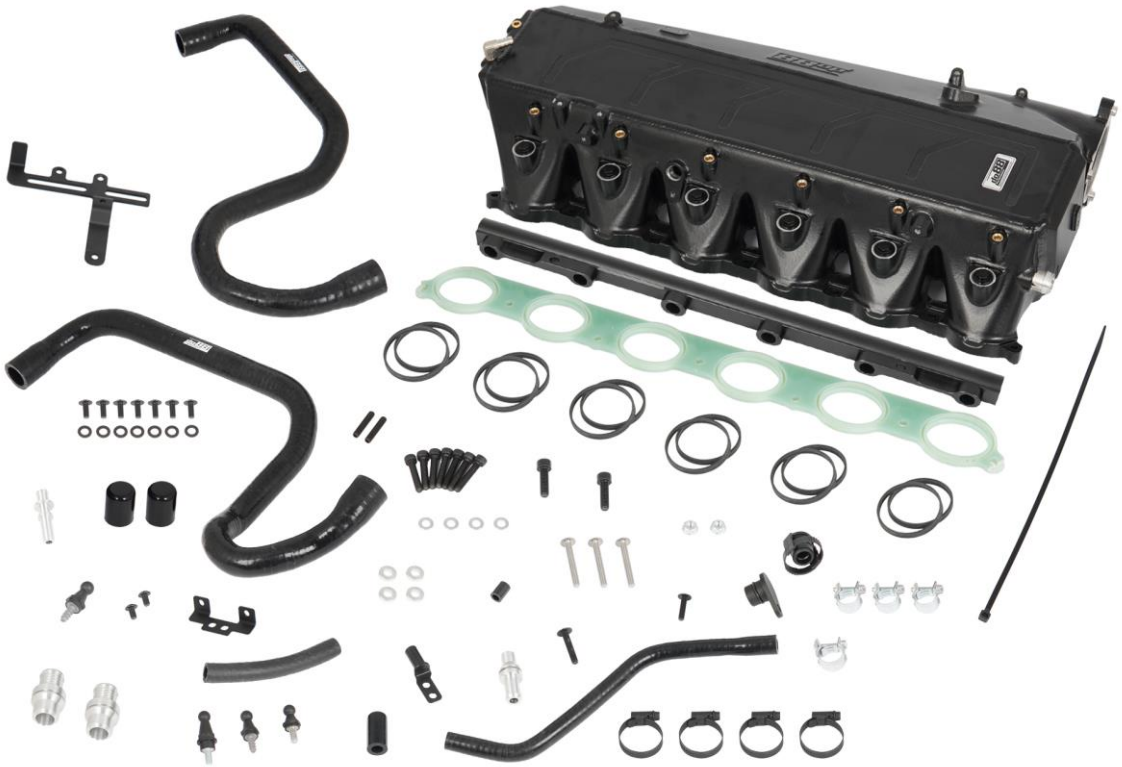
Installation Instruction

Performance Intake manifold with Intercooler

BMW F-Chassis

B58 Gen 1

PART NUMBER: ICM – 440



Description

This instruction shows how to replace the OEM Intake manifold with Intercooler with do88 performance Intake manifold with Intercooler.

At this type of installation, we always recommend that you have mechanical experience and knowledge about safety during work on vehicles.

This installation instruction is performed on a GR Supra and the procedure for removal of panels and covers will differ a bit if the install is carried out on any other model this product fit.

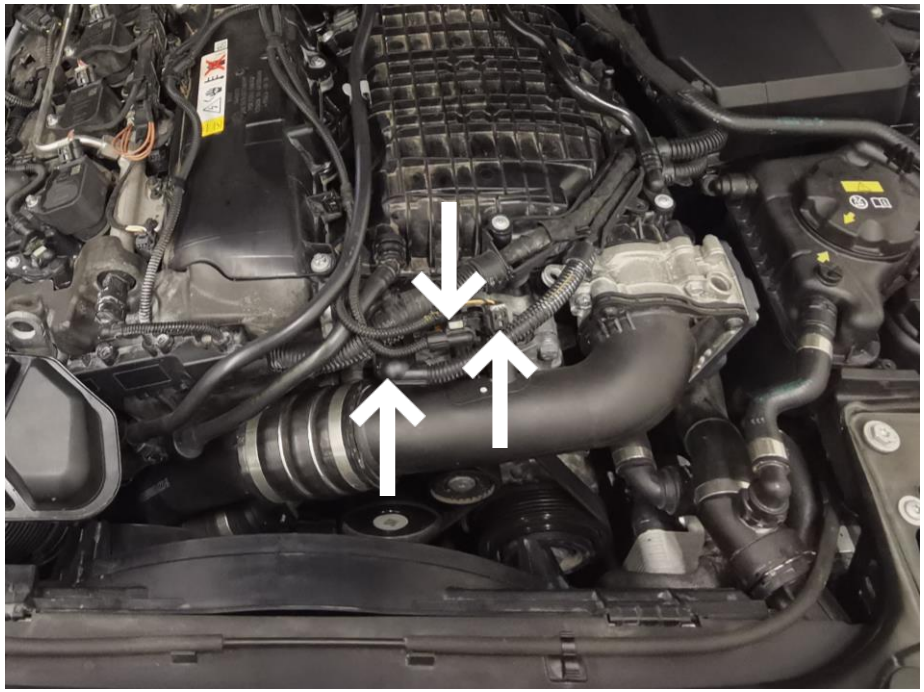
Parts List

1x do88 Charge air cooler
3x Brackets
3x Silicone hoses
4x Quick connector adaptors
1x Thermal barrier spacer
12x FKM-silicone o-rings
3x Engine cover mounting pins
10cm Fuel hose hose (8mm)
1x Plastic spacer Ø9/5,4 Length 12mm
7x M6x30 Allen screws
7x M6 Spring washers
1x M5x20 Allen screw
7x M5x12 Allen screws
2x M5x8 Allen screws
1x M5x25 Allen screw
3x M6x45 Torx screws
2x M6 Flange nuts
4x M6 Washers
4x M6 Thick washers
2x M6x25 Allen pin screws
2x Stripes 4.8x370mm
3x Mini hose clamp 13-14mm
1x Mini hose clamp 14-15mm
2x Hose clamp 20-32mm

Parts only included in the MERA-version (ICM-440-G):
1x Blanking plug EVAP-connection
1x Blanking for crankcase connection
1x Fuel rail
2x M6x20 screws

