A guide to Fabricating and Installing a Height-Adjustable seat in a 2004-2006 Toyota Prius

Please note, this document is a ***guide***, not step-by-step instructions. Nor will this document be expanded to become step-by-step instructions, as this process has too many steps to be adequately described for the average person without mechanical skills. This process involves: drilling, grinding, cutting, & welding of metal, painting, removal & replacement of upholstery, removal & replacement of the seat air bag, and removal & replacement of the seat position sensor. For those with the initiative to do it themselves, or for those who know someone who can do the work for them, this guide should be sufficient.

Like most other tall drivers, the view out of the Prius often requires "hunching over" or "ducking down" to see the traffic signal in front of us (or any other object located slightly above the car). If there was a way to lower the seat, us tall drivers could see so much better!

I've known for quite a while that the Japan Prius' have height-adjustable driver's seats. But, as the adjustment handle is on the right side of the seat, and the seatbelt receptacle is on the left side of the seat, ordering a seat from Japan was not an option. Additionally, would the range of motion be sufficient to lower the seat and solve my problem?

Finally, an opportunity came for me to visit Tokyo, and high on my list of things to do was going to a Toyota showroom. I sat in a 2006 Prius with a height-adjustable seat, and was very excited to find the seat could be lowered to provide me with excellent sight lines out of the car.

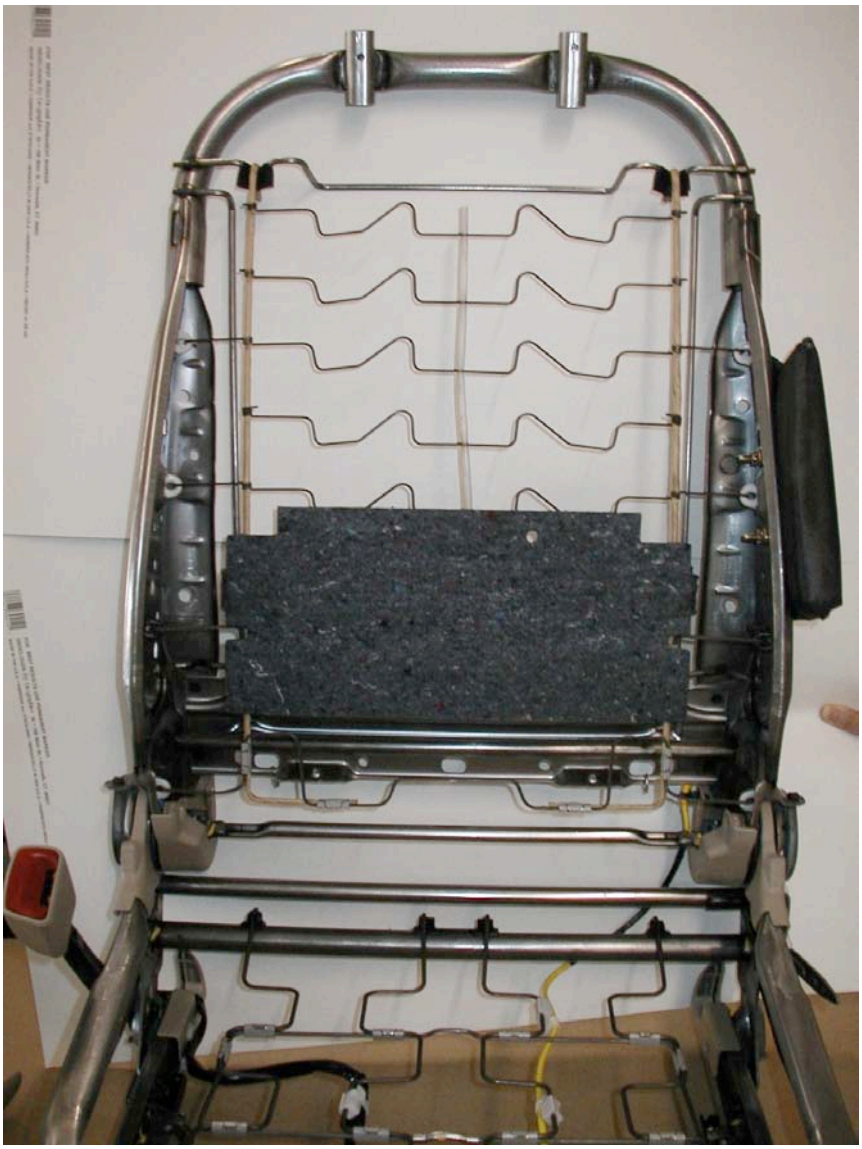
2006 Prius, Japan. Note "pump-handle" height-adjuster

