

#TL100177

INSTALLATION MANUAL

T4100001

APR 3.0T DTR

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Notes:

These instructions were written for a North American specification B9 S4, but other models are similar.

When disassembling the car, be sure to keep all fasteners so they can be reused. It is recommend 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 moderate mechanical skills and several varieties of basic tools in order to install the kit. If you have any questions about the install, feel free to contact your APR representative.

It is recommended to install the APR software on the vehicle first before installing the hardware, just to ensure we have software for the installed hardware.

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 508/509 0W20 engine oil. Failure to use the correct oil or change the oil more frequently can lead to catastrophic engine damage.



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1) Raise the hood and remove the hood latch by pressing in on the small button on the back of the latch, and then lifting the latch up and away from the car. Be sure to not close the hood with the latch removed!

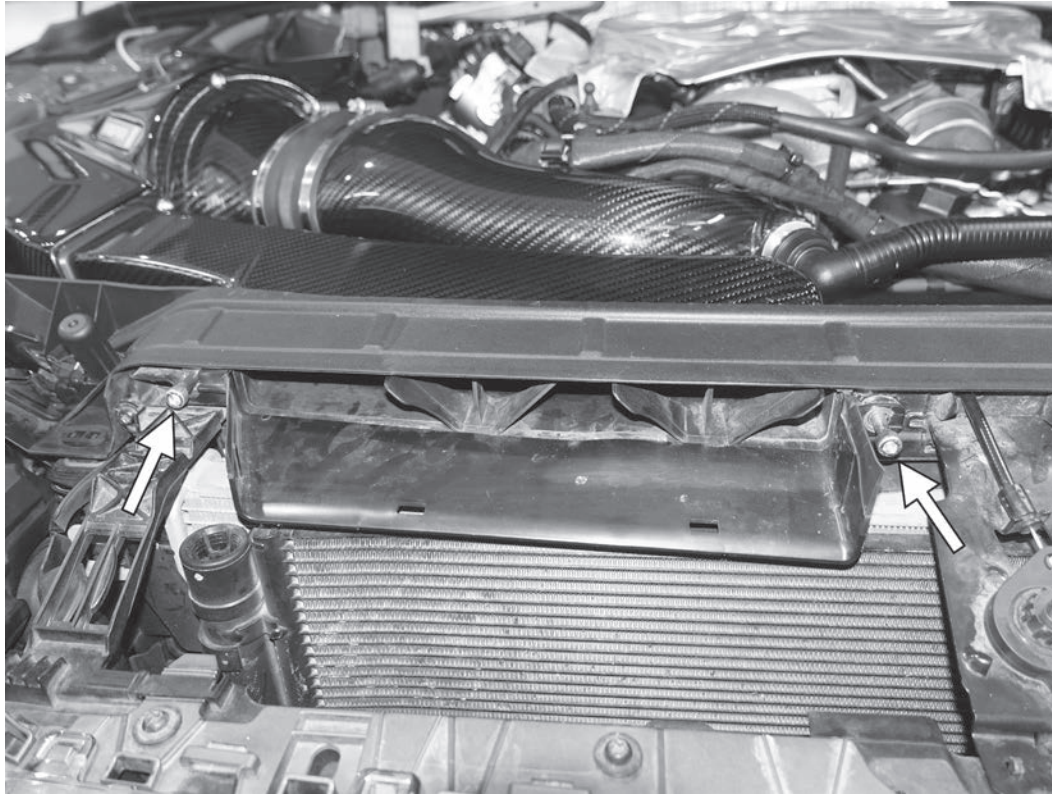
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2) Carefully lift up on the front corners of the hood latch cover where it attaches to the top of the front bumper/grill. Lift to separate the clips of the cover all the way across its front side. Once unclipped, the cover can be slid forward and removed from the car.

Lift up on and remove the engine cover from the top of the engine.

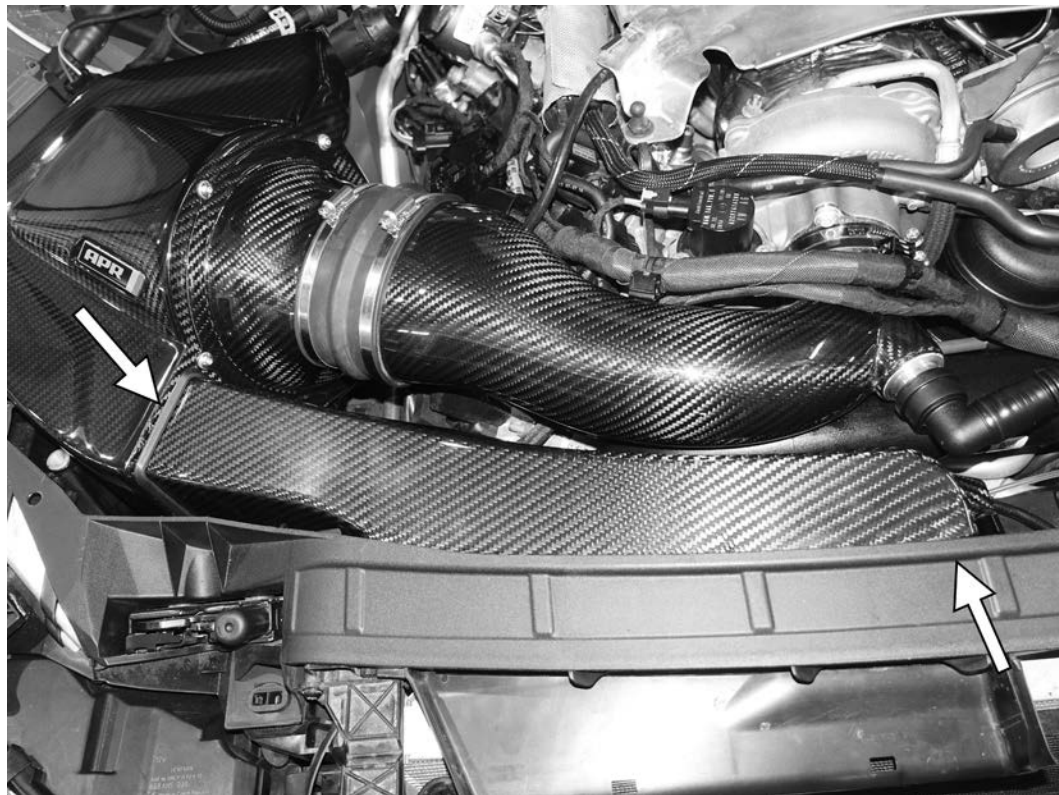


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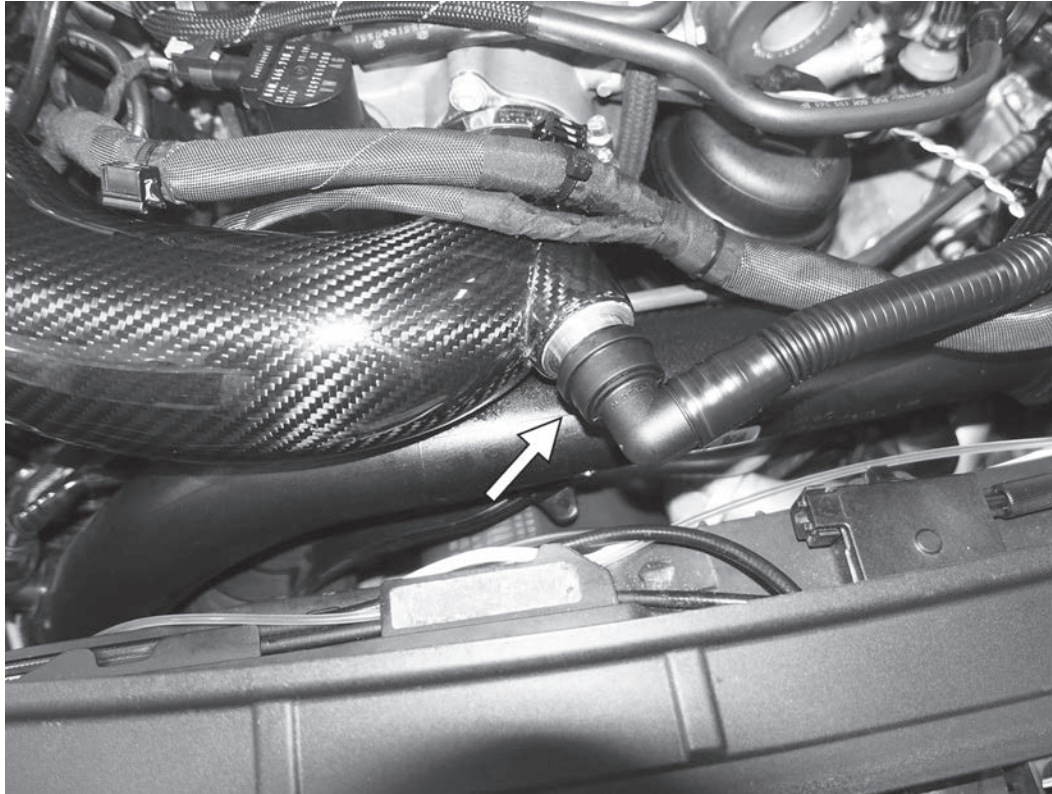


3) Remove the two T25 screws holding the front of the air guide to the radiator support.

4) Slide the front of the air guide back slightly, while pulling the air guide out and away from the airbox.



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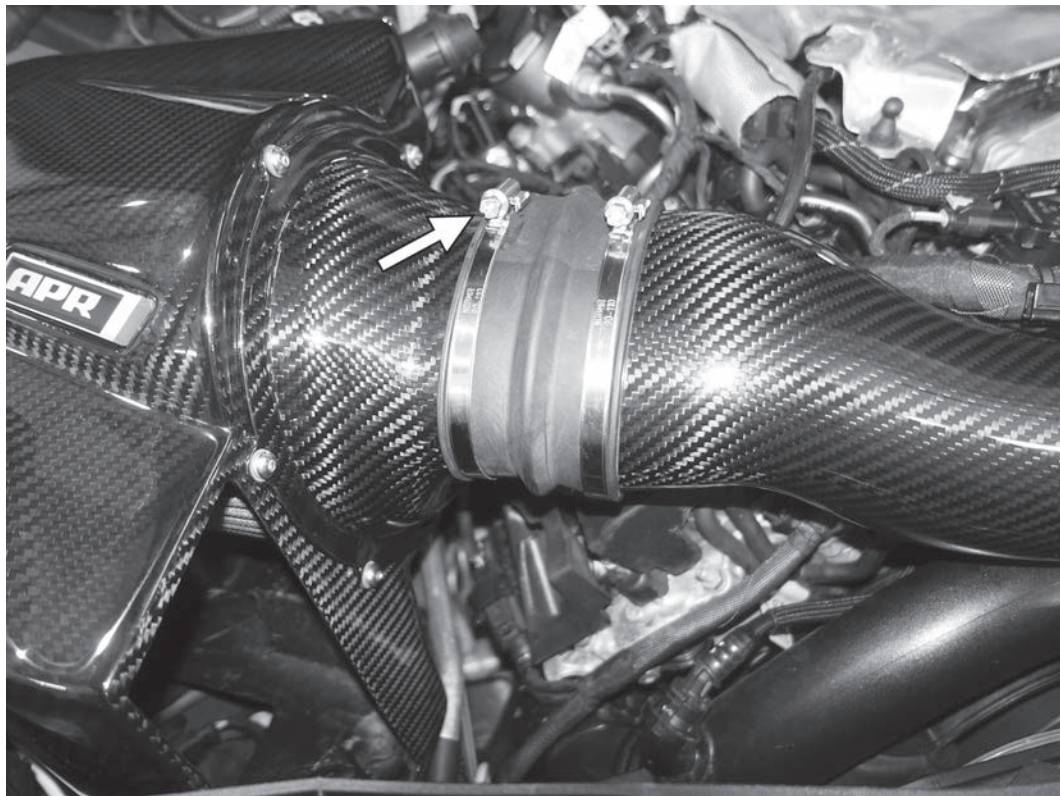
5) Use a 90° pick to loosen the PCV connection on the turbo inlet pipe near the front of the turbocharger. If you are reusing the same turbo inlet pipe on the APR turbo, you can leave this connection attached.

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6) Loosen the two hose clamps connecting the turbo inlet pipe to the factory turbo.



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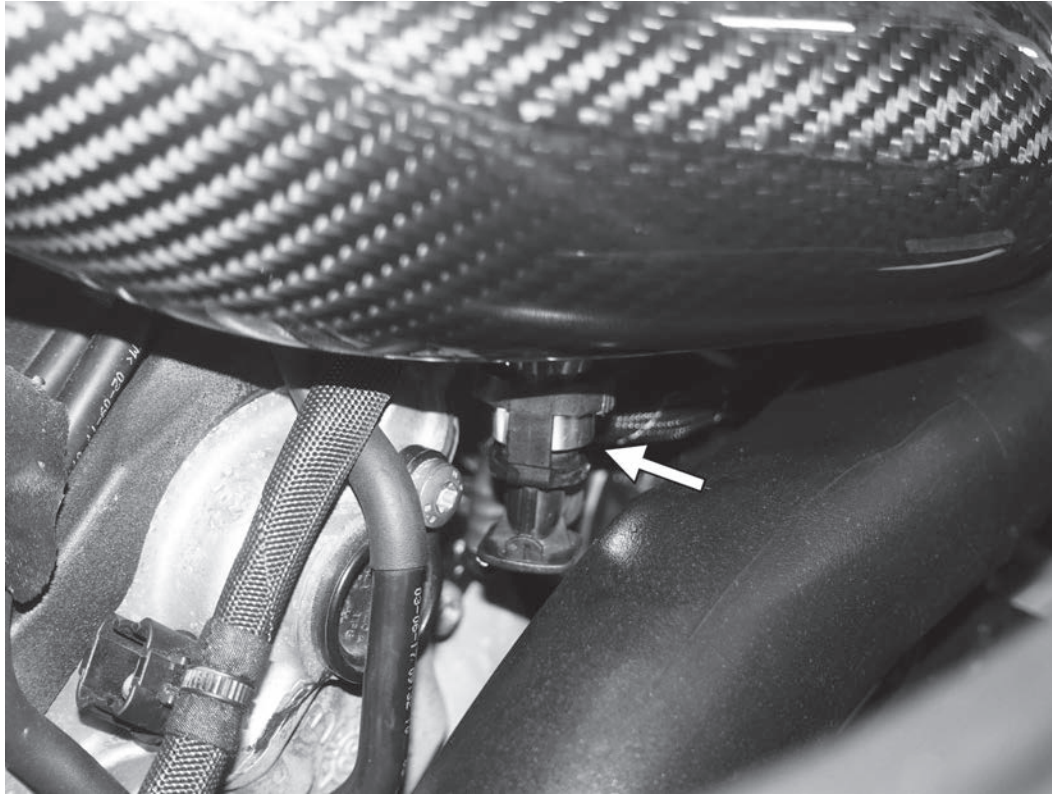
7) Loosen the turbo inlet pipe from the airbox and separate it carefully from the airbox.

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8) Grab both sides of the APR airbox and lift the airbox assembly straight up and out of the car.



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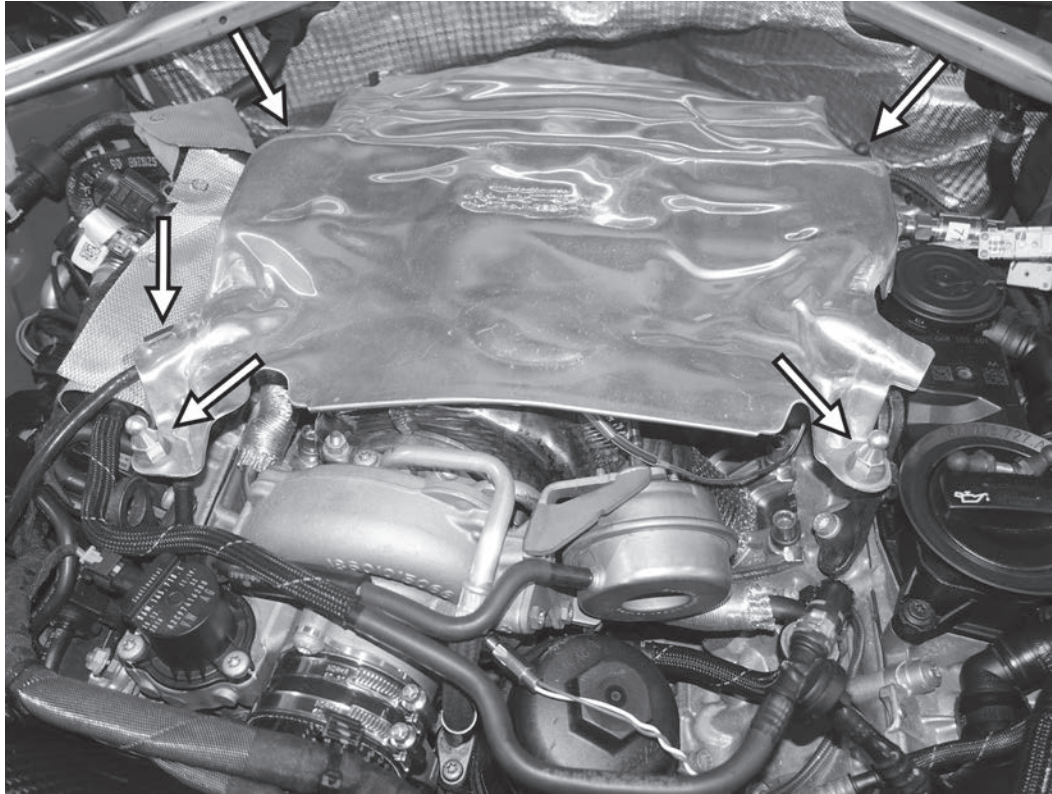


9) Slightly lift up on the turbo inlet pipe, and then disconnect the hose connection from the bottom of it by squeezing on both sides of the connector. Remove the turbo inlet pipe with silicone couplers and clamps from the car.

10) Disconnect the other two squeeze style connections from the other end of the PCV hose assembly, and remove the hose from the car. If you did not disconnect the turbo inlet pipe from this PCV hose, remove it with the PCV hose from the car.