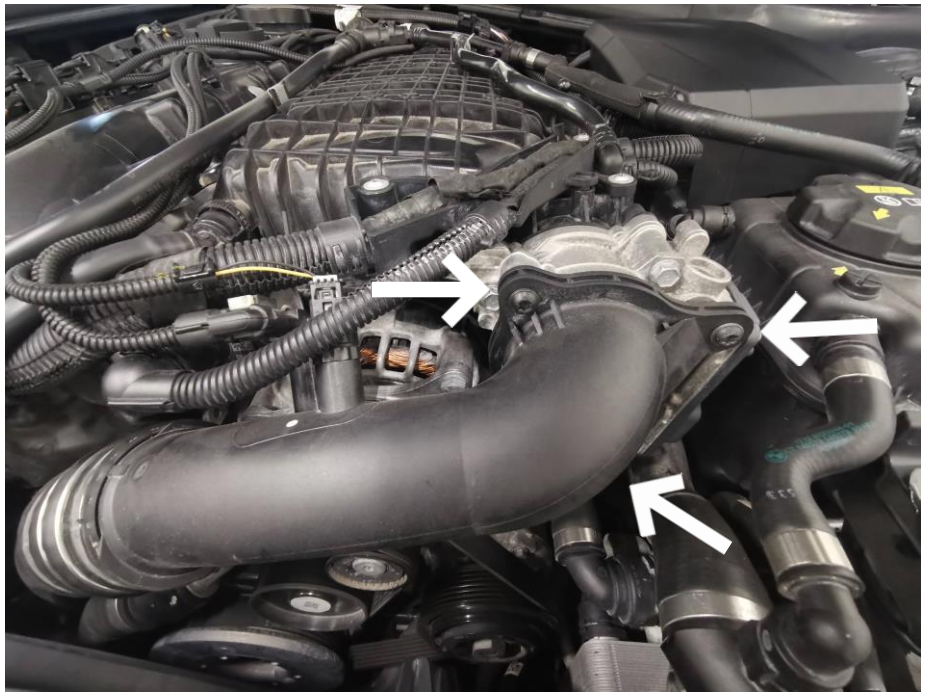
Step 1

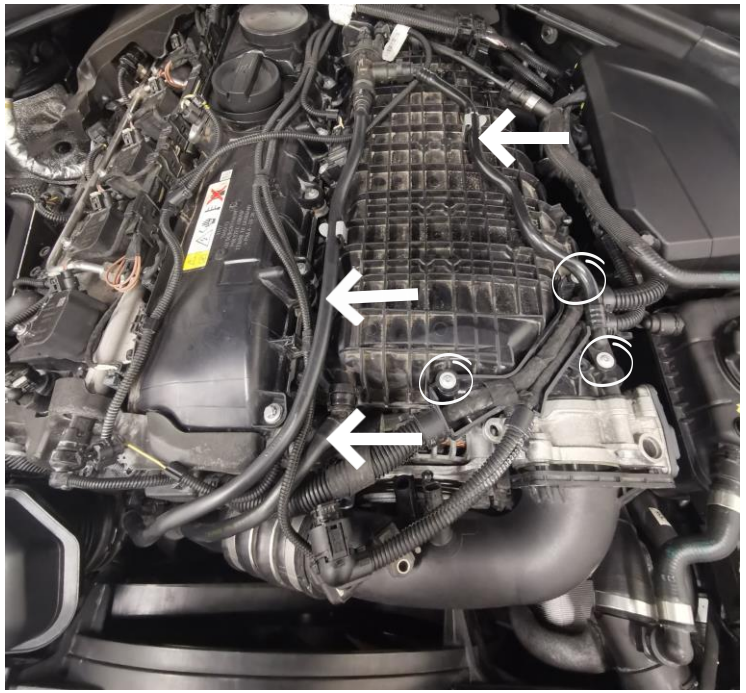
Remove the engine cover.



Step 2

Disconnect the electrical connectors from the charge pipe sensors and valve lift solenoid located on the cylinder head.





Step 3

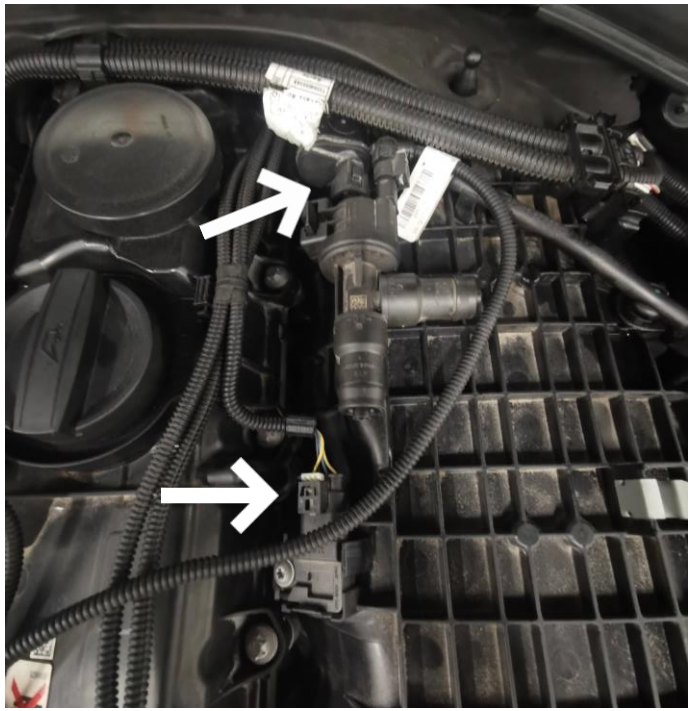
Remove the 3 T30 screws that holds the charge pipe to the throttle body.

It's possible to do the installation without removing the charge pipe entirely, but there will be more space if removed so we recommend this.
To remove the charge pipe completely, first remove the turbo inlet then charge pipe from turbocharger. For more detailed description, see do88 B58 charge pipe installation instruction.

Step 4

Loosen the 3 x T20 screws (Circled in picture) holding the wire harness and EVAP line to the intake manifold.

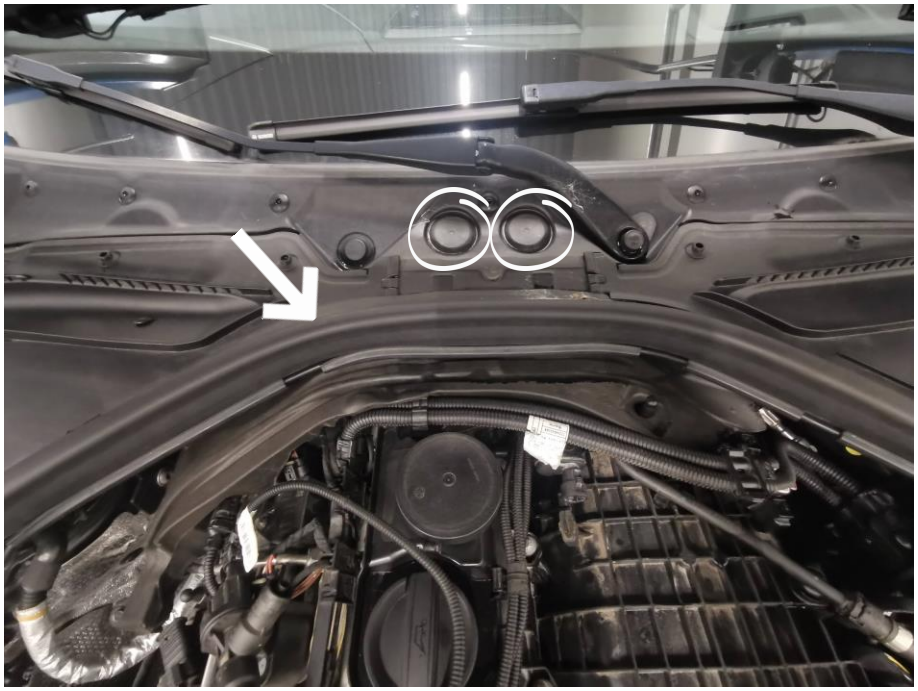
Remove the 3 EVAP lines marked with arrows.



Step 5

Disconnect the EVAP valve from the line coming from gas tank and place it to the side.

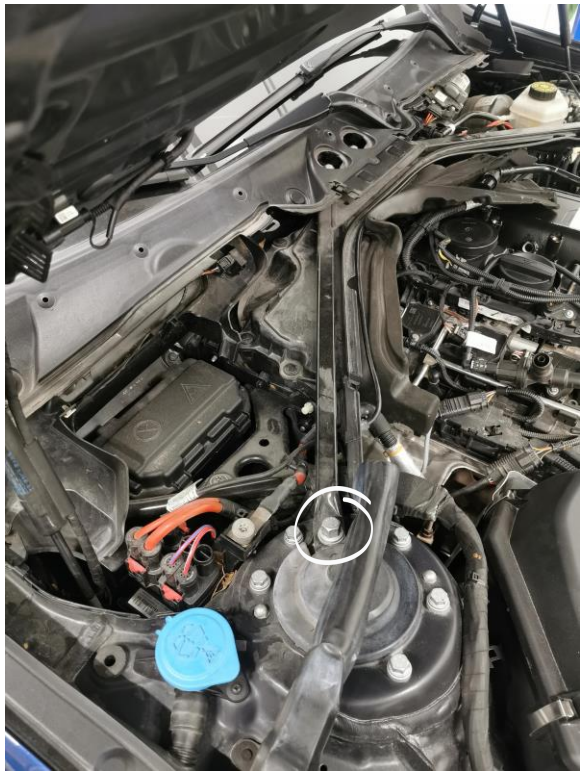
Disconnect the intake air temp sensor.



