Tire Pressure Monitor System Install
by radef
29-May-07
Revision A

The latest version will be kept at http://vw.ogdenlabs.com/

Here is a step by step tutorial on installing the Tire Pressure Monitoring System (TPMS) on a 2006 Jetta TDI. This installation should be similar for cars which can have the TPMS system activated through the ABS module.

A couple outfits sell installation packages. I purchased my installation kit from World Impex for $33.65 plus shipping. I've got a good amount of time into this installation and documentation process. In all, I bet I spent 6 hours for the actual installation. If I had to do it again, I bet it'd be under 2 hours.

The parts can be ordered from World Impex at this link:

http://www.worldimpex.com/parts/genuine-part-push-button-for-tire-pressure-control-kit_557357.html

Here's some other threads that I used as references when doing my installation – you may find some other details at these sites.

http://oooo-a3.blogspot.com/2006/04/tire-pressure-monitoring-system-tpms.html

http://forums.vwvortex.com/zerothread?id=2484840

http://forums.vwvortex.com/zerothread?id=2725198

http://forums.vwvortex.com/zerothread?id=3010333

http://forums.vwvortex.com/zerothread?id=3013162

http://forums.vwvortex.com/zerothread?id=3187802

I've started two threads containing some discussion on this document:

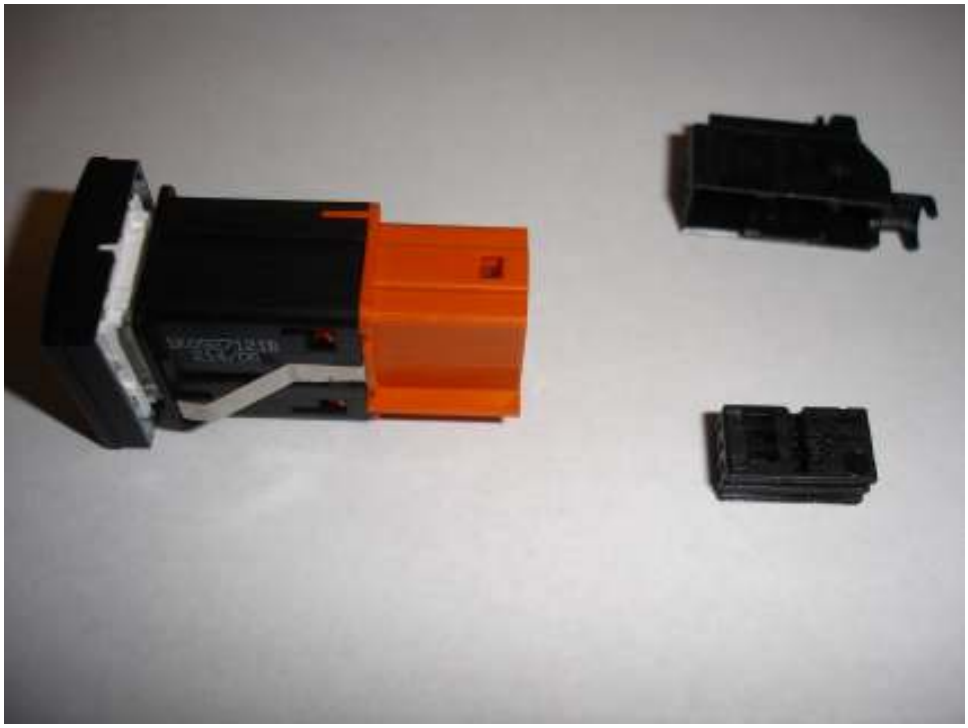
http://forums.tdiclub.com/showthread.php?t=178956

http://forums.vwvortex.com/zerothread?id=3260001

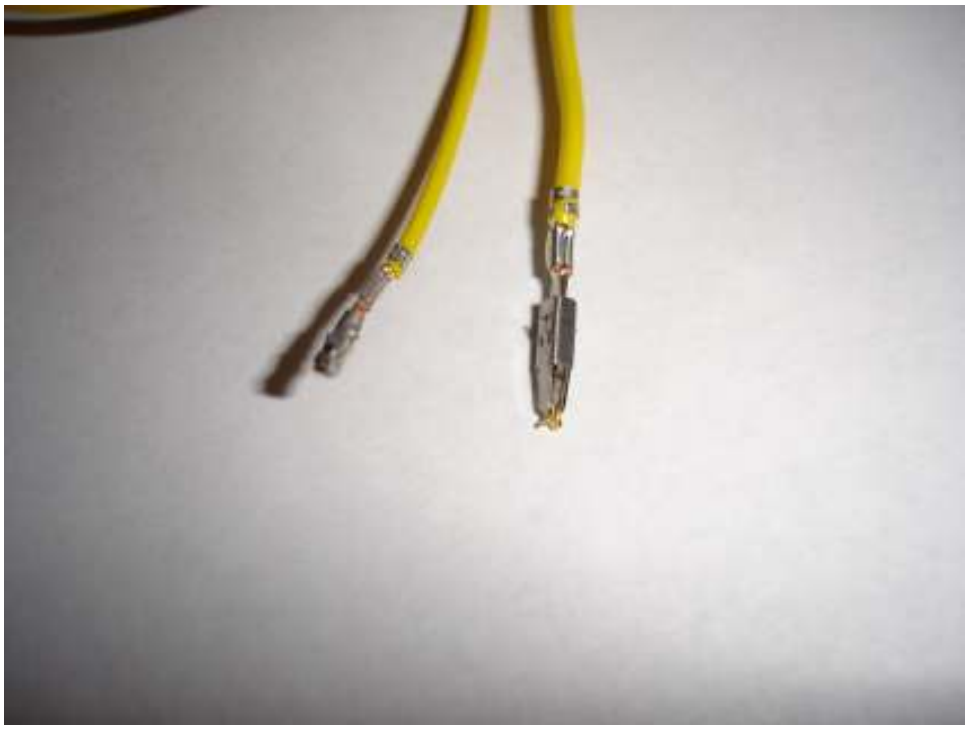
Here's a look at the step-by-step process…

First – the kit as it came from World Impex. It included a TPMS switch, three wires with crimp on connectors on each end, and a mating housing and connector for the TPMS switch (more on that to follow)

The TPMS switch.



