



ClamHinge System Install Notes

Important: The installation of this system requires a moderate level of mechanical ability and tools. Installation should only be attempted after reviewing the instruction. It also recommended that at least two people be involved anytime the clam is moved, as it is awkward, heavy, and relatively fragile.

Tilting instructions (this will appear again later in the instructions):

This four bar hinge must be operated in such a way that it travels through the correct motion, or the clam will not tilt correctly. Once you learn the motion, it will become easy and quick to tilt. Proper clam tilting is to lift from the rear of the car, grasping the boot wall where the lid latch is with hips against the rear of the car. The lid should be up and you'll have to duck your head under the lid as it tilts back. Be sure you have sufficient slack in the battery cables and the tail light harness has been disconnect and fed through the boot wall. Also be sure you have removed the washer fluid tank from its pedestal.

IMPORTANT: First lift up with an emphasis to the rear, once up then pull back while lifting. The clam may slightly rub the exhaust U-bend and that's OK. Your clam is not a screen door, nor should it be operated as such...

Installation:

These instructions are broken down into 3 major parts: Clam Removal, Vehicle Preparation, and System Installation.

Clam Removal. 2-3 hours: Tip- Use bins or bags to help keep organized.

1. Remove seats, and rear speaker panel.
2. Remove *interior* roll bar cover.
 - a. By removing this cover, you should find two 10mm bolts on either side of the car that fix the outer cover to the rollbar. Remove them. They will not be reused.

3. Remove all 4 fixing that attach to boot lid hinges through the fire wall, under the rear glass. These *will* be reused. Refer to later illustration.
4. Remove the boot lid by slipping the now unsecured boot lid hinges from the car. There is no need to remove the lid from the hinges themselves.
5. Remove both fixings on either side of the cabin (from the inside), located behind the roll bar and above the rear scoop. These will *not* be reused. Refer to illustration following.
6. Jack up car and remove both rear wheels and wheel liners.
7. Remove all 4 fixings that secure the clam to the rocker panels (2 on either side). These are located to the front of the wheel, and behind the scoop. Accessed through the wheel opening.
8. Remove black trim around side scoop (outside of the car). Leave the louvers in place.
9. Remove boot liner, pad, et cetera.
10. Remove battery.
11. Disconnect tail light harness *inside* the boot area. Peel harness from the boot floor to gain slack, as you'll need the slack later.
12. Disconnect alarm wires from latch.
13. Pull alarm wire, battery cables, and tail light wires through the clam and into the engine bay. Access through driver's side wheel opening and lid opening.
14. Remove all 4 fixings in the boot area that secure clam to the frame.
15. Remove diffuser.
16. Take Beer Break to reflect and assess the situation...
17. Remove rear panel fixings if you still have the rear panel, accessed inside the boot.
18. Remove remaining rear panel fixings and remove rear panel.
19. It is recommended to remove all heat shielding. If you do not, then the rear most section of the heat shield will have to be trimmed significantly to make room for panel eliminator.
20. Remove all heat shielding around the U bend in the exhaust- Required.
21. Remove the washer fluid tank from the boot wall.
22. Remove the black mounting lugs that secure soft top to the roll bar area. There is a small 5mm hex wrench included in the kit for this task. This hex wrench is small and easy to use, as you'll want to keep it with the car for this duty each time you tilt the clam. Retain the hex head screws, they'll be used again.
23. Remove light harness fixed to the 3rd brake light. Optional- Remove 3rd brake light and place on Ebay☺
24. Remove fuel door lid by remove each hex head bolt around it. The nuts will likely fall in the fuel spill area and end up on the floor.
25. Cut weather strip on the roll bar cover with a sharp blade on either side of the Rollbar cover as shown.



