

#TL100142

T4100003

APR MQB Drop-In Turbo



INSTALLATION MANUAL

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VAG AUTOSPORT



Notes:

These instructions were written for a North American specification GTI, but other models, like the Golf R, S3, etc, are similar.

When disassembling the car, be sure to keep all fasteners so they can be reused. It is recommended that you get some kind of compartmented tray to organize the fasteners, such as a fishing tackle box or several large ice cube trays. Fasteners that are not reused for reinstallation are noted in the instructions. All directions used in this manual (right, left, front, etc.) are based on if you were sitting in the drivers seat of the car.

These instructions assume that you have basic mechanical skills and several varieties of basic hand tools in order to install the kit. If you have any questions about the install, feel free to contact your APR representative.

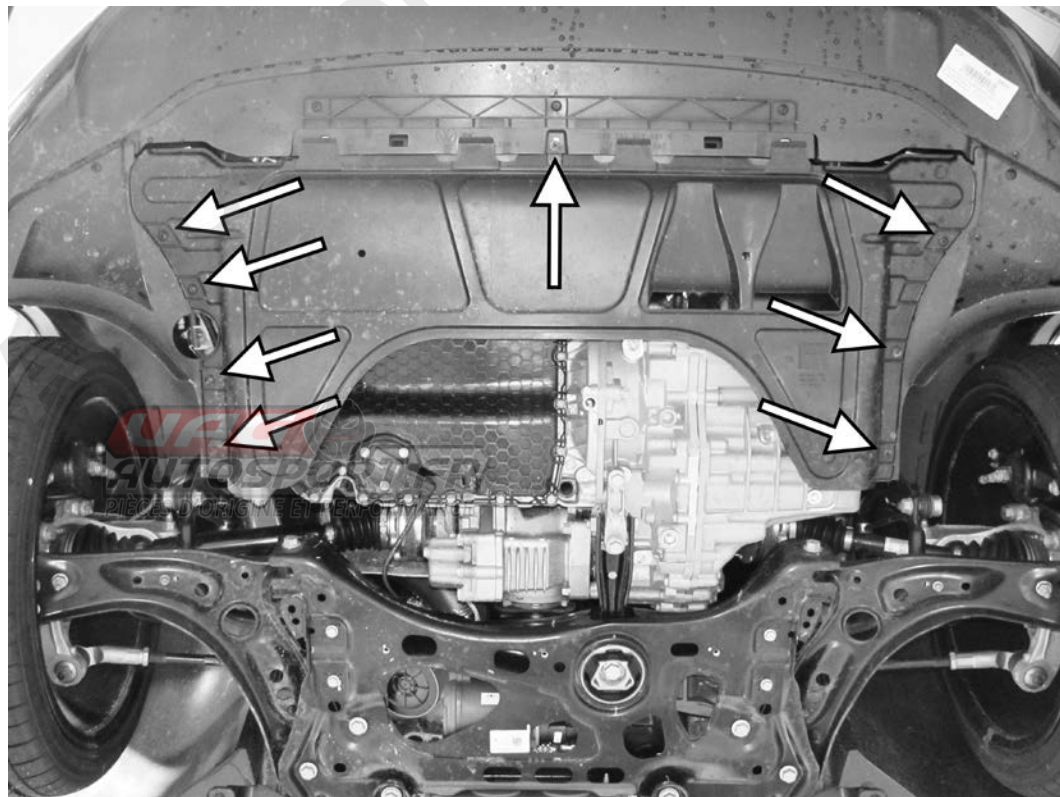
As this kit does impart more strain and stress on the engine, oil change intervals should be increased from the factory recommended 10k miles to a 5k mile interval. Likewise, **ONLY** use the factory specified oil for YOUR car, whether it is 502/505, 504/507, or 508/509. Failure to use the correct oil or change the oil more frequently can lead to catastrophic engine damage.



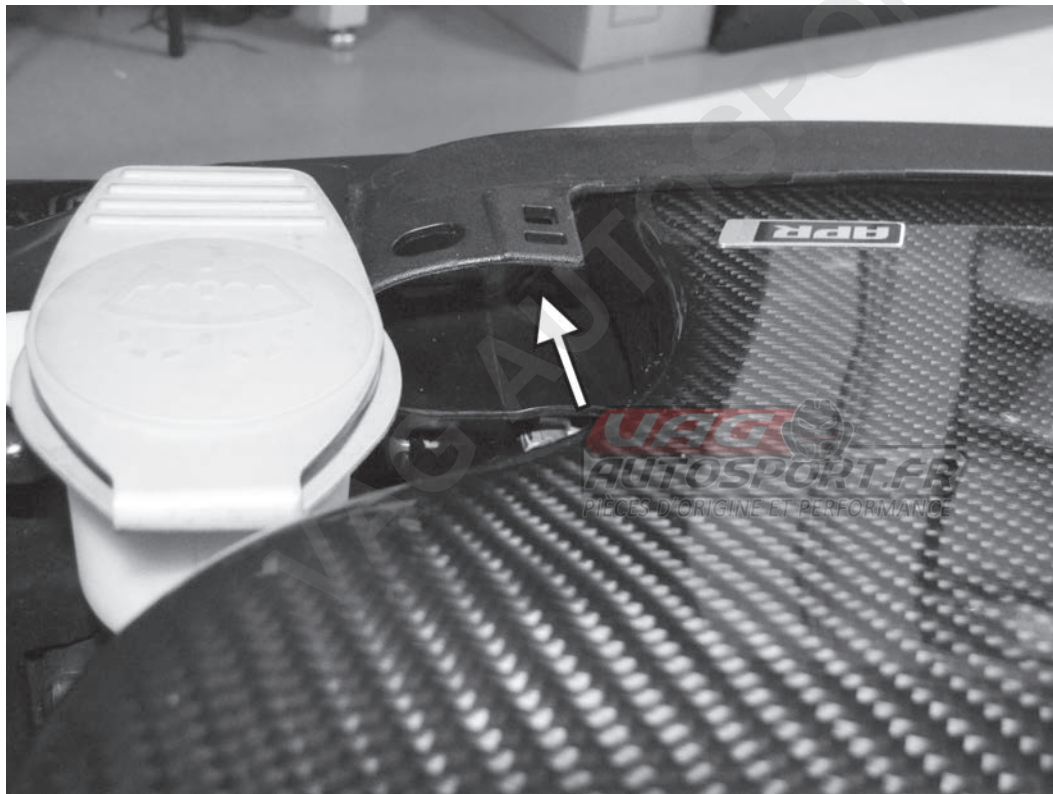
1) Securely place the vehicle on a lift or jack stands. Be aware that this install may require performing a wastegate adjustment using a factory scan tool or other device, such as VAG-Com.

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2) Remove the eight T25 screws holding the center belly pan to the bottom of the car, and then remove the belly pan. Note the way the belly pan is attached to the other panels around it, including the bottom of the front bumper cover.



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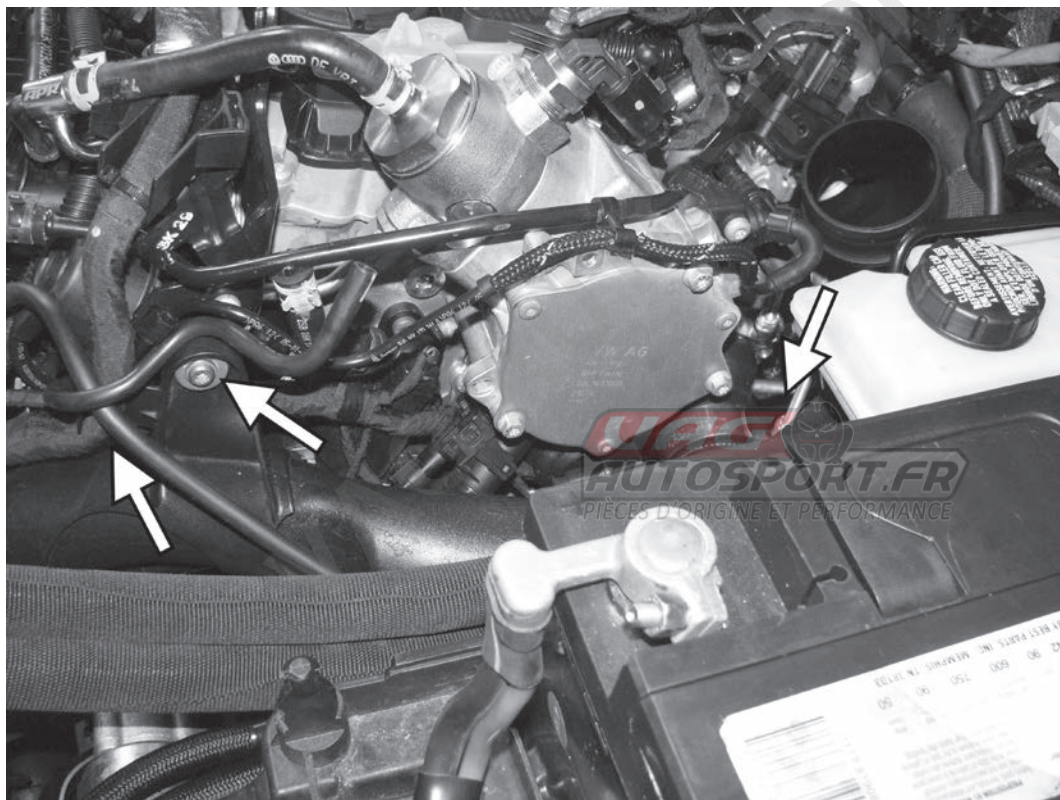
3) Remove the screw that holds the left side of the intake to the back of the radiator core support. Slide the intake out of the tab on the right hand side. Separate the intake from the back of the core support.

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4) Loosen the 7mm clamp holding the rear intake pipe to the turbocharger inlet. Separate the pipe from the turbocharger inlet.

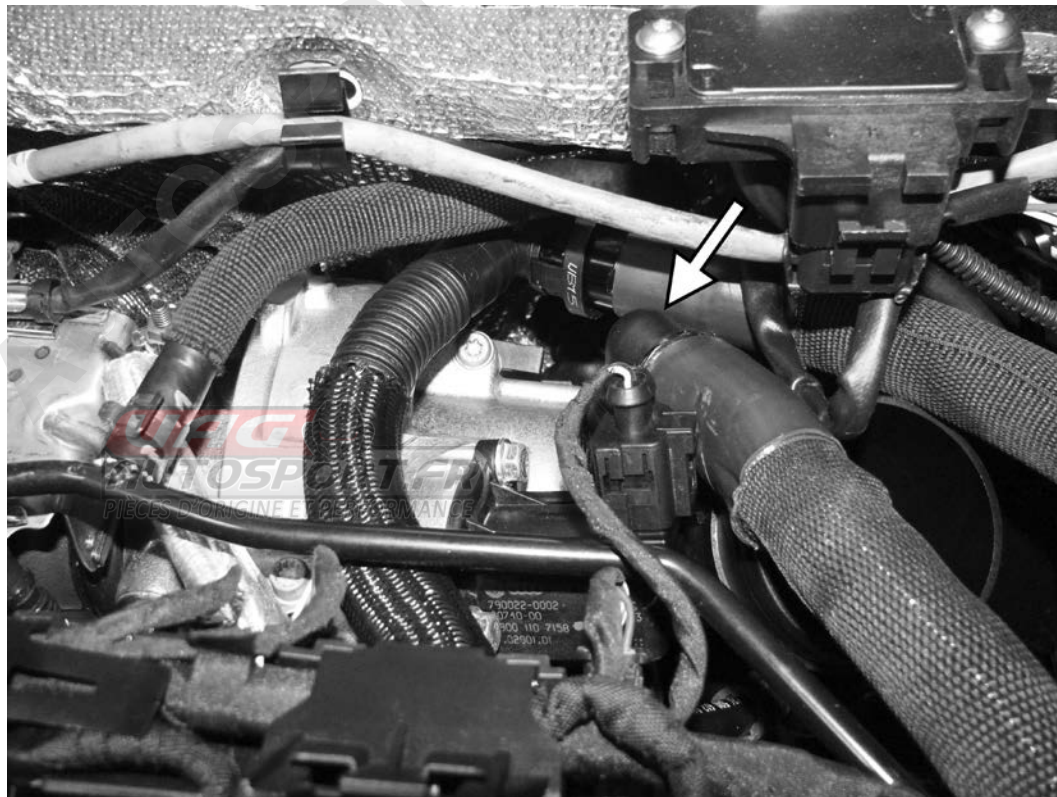


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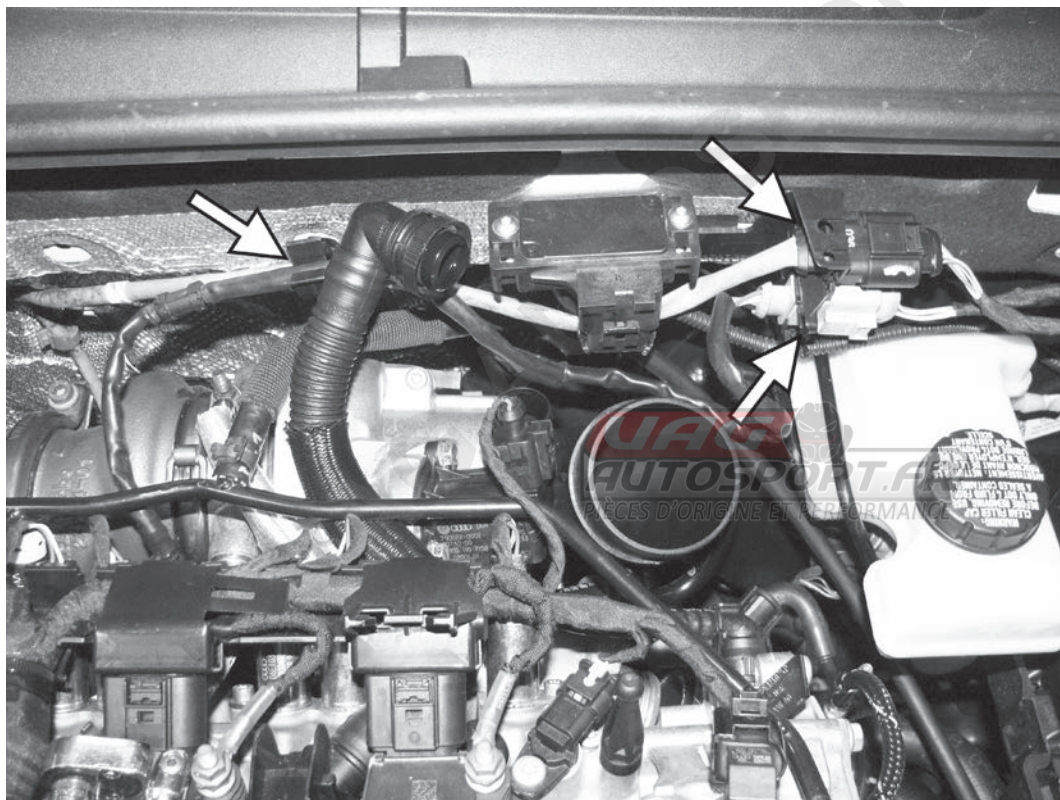


5) Remove the T30 screw from the side of the factory turbo outlet pipe. Unhook the wiring harness from the turbo outlet pipe. Remove the 7MM hose clamp connecting the turbo outlet pipe to the turbocharger outlet coupling hose. Finally, pull the turbo outlet pipe off and away from the turbocharger.

6) Disconnect the PCV vent hose from the top of the turbocharger, or if equipped, the APR catch can return line from the top of the turbocharger.



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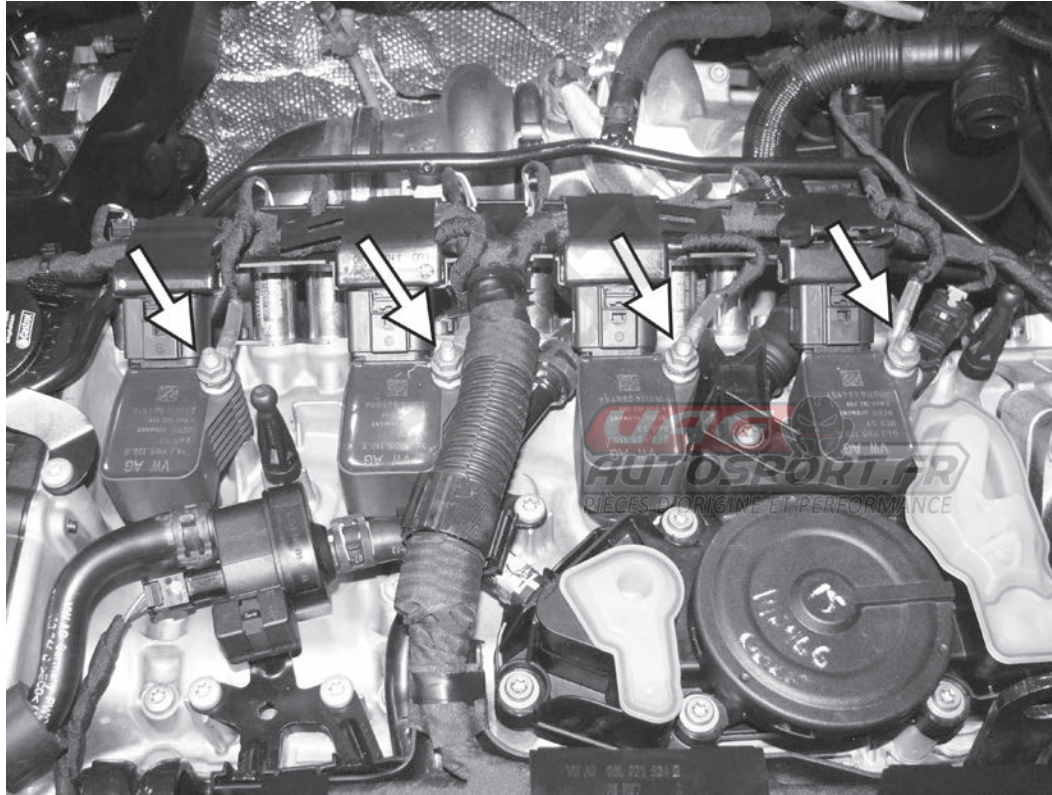


7) Separate both oxygen sensor electrical connectors from the mounting bracket on the firewall and disconnect the sensors. Separate the primary oxygen sensor wiring harness from all mounting connections.