After many visits to Toyota dealerships to measure various driver's seats in the Toyota vehicle line-up, the 2005 Corolla seat seemed to have the same mechanism I saw in

Japan. Realizing I had to take a gamble, I bought an entire 2005 Corolla seat (from an on-line salvage yard, $328.50 delivered), with the height adjustable mechanism, beige fabric (which does not match the Prius fabric), and most importantly beige plastic trim (which does match my Prius' plastic trim).

The underlying structure of the Corolla seat and the Prius seat are nearly identical, but there are some significant differences:

- The seat sliding rails are the same, with the same center-to-center distance between the rails; however the "mounting feet" that make the connection between the seat rails and the floor are completely different.
- The shape of the upper-back (headrest support bracket) of the seats are completely different, the Prius has a more "rounded" shape, whereas the Corolla has a "squared-off" shape.
- The Corolla seat I purchased does not have a side impact air bag, but my Prius seat does.

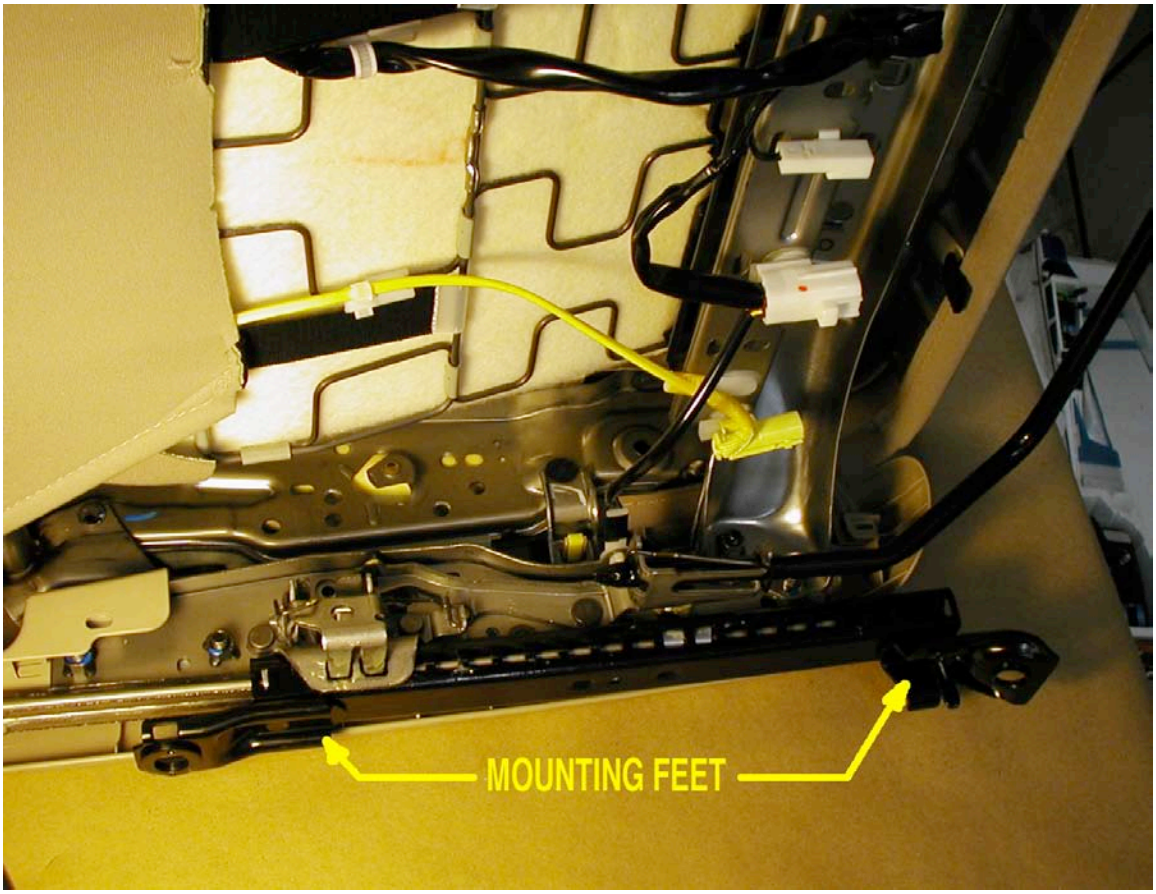


2005 Prius Seat, stripped. Note "rounded" profile of seat top

