

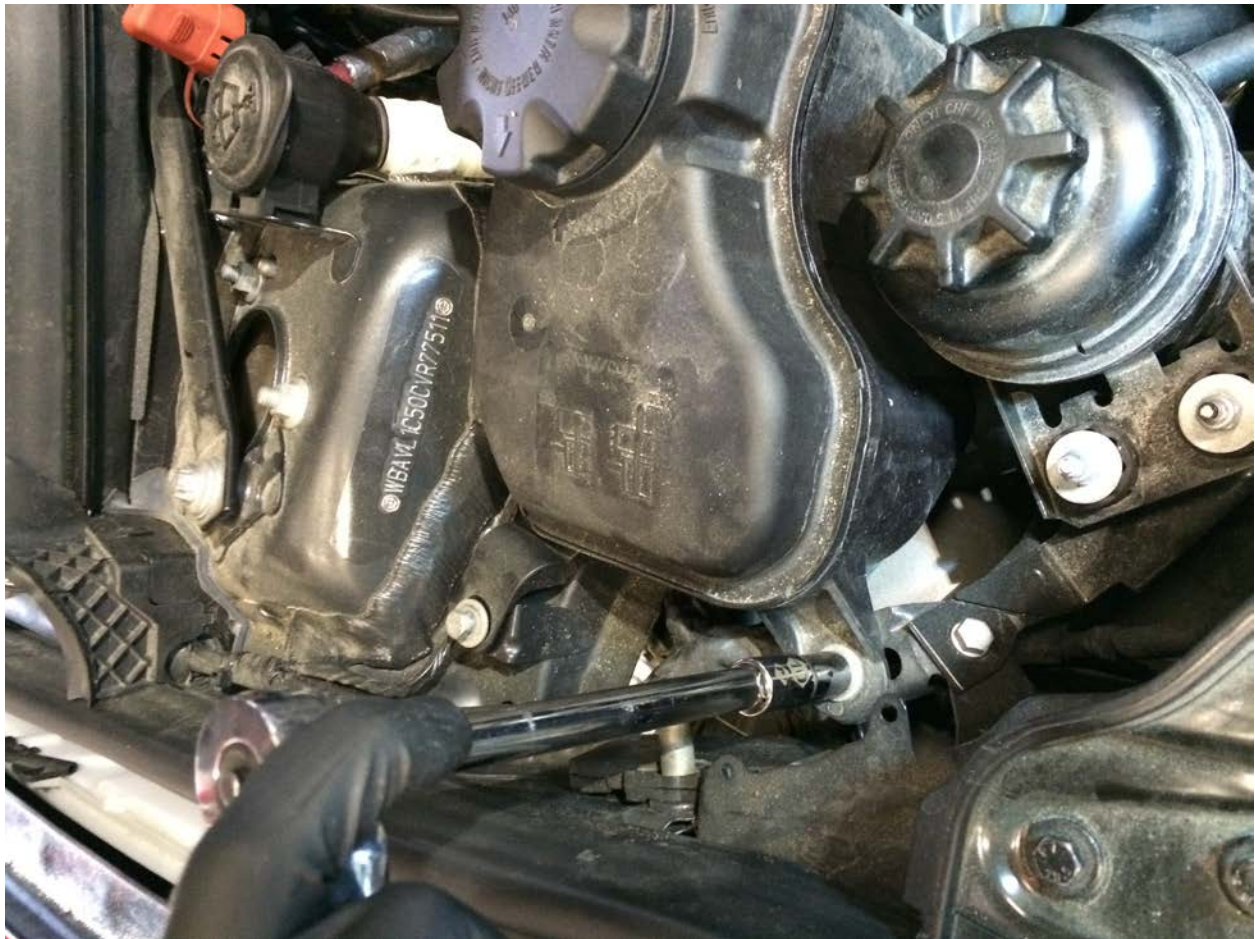
CTS BMW N20 BOV installation guide

Product ID: CTS-BV-0015

Tools required: Hand tools, including a metric socket set, torx bits set, screwdrivers, pliers, side cutters or knife. 1/4" ratchet and optional telescoping mirror with light source. Having a second set of hands is handy when working in tight quarters.

Installation time: 60-120 minutes depending on speed and experience of installer.

Unbolt coolant reservoir (2 bolts).