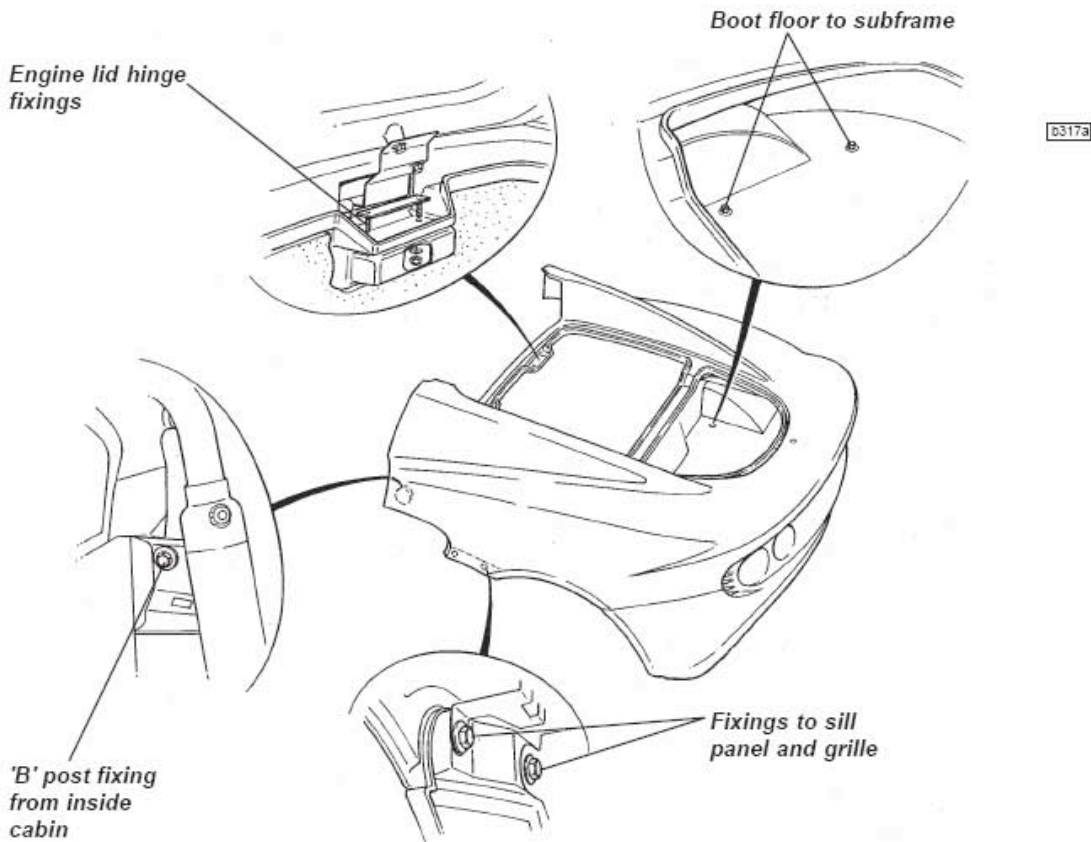
- 26.
27. Place a blanket several feet away from the car approx 6x6 feet in size.

28. Remove rear clam by lifting straight up and then back (note this movement, as the hinges do the same thing) and place the clam on the blanket.
29. Note- Upon Removing the clam, the black edge molding around the side scoops will become dislodged from the clam. It is recommended that you completely remove the molding and clean the adhesive off the clam with a mild adhesive remover.
30. Take Beer Break to reflect and assess the situation...

The rear clamshell is a one piece composite moulding incorporating both rear wings, the engine bay aperture, rear transom and integral luggage bay. The clamshell is secured to the chassis and other body panels by threaded fasteners for ease of service access and body repair.

To Remove Rear Clamshell

1. Remove the soft or hard top roof (including Exige) - see sub-section BR.1
2. Remove both rear wheelarch liners;
3. *Elise*: Remove the rear window shroud - see sub-section BR.2.
Exige: From within the cabin, remove the two screws above the rear window securing the top edge of the clamshell to the rear bulkhead. Remove the two cant rail latch plates from their brackets on the roof hoop. Peel off the weatherstrip seal from the clamshell flange.



4. From inside the cabin, remove both seats and the full width trim panel from the rear bulkhead. From the access thus provided, remove the fixing securing the front end of the clamshell to the 'B' post above the engine bay air intake.
5. *Elise*: From inside the cabin, release the fixings securing the engine lid hinges to the rear bulkhead, and withdraw the engine lid complete with hinges.

Vehicle Preparation

This section is broken into 5 sub categories:

- Wheel liners
- Rollbar Cover
- Gas Lid
- Battery Cable
- Velcro

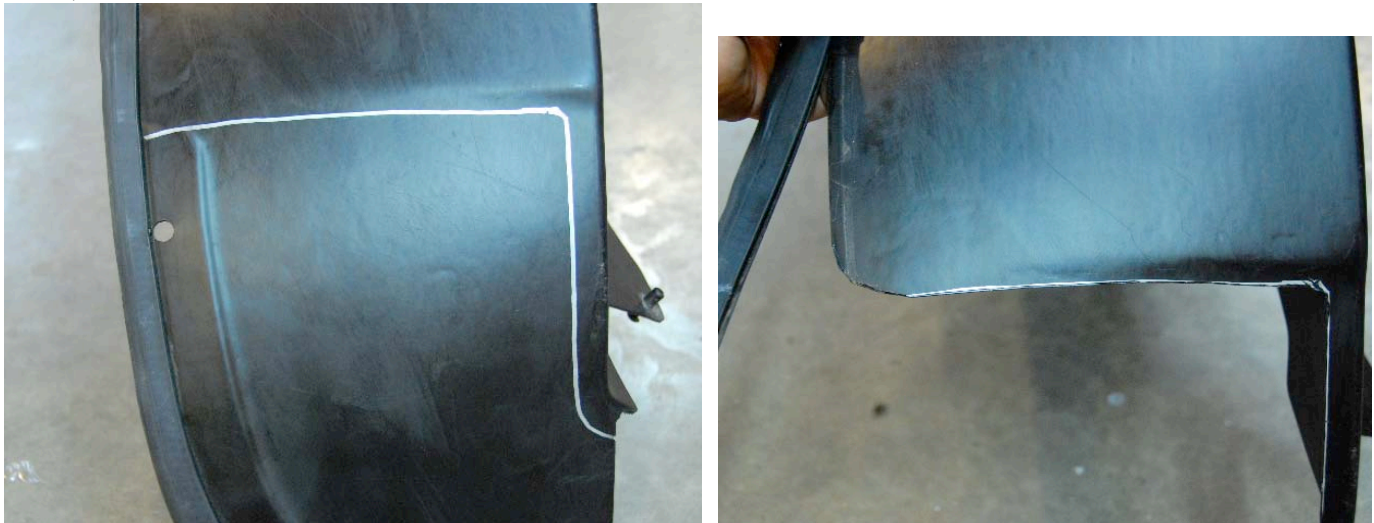
Wheel Liners: 20-30 minutes

The Wheel liners will need to be trimmed and then reinstalled back on the car while the clam is removed. Use heavy scissors or tin-snips for this task.

First remove the weatherstrip and then enlarge the relief at the front of the liner, as seen:



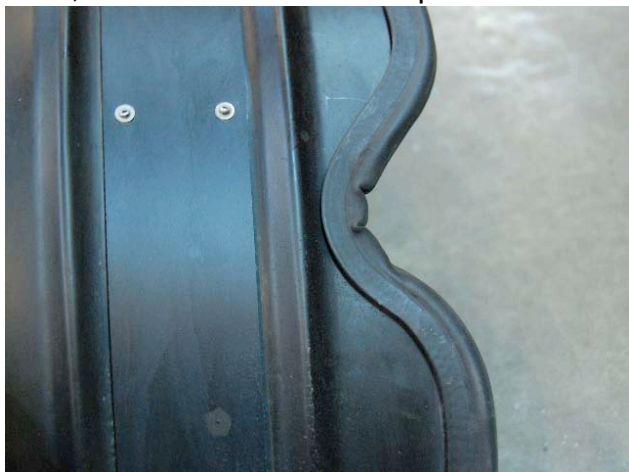
Next, cut across the molded indentation on the rear of the liner as so:



The piece cut-out should look like this:



Next, reinstall the weatherstrip:



Save the cut out piece, as you'll install that on the rear clam once it's back on the car like so:



Drill a hole in the large portion of the liner just behind the relief for the shock mount:



Reinstall the big parts of the liner on the car. This step complete.

Rollbar Cover: 20-30 minutes

You need to trim the interior Rollbar cover so the clam can slide over it easier. The trimming will *not* be visible when the clam is down.

First mark the area to be trimmed and then trim with a razor blade. It will shave off clean and easily with a sharp blade. Do *not* be bashful on the shaving here. Some cars require more shaving than others for easy operation.





Next, you need to trim a hole through the cover to gain access to the holes going through the Rollbar. You'll see some embossing that is already there. These holes should look like the following and be about .75-1" in width and shaped like a U:



Reinstall Rollbar cover. You should be ready to shave more of your Rollbar cover if needed. It's not a big deal to do so. At this stage you can also reinstall the rear interior panel. This panel helps to hold the cover in place.

VELCRO!

Just as the Lotus engineers did, we opted to use Velcro to deaden sound and vibration. There is a pack of Velcro in your kit consisting of 2 each of 1", 2", 3", and 4" strips. We will use all of them in the next steps.

1. Install a 1" strip on either side of the car between the louver mount and the front-most rocker panel bolt hole as seen. You will only use the rear most bolt in the future for securing to the clam.



