

Tier 1 and 2 kit instruction guide.



This contains the official VW steps to remove the Intake manifold.
If you know a better way or want to do it differently please do so,
this is for reference only.

Tools you may / will need, there may be more this was the best I
could think of.

- ☐ T30 Torx bit long and short.
- ☐ Magnetic pickup tool (small head works better)
- ☐ 1/4 drive ratchet
- ☐ 1/4 long drive extension
- ☐ 8mm 1/4 socket
- ☐ 1/2" Ratchet
- ☐ 1/2" 27mm deep socket (for fuel pressure sensor)
- ☐ 17mm open ended wrench
- ☐ Pick tool (for stubborn electrical connectors)
- ☐ Flat blade screw driver
- ☐ Sandpaper/scotchbrite
- ☐ Scraper/flat blade razor
- ☐ 5mm Allen bit
- ☐ Torque Wrench - 1/4 or 3/8 (9 nm / 6.5ft-lbs)
- ☐ Coolant drain pan
- ☐ Extra coolant
- ☐ Something to extract coolant from the valley we recommend a shop vac but you can use a fluid extractor as well.

Optional (highly recommended)

- ☐ New Seals for the intake manifold,
- ☐ New Seals for swirl flap connection
- ☐ New ASV seals.

I've included the first image just to show you where the bolts are that you will be removing. There are also bolts at Numbers 1, 2, 3, 4, not just the arrows!

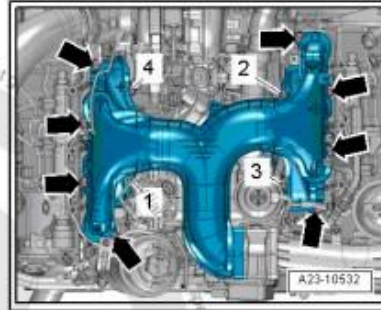


Touareg 2010 ➤ , Touareg 2015 ➤
6-Cylinder Diesel Engine (3.0L Engine, Common Rail, Generation II) - Edition 11.2017

Intake Manifold - Tightening Specification and Sequence

- Tighten the bolts in three steps as follows:

Step	Bolts	Tightening Specification
1.	-1 through 4- and -arrows-	Install all the way in by hand.
2.	-1 to 4-	9 Nm in sequence shown
3.	-arrows-	9 Nm in any sequence



5.2 Intake Manifold, Removing and Installing

Special tools and workshop equipment required

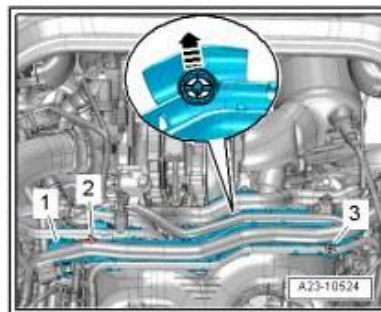
- ◆ Pry Lever - 80-200-
- ◆ Hose Clip Pliers - VAS6362-

Removing

Caution

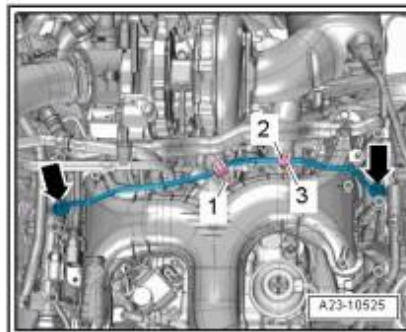
- ◆ Catch escaping fuel with an absorbent rag.
- ◆ Do not let any fuel get on components or gaskets near the engine. This could cause leaks and lead to further damage.
- ◆ Danger of malfunction caused by dirt.
- ◆ Follow the rules for clean working conditions. Refer to **⇒ "3.1 Clean Working Conditions", page 6**.

- Remove the engine cover. Refer to **⇒ "3.1 Engine Cover, Removing and Installing", page 40**.
- Free up the wiring harness and hoses on the wiring guide -1- using the Pry Lever - 80-200-.
- Pull coolant hose back -arrow-.
- Remove the bolts -2 and 3- and remove the wiring guide -1-.