The switch, connector and connector housing/shell.



There were 3 pieces of wire total. Each wire had a crimp on connector on both ends. Two of the wires were the same, the third – different. :) The difference between the wires is the size of the wire itself and the connectors on the ends. The smaller wire/connectors are used for the TPMS switch – the larger wire (only 1 half will be used) is for plugging in to the ABS module under the hood. Picture above is the small wire/connector (left) and the large wire/connector (right).

Here's what we're starting with – ESP is the only switch installed.

The shift boot needs to be removed. This is held in place by clips on the side closes to the ash tray and the side closest to the emergency brake. In this picture, you can see the clips on the side closest to the emergency break. No tools are needed for this step – simply press each side where the clips are toward the center of the shift boot, and lift up. Be gentle – get one side out first then the other will pop right off.

Two screws hold the ash tray in place. With the shift boot removed, you can see the two silver screws (using number T20 torx). Remove these and store them in a safe place for later.


Here's a good safe place to store them until later.

Lift the ash tray up and you'll see the connections for the ESP switch and the cigarette lighter outlet. Disconnect both and gently remove the ash tray.

This is what you'll see with the ash tray removed. Note the white screw looking thing attached to the wires in the middle of the picture. This is a clip that holds the wires in place to the bottom of the ash tray. To remove this from the ash tray, simply pull the clip away from the ash tray – it'll pop right out.

Put the ash tray in a safe spot. You can remove the blank switch holders and clean out the junk that's accumulated over the time you've owned the car. Only one of the middle two blanks need to be removed to install the TPMS switch.

I continued by disassembling everything first before installing anything. To continue in that fashion, I removed the piece of plastic that sits under the dash board. Know where you're looking here?

Now get a little closer… To remove this piece of plastic, you only take out the two T20 torx screws that are going through the black piece of plastic (in this view you can see a screw that goes into the gray dash – that one doesn't get removed). Unscrew those two torx screws and put them in your safe place for later…

There are a couple clips that continue to hold that panel in place. Gently work them lose and drop the panel down. Be careful because the footwell light and the OBD port are attached to this piece of plastic.

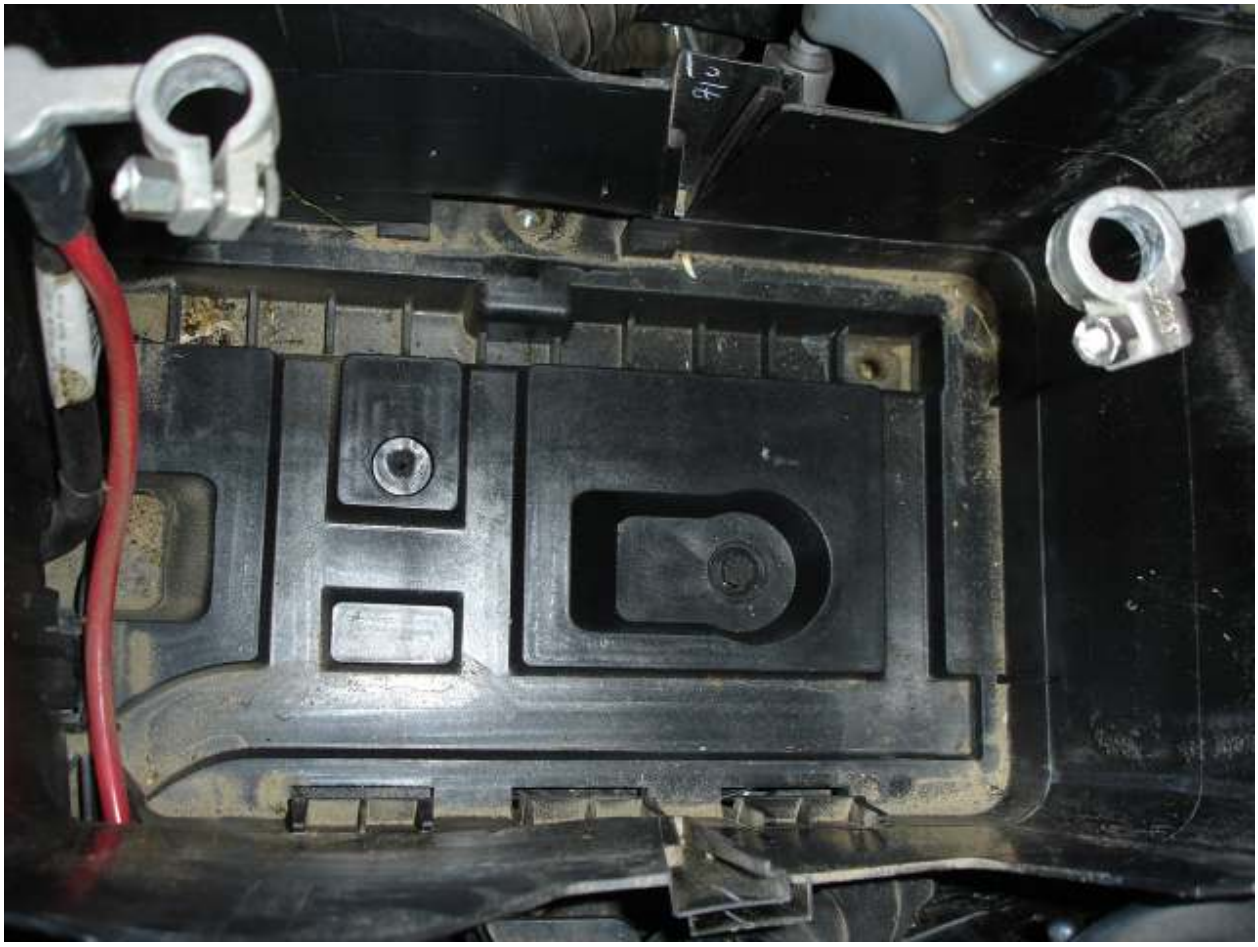
The OBD port is hidden under the insulation. Unclip the OBD port and the footwell lighting connectors. The OBD connector has three points to which it attaches to the plastic piece. You can see the top side one in this picture – the bottom side has two more. Use a small screw driver to release the clips and work it loose. The footwell lighting connector can be removed by hand with no special tools.

