



3.0L TDI CP4 Disaster Kit Installation Instructions (CPNB/CNRA/CNRB, CATA)

Foreword:

During the installation of this kit your engines intake and high-pressure fuel system will both be open and exposed to some degree, it is important to be mindful of this at all points during the installation process. Use tape and/or caps to cover the intake ports and any fuel system openings, cleanliness is number one priority. Before you begin installation, use compressed air or brake clean to blow out all hoses and fittings included with the kit and visually inspect to ensure that all hoses and fittings (including the bypass block) are free of any particles or debris that may have entered during shipping and handling. Now is also a good time to replace intake manifold gaskets if you feel that is necessary, they can typically be reused without issue but it is up to the owner.

Kit Contents:

- 1x WPI Bypass Block
- 6x Fuel Injection Hose Clamps
- 2x M5x30mm Socket Head Cap Screws
- 1x Large O-ring
- 1x Small O-ring
- 1x Hose standoff (small cut piece of fuel hose)
- 3x Zip ties
- 1x Stainless Barb T fitting
- 1x Inline Fuel Filter
- Fuel injection Hose

- 1x Fuel Metering Solenoid (CPNB/CNRA/CNRB Kits Only)

NOTE: Previous versions of this kit included a threaded o-ring sealing plug that was used to plug the cross drilling on the bypass block. All kits purchased on or after 9/20/2025 will no longer include this and will instead have an updated bypass block that uses a pressed in, permanent sealing plug that will come pre-installed in the block.

Basic Install Summary:

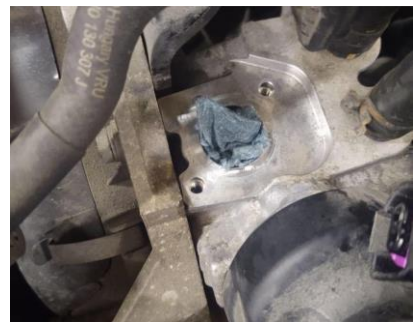
If at any point you are confused about which line is which and what goes where, look at the back of the CP4 where the rubber lines attach. The inlet/outlet ports on the CP4 are labeled with cast in triangles on the pump body indicating flow direction (Triangle pointing into the pump body is supply, triangle pointing out of the pump body is return)

Follow the inlet (fuel supply) hose back to a convenient location between the vehicle's fuel filter and the pump and cut it for the stainless T fitting to feed the bypass block. Follow the return hose leaving the pump and cut it anywhere convenient (generally as close to the pump as possible) to install the filter with "inlet" facing the CP4 (flow direction arrow pointing away from CP4 on Deatschwerks filters).

That's the install summed up as simply as possible, regardless of application.

3.0L TDI Specific Instructions:

1. Start with the attached VW service instructions for intake manifold removal. (Instructions start on page 8 of this document)
2. Once the intake manifold is removed you should be able to see the CP4 and metering valve. Before removing the metering valve, clean the surrounding area with brake clean and compressed air to ensure there are no loose particles that may fall into the injection pump.
3. Unplug the existing metering valve. Then, using a T25 torx, remove the metering valve hold down bolts and remove it from the pump.
4. Pack the port in the pump with clean paper towel or shop rag to ensure no debris enters the pump. Use a razor blade, brake clean, and a clean rag to carefully clean the entire machined area on the top of the pump. When done, remove the paper towel, ensuring not to drop any debris it may have caught into the pump when doing so.
(Pump photos below are of a 2.0L TDI CP4, shown only to illustrate cleaning of the metering valve mounting surface)



5. Install the feed hose onto the bypass block using a hose clamp. Make sure the clamp position does not interfere with the metering valve when it is placed in the block. If necessary, use needle nose pliers to rotate the hose clamp on the return/supply fittings of the pump to clear the hose clamp on the block.



6. Install the small O-ring on the bypass block. Apply a few dabs of grease to the large o-ring groove, then stick the large O-ring to the bottom of the bypass block.