8) Loosen the 6mm allen screw holding the downpipe V-band clamp from the downpipe. Remove the V-band clamp from the car and let the downpipe hang off to the side, out of the way.

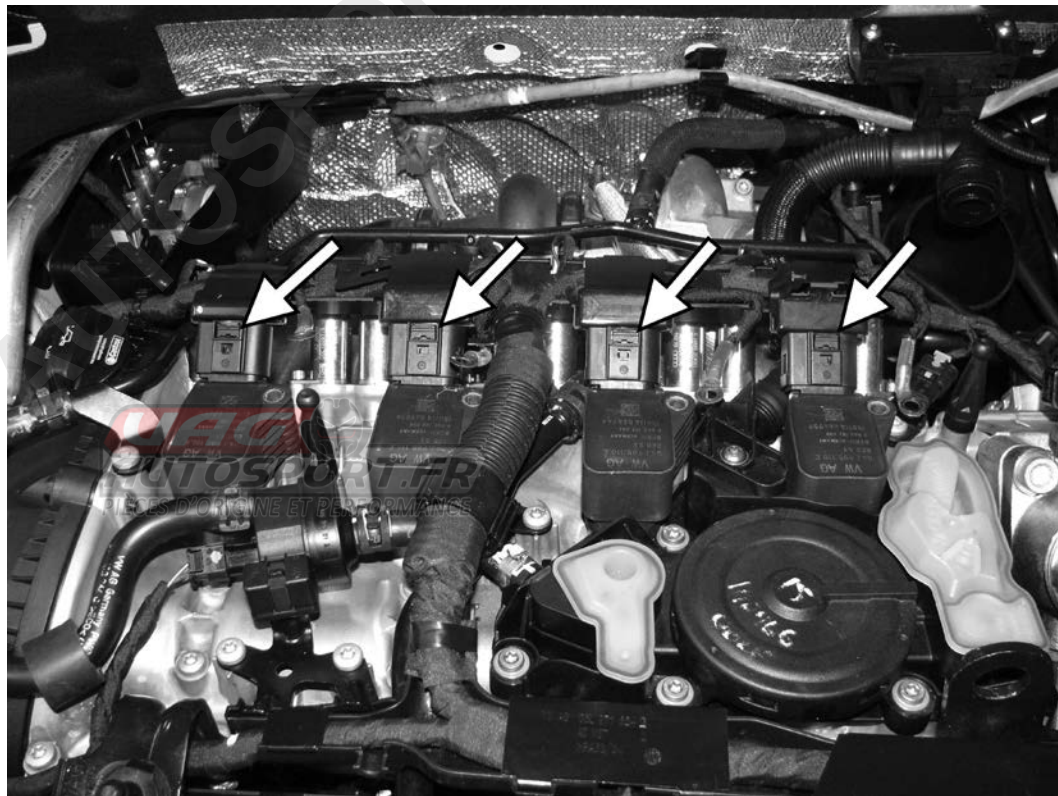


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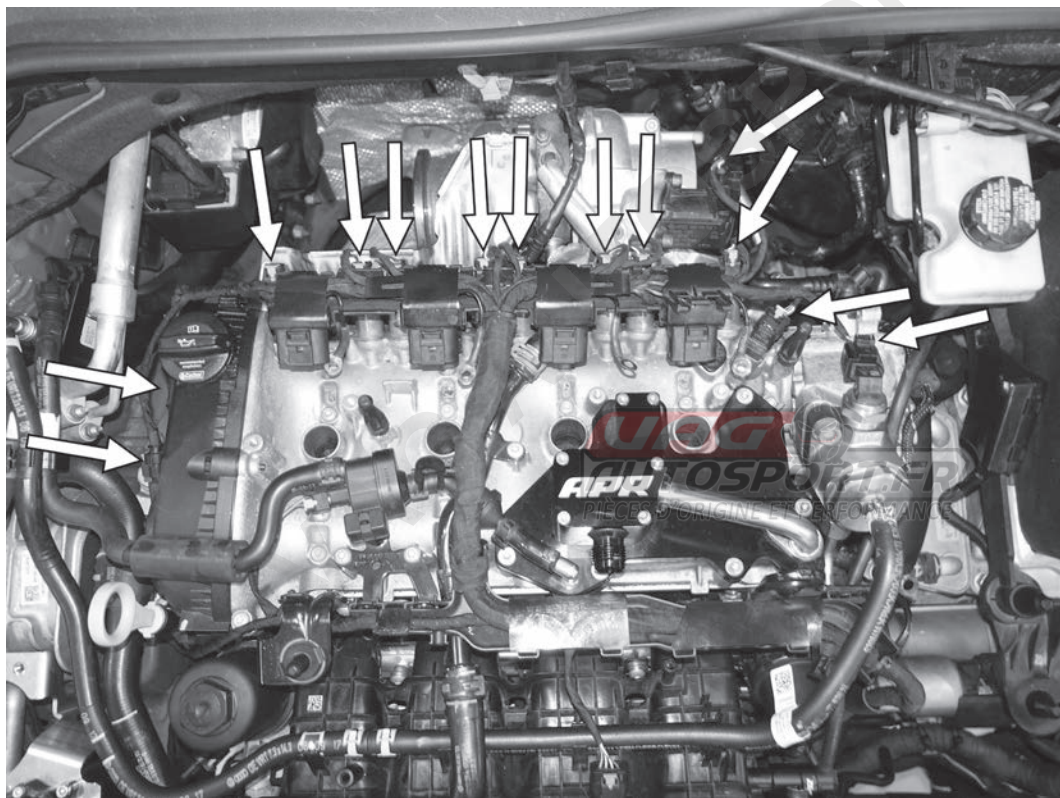


9) Remove the four 10mm nuts holding the grounding straps to the ignition coilpacks, and separate the grounding straps from the mounting posts. Once the ground straps are removed, remove the 10mm bolts holding the coilpacks in place.

10) Disconnect the four electrical connectors to the coilpacks, and lift the wiring harness off the coilpacks. Lift up on the coilpacks, and remove all four from the car.



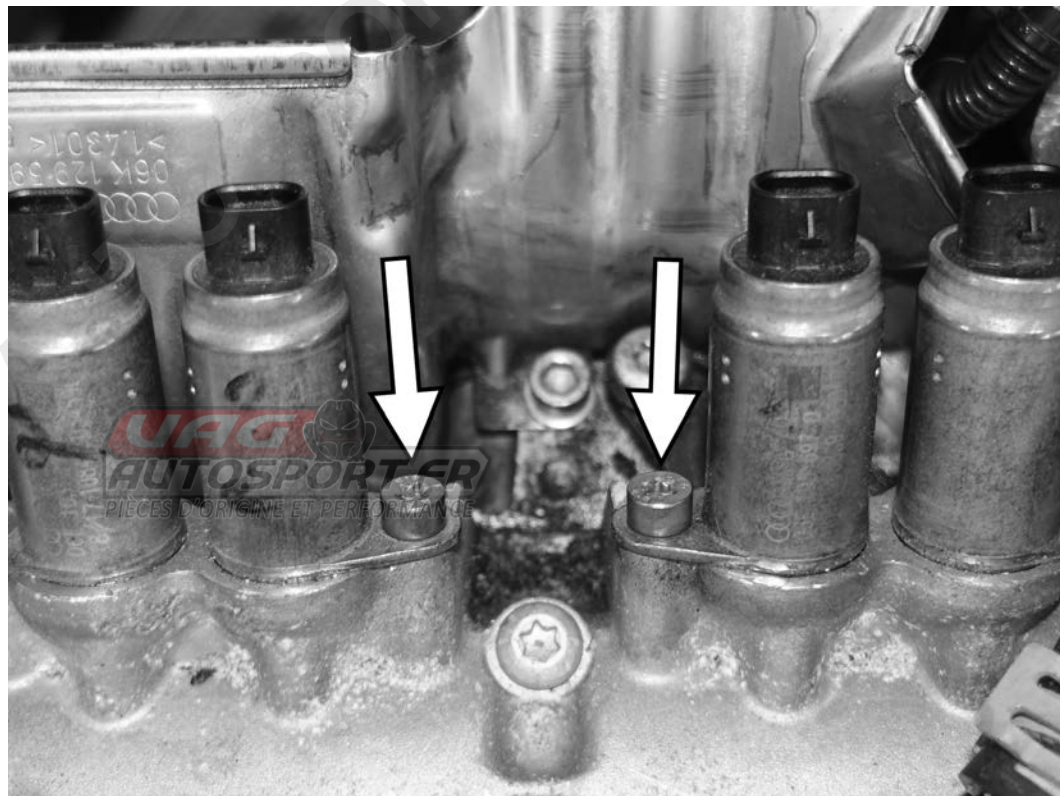
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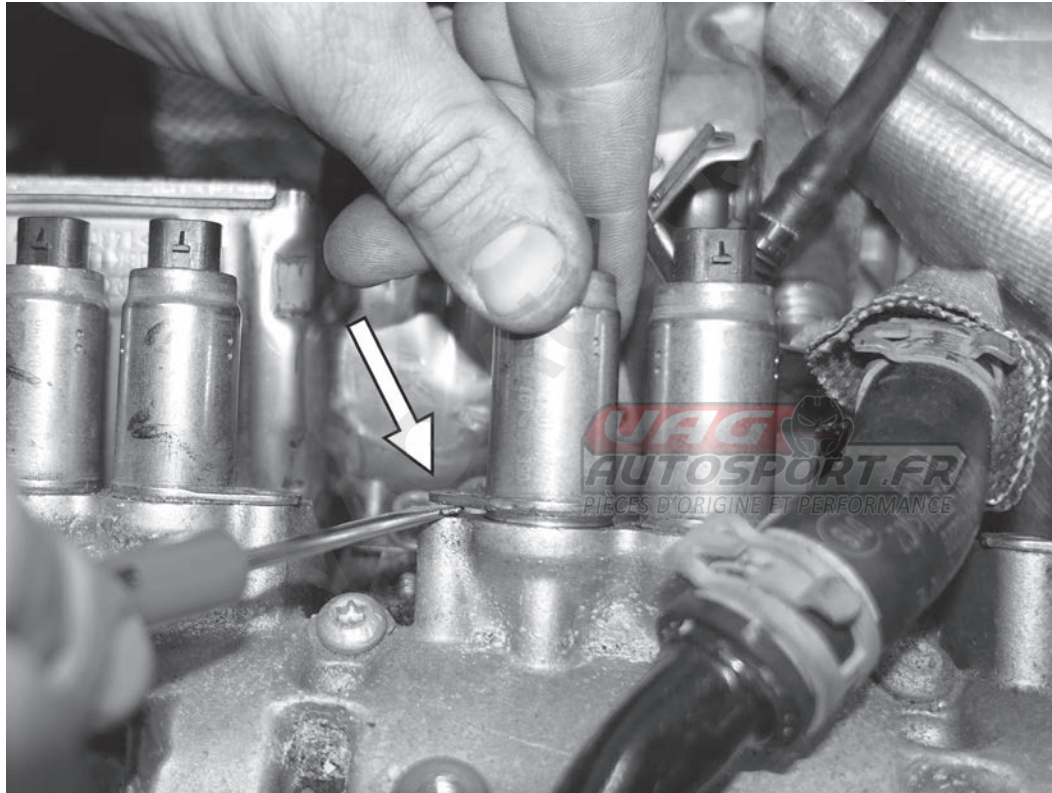
11) Disconnect the 8 electrical connectors on the valvelift solenoids, the one on the high pressure fuel pump, the one on the diverter valve, the one on the camshaft position sensor, and the two on each of the VVT cam solenoids. Lift the harness up and flip over towards the front of the engine.

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12) Remove the eight T25 screws from each of the valvelift solenoids.



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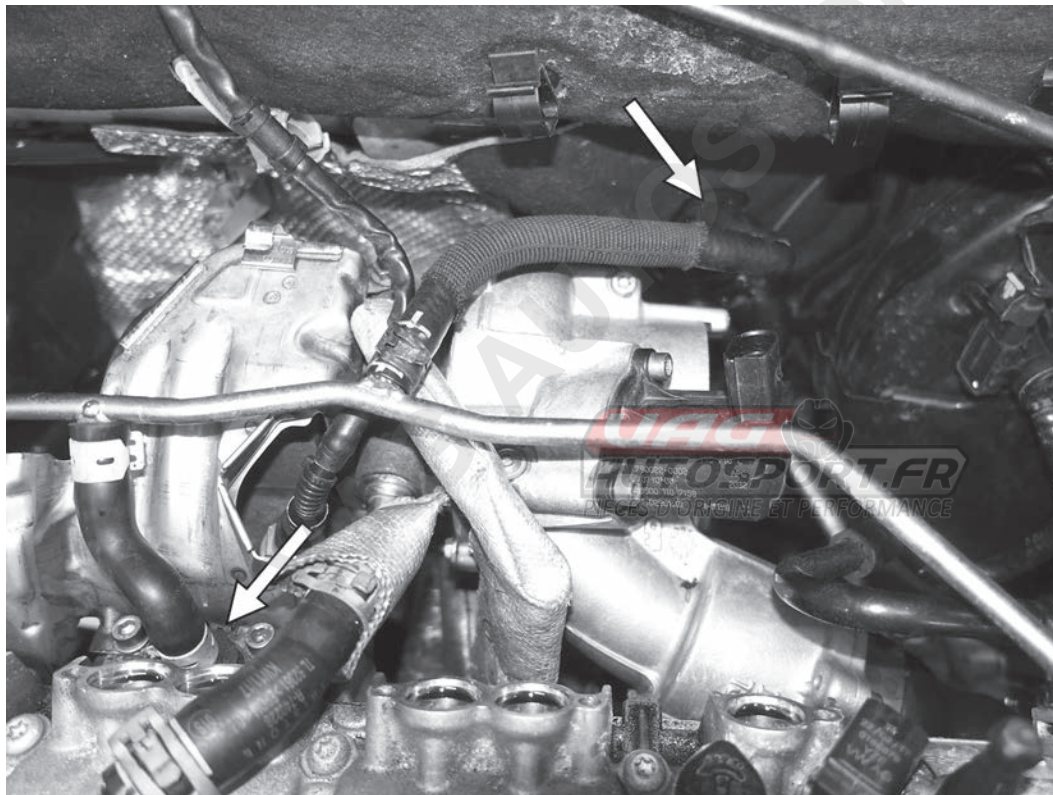


13) Using a small screwdriver, carefully lift on the flange of the valvelift solenoid while twisting the solenoid to remove it from the engine. Remove all eight valvelift solenoids.

14) Remove the spring clamp from the coolant hose to the coolant expansion tank, and separate the hose from the tank. Remove the T30 screw holding the coolant pipe to the top of the cylinder head.



