After Market Subwoofer Installation Guide

Silver ’06 Prius, Package #7

Disclaimer

This guide is posted for informational purposes only. The author of this guide is not held liable for any modifications, damages, accidents, or other changes to your car interior or exterior as a result of reading this guide.

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Fiberglass Stealth Box

This section is devoted to the proper, safe construction of a fiberglass stealth box. While this box is made for the driver side trunk wheel well in an ’06 Prius, the technique is applicable to other vehicles and locations.

Materials

All of the materials used in this guide were available at Lowe’s, and should be available at any large hardware store. A majority of the materials were found in the paint department, with the exception of the MDF, which was in the lumber department. Totaled, the supplies cost about $100.

- Fiberglass Matt
- Fiberglass Resin
- Fiberglass Hardener
- Plastic Sheet
- Blue Painters Tape
- Paint Brush
- Aluminum Foil (from the kitchen, not Lowe’s)
- ¼ inch Medium Density Fiberboard (MDF)
- Black aerosol sealant
- Respirator mask
- Silicon sealant

Pictured here are a respirator mask, fiberglass matt, fiberglass resin/sealant, paint brush, and acetone for cleaning the brush. Additionally, I purchased grey car fabric from www.partsexpress.com.

Area Preparation

When prepping a car to use fiberglass, it is important to remember that glassing is messy, and any resin that gets on your carpet will not come out (thus ruining your carpet). To properly prep the area, first cover the area you want to fiberglass with blue painters tape (masking tape can be used as well, but is not recommended). Cover a larger area than you want the box to be, so that you can make the shell bigger and cut away the excess later. Once that is done, apply a layer of foil over that (taped down with painters tape). The foil will help to ensure that no resin will leak through any small holes in the tape, as well as to make it easier to remove later.


In addition to prepping the immediate area, you should cover the surrounding area with a thick plastic dropcloth. The plastic will ensure that any spills or splatters will not get on the carpet.


Preparing the Matt

The fiberglass matt will come in large sheets (mine were 3'x3'). You want to rip these sheets up into small 1''-2'' squares. The frayed edges you get when ripping them are preferable to neat edges that you may get if you use scissors.

Mixing the Resin

WARNING: The fumes from the fiberglass resin are extremely hazardous, and will damage your lungs. It is important to wear a respirator mask whenever working with fiberglass and resin. When wearing the mask, you should not be able to smell *any* fumes.

You'll want to mix small amounts of the resin at a time, as it will gel up and become useless if you take so long. The can of resin will have mixing instructions on it. For mine, it recommended 14 drops per 1 oz of resin. I used 3 oz Dixie cups for my mixing, only filling them 2/3 full (thus 2 oz).

Applying the first layer

WARNING: The fumes from the fiberglass resin are extremely hazardous, and will damage your lungs. It is important to wear a respirator mask whenever working with fiberglass and resin. When wearing the mask, you should not be able to smell *any* fumes.

Each layer will be applied using the same method. First, paint on a layer of the resin/hardener mix. Press into this slightly overlapping pieces of the matt. From there, use a stabbing motion with the brush to apply more resin/hardener mix. The idea here isn't to paint it on like before, but instead to try to beat it into the matt. It will be clear when you've done enough, as the matt will become clear instead of white like the matt is when starting. It is important to work out as many of the air bubbles as possible, as these will reduce the strength of the finished box. When you have completed one full layer, let it dry. Drying usually takes 2-3 hours. With the first layer, you'll want to make sure it is completely dry, since you will be moving it.


Applying additional layers

WARNING: The fumes from the fiberglass resin are extremely hazardous, and will damage your lungs. It is important to wear a respirator mask whenever working with fiberglass and resin. When wearing the mask, you should not be able to smell *any* fumes.

You'll want to apply a total of 3-5 layers to make a strong box that can sustain a little bit of throwing around. After the first layer is completely dry, carefully pull it out of the car. The shell will flex some at this point; that's fine, but don't test it, cause you don't want it to break. At this point, you can clean up the car. Roll up the plastic, pull the tape off, cause you're done in the car! That means you won't have to be quite as paranoid about making a mess. At this time you can also pull as much of the foil/tape off the shell as you can. Most likely it all won't come off, but that's ok.

Applying additional layers is the same as the first. Pain the surface with the resin/hardener mix, then put down the fiberglass, and finally stab it home. You can also put on several layers at once. In this case, since the layer beneath it is already wet, you can skip the painting step. I wouldn't do more than 3 layers at once. For my project, I used 3 layers total, so two more after the initial layer. So that's paint, stick, stab, stick, stab.

Affixing a front to the Box

Once the fiberglass shell is finished and dry, stick it back in the car (you don't have to worry about your carpet this time – it won't make a mess). Using a black marker, mark off roughly where you want the shell to come out to; remember, you'll still be sticking a piece of MDF in front of it. Pull the shell out of your car, and using a Dremel, rotozip, or some other tool, cut it where you marked. Try to make the cuts as straight and flat as possible so it meets flush with the MDF.

After the box is cut, use it to trace an outline on the board of MDF. Using your Dremel ro Rotozip, cut the MDF. Take this to your car and check the fit; you may have to trim it or sand down some edges to make it fit properly. Finally, stick the shell in the car along with the MDF to ensure a good fit. Take this piece of MDF and, using a Dremel or Rotozip cut the circle in it for the sub (the exact size will depend on the sub you're putting in). Next, secure the piece of MDF to the fiberglass shell with as few pieces of masking tape as possible. Finally, using the technique mastered earlier, use fiberglass to permanently secure the two (fiberglass resin bonds very well to wood). This will create a sealed box.

Finishing the Box

You can finish the box however you want, or leave it as it is. Personally, I use a black aerosol sealant to paint the fiberglass portion. This ensured that there were no holes or air leaks. I finished the front of the box with carpeting so that it would look the best in the car. Finally, you need to drill a small hole in the back for the speaker wires to come out of. Seal this hole with silicon sealant. Attach the wires to the sub and drill holes and screw it in like you would with a store bought box. With this, the box is done!

Note: I’ll be putting a grill cover on as soon as I can get some padding for it (currently it will rattle if installed)

Installing an aftermarket amplifier

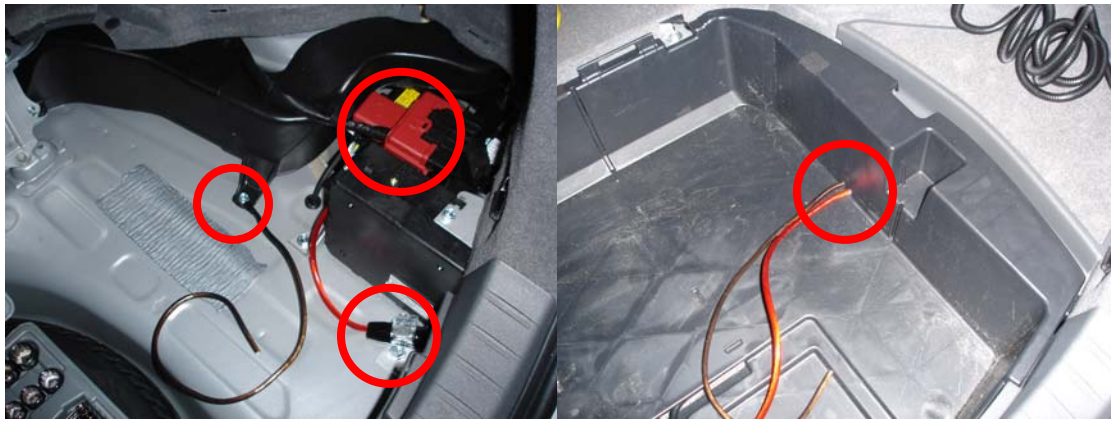
In addition to making a box and putting the sub in, you will also need to put in an aftermarket amplifier. There are several possible locations for the amplifier, however I feel the best place is in the compartment below the trunk.

Affix the amplifier

First, you will need to secure the amplifier to the car so it's not loose in the trunk. To do this, I cut a piece of MDF to fit in the rear hatch. It was then a simple matter to attach the amplifier to this piece of MDF with screws.


Getting power

For power, the amp can be attached to the battery, as it's very close. There should be an appropriately sized fuse between the amp and the battery on the positive end. You can attach the negative end to any point in the body of the car, I chose a bolt nearby.

The circles above indicate the mounting pointed for the positive and negative ends, as well as the plastic fuse holder and the holes drilled in the plastic tray to allow the wires in.

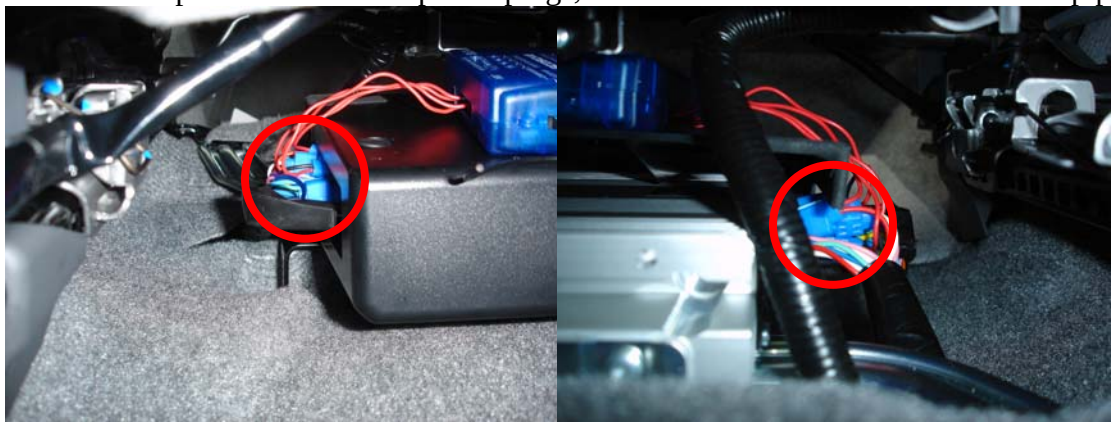
Getting an audio signal

This is where it gets tricky. Under the front passenger seat is a factory installed JBL amp (for those models with the upgraded 9 speaker premium sound system). From the rear of the seat, detach the two plastic bolts and remove the plastic cover on the amp. Then detach the cords on the side of the amp. Finally, remove the 3 bolts that secure the amp to the floor and pull the amp out. Set it someplace safe, and prepare to get confused.

Above, the red circles indicate the location of the two plastic bolts, and the yellow indicates the location of a rear bolt that holds the amp to the floor. This bolt is hidden beneath a piece of carpet that easily pulls back.

Note: The two bolts you need to remove from the front are beneath two flaps of carpet just inside of the bolts holding the seat to the car.