Step 6

Remove the rear engine bay rubber sealing strip marked with an arrow.

Remove the plastic covers over the rear strut brace mount marked with circles and remove the 2 x E18 screws holding the rear strut brace.

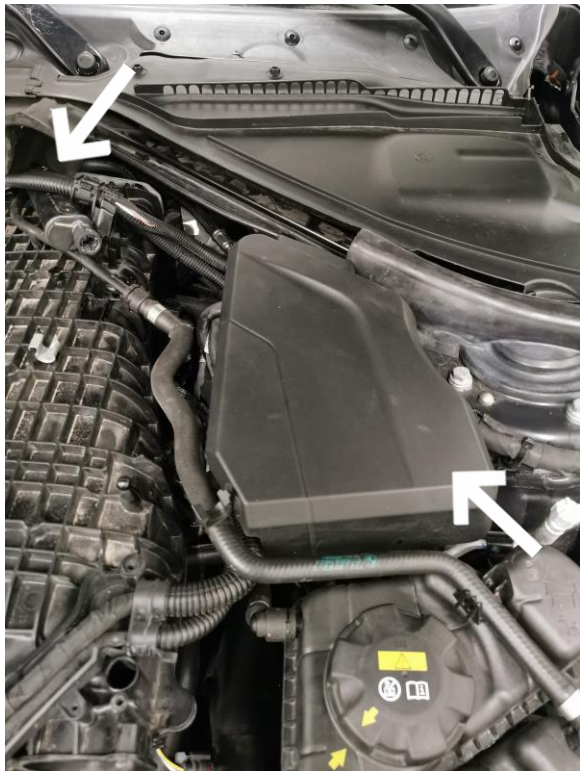


Step 7

To reveal the outer strut brace mount, remove the right and left side plastic covers by twisting the 6 plastic 10mm Hex nuts in the rear and remove.
Then remove the 1 x 10 mm Hex screw on each side holding strut brace to the strut tower.

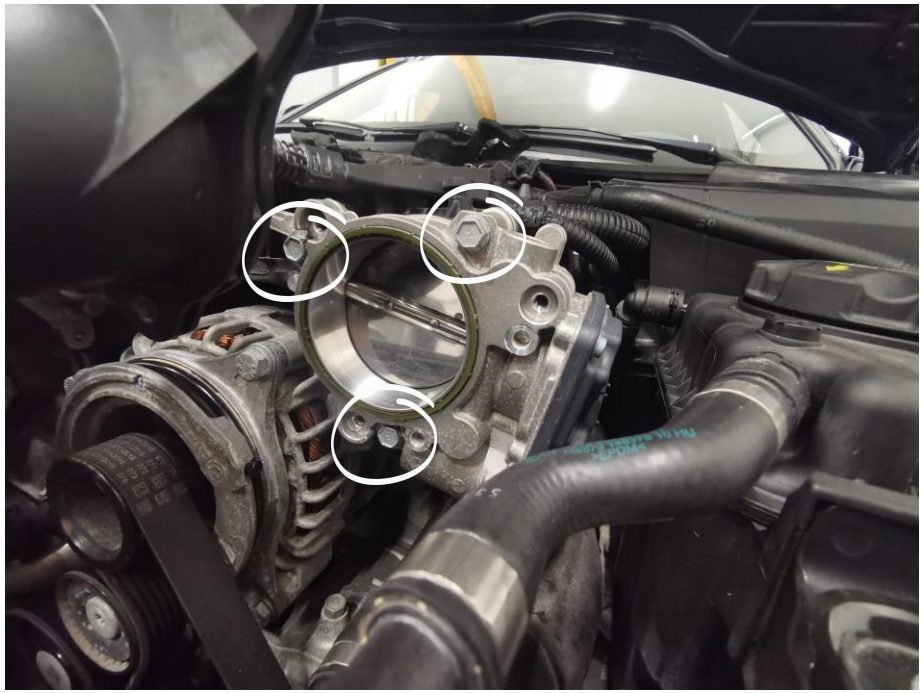
Step 8

Remove the plastic panel under the brace by removing the 7 x 10mm Hex screws holding it in place. The 3 on the right shown in picture and the other 4 on the left side.



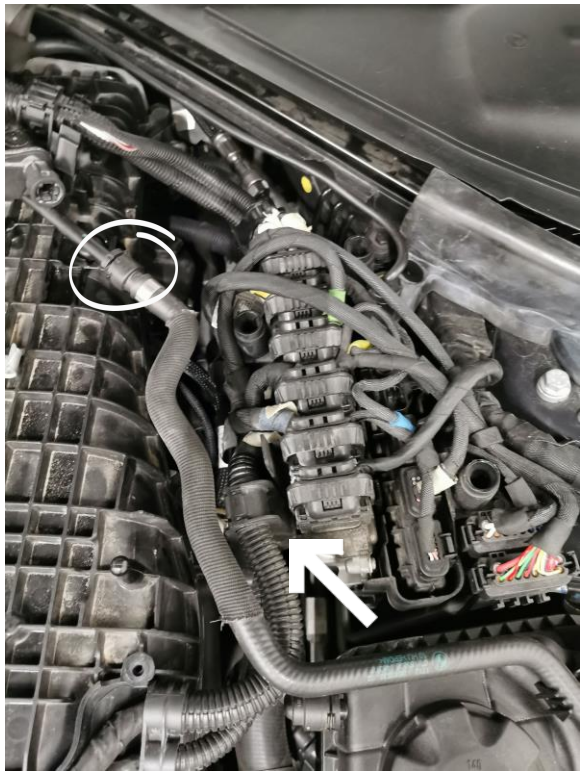
Step 9

Remove the ECU cover and sound insulation foam on the rear part of the engine.



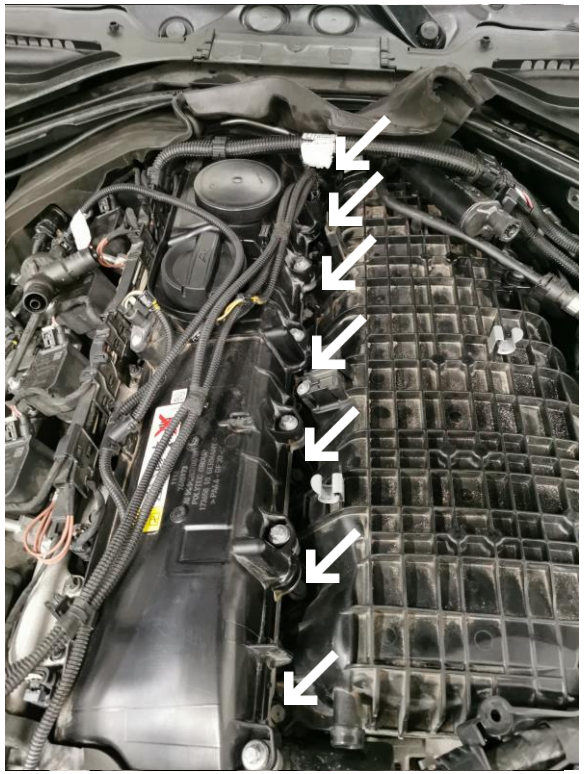
Step 10

Loosen the 3 x 10mm Hex screws and disconnect the electrical connection in the bottom then remove the throttle body.