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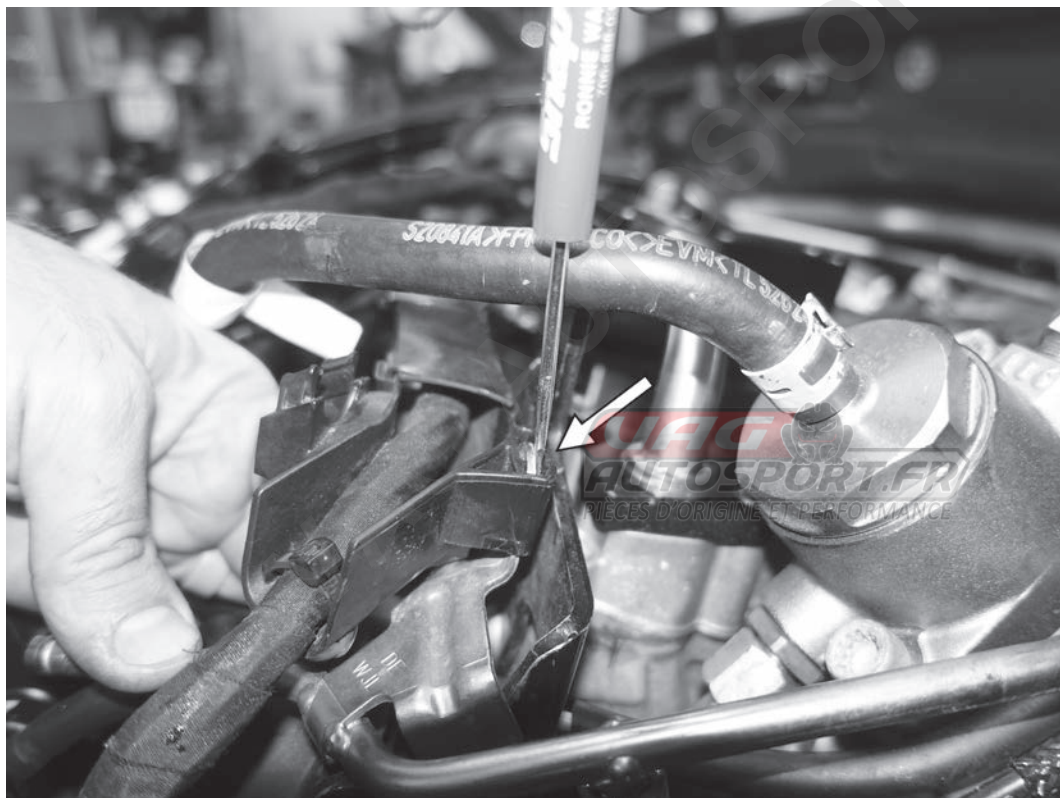


15) Remove the spring clamp and hose, and separate the coolant line from the back of the cylinder head. Remove the spring clamp and hose from the coolant line on top of the heater hose at the firewall.

16) Remove the two T30 screws holding the left side of the coolant pipe to the engine. Remove the spring clamps and hoses from the coolant pipe.

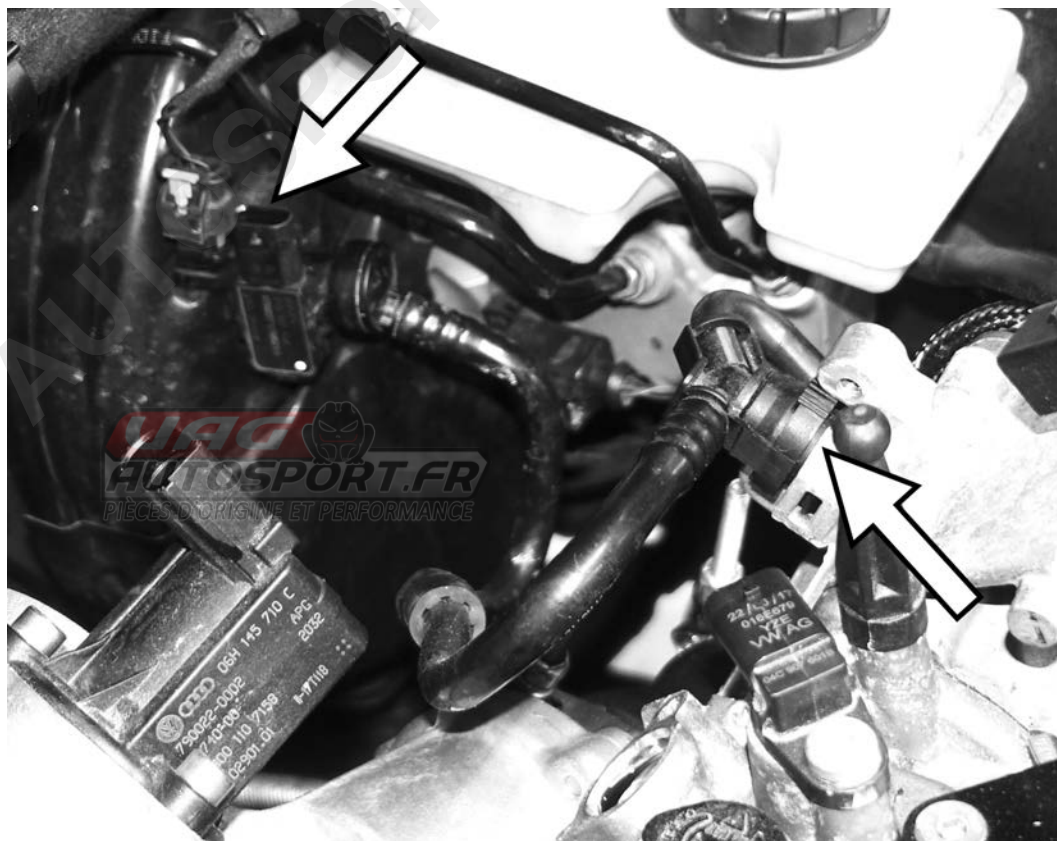


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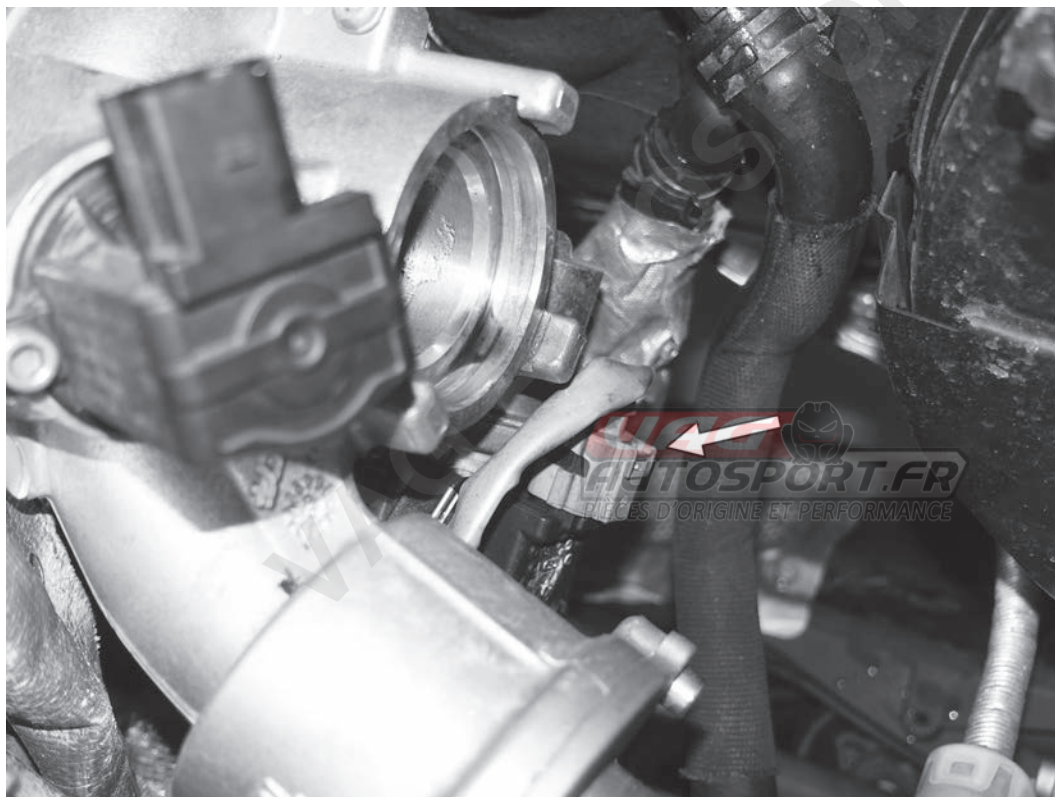


17) Separate the coolant pipe bracket from the wiring harness channel. Lift the wiring harness channel, and then remove the coolant pipe assembly from the car.

18) Disconnect the electrical connector to the vacuum hose from the engine to the brake booster. Pull the hose out from the port on the brake booster. Then, squeeze both sides of the connection on the vacuum pump to release the hose from the pump and remove the hose from the car.



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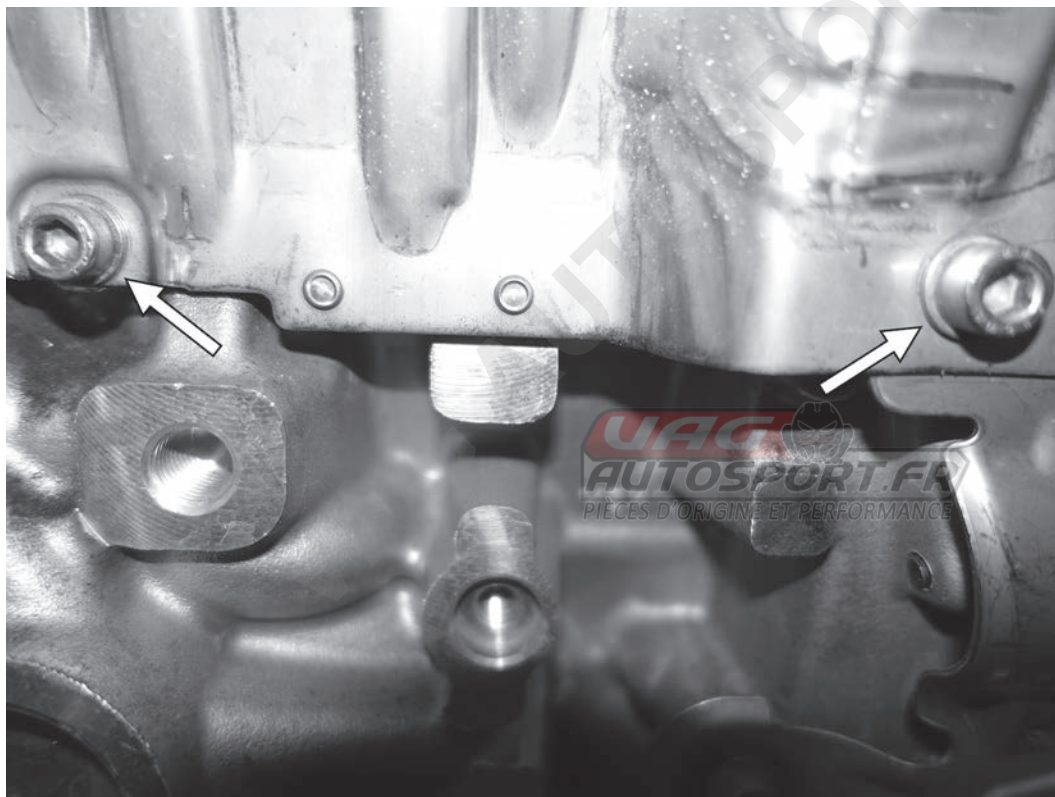
19) On the back of the turbocharger, disconnect the electrical connector to the wastegate actuator.

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20) Remove the two 5mm allen screws from the front top of the turbocharger heat shield. Remove the 10mm nut from the back top of the turbocharger heat shield.

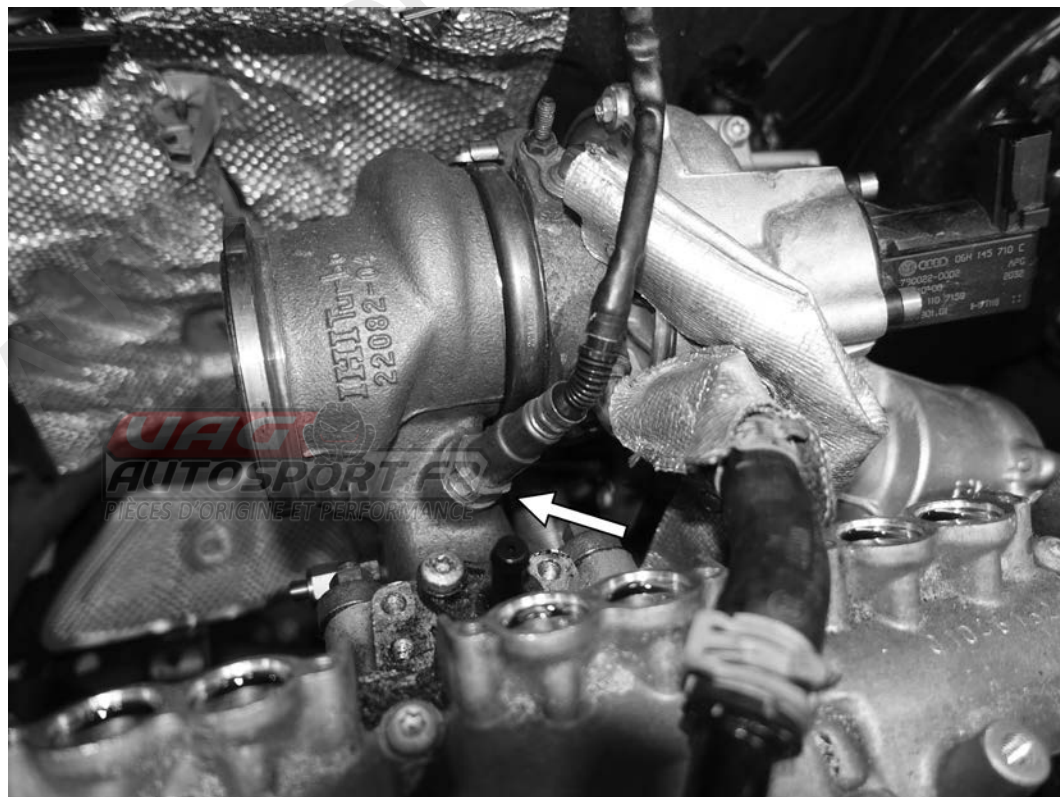


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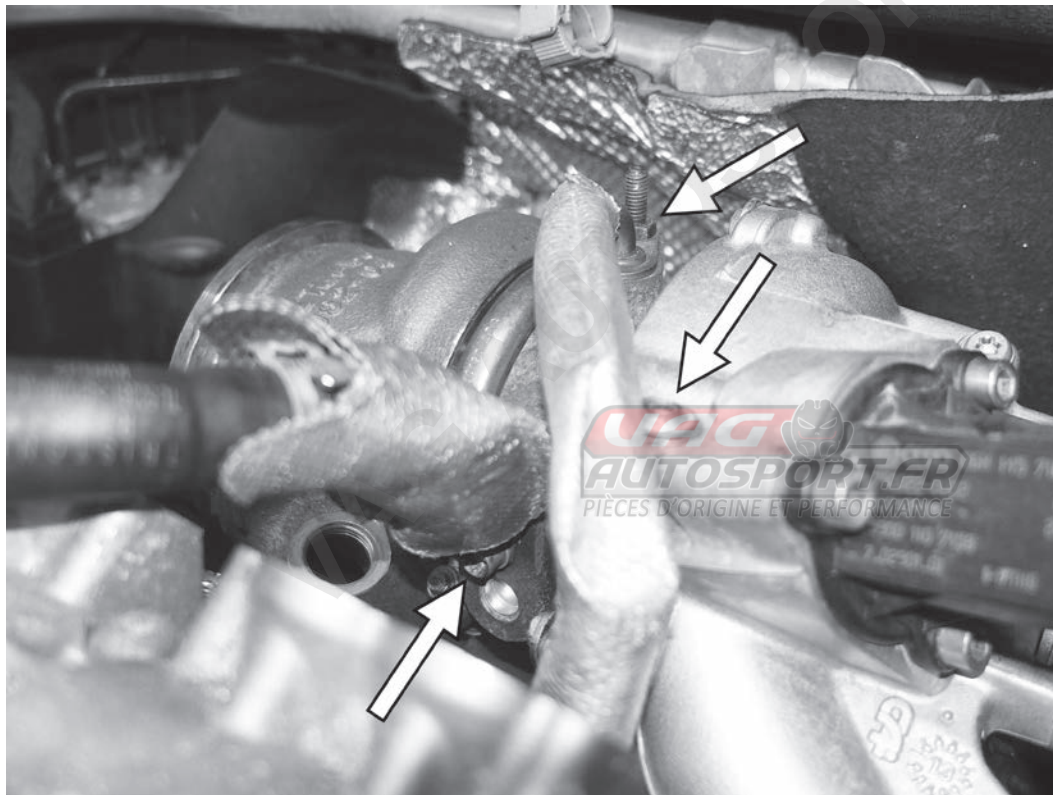


21) From the back of the heat shield, remove the two 5mm allen screws holding the heatshield to the back of the cylinder head by the turbocharger. Remove the heat shield from the car.

22) Using an oxygen sensor socket, remove the oxygen sensor from the top of the turbocharger, being careful not to twist the wires in the harness.