For this part, I used a Scosche SLC4 Speaker to RCA converter. This is a little box that takes speaker inputs and provides RCA pre-amp outputs. The trick here is to identify the wires you need to tap. Use the following picture and table to figure it out. Then use an 18 gauge wire tap to add a line out of the appropriate wires. You'll need to tap the positive and negative rear door speakers. Note: the plugs were different on my Amp. There were three plugs instead of two. The oblong, 3 part plug on the right below was separated into two separate plugs, however the wires seemed to match up pin for pin, and the wire colors were the same.



Note: The light blue plastic fittings above are the line taps. They fit over the current wires and simply require crimping to work. You don't have to cut any wires!

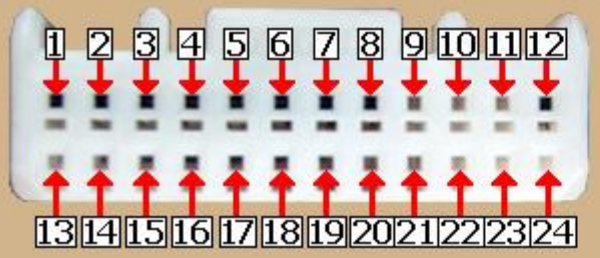
FUNCTION	PIN	WIRE COLOR
Radio Mute Input	1	WT
Left - Input	2	BK
Left + Input	3	WT
Right - Input	4	GN
Right + Input	5	RD
Audio Shield Ground	6	BARE
Data Line	7	OG
Data Line	8	PK
Accessory 12 Volt	12	GY
Navi Mute Input	21	WT [2]

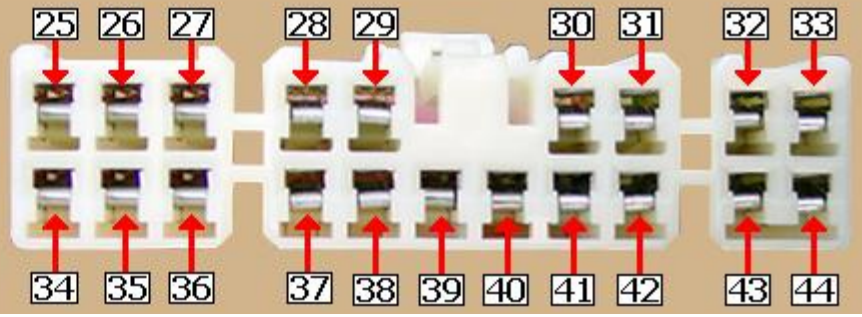
DO NOT USE THESE WIRES!

[1] If the vehicle is equipped with navigation, these wires pass through the navigation ECU before connecting to the L/F Door Woofer.

[2] Only present if vehicle is equipped with navigation.

FUNCTION	PIN	WIRE COLOR
Constant 12 Volt	25	L.BU
Center Dash Spkr +	27	RD
L/R Door Spkrs +	28	BK
R/R Door Spkrs +	29	RD
L/F Door Tweeter +	30	PK
R/F Door Tweeter +	31	L.GN
L/F Door Woofer +	32	PK [1]
R/F Door Woofer +	33	L.GN
Constant 12 Volt	34	L.BU
Center Dash Spkr -	36	WT
L/R Door Spkrs -	37	YW
R/R Door Spkrs -	38	WT
Chassis Ground	39	WT/BK
Chassis Ground	40	WT/BK
L/F Door Tweeter -	41	VT
R/F Door Tweeter -	42	BU
L/F Door Woofer -	43	VT [1]
R/F Door Woofer -	44	BU



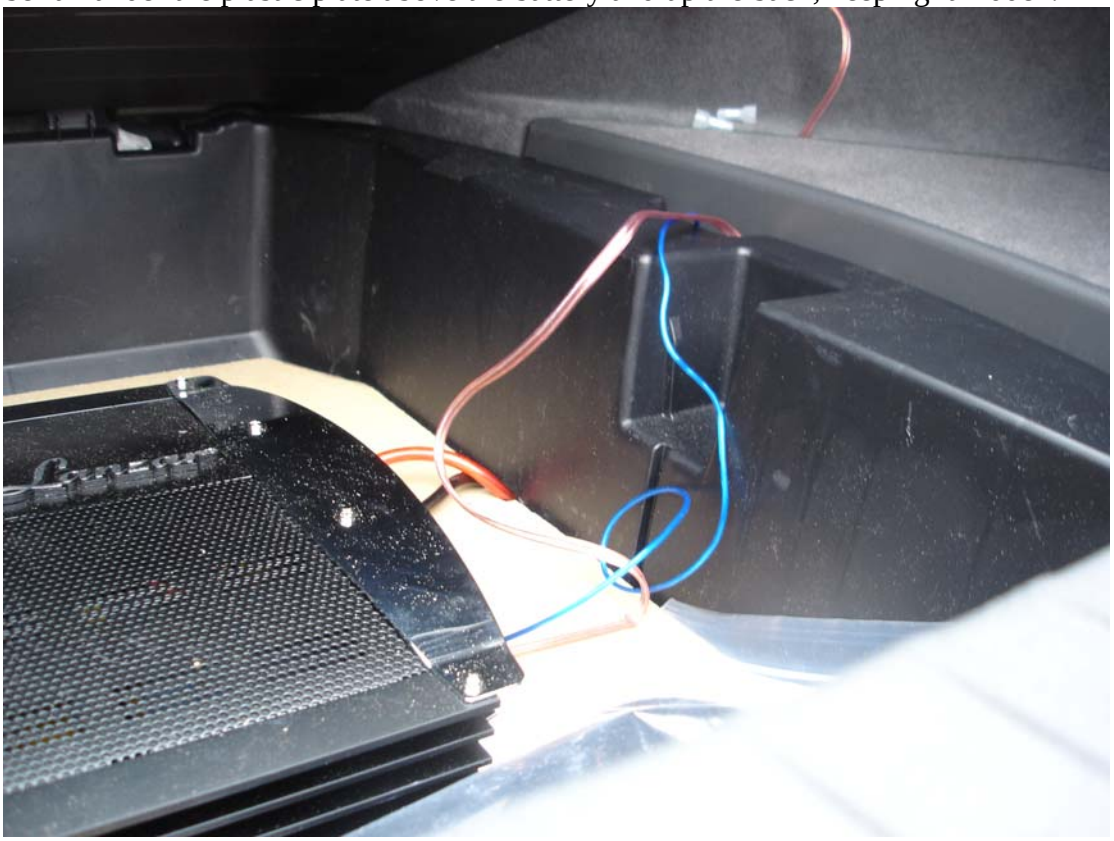


The Remote line needs to be run from the back of the factory head unit. When this is pulled out, there are two plugs on the back. Looking at it from the top of the unit with the front facing you, the wire you need to tap is in the left most connector (sorry, I forgot to take pictures!). As explained to me by the Crutchfield Technical Rep, you want to tap the grey wire (there are three of them total) that is coming from the bottom left location of the plug. Bottom left, that is, if you are looking at the face of the plug (with the wires coming out the back) with the tab on top. When I install my VAIS SLI (when it's '06 compatible), I'll take some pictures.

Disassembling the dash was fairly easy, and for that part I used a guide written by Eddie Bell for installing an XM radio. For convenience, I have attached his entire guide to the end of my guide.

Running the wires

Now that you have a sub, a powered amplifier, and pre-amp outputs with a remote wire, you just need to attach them all. The speaker wire from the amplifier to the sub can be run under the plastic plate above the battery and up the back, keeping it hidden.



Note, here you can see the power wires, remote wire, and speaker wire.

For running the remote wire from the dash and the RCA wires from under the passenger seat, you can refer to Eddie Bell's guide for XM radio, as he ran wires to the rear for a receiver. The guide shows how to pull up the trim so you can tuck the wires underneath.

2004-2005 Prius XM Radio
Installation Instructions

By

Eddie Bell
www.metrotpn.com

Let me begin by saying this is an easy but time consuming job. Set aside a few hours of your time for the install. If you take your time, with the help of this guide you will be rewarded with a tidy XM radio install.

I have spent a good bit of time on this guide. It is my first try at creating a pdf document so there may be some errors.

I offer this guide free of charge. All I ask in return is that if you find an error, please let me know. Also if you have additions that you feel may help someone else, let me know so that I may make the changes.

Let's get started.

What you will need:

10 mm socket

Socket wrench aka ratchet

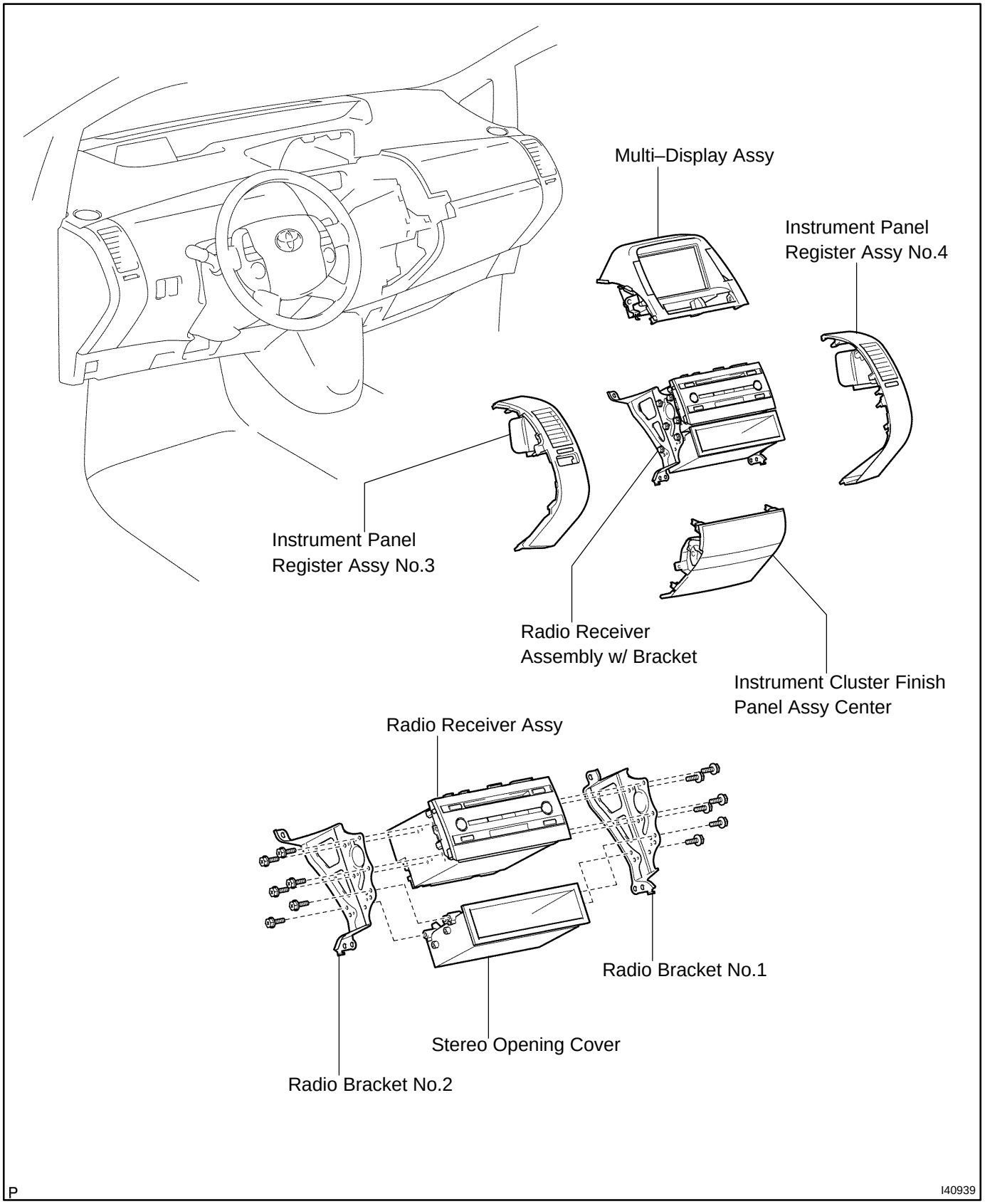
Phillips head screwdriver (you know, the one that looks like this +)