- 2.
3. Install a 2" strip on either "ear" on top on the Rollbar. You should FIRST file the ear a bit to smooth the corner off. Then install the Velcro, folding it over the ear. Cut a hole on the Velcro for the hex bolt to travel through. This piece is very important to allow the top to slide over this ear:

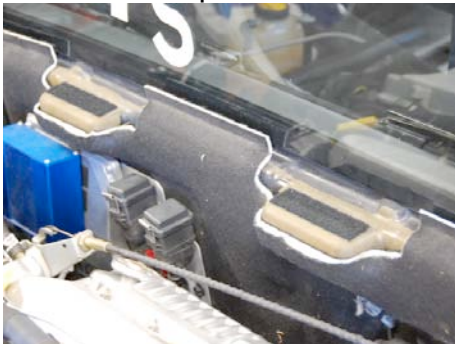


4. Place a 3" strip over the side mounting point that's just above the side scoops on the rear clam. This step will be done while the clam is on the floor. This mounting point will not be used.



Referred to as the B post on page 2.

5. Place a 4" strip where the lid hinges used to attach to the firewall.



Velcro step is complete.

Gas Lid

You will be removing the retaining ring from the spill cup.

1. First remove the gas cap and cut the zip tie around the rubber boot that retains the spill cup/ring to the filler neck.
2. Remove the entire spill cup and hose from car by slipping it off the filler neck.
3. Remove the few screws attaching retaining ring to the spill cup.
4. Using a knife if needed and a lot of force, separate the spill cup from the ring. They're glued



together.

5. Install the filler lid and retaining ring back on the clam. Reinstalling the spill cup is



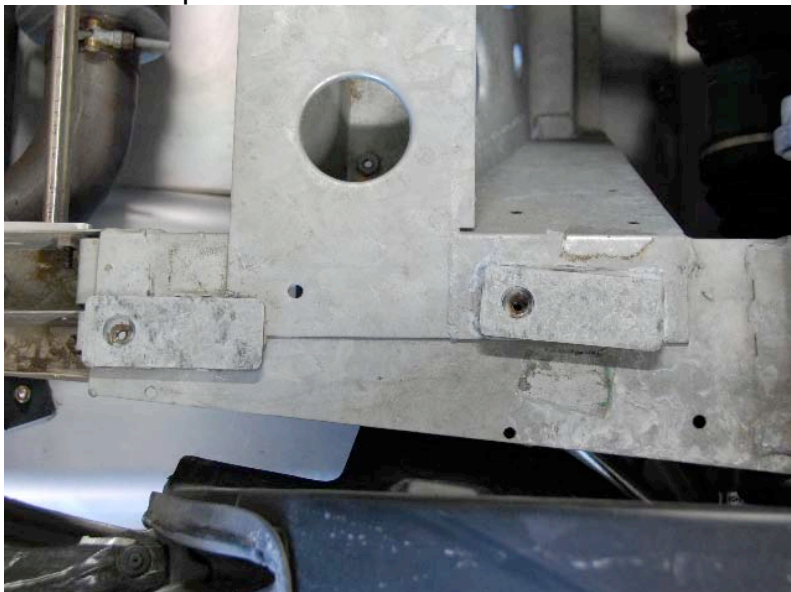
optional.

Battery Cables

It is necessary to reroute the stock battery cable. You need to remove all clamps and ties that hold the battery cables all the way down to the base of the frame (essentially to driver's side floor pan). You need all the length you can get. Then route the cables over to the filler neck area. Take your time. There are a lot of clamps and ties on these cables. You may need to drill out a rivet or two that could be securing the cables to frame. (the charcoal canister is removed in this picture but is not required removal for installation).



Preparations should be about complete.
Be sure that the heat shield around the exhaust U bend is removed.
Other notes; Now is a good time to glue your clam shims to the frame as seen here. Gasket maker or Weather Strip Adhesive works well for this:





Also you'll want to attach the included stop cable so that it's ready as seen here:



which will *eventually* be attached here:



Installation of the System.

Now that clam is off and preparations complete, you can have a beer and assess the situation once again... The next part is tricky...

There are 6 main components to install. Most of it is pretty self explanatory...

1. Clam Hinges
2. Clam Fitting
3. Clam support
4. New Rear Panel
5. Battery Tray
6. Final Bits

Clam Hinges

Carefully cut the zip ties holding the hinges together. They're spring loaded, so watch out as they will bite!

Fasten each hinge to the inside of the frame rail using the existing nuts and pan head hex bolts supplied with kit. The hinge mounting holes may need to be fettled a bit due to Lotus tolerances. Progress the hinge through its motion and ensure that the nut will not hit the frame welds where circled in the picture below. IF the welds bulge into the path of the hinge and interfere with its movement, file the welds down a bit as indicated in the picture.



Once secured to either frame, duct tape the hinges back down in their closed position.

Now place clam back on the car and align the clam until you're content with its final resting place as it should look when complete. Take care to ensure battery cables, et al are clear.