Large O-ring

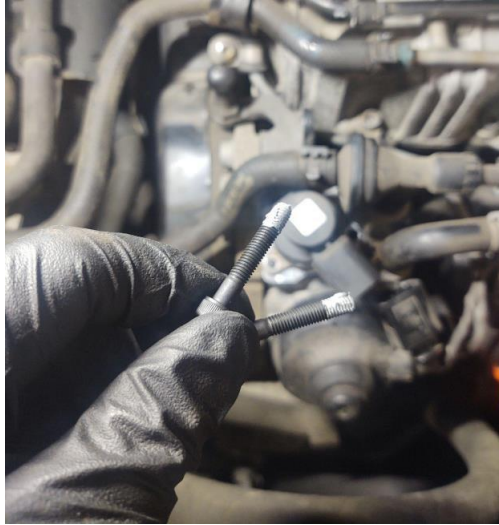
Small O-ring



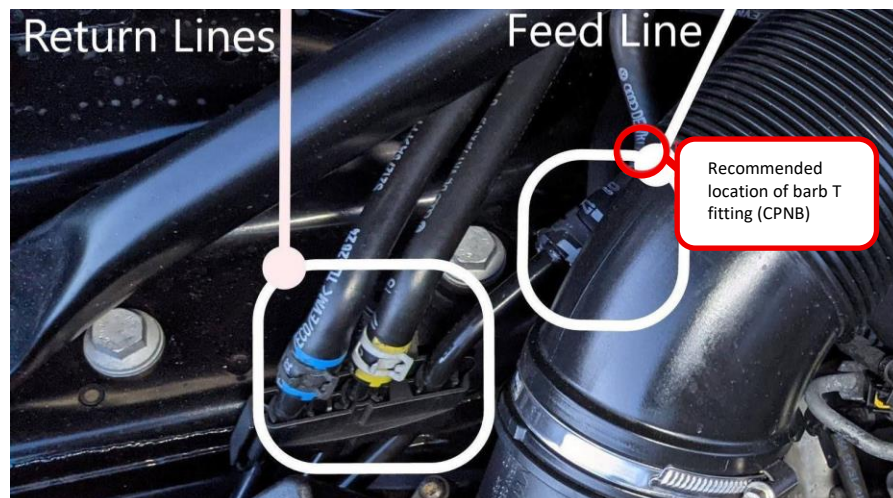
Grease dabs in large O-ring groove

7. Carefully install the bypass block with feed hose attached, ensuring that the large O-ring doesn't fall off before it is seated onto the pump. You may have to carefully fish it around the hoses and harnesses in the engine bay.

8. Insert the metering valve into the bypass block (use new metering valve included with the kit for CPNB/CNRA/CNRB).
Apply anti-seize to the included M5 socket head cap screws and install them through the metering valve and block using a 4mm allen wrench.
Tighten each screw little by little to ensure the metering valve and bypass block are drawn down flat. Factory torque spec for these screws is 4nm, snugging them up by hand is plenty.

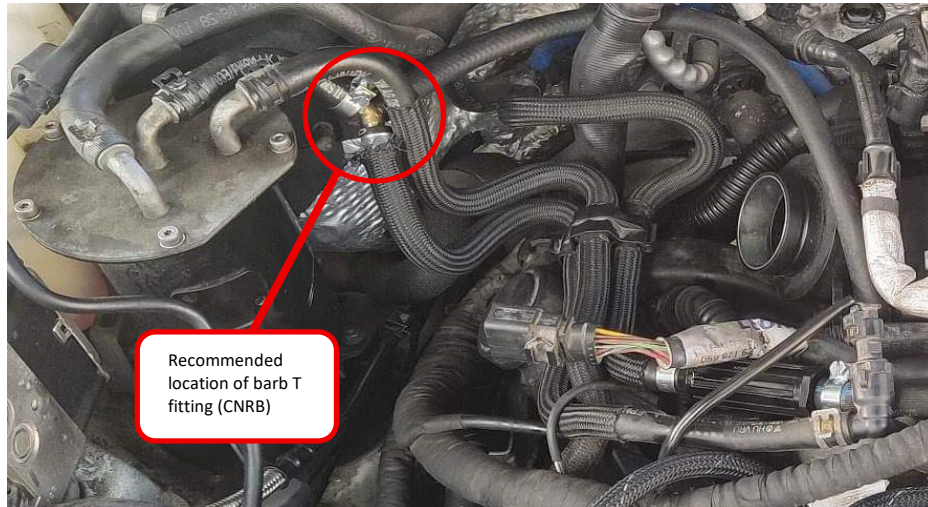


9. Carefully route the feed hose up out of the valley, make sure there are no kinks along the way that could restrict the flow. You may be able to follow the factory hoses or go out from under the front of the intake manifold depending on your exact application.
10. Reinstall the intake manifold according to the attached VW service instructions but leave the vanity cover off. (Reinstall instructions start on page 12 of this document and work backwards)
11. Note that there are 3 different color-coded fuel hoses under the hood as listed below and shown below. These same colors are used on the CNRB engines but their arrangement differs slightly.
- Gray ends: Filtered fuel coming from the tank to the CP4
 - Blue ends: Return fuel coming out of the CP4 returning to the tank
 - Yellow ends: Injector and fuel rail return to tank on CPNB and back to the filter housing on CNRB



