

How to replace your Turbo Actuator Step by Step

Special thanks to other forum members who have previously dealt with this problem!

By
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Old



New



Your Turbo is a lot tougher than the electric actuator motor that controls its vanes. The Turbo Actuator (TA) is a small servo motor a little smaller than your fist and it sits in front and to the left of the turbo, to the left of the black air intake tube.

How do you know your TA is bad?

In my case, the car went into limp mode one day, the lightening bolt on the dash was flashing, AND I got a P0299 code which means "Turbo Under Boost." Although the code was sticky and remained until I cleared it, the other symptoms were intermittent. I could drive several days sometimes, then suddenly, limp mode and lightening bolt. Shutting off the engine would sometimes make it go away for a while. Other times it would remain persistent until the next day.

If you take your Jeep to the dealer, they will charge you about \$130 just to look at it and determine the problem. Then they may tell you that you need a new turbo and the price tag for that job is in excess of \$7,000. They will NOT replace just TA nor will they sell you one, nor will they say, "Your TA is bad." It is easy to replace the TA so I am surprised that the dealer does not offer this as an option. If you let them replace your turbo, they will pull your engine to do the job. That can't be good.

So... you have to decide... should I risk \$300 and a few hours in order to possibly save \$6,700? In my case, it was an easy decision. Although my turbo is still covered under extended warranty, I really did not want them to pull my engine which could lead to other problems.

So, Let's go.... replace the sucker yourself.

Tools



Screw Driver
1/4" drive ratchet
10mm socket
10mm box end wrench
Magnet on a stick
Right angled pick
(not pictured)

It also helps to have a small stool to stand on.

Get on the computer and order a new TA from XsBoost. This is their URL

<http://www.xsboostturbochargers.com/>

or call them at

1-330-830-4075

Wait for it to arrive
and compare it to
your actuator just to
be sure.



Ok... here we go.

Disconnect the Negative cable from your battery.

Remove the engine cover. To remove it, remove the oil fill cap, then remove 2 – 10mm bolts. Lift front and pull it slightly forward and off. I recommend that you do not replace this cover when done. Leave it off so all your electronic parts can operate cooler.

Locate your TA and compare it with the one that you obtained from XsBoost. Make sure they look the same and that the little knob at the end of the control arm is pointing the correct direction away from the TA body.

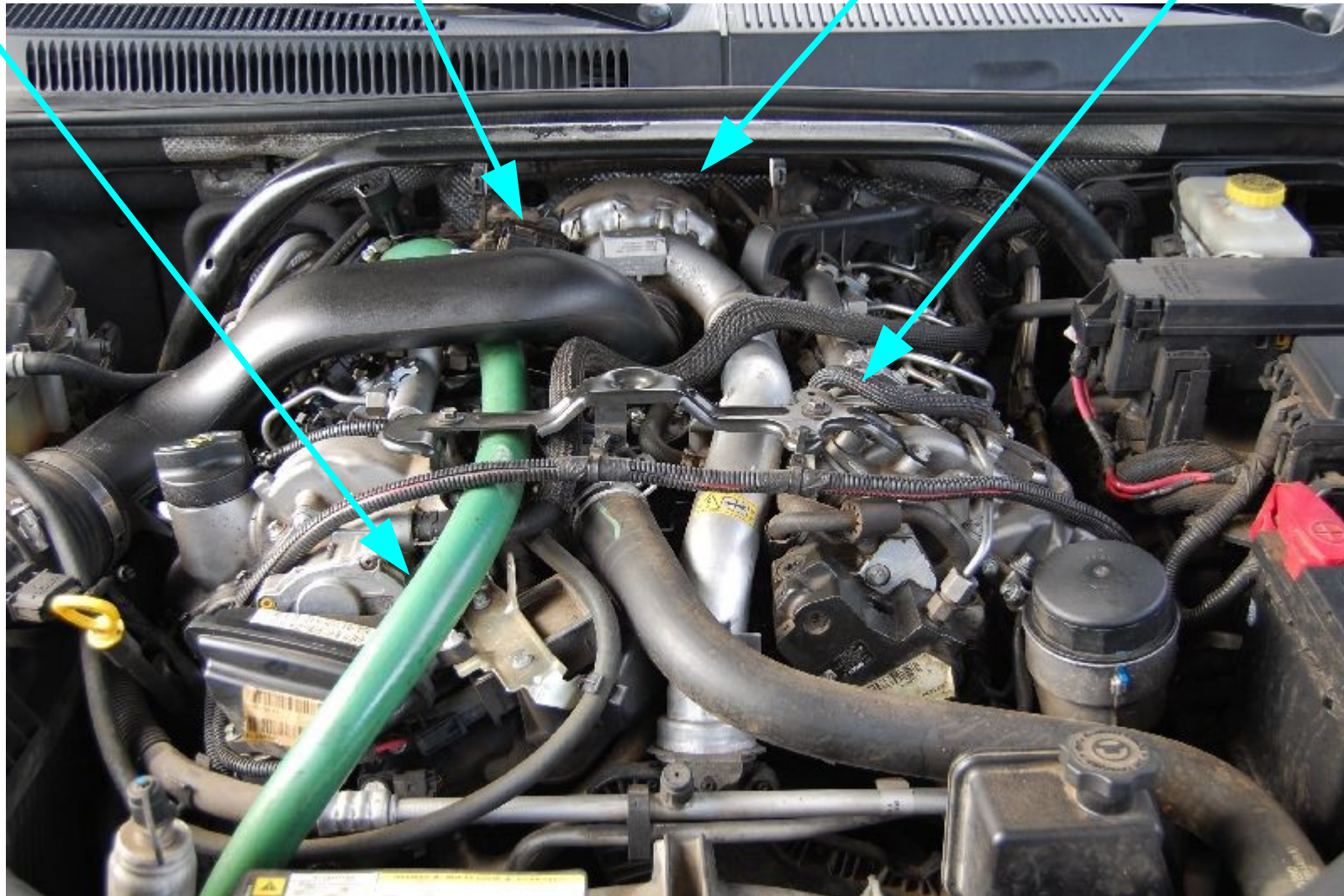
Cut up some small rags and stuff them all around the working area to prevent the small bolts from dropping out of site when you fumble them. Leave no hole unplugged.