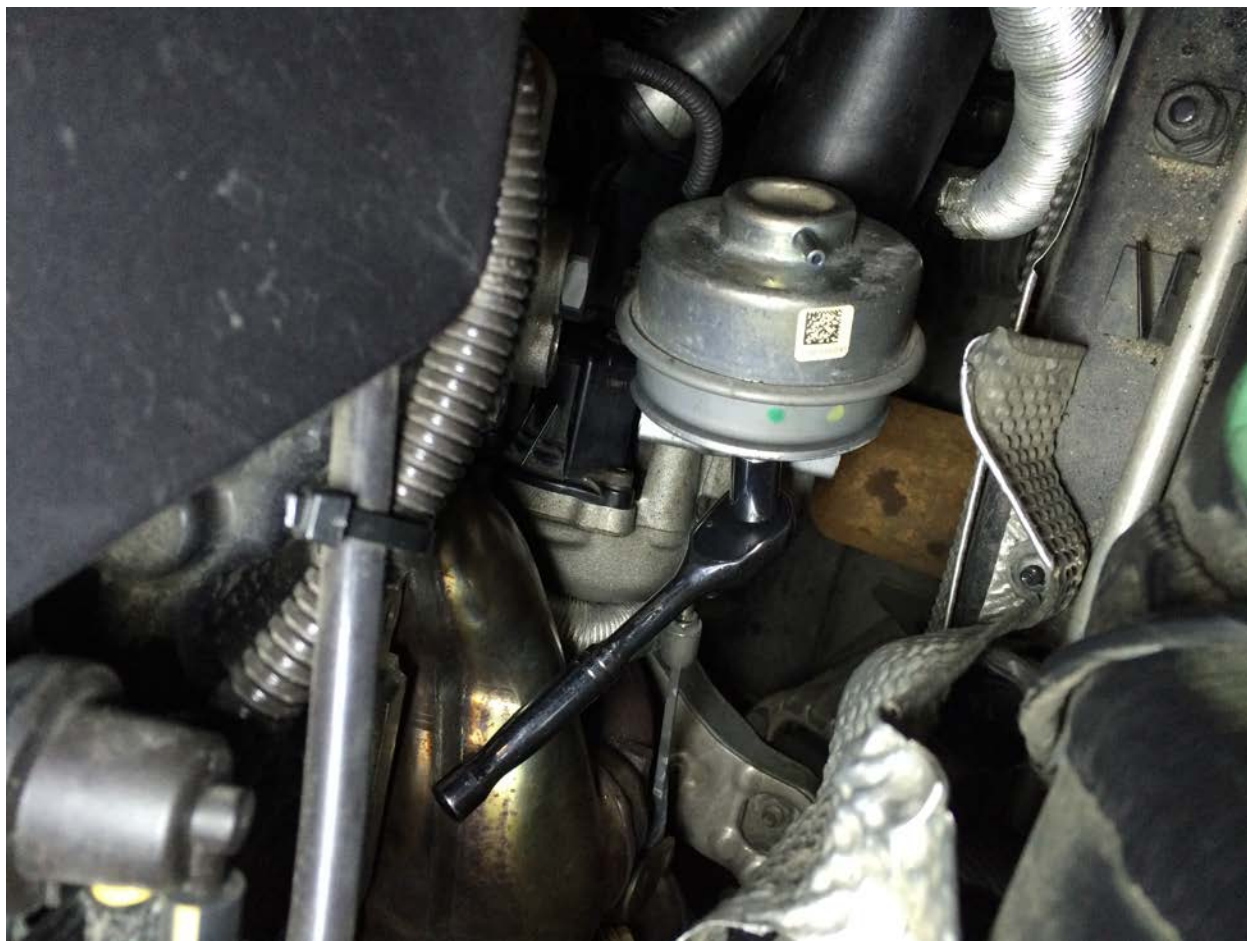
Unclip sensor from bottom of coolant reservoir