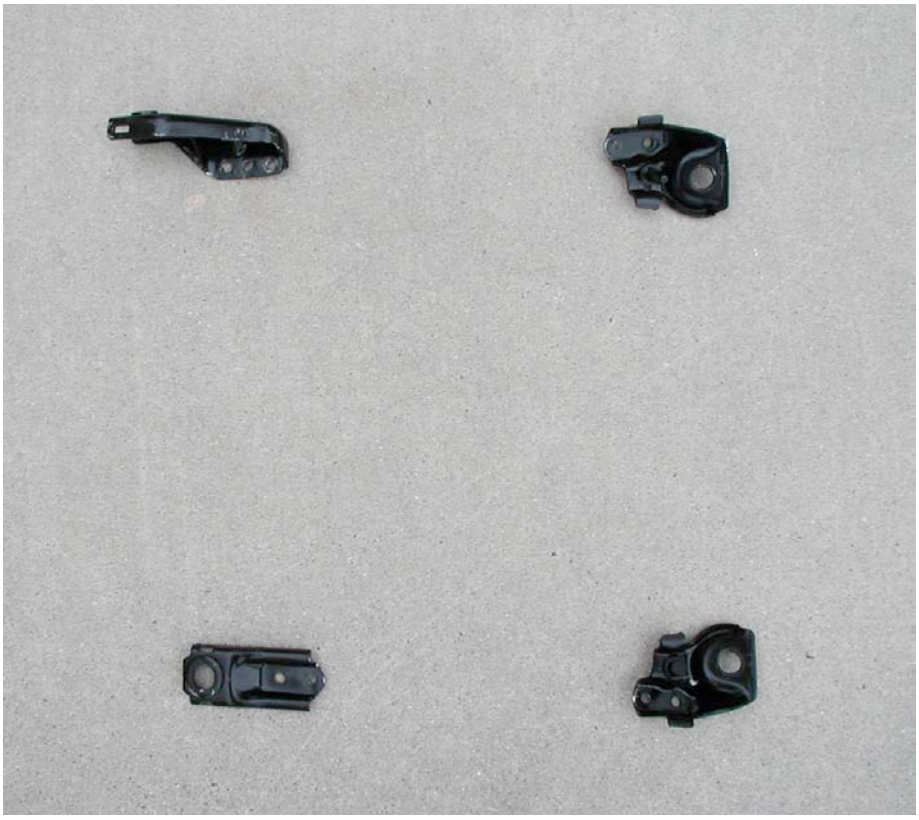
2005 Corolla Seat, stripped. Note, “squared” profile of seat top

After close examination of both seats, I realized that the overall goals would be as follows:

- Take a lot of pictures of both seats as I disassemble everything.
- Most of the Corolla seat structure and mechanism would be reused as the replacement Prius seat.
- The Corolla seat “mounting feet” will be removed and discarded, and the Prius “mounting feet” will be used on the Corolla seat.
- The Corolla seat “headrest support bracket” will be removed and discarded, and the Prius “headrest support bracket” will be used on the Corolla seat.
- The Corolla seatbelt receptacle (and its associated brackets and wiring) will be removed and discarded, and the Prius seatbelt receptacle (and its associated brackets and wiring) will be used on the Corolla seat.
- The Prius airbag (and its associated wiring) will be moved to the Corolla seat.
- None of the Corolla foam or upholstery will be reused. All of the Prius foam and upholstery would be moved to the Corolla seat.
- A blend of both Corolla and Prius plastic trim pieces will complete the seat.



