88” clamp, ½ tighten (next page, pic 3).

Note: If using K24 Turbo with V-band clamp, insert flange adapter into turbo outlet and secure with original factory V-band clamp. Then attach turbo coupler to flange adapter with Oeticker worm clamp.

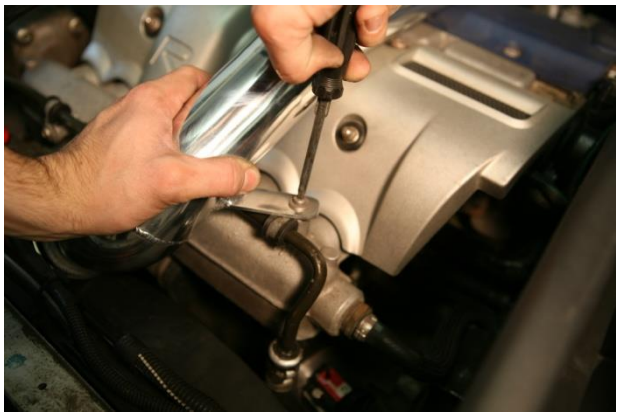
Next, align UCP and re-install T-25 bolt through bracket on UCP and into mounting point on top of engine (next page, pic 4).



(1)

(2)

(3)

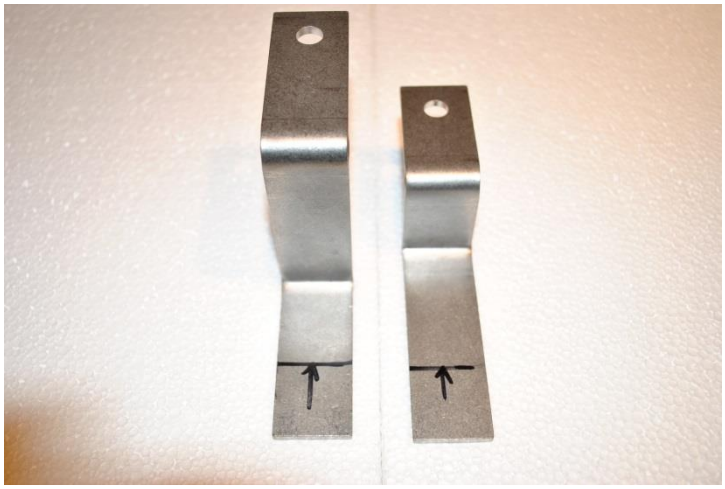


(4)

Install New IC. Place a 2.88" clamp onto the 90° coupler and one onto the IC side of the 180° coupler. Lift new IC into space behind bumper from below and connect upper hot side to 180° coupler first (below left), then cold lower side to 90° coupler (below right), ½ tighten clamps (note orientation of clamps below).

Note: If working alone it may help to support IC from below while making coupler connections.

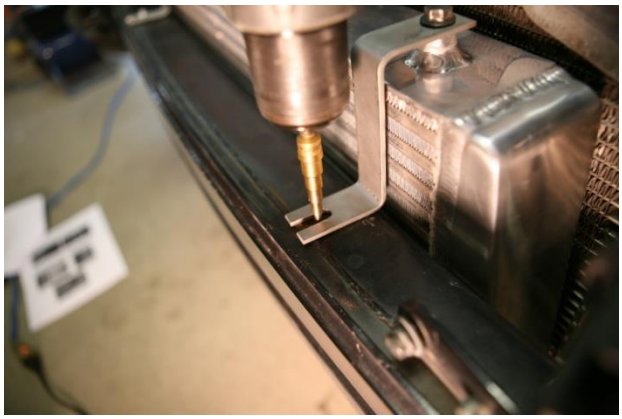
IC Bracket Installation.



Bolt upper brackets to IC using M8 x 14mm bolts and 5/16 lock washers and center IC so that each side is roughly 2” from the sides of the A/C condenser. Drill a hole through each bracket approximately at the location shown above and into the bumper and fasten bracket to bumper with (2) 12x1 self- tapping screws (below left).

Mark location of lower A/C condenser bracket bolts onto lower IC mounting tabs. Drill holes through lower IC mounting tabs and fasten lower IC to lower condenser with (2) 12x 1 self-tapping screws, one on each side (below right).

*****Now fully tighten all T-bolts and worm clamps. *****



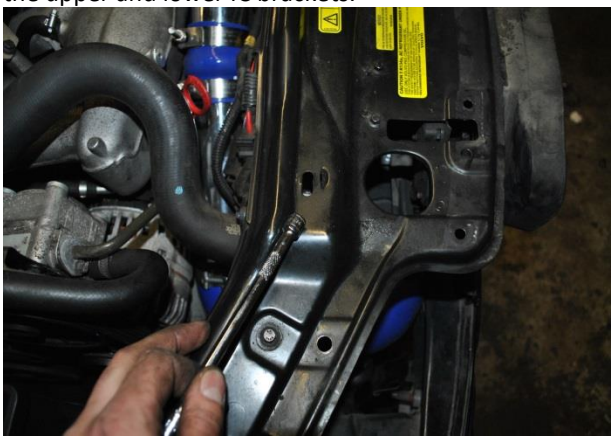
Reassemble all parts in reverse order. Refer back to pictures to help identify wiring harness hookups and bolt sizes.

Note: For 01-02 IAT & MAP sensors (early style), IAT clips in while MAP sensor is secured with M6x12 bolt and lock washer. For 03-09 (late style) the MAP sensor is secured with M5x20 bolt and M5 split ring lock washer.

Note: On cars equipped with the A/C dryer that was adjusted forward, you will need to trim a small section of the splash guard as seen in the pictures below, (PS around A/C dryer, below left) and (DS below right).

Note: Orientation of A/C Condenser is now closer to radiator (See Below). Before bolting cross brace back to frame check to see if A/C charge port is accessible. If it is not, trim cross member around charge port hole with a grinder, hole saw or dremmel tool to make charge port accessible.

Note : The (2) mounting bolts that secure the top of the radiator to the cross brace may no longer line up, (seen below left/right). This is of no concern as the radiator is now secured to the bumper reinforcement bar via the upper and lower IC brackets.



Note: On S60's the gasket on the outer edge of the splash guard will have to be trimmed to make room for the new IC.

Note: S60 R bumpers will require a .75" to 1" section to be trimmed of the rear edge of the bumper to make room for the Snabb IC (see picture below). There are multiple bumper styles on the market and additional trimming of inside of bumpers may be necessary.

Note: Finally, you may wish to spray the A/C dryer or any other visible metal parts with black spray paint prior to installing bumper.

Note: Re- check and tighten all clamps as necessary. Check for leaks and test drive.

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