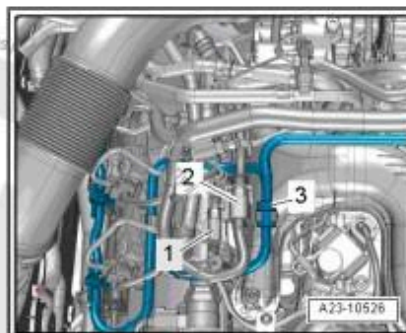




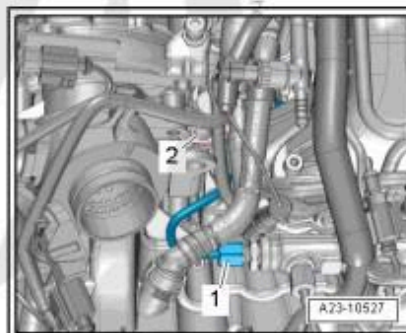
- Remove the bolts -1 and 2- and the clamp -3-.
- Remove the union nuts -arrows- and then remove the upper high pressure line.



- Remove the connectors -1 and 2- and the check valve -3- from the bracket.

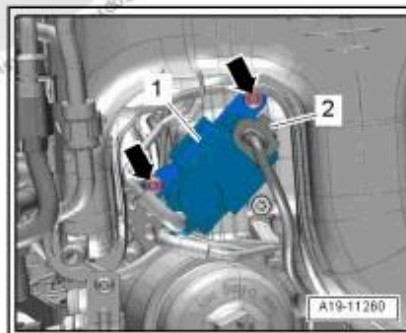


- Remove the bolt -2- on the high pressure line clamp.

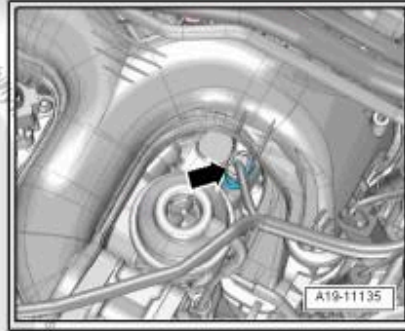


- Disconnect the connector -2- from the Cylinder Head Coolant Valve - N489- -1-.
- Remove the bolts -arrows- and set the bracket with the Cylinder Head Coolant Valve - N489- to the side.

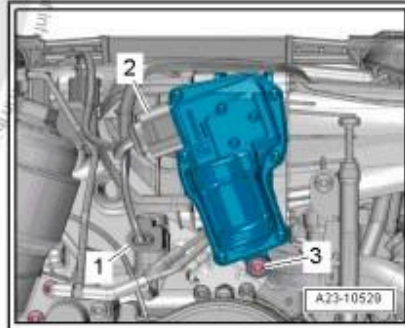
Cylinder Head Coolant Valve - N489- component location
-item 22- ➔ [Item 22 \(page 276\)](#) .



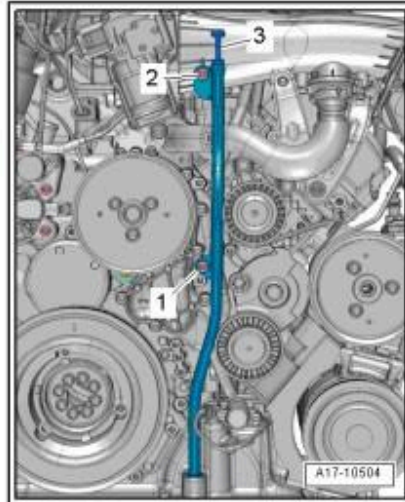
- Disconnect the connector -arrow- from the Engine Coolant Temperature Sensor - G62- .



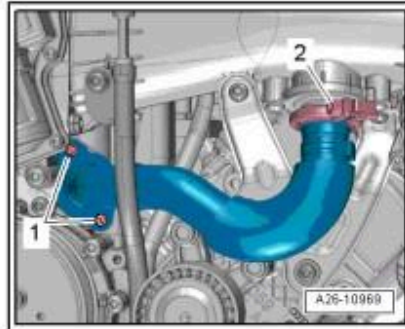
Disconnect the connectors -1 and 2- and move the wiring harness to the left.



- Remove bolt -3- from center intake manifold bracket.
- Remove the bolt -2- for the oil dipstick guide tube.

