

OEM HID Bi-Xenon Swap and Fog light install on a 2010 VW Jetta TDI Sedan

and a few other fun mods...

Purpose: This write-up will describe the exact steps necessary to upgrade the factory halogen headlights on your 2010 Volkswagen Jetta TDI/TDI Cup Edition Sedan to the OEM Bi-Xenon headlights found in the MK5 Jetta GLI (and other high end Jetta's) and GTI as well as adding OEM GLI/GTI front fog lights, European LED tail lights with rear fog and all necessary parts, wiring and coding information needed including the CECM (Central Electronics Control Module). This article pertains to **ONLY** the 2010 VW Jetta TDI/TDI Cup Sedans, which are a MK5 chassis yet utilize a MK6 CECM and other various MK6 electronics.

Disclaimer: Do these modifications at your own risk. Also, these are the steps necessary to upgrade MY car however with different ages, parts, options and packages things might be slightly different with your upgrade.

My car: 2010 Volkswagen Jetta TDI Sedan with the DSG transmission. Modules and coding **may** be different on manual transmission vehicles but I can't say for sure.

Parts required:

OEM Bi-Xenon headlight assemblies

OEM Fog lights (ECS Tuning offers kits with all hardware/wiring/grills) - if desired

European LED Tail Light set (I used ECS/Hella Dark Cherry set with rear fog lens)

Hi-Line CECM: 5K0-937-087-C-Z0X (worked for me but there are others that may work)

10-12 Pin headlight adaptors from ECS or Kufatec (P/N: 33383)

VW Repair wire: 000-979-151E Quantity: 2 (only one needed if not doing front fog lights)

VW Repair wire: 000-979-025E

VW Repair wire: 000-979-009E Quantity: 2 (optional, 1 for front or rear fogs, 2 for both)

European light switch: 3C8941431QXSH (optional if fogs (front and/or rear) are desired)

Automotive grade wire (18-16ga/1mm diameter) (in multiple colors would be helpful)

Shrink tube

Solder

Electrical tape

Wire loom

Tools Needed:

Ross-Tech VCDS

Torx T20-T30

M10 Socket wrench

M13 Socket Wrench

6" or longer socket extension.

Assorted screwdrivers

Harness pin release tool/s (sewing needles)

Soldering Iron/solder

Wire cutters/strippers

Flashlight

Time: Plan on spending no less than 3 hours on this job, but realistically 5-6 hours.

1. Use VCDS to obtain factory coding of the CECM and Tire Pressure monitoring system (running a full auto-scan will obtain all necessary information)
2. Open hood and remove negative battery cable followed by the positive using M10 socket.
3. Remove battery "Blanket" and remove the 13mm bolt/plate holding the battery down. This is located under the intake pipe (intake pipe does NOT have to be removed). I used a magnet to grab the bolt and plate out of there. Then remove the battery from the tray.
4. Remove front bumper:
 - a. Remove grill section by removing two Philips screws on the top of the lower center grill, remove lower grill by pulling outward, remove two torx T20 screws on the top of the grill. Push in the two clips on either side of the hood latch, pull out then up.
 - b. Remove each of the side grills by removing the single Philips screws in the front of each side grill. Pull out.
 - c. Remove a total of 16 torx T25 screws along the perimeter of the bumper. Four inside each fender and eight along the bottom of the bumper.
 - d. Remove 2 torx T30 screws at the top of the bumper. Slide bumper out far enough to remove the side marker bulbs by just pulling them out. Remove bumper.
5. Remove headlights:
 - a. Remove three T25 screws
 - b. Unhook harness
 - c. Carefully sneak the light out around the fender and plastic supports.
6. Plug in the 10pin to 12pin adaptors to the body harnesses.
7. Now to do the engine bay wiring wiring. You will have to run a wire from each of the adaptors pin 11 lead (loose lead on each of the adaptor harnesses) to the CECM which is located under the dash on the drivers side of the car. The fog lights will have two wires which also end up in the same place so now would be a great time to run those as well.
 - a. I ran the wires from each headlight down to each fog light then combined them all into one harness then ran them under the fuse box, along the back of the battery and through the firewall. These wires were all (one trigger from each headlight, positive lead from each fog light and a common ground for each) placed in wire loom and electrical taped. Each trigger wire was soldered and shrink-tubed for safety.
 - b. The common ground can be placed right on the drivers side shock tower. There is a very nice bolt to use for a ground (has a body colored painted nut on it). Place an eye-loop connector on the common ground from the fogs and ground it there.
 - c. Now, its time to use those fancy VW repair wires! We'll be using the 000-979-151E and the two 000-979-131E's. Cut them all in half. One of the 131's and the 151 will be attached to each of the Xenon shutters (it really doesn't matter which is which, because there is never a time when one light is high beam and the other is not). Solder and shrink tube each connection. Now each fog light will get a 131 attached to it. Be sure to mark them so you know which is left and which is right.
 - d. Now you should be left with four wires to run through the firewall to the CECM. Two of which are the Bi-Xenon trigger wires and the other two are for each fog light. My car had an empty grommet (probably where the clutch slave cylinder would have been) that I used which was right behind the battery tray on the firewall. I popped it out, punched a hole (~14mm) to pass the wire-loomed wires through.
8. At this point you can put the front of the car all back together with the new headlight units following the procedure in reverse order with the addition off the fog lights and grills.

