

# A3 Jetta TDI Chip Upgrade

View the online version at <http://vw.ogdenlabs.com/kerma.htm>

I'm writing this article to show how to go about upgrading an A3 Jetta TDI.

Please be aware that this is for information purposes only. I do not take responsibility for your own actions or what you do with your car. Also keep in mind that this is relatively easy for my car and possibly other A3 TDIs with the chips being in sockets. No soldering is required! The newer cars, as I understand, have the chips soldered to the boards requiring a knowledge of surface mount work to do it yourself.

NOTE: When I refer to left and right in this procedure, I am referring to left and right as viewed in the associated picture. Left most commonly being toward the passenger side of the car.

The first step in the whole process was to contact [Kerma](http://www.kermatdi.com) ([www.kermatdi.com](http://www.kermatdi.com)). Only one special tool is required, and that's available at Radio Shack (see comments below). It only took me about an hour to do the complete procedure AND take the pictures for this documentary. If I had to do it again without the documentation - I bet it could be done in less than 30 minutes. Now off to the gritty details...



Here is the car to be modified. This is a 1998 Jetta GLS TDI. Up until this day, no mods have been performed.



This is the engine compartment. If you can't access this on your own, please stop! :)



Here is a close up of the area we'll be working with. Note the four screw looking things. These need to be removed. The one on the far left of the picture is a screw. The other three are strange screw like fasteners. Unscrew them about 7 or 8 turns (pry a small flat head screw driver underneath them if they don't start unscrewing out right away) then pull them STRAIGHT out using a pair of pliers. However, I think a more suitable tool would be the claw of a hammer or similar device that could pull up from the bottom. At any rate, be careful. I ended up breaking the head off one while attempting to pull it out.

After pulling out the screws, lift the large rubber seal at the front of the plastic cowling out of the way (see the next picture). One final thing before pulling out the plastic; there is a sliding piece of plastic just below the hinge on the wiper blade and the screw on the far right (shown in the picture above) - slide it to the left. The plastic cowling should now be free. Pull it toward the front of the car to take it out of the way.



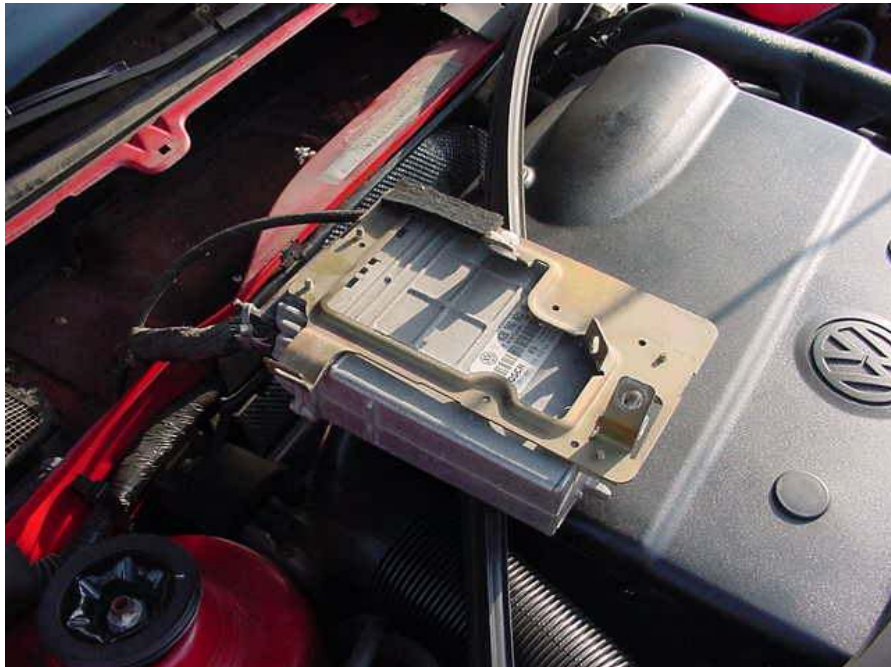
Here the plastic cowling is out of the way. Note the rubber seal that is also pulled out of the way. Inside you can see the ECU mounted in place.



Here's a close up of the ECU. Outlined in blue, there is a 10mm nut and a 10mm bolt. Loosen the nut and remove the bolt to take out the ECU. Once it is loose, pull it to the left and then out of the cubby hole its in so you can access it on top of the engine. I found it useful to take the wire bundle and the boost line out of the first wire holder (see below).



Remove the wire bundle and boost line from this clip for better access and to pull the ECU out onto the engine.



