Phantom Roadster

Instruction Manual

CHAPTER 1

Basics

We would like to congratulate you on your choice of this wonderful kit. We recognize that you are about to embark on a great adventure. This manual along with the video and blueprints should enable you to complete this project. In the event that you have any questions during the assembly process please feel free to call us to discuss any concerns. We recommend that you read the entire assembly manual prior to beginning the actual assembly to familiarize yourself with the various steps. You may jump from chapter to chapter as you build your car.

While this instruction manual is intended to provide guidance in building your Phantom Roadster, you may find new ways to accomplish some of the steps. That is the fun in building your own car. You can be innovative and creative to make it even more unique.

Tools required

This is a listing of the types of tools that you will need as you build your kit.

Minimum

- Socket set - Standard and Metric
- Screwdrivers - phillips and flathead
- Wrenches - Box end and Cresent
- Flaring tool
- Floor Jack
- Jack stands
- Hammer

- Electric drill
- Electric grinder
- Electric metal saw
- Assorted Drill Bits
- C clamps and Spring clamps

Optional

- Air Compressor
- Welder
- Drill Press

Additional Reference Material

We would also recommend that you get a manual dealing with the care and maintenance of the Fiero. One such book is a Haynes manual as shown below. There are other manuals as well that you may want to pick up. The reason to have these books is to answer any questions that may come up in dealing with the actual mechanical aspects of the car. For example if you are planning on removing the engine. These manuals will be invaluable assisting in these tasks.

These books are available at most autoparts stores.

Skills required

Welding

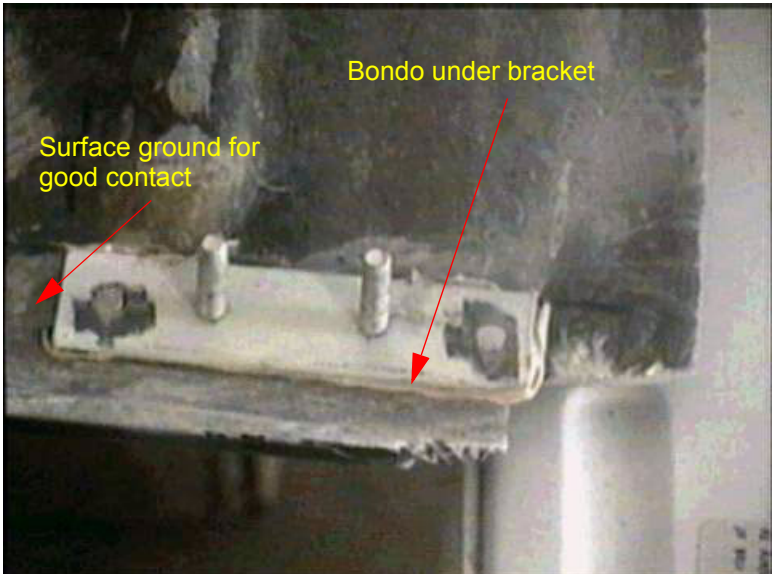
It will be necessary to use a welder in constructing this kit. This will be required for the stretching of the frame as well as when parts have to be fabricated for the car. If you are not familiar with welding, you may wish to hire a professional to do the structural part of the kit or possibly take a course through your community college.

Body Work

When fastening metal components like the hinges to the deck lids, the methods that are used are as follows:

1. Grind the surface to which the component will be fastened to remove the waxy coating.
2. Test fit component to make sure there is a good fit.
3. Mix and apply a coating of bondo to the component similar to applying butter to a piece of bread.

4. Apply the component to the surface and if necessary, clamp lightly in place.



5. Let bondo dry thoroughly according to manufactures instructions.
6. Cut a piece of fiberglass matting or cloth to allow an overlap of at least 2” around the component.
7. Mix up enough resin and hardener to saturate the matting or cloth. Take necessary precautions to cover the threads of any bolts to make sure they are not filled with resin.

Electrical Work

You will need to be able to make electrical connections and splice wires into the existing Fiero wiring harness. Because the body is made of fiberglass and does not conduct electricity, it will be necessary to run ground wires to all connections that are made in the fiberglass.

You will need to have access to an Ohm/Volt meter for checking connections.

If you are using the Fiero as a donor, you will need to have access to the Fiero wiring diagrams. A helpful hint is to get some map markers and actually color in the wires for easier readability.

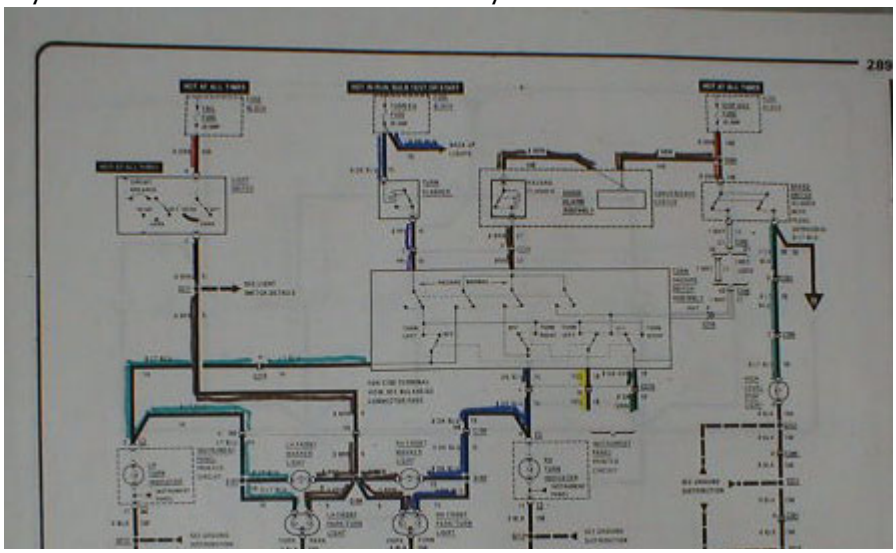


FIGURE 1. Colored Wiring diagram

CHAPTER 2

Donor Car

This chapter will deal with the donor car and the steps that need to be taken to prepare your car for the Roadster body

This is what a donor car would look like prior to any changes. You will need to remove all of the body panels, hood, trunklid, radiator, headlights, bumpers and all associated hardware.