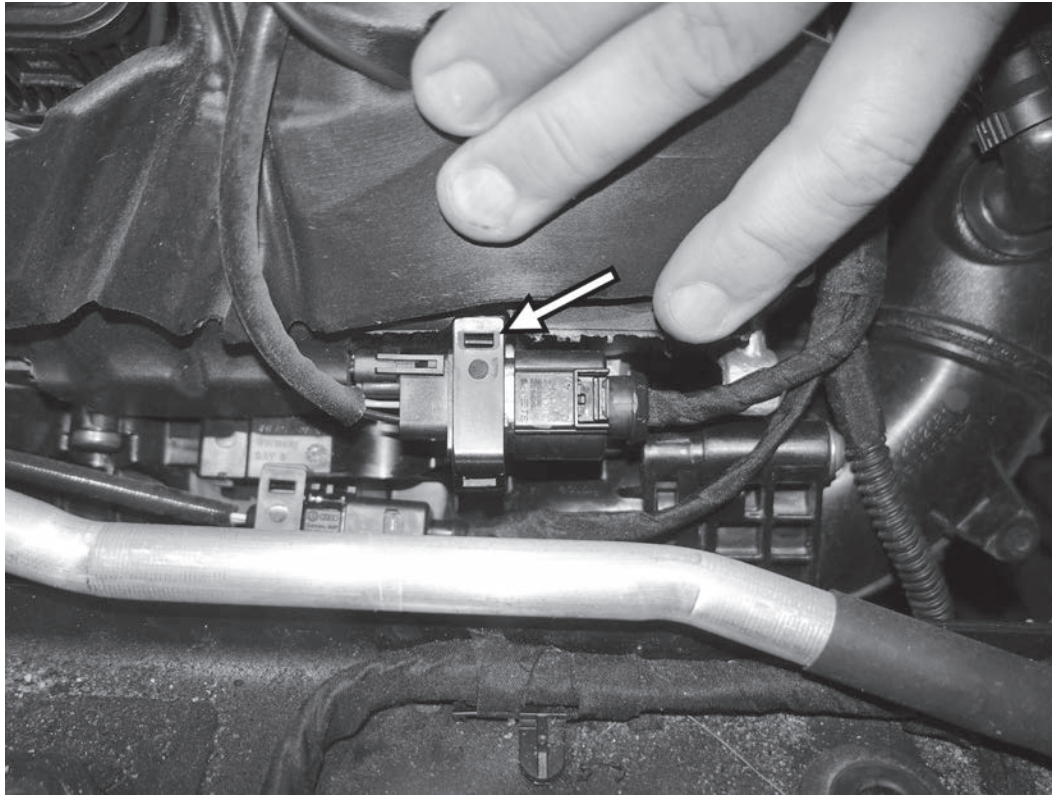
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11) Remove the four 13mm engine cover mounting posts. Remove the wiring harness tab from the right side of the heat shield, and then remove the heat shield from the car.

12) Follow the wiring harness from the primary oxygen sensor on the back of the turbocharger to the right side of the engine.. Separate the harness from the clips on the top of the cylinder head. Disconnect the electrical connector to the front ignition coil.



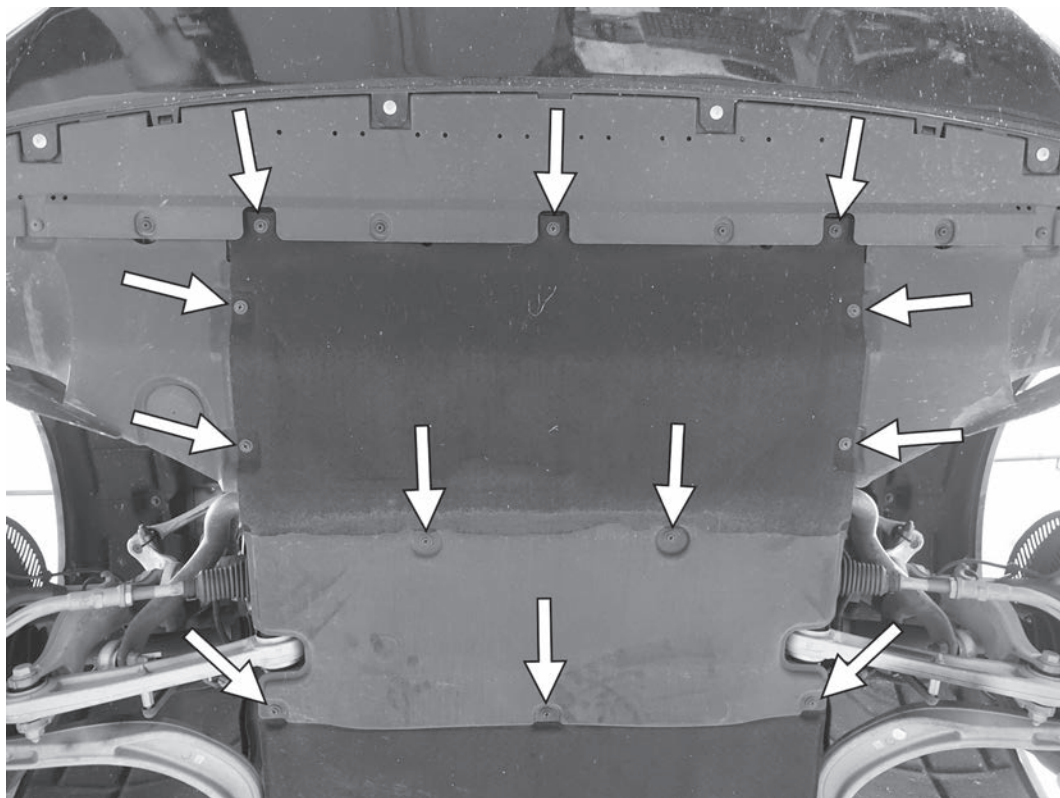


13) Unclip the oxygen sensor connector from the bracket, and disconnect the connector from the wiring harness. Route the oxygen sensor harness out from behind the ignition coil harness to completely free the oxygen sensor harness from the car.

14) With the oxygen sensor harness free to spin, loosen and remove the oxygen sensor from the back of the stock turbo. Not disconnecting the harness will twist the wires inside the harness.



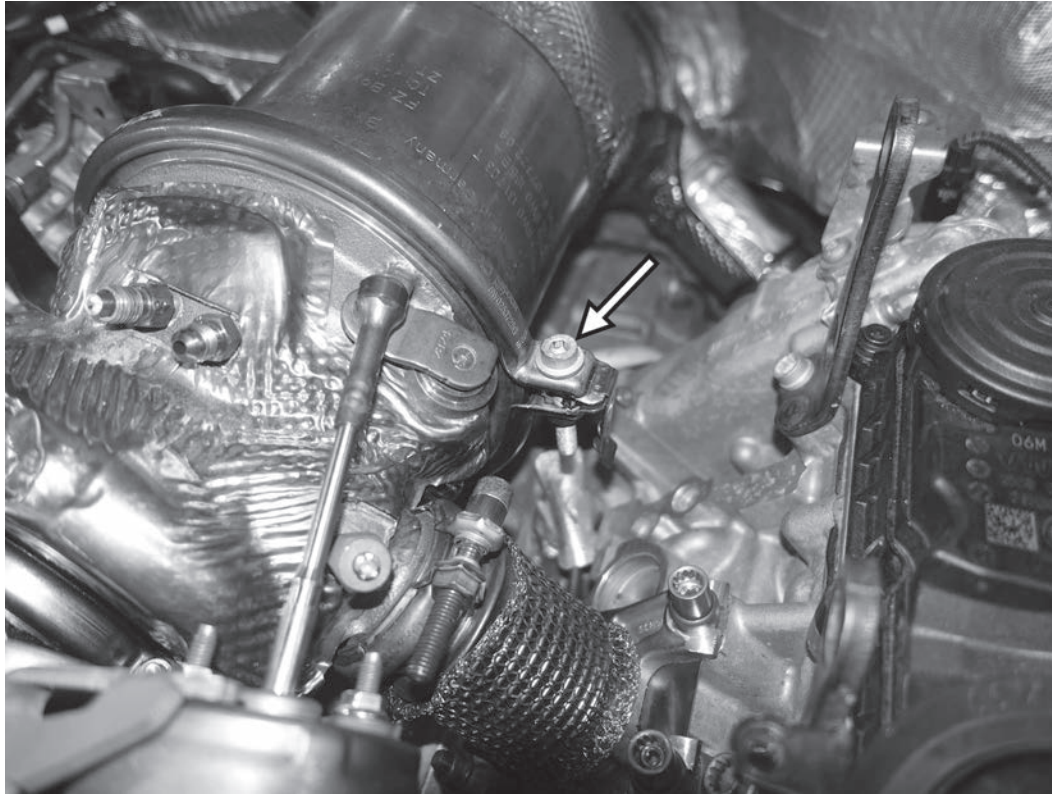
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15) Loosen the coolant cap from the coolant expansion tank under the cowl cover. Raise the vehicle and remove the twelve T25 screws holding the center belly pan to the bottom of the car, and then remove the belly pan. Note the way the belly pan is attached to the other panels around it, including the bottom of the front bumper cover.

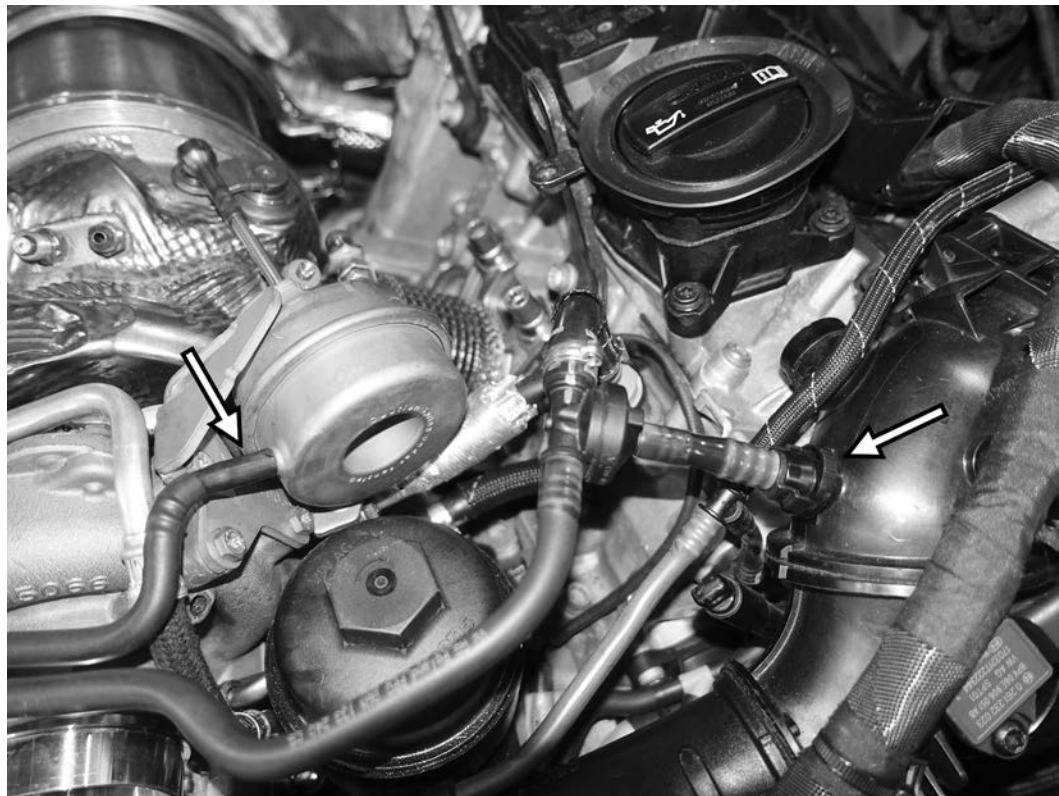
16) Drain the engine coolant from the car by removing the spring clamp and hose from the metal cross pipe, just behind the radiator fan assembly. It is highly recommended to do an oil change at this point, so drain the engine oil and change the oil filter, but do not add the new oil yet. Reinstall the the oil drain plug and reattach the coolant hose to the cross pipe, and then reinstall the center belly pan with the twelve T25 screws.



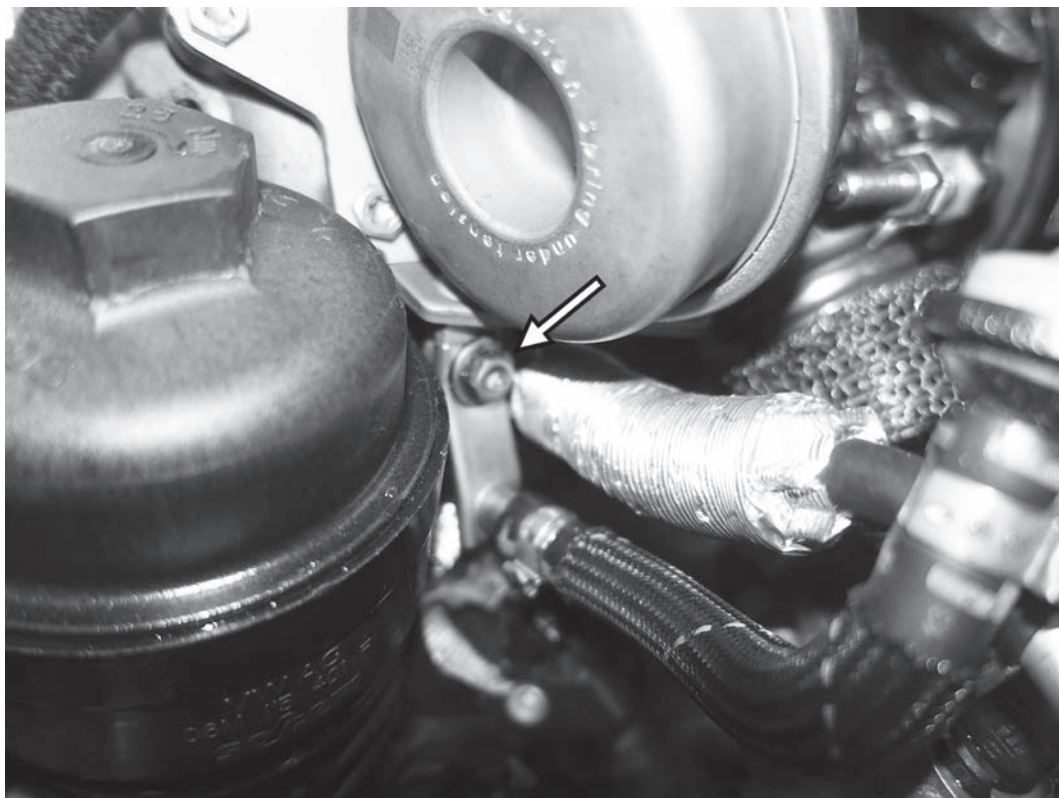


17) Loosen the 6mm allen screw (or T30 screw) on the v-band clamp holding the downpipe to the turbo. Once loose, pry up on the clamp and slide it to the back of the catalyst.

18) Disconnect the rubber vacuum line from the wastegate actuator. Also disconnect the Norma style fitting on the inlet pipe to the right of the throttle body.

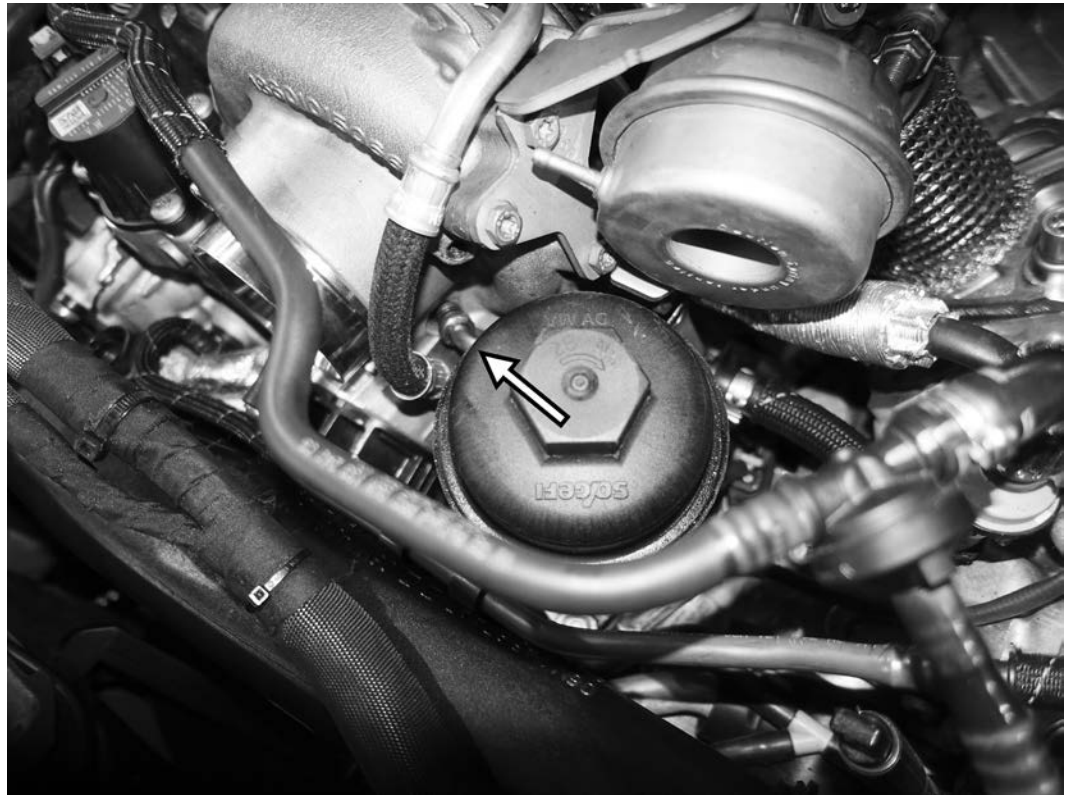


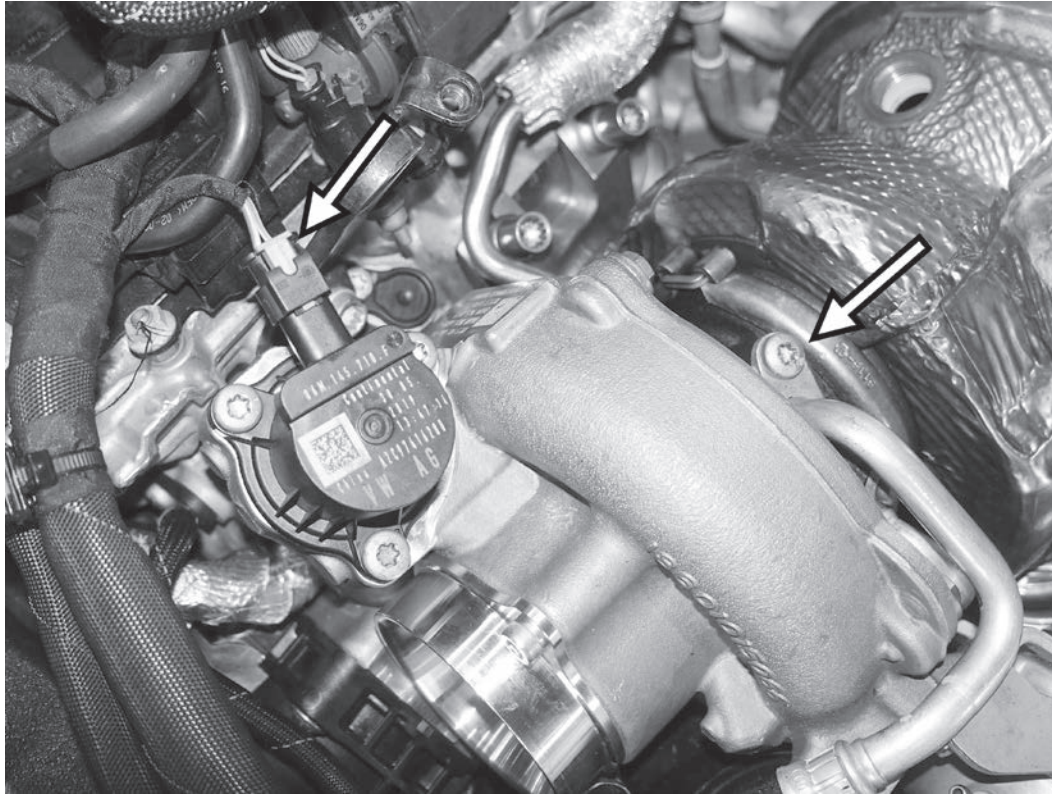
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19) Just behind the oil filter housing, remove T30 screw holding the vacuum line that goes into the compressor housing of the turbo.