Turbo Actuator (TA)

Turbo

Engine

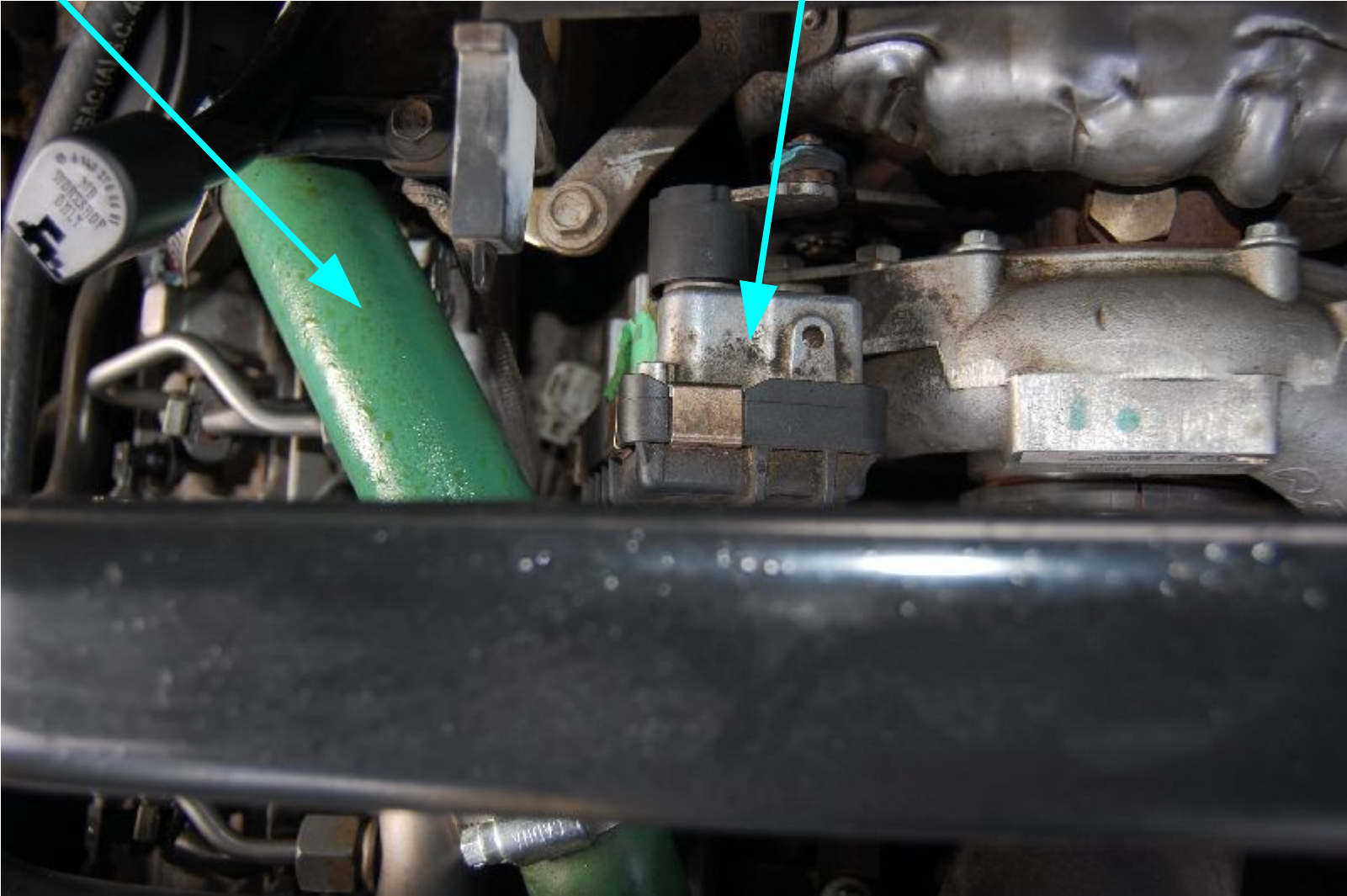
Elephant hose Mod



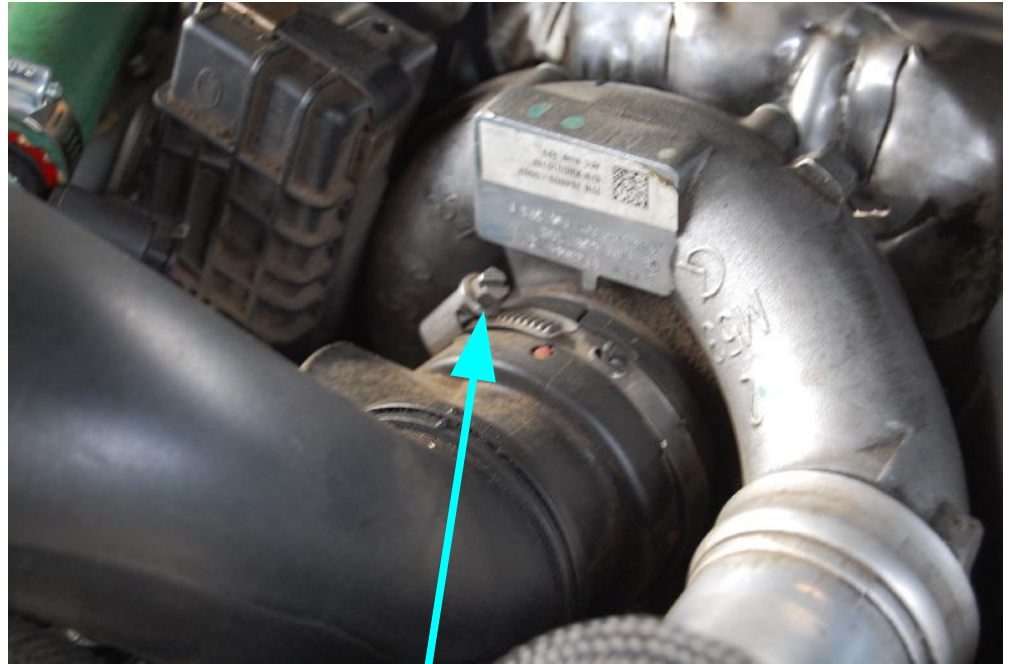
Top View

Turbo Actuator

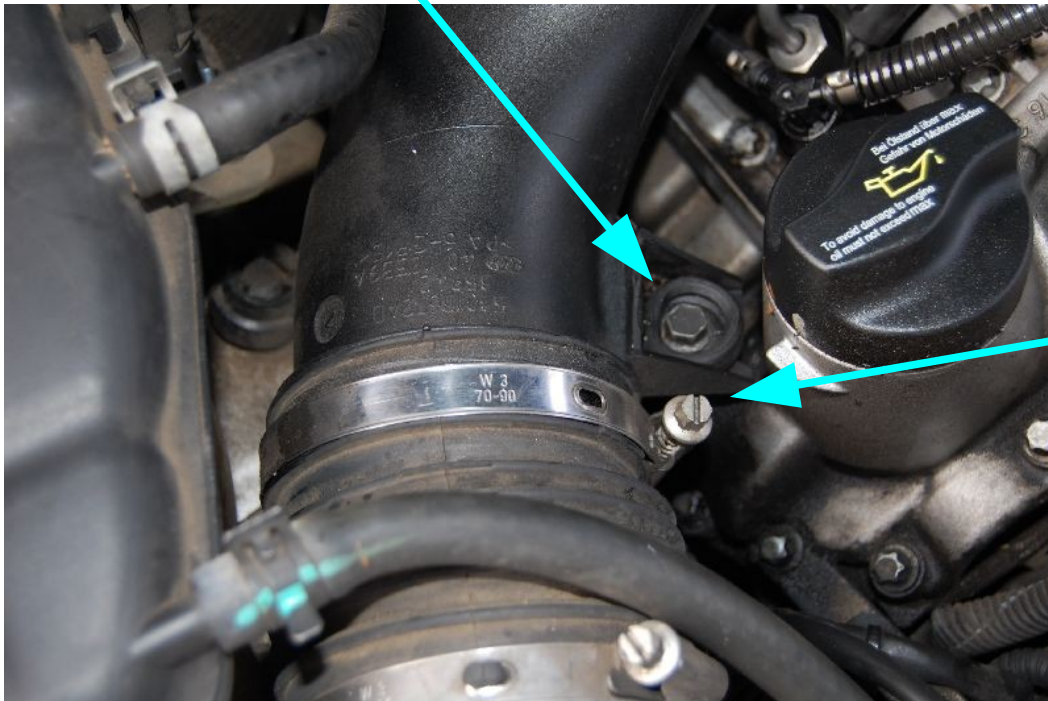
EHM



Remove the fresh air intake.
Loosen two screws and remove
one bolt, then wiggle it off.
Be careful to keep foreign
objects from entering your
turbo.



Bolt



Screws

Remove engine **cover bracket**. I chose to leave mine off.