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FIGURE 2. Donor car

We recommend at this point that you disconnect and remove the battery prior to beginning work. This will prevent draining the battery as well as eliminate the possibility of any shorts that may occur as you are disconnecting the wiring.

Please refer to your Fiero manual for all the necessary steps for removing body panels, console, deck lid, trunk lid, headlight assemblies, etc.

Parts you need to save from the Donner Car

Area	
Lights	Taillight Assembly
	Headlight assembly
	Headlight Motors
Wiper	Wiper Motor and all arms
Hood	Mechanical hood support
Body	Gas cap filler and release
Interior	Fender wells
	Mirror controls
	Electric window switches
Dash	Indicator lights
	Dash cluster and switches
Doors	Interior door handles

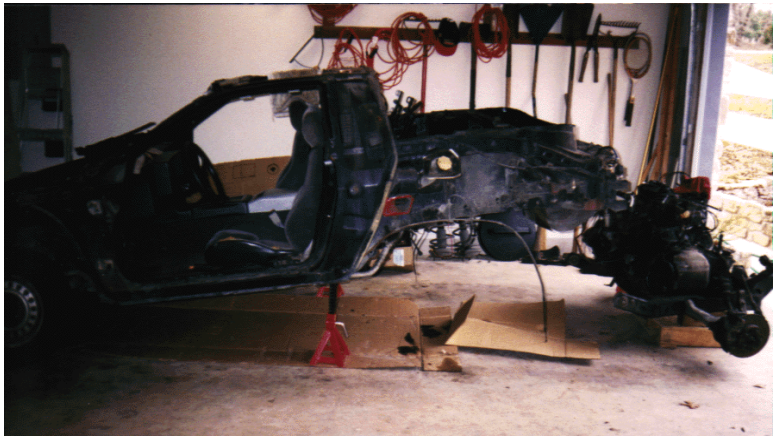

FIGURE 3. Donor Car with panels and Engine removed

If you are using the stock Fiero motor, then there will be no need to remove the engine.

Disassembly

You need to begin removing all the panels from the car. Use your Fiero manual to assist you in how to remove various pieces. Completely strip the interior. You may wish to save the seats for use during the build process.

Remove all the glass. If you do not have a glass removal tool, the rear window may have to be broken to remove it. **Caution: Be sure you wear safety goggles and gloves. It is best to put down a sheet of plastic to catch the broken pieces.**

Once all the panels are removed, be sure to check the body for signs of rust. If you discover any, be sure and clean down to bare metal, prime and paint to prevent further deterioration.

This is the time to clean all the chassis pieces of the grease and grime that will build up on a donor car.

FIGURE 4. Stripped Fiero

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CHAPTER 3

Kit Delivery and Contents

The kit will be crated by IFG prior to shipment. The crate is 16’ long by 4’ high by 7.5’ wide. The crate and contents weigh approximately 1200 pounds. If the freight company does not have a way to unload the container, it may be necessary to disassemble the container on the truck and remove the contents piece by piece. Four people can pick up and move the Roadster fairly easily. It is a good idea to have lots of friends over for this step.

Receiving the crate

FIGURE 5. **Crate on truck**

FIGURE 6. Crate being disassembled on truck

Contents

The kit comes with all of the items that were ordered. It is a good idea to go through the boxes and separate out the various parts.