Fish tape or coat hanger

A little patience

6716E–01

COMPONENTS



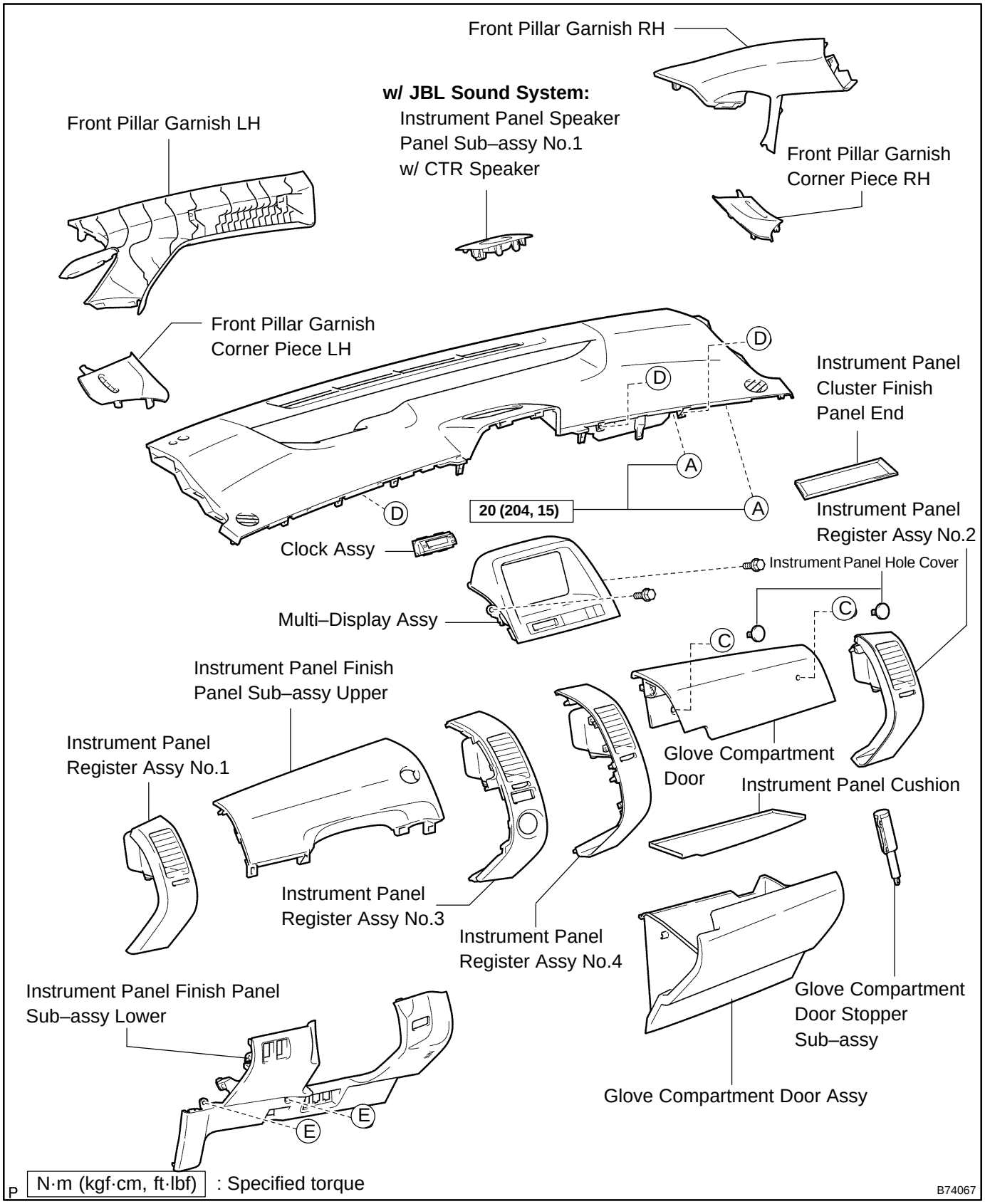
P

I40939

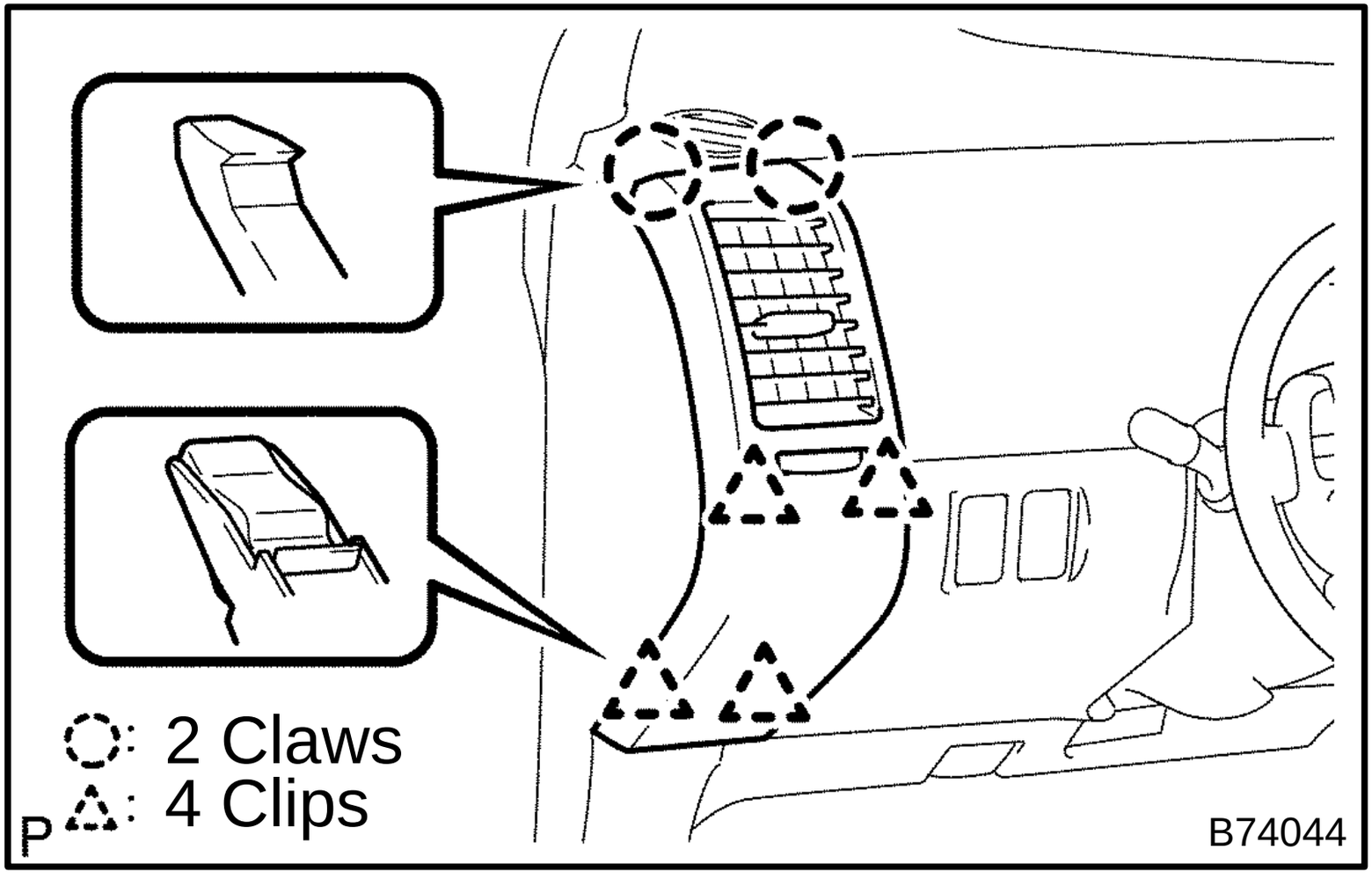
INSTRUMENT PANEL/METER

COMPONENTS

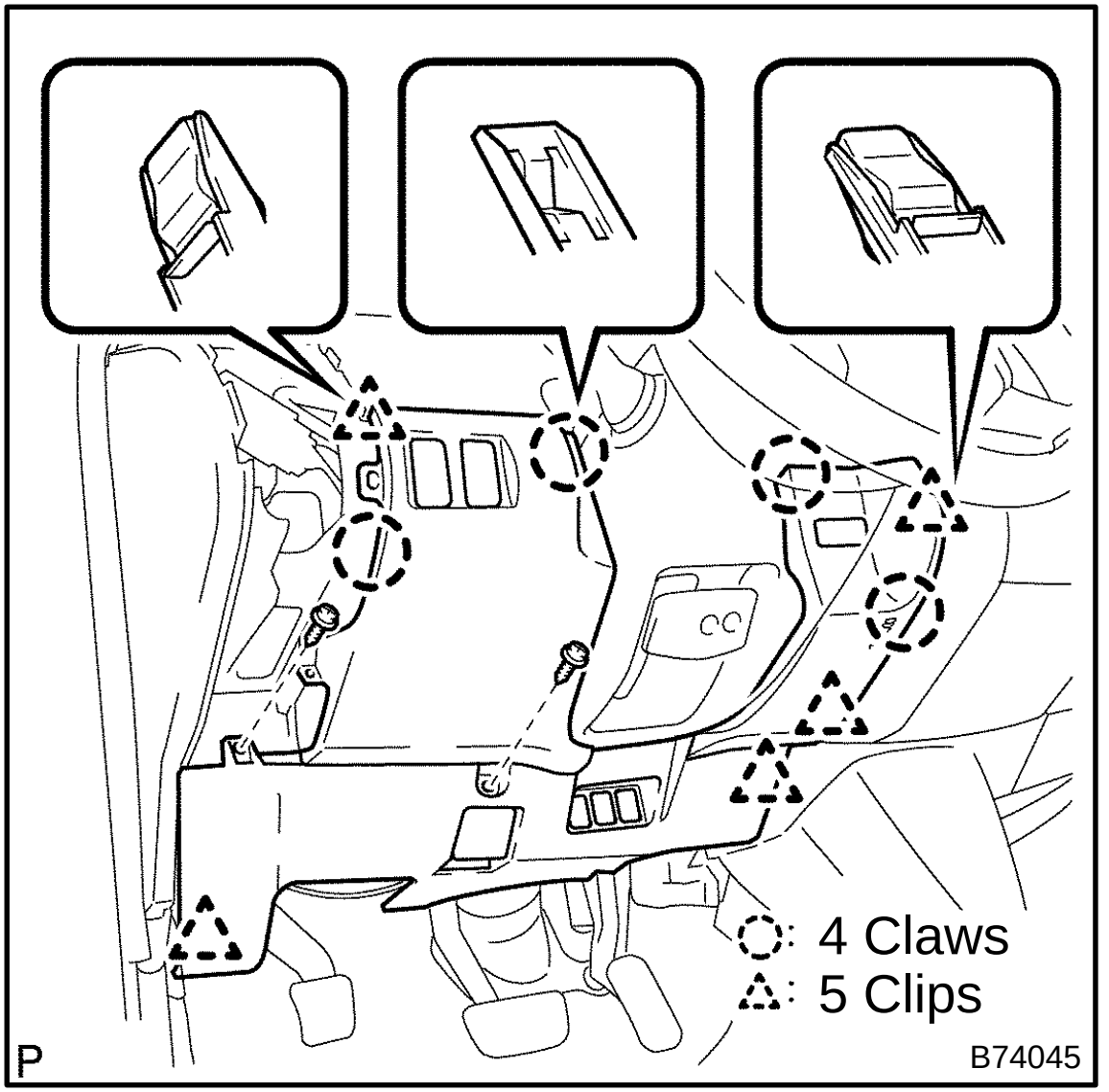
710LL–01

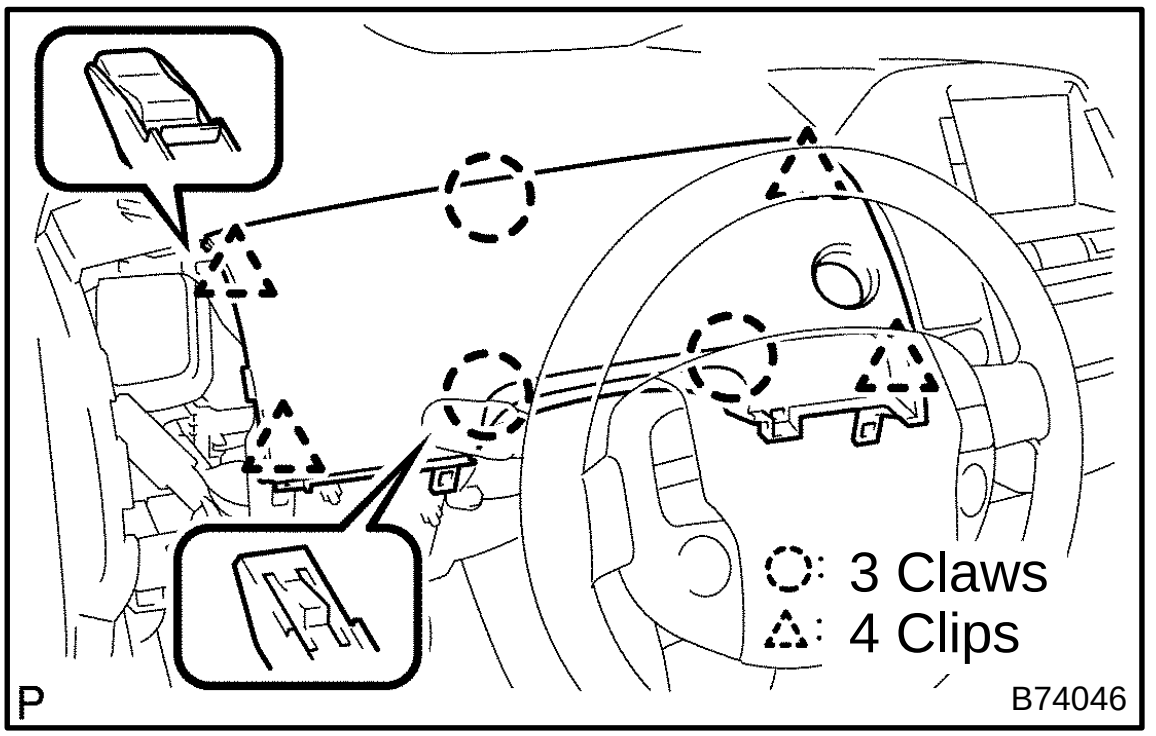


REMOVE INSTRUMENT PANEL REGISTER ASSY
NO.1
Grasp at the very top and very bottom and pull towards you.
The register is held on very tightly. A flat blade screwdriver wrapped in tape comes in handy.

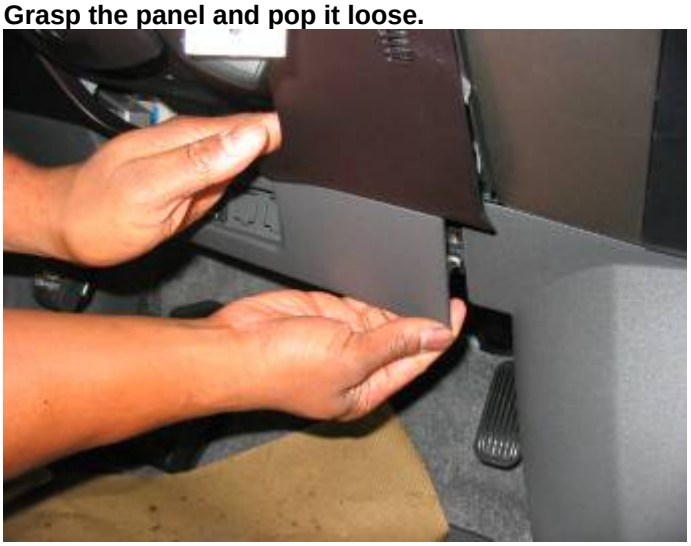

: 2 Claws
: 4 Clips
B74044