20) Pull the hard vacuum line out from the compressor housing near the inlet of the turbo. Swing/rotate the entire vacuum line assembly over to the right side of the engine, it should swivel in the fitting on top of the right cylinder head, which is covered with a factory cloth heat shield.



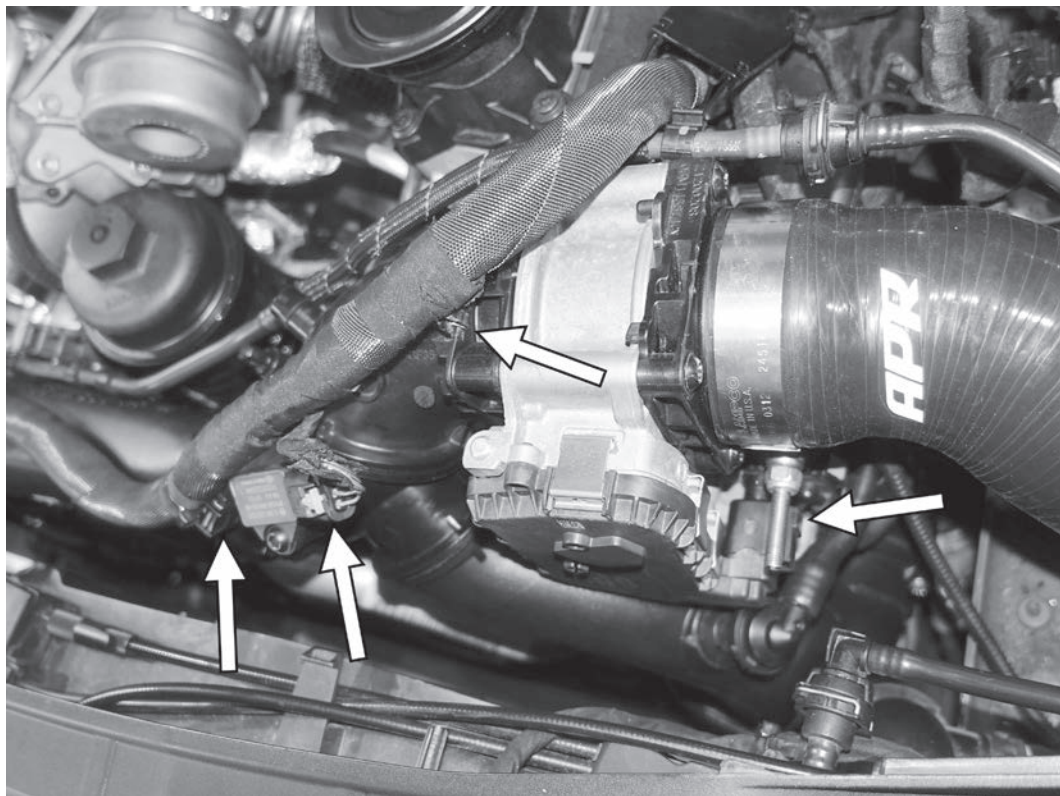


21) Disconnect the electrical connector on the diverter valve. Slide the grey locking tab back first, before squeezing the connector to unplug it. Remove the T30 screw from the oil feed line on the top of the turbocharger.

22) Disconnect the Norma style connection on the front charge pipe by the right intake manifold. Separate the clip on the wiring harness from the front charge pipe. Unscrew the three T30 screws holding the charge pipe to the right intake manifold.



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23) Unplug the electrical connectors from the throttle body and from the MAP sensor to the right of the throttle body. Separate the wiring harness clip from the front charge pipe and on top of the throttle body.

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24) Loosen the clamp to the throttle body hose and separate the throttle body hose from the throttle body. Fold the hose down and to the left, so that it is out of the way. Unclip the coolant line from the mounting bracket on the back of the throttle body.



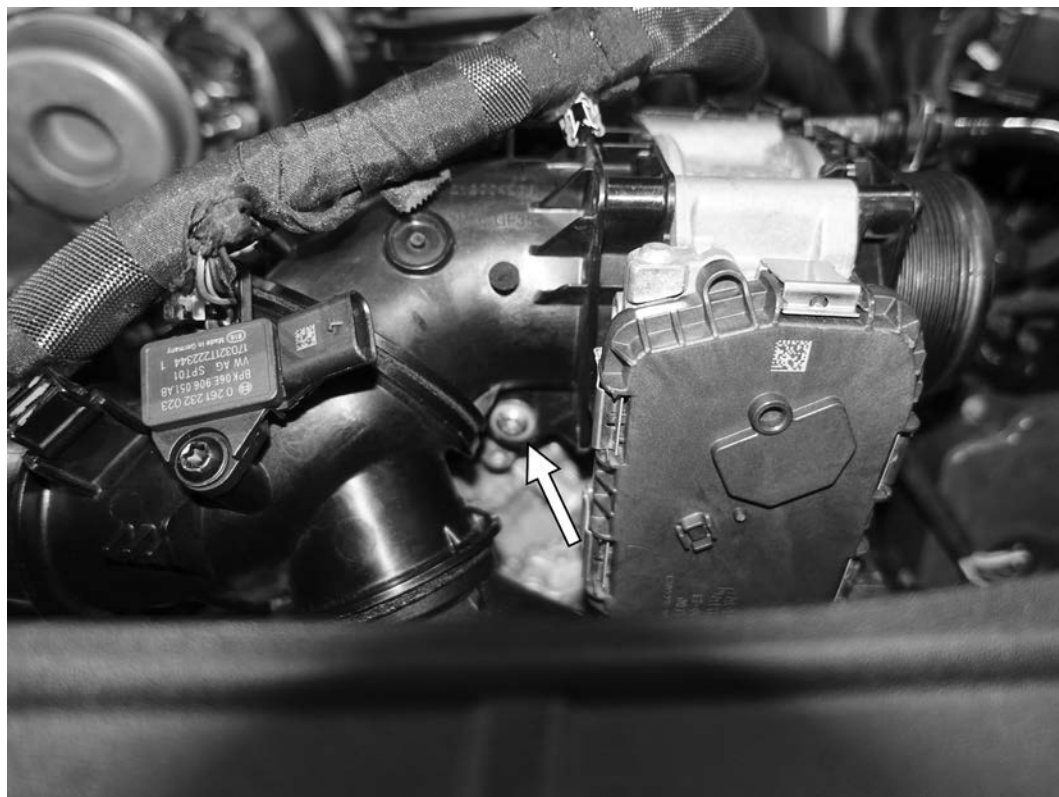
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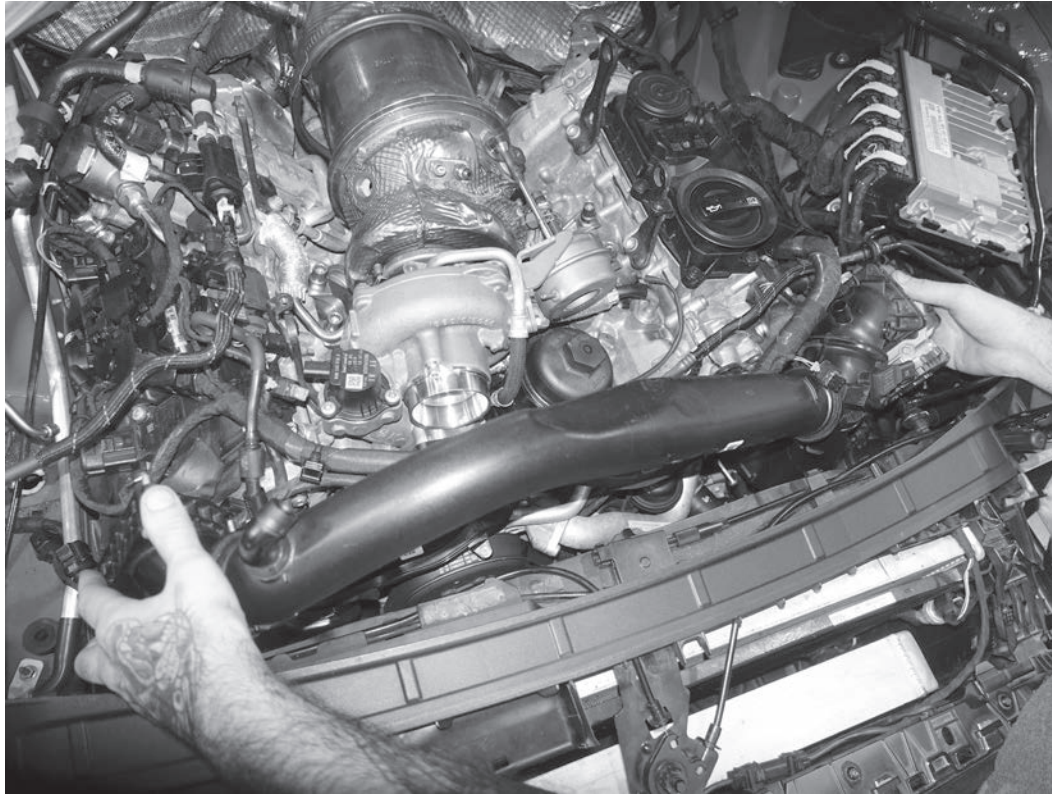
25) Unscrew the three T30 screws holding the charge pipe to the left intake manifold.

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26) Unscrew the T30 screw just to the right of the throttle body.



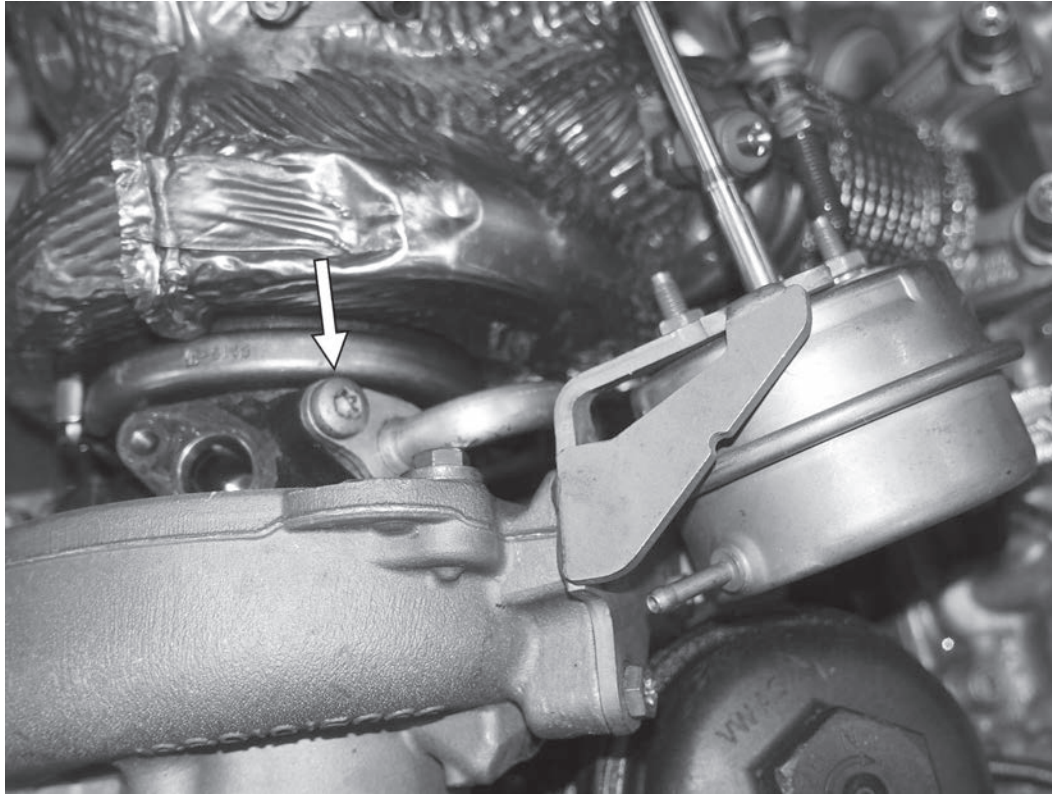
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27) After ensuring everything is disconnected, carefully lift out and remove the front charge pipe from the car, with the throttle body attached. Depending on the options on the car, you may not be able to remove this pipe due to a wiring harness. If that is the case, leave the part in the car and it can be moved around for access to other components.

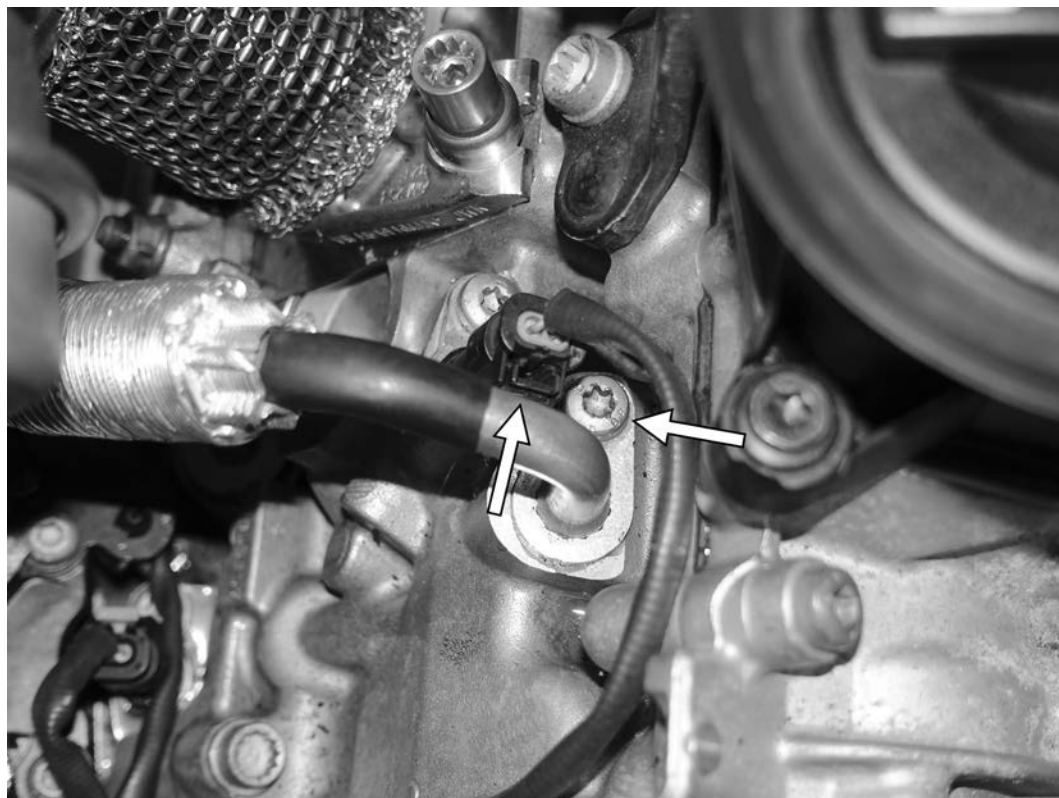
28) Remove the two T30 screws holding the turbo outlet pipe to the front of the turbocharger. The bottom screw can be difficult, but can be done with the right combination of tools. The alternative is to remove the front bumper cover and putting the vehicle in service mode with the radiator core support moved forward. Pull the turbo outlet pipe forward to separate it from the turbo.