Prius Seat, Mounting Feet


Prius Seat Mounting Feet, removed

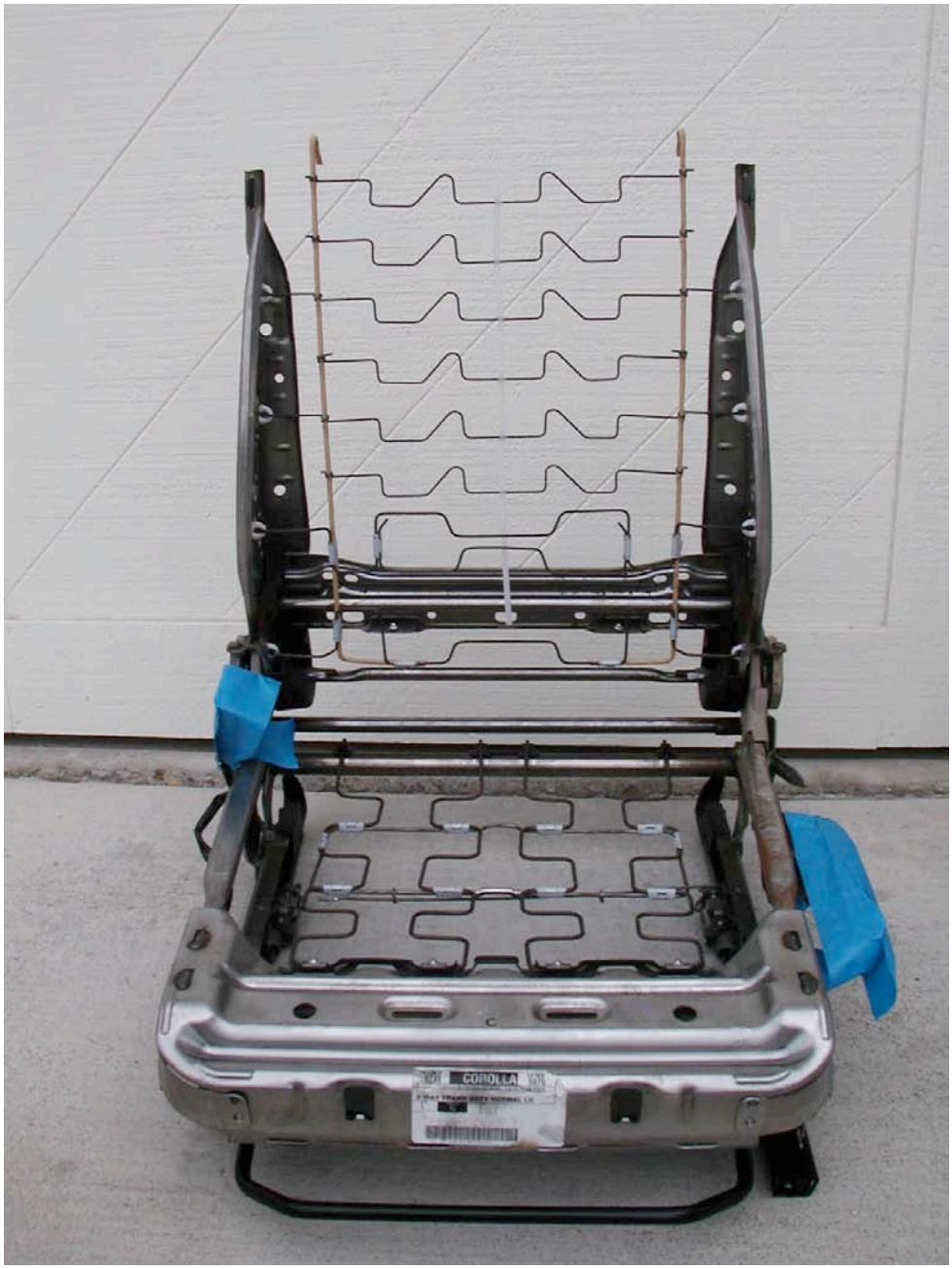
Mounting Feet

1. All mounting feet need to be removed from both seats, without the seat sliding rails of the Corolla seat being damaged, or the feet from the Prius seat being damaged.
2. Drill out the large rivets holding the feet in place. Drill through the center of the spot-welds that hold the feet in place.
3. A bead weld on one of the feet must be cut with a cut-off wheel.
4. Carefully pry off the mounting feet. If the Prius mounting feet are slightly misshapen by handling, hammer them back into their proper shape.
5. Clean-up and smooth all rough areas with the grinder, and prepare surfaces for welding.
6. I used high-strength, ¼-28 socket-head cap screws (with a low profile head, very important!), with nylon lock nuts to go in the rivet holes.
7. Temporarily put 10-32 machine screws with nuts in the holes through the spot welds to help keep the Prius feet positioned for welding (these will be removed after welding).
8. I welded in four places on each foot with a TIG welder and stainless-steel rod. Rotate the welding from foot to foot to avoid overheating of the seat sliding rails.
9. Remove the temporary 10-32 machine screws, and paint the welds with gloss black spray paint.

Headrest Support Bracket

1. Mark on the Prius tubing how far the headrest support bracket extends down into the sides of the seat, before cutting the welds that hold the headrest support bracket in place.
2. The welds at the bottom of the vertical rods must also be cut from the Prius seat and removed as part of the headrest support bracket.
3. Cut the welds holding the Corolla headrest support bracket, and discard the Corolla headrest support bracket.
4. Using small sheet metal screws I temporarily mounted the Prius headrest support bracket on the Corolla seat, using the marks on the Prius headrest support bracket as a guide.