12. To feed the bypass block we're going to be tapping into the hose with gray ends on it, the location of the splice is up to you, and depends on your specific vehicle application. For CPNB engines, it is recommended to cut the feed hose at the location circled in red on the previous photo. The photo below shows a good location for CNRB vehicles.

Be careful when cutting not to allow anything into the fuel hose as this is a direct feed to your CP4. If you think contaminants may have entered your feed hose, don't be afraid to remove the hose and flush it out (using brake clean or similar cleaner).



13. Place the included hose clamps on the ends of the cut hose and insert the included stainless barb T fitting.

14. Route included piece of fuel hose from the barb on the bypass block over to the last exposed barb on the stainless T fitting. Cut this hose to length if needed.

Once all 3 hoses connected to the T are sitting nicely, tighten all 3 hose clamps on the T fitting.

15. The last piece to install is the inline filter in the CP4 return hose (blue ends). The location of this filter is up to the end user; some examples are shown below.



On this install location, we would recommend using the hose standoff and a zip tie included with the kit to ensure the filter does not contact the yellow return line. See the instructional note on making a zip tie standoff after step 17

16. Find a relatively straight part of the CP4 return hose (the one with blue ends) that the filter can be installed into. Ensure that in the install location, the inline filter will not contact any of the other hoses. This could cause wear and potential holes in your hoses over time.
Cut out a section of hose roughly equal to the length of the filter body (not including the hose barbs since these will be inserted in the cut hose).
17. Slip a hose clamp over each end of the cut hose then insert the return filter making sure the orientation is correct. The filter inlet should go in the side of the hose coming from the CP4 (flow direction arrow pointing away from CP4 on Deatschwerks filters).

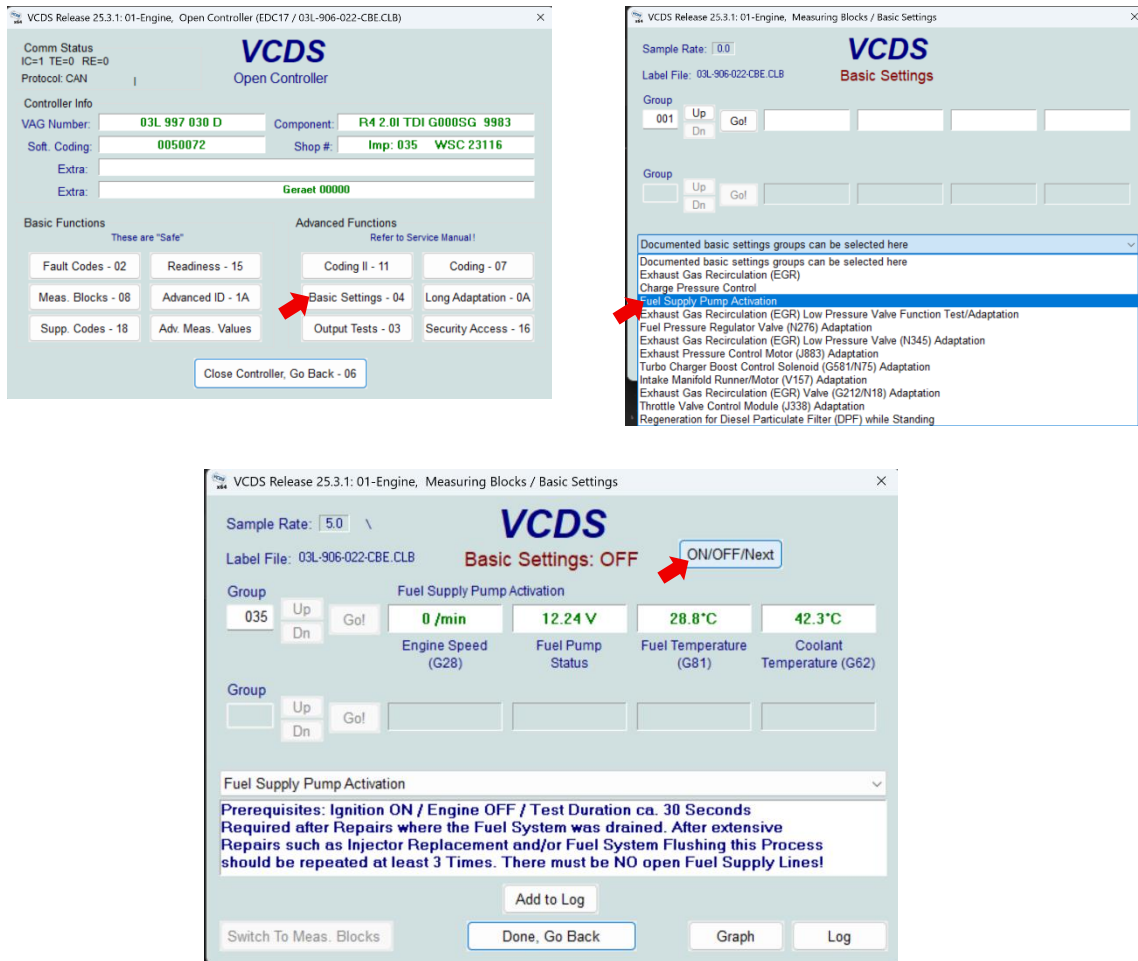
Making a Zip Tie Stand Off:

Use this for positioning hoses so that they will not rub on each other or other components

- Insert a zip tie through the included hose standoff
- Loop the zip tie around the first of the two hoses you wish to separate, and then back through the hose standoff
- Wrap the ends of the zip tie coming out of the hose standoff around the other hose, then close the zip tie loosely
- Position the hoses as you want them to sit, then fully tighten the zip tie



18. Now the system needs to be primed. Use VCDS or another capable scan tool to run the lift pump for 20-30 seconds (VCDS example shown in images below).



Alternatively, this can be done by pressing the start button with your foot off the brake pedal. You should hear the lift pump turn on and fuel start flowing through the hoses. Once the lift pump stops, turn the ignition off and repeat this cycle another 4 times without starting the engine to ensure all air is removed from the system. You may have to lock the vehicle and let it sit between cycles to ensure it cycles again.

19. Now you can start the engine, please note that it will take some time to crank before starting the first time, this is normal as air needs to be removed from the feed hose to the bypass block now. The CP4 is still receiving its lubrication fuel supply to the bottom end so there is no need to worry.

20. Allow the engine to idle and check for any leaks before replacing the vanity cover.

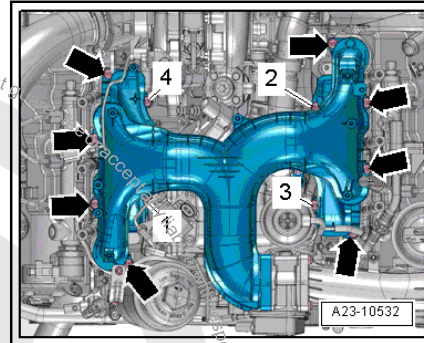
Note that the engine may take a little longer to crank for the first few starts after install, this is expected as air continues to be pushed out of the feed line, it will return to normal shortly.



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

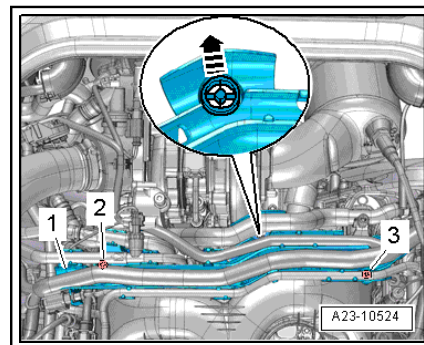
- ◆ Pry Lever - 80-200-
- ◆ Hose Clip Pliers - VAS6362-