REMOVE INSTRUMENT PANEL FINISH PANEL SUB–ASSY LOWER
Remove the 2 screws.


4 Claws
5 Clips
P
B74045


3 Claws
4 Clips
P
B74046

The panel is held on with the same clips as the ones for the register
Grasp the panel and pop it loose.



Do the same here. You should have your technique down pat by now.

Let panel hang loose.

REMOVE INSTRUMENT PANEL FINISH PANEL SUB–ASSY UPPER
(a) Disengage the 3 claws and the 4 clips.

Do the same here. Remember that technique that you learned?
What do you mean no.

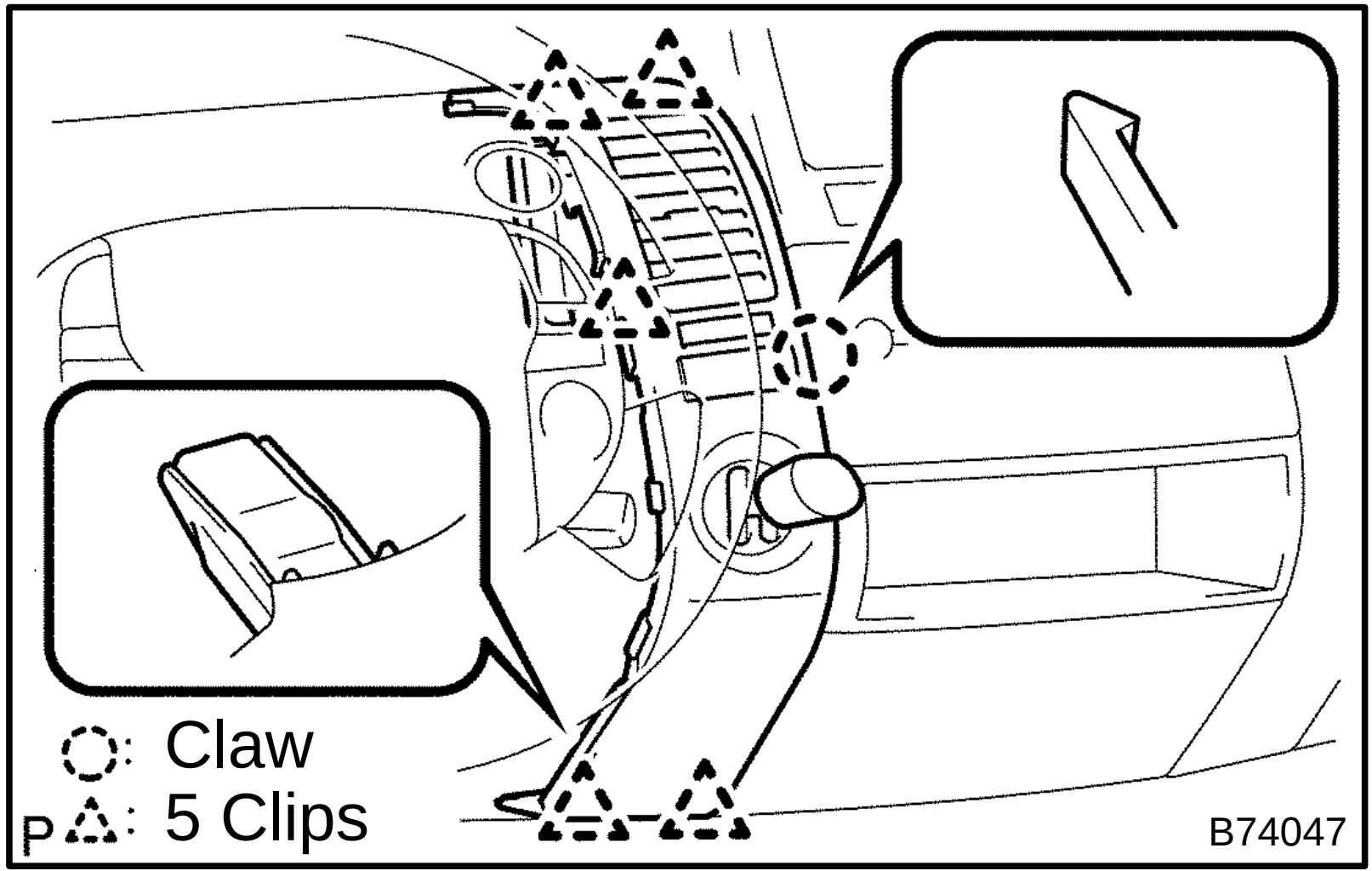
Let this panel hang loose also.