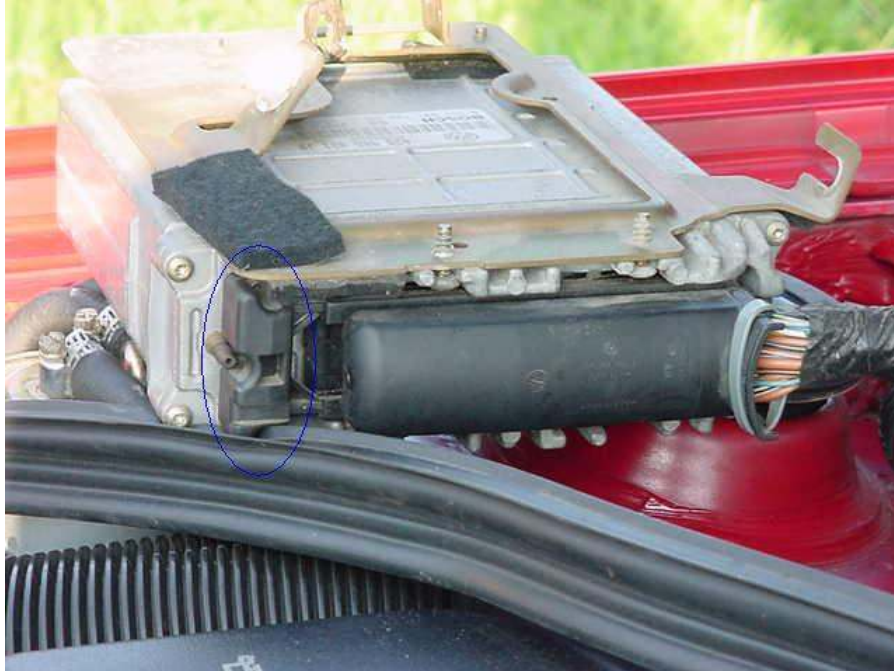
Like so! Lay it on top of the engine cover so you can get access to it.



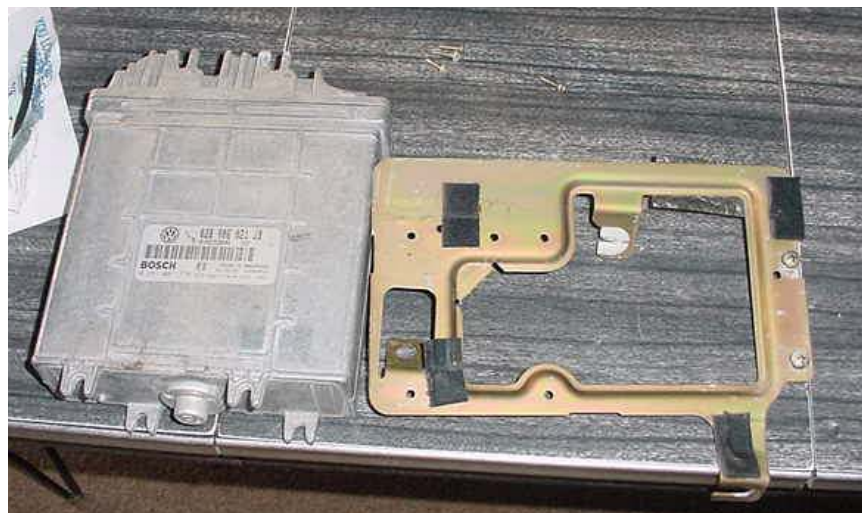
You must remove the boost line shown here. Simply loosen the clamp with a pair of pliers and slide it down the line away from the ECU. Then the boost line pulls off with a bit of force.



Now you need to remove all those wires! Well guess what... its a snap if you do it right. Take a look at this picture and the one following to understand what needs to move. You need to grasp the piece outlined in blue and slide it toward the boost line connection. Continue to slide it as far as it will go. Eventually you will hit the boost line. At that point begin to pull the connector out away from the ECU and continue to so slide the outlined piece toward the boost line. When the sliding part has slid as far as it can go, the connector will nearly fall off.



Once you have the ECU out from the car, take it to a suitable work area. Keep in mind potential static hazards like carpet flooring, wool sweaters, etc. Try to work on a tile or linoleum floor if possible.



Here's the ECU on my kitchen table. Take note of how the ECU is mounted to the bracket. It is possible to reassemble it with the boost line on the wrong side - it won't cause any problems, but someone may know you were in there tampering with your ECU. Use a Philips head screw driver to remove the four screws holding the ECU to the bracket. Then use a T15 torx head driver to remove the four torx screws holding the ECU together. Now take a flat head screwdriver and pry to ECU out of its casing.