Bolt

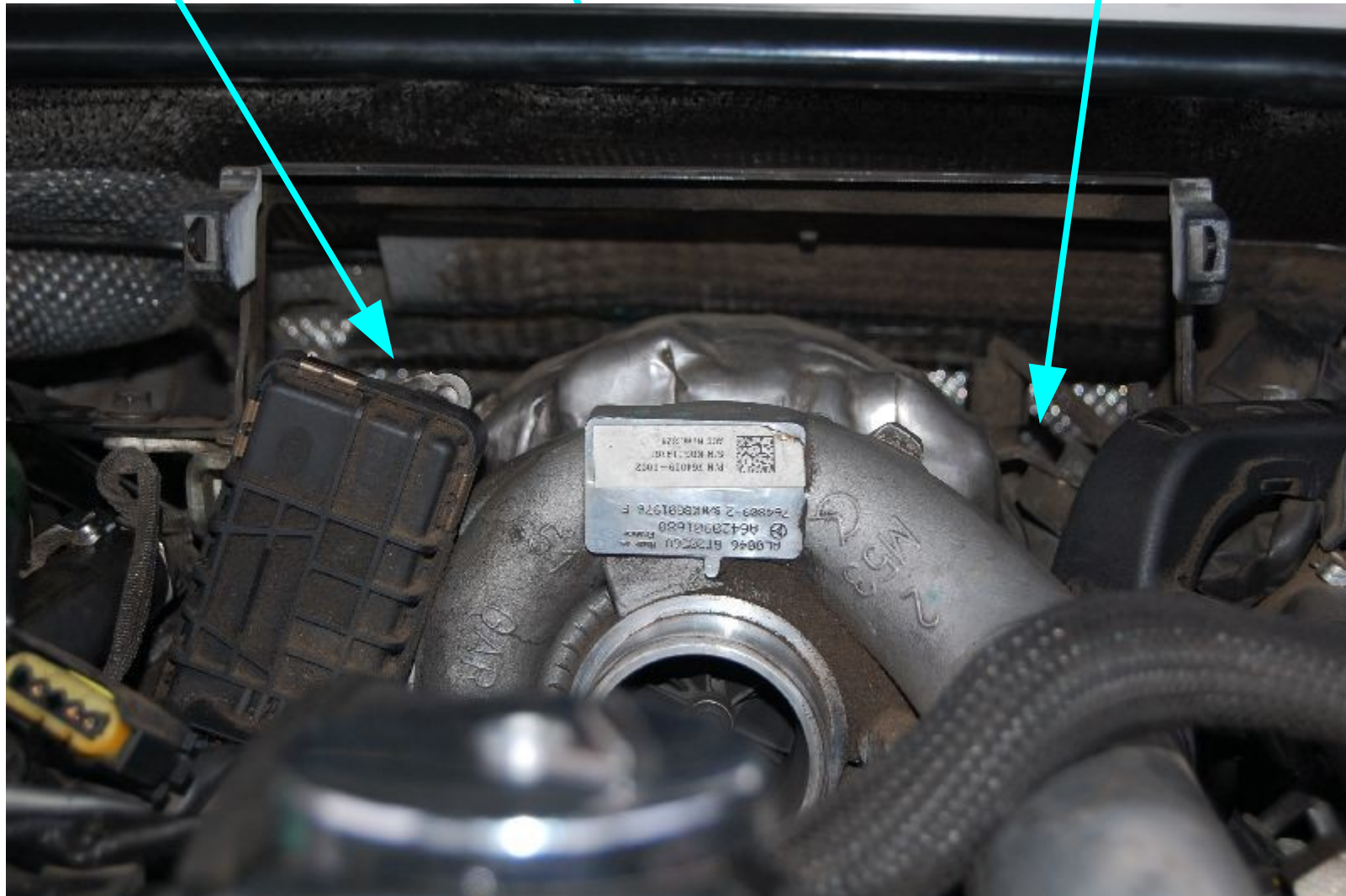
Bolt



Remove the **turbo heat shield**. 3 bolts hold it on. Be gentle. It will wiggle out of there if you work at it.