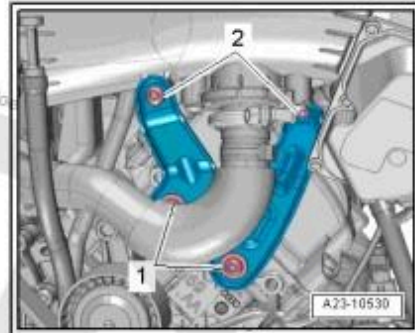


- Loosen the screw clamp -2- on the Exhaust Gas Recirculation (EGR) pipe.

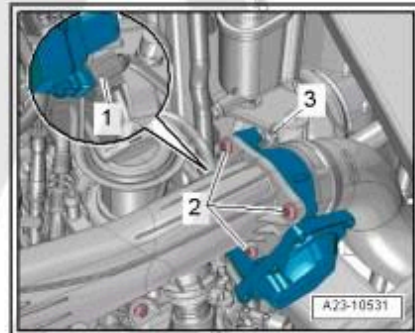




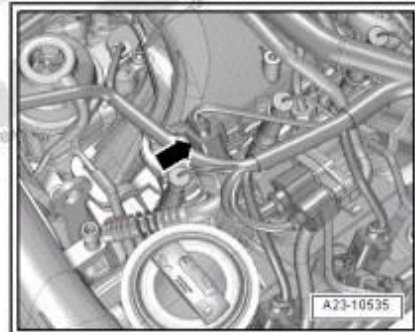
- Remove the bolts on the left air guide pipe bracket -2-.



- Disconnect the connector -1- at the Throttle Valve Control Module - J338- .
- Loosen the screw clamp -3- and remove the air guide hose.
- Disconnect the connectors from the glow plugs.