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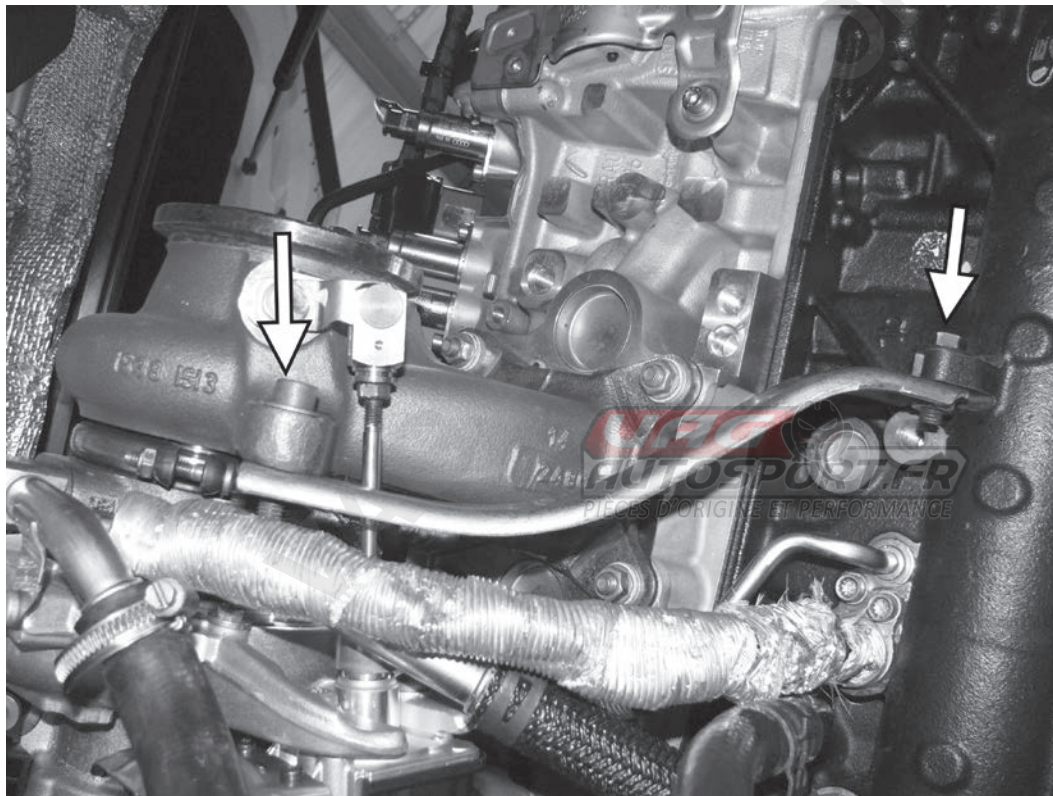


23) Remove the 5mm triple square screw holding the oil feed pipe to the top of the turbocharger. Remove the 10mm nut from the oil feed pipe on the back of the turbo, and carefully lift the pipe out of the top of the turbo. Remove the 8mm triple square screw from the coolant feed pipe on the front of the turbo.

24) Loosen the two T30 screws on the coolant feed pipe on top of the valve cover. Remove the spring clamp and hose from the coolant feed pipe going into the turbo, and separate the hose from the pipe. Remove the pipe from the front of the turbo.

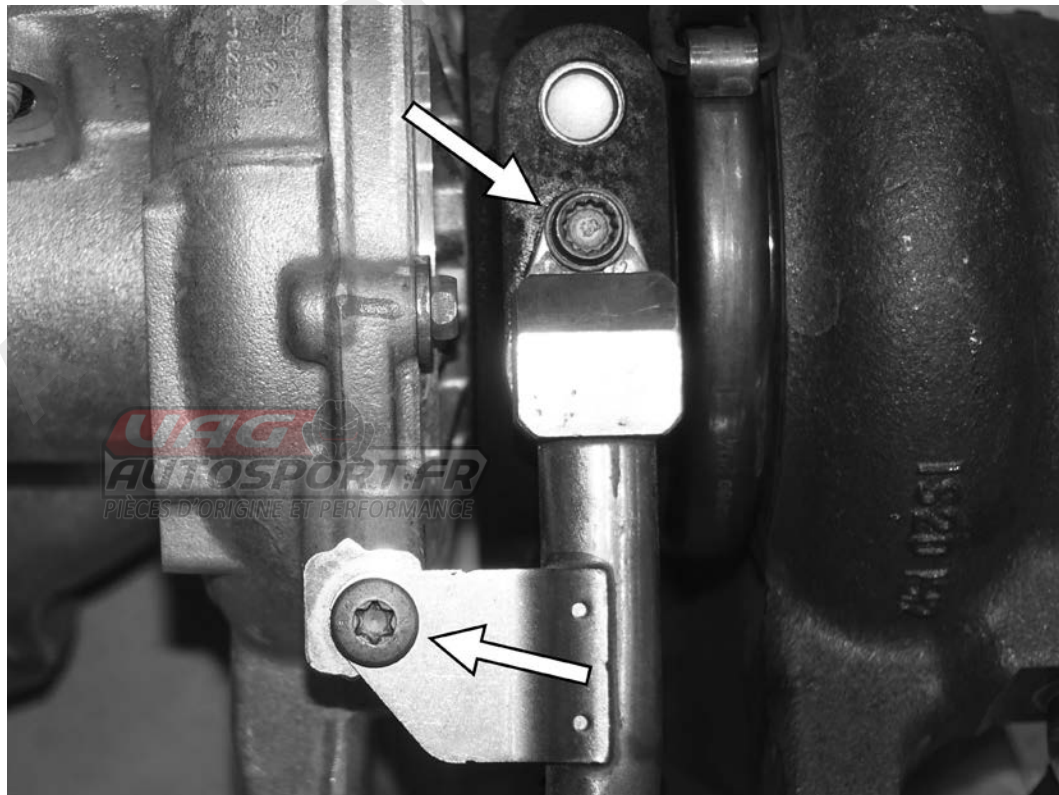


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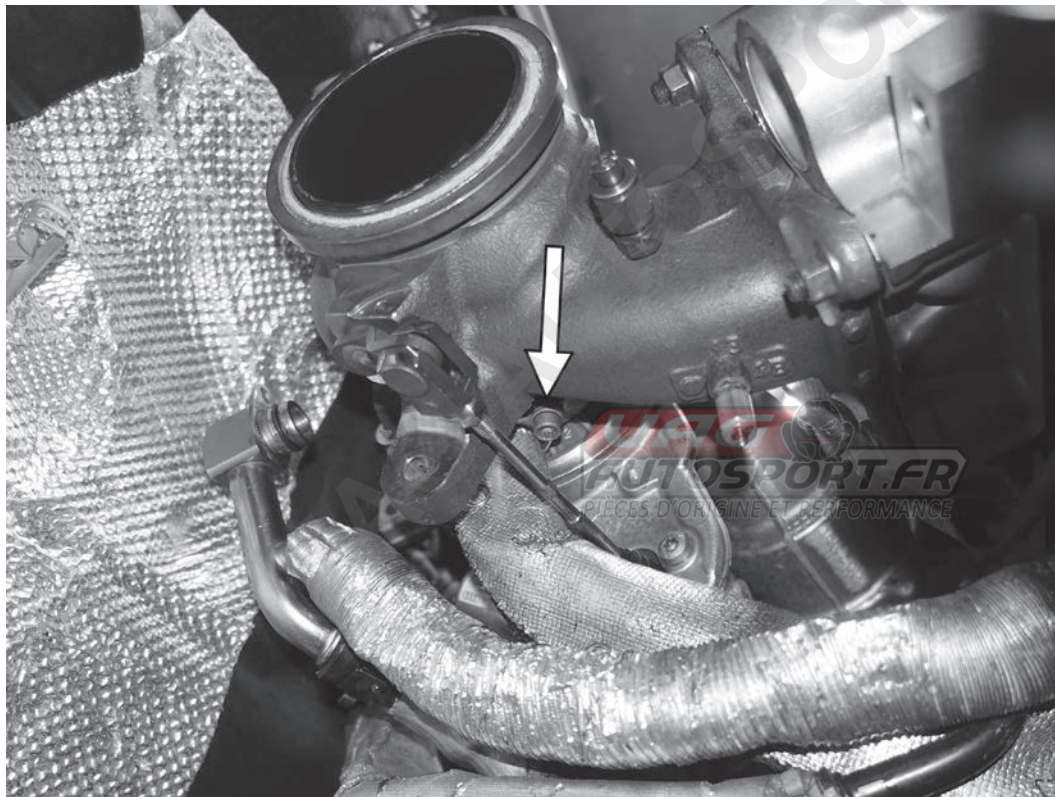


25) Remove the 6mm allen bolt from the top of the turbo support bracket. Remove the 13mm bolt from the bottom of the support bracket, and remove the bracket from the car.

26) On the back side of the turbocharger, remove the T30 screw and 8mm triple square from the coolant return pipe. Remove the coolant return pipe from the back side of the turbocharger.

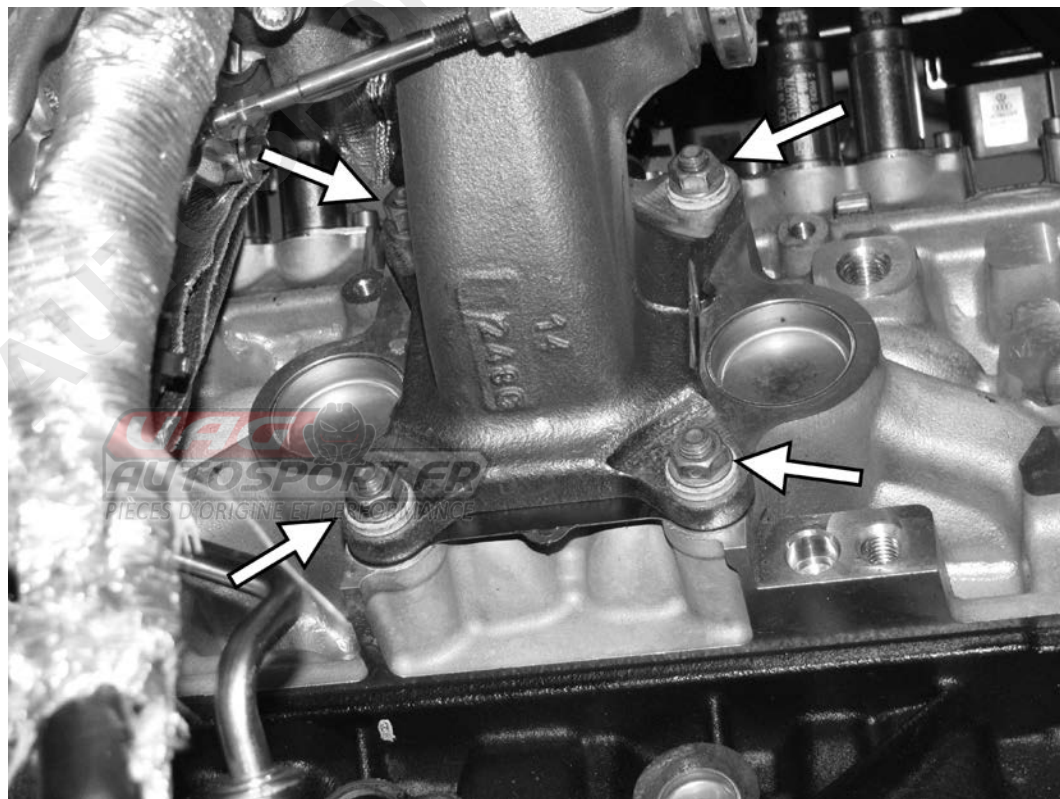


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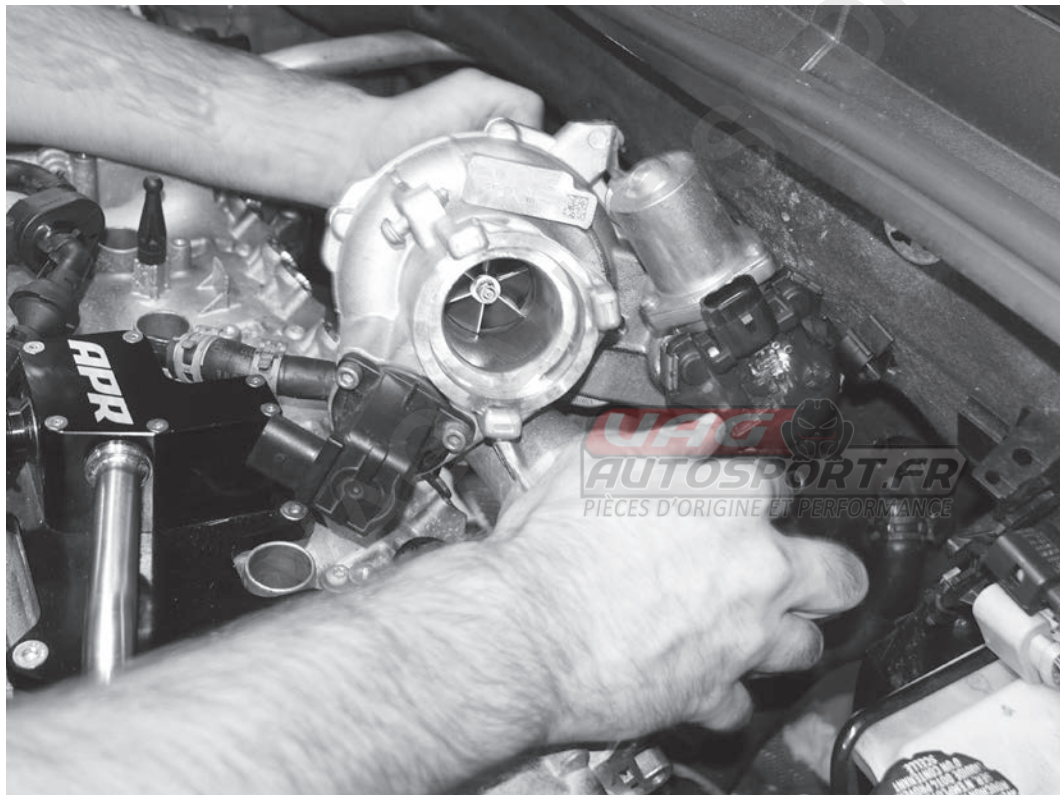


27) Remove the 8mm triple square from the oil drain line, and separate the line from the turbocharger.

28) Remove the four 12mm nuts holding the turbo to the back of the cylinder head.



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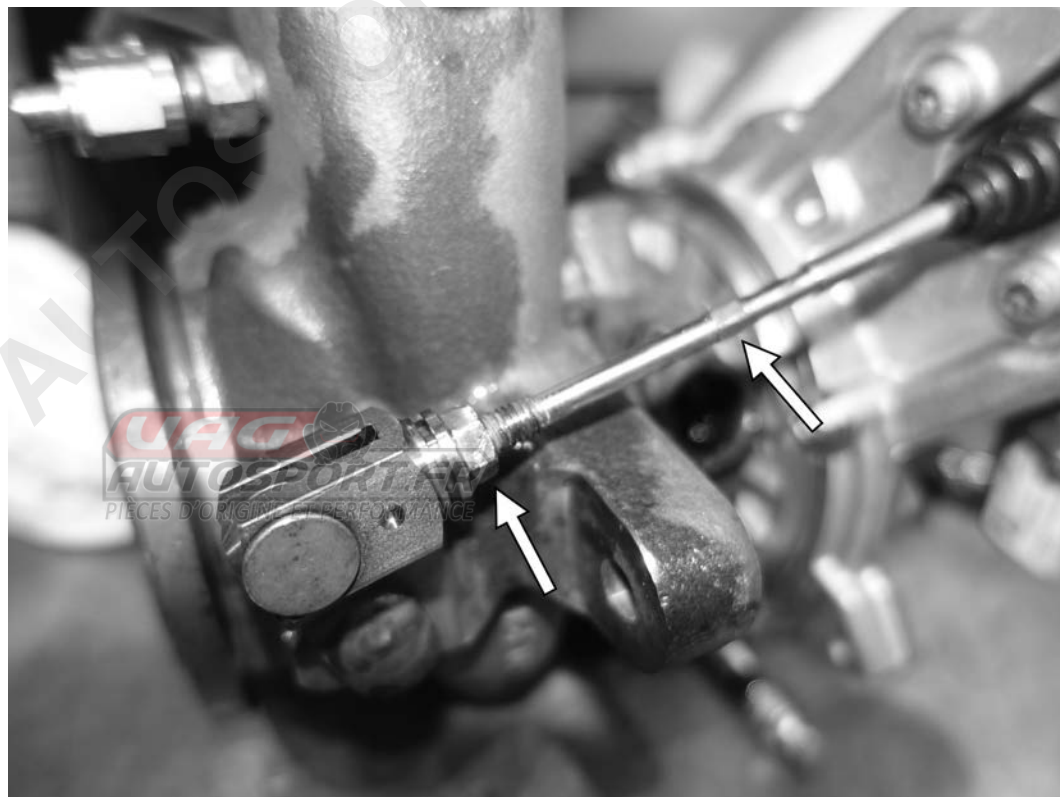


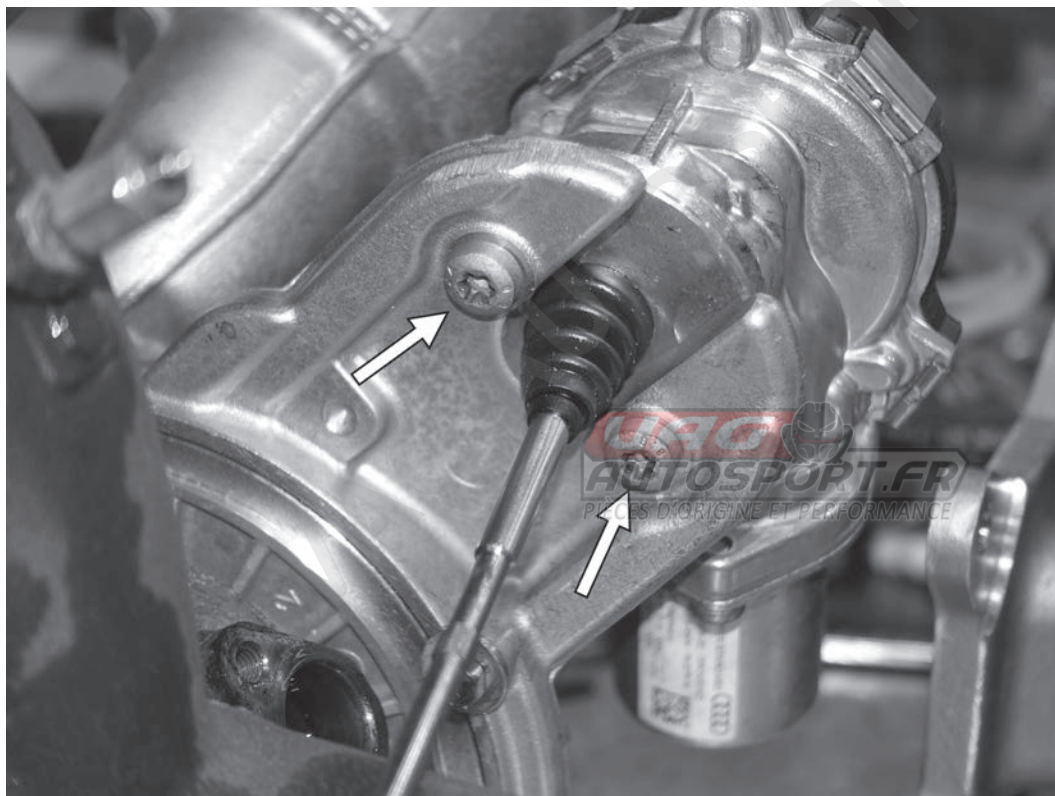
29) Carefully lift the turbocharger out from behind engine, making sure not to damage any surrounding components.