This is what you'll have access to now – note the footwell lighting connector and the OBD port wires are the ones hanging down. You can see a large bundle of wire heading right through the firewall – this is where we'll bust through to the engine compartment with our TPMS wire.

Here's a closer view of that bundle of wire… No worries – we're going to push the wire in from the other side - it'll end up popping out right where we can reach it.

Now let's move to the engine compartment. We need to get access to the firewire feed through point and the ABS controller. Along the way we'll find a path to put the TPMS wire.

You may want to take a different approach to this – but I had set in my mind I wanted access right to the firewall. I'm going to walk you through removing the battery and battery box pieces required for you to see the firewall feed through. This was a bit of a pain simply because disconnecting the battery terminals isn't trivial. The wires attaching to the terminals are not long enough to give you much play to work the connectors back and forth. You need to put some thought into removing these! I got the connectors off by loosening the 10mm nuts on the battery terminals (do the negative first!). Then used a flat screw driver to pry open the connectors. Then with the little bit of play there is with the wires, rock them back and forth to remove them. Be careful and don't put too much pressure on the terminals itself – you don't want to cause damage to the battery. Oh by the way – the top cover to the battery box simply lifts off after releasing a clip that is toward the bottom of this picture (toward the front of the car).

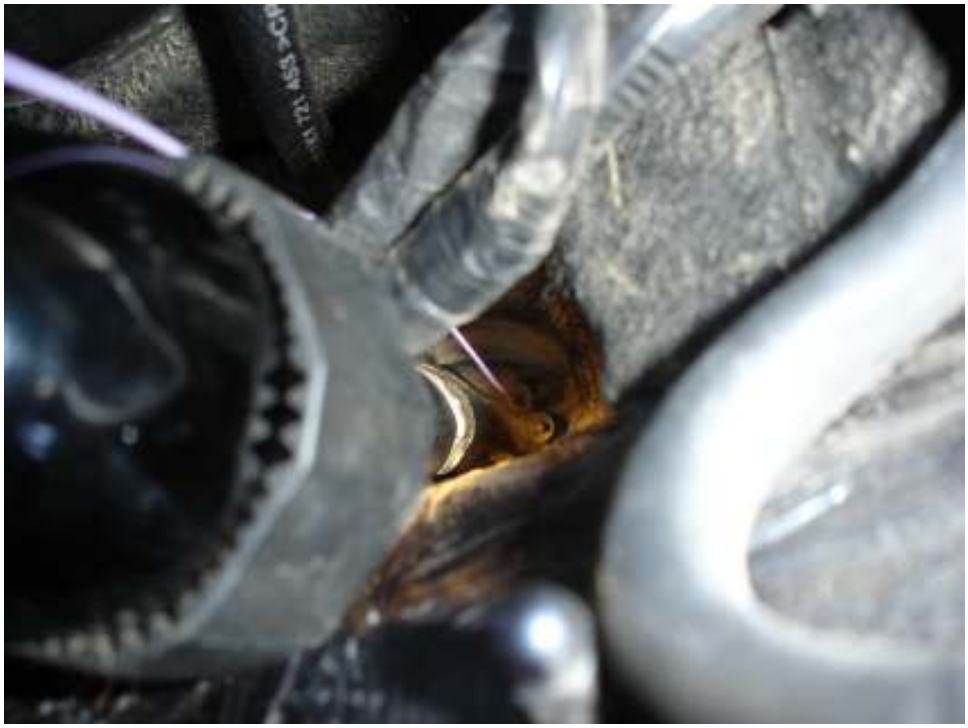


OK – the battery is out. Let's talk about this. I missed taking a picture here that adds some details. To get oriented – this picture is from standing at the side of the car (driver's side) and looking into the battery box. Notice toward the top of the screen there is a hole for a bolt to slide in to. That's the location of the retaining bolt and bracket that keeps the battery in place. Take your 13mm socket with a long extension to reach that bolt. Loosen it and stick your hand down in there to unscrew it the rest of the way. Pull out the bolt and the bracket (already gone in this picture). It's the same style deal on every other VW I've owned… Further more, note that the batter must be moved toward the bracket to get the battery out. It's held down by some retainers (visible on the bottom of this picture) that keep the driver's side of the battery in place. Once its free, it'll life right out.

There are two pieces that make up the outside of the battery box. Both are removable with a bit of effort. The piece toward the front of the car is held in place by two clips on the side of the box toward the grill. From the outside of the batter box, you need to push toward the back of the car to release the clips. The piece of plastic that makes up the back of the battery box is held down by clips on three sides of the battery base. I could get the passenger side and the back one off just by jiggling the thing around. I could only get the driver side one off by loosing the bolts that hold the battery box base down to the frame. I do not suggest that, however. I had a heck of a time getting all those bolts back in – there's some design flaw in the car that things don't line up – when you remove the bolts in the bottom of the battery tray they just won't line back up without a whole lot of effort and wasted time. My pictures show the details – if you can get two sides of the back piece of plastic loose, then you can access the firewall – you just won't be able to get these great pictures on your own. :)

OK – take a gander in there a little deeper – you'll see where the bundle of wires under the dash pokes through the fire wall. Also notice all the little nubby looking things – almost look like a wire would go right through them – well, that's where we'll feed a wire through.

Here's a close up of the nubby things. I have no idea how I got this good of a shot! You can see that I've trimmed one toward the top and the part I cut is still dangling from the nubby. My thought process was – I bet if I start trimming this thing back, it'll will be hollow allowing me to run a wire through. Well, that turned out wrong. You can cut that pointy part all the way back to the larger flat surface and not get into a hollow area. So what I did was cut it flush to the flat area, then nip a small hole in the flat area to allow me to poke a wire through.