.

REMOVE INSTRUMENT PANEL REGISTER ASSY NO.3

(a) Disengage the claw and the 5 clips.

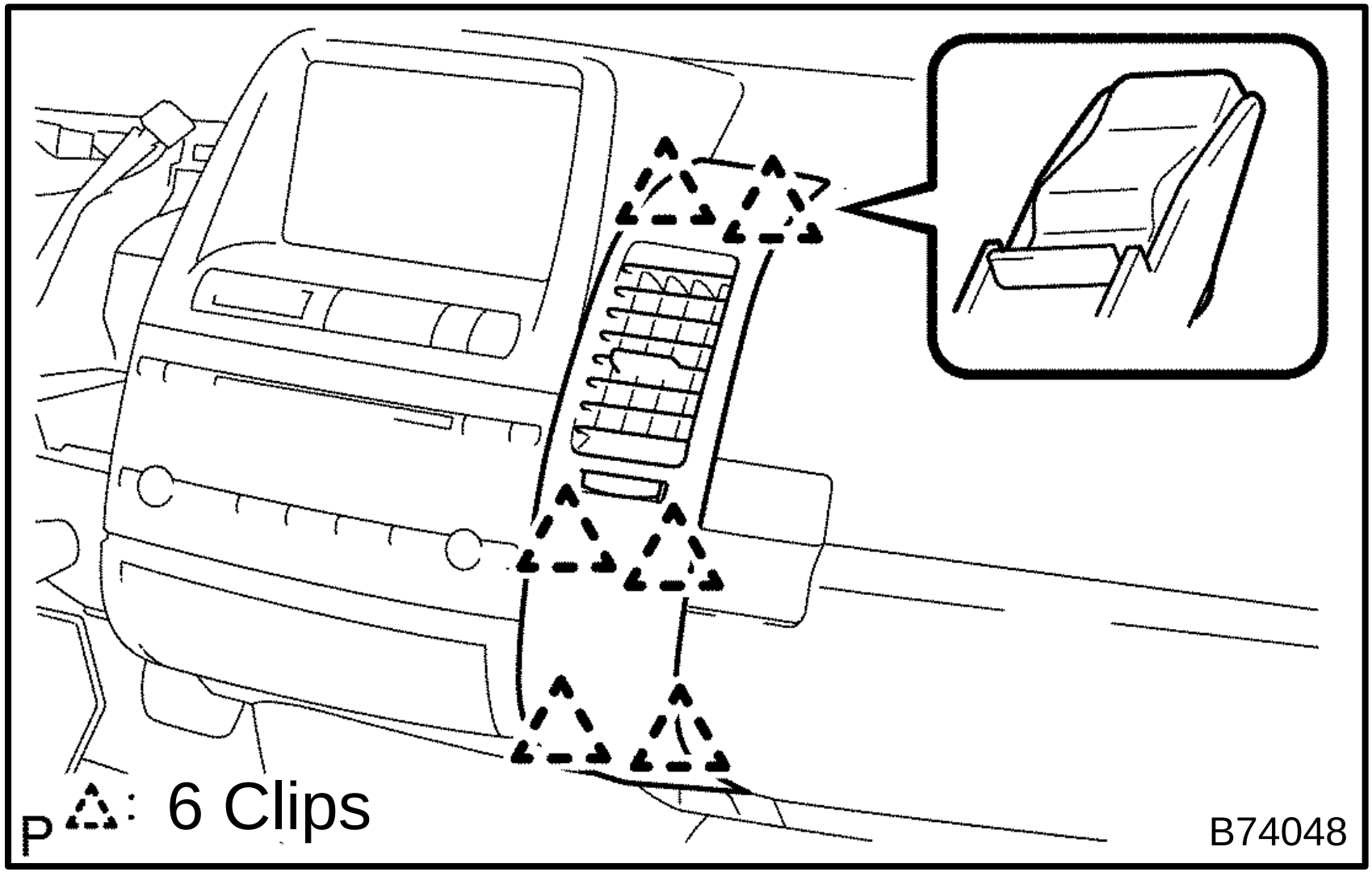
(b) There is a small tab on the black connector. Disconnect the connector and then remove the instrument panel register assy No.3.


: Claw
P : 5 Clips
B74047


PWR
VOL
TOYOTA

REMOVE INSTRUMENT PANEL REGISTER ASSY NO.4

(a) Disengage the 6 clips and then remove the instrument panel register assy No.4. Might need that screwdriver again.


P : 6 Clips
B74048

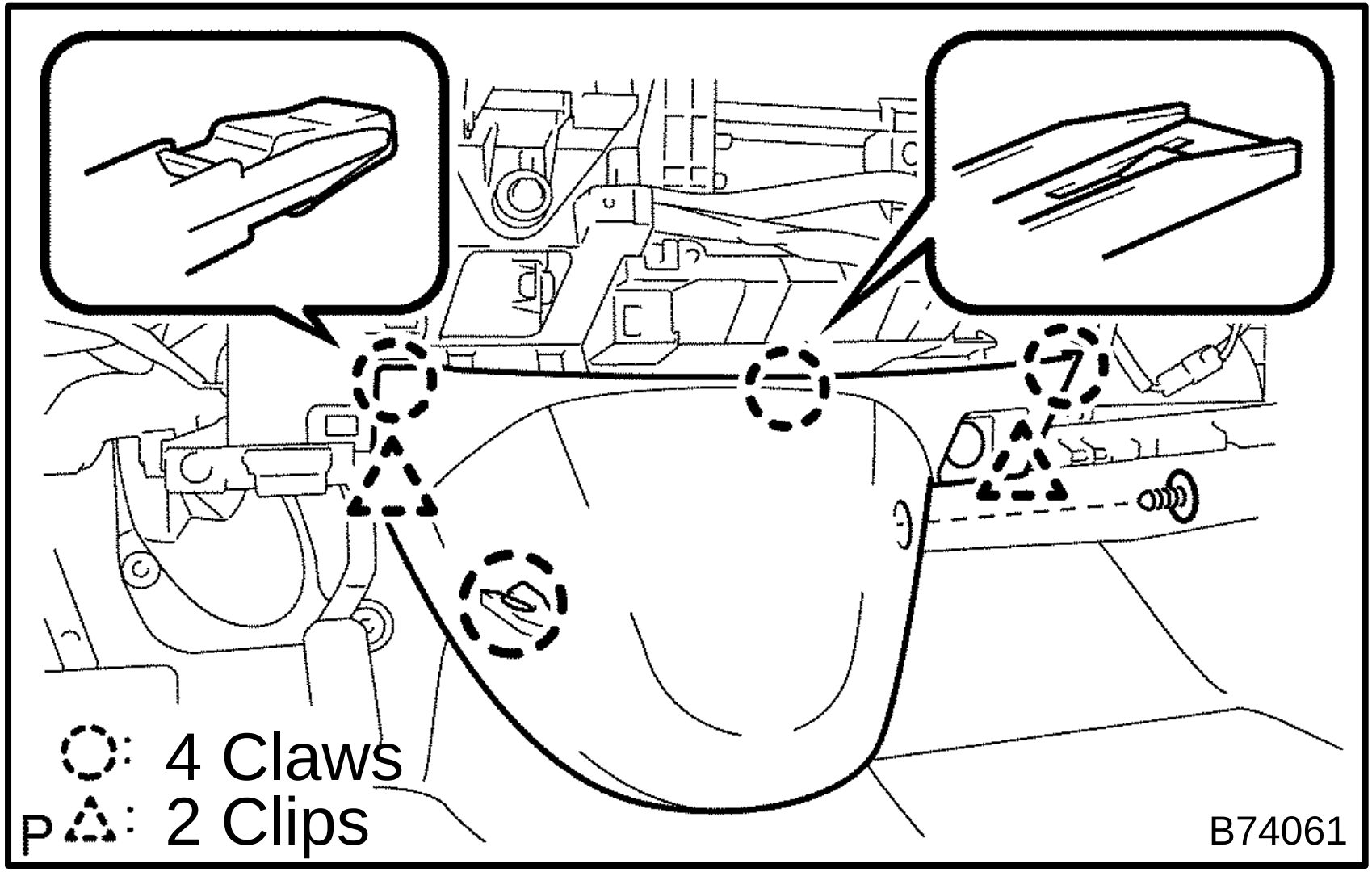
REMOVE INSTRUMENT PANEL REGISTER ASSY NO.2

(a) Disengage the 2 claws and the 4 clips, and then remove the instrument panel register assy No.2.

REMOVE INSTRUMENT PANEL FINISH PANEL LOWER CENTER

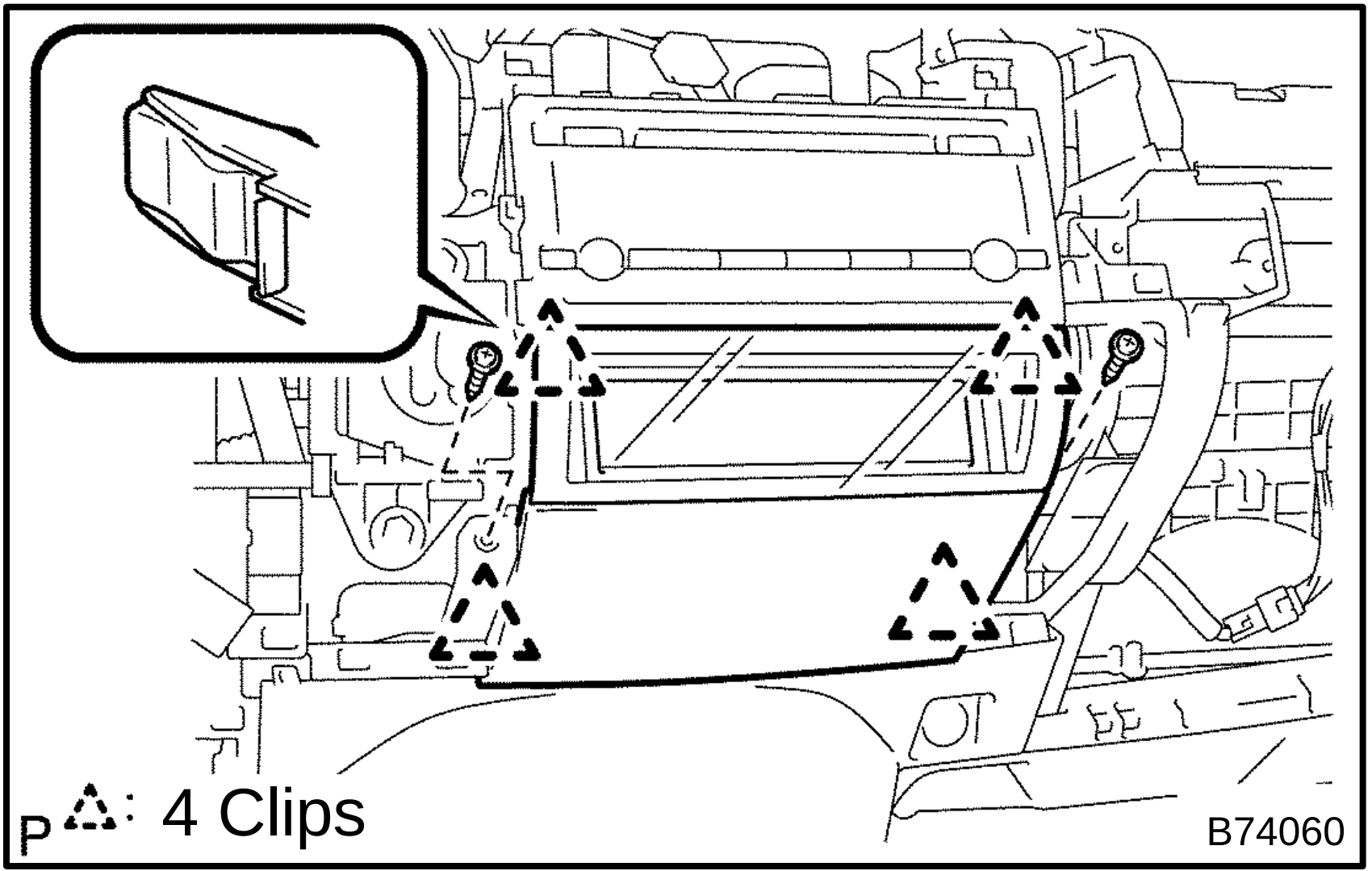
(a)Remove the push in trim clip from the instrument panel finish panel lower center. Do like I did and get your fingers behind the panel and pull towards you. The clip will pop out.