Release hinges so that they rest on the floor of the boot. Mark and drill holes ~9mm diameter through the clam where the hinges rest against the floor. Measure twice, drill once!

Once holes are drilled, secure hinges to the floor with the supplied M8 bolts and nylock nuts. Use the



backing plates supplied as so:

Tighten everything until it feels snug.

Loop your stop cable onto the washer fluid pedestal as pictured:



Now you will tilt the clam! Be careful. It is VERY IMPORTANT to take time to understand how the hinges work. First go up, then back. The clam will tilt itself when you pull back, as long as you first pull up. Recall instructions at the beginning of this tutorial. Practice several times to ensure that you've provided enough clearance on your Rollbar cover as well. The outer Rollbar cover will rub on the ears a bit and flex, but it should not be excessive where it damages anything.

Tilting instructions:

This four bar hinge must be operated in such a way that it travels through the correct motion or the clam will not tilt correctly. Once you learn the motion, it will become easy and quick to tilt. Proper clam tilting is to lift from the rear of the car, grasping the boot wall where the lid latch is with hips against the rear of the car. The lid should be up and you'll have to duck your head under the lid as it tilts back. Be sure you have sufficient slack in the battery cables and the tail light harness has been disconnect and fed through the boot wall. Also be sure you have removed the washer fluid tank from its pedestal.

First lift up, then pull back while lifting. The clam may slightly rub the exhaust and that's OK. Remember that your clam is not a screen door, nor should it be operated as such...

Once you've got the tilt under control you can have another beer... the hard part is behind you, so have several libations if you choose...

Clam Support

You will now use the stud plates that secured the lid hinges to the firewall on the clam support. The clam must be in the up position.

Fish the lid hinges up into the clam holes and close the lid on the clam. (where are your keys? Not in the boot, I hope!)

Now install the stud plates in the inverse that they were originally through the clam support, then the clam, then the hinges. Secure with stock nuts as so: Tip- It's helpful to stand on the fram cross member to install these.



Rear Panel

Now lower the clam. To do so, open and prop the boot lid. Fit your head under the lid and lower as you practiced earlier.

Fit the upper panel mounts to the stock exhaust hanger as shown (as seen from above)



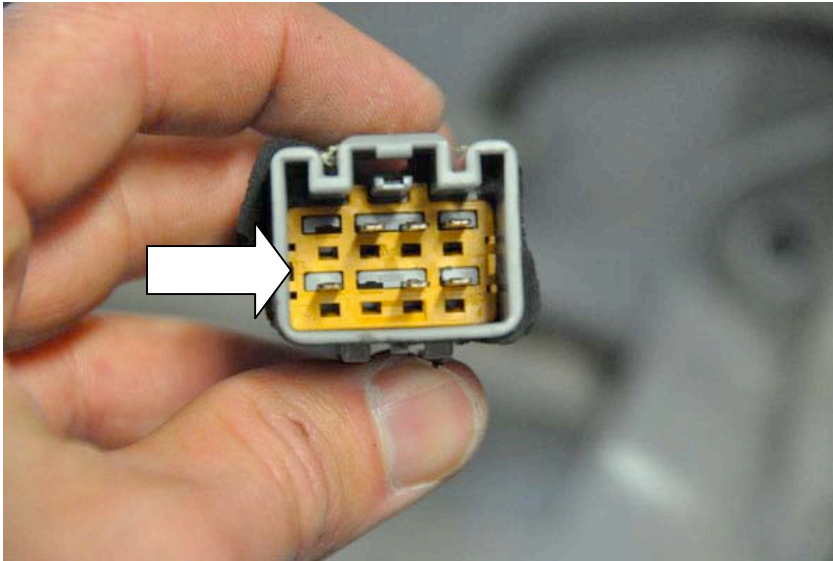
Next fit to the diffuser using supplied 4 bolts and nylock nuts. Lotus has a lot of variance in the diffusers, so fettling/drilling may be required again...

Use the OE clip nuts on the new rear panel to secure the license plate along with 4 of the stainless OE rear panel bolts that you should have left over.