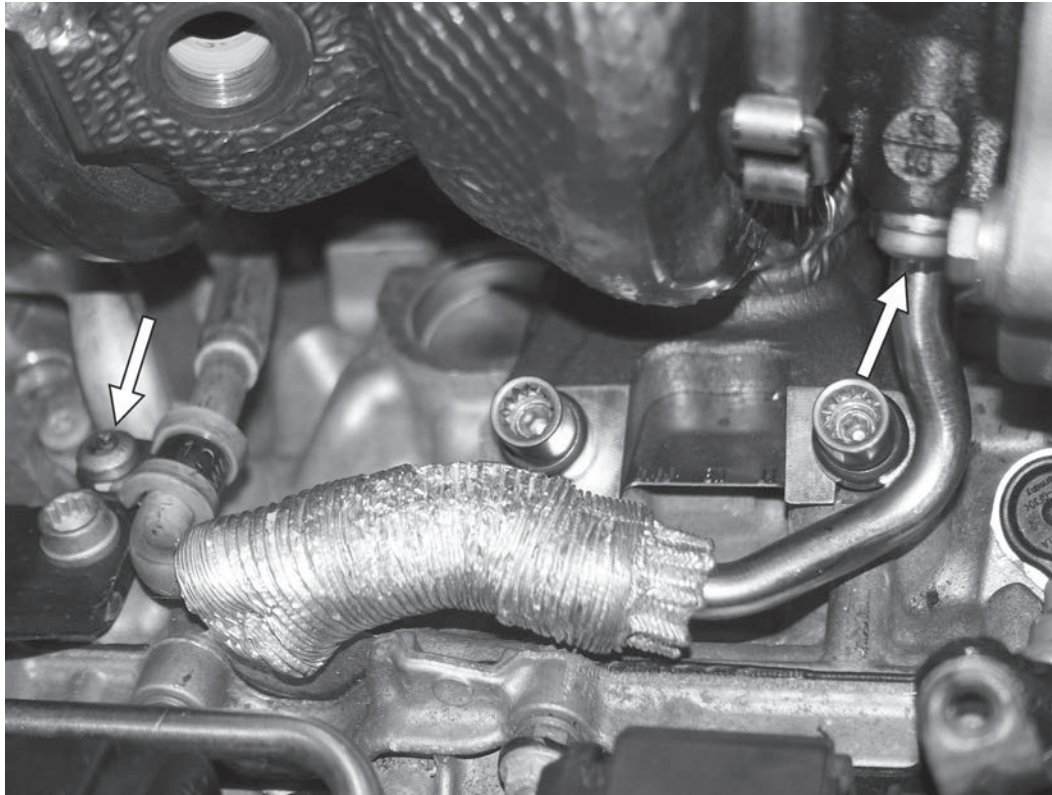




29) Remove the T30 screw from the coolant line on the top of the turbocharger and separate the line from the turbo.

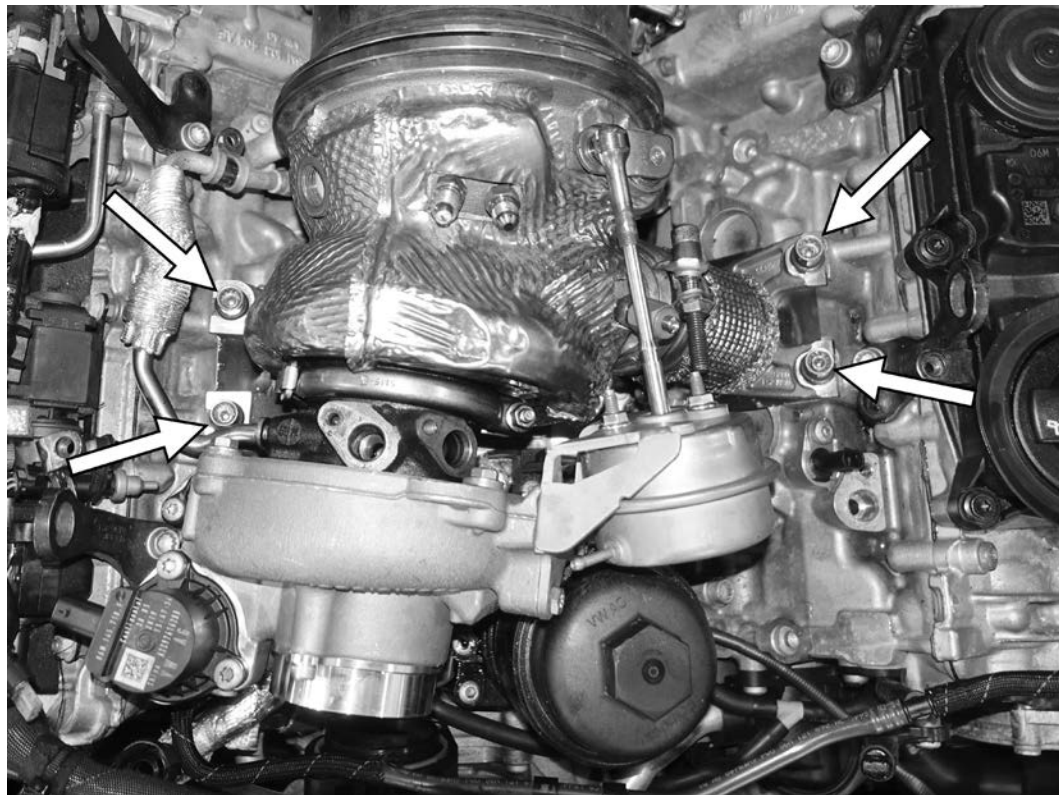
30) Disconnect the electrical connector to the coolant temp sensor right next to the coolant return line that connects to the inside of the left cylinder head. Remove the T30 screw from the coolant return line and separate the line from the cylinder head. The coolant line can stay attached to the turbo for now.



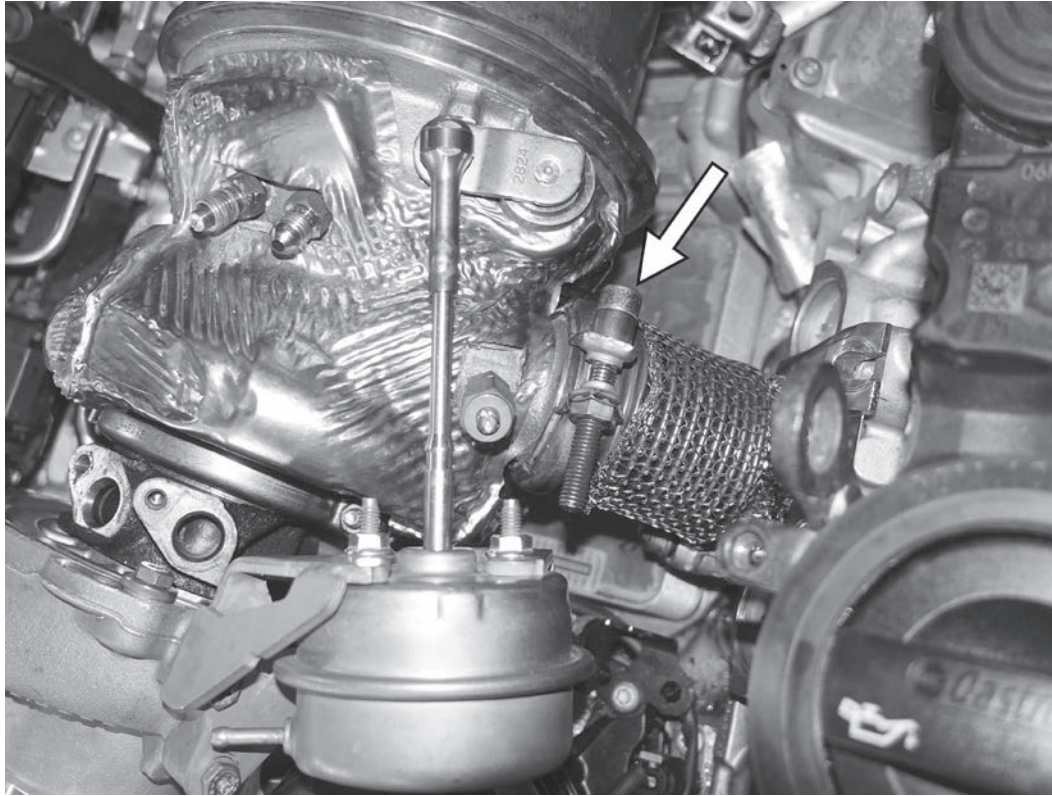


31) Remove the T30 screw from the coolant feed line on the right side of the turbo. Remove the T30 screw holding the coolant feed line to the right cylinder head, and then separate the coolant feed line from the turbo.

32) Remove the four, upper 10mm triple square copper nuts holding the turbo assembly to the cylinder heads.

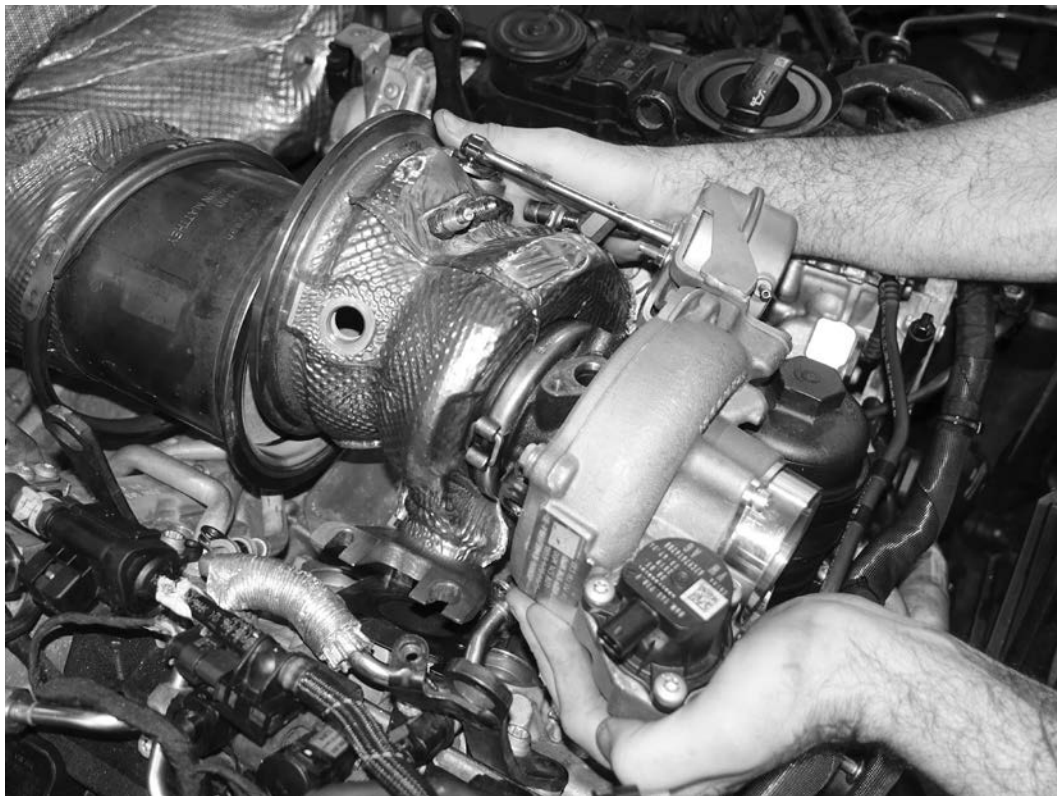


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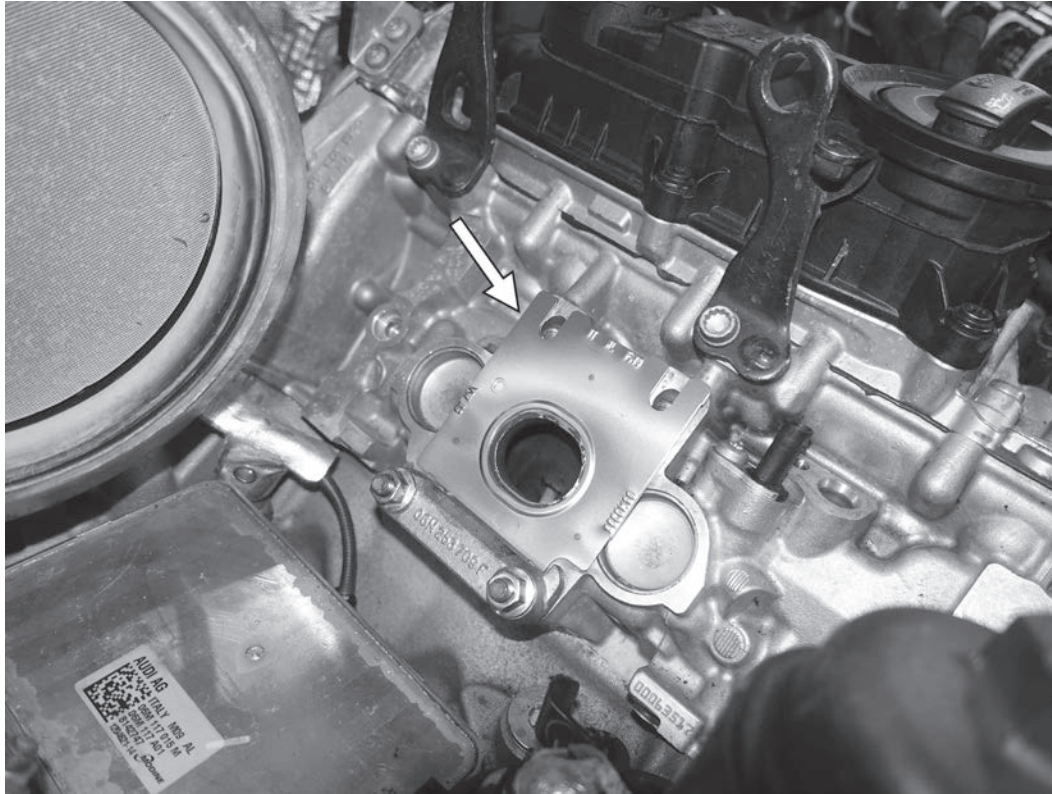


33) Loosen the 10mm triple square from the v-band clamp holding the exhaust coupler to the turbo. Separate the clamp so it is free.

34) After making sure everything is disconnected (except for the oil drain line), firmly lift up on the turbo and remove it from the car.

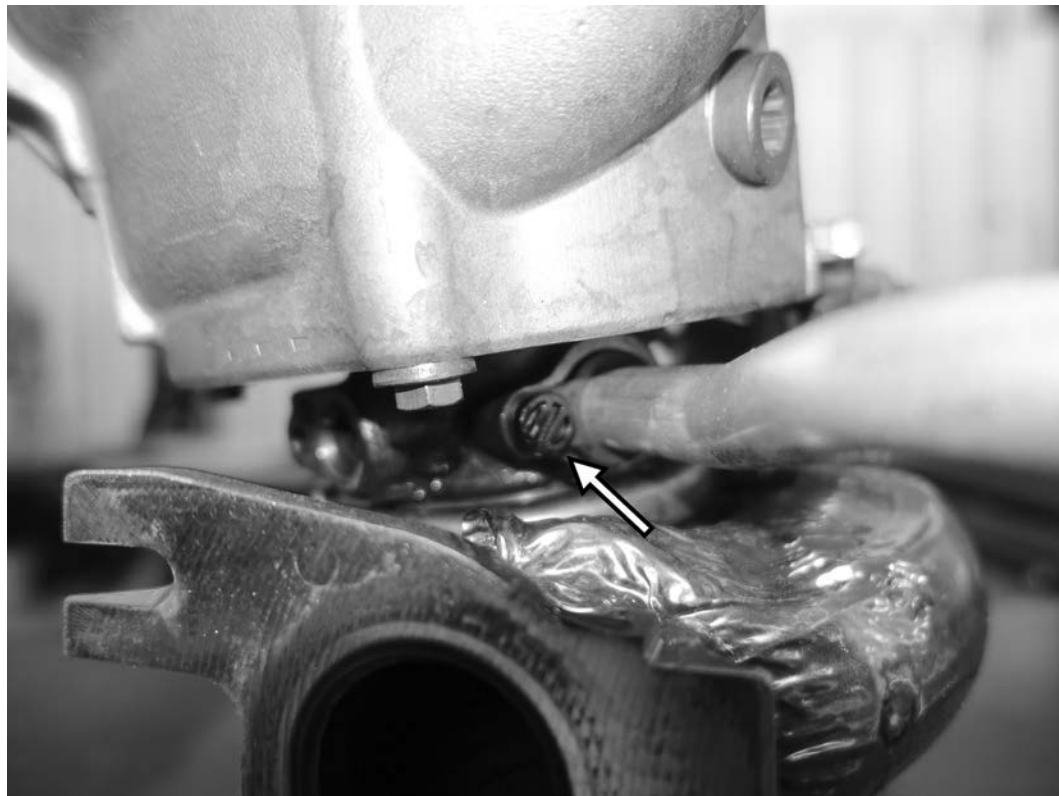


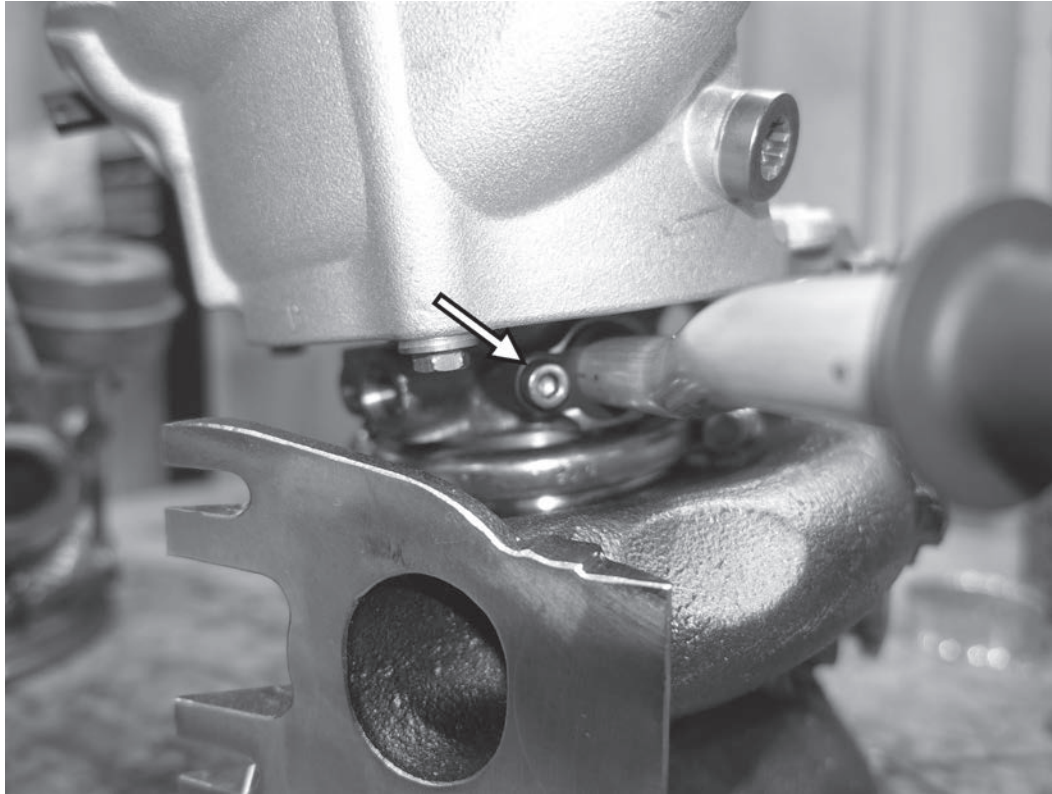
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35) Be careful not to drop anything into the engine (the exhaust ports, oil drain hole, or coolant drain hole), covering the openings with a rag as necessary. Remove the old exhaust gaskets from both the right and left exhaust ports on the cylinder heads. Clean up the gasket mating surface if needed. Set the new gaskets in the slot on the lower bracket, the same way they were when they were removed.