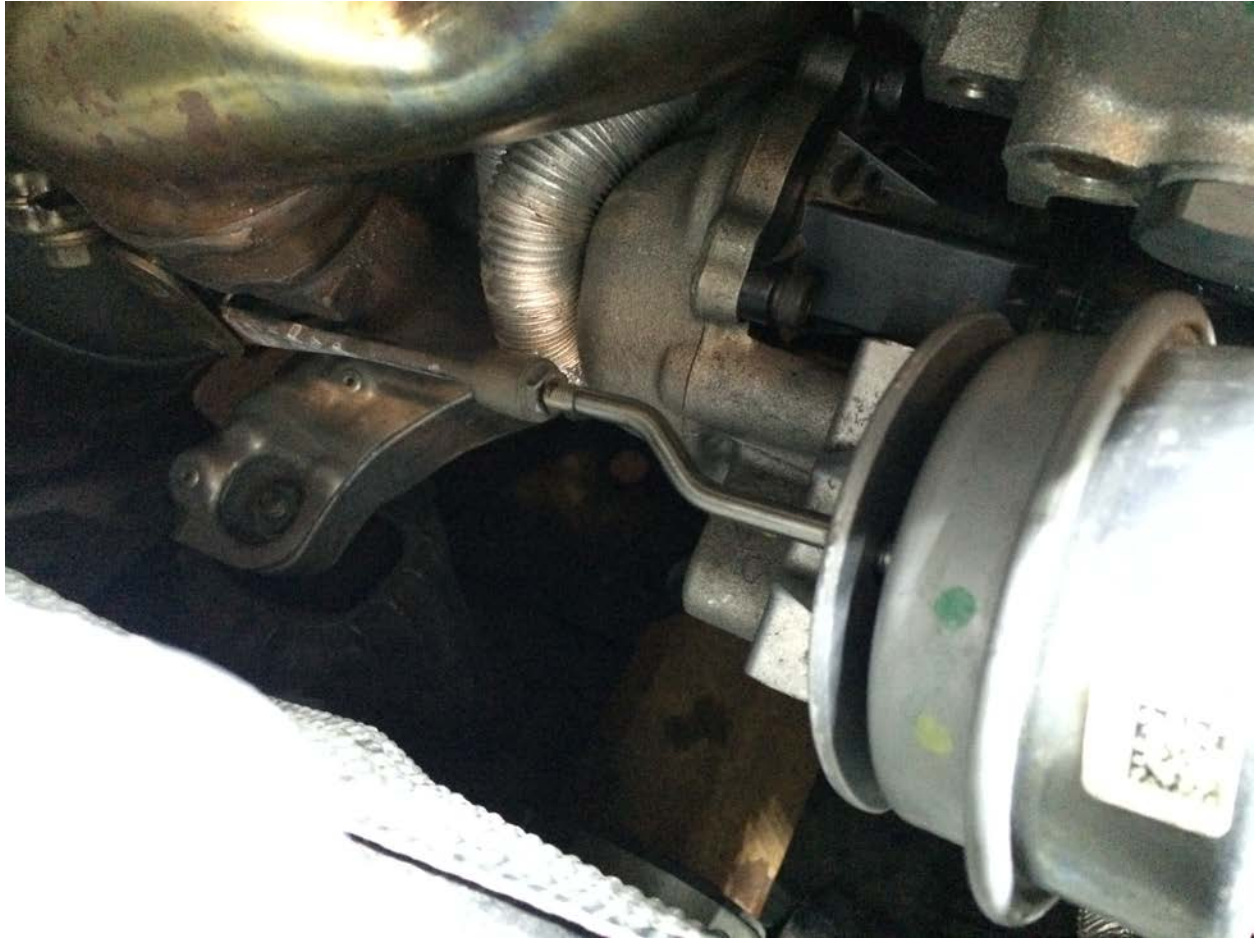
Pinch off coolant reservoir feed line, and coolant reservoir return line, remove coolant reservoir feed/return lines by depressing clips and drain coolant from reservoir, and tuck the just removed coolant hoses out of the way.