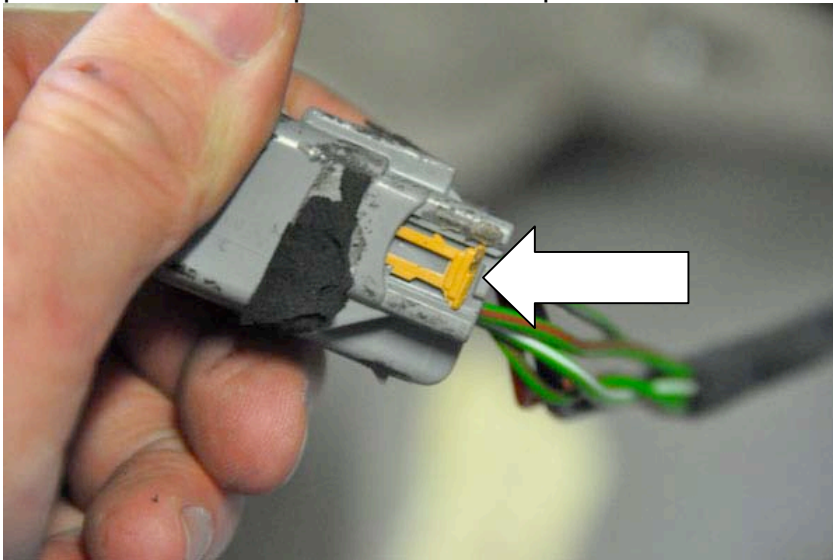
Tail Light Wire Rerouting:

There are two common ways to deal with the tail light wires. One way is to simply unplug them and fish them through the hole in the boot each time you want to tilt the clam. The other takes a bit more work, but is really worth it in the long run. It entails disassembling the connector within the boot and rerouting the harness to exit near the driver's side hinge. As follows:

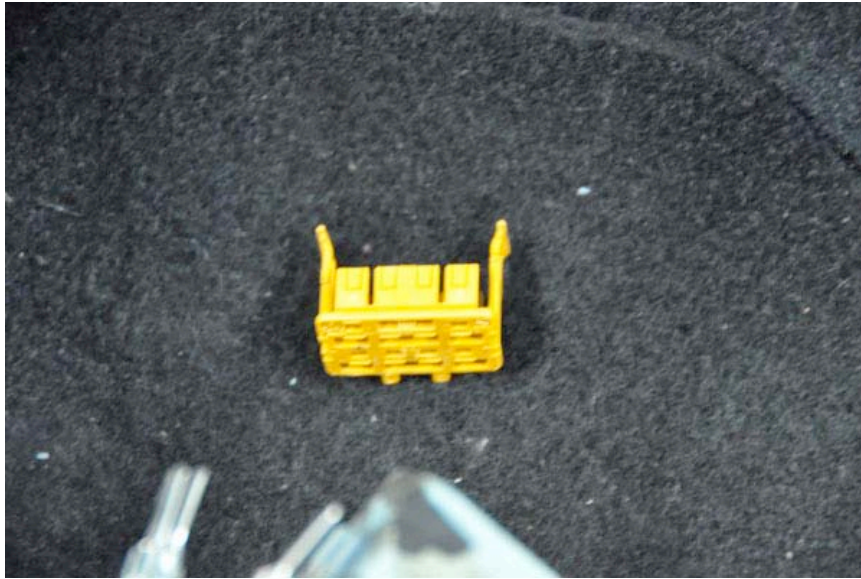
- I. You need to first disassemble the connector. You'll need a small jeweler's sized flat head screw driver and needle nose pliers.
 - a. BEFORE CONTINUING, jot down the wire locations in the connector. Double check your work here.
 - b. Observe that the connector has an orange retaining clip that locks the pins in the connector.



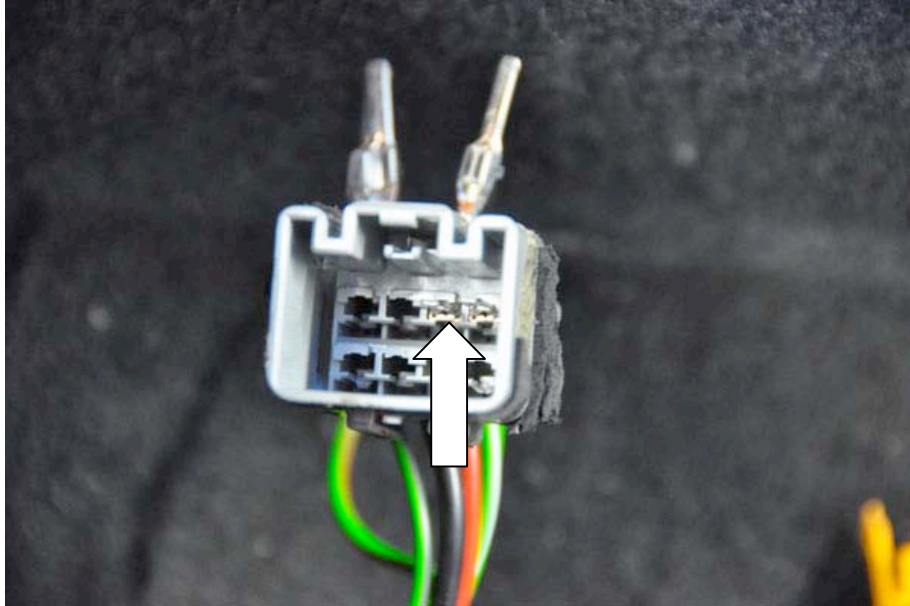
- c.
 - d. To remove this lock, you'll need to push it out using the tabs on either side of the connector. Notice the tabs and the shape of the connector once removed in the following pictures to better help understand the process.