FIGURE 7. Side view of body

FIGURE 8. **Rear view of body**

Side Windows

Rear Window and Mirrors

FIGURE 9. **Glass**

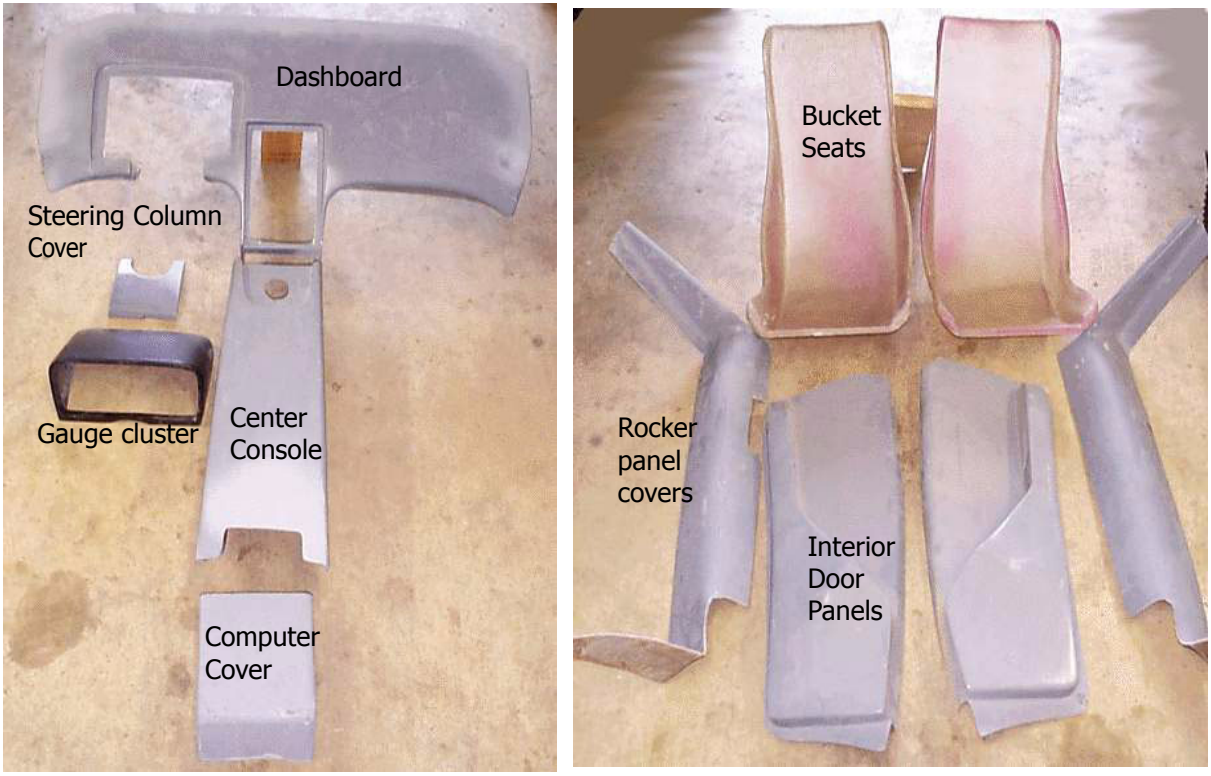


FIGURE 10. Interior Components

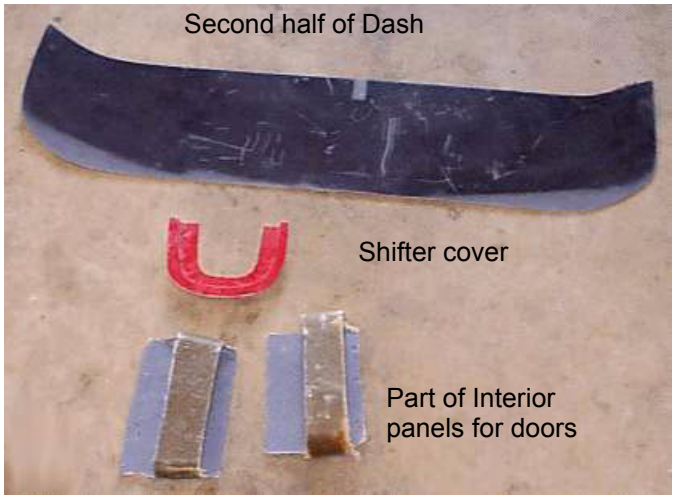


FIGURE 11. Interior parts

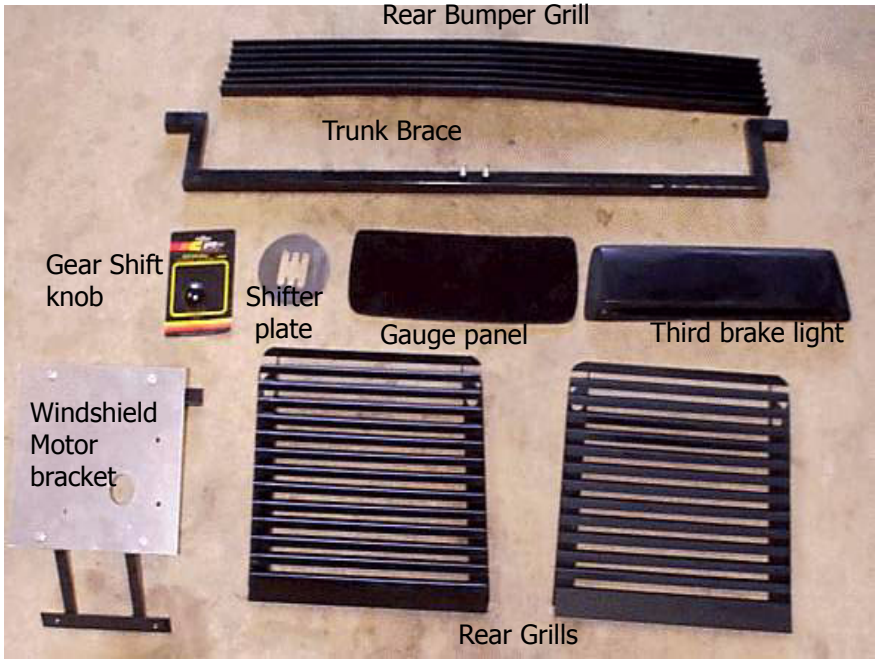


FIGURE 12. Grillwork and miscellaneous parts

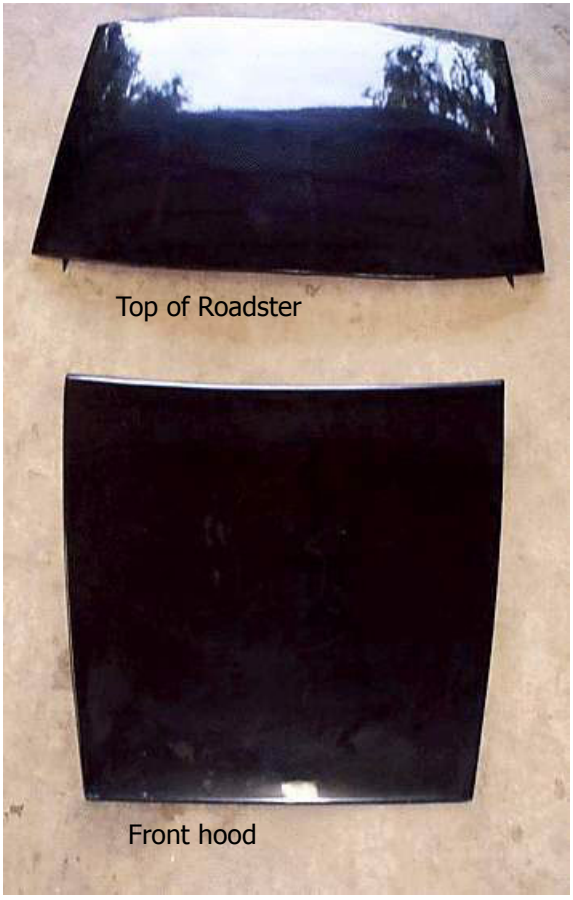