Removing

Caution

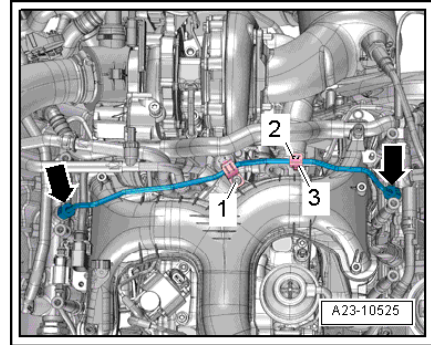
- ◆ Catch escaping fuel with an absorbent rag.
- ◆ Do not let any fuel get on components or gaskets near the engine. This could cause leaks and lead to further damage.
- ◆ Danger of malfunction caused by dirt.
- ◆ Follow the rules for clean working conditions. Refer to ⇒ ["3.1 Clean Working Conditions",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

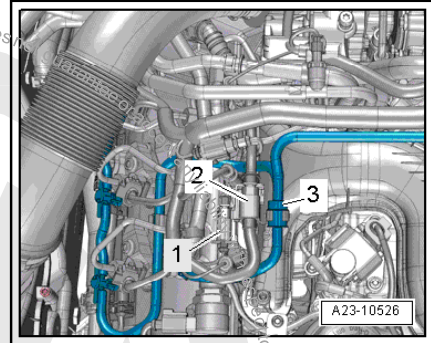




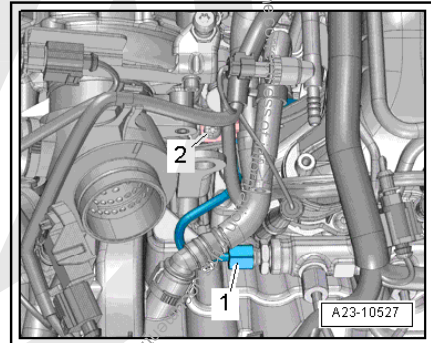
- Remove the bolts -1 and 2- and the clamp -3-.
- Remove the union nuts -arrows- and then remove the upper high pressure line.



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

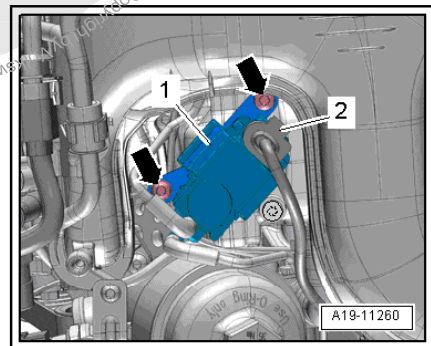


- Remove the bolt -2- on the high pressure line clamp.



- 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 \(page 276\)](#) .

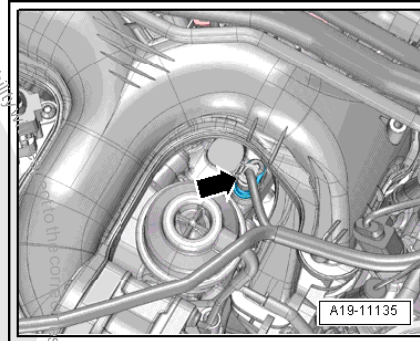




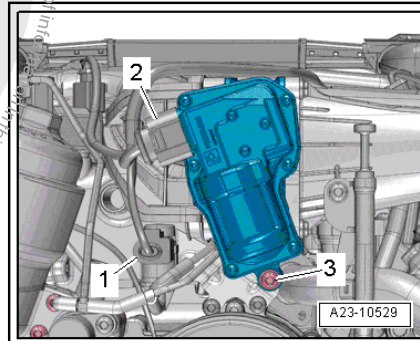
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6-Cylinder Diesel Engine (3.0L Engine, Common Rail, Generation II) - Edition 11.2017

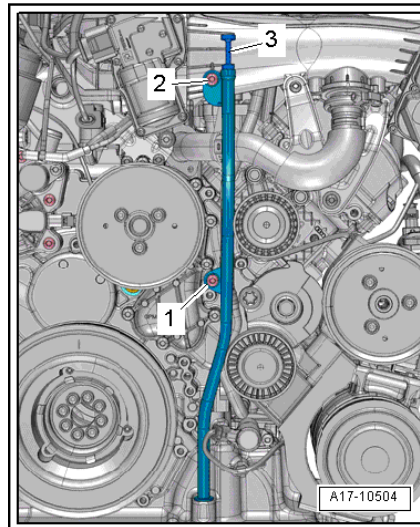
- Disconnect the connector -arrow- from the Engine Coolant Temperature Sensor - G62 - .