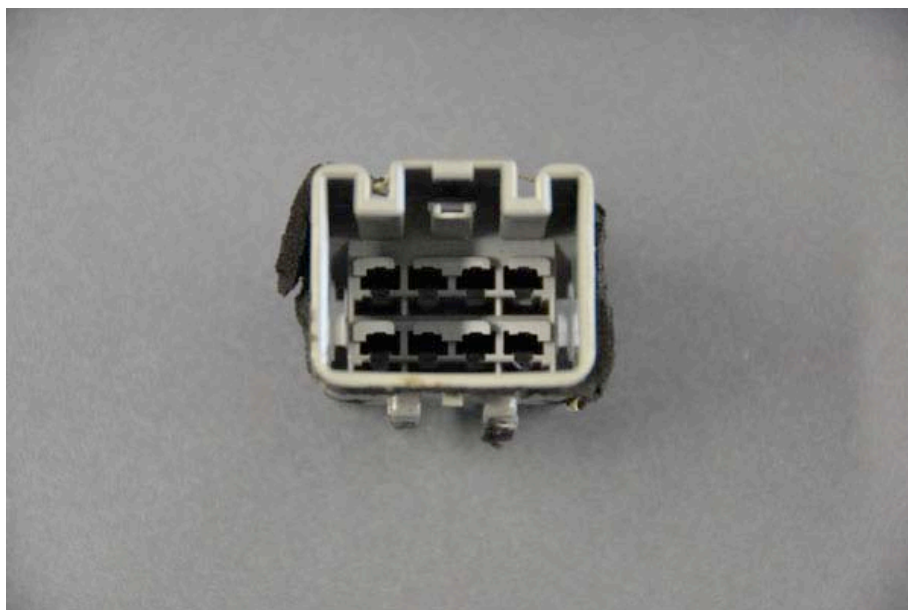
- e.



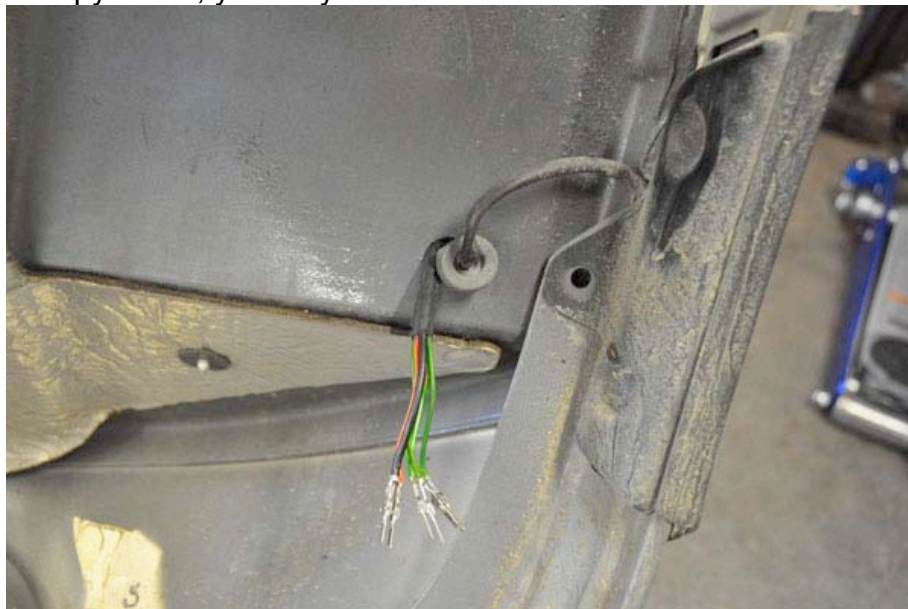
- f.
- g. With the lock removed, you need to carefully remove each pin. From the pin side, and just one pin at a time, use your small jeweler's screw driver to depress the one way spring catch on each pin and press the pin out of the connector. The pins will come out easily with the spring catch depressed. Do NOT force the pin out by pulling on the wire.