FIGURE 13. Front hood and removable top

FIGURE 14. Wing

FIGURE 15. Rear decklids

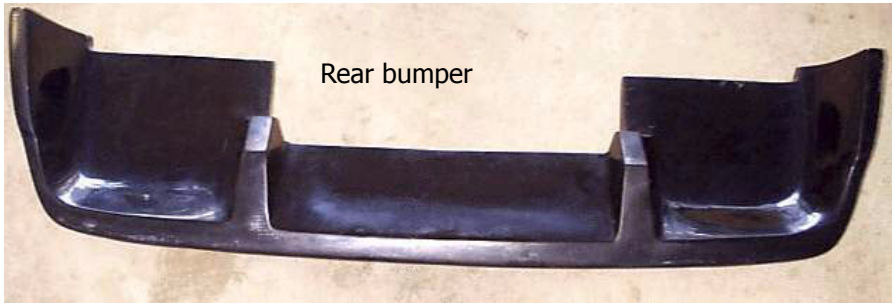


FIGURE 16. Rear bumper

FIGURE 17. Lights

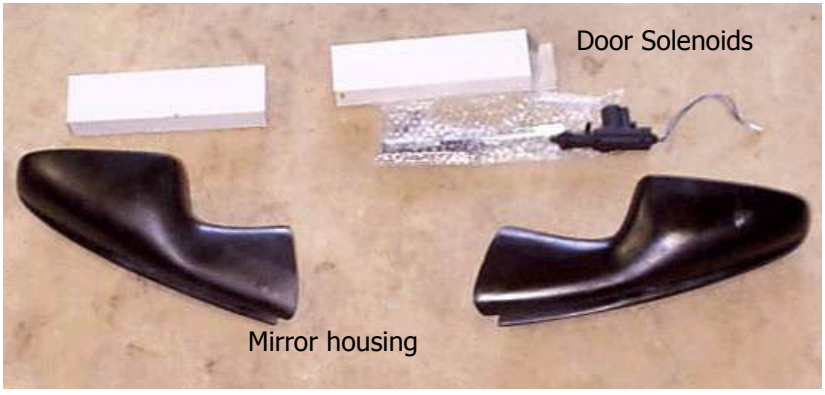


FIGURE 18. Mirrors and door solenoids

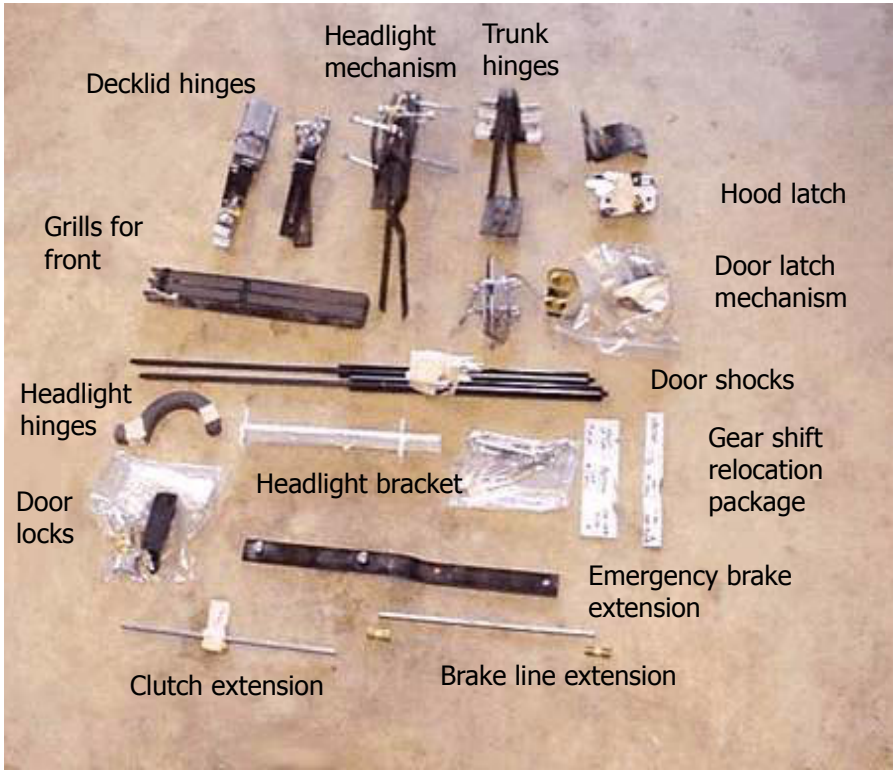


FIGURE 19. Hinges, doors and miscellaneous hardware

Gauges and accessories. (Tachometer not shown but included)