Here's a snap shot of the inside of the ECU. The chips of interest are in the lower left hand corner.



Here are the original chips. Note that they are identical in shape and size. The way to tell them apart is by the number. The higher number chip always goes on the left (358315 in this picture). Even the new chips that go in have two numbers - again, the highest number goes on the left. Also note how to tell how to orient the chips in the sockets. Notice in the lower right hand corner of each chip and socket, there is a detent or somewhat snipped away edge. Taking note of this is required to orientate the chips correctly (they might or might not fit if you try and put them in another way). To pull the chips out you need a PLCC chip extractor.

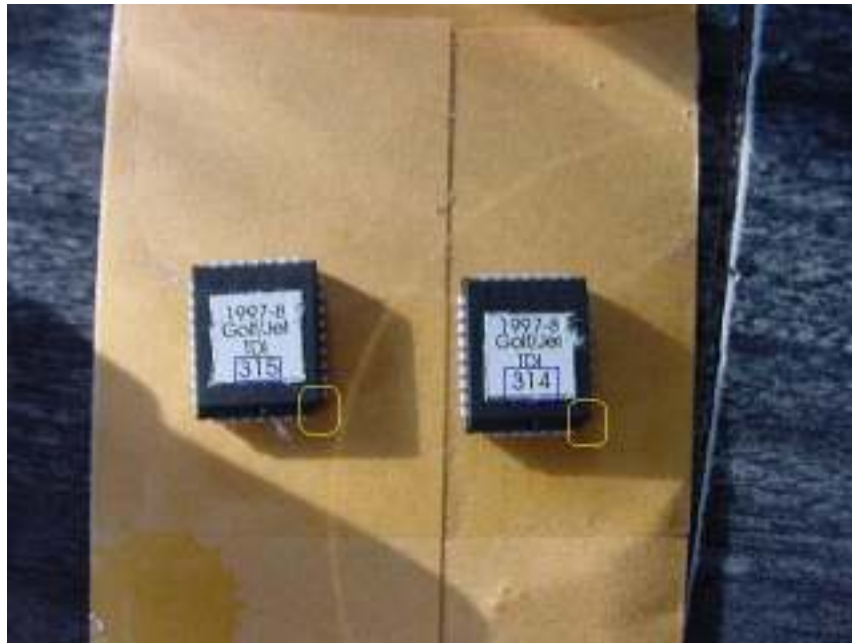




I picked one up at Radio Shack. You can do it without a chip extractor with a small jewelers screwdriver, but I imagine you'd find it easier to do with the right tool. Be careful in Radio Shack. Don't tell them too much about your project, they might steer you in the wrong direction as to what you need - you're better off just giving them the part number (276-2101) or looking for it yourself. Remember their motto, "You've got questions, we've got batteries!" The list price for this is \$9.99.

If you've never used one of the PLCC extractors, or if you simply want some practice, dig around in your parts bin. Or ask your buddy that's a ham to find something with a PLCC chip. I found some to practice with on an old hard drive.

Pulling out the chips with the tool is easy. Just make sure that the metal fingers that grasp the bottom of the chip are seated firmly in the chip socket. I had to give the tool a firm push into the sockets to seat around the chip properly. To install the new chips, simply line them up like the old ones, and push it in firmly with your thumb. I did one chip at a time to lessen any confusion.



Here are the chips from Kerma. Note the numbering. 315 goes on the left.



After swapping the chips, keep your old ones in case you want to go back to stock! :)



And take a picture of the new ones in there so you can show all your friends. If you want to keep the stock appearance, you can swap the labels from the original chips as well. I choose to leave them as is - I'm proud to run KermaTDI products!

Now put your ECU back together. Remember, 4 Philips screws and 4 torx screws. Also try to get the orientation right so boost line is on the correct side when you install the unit back in the car (my boost line was toward the back of the car).



Reattach the electrical connections first, then the boost line.



Stick it back in place. Don't forget to tighten down both the bolt you removed and the nut you loosened.



Hook the boost and wire bundle back into the clip so they aren't bouncing around.



Seal everything back up! Remember, the screw was on the far left. The other three are all the same. Can you see which one I broke? Slide the connecting piece of plastic adjoining both plastic cowlings and reseal the rubber seal. You're all set!



Yeah, that's the one.

Close the hood, gather up all your tools and take it for a spin! Enjoy the new found power in your TDI!!!