36) From the bottom of the stock turbo, carefully pry the plastic press-in plug holding the oil drain line to the turbocharger.





37) Lubricate both sides of the new, supplied oil drain line with clean engine oil. Install the oil drain line in the turbo with the previously removed factory plastic press-in plug. If the plastic plug breaks, a 5MM allen screw can be used to hold the oil drain line in place. This fastener is only used to hold the oil drain line in place while it is being installed, so it can be very lightly fastened.

38) Install the supplied gasket for the exhaust coupler onto the exhaust inlet of the APR turbo.



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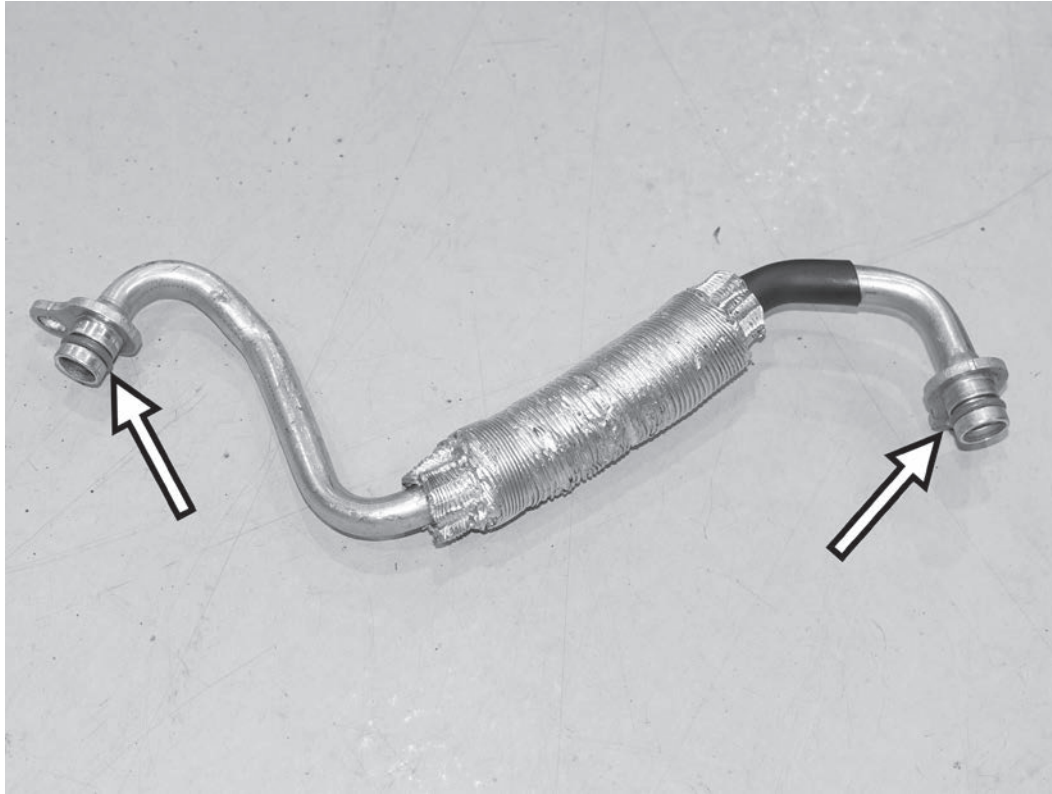
39) Install the exhaust coupler onto the APR turbo with the supplied v-band clamp, roughly orienting it as it was on the stock turbo. Tighten the 10mm triple square screw so that the exhaust coupler is still loose enough to be rotated, but not overly loose.

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40) Install the supplied seal in the groove on the outlet of the APR turbo. Make sure it is seated fully in the turbo.

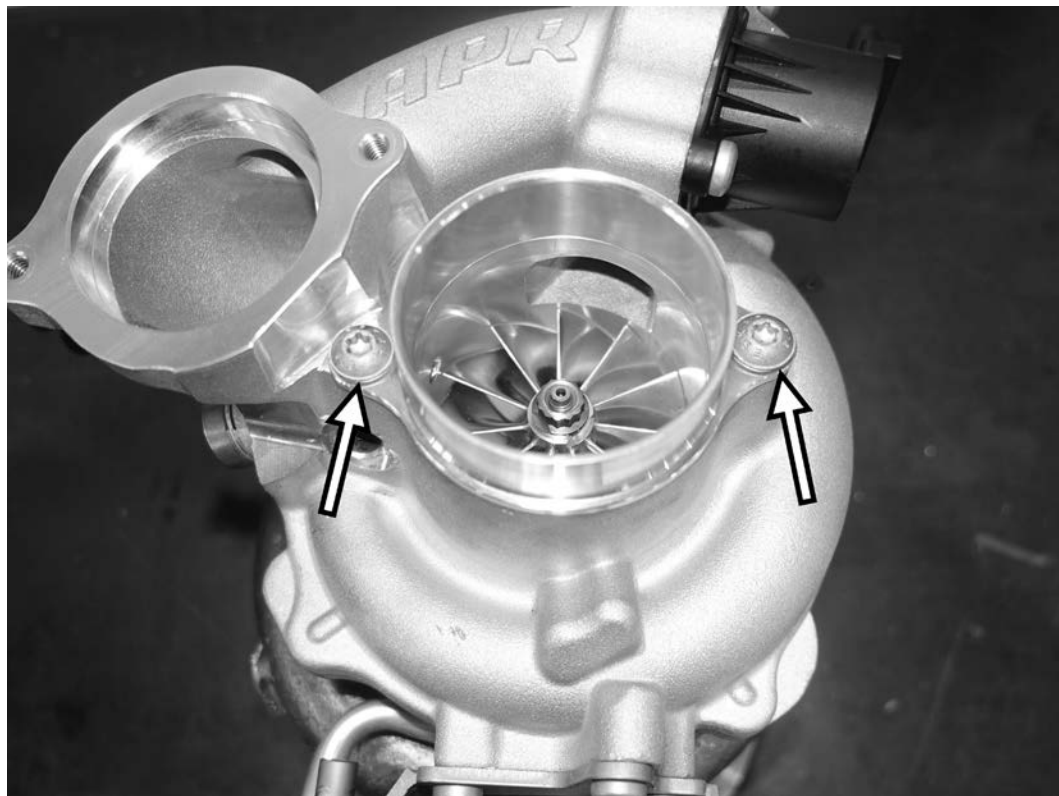


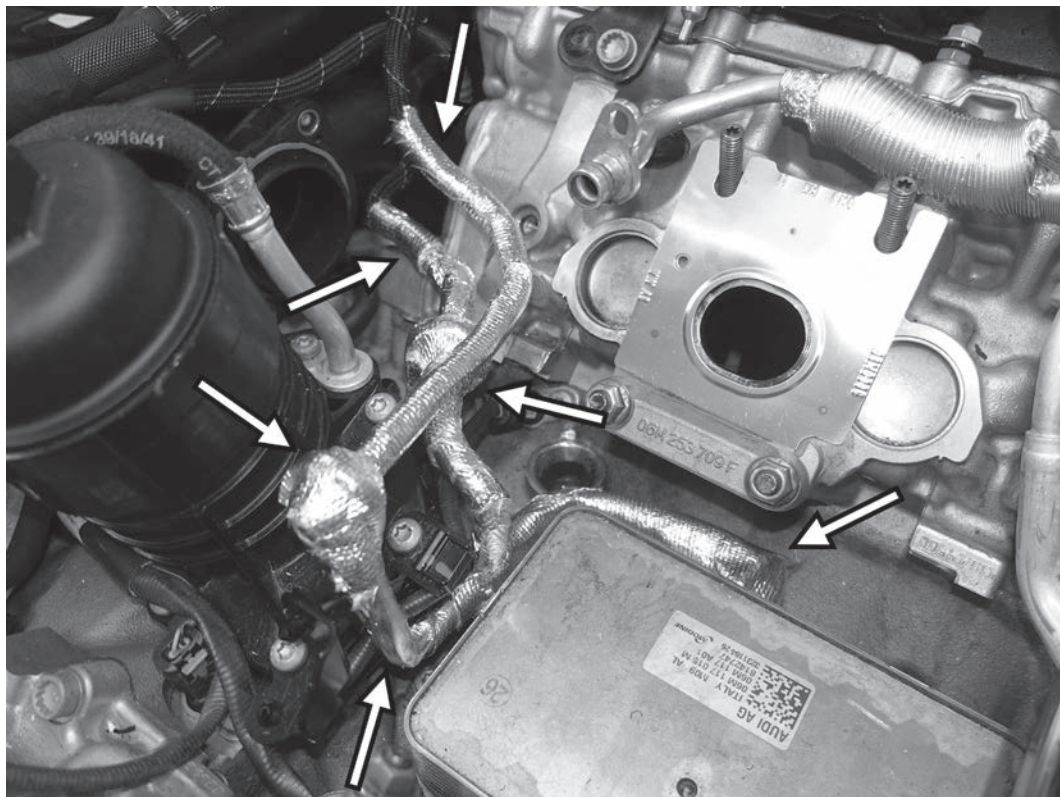
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41) Remove the coolant line from the side of the stock turbo. Remove and replace the two o-rings with two of the supplied green o-rings.

42) Install the supplied large black o-ring on the back of the billet APR turbo inlet flange, and then attach it to the turbo with the two supplied T30 screws. Tighten the screws to 9Nm (80 in-lbs). If installing the kit with the stock turbo inlet pipe, skip this step.

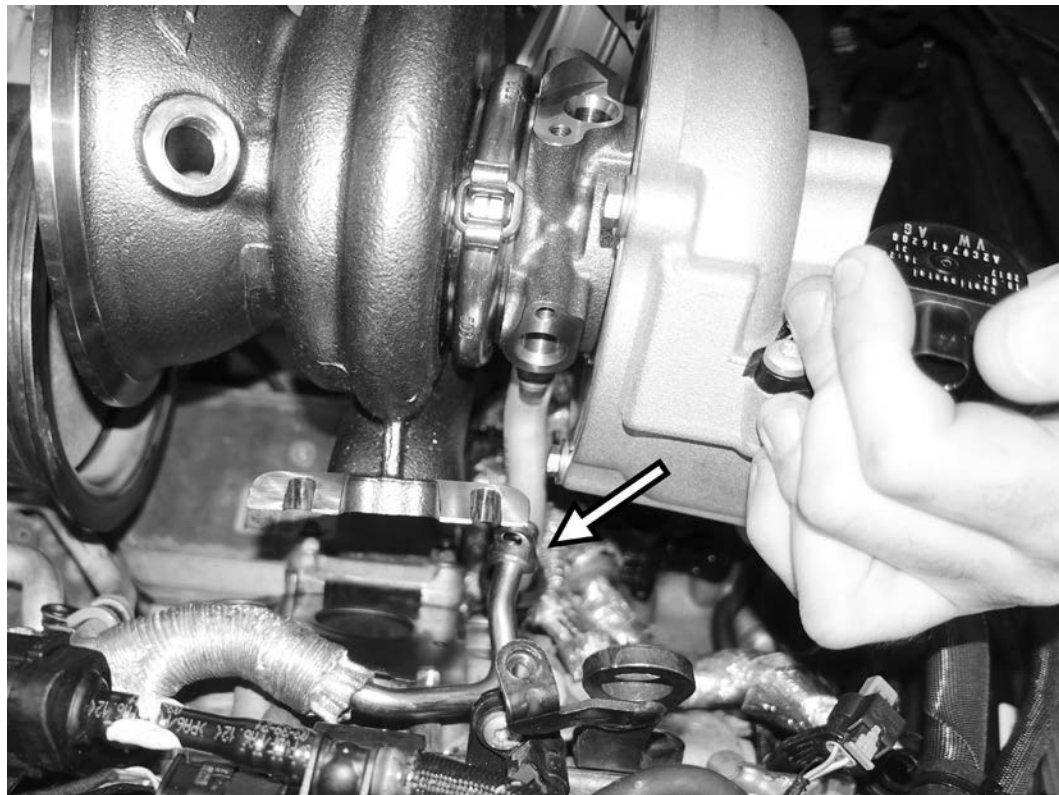




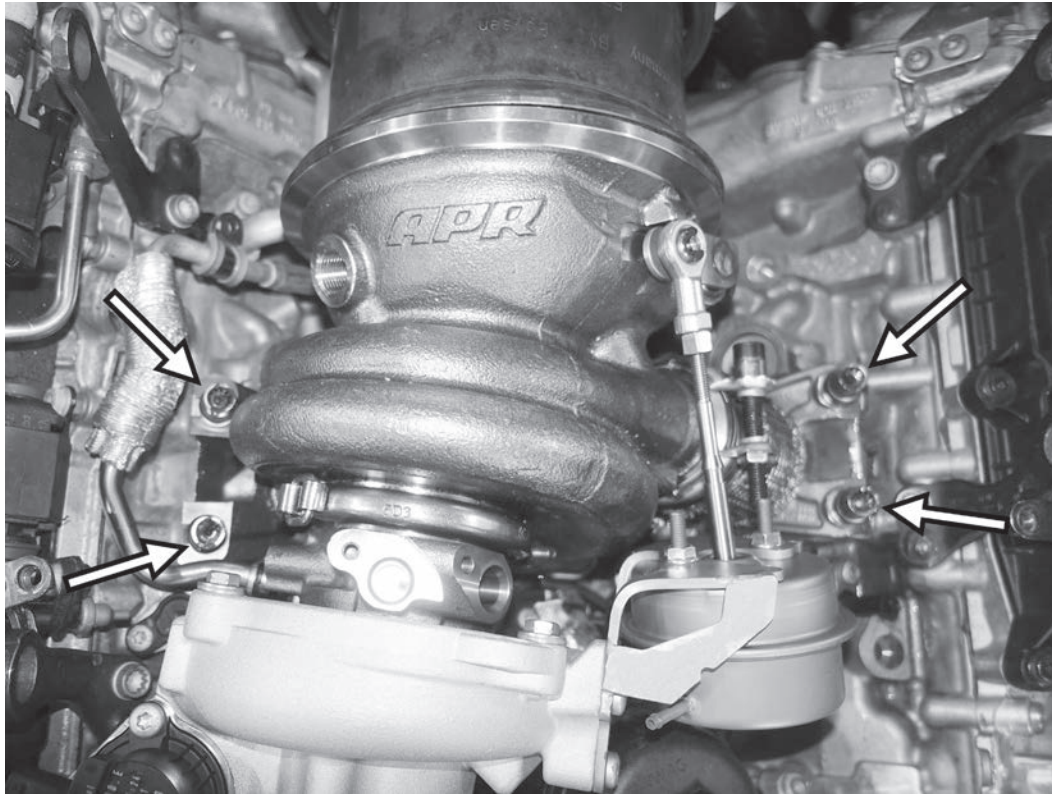
43) Using the supplied adhesive heat shielding, wrap the three vacuum lines with check valves in front of the oil cooler and behind the oil filter. Some lines can be wrapped by running the adhesive tape down the length of the hose and then wrapping it around, other areas will need to be spiral wrapped in the heat shielding. It may be necessary to clean these lines with a solvent first, like brake parts cleaner, in order for the adhesive to properly stick to the lines.

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44) Place the APR turbo into the car, ensuring the oil drain line goes into its correct location on the engine. Lower the turbo so that oil drain line fits into the engine, while making sure the exhaust coupler on the left and the flange on the right side of the turbo correctly sit on the exhaust ports on the cylinder head.



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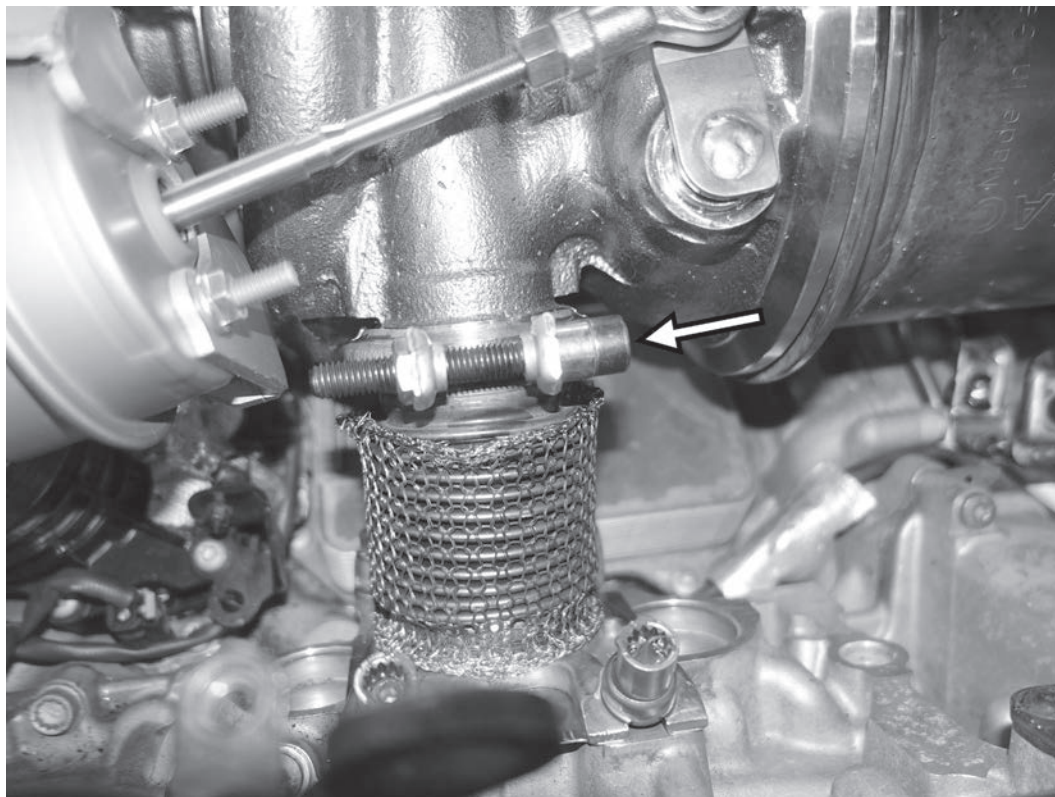


45) Install the four supplied 10mm triple square copper nuts to hold the turbo in place. Tighten all four nuts in a crossing pattern to 15Nm (11 ft-lbs). Then, tighten all four nuts again in a crossing pattern to 30Nm (22 ft-lbs). Finally, check all four nuts to ensure they are at 30Nm (22 ft-lbs).