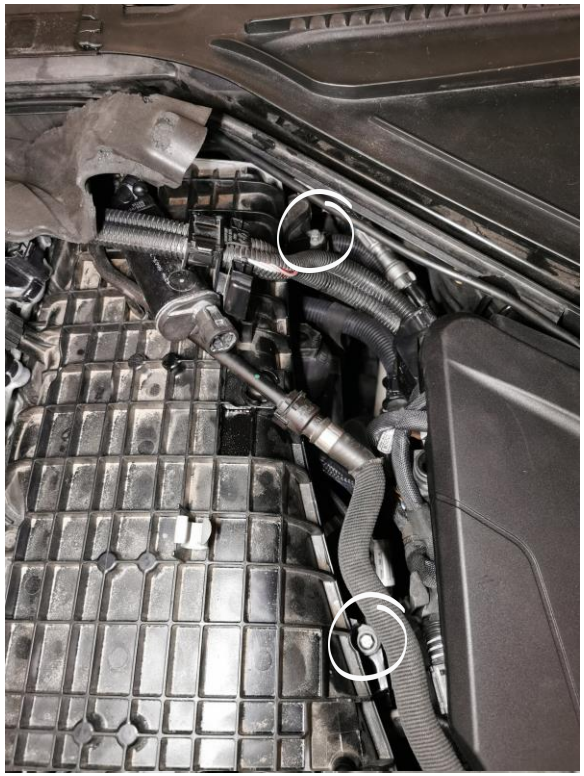
Step 11

Disconnect the coolant bleeder hose from the inlet manifold and cap the inlet manifold side with the included cap.
Then loosen the wiring harness bracket holding the wiring harness to the ECU mount.



Step 12

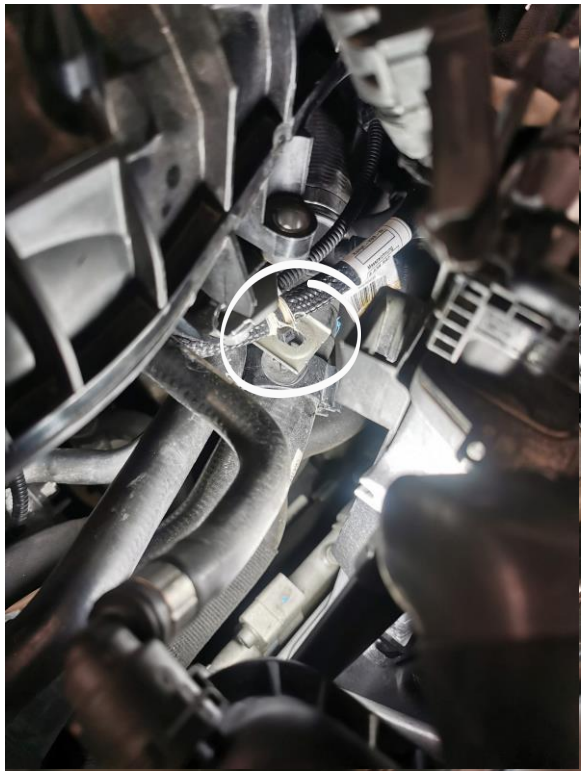
To make space for the intake manifold screws, separate the wiring harness from the valve cover and move the harness to the side.
Then loosen the 7 x 10mm Hex holding the intake manifold to the cylinder head.



Step 13

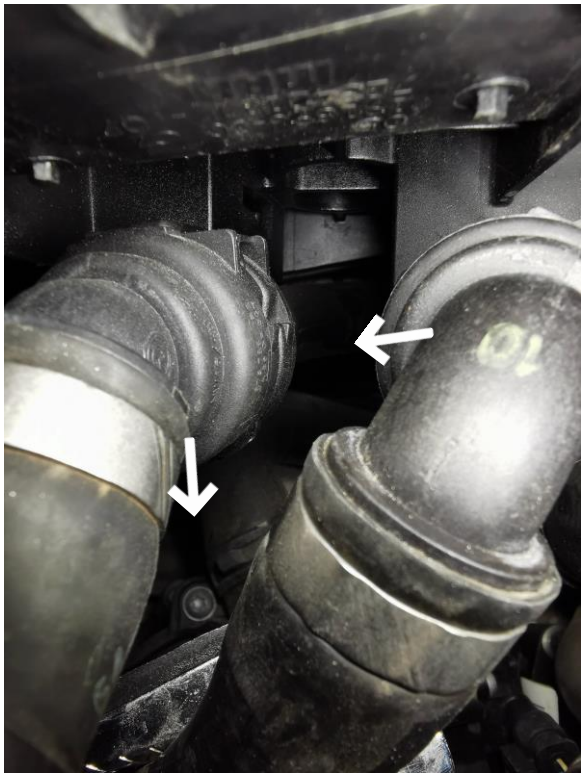
Loosen the 2 x E10 screws holding the intake manifold to the brackets on the left side.

Now the intake manifold should be loose, the water inlet and outlet underneath needs to be disconnected before the intake manifold can be removed.



Step 14

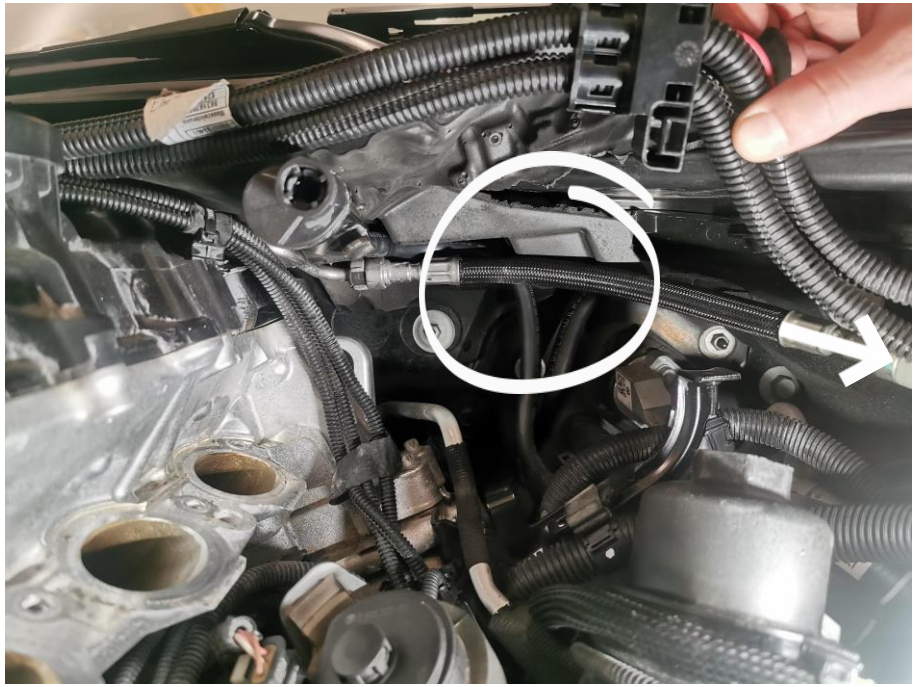
Loosen the large coolant hose and the manifold coolant hose from the clips holding them to make some more space.
Then pinch the inlet and outlet hose to minimize the amount of coolant being spilled.



Step 15

Disconnect the intake manifold water outlet and inlet.

The front connection clip is released in a downward direction, then disconnect it from the intake manifold and cap it of on the intake manifold with included cap. The rear connection clip is released in a forward direction, then disconnect it from the intake manifold and cap it of on the intake manifold with included cap.



Step 16

At this point you can take out the intake manifold in a forward direction between the harness and generator.