FIGURE 20. Gauges

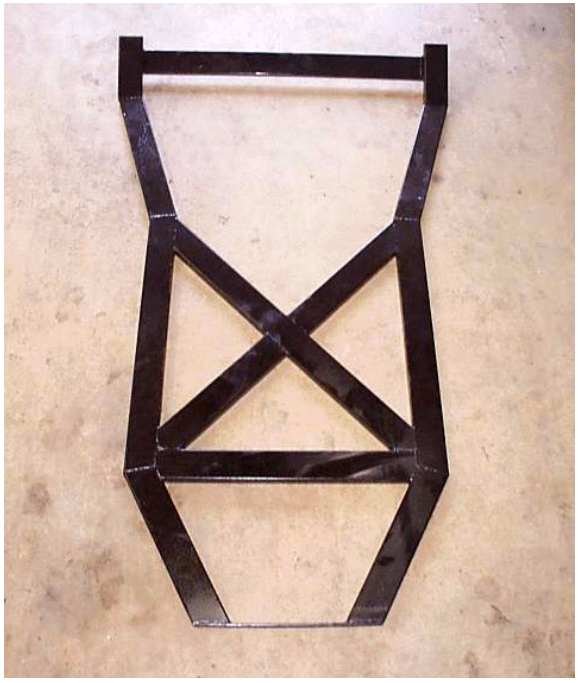


FIGURE 21. **Subrame**

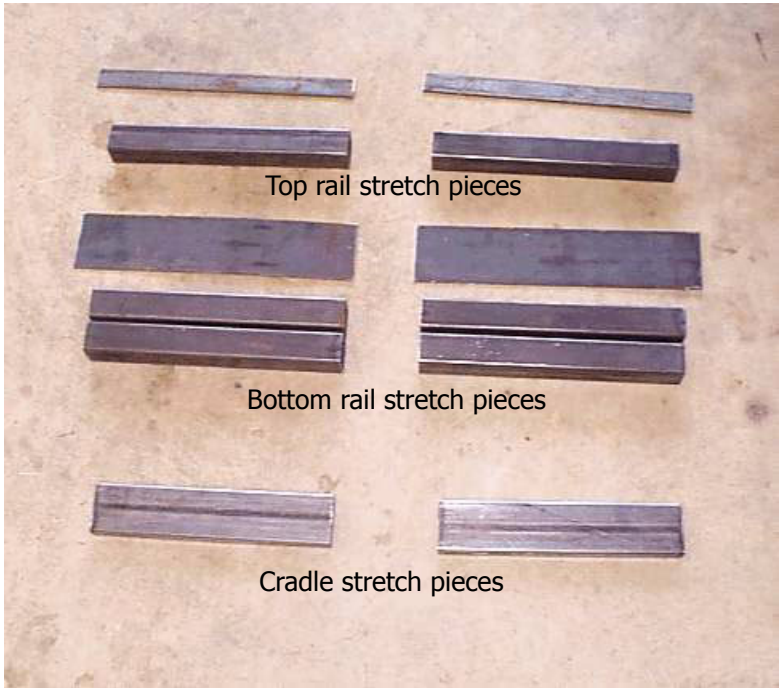


FIGURE 22. Frame stretch pieces

Suggestions for moving parts around

The material that made up the shipping container itself can be used to construct a rack to store the kit. You can buy four casters, at least two with wheel locks, and mount them on the bottom of the rack. You can easily move the car around in your work area.

Use scrap carpet to pad the rack to where the car will rest in the wheel wells. You will have enough material left over to actually build shelves to store the parts while you are assembling the kit.

FIGURE 23. Side view of Kit on rack with panels

FIGURE 24. Rear view of Kit on rack with panels

CHAPTER 4

Body Preparation

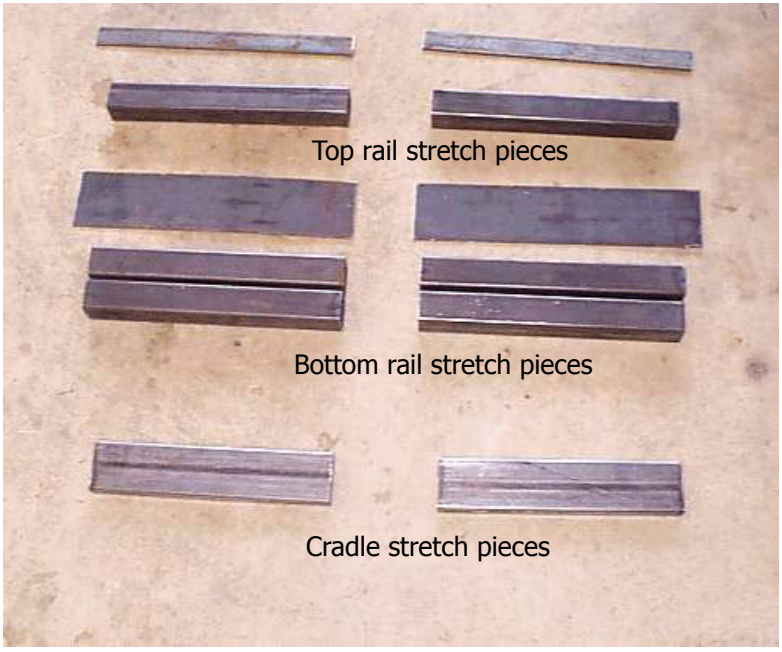
This step will require cutting the back half of the Fiero from the front half. You will also remove a portion of the front fenders and bumpers. You will need to relocate the radiator and A/C cooling unit. In addition, you will need to remove the trunk and part of the rear horns of the frame to accommodate the body. You will be provided the pieces to stretch the frame, brake lines, relocate emergency brake and clutch assembly.