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46) Bring the catalyst forward, making sure that the notch in the catalyst aligns with the groove on the back of the APR turbo.





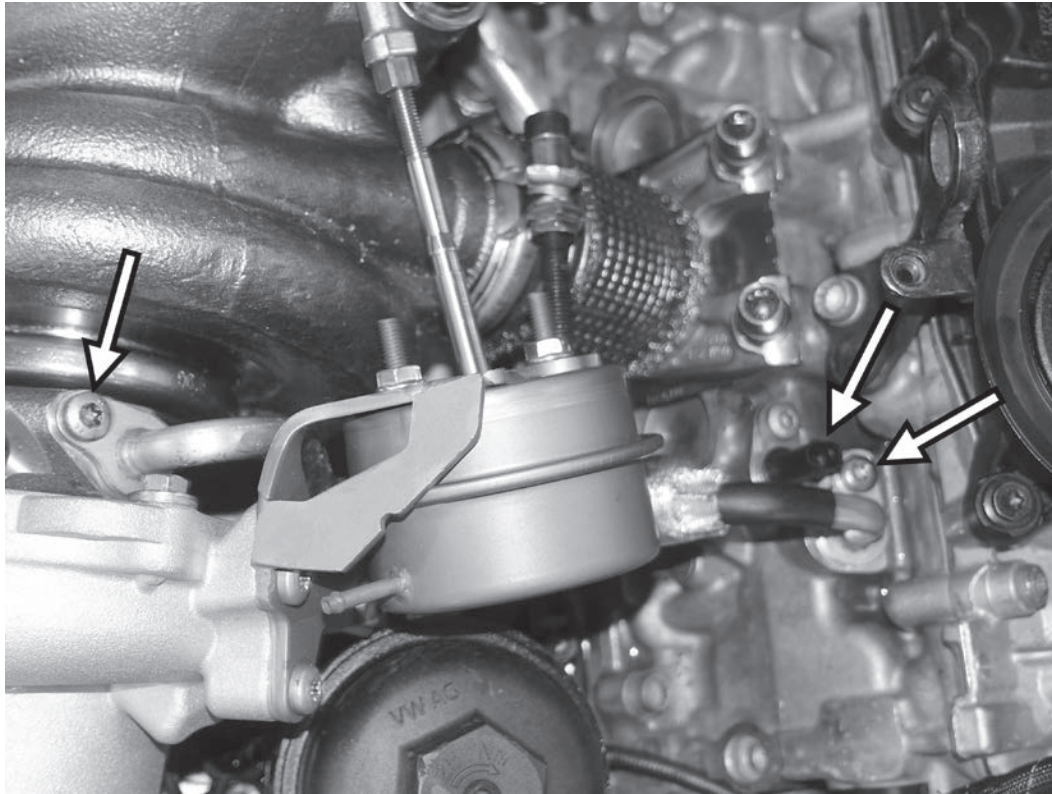
47) Once seated correctly, tighten the 10mm triple square on the exhaust coupler to 20Nm (177 in-lbs).

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48) Install the v-band clamp holding the catalyst to the APR turbo. Ensure the clamp is fully seated all the way around, and then tighten the clamp to 7Nm (62 in-lbs).

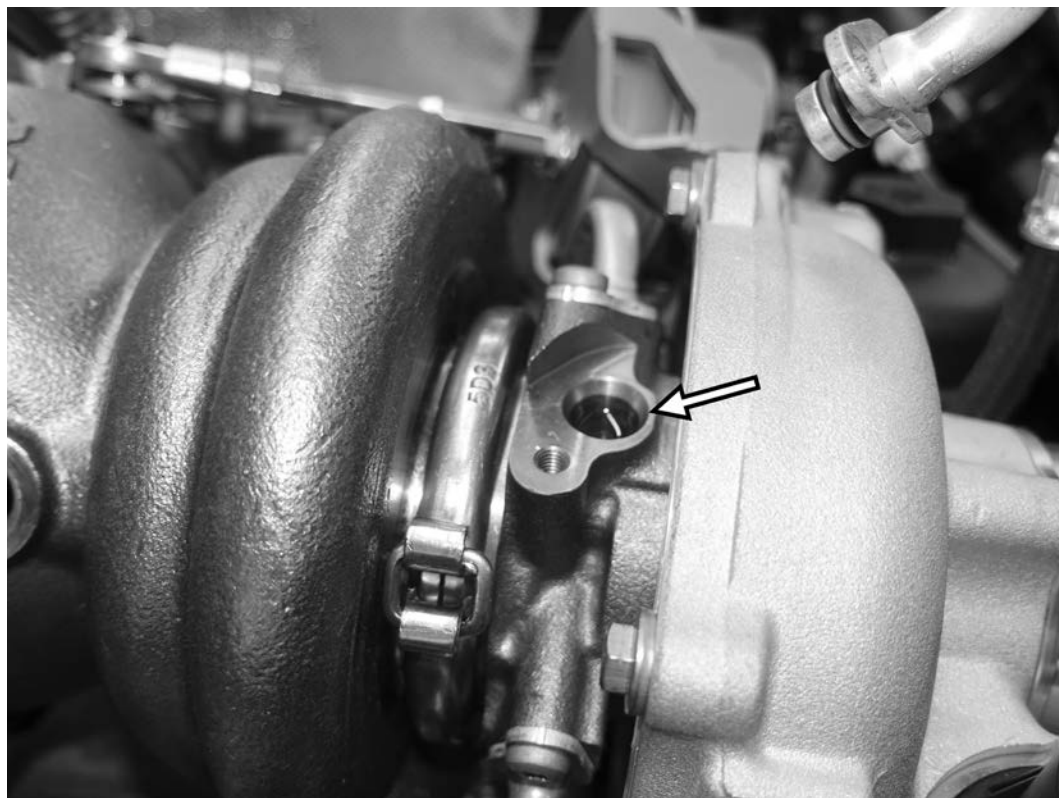


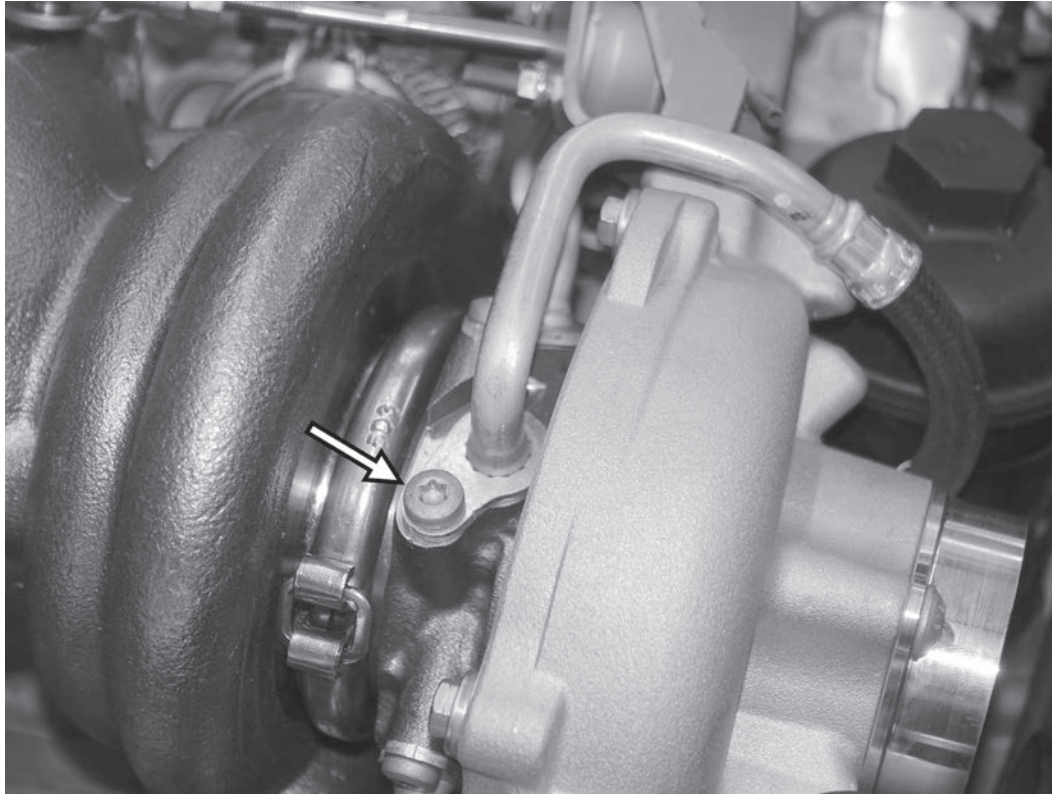
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49) Install the coolant line on the left side of the turbo, in the same routing as it was stock. Install the two correct T30 screws and tighten to 9Nm (80 in-lbs). Reconnect the electrical connector to the coolant temperature sensor.

50) Pour a small capful of clean engine oil down into the hole for the oil feed line on the turbo.



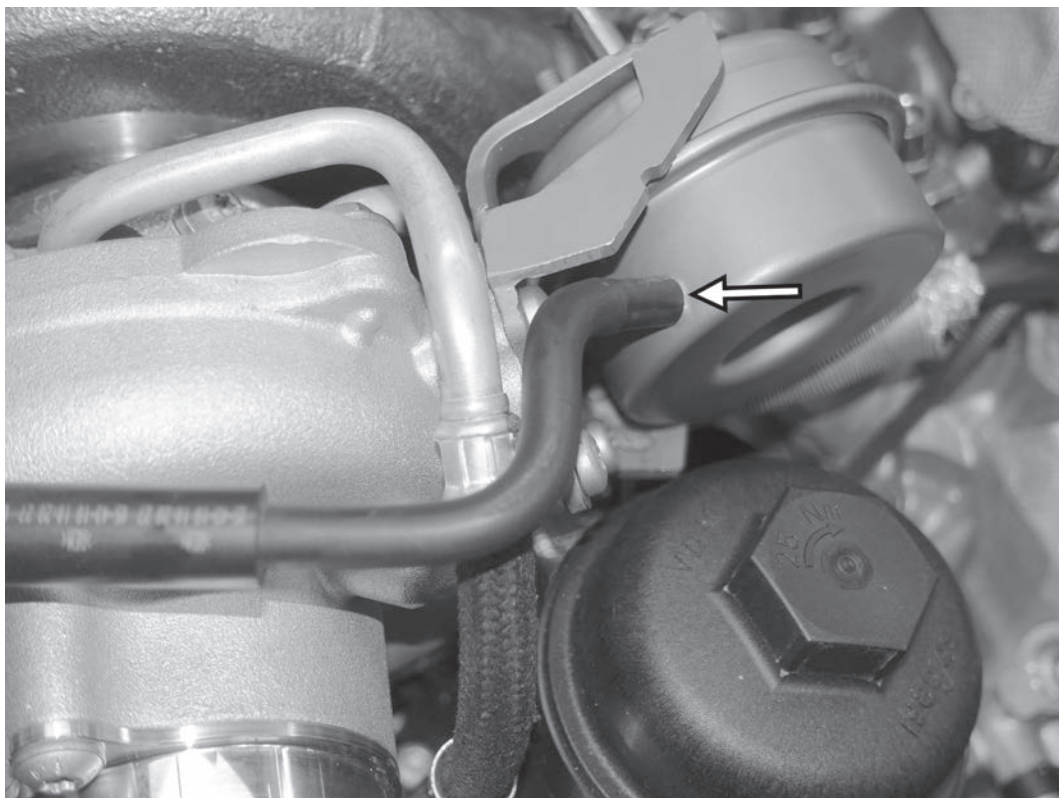


51) Replace the o-ring on the oil feed line with another one of the green o-rings, and then install the oil feed line to the turbocharger. Tighten the screw to 9Nm (80 in-lbs). Connect the electrical connector to the diverter valve on top of the turbo.

52) Replace the o-ring on the coolant line located on the right side of the engine with the last of the green o-rings, and then attach the coolant line to the turbo. Secure the line to the turbo and to the cylinder head with the correct T30 screws, and then tighten both to 9Nm (80 in-lbs).



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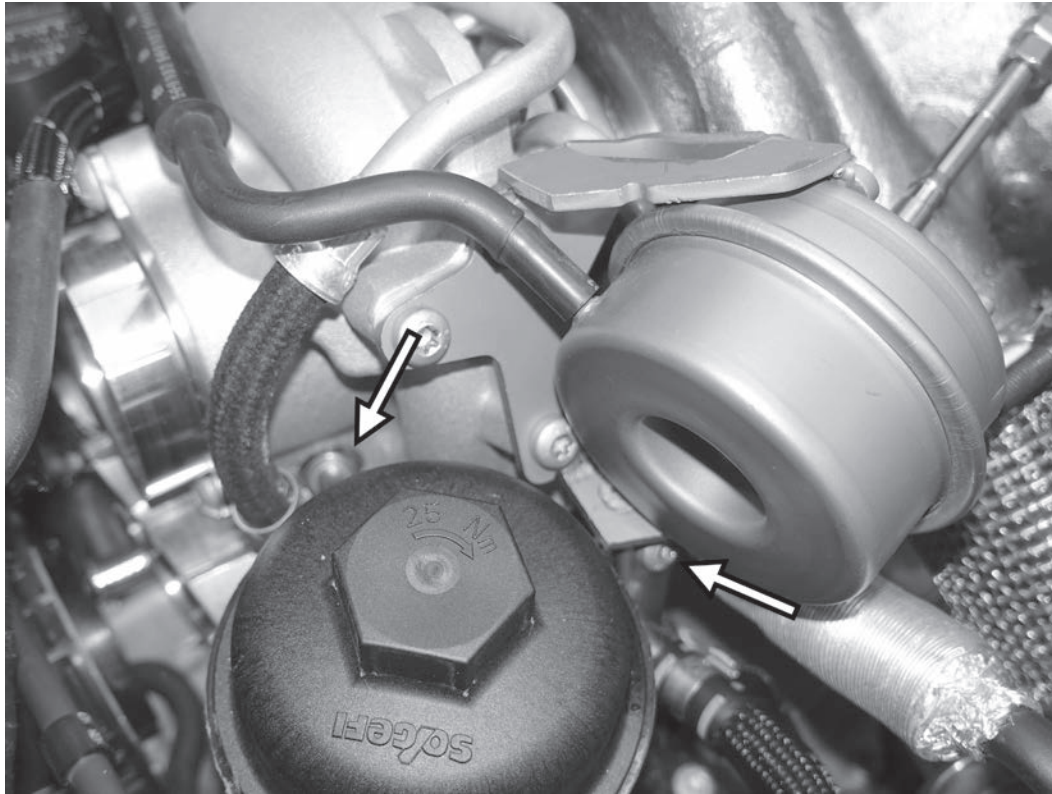


53) Swing the wastegate vacuum line and the hard vacuum line back over from the right side of the engine, and attach the rubber vacuum line to the wastegate on the APR turbo.

54) Remove the o-ring from the hard vacuum line and replace it with the supplied small black o-ring.



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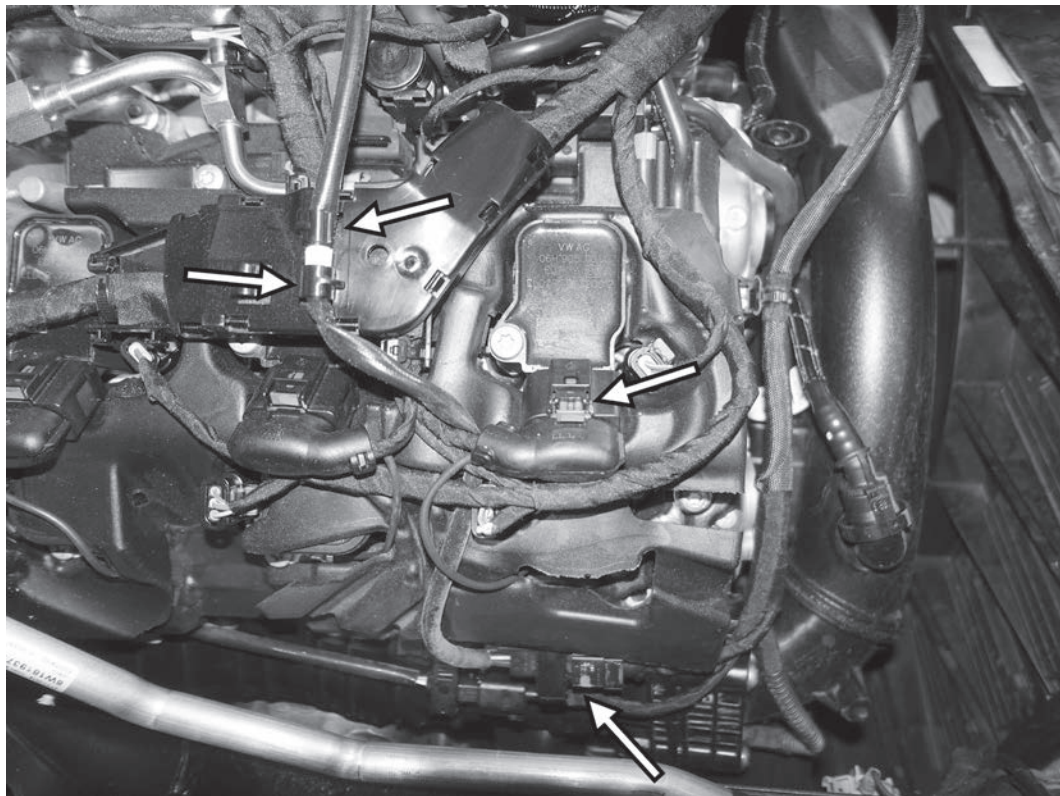


55) Route the hard vacuum line under the wastegate actuator as it was on the stock turbo, and then stick the vacuum line in the hole just behind the compressor inlet. Install the T30 screw into the bracket on the hard vacuum line and secure the line to the side of the turbo. Tighten the screw to 9Nm (80 in-lbs).

