

2010 Toyota Prius model II Head Unit Upgrade

Monday, December 21, 2009

Disclaimer:

Use this document and its contents at your own risk.

Forward:

Huge thanks to those members on Priuschat.com that forged ahead into unknown territory and offered technical advice to make this modification and document possible. Special thanks to Priuschat.com users: [ALL_600D](#), [kamick81](#), [frenchie](#), [rolff](#) and many others for their vital contribution.

The stock head unit (HU) on the package II really stinks. FM/AM reception was so bad I rarely used it. Sound was OK but really lacked in the low-end range. As a substitute, I purchased the Pioneer avh-p4100dvd double din style receiver. It does not come with navigation, iPod, satellite, etc but has a possible upgrade path for those features. Mainly I was looking for a well powered double din style head unit. There are many out there to choose from.

Basic wiring and wiring diagram-reading skills are necessary.

Parts:

The following are a list of parts I used for this upgrade. As noted, there are some optional and some required (*) parts.

- Toyota Head Unit Surround* Toyota part #: **55405-47080**. Pentagon Sheffield in the UK seems to be only place selling this unit. They have an eBay auction for this part. There has been talk about Metra producing a version of this surround. At the time of writing it was not available.

- Metra trim pieces* part #: **Metra 95-8202 (Toyota DDIN Kit 00-up)**. This was necessary as the Surround mentioned above is wider than the standard double din head units.
- Toyota wiring harness, part #: **70-1761 (Toyota 1987-up)**. This is optional but makes for a much cleaner, easier install plus if you sell later you could easily remove the new for the old HU. The other option would be to tap into the car's wiring harness.
- PAC Steering Wheel Interface (SWI), part #: **PAC SWI-PS**. This is optional but allows you to retain your steering wheel controls (highly recommended). This part number is also specific to Pioneer and Sony brand head units.
- Double din Head Unit, your choice. I used the Pioneer **avh-p4100dvd**.
- Lots of wire-shrink wrap and electrical tape.

Procedure:

As with any electrical servicing it is highly advisable that you disconnect the 12-volt battery during the installation. Please see your Owners Manual for information.

Dash trim removal:

Removing the trim pieces that surround the existing head unit is remarkably simple and quick. Toyota service documents recommend placing tape (like blue painters tape) around the outside edges of the seams to protect marring of the trim pieces that stay in place.

As noted in the picture below, start with the cup holder trim piece (1) and proceed through the power switch piece (4). Three of the pieces have wire connectors. Unclip those connections and **remember** where they go.

Here is a great description of the trim removal process courtesy of ALL_600D:

No tool needed. Just use your fingers and nails. Just pull with enough force. Don't pull slowly, just yank with enough force but make sure you only pull with about 1-3" of flex. Don't pull it so hard that your whole body jerks. Just use your forearms and flex only between the elbow and hands. They are all held by plastic clips that are sturdy so don't worry about breaking the clips.

First, I recommend by removing the black surround that's at the base for the shifter. Lift it out of the way and rotate it to the driver side (or you can unplug it and remove it entirely).

Second, start pulling off at the base where the cup holder is and start tugging upwards towards the upper corner leading up from the heater controls upwards towards the right side of the stereo.