- h.
- i. The connector when empty:



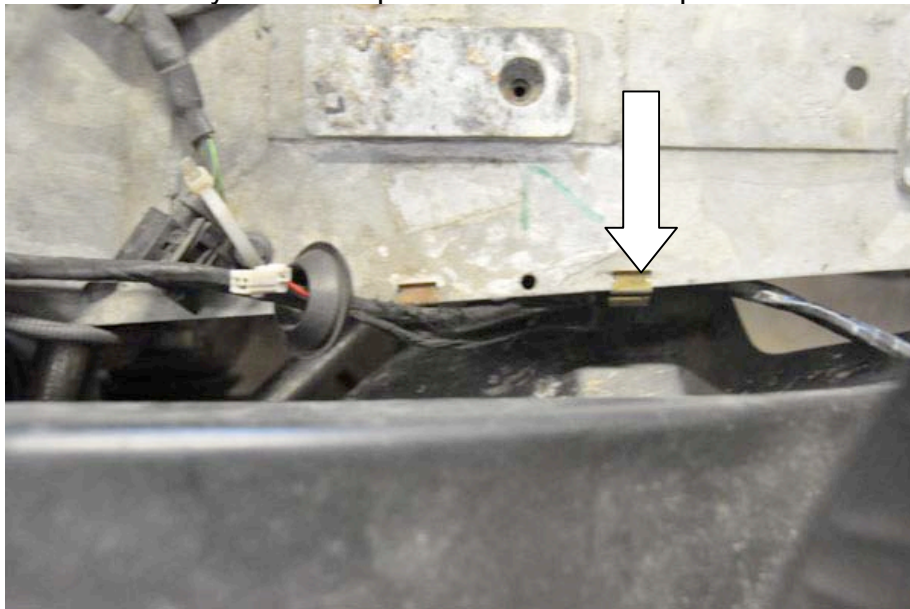
- j.
- k. Now you're going to detach the wires in the boot from the tape and/or zip ties that secure them to the boot to garner as much slack as you can. If there's sufficient slack, you can route the wires through the existing hole in the clam that wires for the side markers occupy. If not, you may need to drill a small $\frac{1}{2}$ " hole or so closer inboard.



- l.
- m. In the above case, there's was plenty of slack to use the old hole. This area will eventually be covered by a portion of the fender liner, so a perfect weather seal is not critical. An additional grommet or weather stripping could be applied here for a better seal obviously...



- n.
- o. Next route the chassis side of the harness UNDER the lip of the frame rail as to avoid having the clam rest on the wires. The metal clips that currently secure the O2 sensor wires work very well to help hold the wire set in place.



- p.
- q. Now you can assemble your clam side connector in reverse order of the disassembly. If you lost your cheat sheet schematic or rushed through that step and didn't create a schematic, you'll see that the chassis side connector will provide you a guide for reassembly☺
- r. Finally, connect the two and run your clam through its travel to ensure that the wires, A) don't find themselves between the clam and the frame, and B) do not rest of the exhaust U-bend with the clam down. Take some time to remedy those problems should they arise...
- s. This step is now complete!

Battery Tray

The Battery Tray accommodates the Odyssey PC625 battery as is. Others have used the Braille Battery as well with some modification.

The battery tray simply mounts under the filler neck as shown:



Final Bits

Install you fender liners. You're going to remove the ABS wire from the frame as shown and use the hole in the frame to zip tie the fender in place as an additional support.





Tilting

The only tool needed to tilt the clam is the hex wrench supplied for the soft top blocks if a top will be used. Otherwise, Thumb bolts are the very simple and fast way to remove secure and unsecure the clam. They're light weight and simple. Very Colin Chapman like!

In the thumb bolt bag, you'll find several retaining washers. Use 1 each retaining washer to retain the each of the 4 rubber bushings from the 4 boot to frame bolts on to the otherwise bare thumb bolts as so:



This will keep the parts together when you're removing the clam



The short thumb bolts will be installed through the cutouts you made in the wheel liners. It takes some practice, but you'll get the hang of it.

The long thumb bolts with spacers go above the seats through the Rollbar cover:



You will want to glue the rubber washers that cushion the outer Rollbar cover to the Rollbar mounts. It will make aligning the holes a breeze.

There should be at least 2 retaining washers in the bag that you can use to retain the two 5mm hex bolts in the soft top mounting lugs. Those will be the final pieces that get installed once the clam is tilted down.

In total you have 10 mounts holding the clam down, which I've found to be more than sufficient.

Now is the time to practice. The alarm will not be tripped with the alarm wires not hooked up. I have chosen not to hook them up.

Now it's time to put the car back together and see how fast you can tilt and be comfortable. It takes me just under three minutes with the top off...

Good Luck!