56) Install the oxygen sensor into the APR turbo, and tighten to 55Nm (40 ft-lbs).



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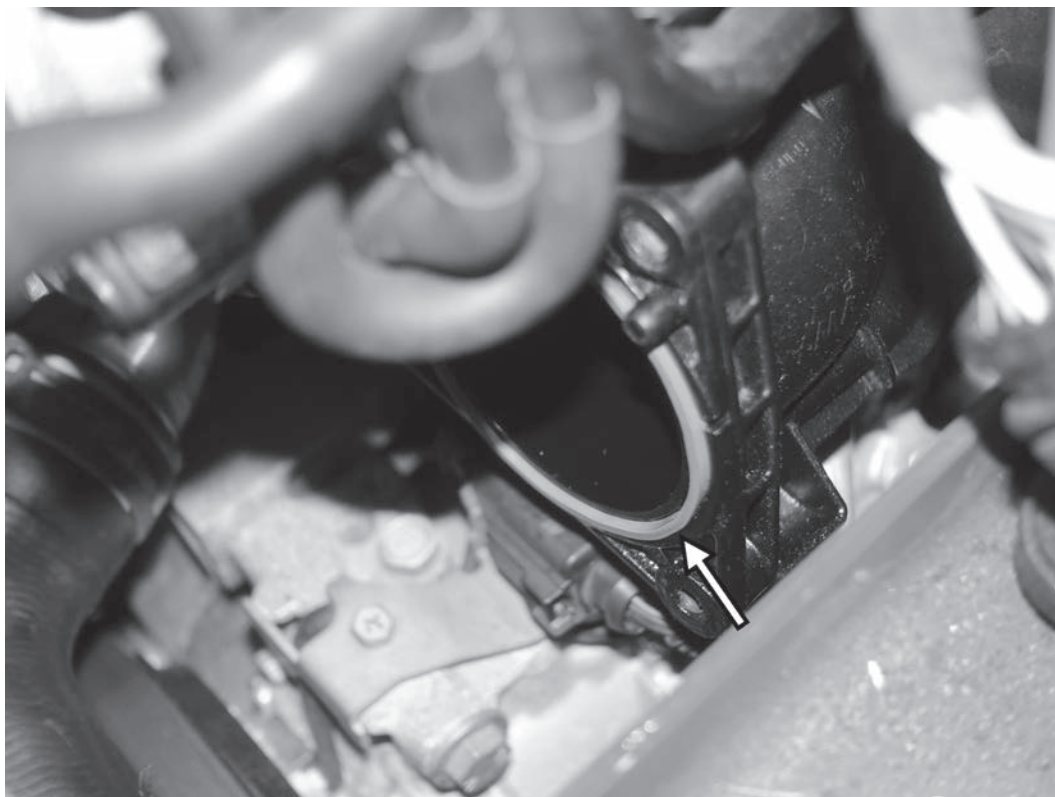


57) Reroute the oxygen sensor harness down the right side of the engine, reconnecting the harness to the clips on the side of the engine. Route the harness underneath the wiring harness as before, and then reconnect the oxygen sensor harness to the main harness. Reattach the electrical connector to the bracket on the side of the engine.

58) Replace the rubber gasket on the turbo outlet pipe with the new, supplied one, and then attach the turbo outlet pipe to the APR turbo. Tighten the two T30 screws to 9Nm.



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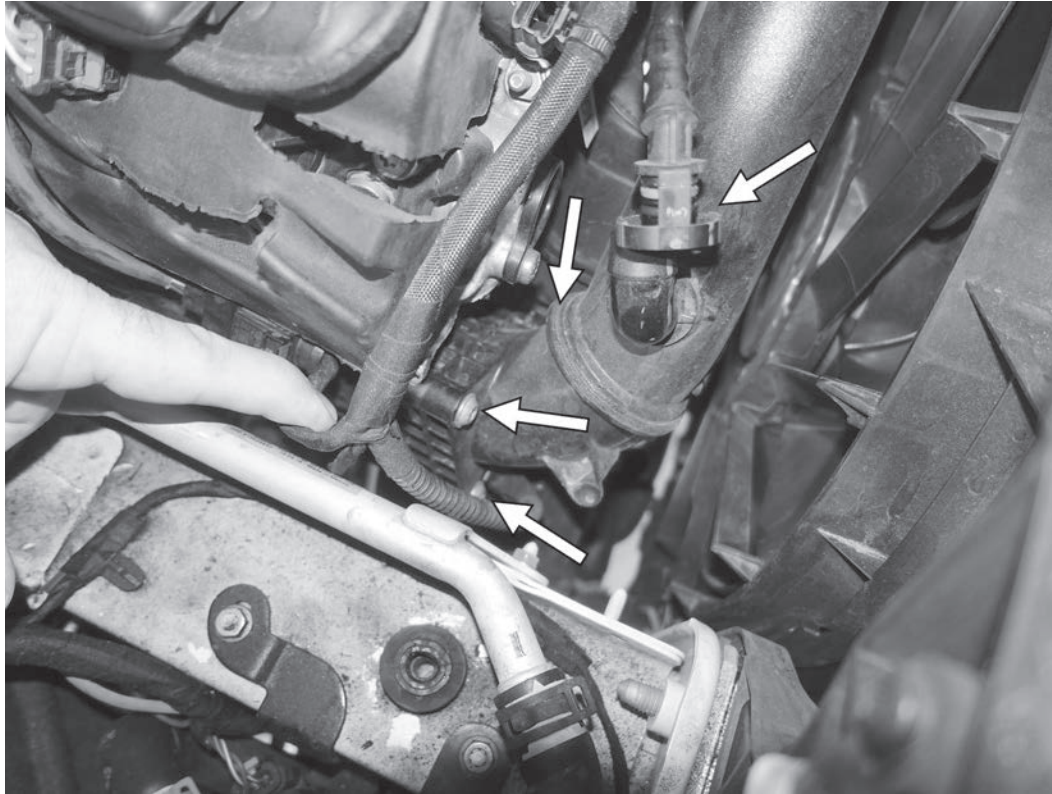


59) On the front charge pipe, remove both rubber gaskets from both inlets to the intake manifolds. Replace the gaskets with the new, supplied gaskets.

60) Loosely reinstall the three T30 screws that hold the front charge pipe to the left intake manifold. Try to rethread the screws in the original holes, as the self tapping screws can otherwise strip the intake manifolds.

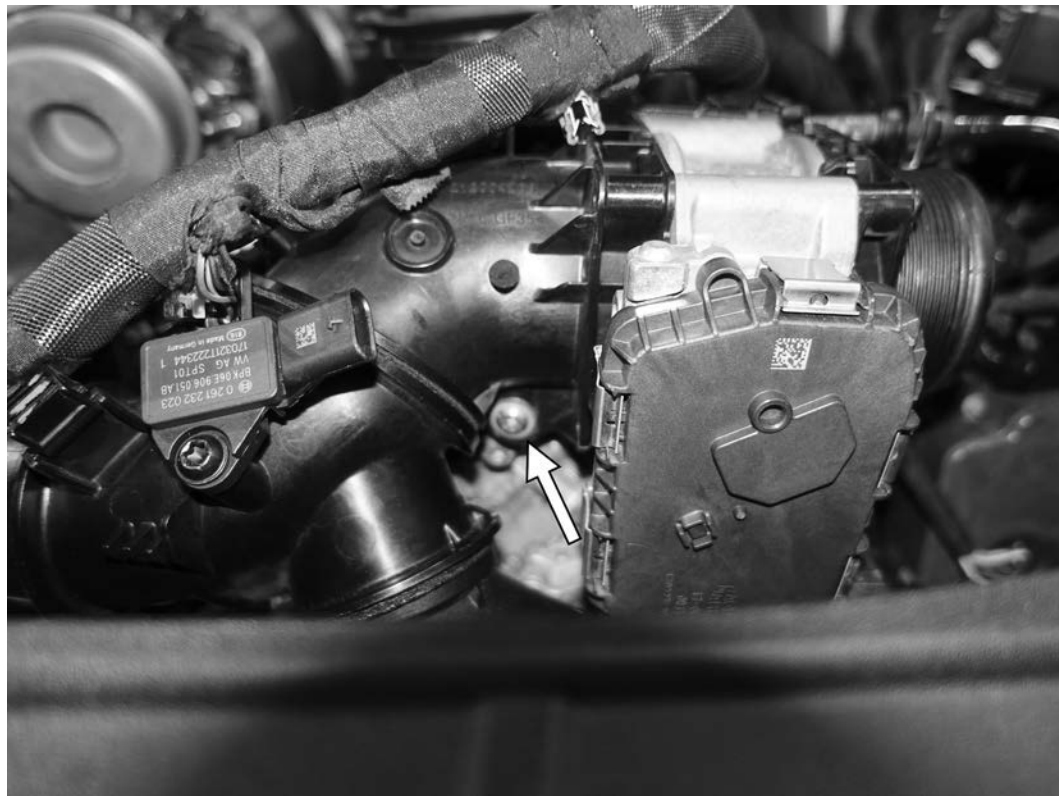


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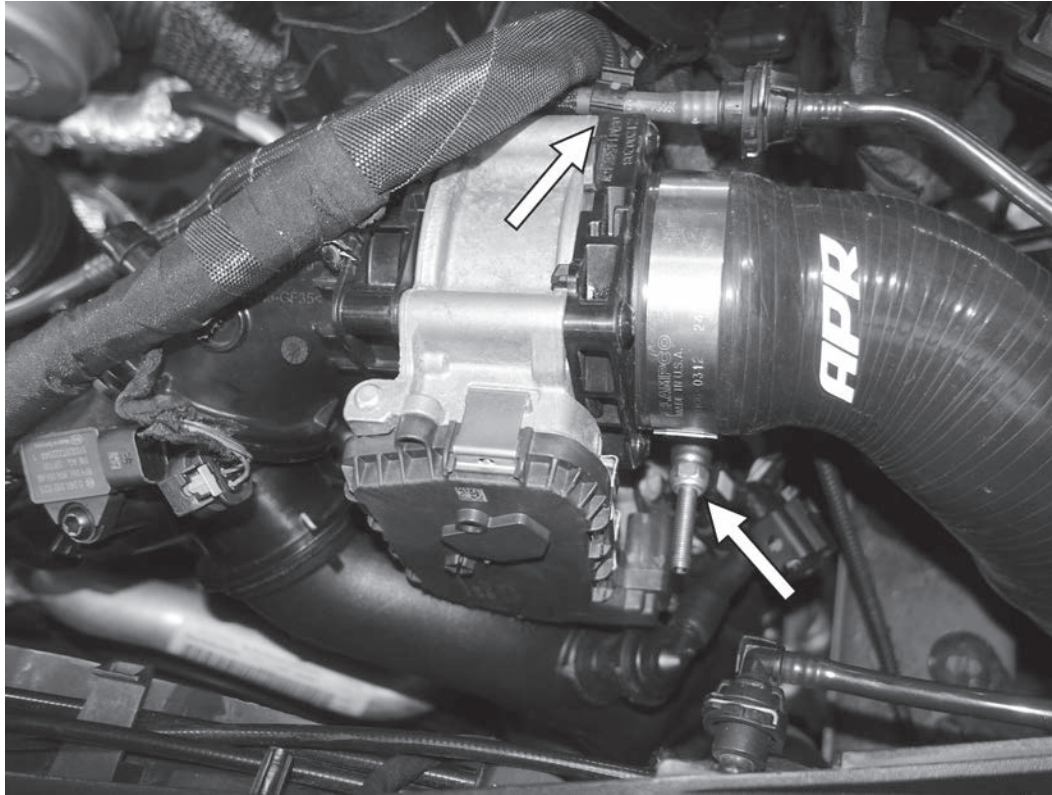


61) Loosely reinstall the three T30 screws that hold the front charge pipe to the right intake manifold. Try to rethread the screws in the original holes, as the self tapping screws can otherwise strip the intake manifolds. Reinstall the Norma style connection to the port on the intake charge pipe. Reclip the wiring harness onto the bottom of the front charge pipe.

62) Reattach the front charge pipe to the engine by attaching the one T30 screw just behind the throttle body. Tighten the six T30 screws holding the front charge pipe to the intake manifolds to 6Nm (53 in-lbs) in a crossing pattern (top left, then top right, then inner on the left, outer on the right, then outer on the left, then inner on the right). Finally, tighten the T30 screw just to the right of the throttle body to 9Nm (80 in-lbs).



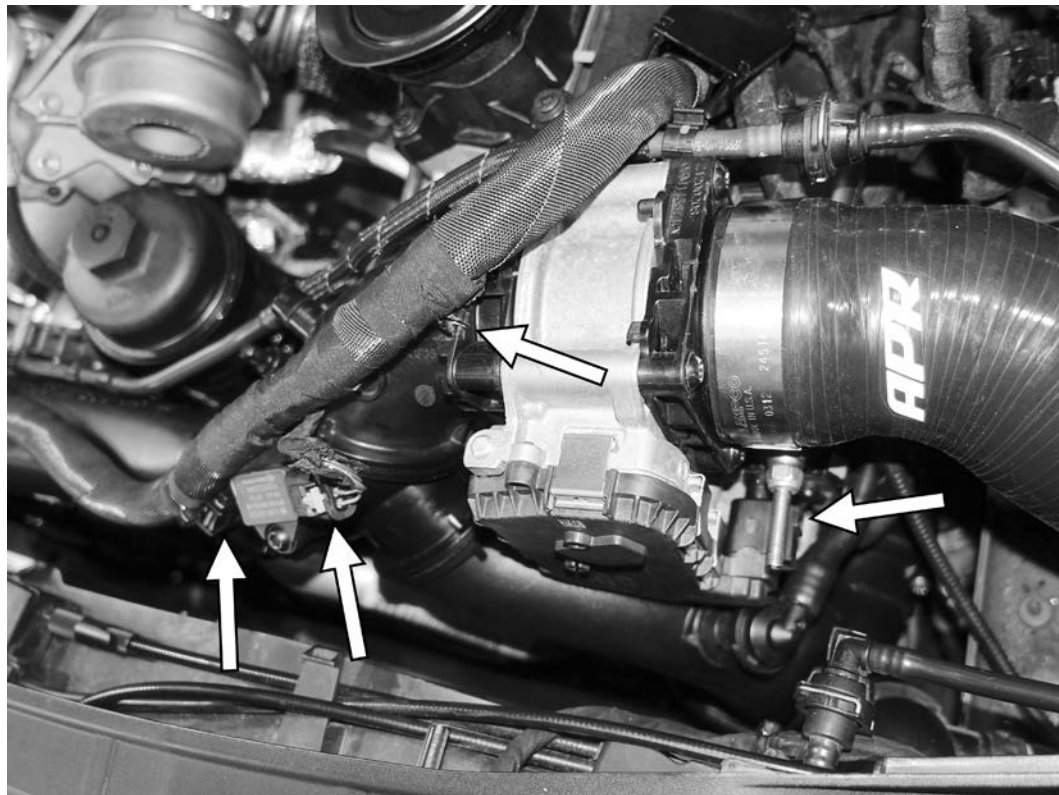
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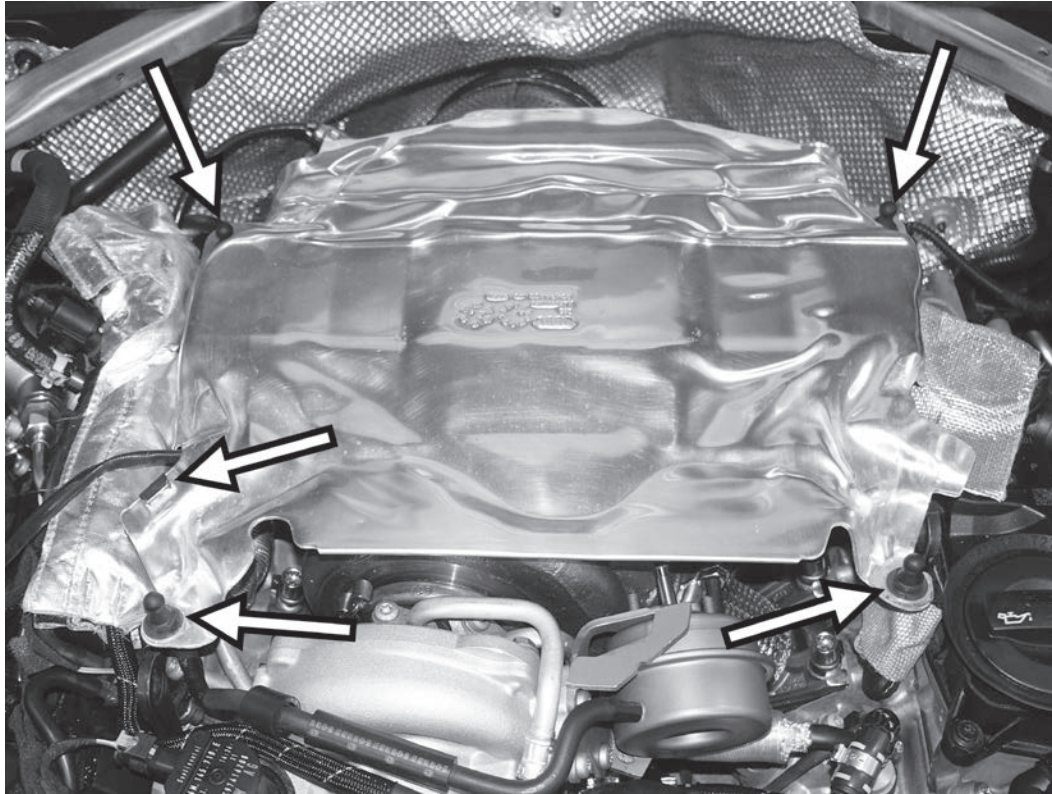


63) Reattach the charge pipe to the throttle body, and tighten to 5.7Nm (50 in-lbs). Reconnect the coolant line behind the throttle body to the clip on the back of the throttle body.