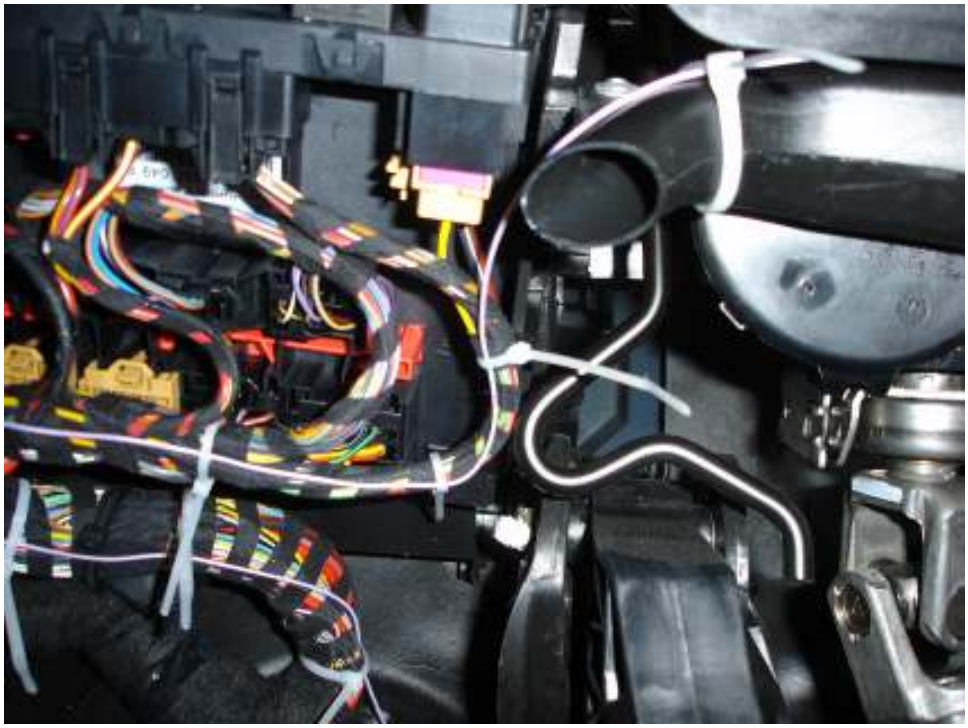


And that's what I did. Here you can see I've got the TPMS wire started. Remember, do this from the engine compartment side and it'll pop out right where we want it under the dash. Keep the hole as small as possible in the nubby – make it just large enough to get the wire started – this helps with sealing things up. I'm using #24 (or there abouts) Teflon coated stranded wire. The Teflon wire is stiffer than plastic wire under normal room temperatures – this worked to my advantage because it was easier to force it through the hole and into the other side. I started with about 15 feet of this.

Here's a bit better shot showing the wire feeding through the firewall.

And there it is on the inside of the car! No sweat! Now just route the darn thing… Break out the zip ties!

Here's how I routed the wire. As you can see, I'm very generous on the wire ties! I followed the bundle of wires over toward the relay panel, then followed the HVAC duct work…



Your preference may vary – but this is what I did… Here you can see the transition from the wiring harness to the HVAC duct. Again, wire ties are cheap…

Keep running it along that HVAC duct…

Finally, snake it down toward the ash tray area. With the ash tray out, you'll be able to fish it around until it pokes out where you want it.

I routed it under the HVAC ducts in the ash tray compartment (shown here). Leave a generous amount at this end…enough to work with later. Obviously, you need to plan that out before you get to this last step… Rough the wire in along the route you want to take, then zip tie it in place.

Now off to the engine side to route things. Here you can see I've zipped tied it close to the firewall and along a path that takes it up behind a piece of cardboard/cloth like material. I fished it behind this material all the way over to the ABS controller. With the rubber seal removed you have easy access to this.

Here's where it pops out over by the ABS controller.

The big picture. From the firewall access point to the area around the ABS controller. Your mileage may vary.

Looking down at the ABS controller, you'll see a bundle of wire that terminates at a connector. You'll need to remove that connector to allow installation of the TPMS wire.

It's very simple to remove this wire. In nearly the middle of this picture, just left of the bundle of wire (and on the connector) there is a locking mechanism. To unlock the connector, you pull up on the mechanism. The unlocking mechanism will slide upwards at a length of around 2 inches until it's fully released.

Here its part way released. Keep going!

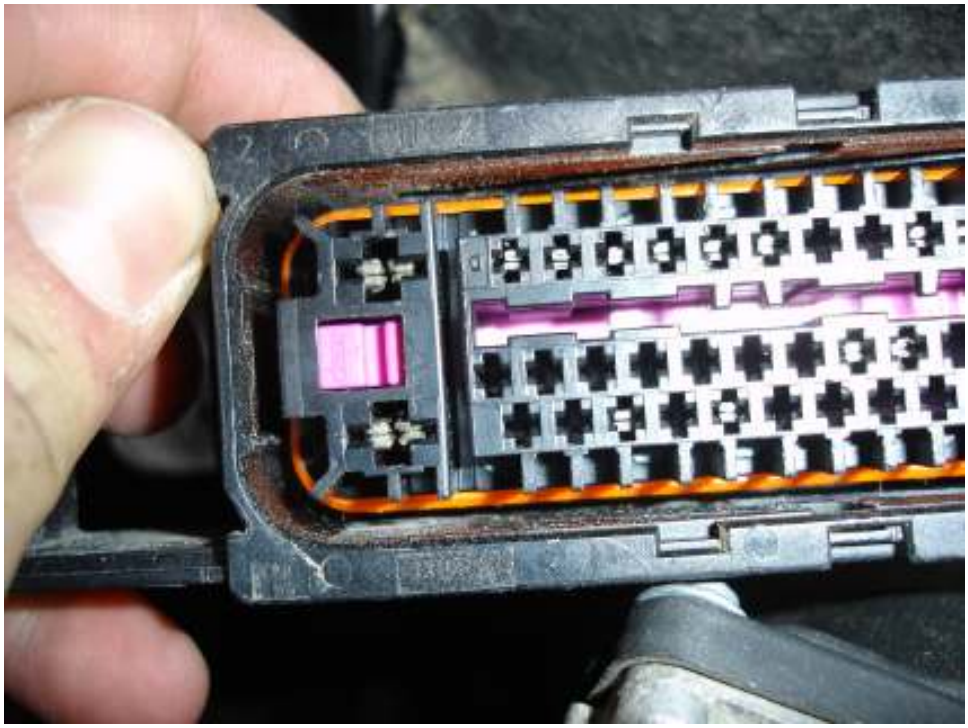
There's not a whole lot of room to work at this side of the project. Here's a look at the contact side of this connector. We're after pin location 27 (from what I've read, if something is in pin 27 already, then you use 41 – you're on your own there!). At this point, you can remove the backing to this connector (not shown). Mine was half falling off when I removed the connector – there are release clips on four points of the cover – a small screw driver can help you work the cover loose. Save it for later!