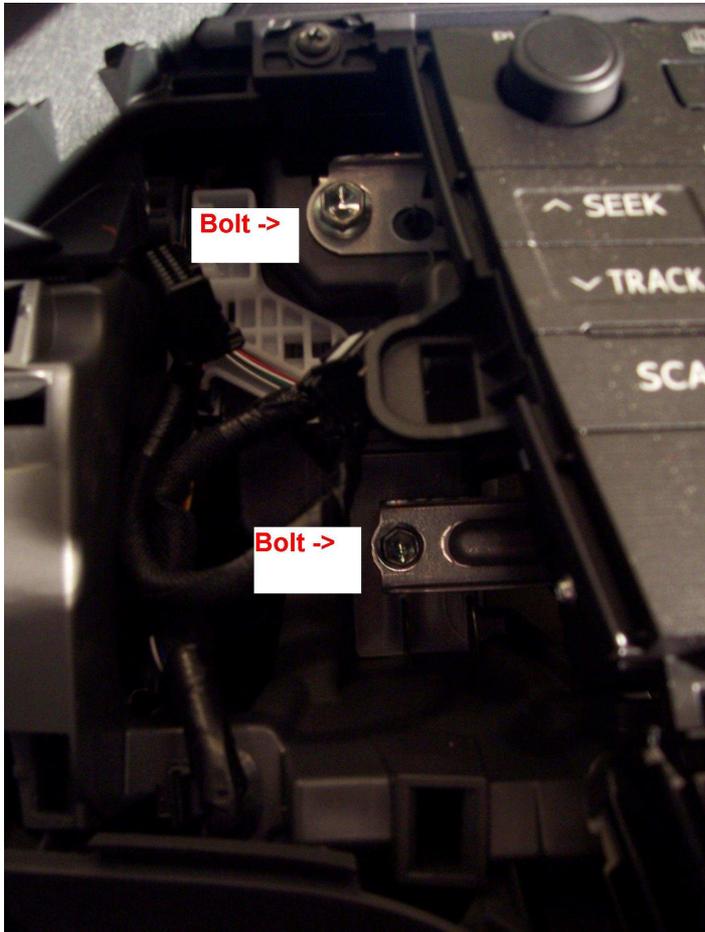
Third, carefully start pulling off the plastic surrounding the radio. Don't yank all the corners at once. Again start at one side and work across to the opposite side.

Fourth, remove the "Power" button cover. In the same way, just tug and it will snap out of its slot.



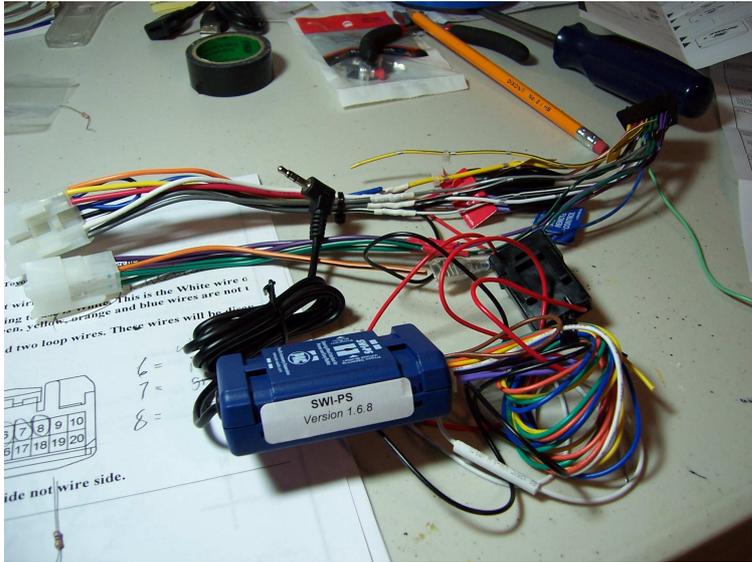
Stock head unit removal:

Remove the four (4) 10mm bolts holding the head unit brackets. Pull the head unit straight out and unplug the wiring harnesses. There are four (4) plugs and you depress little tabs in the middle of the connectors to release them from each other. Also remove the antenna wire.



Wiring harness:

Layout the three wiring harnesses; the head unit harness, the Toyota radio harness and the SWI harness. Attach the head unit harness to the appropriate wires of the Toyota radio harness. Add the SWI wires (power and ground) where appropriate. There may be a few wires that will remain unconnected depending on the options you selected.



There will be a white wire from the SWI that will need to be connected directly to the car's wiring harness. See the "New head unit mounting" section below. All the other wires from the SWI can be wrapped up and tied off to reduce the mess.

Mounting brackets:

Without any modifications to the mounting brackets, I tried installing the HU as is. I found that HU sat too high in the surround piece and obstructed the eject door a tad. So I ground out a bit of brackets as noted in the picture below. Also the dimples noted in yellow need to be ground down too. This allowed the HU to be lower within the surround thus making the eject door operate without obstruction. It also looked better overall.

I would however try things out before grinding the brackets. Your situation may not warrant the grinding thus reducing the amount of work. The following photo denotes the area and extent of the grinding (courtesy of frenchie).



Note the yellow areas indicate dimples that have to be ground down as well. The red squares indicate the material that needs to be removed.

Trim pieces:

Next attach the Metra trim pieces to the head unit on the outside of the mounting brackets using one or two of the mounting screws. I was only able to get one screw hole to line up but that is all that is need to hold the trim pieces on.