2 bolts

1 bolt



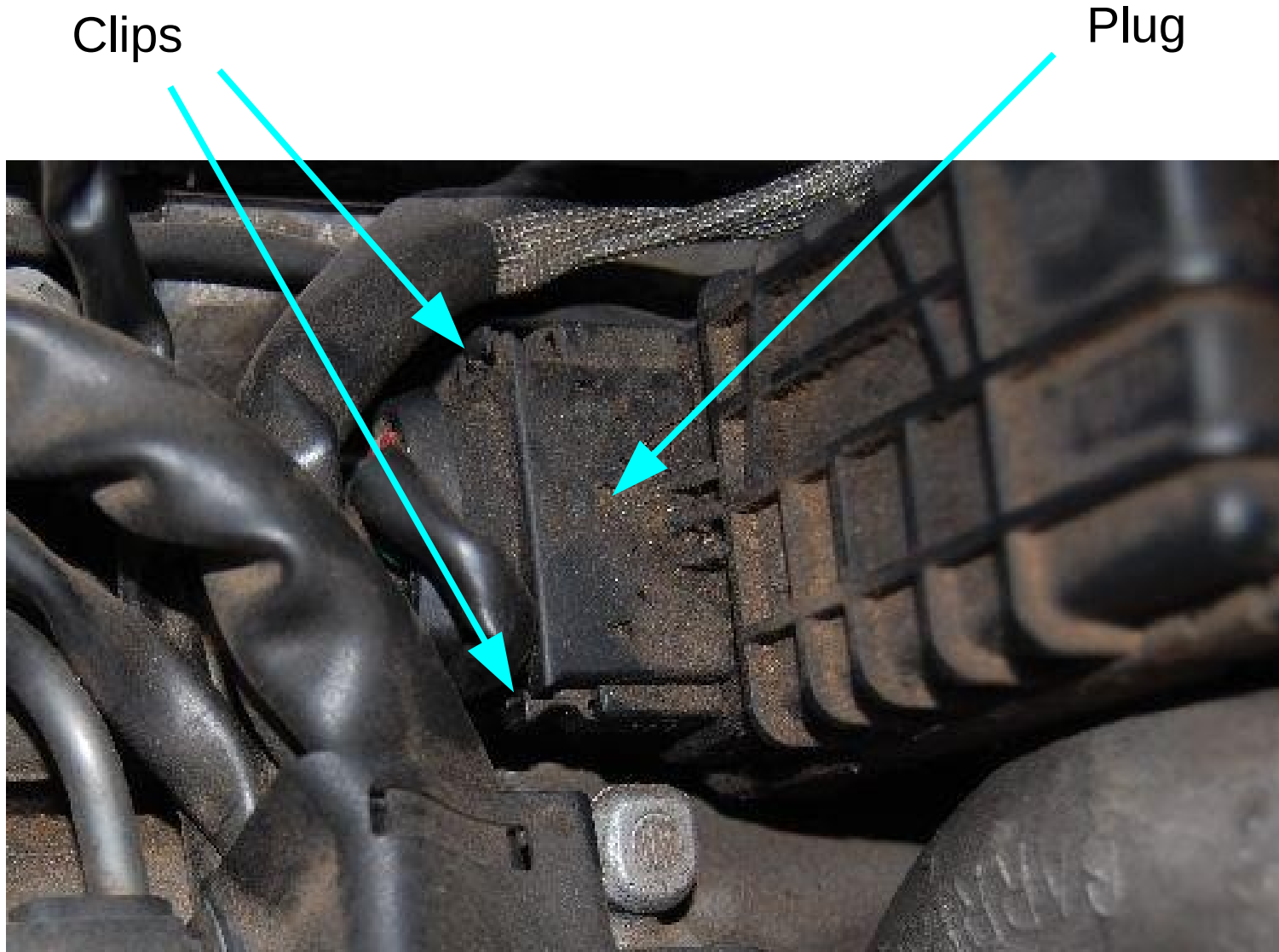


Turbo heat shield

Engine cover
bracket



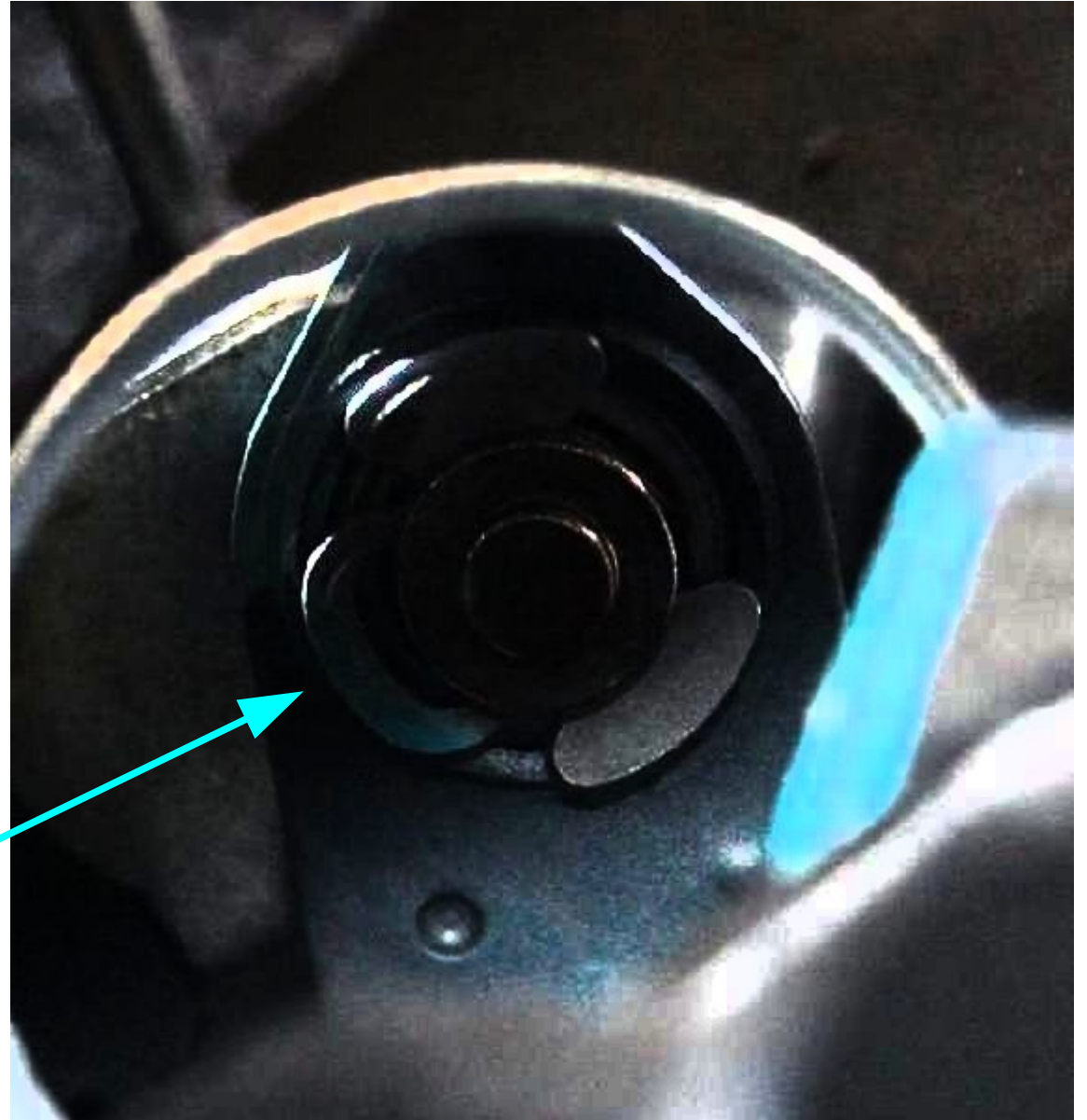
Unplug the TA. On each side of the plug there is a small clip. Depress the clips one at a time if necessary and wiggle the plug off. Don't damage the clips. Bend other cable out of the way.



Use the mirror to view the circlip that holds the turbo vane control arm onto the TA arm. You do not need pliers to remove it. I used a small pick tool, sort of like the pick that a dentist uses to pick at your teeth. You can buy a set of picks at Napa. It is just a sharp piece of stiff wire bent at a right angle with a loop or a handle on it. You could make one.

Touch your magnet to the circlip as you pull the clip off using your pick. Hopefully the magnet will catch the clip as it slides off.