Go get yourself a paper clip and straighten out one side of it. Here, I've got the paper clip in the slot for pin 27. Gently push the paper clip in. The objective here is to get the rubber stopper that's got the hole blocked – out. Keep the stopper because we'll need it to seal up the hole with the wire we're shoving in.

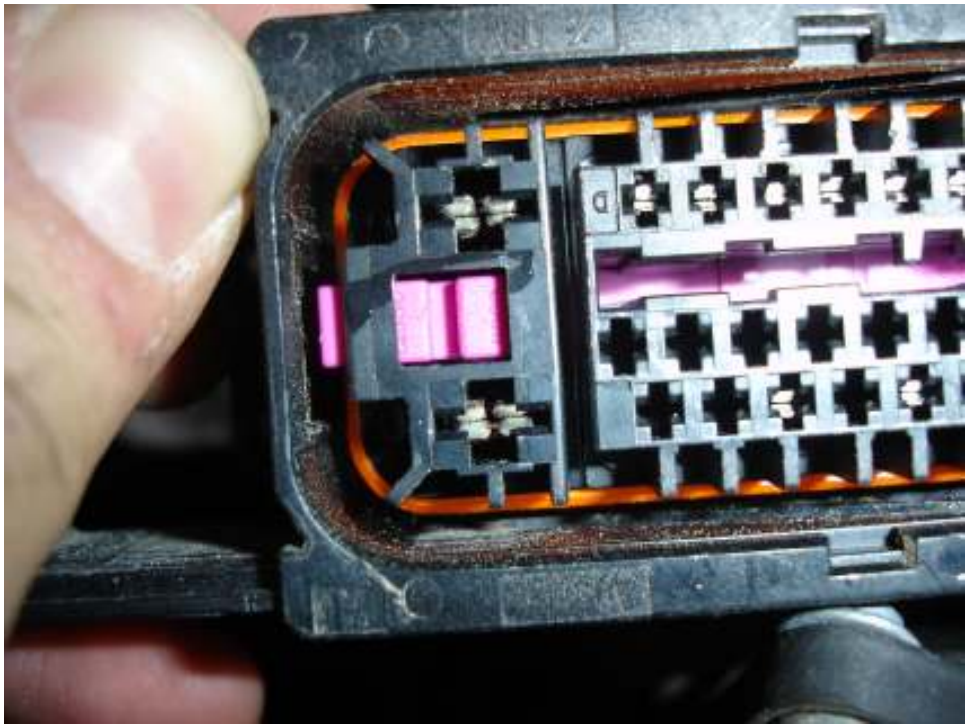
Here's the rubber stopper starting to come out. Grab it and keep a hold of it.

Use the paper clip to poke a hole through the stopper.

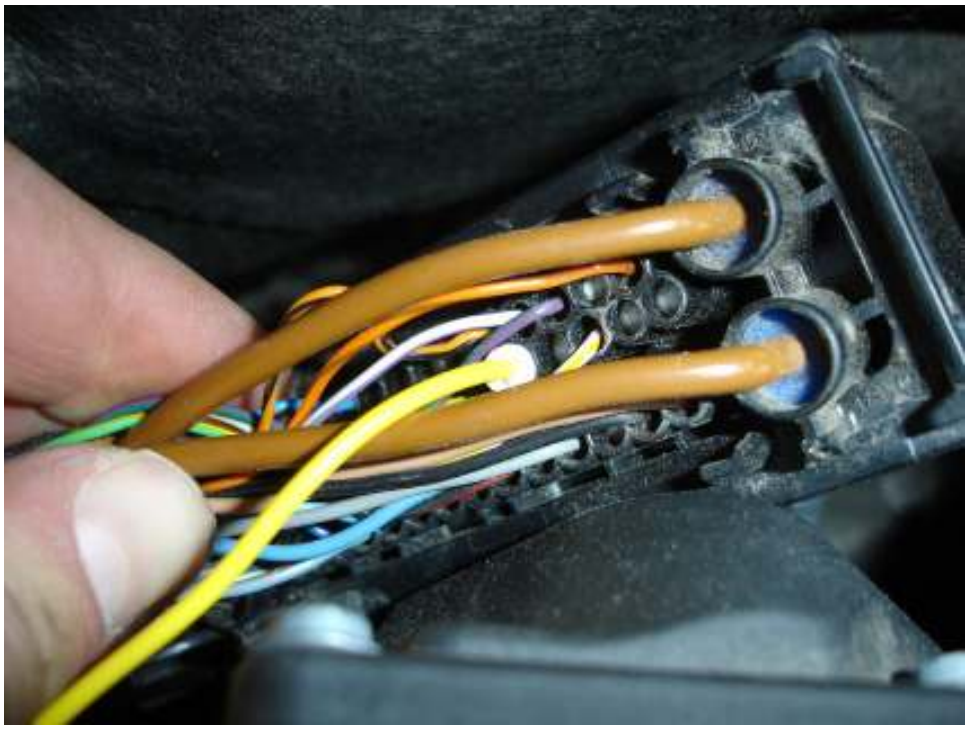
Now, take the larger of the three wires (as mentioned before) cut it in half so you have about 8 inches of yellow wire with the appropriate connector on the end. Place the rubber stopper on the wire and slide it toward the connector. Notice the orientation of the stopper on the wire. I found out later that I should have shoved the stopper all the way down the wire until it hit the connector.