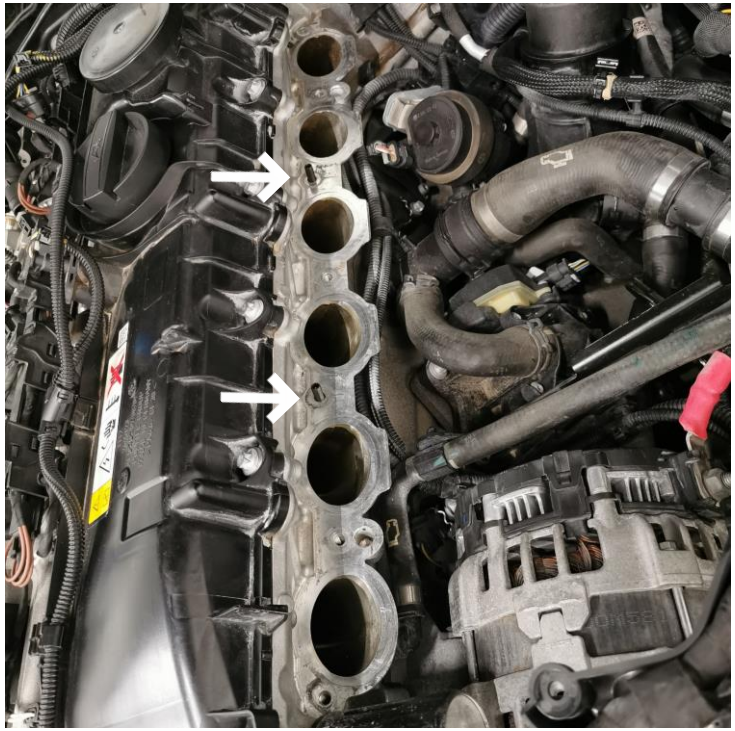
When manifold is removed, move the EVAP line behind the fuel hose. To ease this, un-clip the fuel hose from it's bracket behind the ECU support, where the flexible hose connects to a hard plastic hose.

Step 17

Install 6 of the included sealing rings to the Thermal barrier spacer.

Step 18

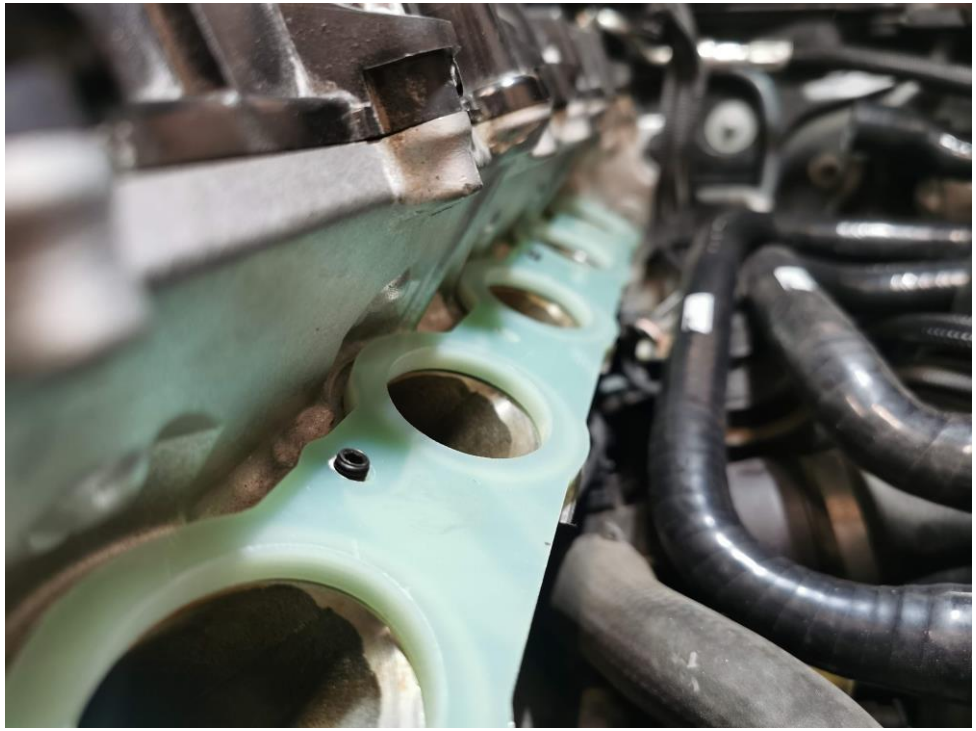
Install 6 of the included sealing rings to the intake manifold flange.



Step 19

At this point make sure there are no dirt or debris in the cylinder head runners.

Mount the two included headless screws in the positions marked on picture and place the thermal barrier spacer on the cylinderhead and make sure the headless screws are flush with the top of the spacer.

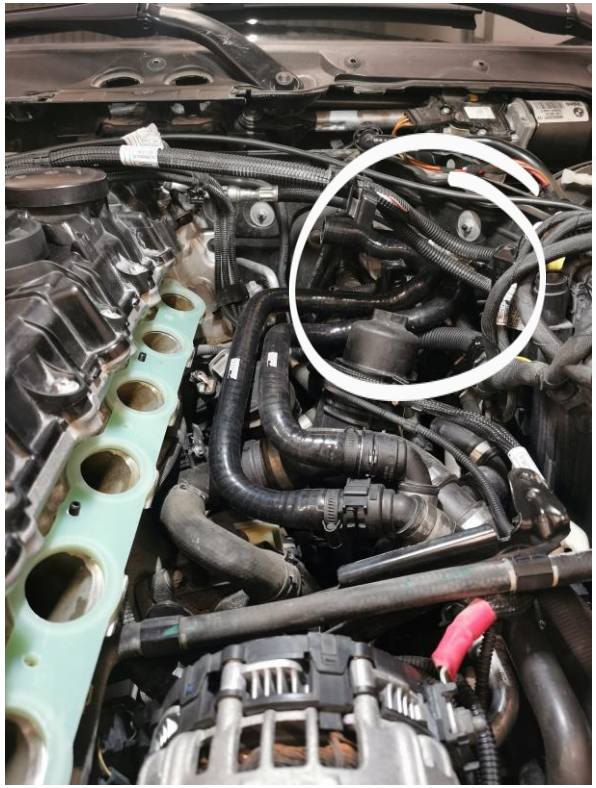


Step 20

Position the spacer on the cylinder head and adjust the headless screws so that they are flush with the top of the spacer.

Step 21

Mount the included quick connector adapters to the do88 performance silicone hoses and secure with included hose clamps (torque to 5Nm).



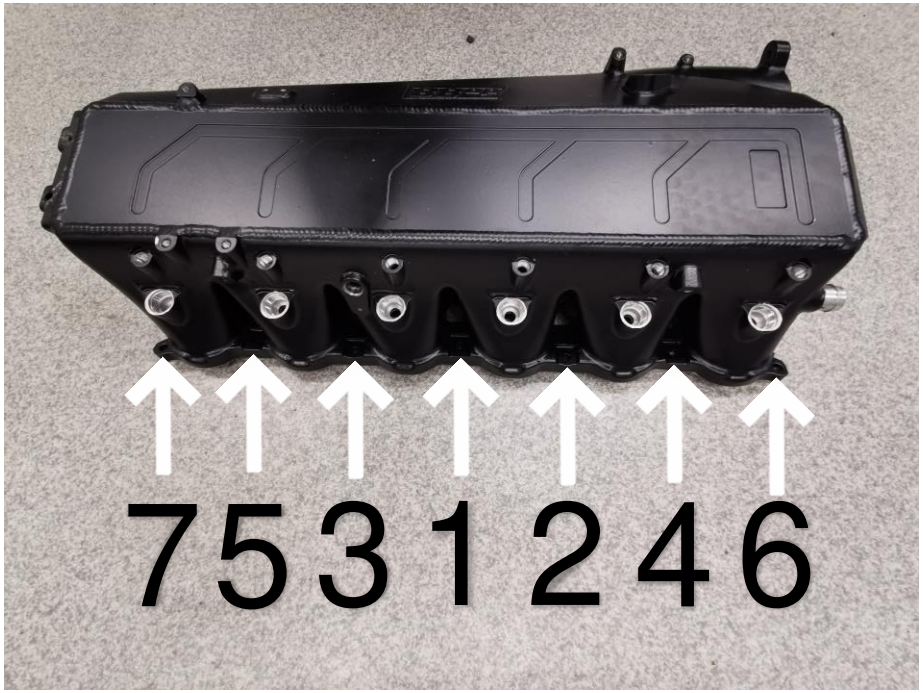
Step 22

Connect the silicone hoses to the OEM connections and place them around the rear intake manifold bracket according to the picture.
The front OE hose should go to the lower intercooler connection and the rear hose to the upper connection.
Fasten the OEM hoses too the supports previously removed.