Circlip



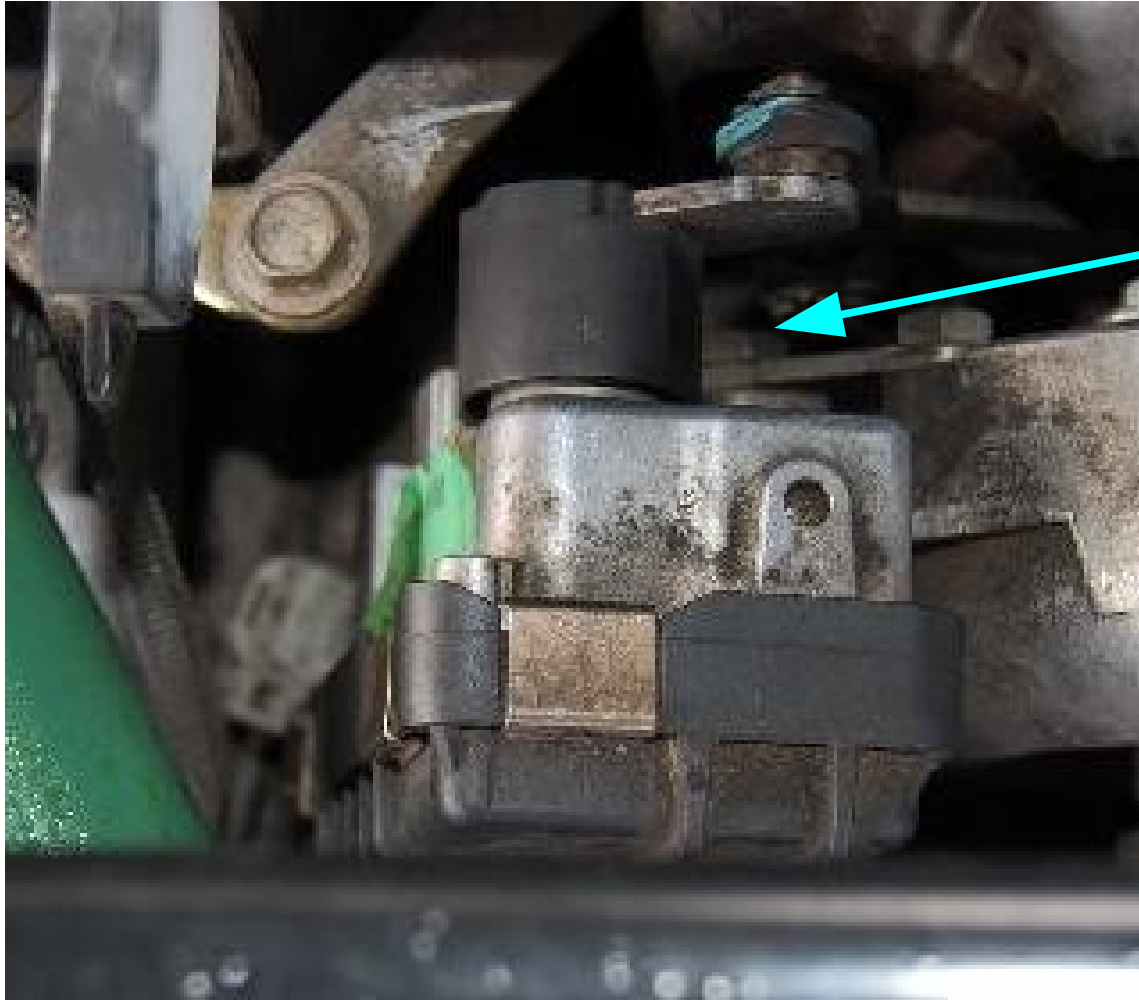


Use the magnet to help
remove and replace the
circlip

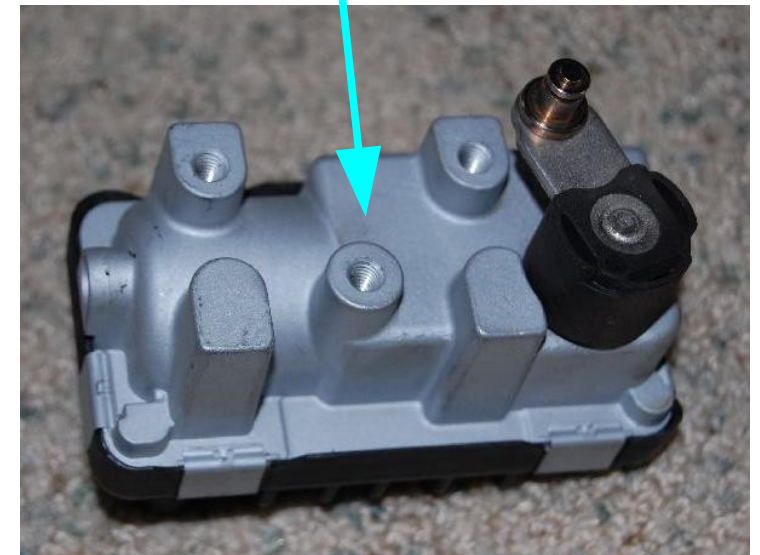
Use the magnet to help
remove and replace
the small bolts.



Remove the three bolts that hold the TA. It is a tight squeeze. I managed to do it with the ratchet. Just before each bolt comes out touch the magnet to it to prevent dropping. Remove the TA.