(b) Disengage the 4 claws and the 2 clips, and then remove the instrument panel finish panel lower center.


: 4 Claws
P : 2 Clips
B74061

Unplug connector. Put panel aside.

REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSY CENTER
(a) Remove the 2 screws.
(b) Disengage the 4 clips and then remove the instrument cluster finish panel assy center.

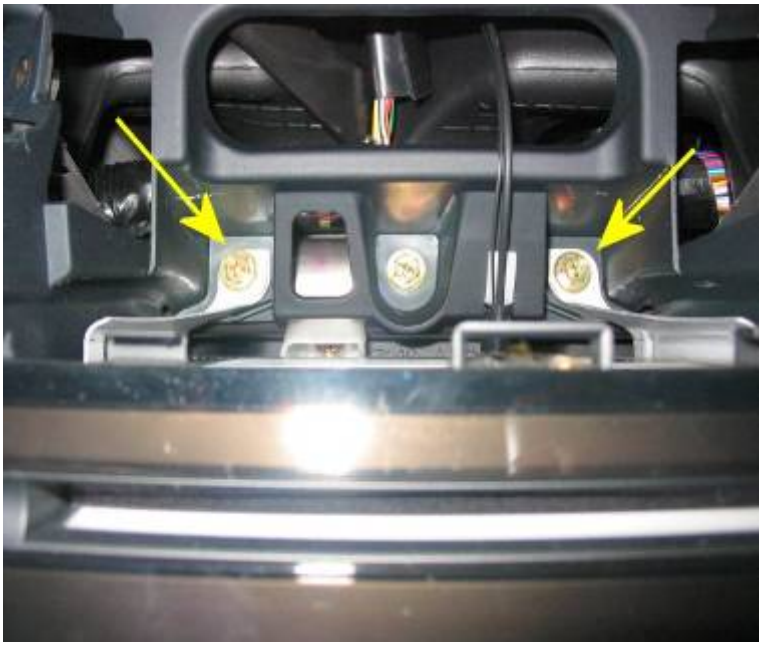

P : 4 Clips
B74060

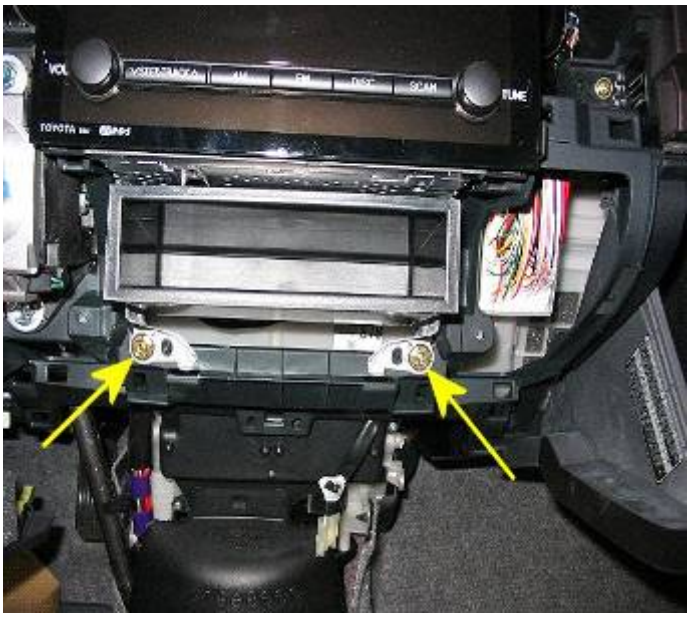
REMOVE MULTI–DISPLAY ASSY

(a) Remove the 2 bolts.

It is not necessary to disconnect the cables to the multi display. It can sit off to the side of the dash. If you feel more comfortable, you can remove the cables to facilitate removing the display from the car.

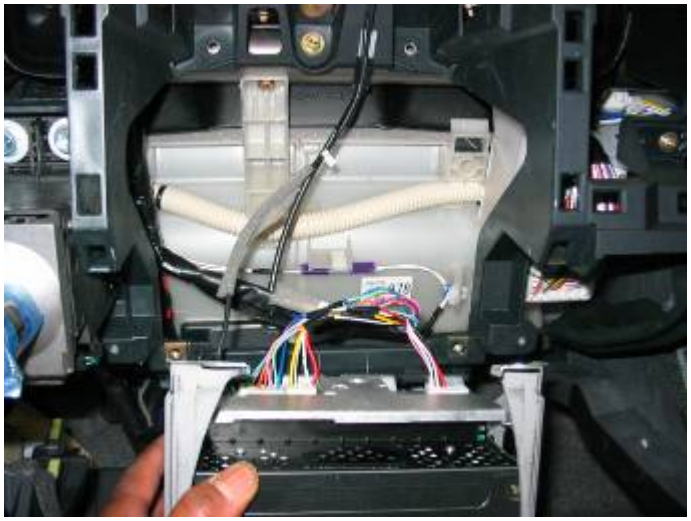
Remove radio assembly.
Remove the 4 screws.