NOTE Do not hook up the ground to battery yet!
9. Now moving into the car for the CECM swap and finish up with the wiring additions. Have a flashlight ready and move the seat all the way back.

- a. Start by removing the drivers side kick panel. Remove the two torx T20 screws along the edge of the kick panel. Once removed pull the panel down from the front. Now you'll have to detach the courtesy light and OBD harness. The light is straight-forward, pinch the connector release and pull out. The OBD harness is a little tricky. There are two tabs on the bottom which can be reached from the back. You have to pull them both up and push the harness out a little but. Then using a small flat screwdriver, push on the top clip through the hole and push on the port. Should come right out the back. Move the kick panel out of your way.
- b. Now crawl under the dash on your back (lots of fun!). When you look up you will see a few relays on a bracket which is attached to the bottom CECM and three connectors which are black, white and gold. First you can move the relay bracket out of the way. Remove it from the bottom of the CECM using a small flat screwdriver. You can see where it clips to the module, stick the screwdriver in the little "window" and twist and you'll see the relay bracket start to back out. Do the same on the opposite side and the bracket with all relays attached will come right down.
- c. Ahh, now you can get at the three harnesses!:



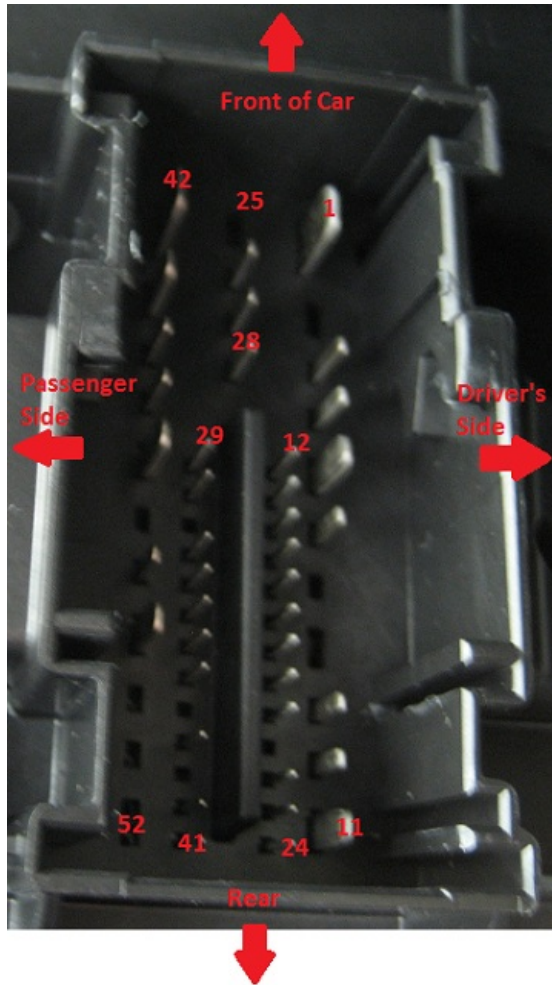
You will notice that there are little white handles on each harness and a little barb that holds them in place. You can push the barb in with your thumb and pull down on each of the handles/levers. As you pull down on them, you'll notice the harness also backing out of the socket. Once the handle has reached 90 degrees, pull the harness out of the socket. Do this for each of the three connectors.