Bolts



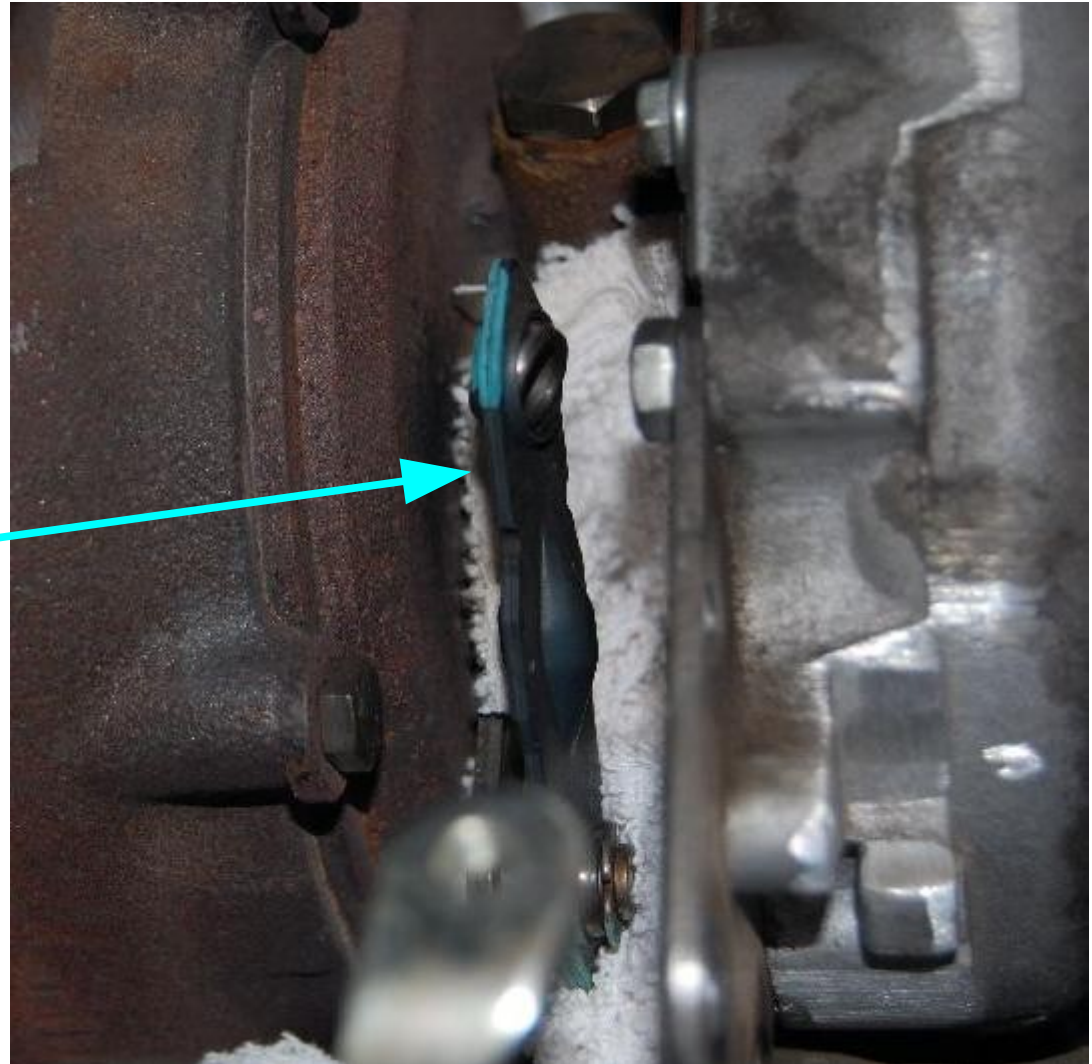
There is a 4th bolt that looks like it must be removed if you do, its ok...just replace it later. It is actually part of the hanger bracket.

Gently grasp the control arm and observe how it works the turbo vane shaft. Work it up and down to make sure that it works freely. Mine was a little stiff because it was a cold day but after a few gentle wiggles it was operating the vanes smoothly.

Gently move it the full stroke several times.

When done, lean the arm back out of the way.