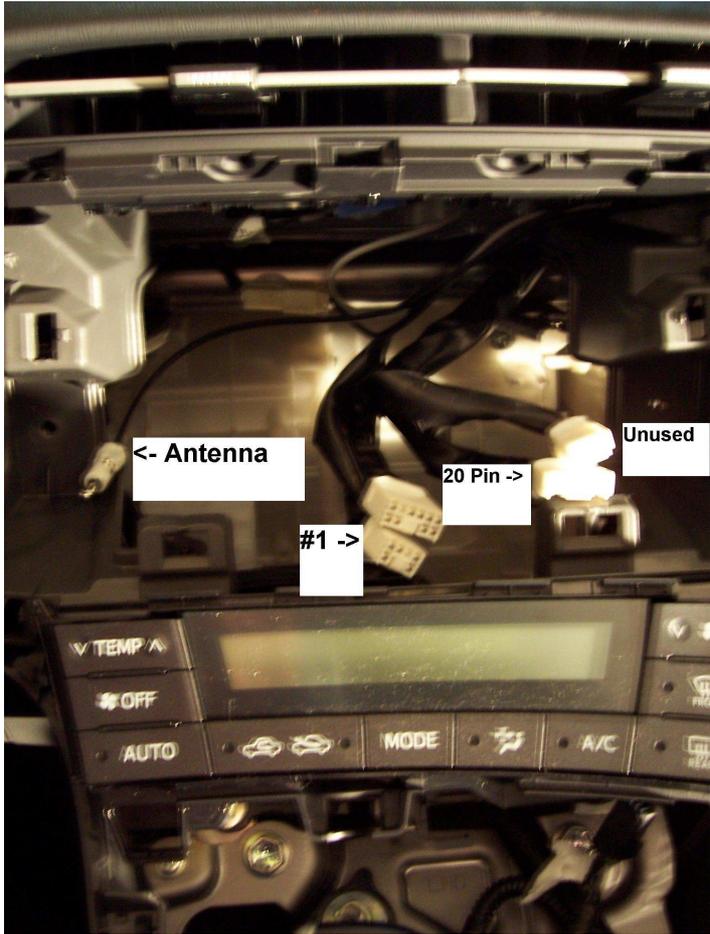


New head unit mounting and wiring:

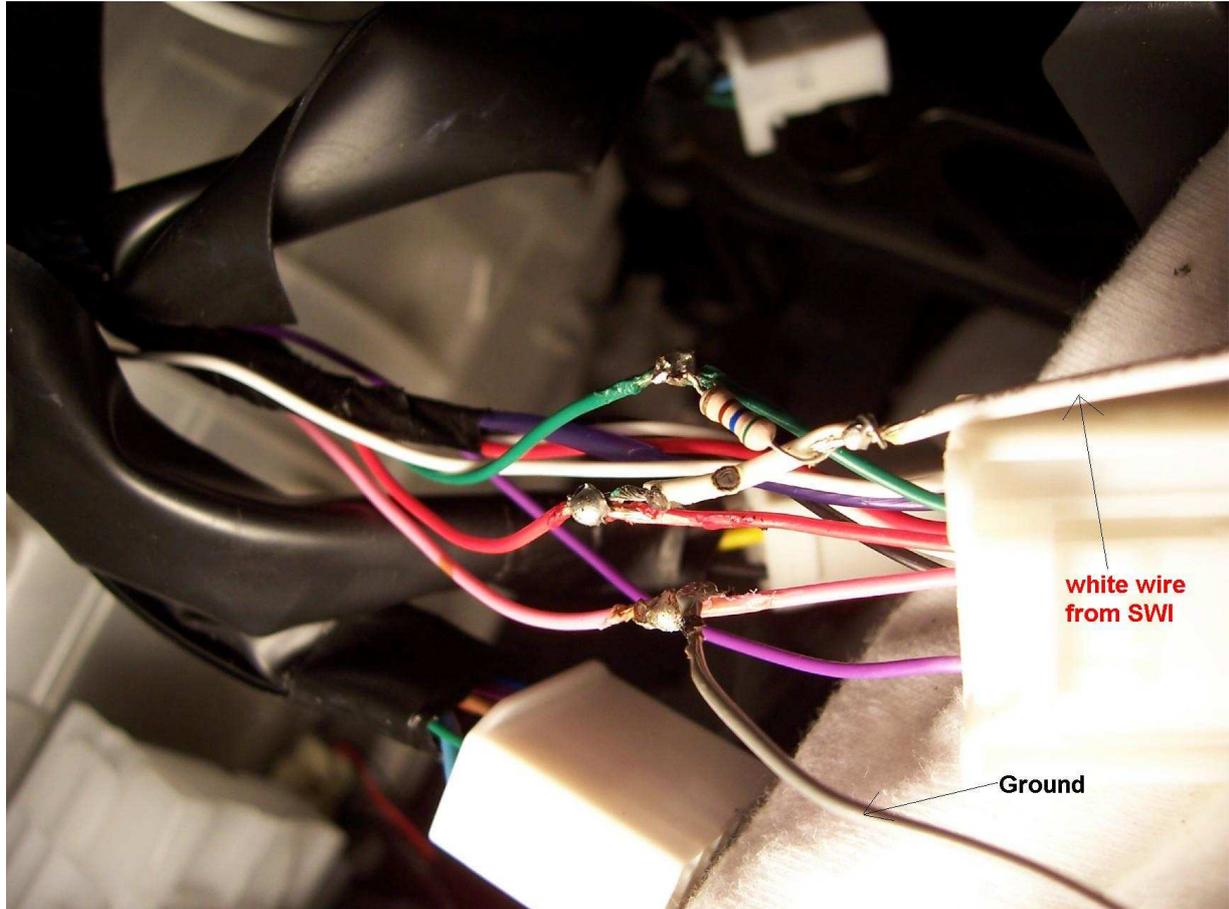
First connect the new wiring harness to the car-side harness (two (2) connectors). See “#1” in picture below.