- d. To remove the CECM from the car there are two wide clips that hold it in on either side of it. Push them in simultaneously and tip the back (towards the seat) of the module down (towards the floor) and it will come right out of its little home. At this time, you can go ahead and put the hi-line unit up in it's new home.
10. Now would be a convenient time to put in your Euro switch and associated wiring with it.
- a. To remove the old switch, place it in the off "O" position. Push in (towards engine) then rotate switch towards on (clockwise). It should only move about half way to the on position, but once it reaches that point pull out. The switch should come right out.
 - b. You'll notice that there are two empty spots on the back of the harness. Guess where our

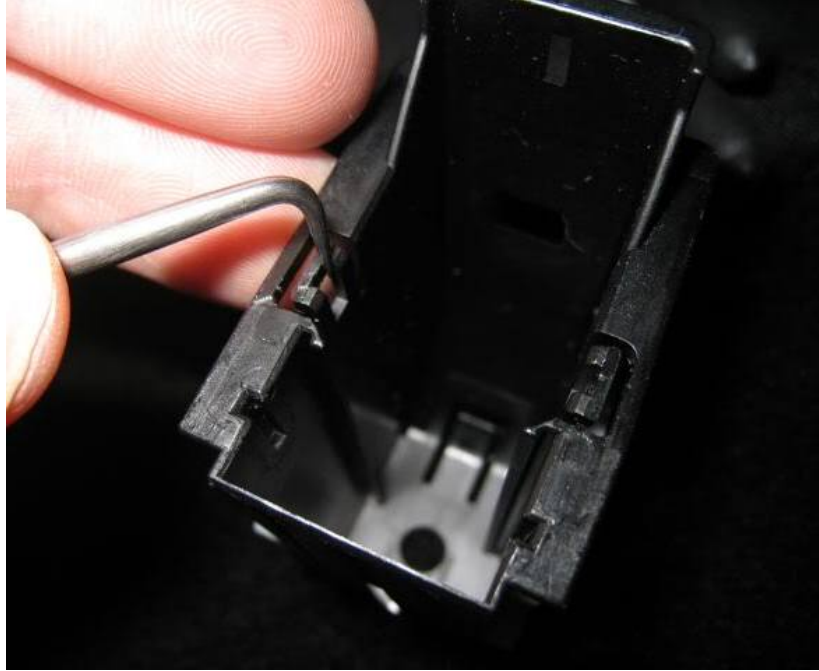
two 000-979-009E's are going? You guessed in, in each of those holes. Pin #5 is the front fog light and pin #7 is for the rear. The terminals only go in one way, once you find the way they'll slide down a bit but won't seat all the way without some effort. I used a flat screwdriver and pushed them down to get them full seated (they'll click into place).

c. Mark each one so you know which is which and run them down to the CECM area.

11. Now for the re-pinning and additions to be made to the harnesses. NOTE: The white connector is untouched. **A = Black Connector**, **B = White**, and **C = Gold**. For pinout reference see diagram (numbering is the same between all connectors A,B,C):



- a. Starting with the **gold connector (C)**:
- You'll notice two locking tabs on the back (direction the wires come out) of the connector, pull them outward simultaneously and slide the plastic cover off away from the wires. Now the harness itself will slide in half.





- ii. Place the Bi-Xenon triggers in pins C48 and C49 (two different size terminals).
 - iii. ***Only if rear fog is desired*** First start off by removing the wire from pin C47. The wire is blue with a green stripe. To remove terminals, insert the two sewing needles in the small hole above and below the terminal to be removed then gently tug on the wire to remove it. This blue wire will not be used any longer. I placed electrical tape over the terminal and set it aside.
 - iv. ***Only if rear fog is desired*** Now pin C47 is empty and will be the home for pin A28 (from the black connector). A28 was the drivers side reverse light, now to become the rear fog light.
 - v. ***Only if front fogs are desired*** Place the **RIGHT** (passenger) FRONT fog light in pin C25.
- b. Now, on the **black connector (A)**:
- i. ***Only if rear fog is desired*** Start by removing terminal A28 (drivers reverse light). Once removed it will be moved on over to C47 (where you removed the bl/gr wire from the gold connector). You will need to remove some of the material based electrical tape from each of the harnesses to allow that wire to move to the other connector. Just push it in with the clip facing outward and it will lock right into