Now you're almost ready to put the wire in the connector. You must first 'open' up the connector. Take a look at the picture. Notice the purple part that says 'close' on it. There's a slot under the word close – place a flat blade screw driver in there and slide the purple part to the left (as show in this picture).



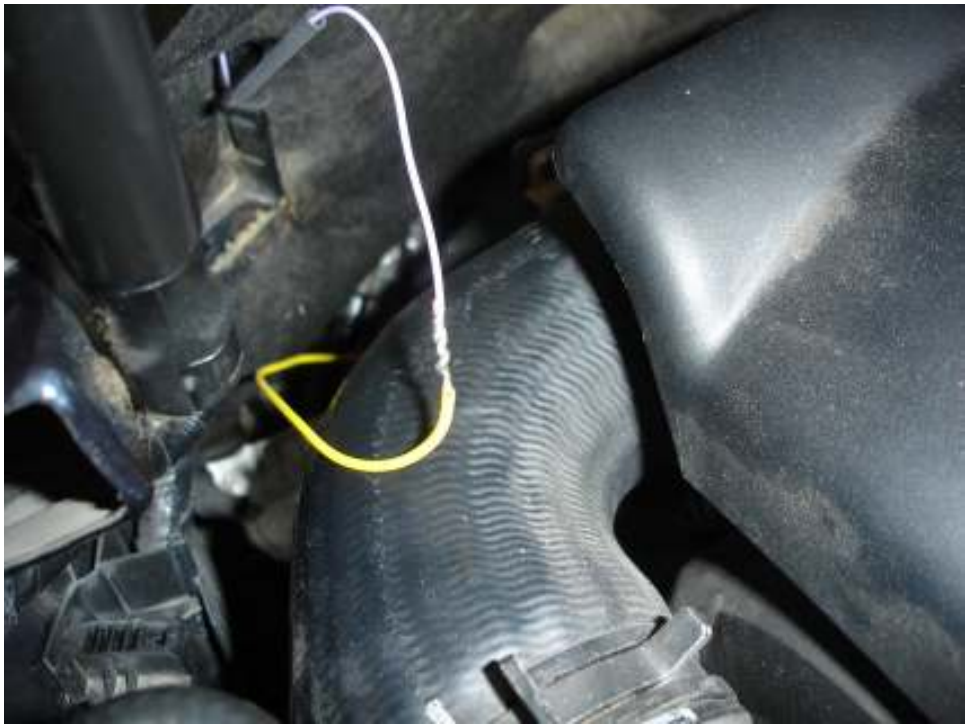
This is what you'll end up with – how you can put things in the connector.



Place the wire in the hole you opened up previously. Notice that the stopper on my wire isn't all the way in the hole. If you start out with the stopper further down the yellow wire, you'd probably be OK. After you get the wire where you want it, you need to slide the purple lock back toward the center of the connector (just the opposite of a few steps ago) – this locks all the pins in place.

To finish up this part, I zip tied the bundle of wires and the new yellow wire to the connector housing (I was surprised there wasn't already a zip tie there when is started…) You can also place the back cover to the connector onto the connector (not shown). It'll just snap into place. Make sure to get all four corners fastened by their respective latches.

I prefer to solder things instead of use crimp on connectors. Strip the wires back (add some heat shrink to the equation prior to the solder connection to pretty things up) and wrap them together.



Solder them together.

Place the heat shrink over the solder joint, and shrink! Once you do this, you can reattach the ABS wiring to the ABS controller. Do so by placing the connector onto the ABS controller and sliding the locking mechanism downward. If you've got everything lined up, you'll only need to push on the locking part and that'll suck everything together in place.

Now secure your wires so they aren't flopping around the engine bay. Congrats – you've finished the hard part! You can go ahead and put the battery box back together and re-install the battery. You may, however, want to leave the battery disconnected as you'll be soldering to some other wires that will have live voltages on them. It didn't cause a problem for me, but depending on your soldering iron, you may see some issues. It's best to leave it disconnected.

The rest of the wiring takes place in the car. There are four wires that go in to the TPMS switch. Three of them come from the nearby ESP switch, and the fourth is our purple TPMS wire we just ran into the ABS controller. To get started, I've unwrapped the gooey electrical type tape away from the ESP connector wiring. I've also removed the shell from the connector on the ESP wiring. The shell comes off the connector (not shown) by releasing a clasp on the white shell and by cutting the wire tie that held everything together. Once apart, pull the wires from the ESP switch out one at a time to attach the new TPMS wires to it.

For each connection to the TPMS switch, you'll use one half small of the wires in your kit. Meaning you'll have a length of about 8 inches of yellow wire that terminates with a crimp on connector on one end and is bare at the other. With 8 inches of wire, you'll have plenty to run directly to the splices on the ESP switch.

Pictured about is the brown wire removed from the ESP switch. Remove it with a paper clip (straightened out, of course) by hitting the release on the crimped connector while it's still inside the plastic connector part. You'll see it when you get there. With the wire removed, you can easily strip away a portion of the wire at least an inch away from the existing crimp on connector. Thermal wire strippers work great here!

I don't know why both wires look yellow here. The one with the connector on it should be brown. At any rate, this gives you an idea on splicing the two wires together, then solder them in place.