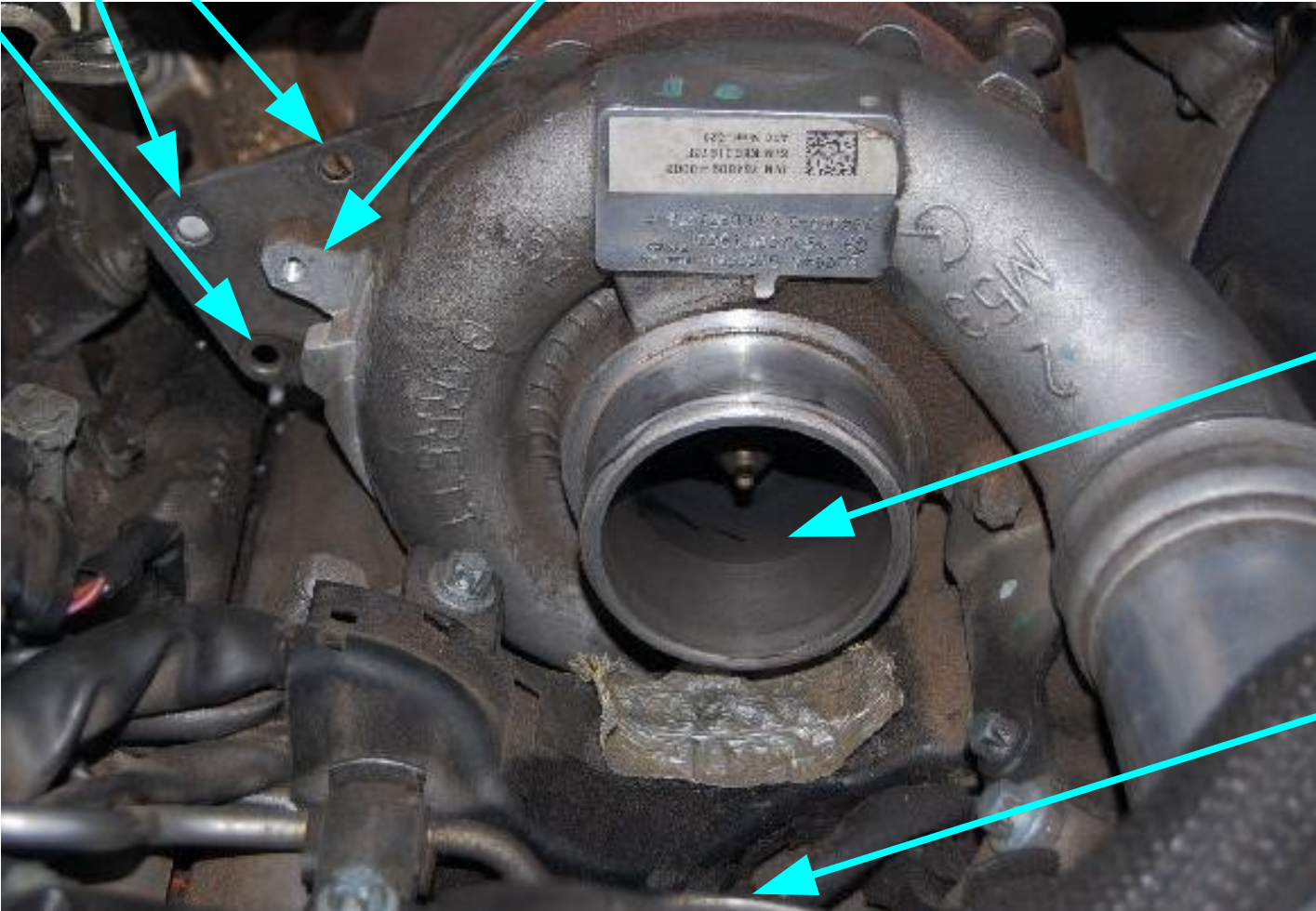
Control arm



This shot shows the turbo with the TA removed. Observe the position of the 3 bolts. You can also see the 4th bolt that you do not have to remove. Notice that my turbo is not dripping with oil because I use the “elephant hose mod.”

Bolt holes

4th bolt



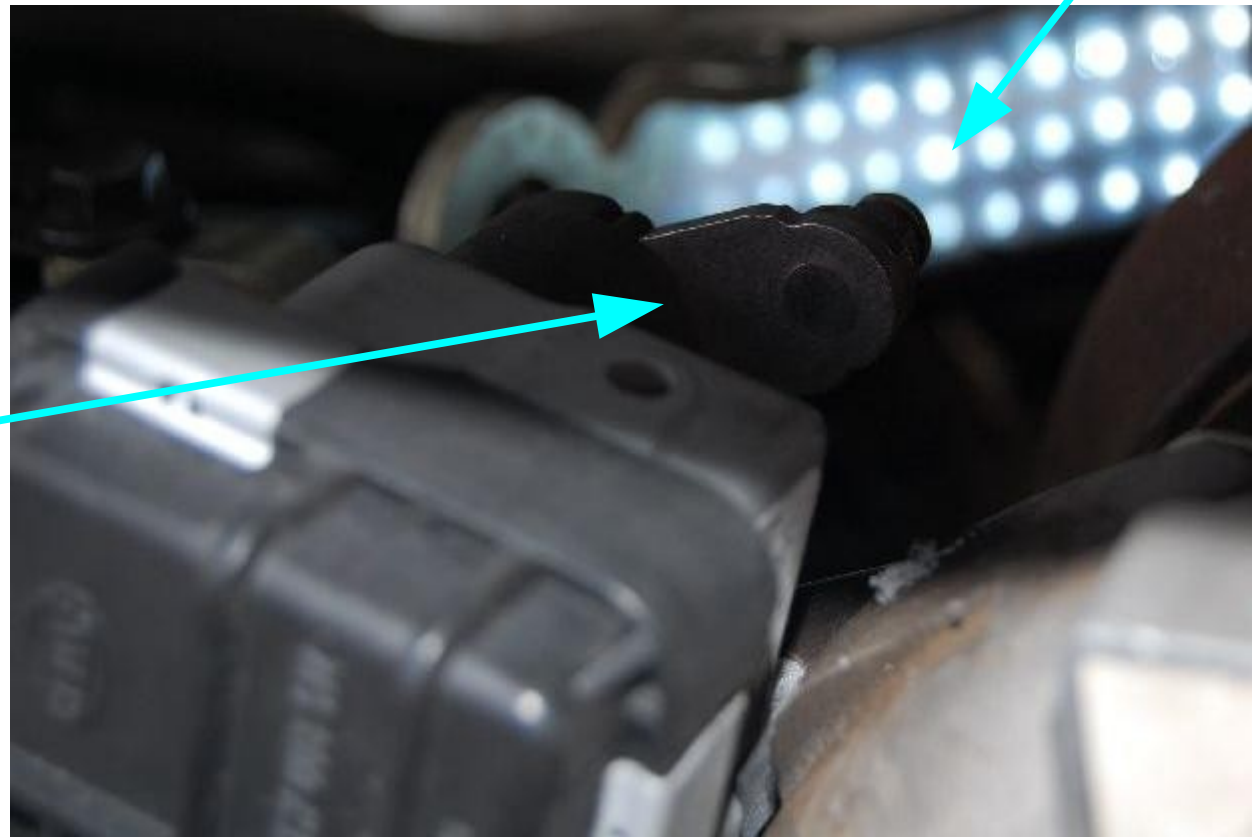
Clean Turbo

Swirl motor is buried down there

HINT:

The top bolt is difficult to remove because the TA arm is in the way. If your TA is still working a little, replace the battery cable and turn ON the ignition without starting the engine. The TA arm will move UP and out of the way enough to remove the bolt. In my case the arm remained UP when I turned the ignition off.

LED work light



Arm in UP position

Reverse the procedure to install the new TA. Use the magnet to help you position each bolt, then start them with your fingers while the magnet holds them in place. Replace all three bolts but DO NOT tighten them yet.

With the TA loose, attach the control arm. Mine was very difficult to slip back on. I had to leave the TA loose and I had to turn on the ignition. Be careful not to damage the fragile control arm. Don't force it!!

Use the magnet to hold the clip in place and then push it on with the screw driver or if your magnet is stout, push it on with the magnet. Remove all the RAGS!!!

Remove the battery cable and plug in the TA. Tighten all the bolts. Replace the turbo heat shield. If you like, replace the engine cover bracket. I left mine off.

Replace the fresh air intake. Replace the battery cable. Clear the codes with a scanner. Crank the engine
Smile and pat your wallet.