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30) On the wastegate actuator on the stock turbocharger, use a 5mm wrench to hold the rod of the actuator. Then use a 10mm wrench to break the tension on the nut on the end of the wastegate rod. Once tension is broken, rotate the wastegate rod (not the 10mm nut) to separate the wastegate rod from the wastegate flap of the stock turbocharger.

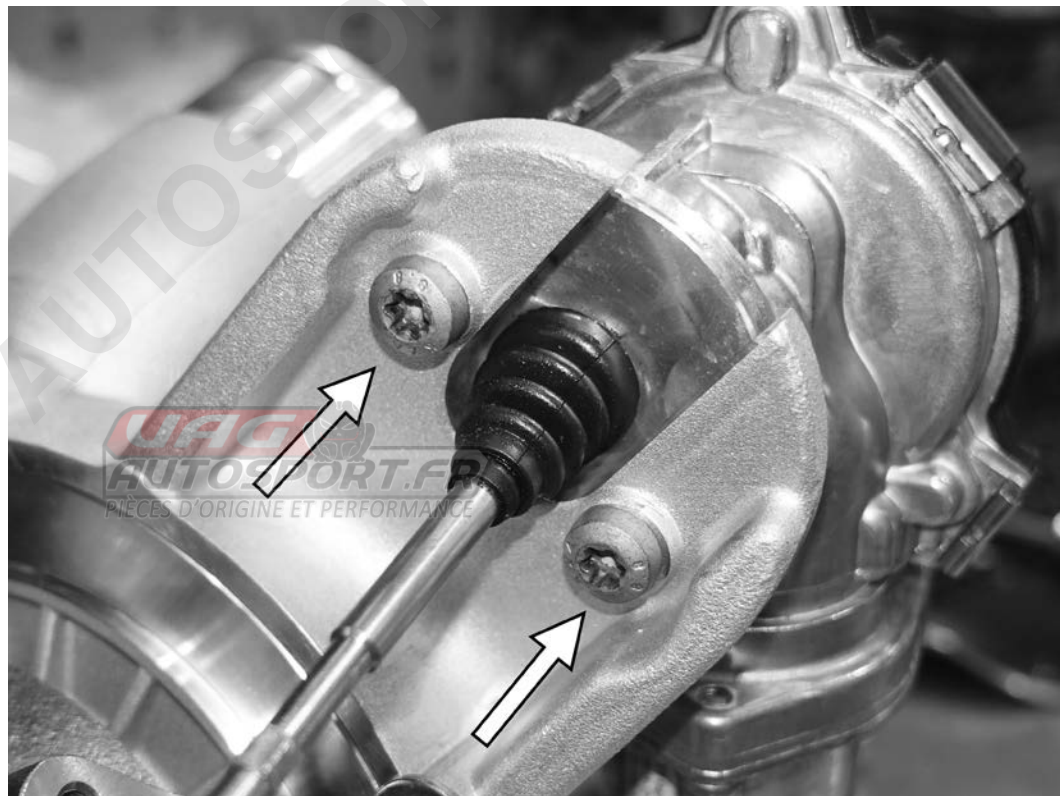
You want to keep the overall length of the wastegate rod (i.e.- the 10mm nut location) roughly the same as it was before, or you may have to perform a wastegate adjustment using a factory scan tool or VAG-Com.



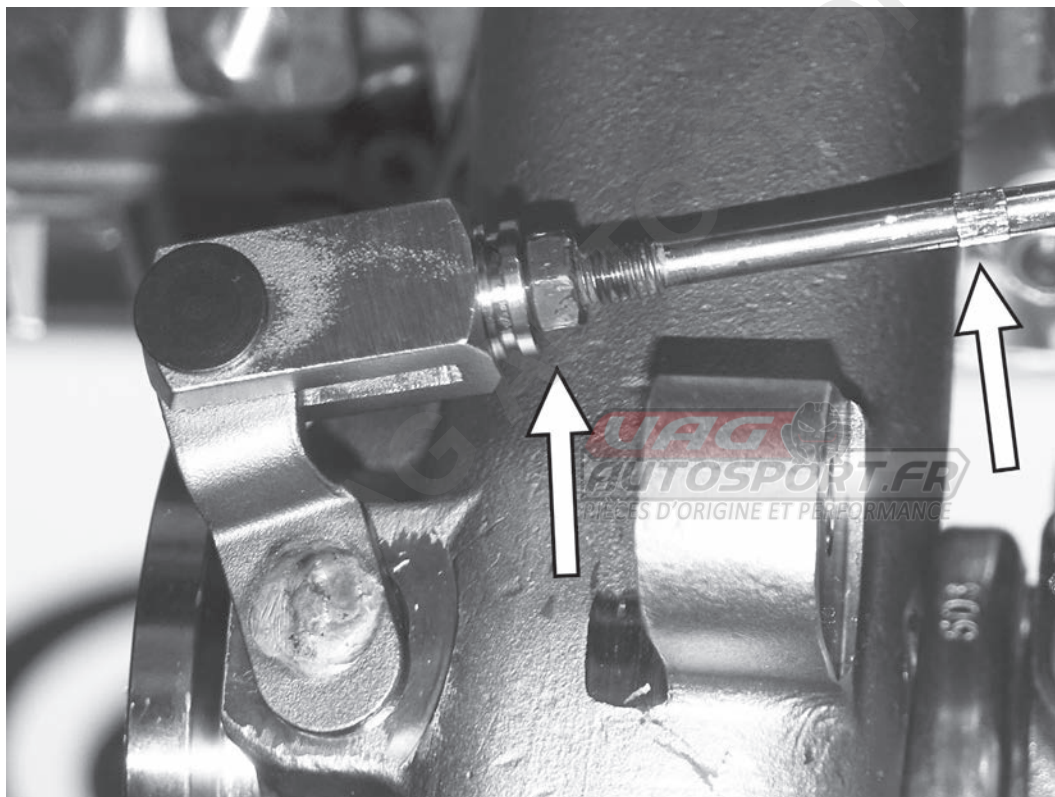


31) After noting the orientation of the wastegate solenoid on the stock turbocharger, loosen and remove the two T30 screws holding the wastegate actuator to the stock turbocharger.

32) Install the wastegate actuator onto the APR turbo in the same orientation as the stock turbocharger. Tighten the two T30 screws to 9Nm (80in-lbs).

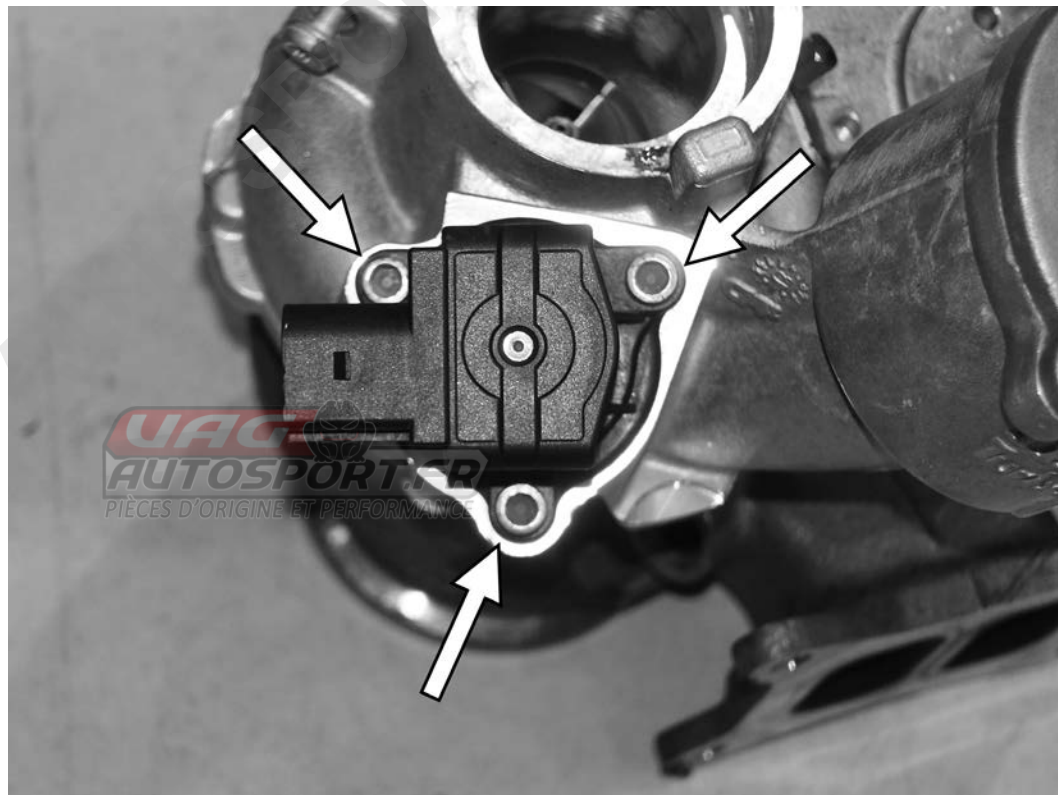


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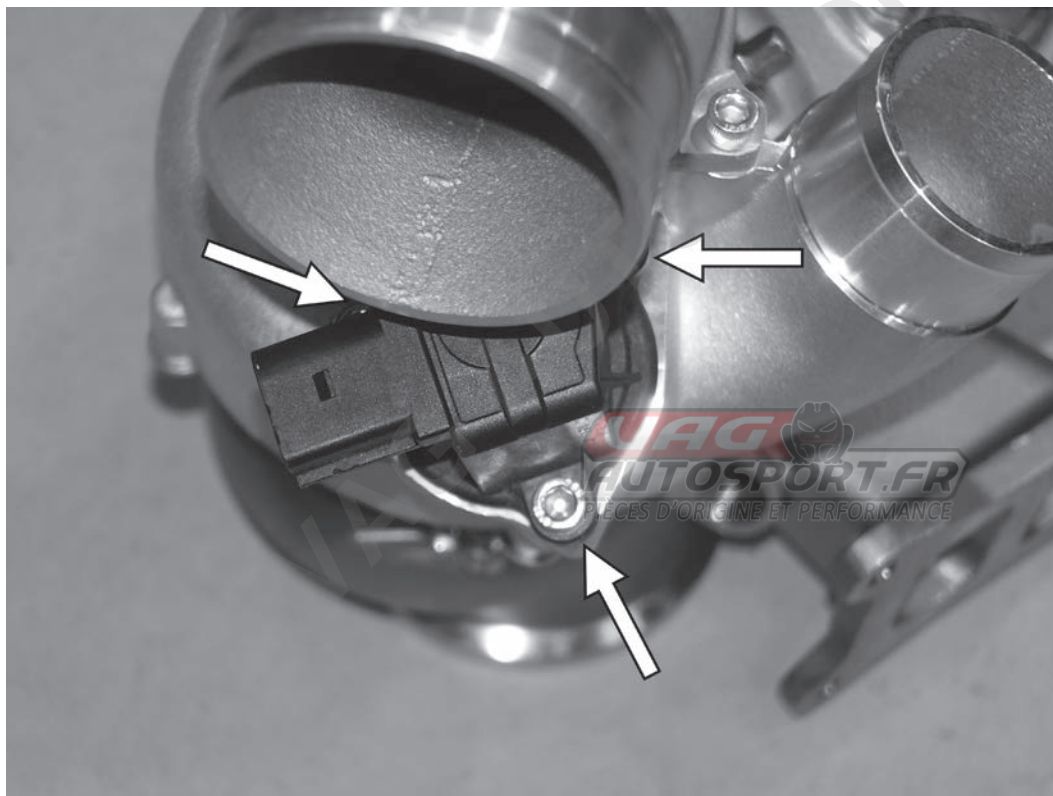


33) Thread the wastegate rod onto the wastegate flap by turning the wastegate rod. Do not change the location of the 10mm nut. Once seated, tighten the 10mm nut on the wastegate rod to 10Nm (88in-lbs). The overall length of the rod should not have changed from the stock turbocharger.

34) Note the orientation of the diverter valve on the stock turbo-charger. Remove the three 5mm allen screws from the diverter valve and remove it from the stock turbo.