- place. *A28 will remain empty.*
- ii. ***Only if front fogs are desired*** Add the **LEFT** (drivers) front fog light to pin A25.
 - iii. ***Only if front fogs are desired*** Add the front fog light trigger from the euro switch to pin A21 at the CECM.
 - iv. ***Only if rear fog is desired*** Add the rear fog light trigger from the euro switch to pin A17 at the CECM.
- c. At this all the wiring is complete. You can slide the two halves of the harnesses back together and place the plastic cover back over the top.
12. Now is time to put everything back together.
- a. Plug the three harnesses back into their sockets.
 - b. Slide the relay bracket back on to the bottom of the new CECM.
 - c. Push the OBD port back into the kick panel and re-attach the light.
 - d. Align the kick panel over the pin above the accel pedal and install torx screws.
13. At this point all physical hardware changes are complete. Verify all your work and re-attach the negative ground.
14. Euro LED Tail Light install:
- a. Remove old lenses by removing two 10mm nuts from each of the 4 lenses..
 - b. At each tail light the wiring harnesses have to be re-arranged as follows:
 - i. Drivers side: Swap pins 2 and 3. To accomplish this you have to push the purple retaining clip out by pushing it with a flat screwdriver. Then place the sewing needles and remove the terminals the same way as at the CECM.
 - ii. Passenger's side: Swap pin 4 to pin 3, pin 3 to pin 2 and move pin 2 to pin 4.
15. Now for the new coding!
- a. Unlock all doors and turn the key to the on position.
 - b. Open VCDS, then open Field 09 - Cent. Elect.

Note - There are a lot of options that can be made here depending on how you want your car setup. For example you can have standard daytime running lights, or use your fogs as DRL's, both of them or none. I'll mention as many options as I know of and you can decide how you'd like to code your car.

 - i. Click Coding - 07 followed by the Long Coding Helper. Here you can paste in your factory coding you extracted on the first step. For reference my factory coding was:
2D200B1E902F3EE480080085600000401000086510085605C8020000000
 - ii. The first thing you will want to change is the coding for the headlights. If you already tried to power those beautiful new lights up, you would have been introduced to a strobe light show. Make sure your Sirius radio is on BPM, haha. To make the appropriate change, find byte **5** and check "Bi-Xenon with shutters installed." Click a different byte, then hit the escape key. Click "Do It" and it will report back "Coding accepted." Test your lights. They should be up and working with the shutters fully functioning. Success!!
 - c. You will now have to recode the TPMS on the new CECM.
 - i. Open 65 - Tire Pressure
 - ii. Click Coding - 07 followed by Long coding Helper. Enter in: 018705 and click "Do It."
 - iii. Now open adaption and read channels 5-8 (these are each wheel). You'll notice that they are set to 55 (or 5.5bar). Set these all back down to 24 (2.4bar).
NOTE - You may have to enter a security code to perform these changes. If it mentions "Security" you'll have to back out and click "Security Access - 16" and enter the code: 01503

- iv. Now you'll have to drive for the sensors to be re-learned by the CECM. Mine took a decent trip of between 10-15 miles. The TPMS light will go out and everything will be good to go.
- d. You will also have to recode your keyless entry remotes. Follow the steps below to recode them from 09 - Cent Elect..
 - i. Adaptation
 - ii. Channel 000: Remote Control Clearing - Select
 - iii. 09 - Cent Elect. Adaptation - 10
 - iv. Channel 000.
 - v. [Read]
 - vi. To clear all matched remote controls press save.
 - vii. Done, Go Back
 - viii. Close Controller, Go Back - 06
 - ix. Channel 001: Remote Control Matching
 - x. Select 09 - Cent Elect. Adaptation - 10
 - xi. Channel 001.
 - xii. [Read] Note: The value does NOT show the actual number of adapted remotes.
 - 0 = All memory positions occupied, matching of additional keys not possible, clear memory positions first.
 - 1 = Matching of additional remotes possible.
 Start matching new/additional remotes with entering "1" as new value.
 - xiii. Test and Save
 - Note: The time for matching remotes after saving the new value should not exceed 30 seconds. You can add a maximum of 4 remotes.
 - xiv. Press the unlock button on each remote control you want to add, the blinkers will light up to confirm the adaptation process of each remote.
 - xv. Done, Go Back Close Controller, Go Back - 06
 - Special note - Be sure to perform the remote synchronization below:
 - 1. Get out of the car and lock the door with the key.
 - 2. Immediately after the door has been locked, press the lock button on the remote. The lights should respond to the key.
 - 3. All set!
- e. If you installed front fog lights: Check "Front Fog Lights Installed"
- f. If Euro LED Tail lights with rear Fog are installed, set byte 18 to 0E.