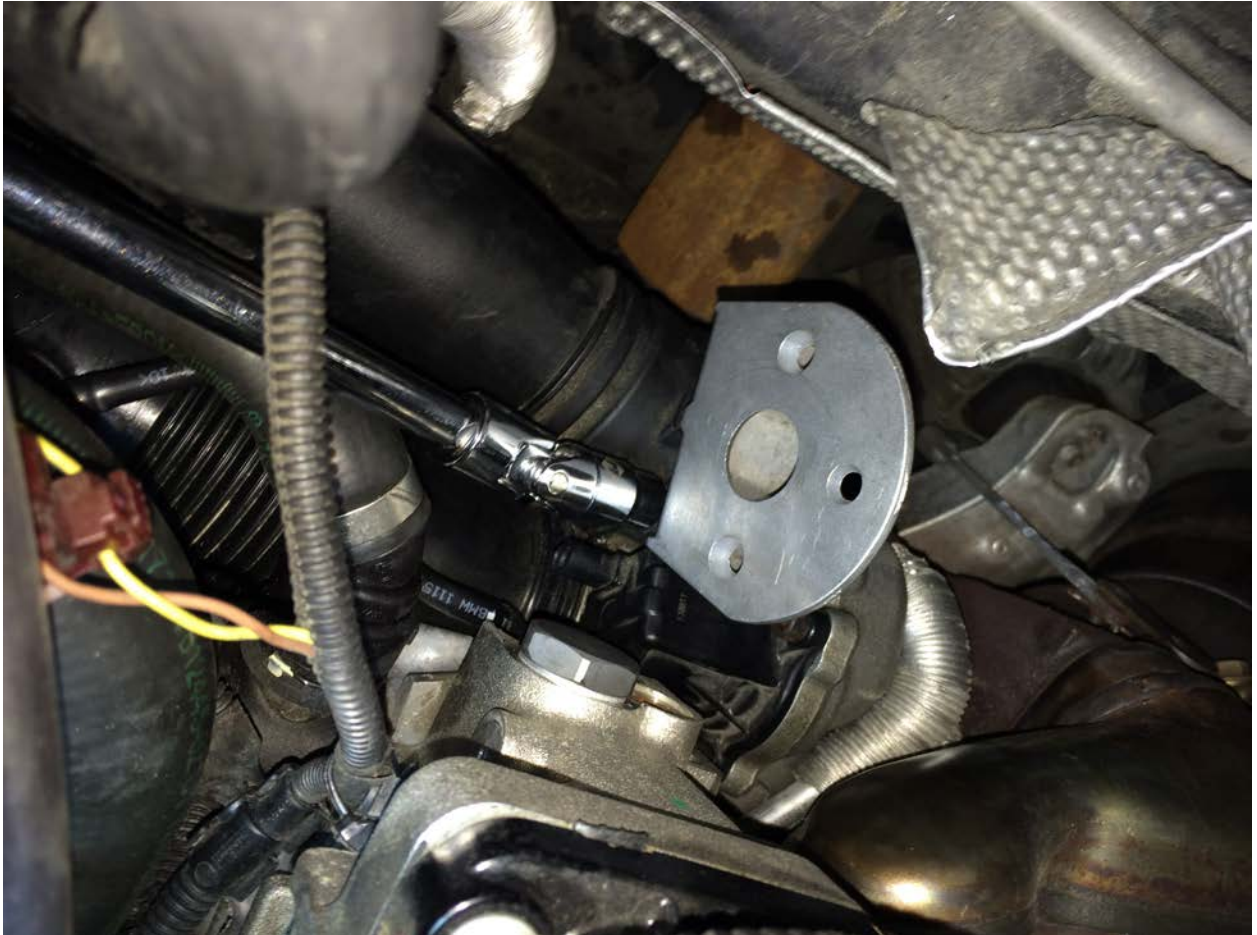
Remove 3 x 10mm nuts from back of wastegate actuator using ratchet & socket.



Mark jam nut on wastegate actuator, loosen the jam nut on the wastegate actuator rod, this should only require 1/4-1/2 of a turn. Once the wastegate rod jam nut is loosened pull back on the large head of the wastegate actuator and twist it counter clockwise, rotate the wastegate actuator until it comes free of the wastegate rod. Then remove the actuator.



Remove 2 x Torx bolts holding wastegate actuator bracket to turbo to gain additional clearance to valve.
Or remove one torx bolt, loosen the other and rotate the wastegate actuator bracket away from the OE valve.