Stretching the Frame

Prior to stretching the frame, you will need to loosen or remove the radiator hoses, unhook the shifting cables, fuel line, brake line and the wires that are attached to the firewall that do not have sufficient length to be moved back 11 inches. If you have not removed the battery, you will need to do so at this point. The cut will actually go through the current location of the battery.

Stretch Kit

The stretch kit consists of 2 - 2 x 2 x 16" square tubes and 2 - 2 x 1/8 x 18" flat bars for the top rail and 4 - 2 x 2 x 16" square tubes and 2 - 4 x 1/8 x 18" flat bars for the bottom rails and 2 - 1 x 3 x 14" for the cradle



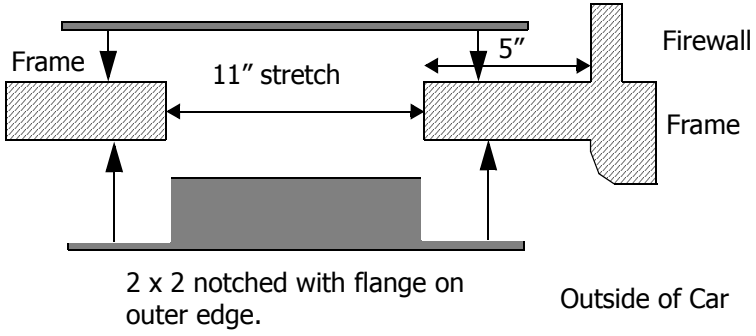


FIGURE 25. Top view of stretch pieces to be welded

Preparation for cutting

It is very important that you have a level surface to work on for this next step. Place the car on blocks and use shims to level the car across the front as well as along the door frames. Be sure to support the front half of the car in such a manner that when you finish the cuts that the front will still be supported. Use masking tape or duct tape to mark the frame 5 inches back from the firewall where you plan to cut. This works better than trying to draw a scribed line on the frame.

You will cut the cradle at a location 1.5 inches back from the point where it attaches to the section next to the firewall.

Once the car is fully supported, place a floor jack under the back half of the car beneath the support that runs under the engine. Cut through the first two frame pieces on each side. Then cut through the cradle section. Once the car is sectioned move the back half away using the floor jack. Insert the 11 inch spacers starting on the top rail.

Tack weld the extension brackets in place. Continue to check the level both across the car as well lengthwise.

Check for square by using diagonal measurements. A good measurement is from the edge of the rear strut support to where the firewall meets the frame.

FIGURE 26. Measuring to check for square

When you are done welding the 2" square tube, you will then weld the flat bar on the opposite side to provide additional structural support.

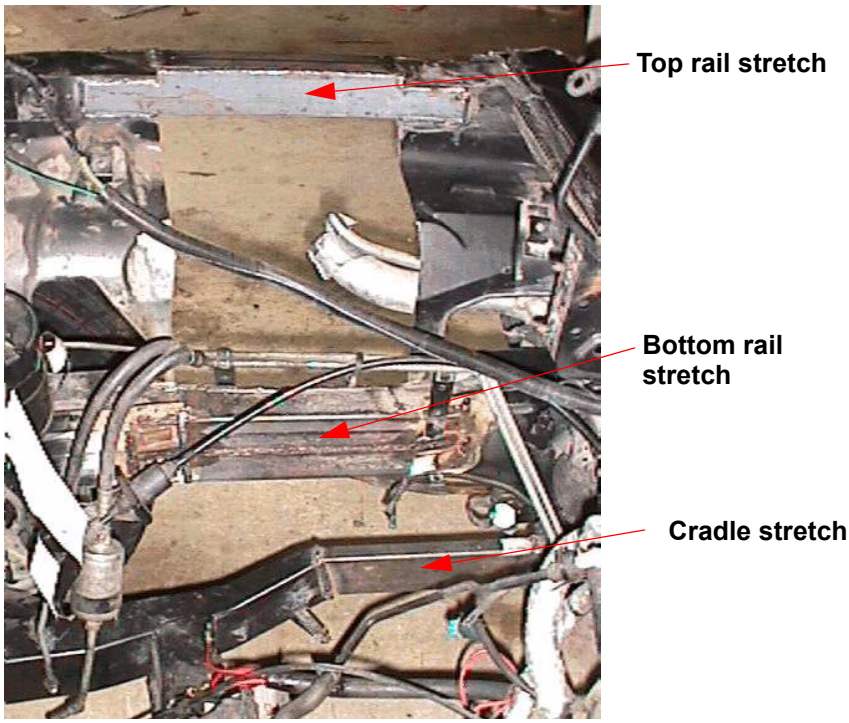


FIGURE 27. **View of stretch from inside the car looking out**

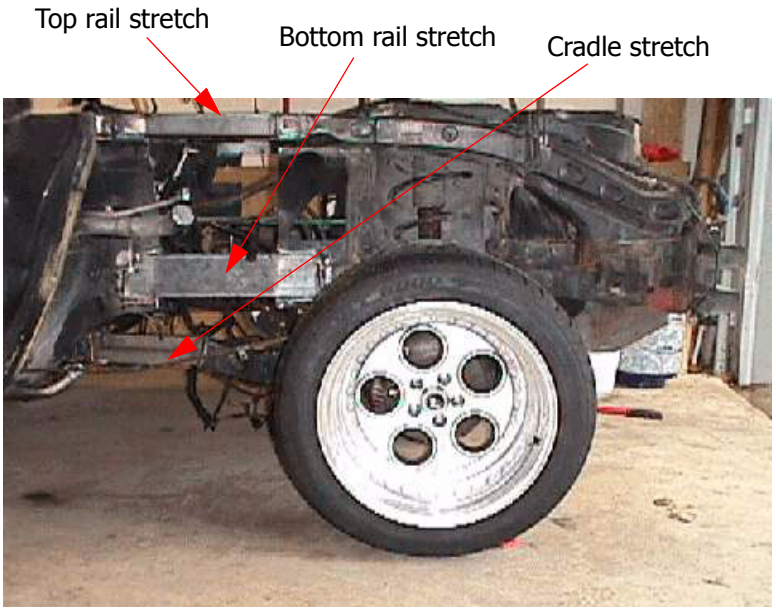


FIGURE 28. Outside view of stretch

You will also need to add a diagonal brace from the top stretch to the base of the firewall. This will provide additional rigidity to the rear of the car.