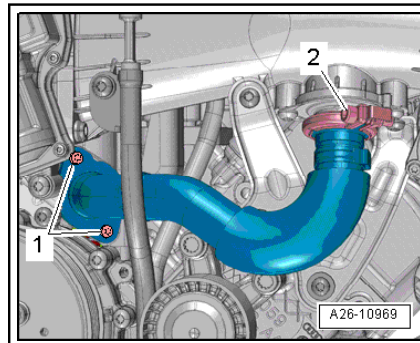
Disconnect the connectors -1 and 2- and move the wiring harness to the left.



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

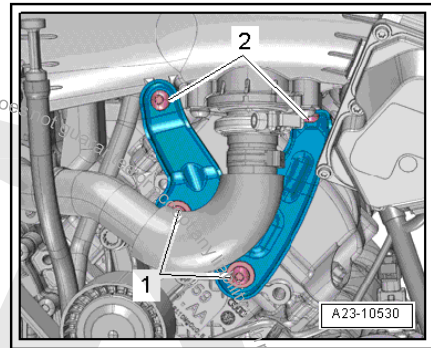


- Loosen the screw clamp -2- on the Exhaust Gas Recirculation (EGR) pipe.

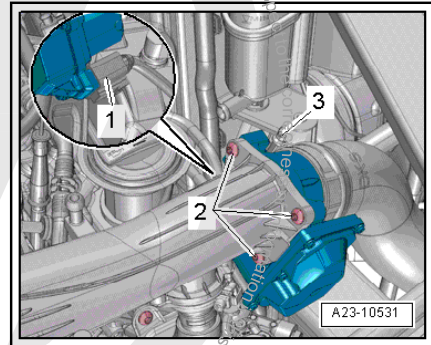




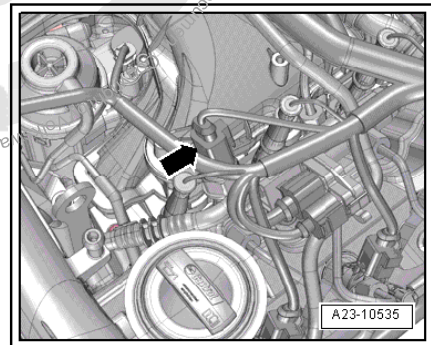
- Remove the bolts on the left air guide pipe bracket -2-.



- 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](#) .





- Remove bolts -1 through 4- and -arrows- and remove intake manifold.

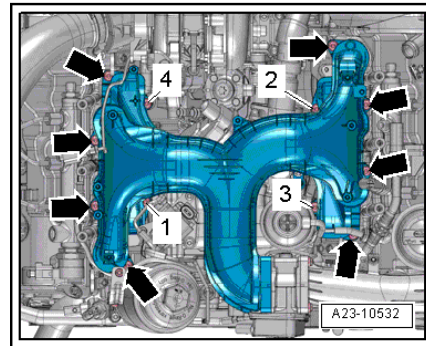
Installing

Install in reverse order of removal. Note the following:



Note

- ◆ Replace the seals.
- ◆ The hose connections as well as the air guide pipes and hoses must be free of oil and grease before installing.
- ◆ Secure all hose connections with hose clamps. Refer to the Parts Catalog.
- ◆ To mount the air guide hoses on their connectors securely, spray the bolts on the used clamps with rust remover before installing.



- Tighten the intake manifold bolts. Refer to ⇒ [Fig. "Intake Manifold - Tightening Specification and Sequence"](#), page 300 .
- Install the high pressure line. Refer to ⇒ ["3.8 High Pressure Lines, Removing and Installing"](#), page 293 .
- Install oil dipstick guide tube.
- Install the EGR pipe. Refer to ⇒ [Fig. "EGR Pipe at the Intake Manifold - Tightening Specification and Sequence"](#), page 388 .
- Fill the coolant. Refer to ⇒ [page 204](#) .

Tightening Specifications

- ◆ Refer to ⇒ [Fig. "Intake Manifold - Tightening Specification and Sequence"](#), page 300

5.3 Intake Flap Motor - V157-, Removing and Installing

Removing

- Remove the engine cover. Refer to ⇒ ["3.1 Engine Cover, Removing and Installing"](#), page 40 .
- Disconnect the connector -2-.
- Remove bolt -3- from center intake manifold bracket.