Step 23

Now mount the do88 Performance intake manifold in the car the same way the OE one came out. Position manifold centered over the headless screws and back them out until they are halfway into the manifold flange.

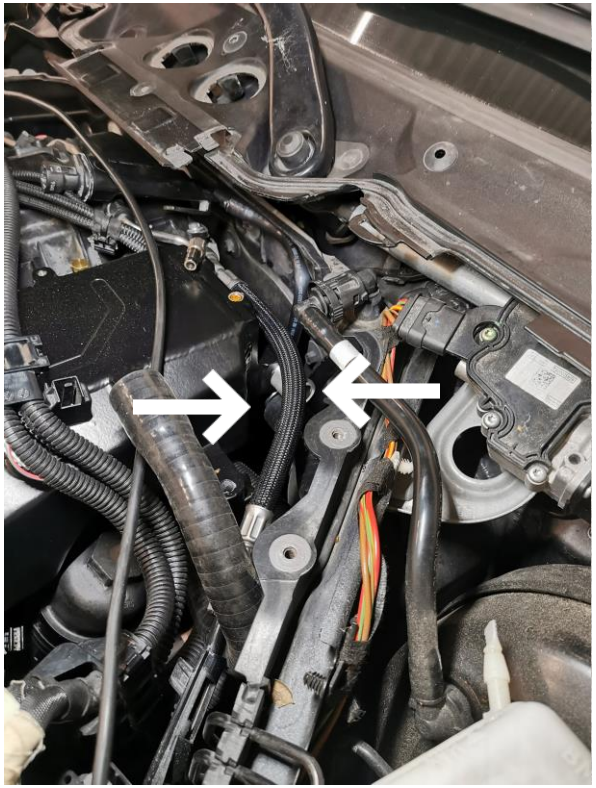
Make sure they are in the center of the hole and moves easily on the way out.



Step 24

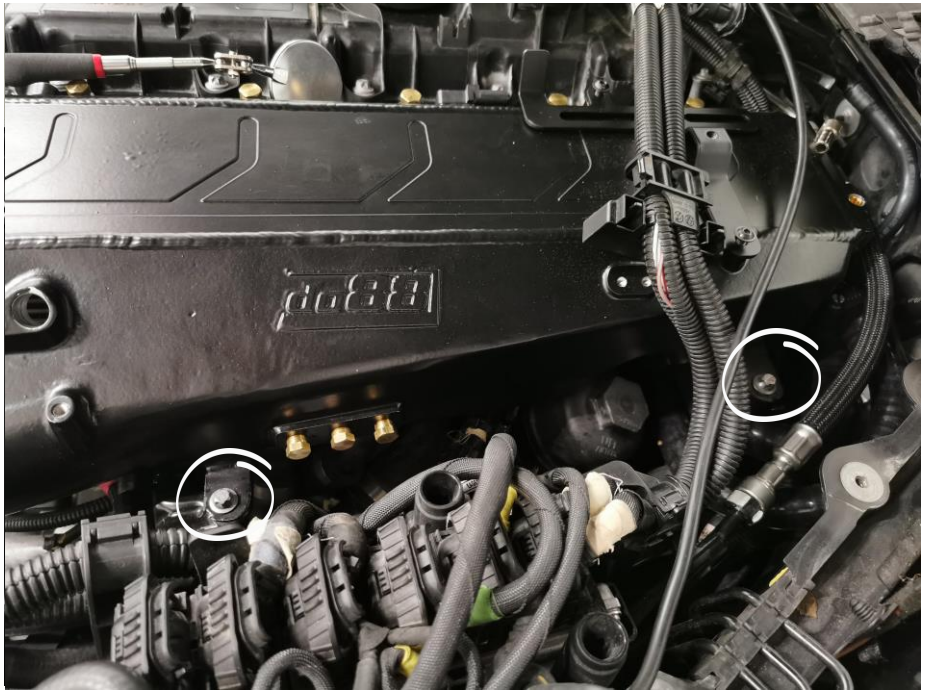
Install 3 x M6 screws and spring washers loosely to the manifold flange one in the middle (pos. 1), one in the front (pos. 6) and one in the rear (pos. 7). Then remove the headless screws and loosely fasten the remaining 4 x M6 Screws and spring washers.

Torque down to 5Nm starting in the middle and following the sequence numbers in the picture, do this twice, then torque to 10Nm in the same sequence, do this twice.
Double check that every screw still is torqued to 10Nm.



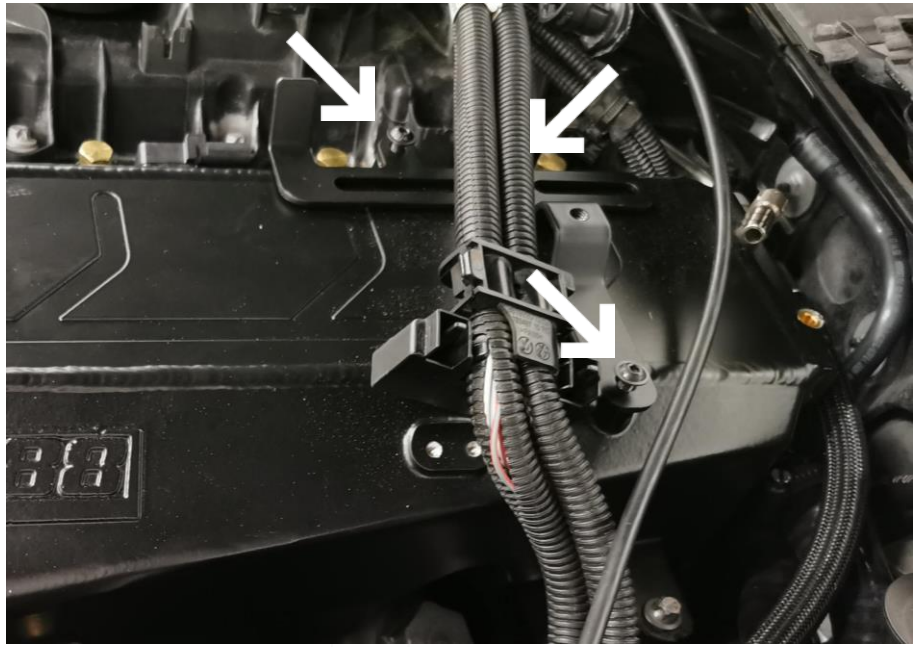
Step 25

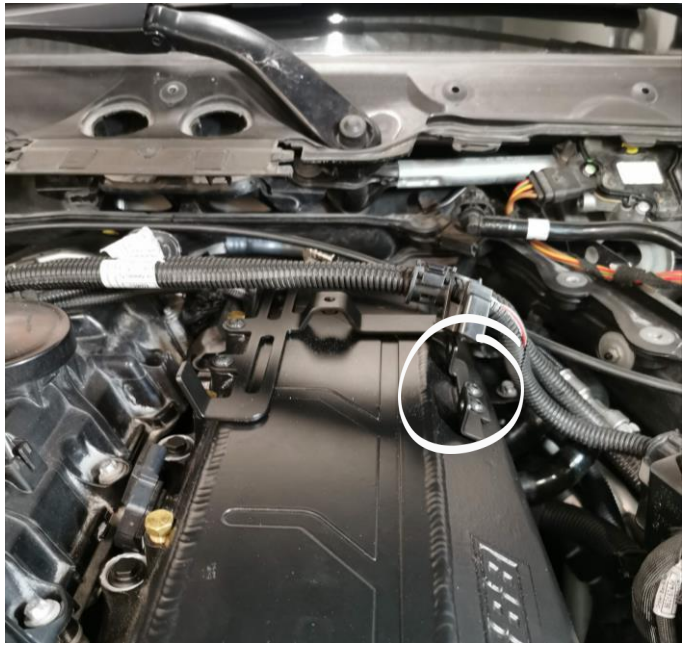
Connect the silicone hoses to the connections in the rear end of the intercooler and secure with the included clamps.