One wire (white) from the SWI needed to be connected directly to the harness in the car, as no connector was included from the SWI side. The car-side connector has twenty pins (see “20 pin” in picture below) and in this case I needed to use pin #s 6, 7 and 8 which were colored pink, red and green respectively (see the Toyota specific connector picture in the SWI instructions). Per the PAC SWI instructions, pin #6 needed to be connected to ground, the white wire from the SWI was directly connected to pin #7 and the white wire is also connected to pin #8 however a 560 ohm resistor (included in kit) needed to be connected between the white wire and pin #8. As things change over time, please read your SWI instructions carefully. I used the “T” tap method to tap into the car’s harness (see two photos down). There are cleaner methods.

Please note that there is one plug on the car side that is not used (see “not used” in picture below). I believe this plug contains the wiring for the AUX input plug in the center console. You loose that function during this install, however, my HU included a USB wire plug that I could use instead.



The following picture illustrates how I wired in the SWI to the car's wiring harness.



With the wiring harness connectors plugged in, you should be able to plug the power switch in and put the car in ACC mode. The head unit should activate and you should be able to confirm that it works properly.

Programming SWI:

While you have access to the SWI you need to program it. You may also wish to mount the SWI to where you can get to it after the dash is put back together. I didn't, I just let it hang behind the head unit in the dash. If it loses its mind, I will have to remove everything to get to it.

Read over the SWI programming instructions well before attempting to program the unit. It is kind of frustrating if you don't, as you have to be pretty quick with your fingers.

Dash trim install:

Install the trim pieces in reverse sequence as noted in the removal section above and including the new surround. Make sure to reconnect the wire connectors to the appropriate trim pieces. Firmly snap the trim pieces back together checking for any gaps at the seams.



Remove the tape if applied.

Final notes:

If you did not disconnect your 12-volt battery you will likely get the Master Warning icon and the message "Check Hybrid System". Assuming that there really aren't any real problems, this message will clear itself after three (3) starts (car goes into Ready mode).

Final Observations:

One of the major reasons I did the upgrade was the hope for better AM/FM reception. While I did notice a modest improvement there, the biggest improvement was how the new receiver dealt with the reception or the lack there of. The original unit would make people's voice "crack" when reception got bad making it unbearable to listen to. The new unit smoothes this out. Even though I might loose stereo reception in places, voice as still easy to listen to. To me that was a big improvement.

Also wanted to point out that with the new head unit power, I feel the stock speakers perform very well and will not likely replace them. I may however add tweeters to get a little higher range.