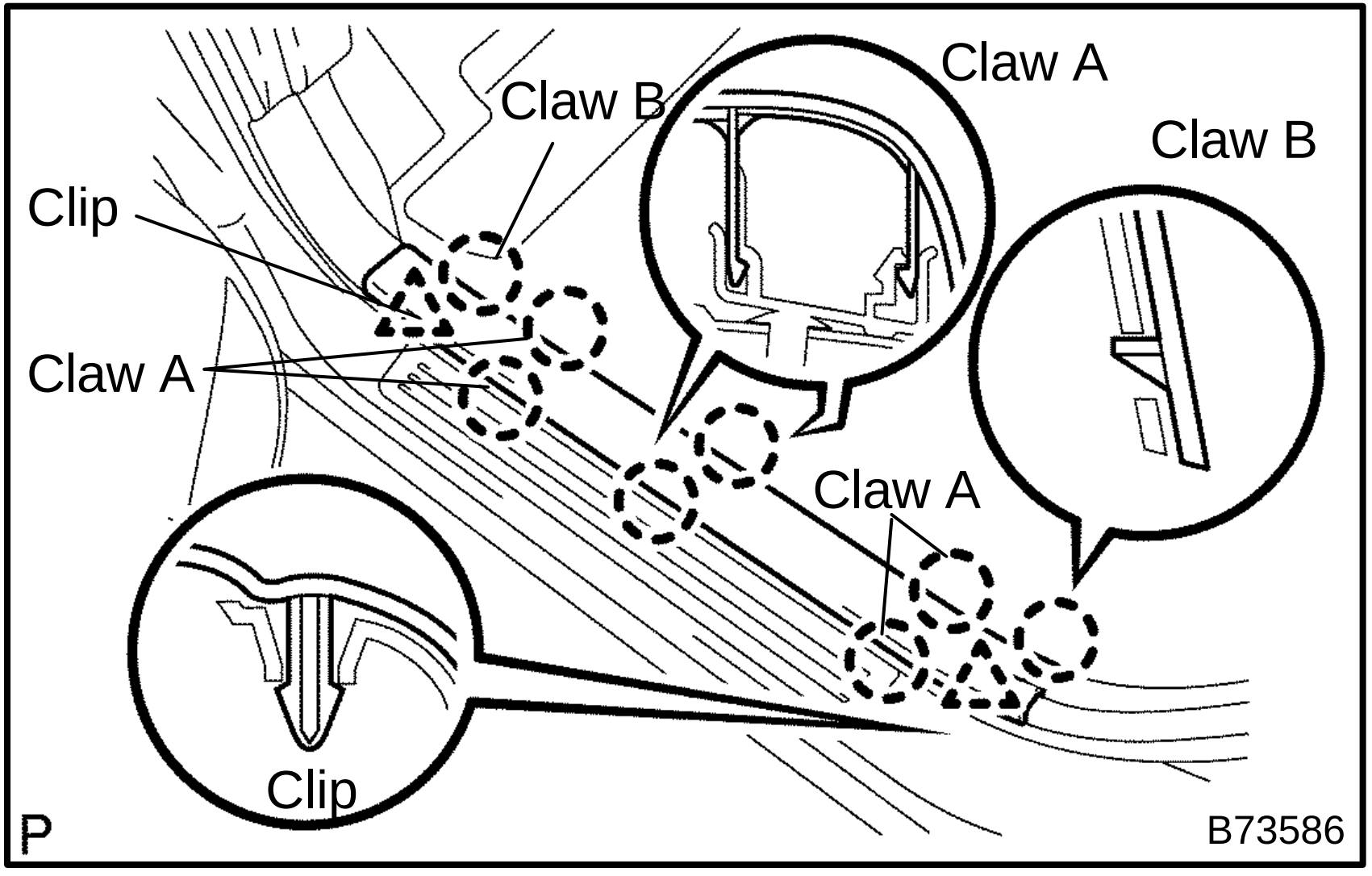


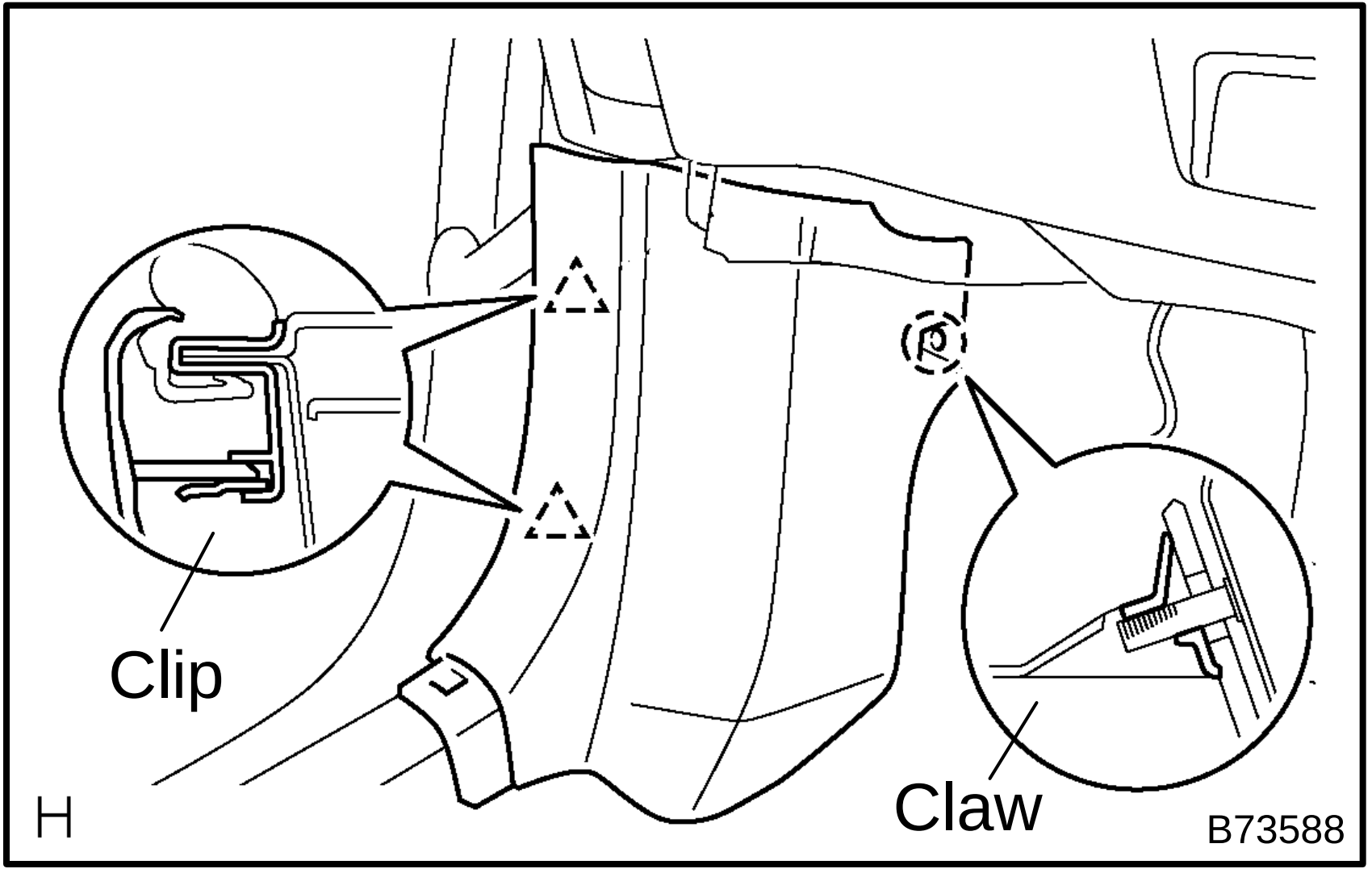
Grasp radio with both hands and pull it out of the dash.

Unplug antenna cable and the remaining connectors then remove the radio.



Remove instrument panel finish panel lower, right scuff plate and right cowl side trim.

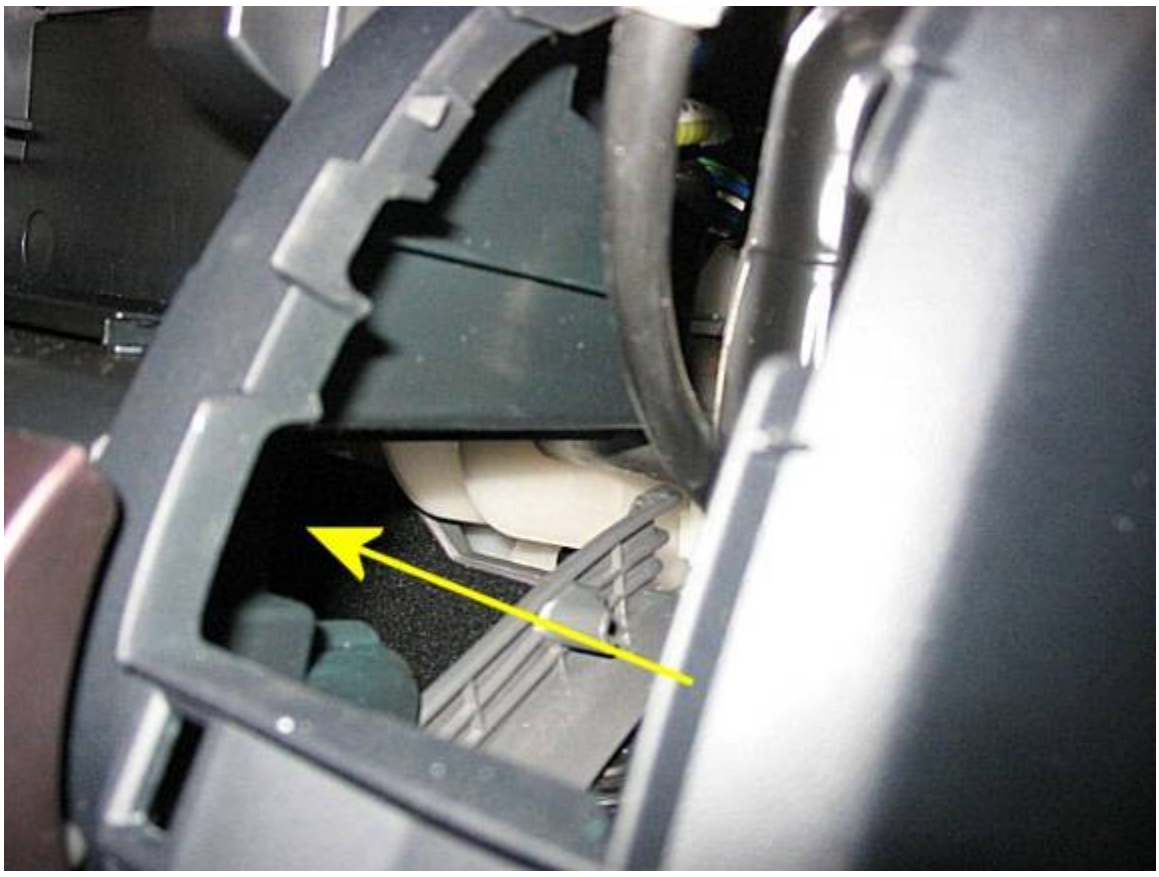

Claw A
Claw B
Claw B
Clip
Claw A
Claw A
Clip
P
B73586


Clip
Claw
H
B73588

Take the cable from the XM radio kit foam side first and feed it behind the dash.

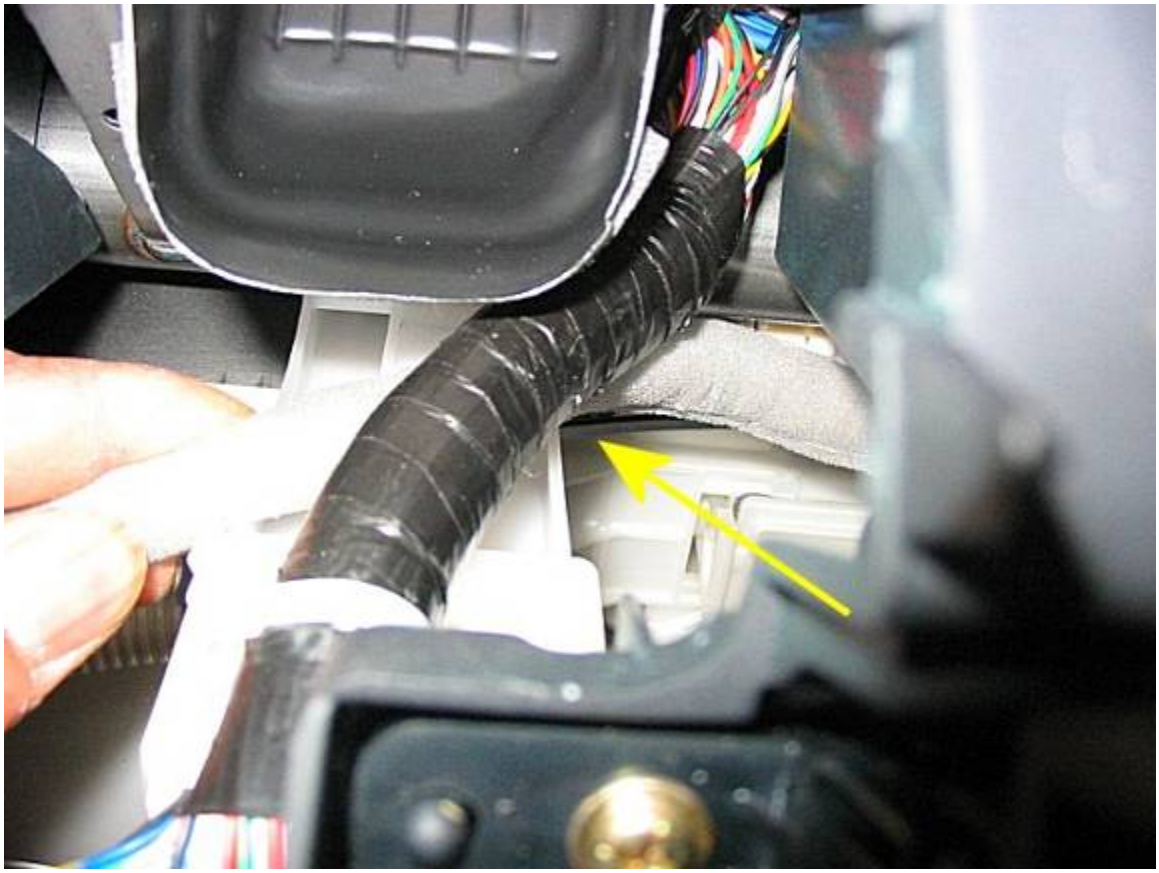
Feed the cable out of the register hole. You really only need to pull enough cable to make it to the radio assembly.

Feed the cable behind the glove box.



Open and lower the glove box, to make sure of cable placement.

Bring the cable out by the radio.



Make sure to run the XM radio cable under this bundle of wires.

Leave enough cable to plug into the radio then tie the XM cable off with one of the zip ties located in the XM radio kit.