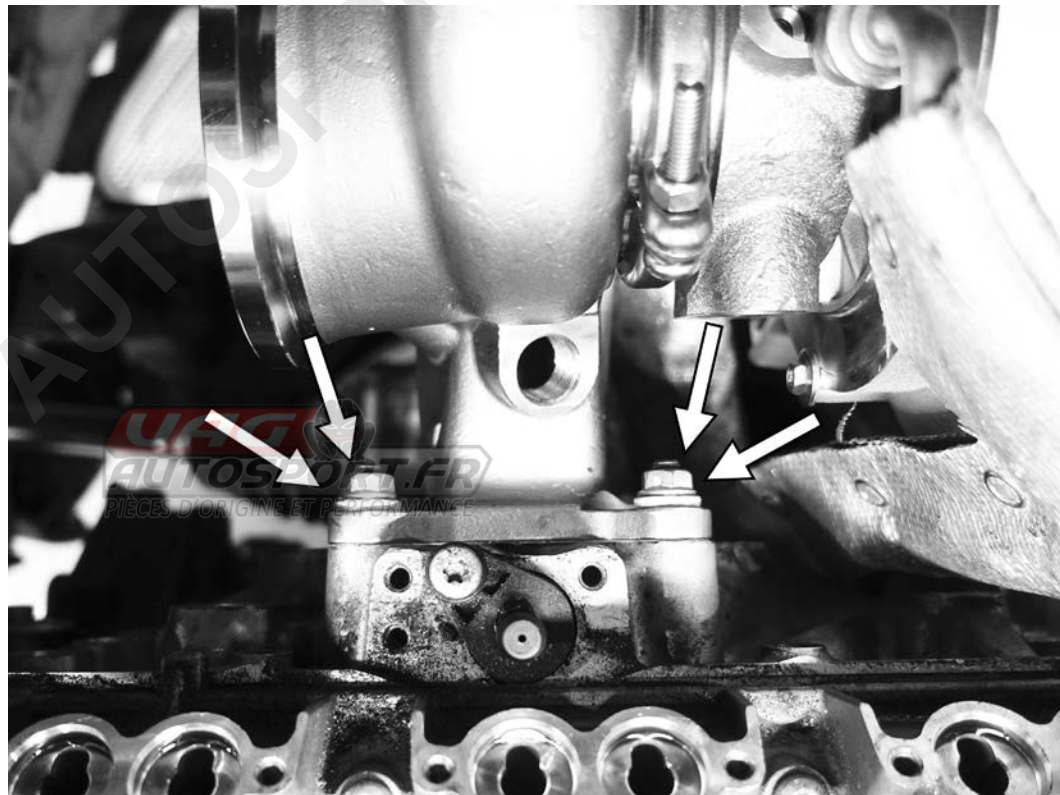
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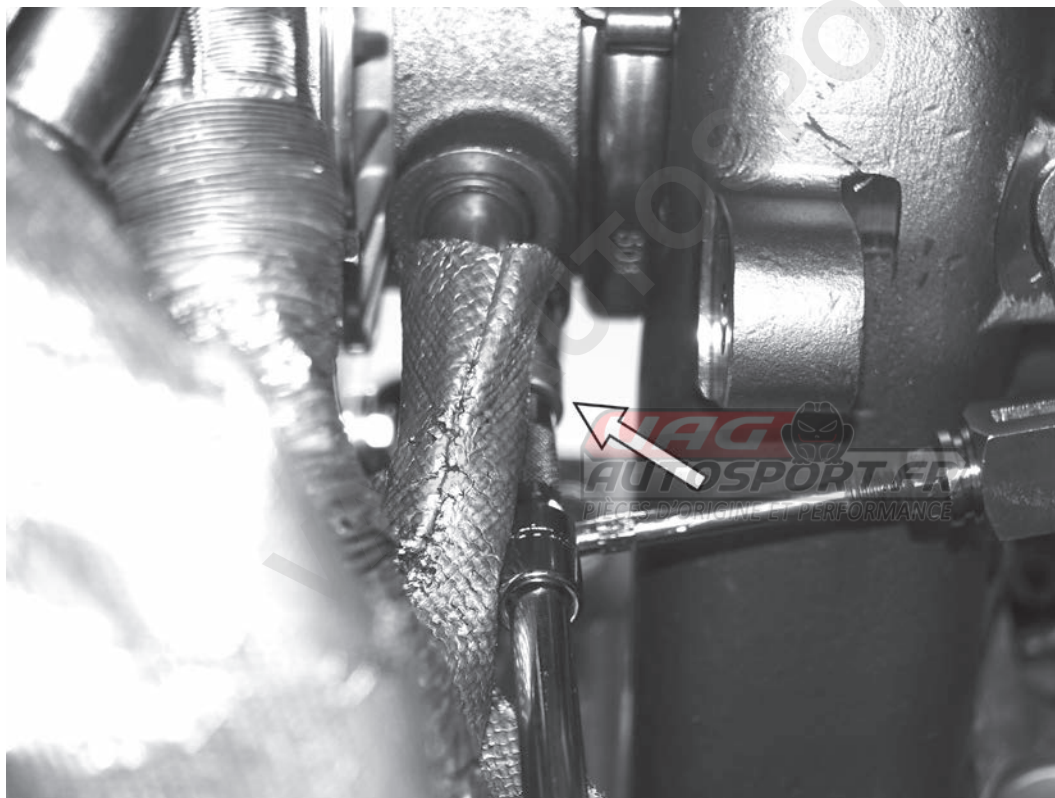
35) Install the diverter valve onto the APR turbo in the same orientation as it was on the stock turbo. Install the three 5mm allen screws and tighten them to 9Nm (80in-lbs).

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36) Install the new, supplied gasket onto the back of the cylinder head, then place the APR turbo into the car. Secure with the four supplied 12mm nuts and tighten to 25Nm (18.5ft-lbs).

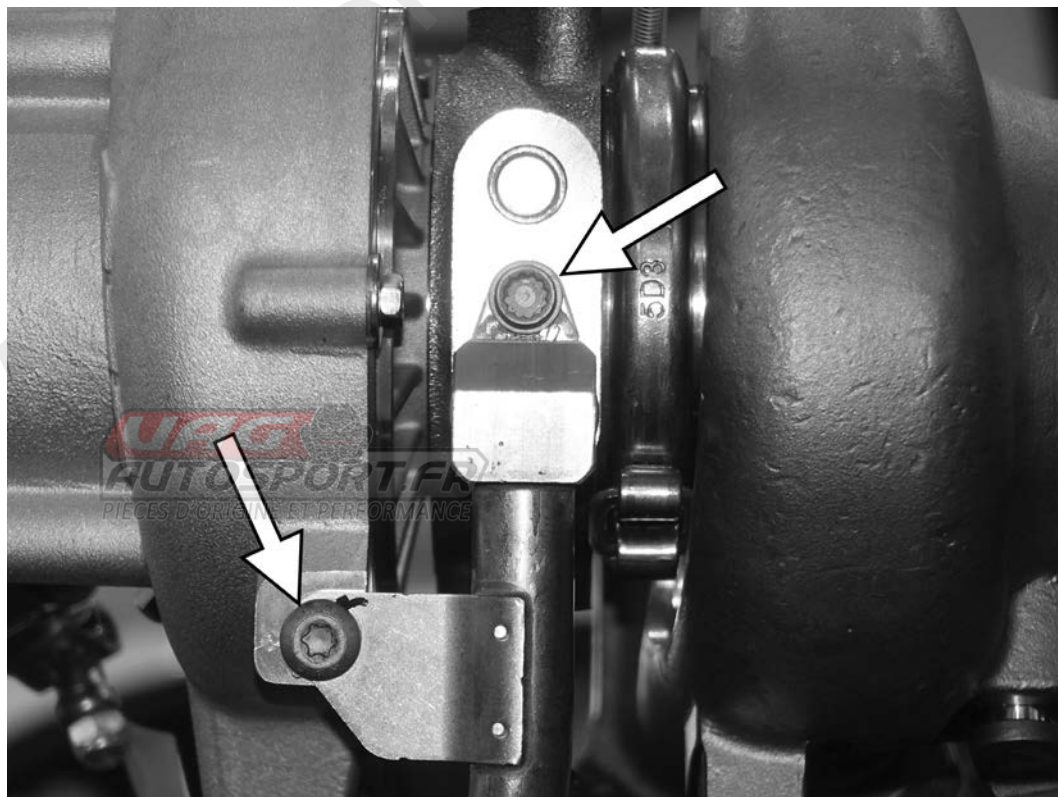


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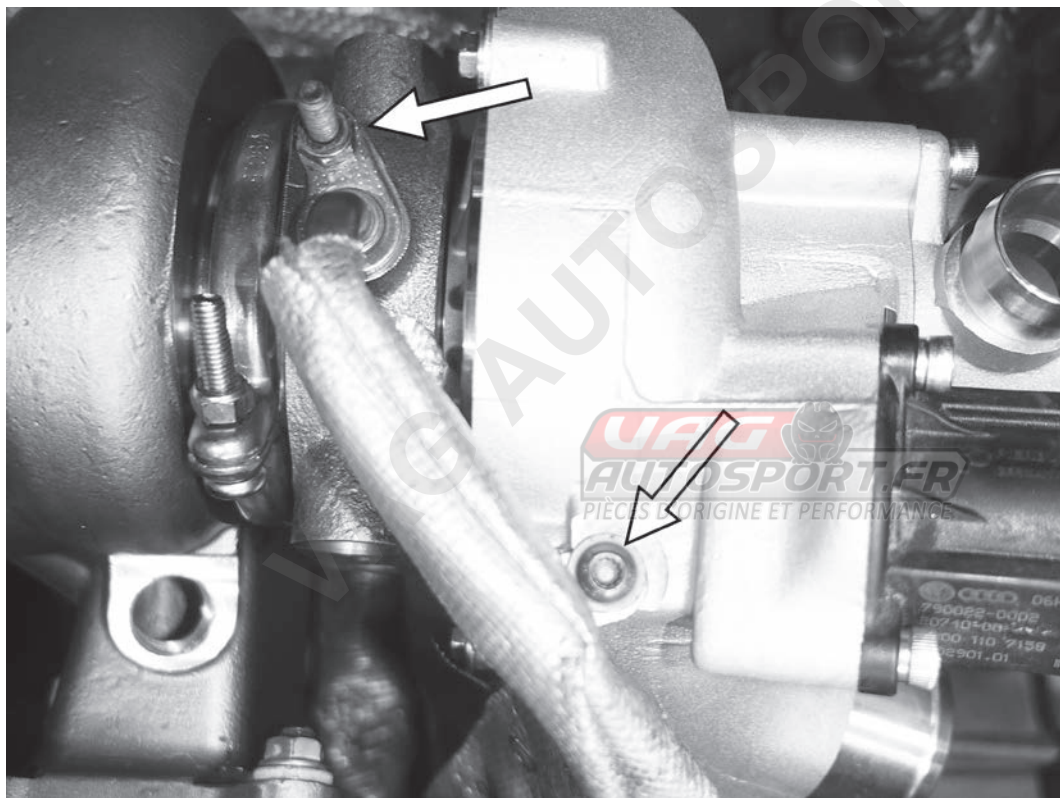


37) Replace the o-ring on the stock oil drain line with the new, supplied one. Install the drain line into the bottom of the turbocharger and tighten the 8mm triple square screw to 9Nm (80in-lbs).

38) After replacing the o-ring with the new, supplied o-ring, install the coolant return line to the back of the APR turbo. Install the 8mm triple square and T30 screws. Tighten both screws to 9Nm (80in-lbs).



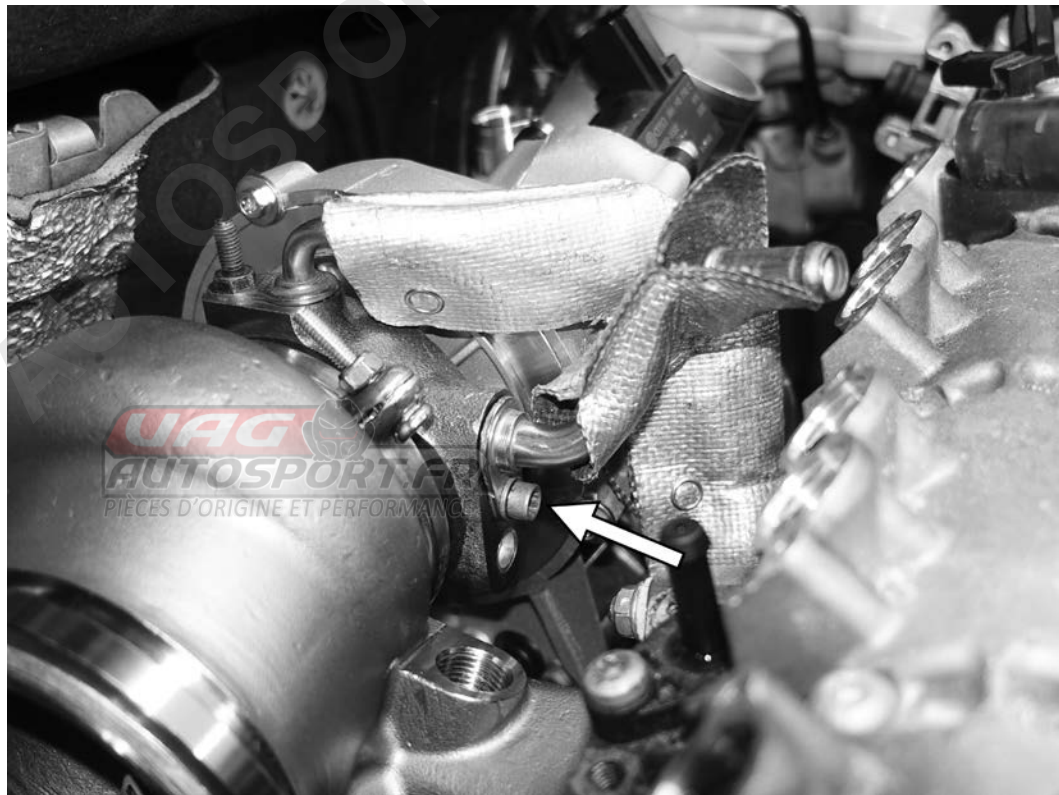
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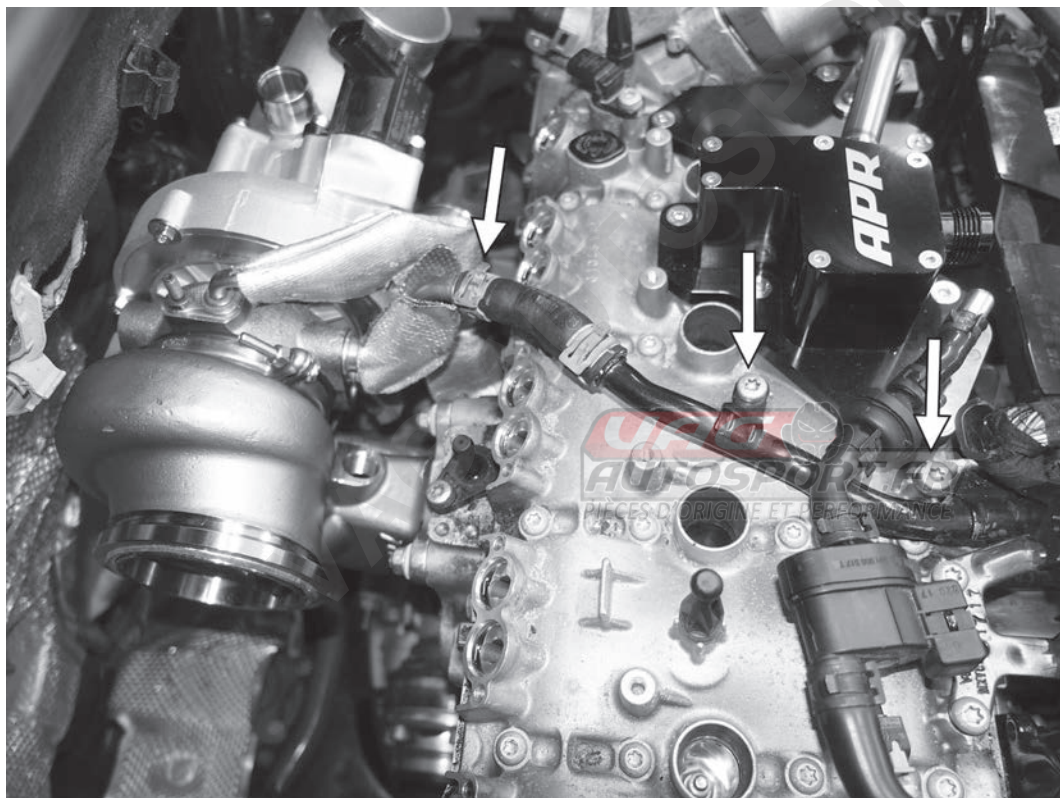
39) After replacing the o-ring on the oil feed line with the new, supplied one, install the oil feed line into the top of the APR turbo. Secure with the 10mm and 5mm triple square screws. Tighten both screws to 9Nm (80in-lbs).

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40) After replacing the o-ring on the coolant feed pipe with the new, supplied one, install the cooling feed pipe onto the front of the APR turbo. Tighten the 8mm triple square screw to 9Nm (80in-lbs).