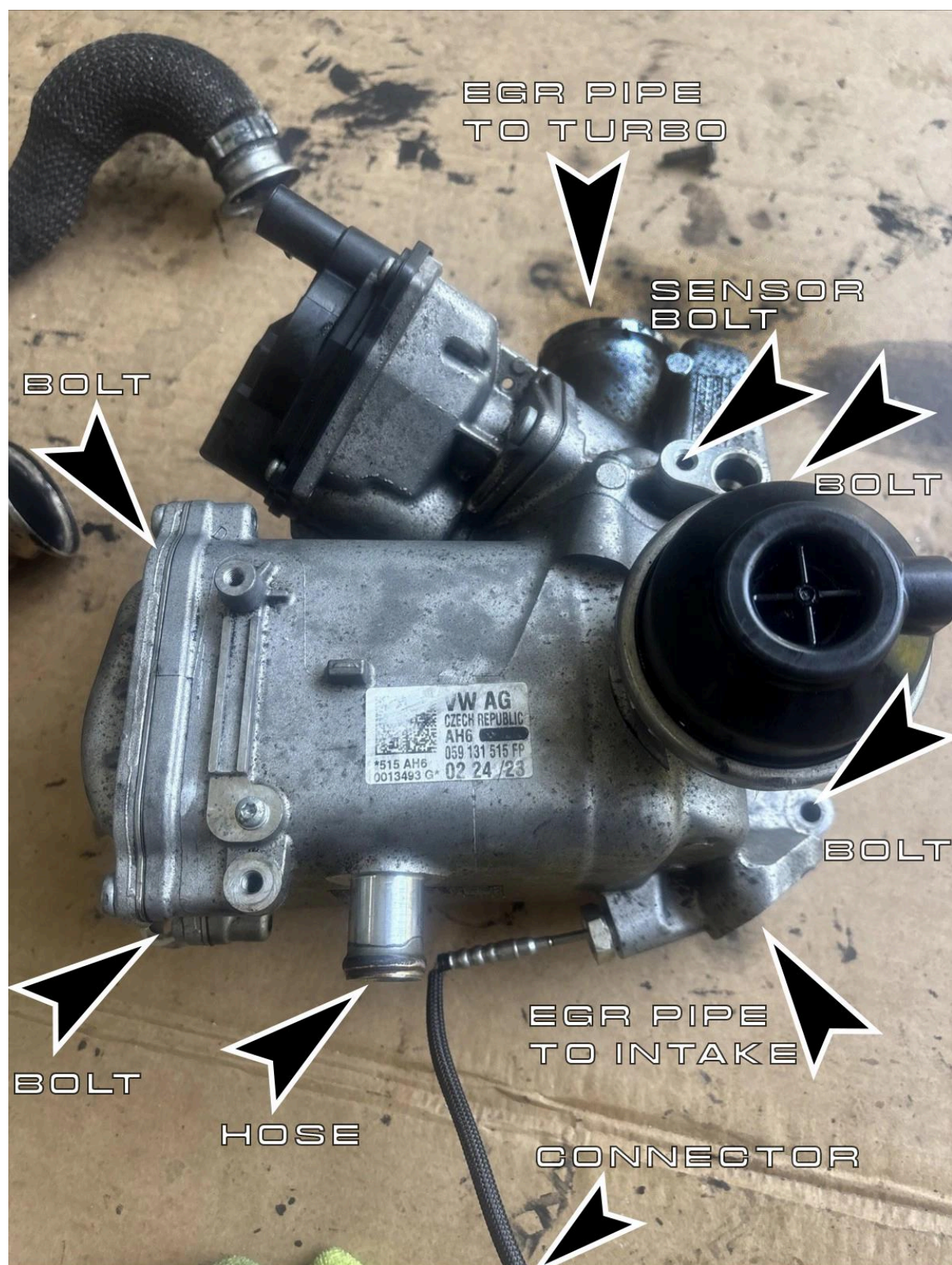


- Remove the Fuel Pressure Sensor - G247- . Refer to ["6.2 Fuel Pressure Sensor G247 . Removing and Installing", page 309](#) .



Once the manifold is removed, We highly recommend you cover the ports and bolt holes of the intake manifold. Simple painters tape will suffice.

You will now have access to the EGR cooler. There are quite a few things you need to remove from the cooler. We've labeled them with the EGR cooler removed to give you a better idea as to where they all are.



There are 4 main bolts holding the unit down.

There is a sensor at the top that will need to be removed and put into the sensor housing in the kit.

The hose connected to the front of the EGR cooler can also be removed at the front engine side as you will have a replacement as part of this kit.

Lastly the EGR pipes to the intake and to the turbo can be fully removed as they will no longer be needed.

In order to remove the pipe going to the turbo, you will also need to disconnect it below the downpipe directly on the hot side of the turbo. You can then use the included plates to cover the hot side on the turbo (thicker $\frac{1}{4}$ " steel plate) and the intake as shown.



Using the provided 15mm bolts, tighten both back up.

Now it's quite possible doing this created even more coolant in the valley. We highly recommend a shop vac, to help suck all the coolant out of the valley. You can also use a mechanical plunger device like a syringe, but it may take a bit longer.

Now will be the time to remove all the plastic fittings in the bay. There is no image for this, we think it's pretty self explanatory, take out all the factory hoses, the upper coolant housing that tied into the EGR cooler above it, and the bypass valve below it.

***** If you are doing the smaller Tier 2 kit stop disassembly here *****

Lastly remove the bypass valve and hose There are 3 bolts. Be careful to not remove bolts for the oil cooler unless you are also planning on replacing that as well. You don't need to reuse these bolts.

That's it you've removed the **PLASTIC** once and for all. Now lets get to making it better so you don't have to do this again.

Installation:

Installation is the opposite of removal, except simplified.

Tier 1 Customers:

Clean up the mating surface of the Bypass delete and ensure it is dry, flat and smooth before proceeding to install. Place a rag into the hole to prevent debris from entering the coolant channel. **REMEMBER TO REMOVE IT AFTER.** This surface is soft aluminum. Be careful not to nick the surface. Use a scotchbright pad and a plastic scraper.

Install the seal into the bottom of the bypass valve delete and place it in the valley in the correct orientation.

Using the provided bolts bolt down the bypass valve to 9nm of torque (6.5 ft-lbs)



Install the hose and place two clamps over the hose. Tighten the bottom one sufficiently to prevent spinning easily. The **shortest** hose goes here if you are missing the hose diagram (it's below for reference) The hose will end up pointing at the distribution block to the right.

All customers:

Clean up the outlet block mating surface. Block the ports with a rag to prevent debris from entering the coolant channel. **REMEMBER TO REMOVE IT AFTER.** This is hard steel you can use some fine sandpaper and a scraper blade. Again make sure you don't damage this surface as it can lead to leaks.

Install the rubber o-ring into the outlet block.