There is a special cable tie in the kit. It has sticky tape attached to it.
Put the XM cable into the tie then stick the tie to the inside of the dash by register No.4.

Be sure the cable is pulled taught. What we are trying to do is have the cable not interfere with the glove box door. Be sure to check it's operation and make adjustments to the cable as needed.

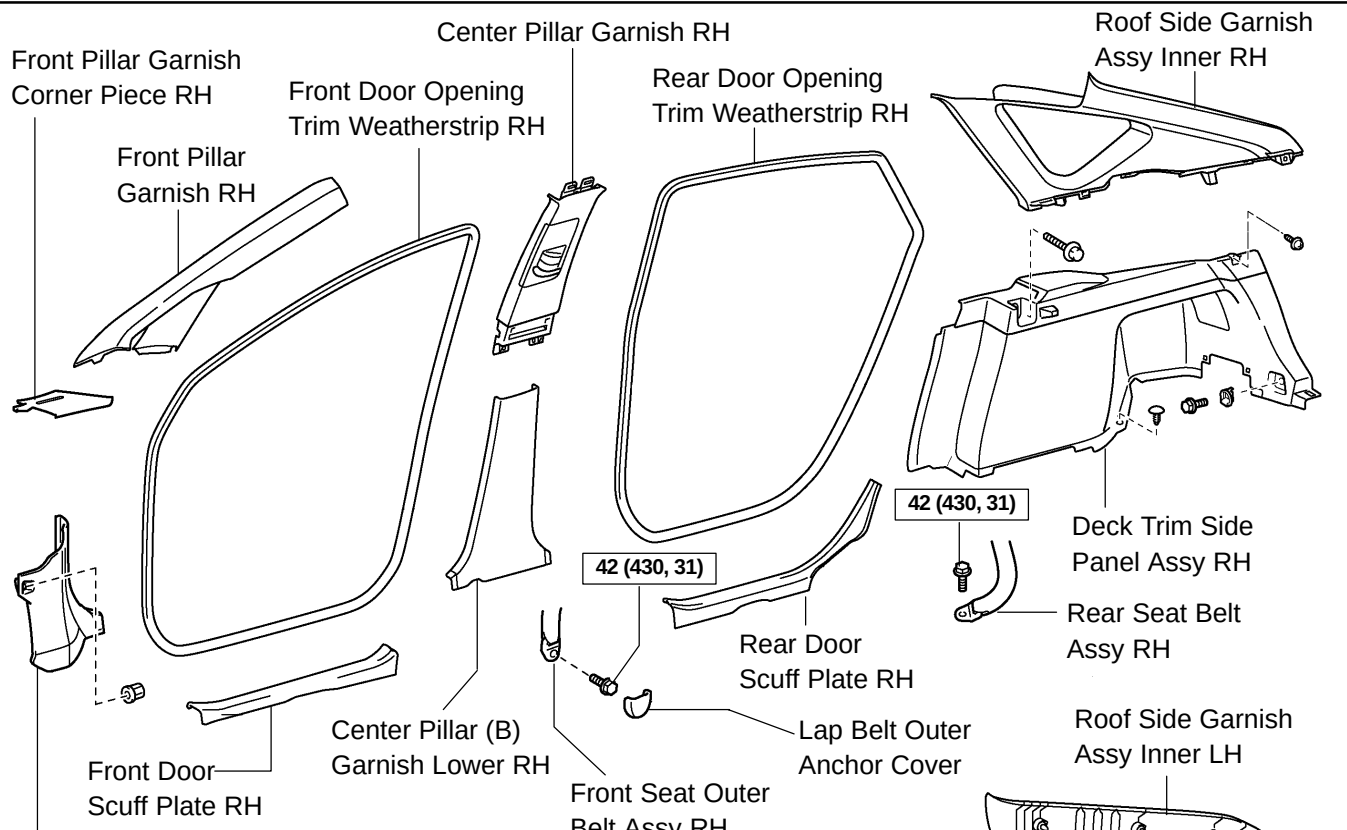
Plug the XM Radio cable into the radio. Reinstall the radio, center dash, multi display. Reinstall all dash panels and registers. Reassemble everything except the RH cowl panel and the RH front sill plate.

Take a quick break. Stretch your legs, have a drink. Water, beer or whatever. If it's beer, have only one.

Take your XM radio unit from the box and plug the XM cable into it. Take the antenna from the kit and plug it into the XM unit. You can temporarily place the antenna on the dash.Turn on the factory radio. Press the AM button on your radio until you see SAT 1.Tune to channel one which should show your XM radio ID. Jot down the ID. You will needt his to set up your subscription once your install is complete. Once that is done, you can browse the preview channels that are available. Don't sit there too long, you have work to do

Remove the right rear sill plate.

Pull the weatherstrip away from both sides of the B pillar panel (You know, that plastic panel between the front and rear doors).


Front Pillar Garnish Corner Piece RH
Front Door Opening Trim Weatherstrip RH
Center Pillar Garnish RH
Rear Door Opening Trim Weatherstrip RH
Roof Side Garnish Assy Inner RH
Front Pillar Garnish RH
42 (430, 31)
Deck Trim Side Panel Assy RH
Rear Seat Belt Assy RH
42 (430, 31)
Rear Door Scuff Plate RH
Front Door Scuff Plate RH
Center Pillar (B) Garnish Lower RH
Lap Belt Outer Anchor Cover
Front Seat Outer Belt Assy RH
Roof Side Garnish Assy Inner LH

Pull the B pillar panel away from the B pillar.

Route the XM cable behind the B pillar panel.

Pull the cable out the otherside.

Here you will see that the rear seat is removed. It is not absolutely necessary but it is so easy to do and makes the install a little easier. The front of the rear seat pops into these plastic clips.

Grasps the lower front of the seat and with a quick snatching motion, pull the seat up and out of the clips.

Once the clips are disengaged, pull the seat forward and remove it from the car.

Fold down right rear seat. Remove cargo cover, spare tire cover and cargo tray. Peel back carpet (velcroed to seat back).

Remove right rear floor board panel. Remove upper panel.

Pull carpet away from the rear quarter panel. It will pop back into place perfectly when we are done.

Pull carpet away from the rear quarter panel. It will pop back into

Remove clip from carpeting located just behind the right rear seat.

Feed the XM radio cable up behind the folded rear seat on the outside of the seat belt.

Route the cable under the carpet and along the right quarter panel. A coat hanger or fish tape might come in handy here.

Pull the carpet liner out at the bottom, it's easier to see where the cable is being routed.

Pull the cable out through the hole in the carpet where the upper panel came from.

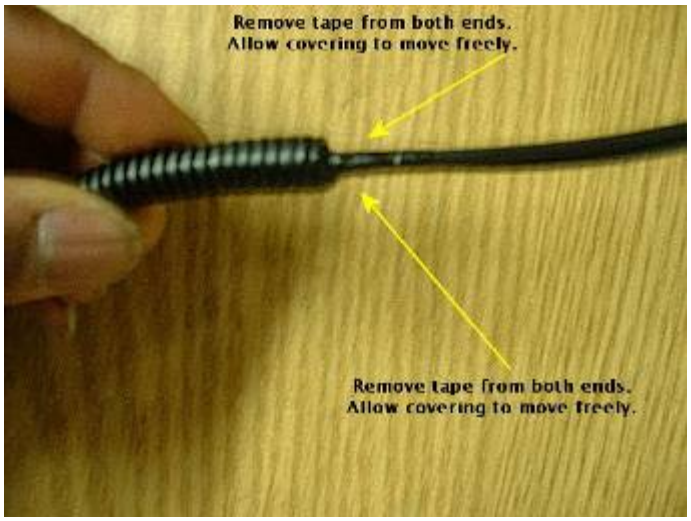
Take the XM radio unit and attach the duo lock tape from the kit to it.
Plug the cable into the unit then mount the unit to the right quarter panel.

Make sure your plugs are facing down and not up when mounting. Find the flattest surface possible. There is a prime spot just above and ahead of the battery.

The duo-lock and XM unit will be going on the back of the exterior sheet metal (rear quarter).

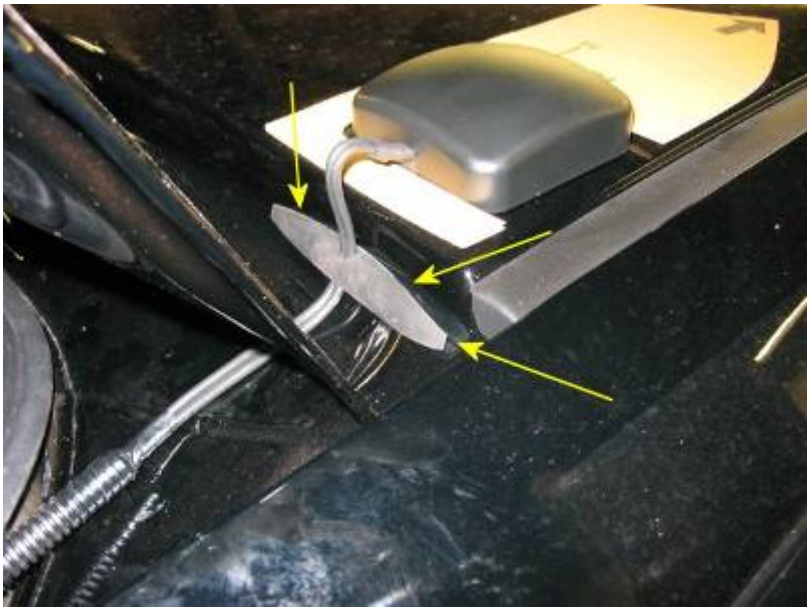
Remove this bolt. Pull panel back slightly.

Take the XM radio antenna from the box. There is a black plastic sheathing tape to the antenna wire. Carefully remove the tape from both ends. Allow the sheathing to move freely on the antenna wire. You can remove the sheathing completely if you choose but it is not necessary.



Take the template for mounting the antenna out of the kit. Line the template up on the roof and mount the antenna.

The antenna has double sided tape as well as a magnet to mount it. We choose not to permanently mount the antenna. If it ever needs to be replaced, it would be very difficult to remove it from the car. It's up to you to decide.



Remove the backing from the tape on the antenna wire and stick it to the car. Be sure the area is clean.

Route antenna wire over the top of the hatch weather stripping. Make sure the sheathing is not in the way if you chose not to completely remove it.

Route the antenna wire behind the right finish panel. Plug the antenna into the XM radio unit. Test the XM radio operation once again.

Dress up your wiring and refit the panel.

Refit all of your panels. Replace the carpeting, cargo and spare tire covers. Replace the sill plates and any other items removed.

And we are done!!!

This Prius installation is my interpretation. It is by no means the only way to do the installation. I have presented this as a guide so that others may learn from it. If you feel there are errors or that additions need to be made, please contact me.