Step 26

Secure the intake manifold to the brackets using the OE screws.





Step 27

Mount the large bracket on top of the intake manifold using 3 x M5 screws included.

Make sure the bushing for the EVAP valve is transferred over from the OEM intake manifold.

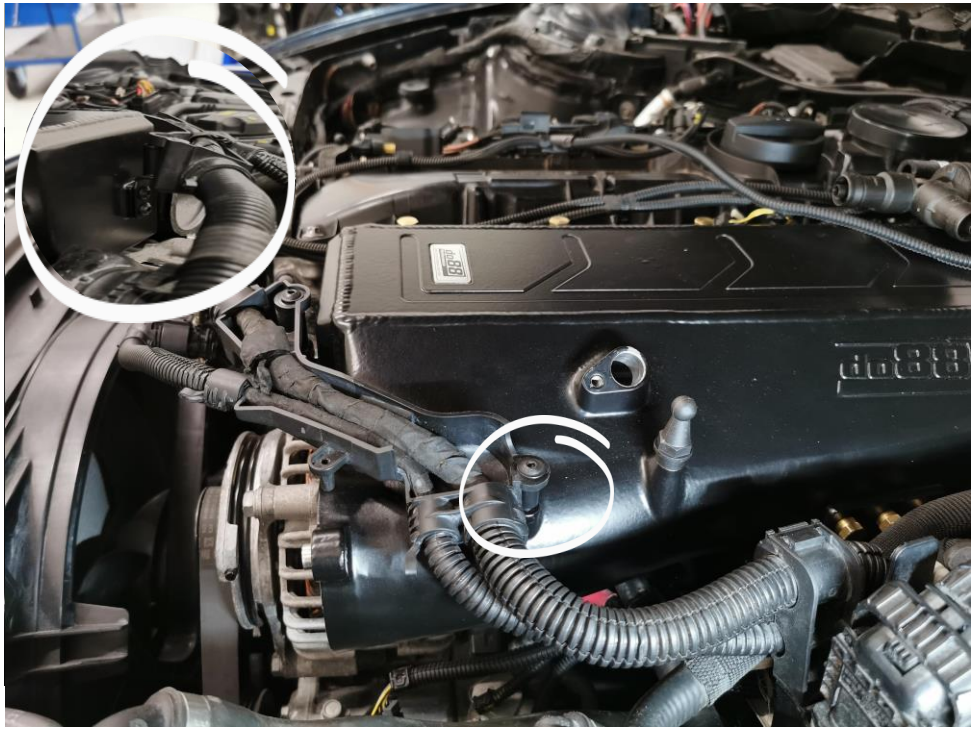
Step 28

Fasten the wire harness bracket to the manifold using 2 x M5 screws included and secure the wiring harness to it.

Step 29

Mount the EVAP valve to the large bracket.

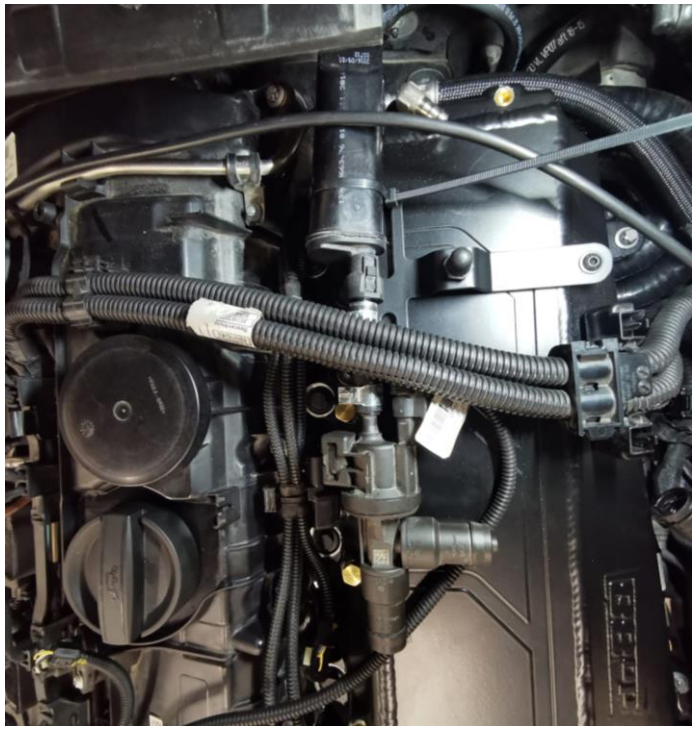
Install the longer engine cover mount with M6 thread to the intake manifold.
Install the shorter engine cover mount with M6 thread to the rear bracket on manifold.
Do not tighten yet, there is washers and nuts included for fine adjustment to fit the engine cover depending on your configuration.



Step 30

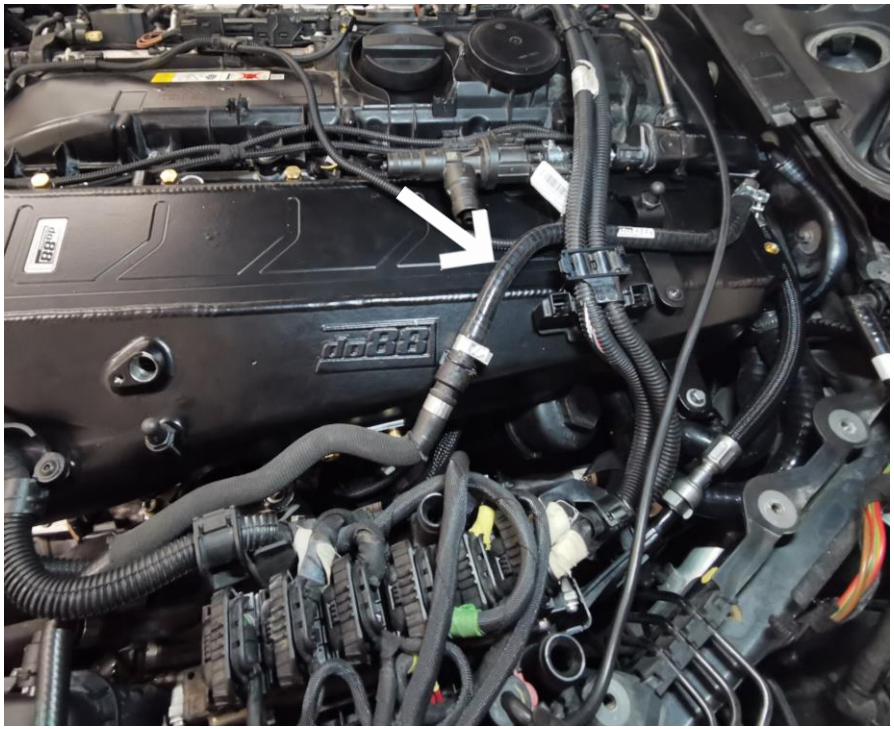
Install the small cylindrical bracket to the front of the intake manifold whit 2 x short M5 screws included.

Then mount the wiring harness to the intake manifold using one M5 x 12 to the small cylindrical bracket and one M5 x 20 and 12mm long plastic spacer to the inlet tank.