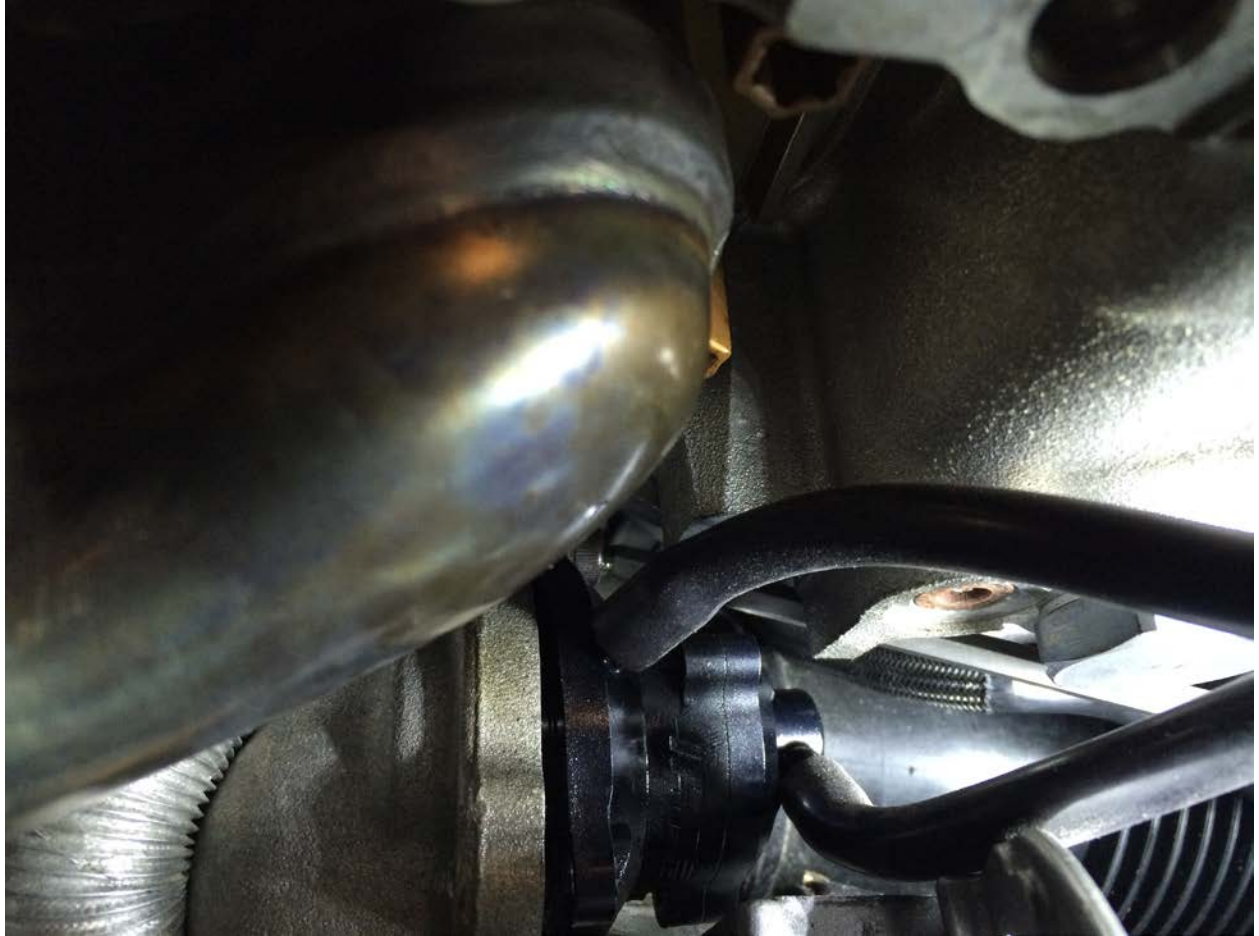
Remove 3 bolts holding in the factory recirculation (diverter valve) using ratchet & extension.



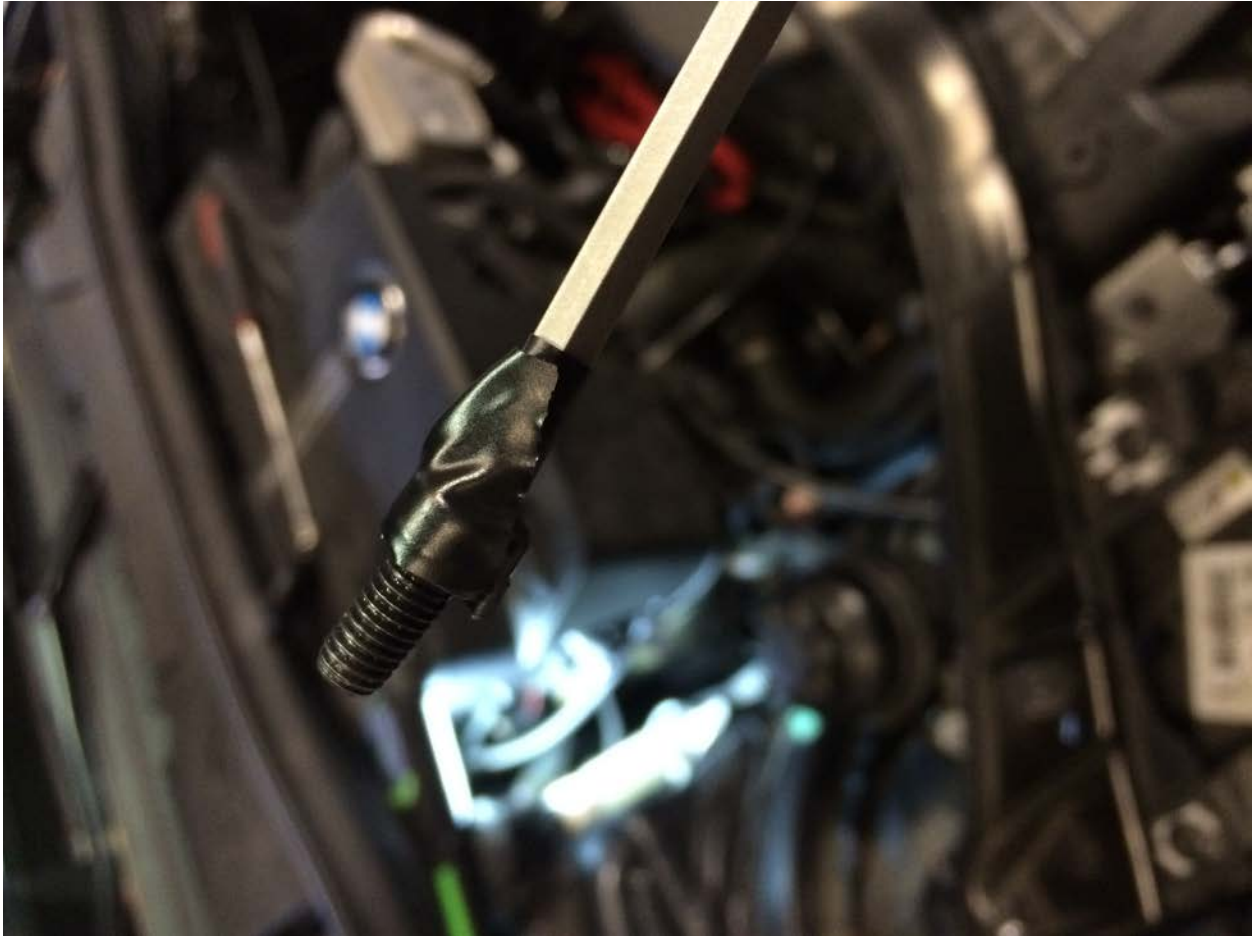
With the factory valve removed it should look as follows, notice we only removed one torx bolt from the wastegate bracket, and twisted the bracket to the side to gain additional clearance for valve removal.