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64) Reconnect the electrical connectors to the MAP sensor on the front charge pipe. Reconnect the electrical connector to the throttle body. Reattach the two clips on the wiring harness their original mounting points on the front charge pipe.

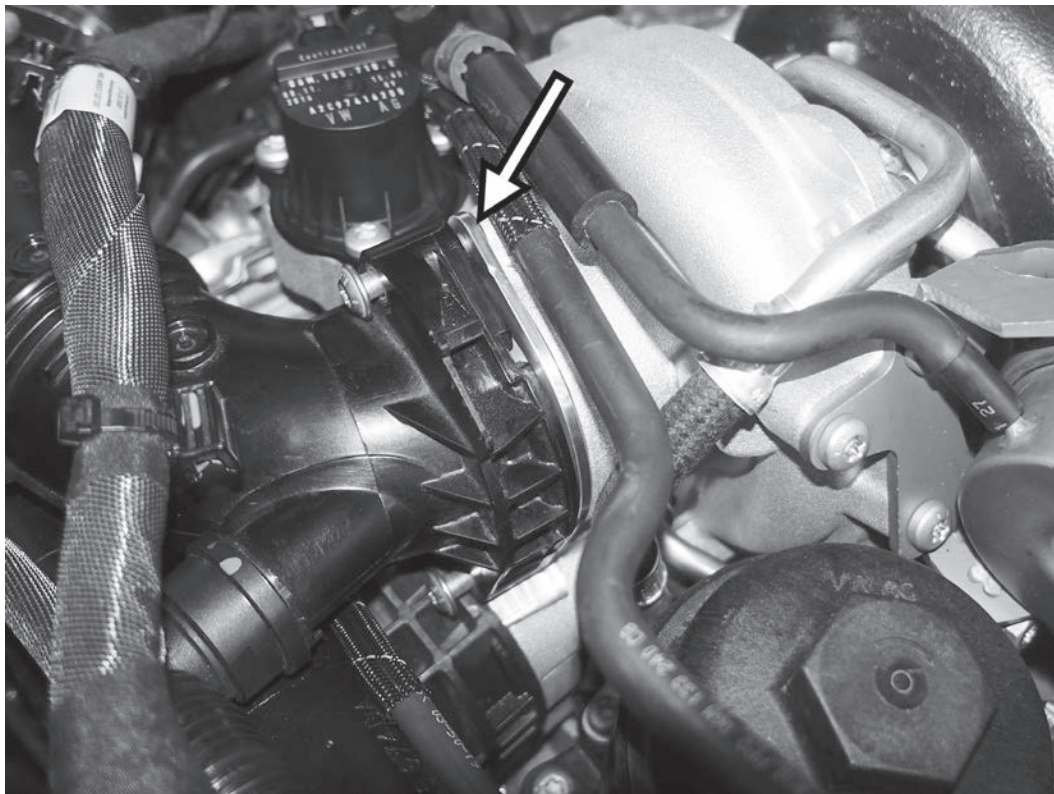




65) Reattach the factory heat shield to the top of the engine with the four 13mm mounting posts. Tighten the mounting posts to 5Nm (44 in-lbs). Reattach the clip on the oxygen sensor harness to the heat shield. Reinstall the engine cover on the engine.

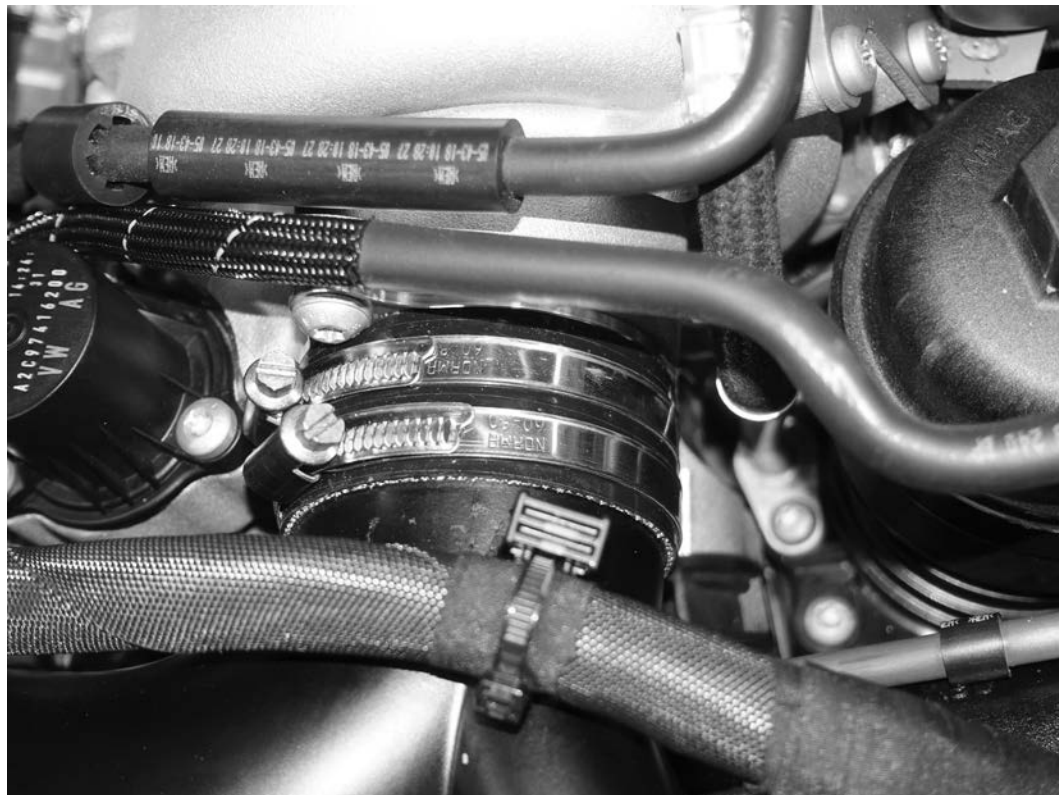
66) If installing the stock turbo inlet, install the supplied large, black o-ring into the groove on the back of the adapter for the turbo inlet. Use some silicone grease to hold the o-ring in place.

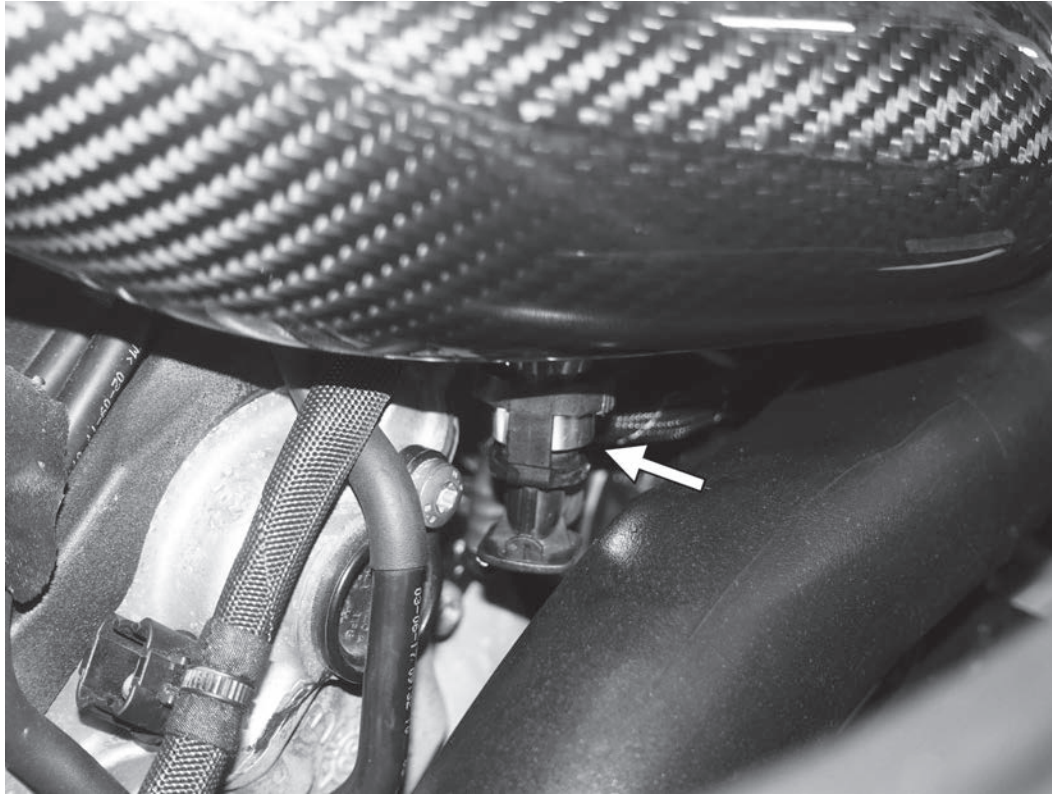




67) Place the stock inlet adapter onto the captive screws on the stock inlet pipe, with the o-ring groove facing the turbo. Carefully place the pipe onto the front of the turbo, ensuring the o-ring stays in place and the raised lip of the adapter goes into the inlet of the turbo. Tighten the two T30 screws to 9Nm (80 in-lbs).

68) If using the APR intake, loosely reinstall the turbo inlet pipe with the silicone coupler and two clamps.

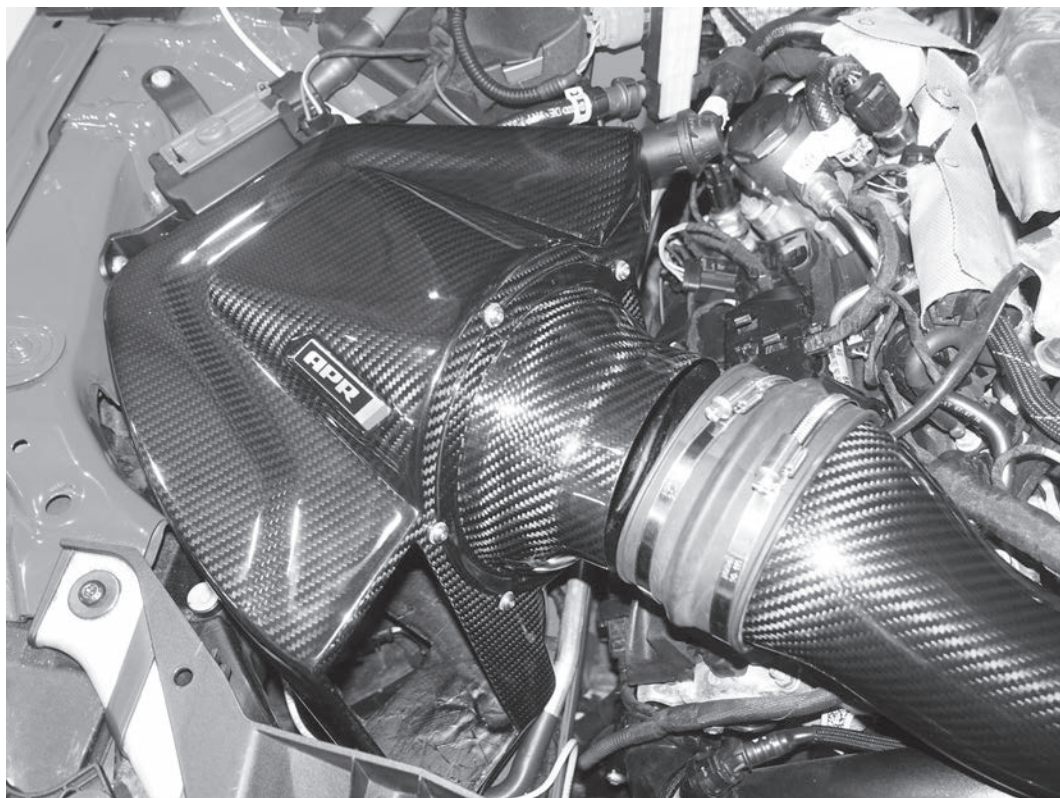




69) Slightly lift up on the turbo inlet pipe, and then connect the hose connection to the bottom of the turbo inlet pipe.

70) Connect the PCV hose assembly to the two connections on the PCV valve. If previously disconnected, reconnect the PCV hose assembly to the turbo inlet pipe as well. Reconnect the Norma style connection to the front charge pipe just behind the throttle body.

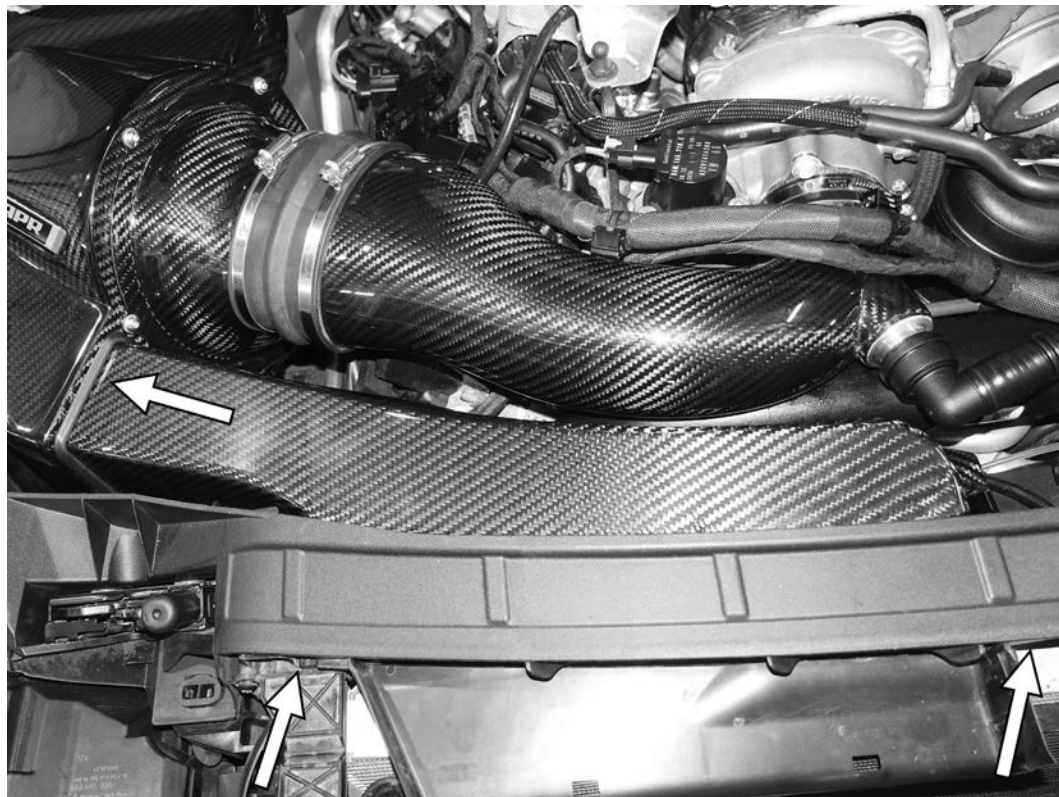




71) Reinstall the airbox assembly in the car, and reconnect the turbo inlet pipe to the airbox.

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72) Replace the airbox inlet pipe and reattach it to the radiator core support with the two T25 screws.



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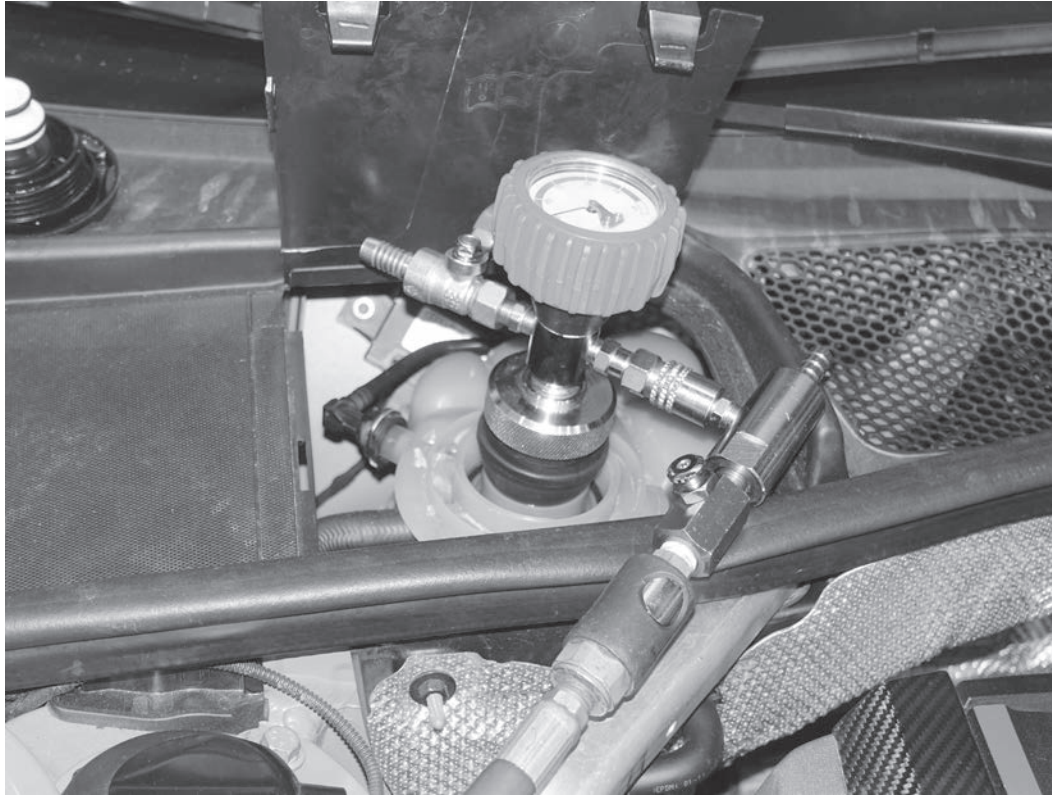
73) Place the back of the hood latch cover into the slot of the radiator support. Then, carefully align the tabs along the front of the hood latch cover and snap them back into their correct positions along the top of the bumper and grill.

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74) Reinstall the hood latch. The latch is keyed so that it can be only installed in one direction. Push the latch down until it clips fully onto the hood latch post.



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75) Refill the engine coolant using a vacuum bleeder style system. Follow the tool manufacturers instructions for vacuuming and refilling the engine coolant. Fill with new engine oil if the oil was drained.

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