Install the outlet block into the silicone hose coming from the bypass valve (delete) and then secure it down using the provided 2 allen headed bolts and torque to 9nm of torque (6.5 ft-lbs)

Once this is done, move the clamp up the hose and secure it to the outlet block. Go back and finish tightening the lower clamp now that it is in position. The hoses will seal very well, overtightening will damage the silicone.

(note oil cooler not shown to aid in pictures and because mine leaked like crazy)



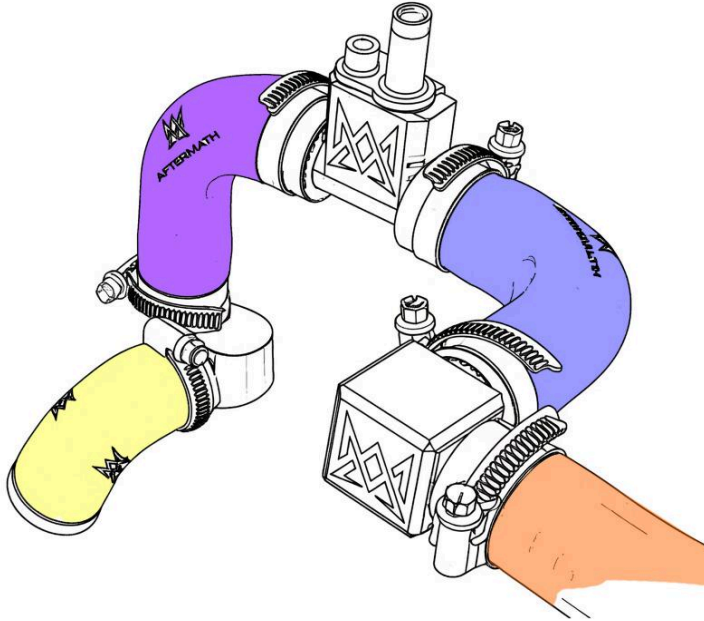
From here, the rest can be assembled on the bench and then placed into the vehicle and the orientation is straight forward

Some kits may have come without the hose diagram:

Shortest Hose is the yellow hose between the bypass valve and the distribution block.

The second Shortest hose is the orange hose and would go from the 90 degree fitting to the front of the block.

The other two hoses are somewhat interchangeable, they are very similar in length, the long end is intended to either go down to the outlet, or over to the 90 degree, the short end should connect to the sensor fitting.



Seal up the coolant system, tighten all hoses and fill the expansion tank to the max line. Stuff some rags under the sensor housing to catch excess coolant. Pull the sensor out, you should hear air being pushed out and eventually coolant will start to come out the sensor hole, when this happens replace the sensor and secure it with the provided bolt. This Sensor acts as the bleed screw that would have been present on the original EGR Cooler. Replace coolant in the expansion tank to keep it within the limits.

After this is done and you've double checked all the clamps are tight (you can still get to most of them after) and there are no leaks. Take those wet rags out, it's time to put the manifold on.

Go back to the start of this document for the torque sequence when you get the manifold back in place. **Remember to remove whatever you had blocking in the intake ports.**

There will now be a vacuum line and a solenoid that is not needed under the intake. It may contain a vacuum cap, you can use on the nipple of the line leading to this solenoid from the driver side valve cover, or you can simply cut the hose and cap the line with a plug. The plastic can get brittle so be careful if you pull the hose off to apply the cap.

When the manifold is back on, you will need to ensure the temp sensor is installed and wired up.

There will be a couple of electrical connectors that no longer have connectors going to them. You can wrap those up or otherwise secure them somewhere out of the way.

Install the fuel rail crossover pipe and fuel pressure sensor.

Install the tray under the hoses to secure them.

Install the Swirl flap motor, solid boost pipe with the EGR blockoff and connect the boost hose back up.

When you are sure everything is buttoned back up, start the vehicle up, get it up to temperature and watch for leaks, which is now very easy without the cooler in the way.

If it is still leaking, it can be caused by a faulty oil cooler / heat exchanger that may need to be replaced.

Allow it to cool down, stuff a rag under the coolant sensor and bleed it again, you may or may not get some more air out of it, you can do this a few times if needed to ensure you have no air in your system.

If no leaks are detected, congratulations you are done. Enjoy the increased reliability!