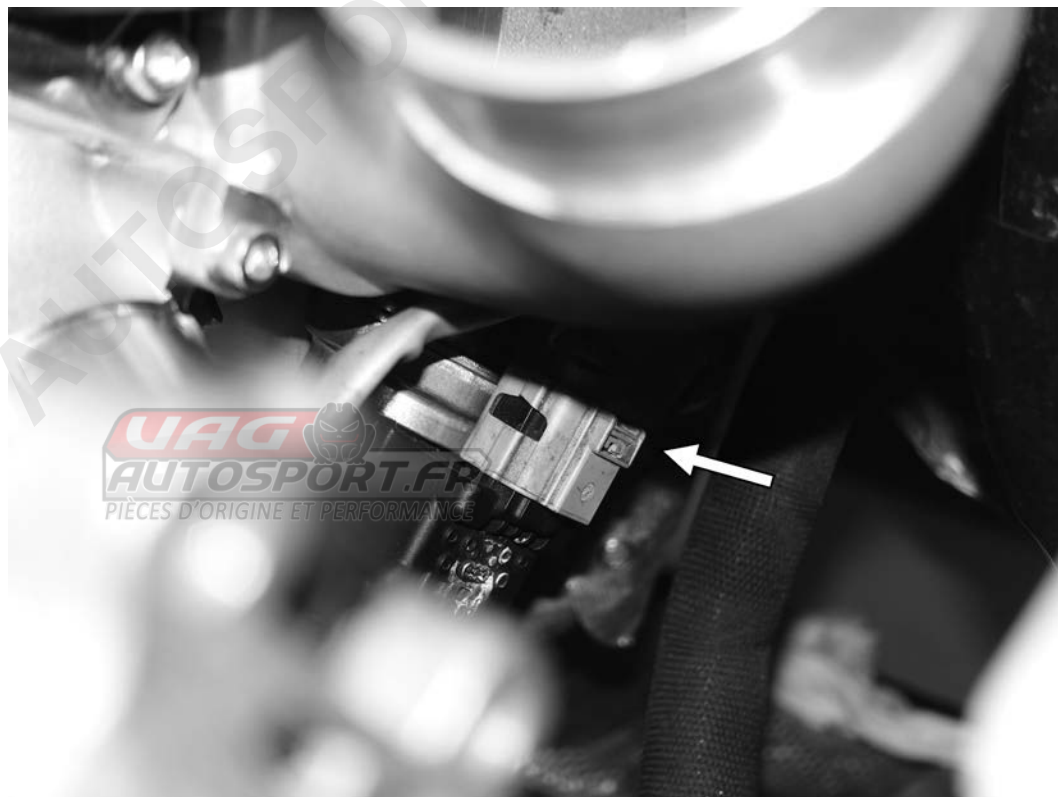
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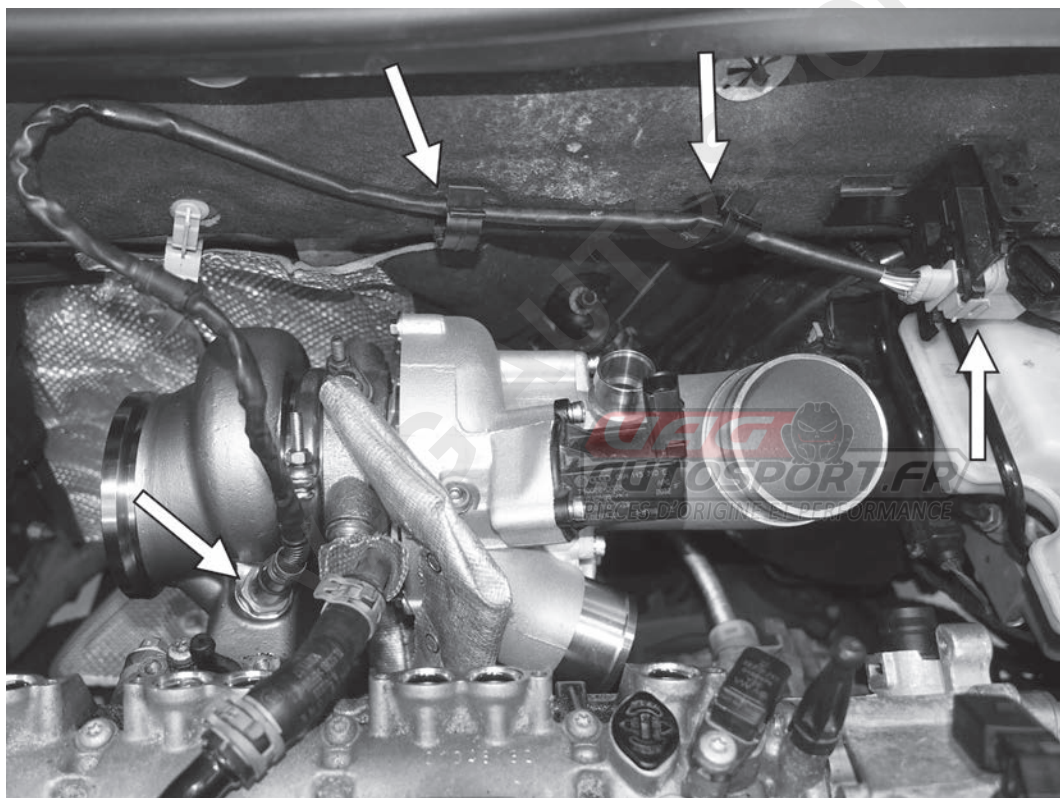
41) Reinstall the coolant pipe onto the top of the valve cover with the two T30 screws. Connect the hose to the turbo coolant feed pipe and secure with a spring clamp. Tighten the two T30 screws to 9Nm (80in-lbs).

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42) Reconnect the electrical connector to the wastegate actuator.

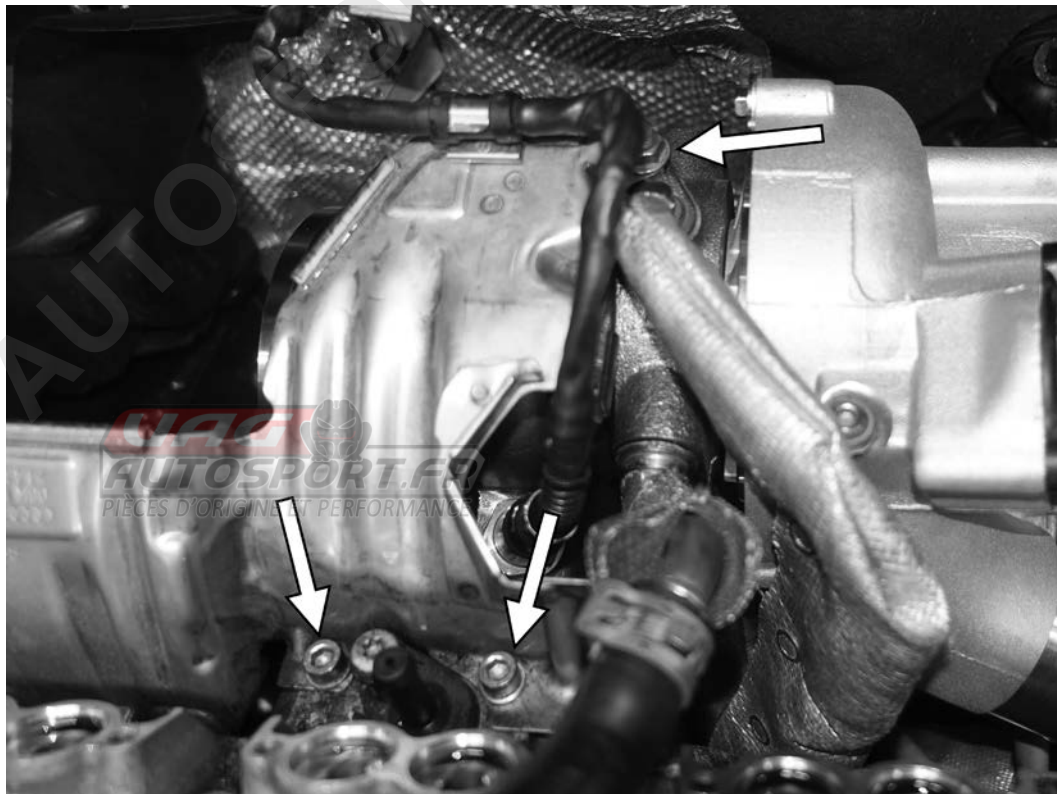


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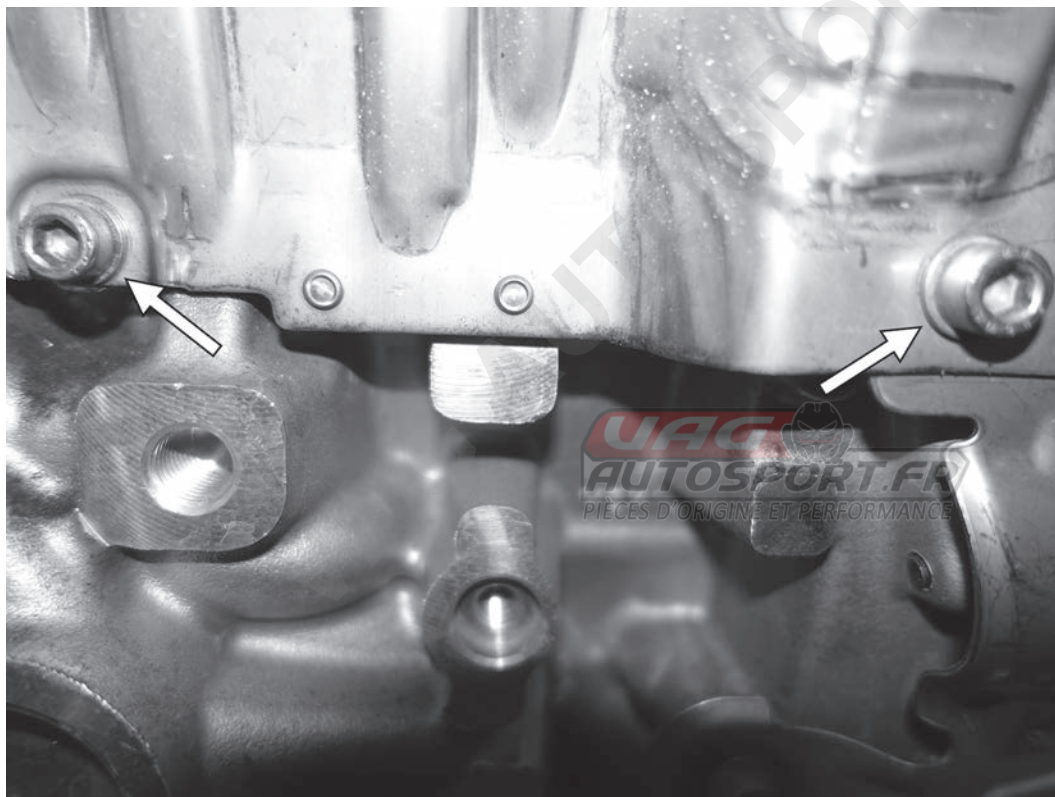


43) Reinstall the oxygen sensor into the turbo with an oxygen sensor socket. Tighten the oxygen sensor to 60Nm (44ft-lbs). Route the harness for the oxygen sensor roughly through the mounting clips on the firewall, and then reconnect the electrical connector to the wiring harness and mount the connector to the firewall.

44) Install the factory heat shield over the APR turbo. Secure with the two 5mm allen screws and one 10mm nut. Tighten the fasteners to 9Nm (80in-lbs).



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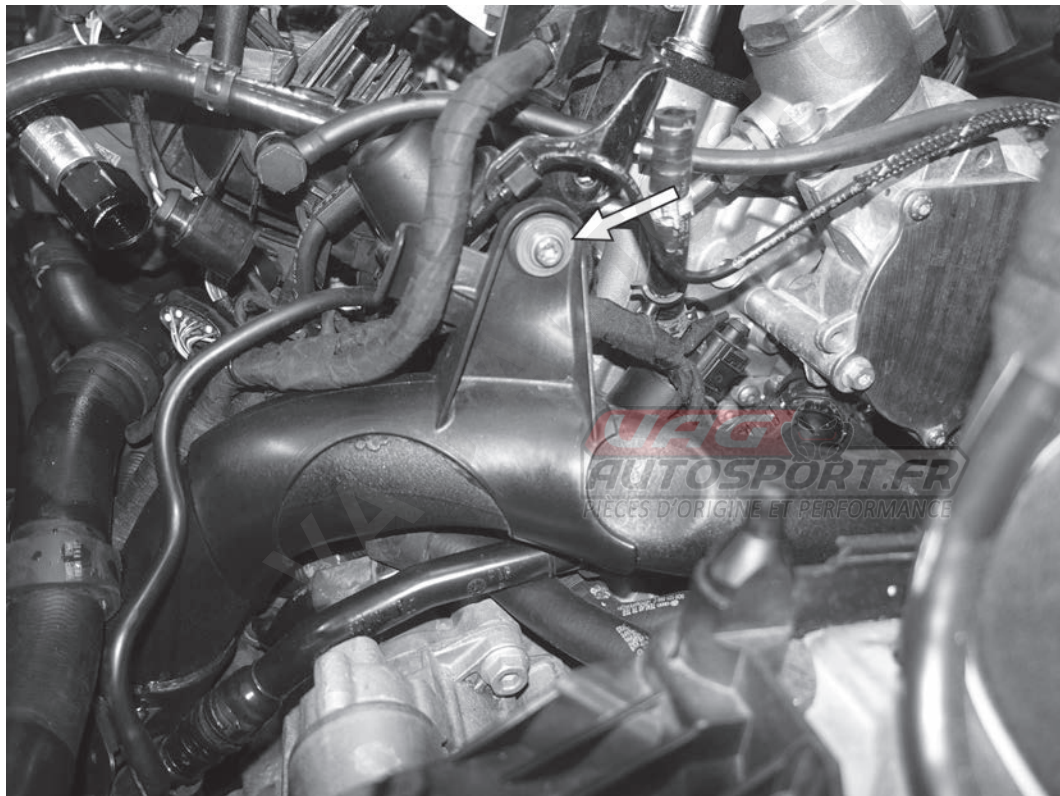


45) Reinstall the two 5mm allen screws on the back side of the heat shield. Tighten both screws to 9Nm (80in-lbs).

46) Reinstall the turbo outlet hose between the compressor outlet of the APR turbo and the side charge pipe. Secure with the two T-bolt clamps to 8.5Nm (75in-lbs). If using a stock hose, secure with the factory clamps and torque to 5.5Nm (49in-lbs).

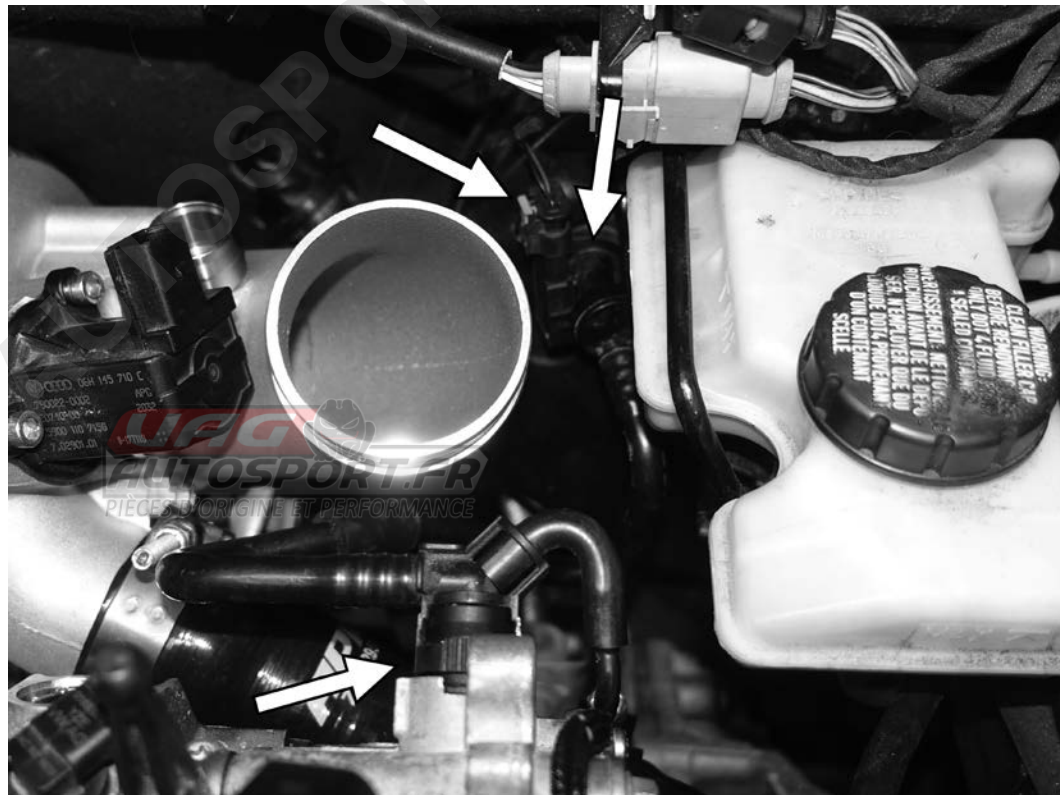


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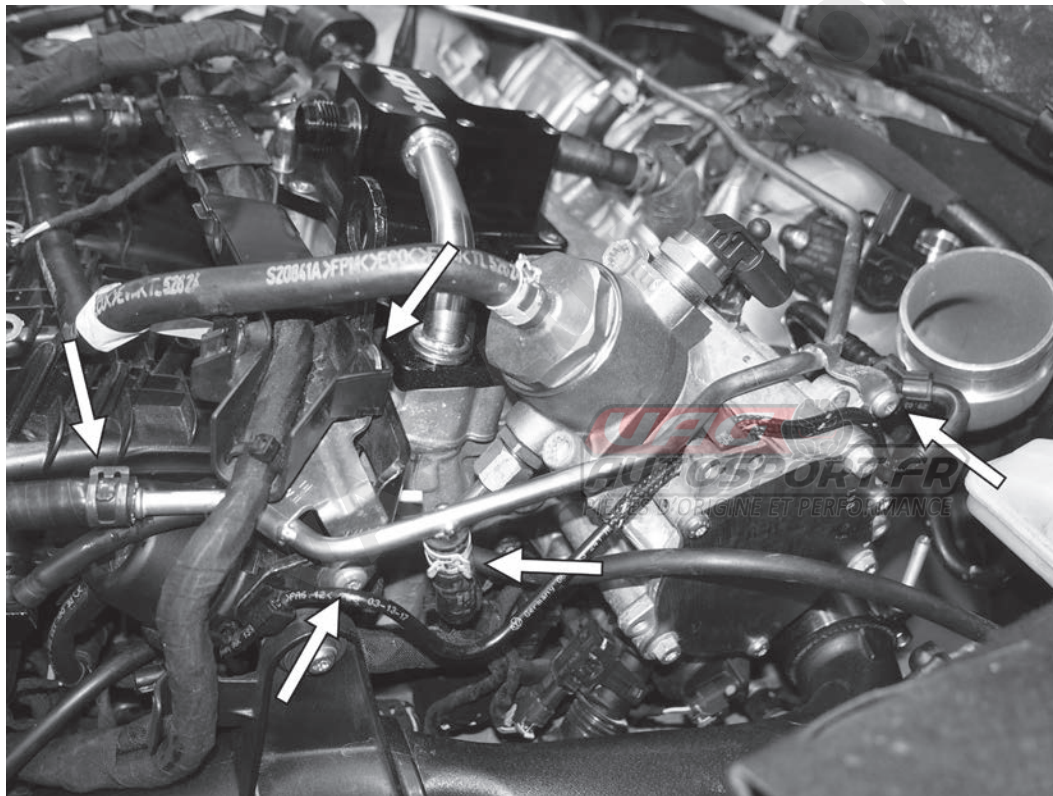


47) Reattach the side charge pipe with the T30 screw. Tighten the screw to 7Nm (62in-lbs).