Here's the pin out of the TPMS switch and where things need to connect:

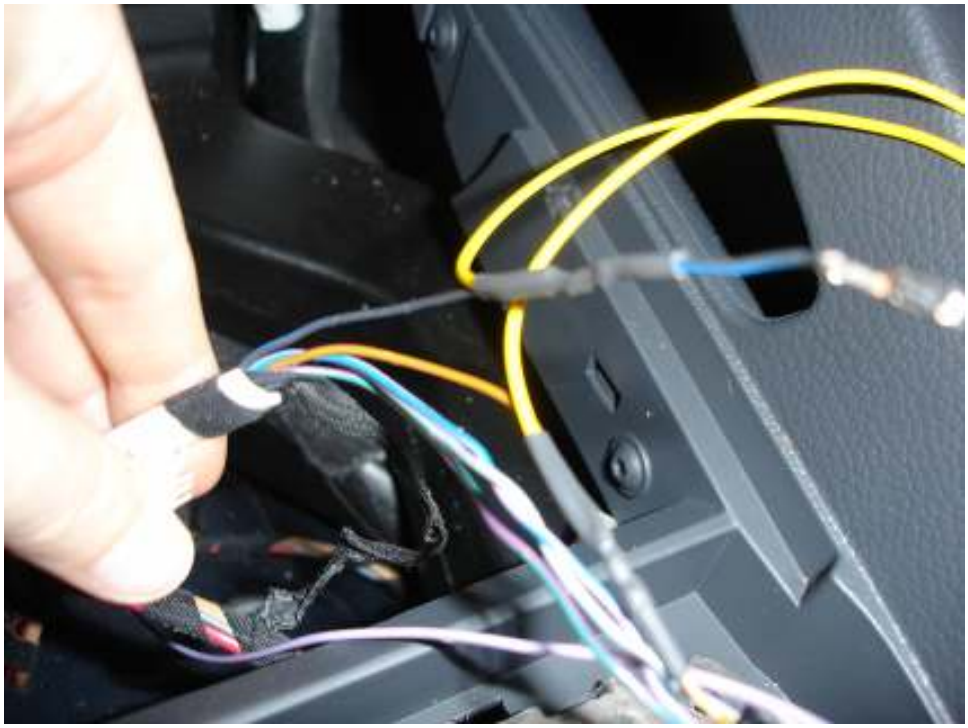
Pin 3 on the TPMS switch connects to the grey wire on pin 3 of the ESP switch.

Pin 4 on the TPMS switch connects to the violet wire we ran to the ABS controller.

Pin 5 on the TPMS switch connects to the black/blue wire on pin 4 of the ESP switch.

Pin 6 on the TPMS switch connects to the brown wire on pin 6 of the ESP switch.

The pin numbers 1,3,4, and 6 are shown on each connector. You can figure out 2 and 5 based on that. For the TPMS switch, the new wires just slide right into the connector plastic, and then will slide into the housing once all 4 wires are in the connector plastic.



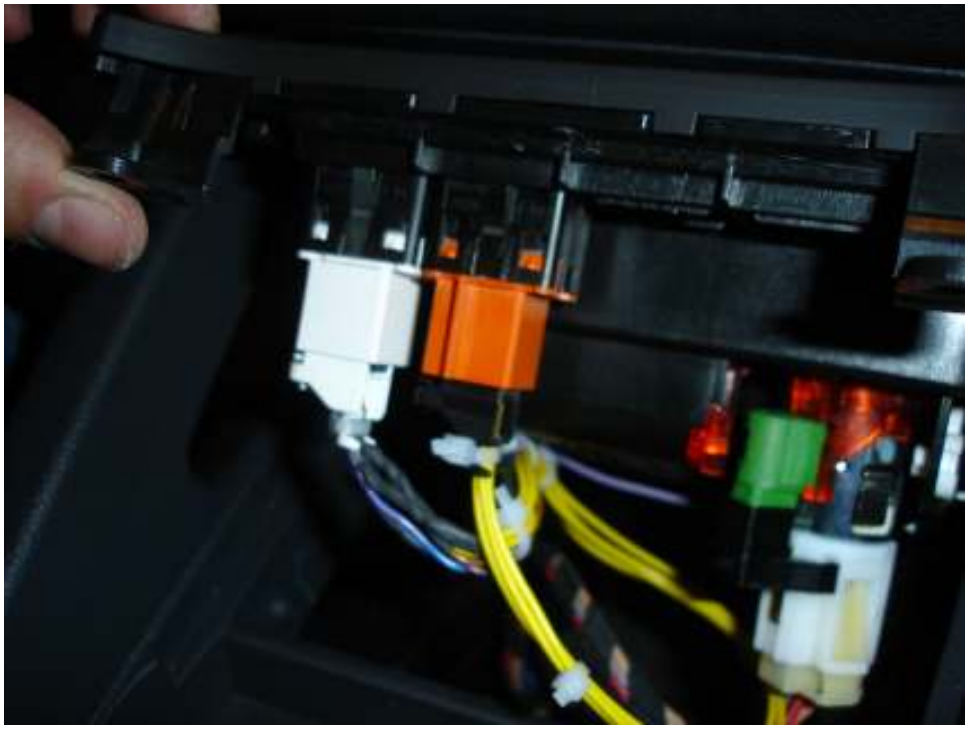
Here you can see the finished splices with heat shrink on them.

Soldering in action – I had three hands for this shot! :)

The connector shell that came with the World Impex kit didn't fit directly into the TPMS switch. I'm not sure if this was by accident or design. At any rate, the part that came in my kit could be modified easily to fit in the TPMS switch. I used a pair of side cutters to remove the plastic that interfered with the mating connection.

Place the connector into the housing, and go to town with the zip ties.