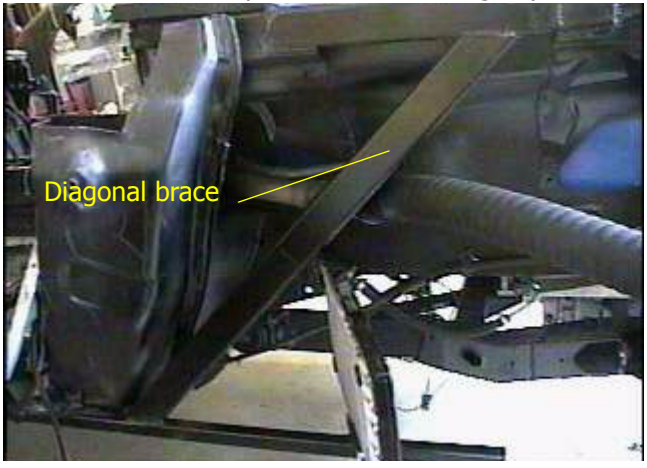
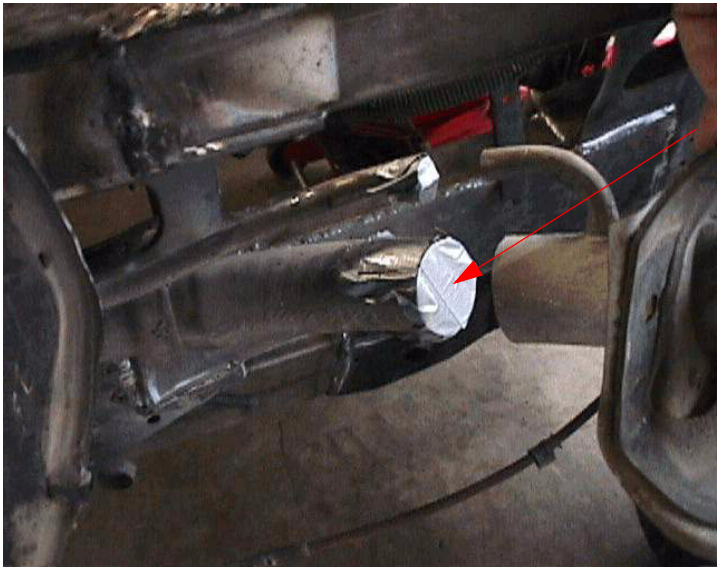


FIGURE 29. Diagonal brace

Gas tank filler cut

It is necessary to cut off the gas tank filler line and vent line. Be sure to make the cut in the thick part of the tube before it necks down to the narrow part. This will allow you to use a 2" rubber tube for the extension to the kit body.

You will also need to add a grounding strap to the section that will be fitted into the fiberglass and attach the grounding strap to the frame of the car.



Filler pipe after cut. Duct tape covering opening

FIGURE 30. Gas tank filler and vent cut

Installing Subframe

Note: It is extremely important that gas tank be empty and no fumes are present during this step. Be sure to remove the carpet and pad from the car prior to welding to avoid starting a fire.

The kit includes a sub frame to be welded under the car. The sub frame fits snugly from the point where the cradle attaches to the back of the firewall to a point even with the front axle. It may be necessary to slightly notch the subframe for the required clearance past the cradle mounting points. You will also need to use a small strip of flat iron to attach the front of the sub-frame to the bottom of the front axle.

The sub frame may cover two of the bolts on the bracket that supports the gas tank. If they do, it is suggested that these two bolts be removed before welding the sub frame in place.

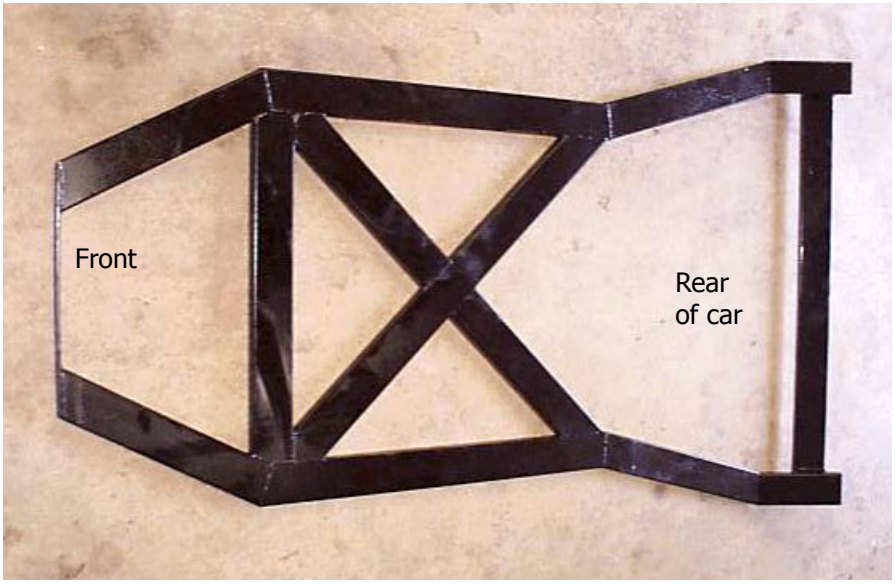


FIGURE 31. Subframe prior to install

The sub frame mounts just in front of the cradle attachment points on the body.