48) Reinstall the back side of the vacuum pipe to the brake booster. Reclip the front side of the vacuum pipe to the back of the vacuum pump, on the back of the cylinder head. Finally, reconnect the electrical connector to the sensor by the brake booster.

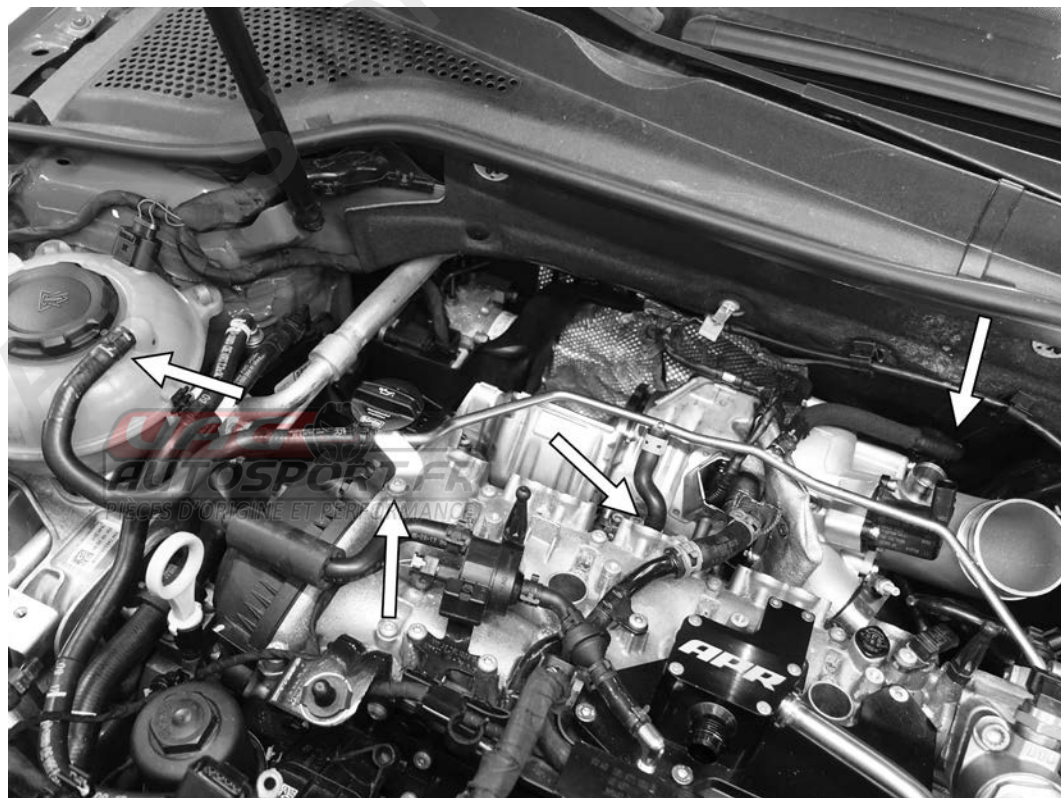


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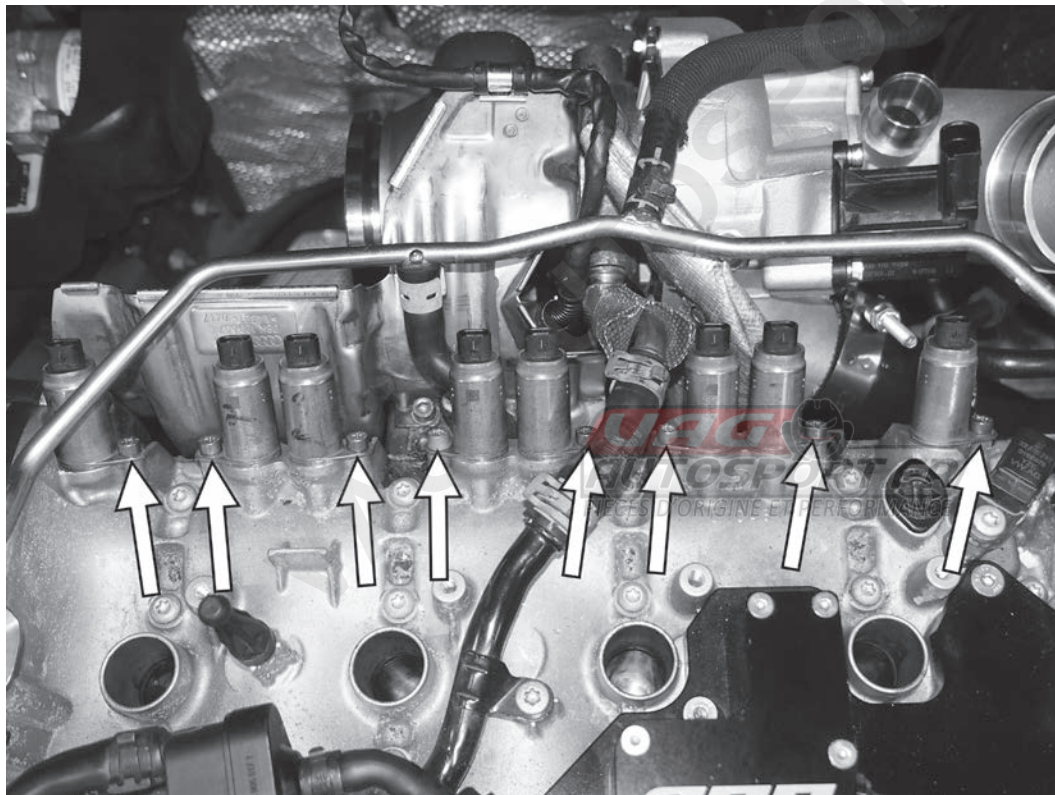


49) Place the factory upper coolant pipe assembly in the car. On the left side of the assembly, connect the hose to the front of the pipe and secure with the original spring clamp. Connect the pipe to the hose next to the side charge pipe. Reinstall the two T30 screws and tighten to 9Nm (80in-lbs). Finally, snap the wiring harness channel back onto the top of the coolant pipe bracket.

50) Reconnect the rear hose of the coolant pipe assembly to the top of the heater hose at the firewall, and secure with the original spring clip. Connect the right hose of the assembly to the top of the coolant expansion tank and secure with the original spring clamp. Connect the last hose of the assembly to the coolant port just in front of the turbo heat shield. Finally, secure the coolant pipe with the T30 screw to the right side of the valve cover and tighten to 9Nm (80in-lbs).



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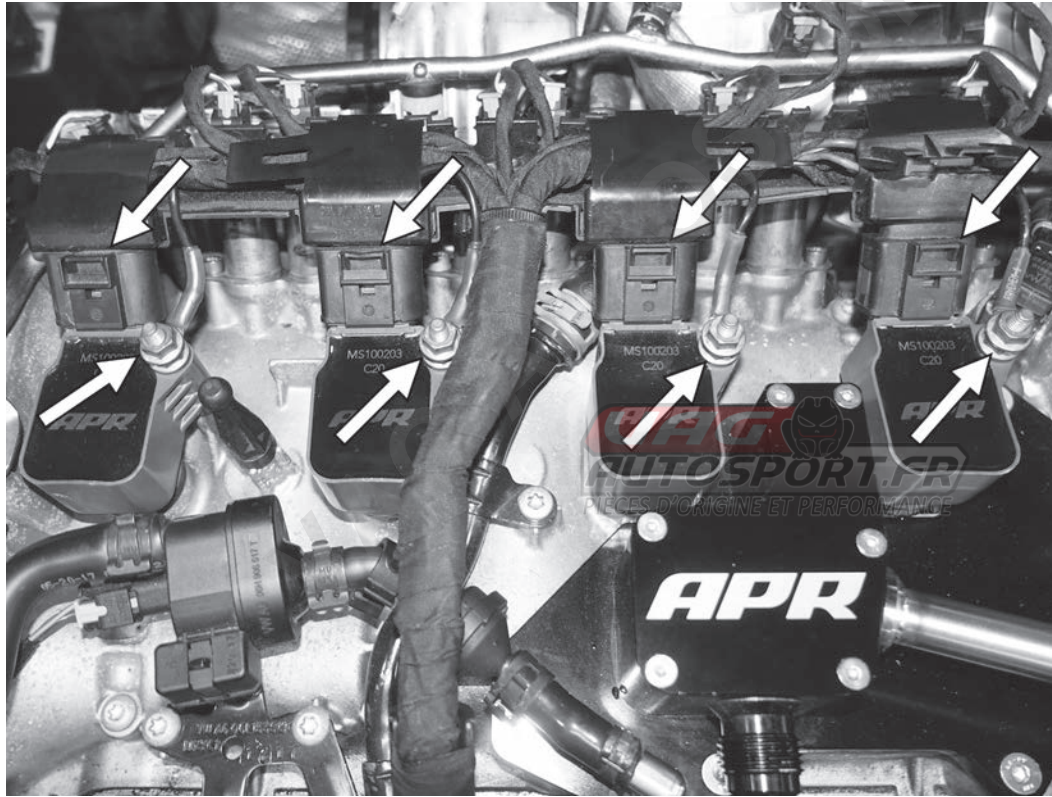


51) Reinstall the eight valvelift solenoids onto the back of the valve cover. Secure them with the eight T25 screws and tighten to 5Nm (44in-lbs).

52) Reinstall the four ignition coil packs into the cylinder head. Secure them with the 10mm screws and tighten the screws to 10Nm (88in-lbs).



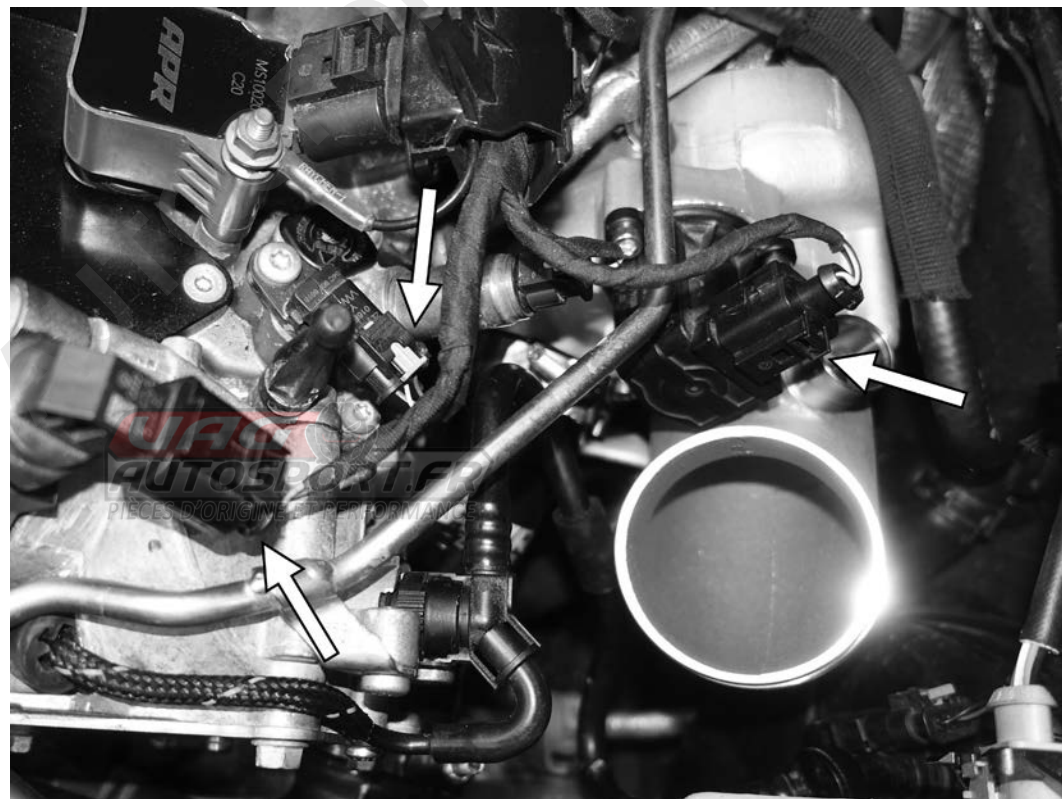
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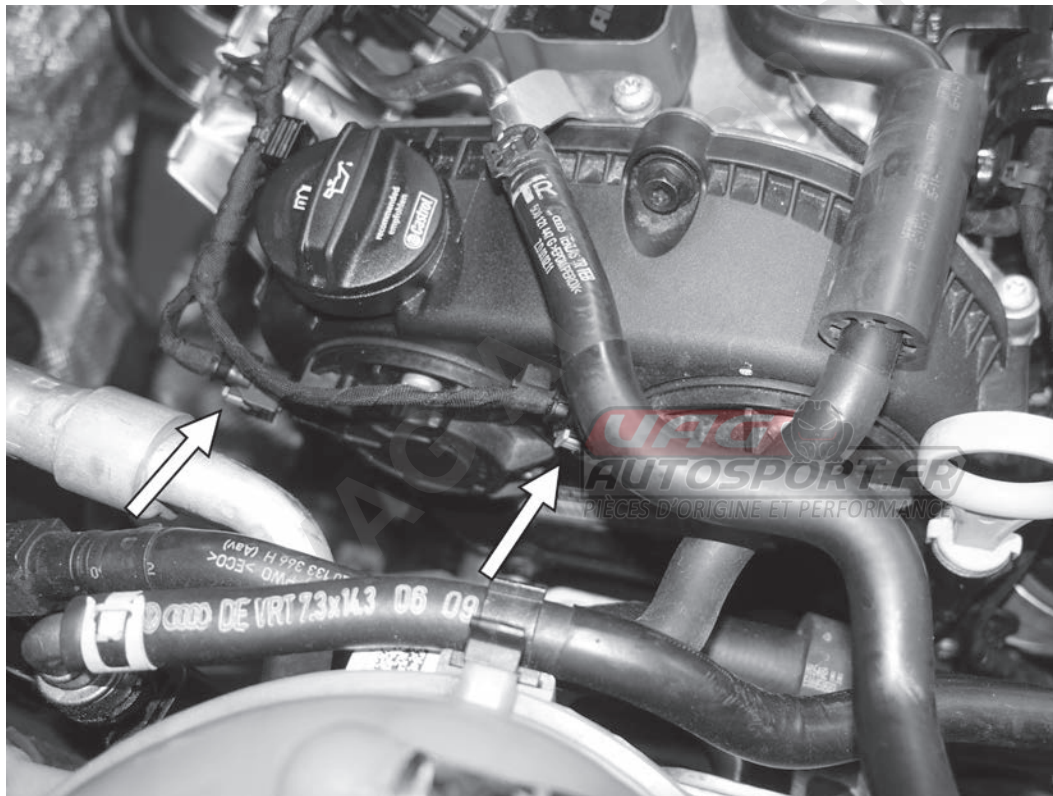
53) Flip the wiring harness from the front side of the engine over to the back side. Connect the four electrical connectors to the ignition coil packs. Install the ground wire for each coil-pack onto the previously installed screw and place the 10mm nut onto the stud. While counterholding the 10mm screw with a wrench, tighten each 10mm nut to 9Nm (80in-lbs).

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54) Reconnect the electrical connectors to the high pressure fuel pump, the camshaft position sensor, and the diverter valve.



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55) Reconnect the two electrical connectors to the two VVT camshaft solenoids.

56) Install the downpipe to the APR turbo and secure with the factory V-band clamp. Tighten the 6mm allen screw to 15Nm (11ft-lbs). Finish routing both oxygen sensor harnesses onto the mounting clips on the firewall, and ensure both are connected.



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57) Reinstall the intake on the car. Tighten the 7mm screw on the clamp that connects the accordion inlet to the turbocharger. Reconnect the PCV hose to the turbo, or if equipped, the hoses to the APR catch can.

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58) Check the wastegate adjustment with a factory scan tool or VAG-Com. The instructions can be found at:

http://www.goapr.com/blog/post/is38_wastegate_settings/

Follow the instructions on the APR website, beginning with Step 11. If the test is successful, you are finished. If not, you will have to adjust the wastegate rod length, as outlined in Steps 2-8 of the wastegate setting page.



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