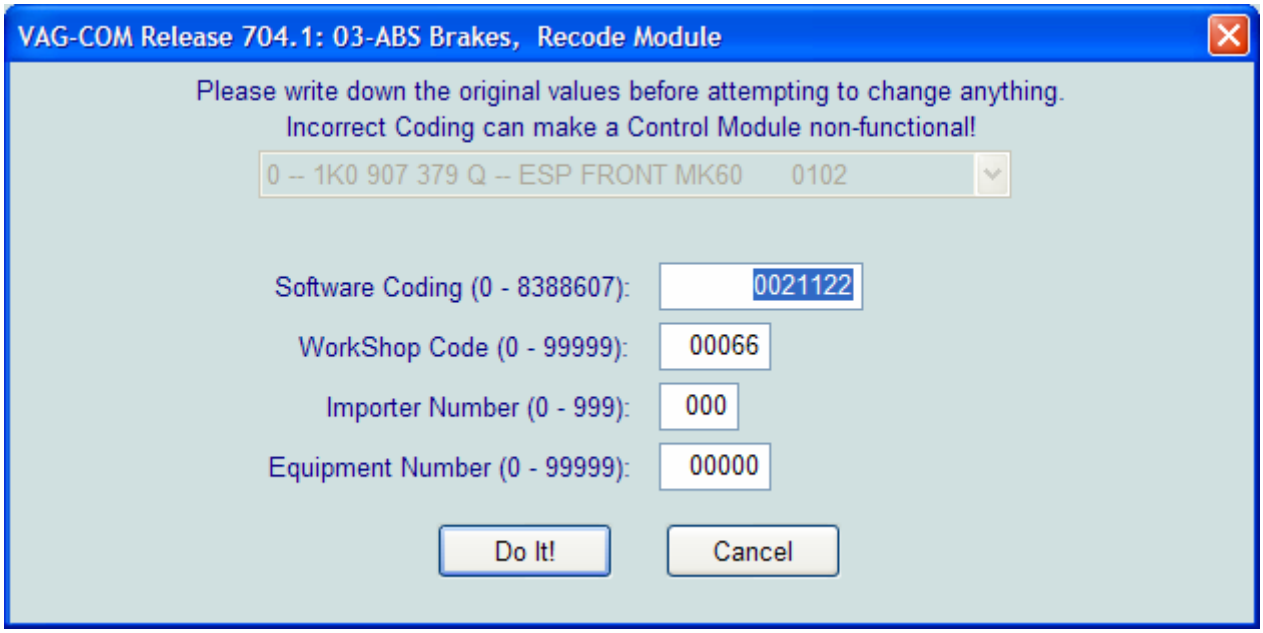
I eliminated the electrical tape on the ESP switch wiring and just used zip ties there as well. Yes – I did remove the excess parts of the zip ties, just left the on there to easily identify in the photos.



Its time to put it all back together. Here you can see the ESP and TPMS switches wired back in place.

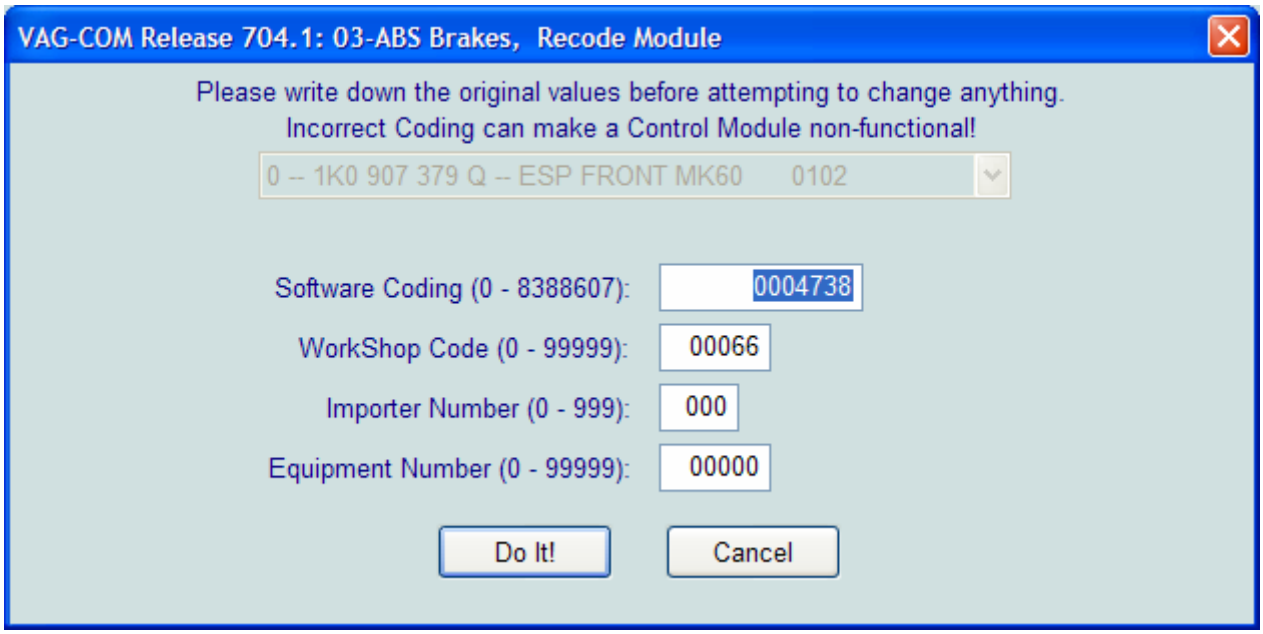
And the final product!

But wait – there's more! VAG-COM details to follow…



Log into the ABS controller and recode the module. Here's what I had in the stock scenario.

You need to subtract 16384 from the Software Coding. Your original coding may vary and that's what you should go by. In my case, however, 0021122-16384 = 0004738.



Type in your new coding and hit Do It!

To use your new system – inflate your tires to the desired PSI. You'll have to verify this with a real tire pressure gauge. Once you have the tires where you want them – start the car. Now press and hold the TPMS switch – you should see the icon in the instrument cluster light up – keep holding the switch until it goes out (after a couple seconds). Once the icon turns off, you can release the TPMS switch. You'll hear a 'ding' coming from the instrument cluster.

That's it! You're all set.

Notes – I ran into some more errors after I started up the car the first time following battery disconnect. The ESP light would not turn off, and the yellow steering wheel symbol would not go away in the instrument cluster. These are normal things that happen after disconnecting the battery. You simply must go for a short drive and they will go away (mine corrected itself before leaving the driveway).