5. Using a TIG welder and stainless-steel rod, the Prius headrest support bracket was permanently mounted to the Corolla seat.

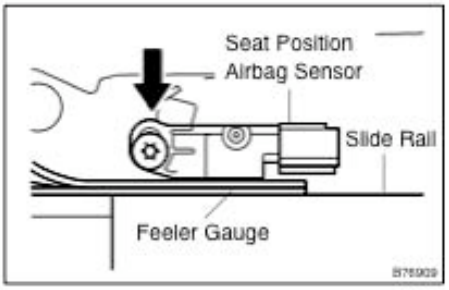
Prius headrest support bracket



Corolla Seat, without feet or headrest support bracket. Ready for Prius feet and Prius headrest support bracket to be installed

Seatbelt Receptacle, Air Bag, Wiring

1. The seatbelt receptacle has a wiring harness that also connects to the seat position sensor. The seatbelt receptacle wiring harness must be routed so it is not pinched or strained by the movement of the height-adjustment mechanism.
2. The seat position sensor has to be reinstalled per Toyota's instructions (below).
3. Mount the two electrical sockets on the harness in a similar location on the Corolla seat, as they were on the Prius seat.
4. Remove the air bag from the Prius seat, and mount it in the same existing holes in the Corolla seat.
5. Route the air bag wiring as it was in the Prius seat, and mount the airbag electrical socket in a in a similar location on the Corolla seat, as it was on the Prius seat.



19. Driver's seat only:

INSTALL SEAT POSITION AIRBAG SENSOR

(a) Install the seat position airbag sensor, but do not fully tighten it yet.

(b) Insert a 1 mm (0.04 in.) feeler gauge between the slide rail and sensor as shown in the illustration.

HINT:

Make sure that the clearance between the seat position airbag sensor and the slide rail is between 0.6 to 2.0 mm (0.023 to 0.079 in.).

NOTICE:

- **If the seat position airbag sensor has been dropped, or there are any cracks, dents or other defects in the case, bracket or connector, replace the seat position airbag sensor with a new one.**
- **When installing the seat position airbag sensor, make sure that the SRS wiring does not interfere with other parts and is not pinched between other parts.**

(c) Hold down the top of the sensor and tighten the sensor with a T30 torx® socket wrench.