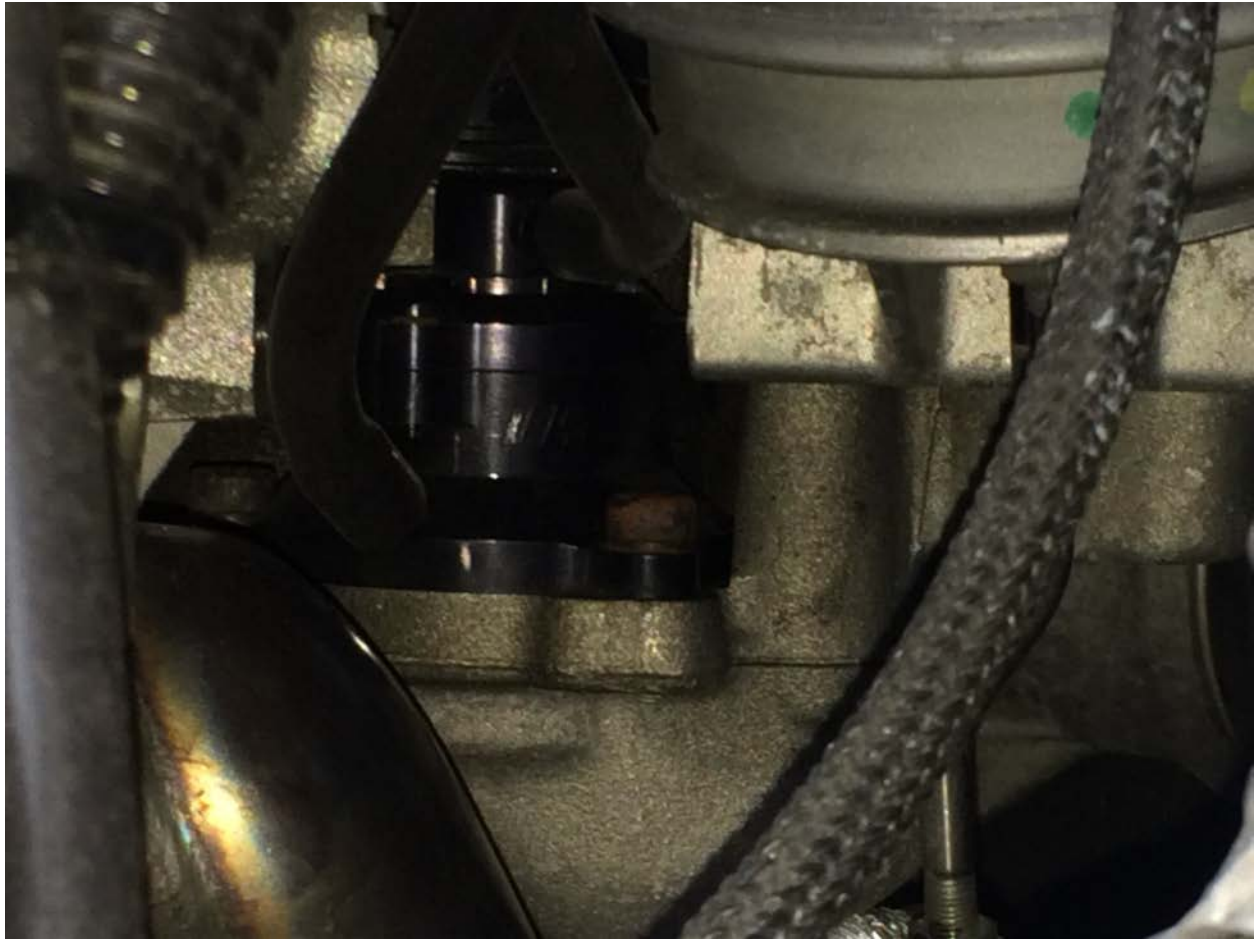
Install CTS BOV in place of the OE valve with nipples oriented as below, using CTS provided mounting allen head bolts using ratchet, bit and extension. Install included vacuum lines on BOV barbed nipples. Please ensure the included O-ring is seated snugly on the base of the BOV at the connection between turbo/CTS BOV.