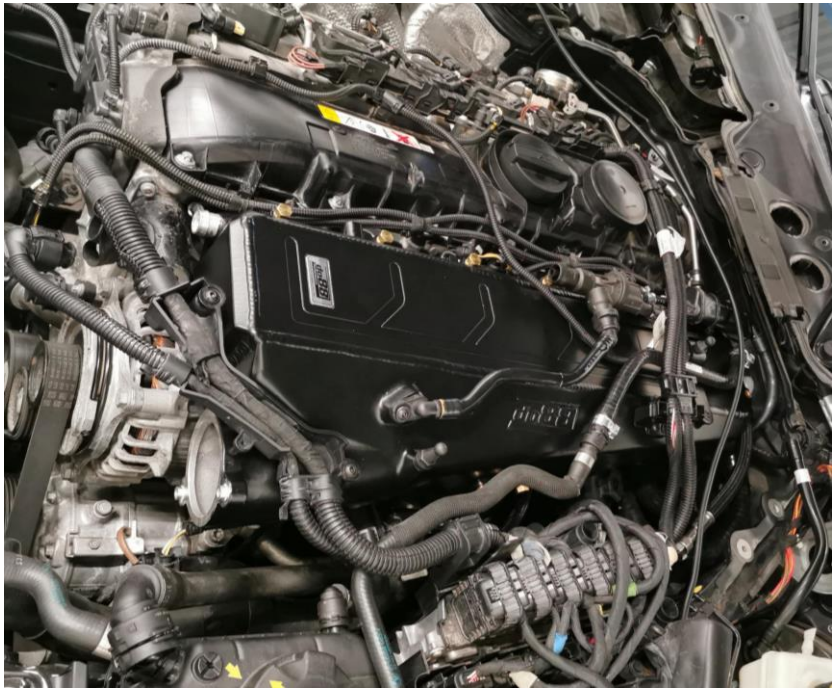
Step 31

Connect the EVAP canister to the valve using the small included aluminum joiner and included fuel hose (cut the fuel hose to suitable length). Secure with hose clamps and fasten the canister to the large bracket with included zip-tie.



Step 32

Install the coolant bleeding silicone hose with included joiner towards OE bleeding hose and secure with included hose clamps.



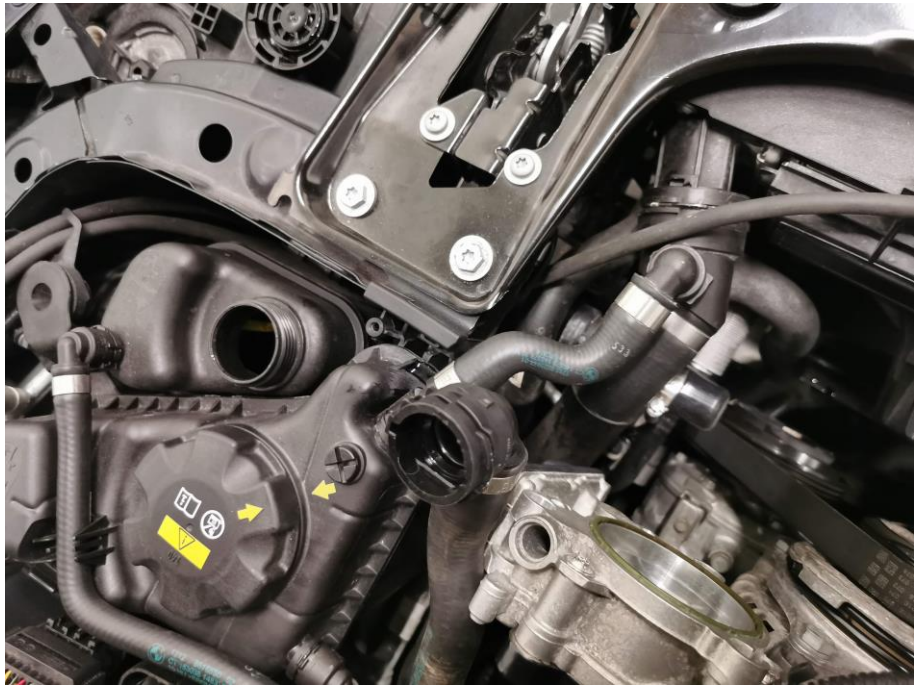
Step 33

The intake tank EVAP line have to be shortened to fit.
Heat the end of the EVAP line where it sits on the fitting that installs in the inlet tank of the intake manifold and pull it apart.
Cut it were marked in the picture. Then heat the end of the EVAP line and push the fitting so it seats all the way in the line.

Step 34

Install the modified EVAP line with included M5x12 screw.

Install the throttle body with 3 M6x45 Torx T30 screws included.



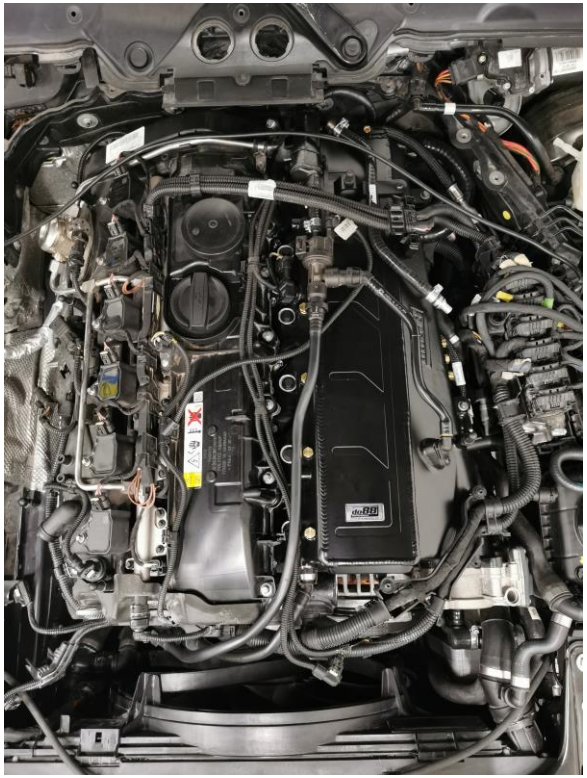
Step 35

Disconnect the coolant hose going to the water pump junction and cap it of at the junction.
Then prefill with coolant through the hose held high to aid the cars bleeding process.

Fill with coolant until it reaches MAX then reconnect the hose and top of the coolant if necessary and install the expansion tank cap.

Step 36

Bleed cooling system according to this instruction:
-Switch ignition on without starting engine.
-Switch low-beam light on.
-Set climate control to max temp and lowest fan speed.
-Press accelerator pedal to the floor for 10 seconds.
-Bleeding procedure starts and take about 10-15 minutes. In the end of the procedure the intercooler coolant pump runs on full power and at this stage you should feel the coolant flowing thru the intercooler coolant hoses when you gently squeeze them.
-Top off coolant again.
-If there is still air in the system this will result in higher IAT due to reduced or no circulation in the intercooler cooling system.



Step 37

Reinstall everything except engine cover in reverse order.

Step 38

It is possible to install engine cover in a few different ways and we include new engine cover mounts, washers and nuts to make them all possible. Engine cover can be installed with sound insulation, without insulation or with insulation partially cut out. It is possible to install engine cover with fuel rail but then we recommend to cut out part of the sound insulation and you might also have to do some work on the hood to have some clearance.

You can replace the OE engine mounts located on the valve cover to the longer ones with screw for plastic we supply. You can also add 1-2 washers under these to adjust height.

Now put the engine cover in place and adjust the two cover mounts on the intake manifold by threading up or down Secure them in desired height with included M6 washers or nuts to fit the engine cover.

Step 39

Carefully close the hood to check clearance from engine cover.
You might need to remove in hood sound isolation (if present) to clear the engine cover.

To the right we show areas that have the tightest clearance (under engine cover, hood insulation and hood structure) and might need to be modified.
To install with fuel rail and engine cover it will be very tight and will probably need adjustment or cutting of hood structure.

This will vary between different models.

Thank you for purchasing another do88 product.

Please check our website frequently for new product releases.
If you have any questions or concerns about this product please do not hesitate to contact us: do88.se/contact