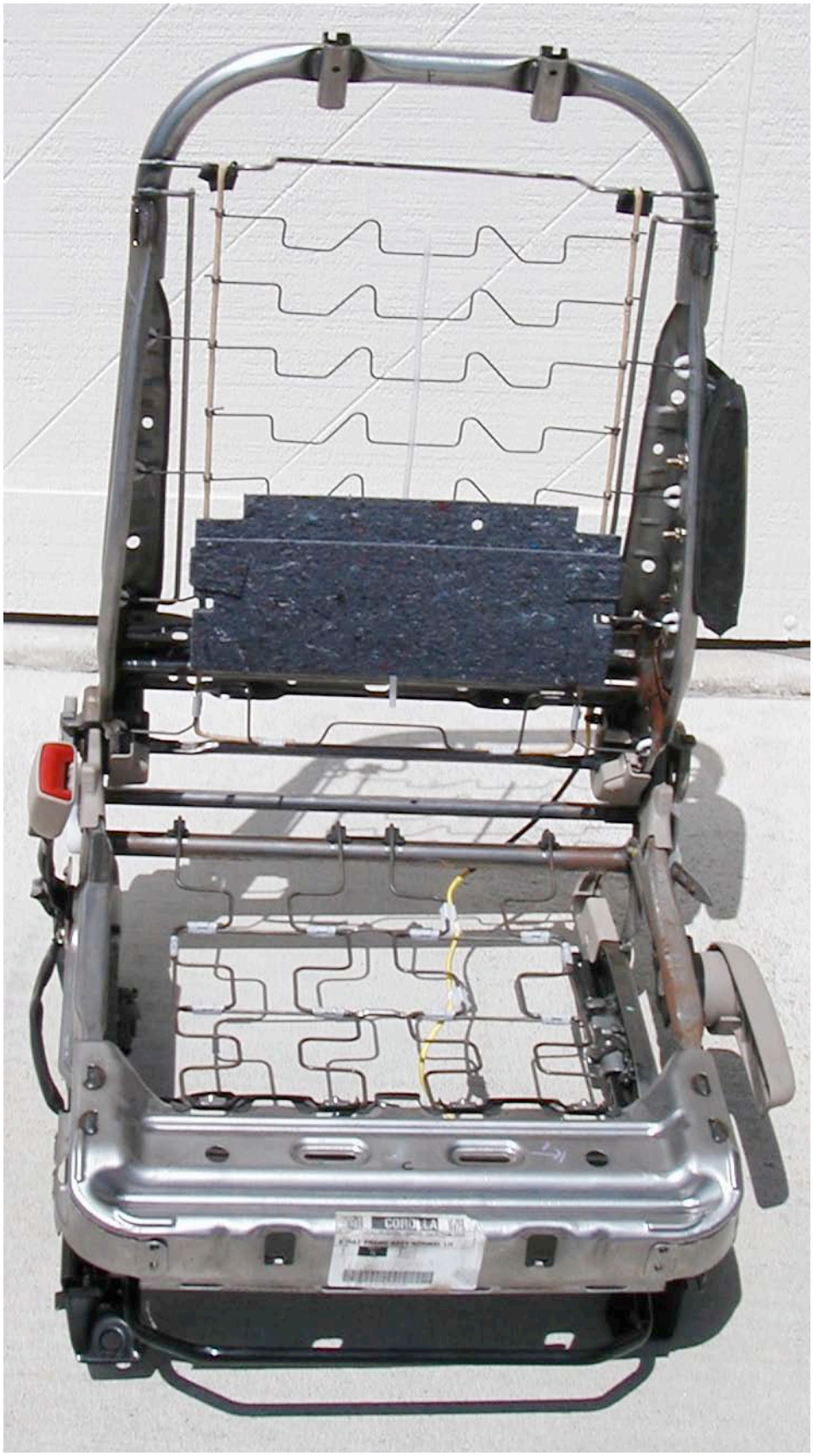
Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)

(d) Remove the feeler gauge.

(e) Install the seat slide position protector.

(f) Connect the wire harness connector.

Toyota's Instructions for Installation of Seat Position Sensor



Corolla seat retrofitted with Prius: mounting feet, headrest support bracket, airbag, seatbelt receptacle, seat position sensor, and wiring.

Upholstery and Trim Pieces

1. The seatback foam and upholstery from the Prius fits perfectly on the retrofitted seat, and is secured exactly as it was in the Prius (with one exception, there is a non-removable welded stud on the Prius seat, for securing the fabric over the airbag. Use a bolt and locknut on the retrofitted seat.)
2. The seat foam and upholstery from the Prius fits perfectly over the retrofitted seat, and is secured as before, however you do have to cut a hole in the fabric for the “pump handle” mechanism.
3. The plastic trim panels on the lower left and lower right sides of the seat are re-used from the Corolla seat. You may have to nibble a little bit of the plastic on the back of one of the panels in order to make it fit perfectly.

Seat Retrofit Finished and Installed

The finished seat is essentially all Toyota, with the same look and feel that you had originally in the Prius.