You may find it easier to install the included allen bolts if you tape them to the ratchet bit as pictured:



Once the CTS BOV is mounted it should look like this, please note no grinding, or turbo removal is required.



The following steps are simply reversing prior steps from above. Re-install torx bit(s) into wastegate actuator bracket tightening them snugly. Slide wastegate actuator rod back into the wastegate bracket while threading the wastegate actuator rod end into the part of the rod that remained on the car, this should take a number of turns. Once the rod is screwed and tightened, finalize its mounting by tightening up the jam nut. Tighten the 3 x 10mm wastegate actuator rods down to secure the actuator to the bracket.

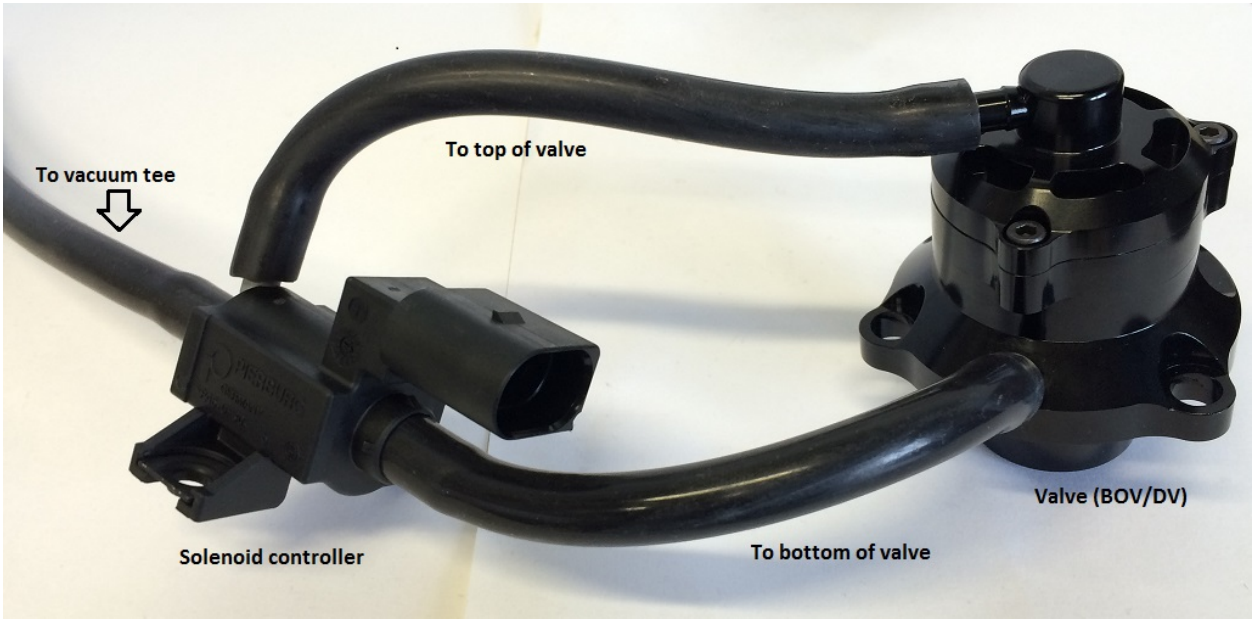
Note the factory OE position of the vacuum lines on the side of the head:



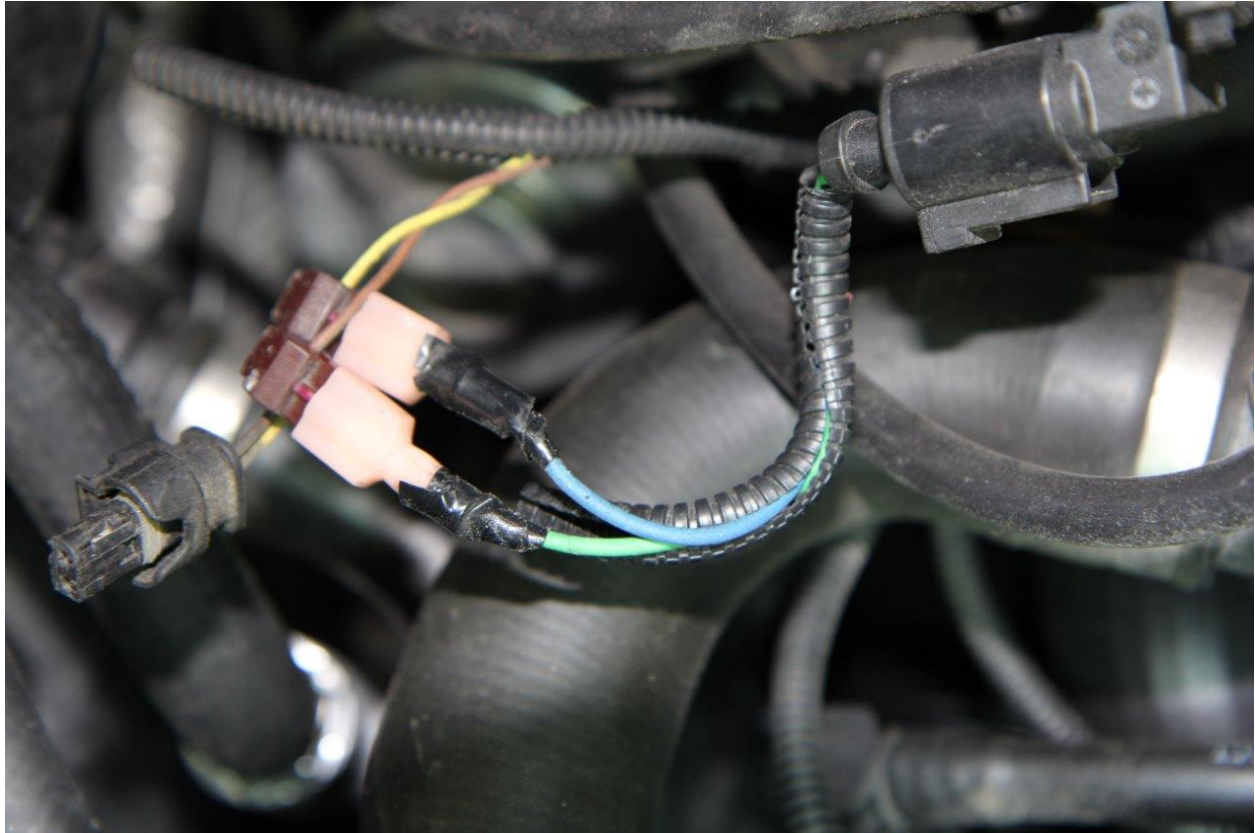
Install provided T in vacuum lines on passenger side of engine as pictured. This requires no cutting, but the factory vacuum lines pictured above are tight on the vacuum fittings and may require some persuasion with a small pick. The long vacuum line below will connect to the included solenoid on the "grey" end, which runs parallel to the nipple barb on the black end of the solenoid.



The vacuum lines should be routed as follows, pay particular attention to the vacuum line position related to the solenoid or you'll be doing the connections again. The "To vacuum tee" line goes to the top of the engine from the prior step.



Install the electrical connector to the solenoid, it should clip in with a positive "clip" sound. Use spades and wire taps to connect to the OEM BOV electrical connection as pictured below, and cover the lines with sheathing. The OEM signal is now directed to the provided external solenoid in the top right of the picture, which now relays commands to the BOV that are sent from the factory DME/ECU. You can secure the solenoid valve under the edge of the OE engine cover for a stealth look.



Re-install the coolant lines to the coolant reservoir, fill the reservoir, fill the reservoir and ensure there are no leaks. Start the car and ensure the coolant levels are correct and let the car idle to ensure the coolant is circulating correctly.

This completes the installation of the CTS Turbo N20 BOV Kit. Revving the engine should now result in a pronounced BOV sound. Go on a test drive and enjoy your newly installed BOV. The entire installation should average 60-120 minutes depending on speed and experience of the technician. This can easily be done by an enthusiast over the course of an afternoon at home with basic hand tools.