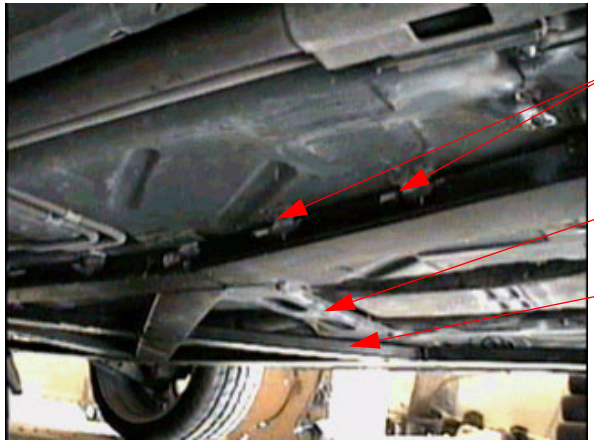


FIGURE 32. **Sub frame - Welding points**

Removal of Gas Tank after Sub Frame installation

In the event that you need to remove the gas tank after you have installed the sub frame, it is possible with a few modifications.

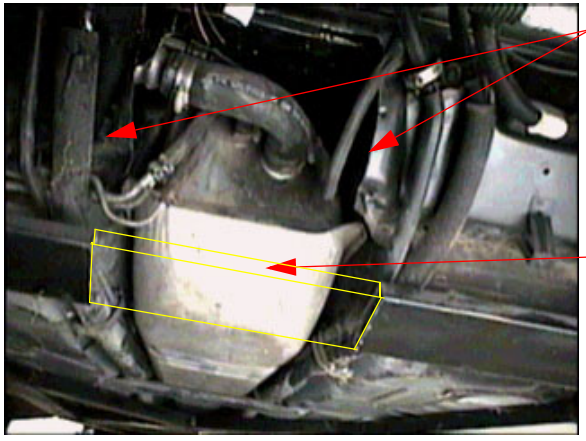


FIGURE 33. **Sectioning sub frame for gas tank removal**

Weld flat plates to either side of the piece that was sectioned from the sub frame. Drill 4 holes through the flanges and the sub frame. Use bolts to attach the spliced section back into the sub frame.

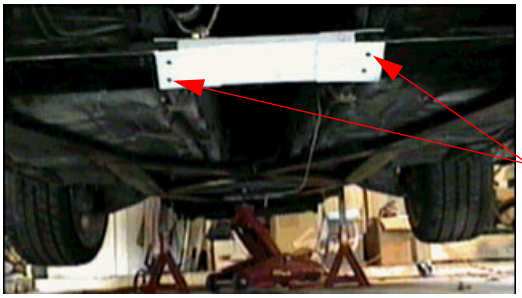


FIGURE 34. Sub frame section replacement

Emergency Brake Relocation

Having removed the seats and the carpeting, remove the emergency brake cable from the emergency brake. The cable will be pulled back through the firewall and the emergency brake unit will be moved back 11”.

There are two options that can be used to relocate the brake handle. One option is to leave the emergency brake handle as it was removed and use the supplied hardware to relocate the emergency brake. The second option is to modify the emergency brake handle and bolt directly through the frame.

Option 1 - Using Supplied Hardware

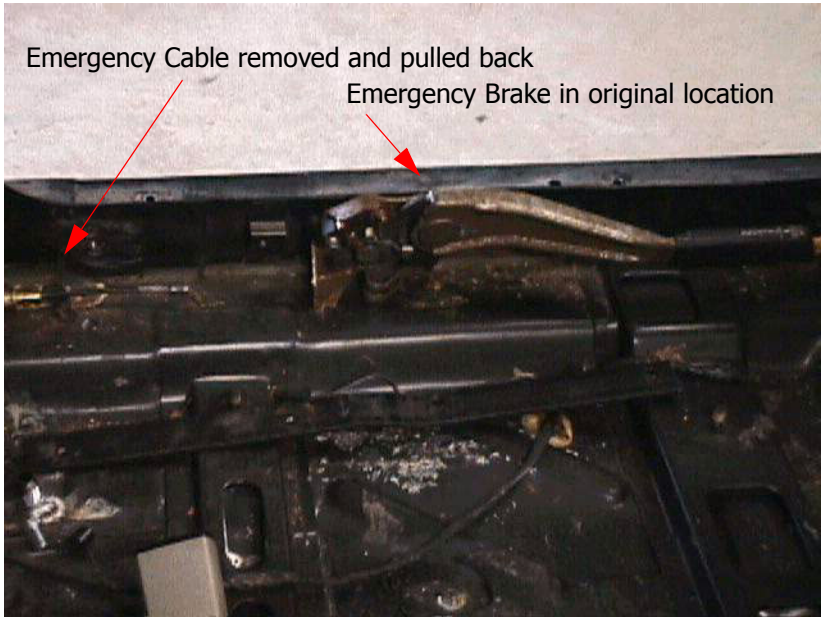


FIGURE 35. **Emergency Brake before relocation**

Use the parts that are supplied to attach the bracket to the original location and then attach the emergency brake to the bracket.

FIGURE 36. **Emergency Brake relocation pieces**

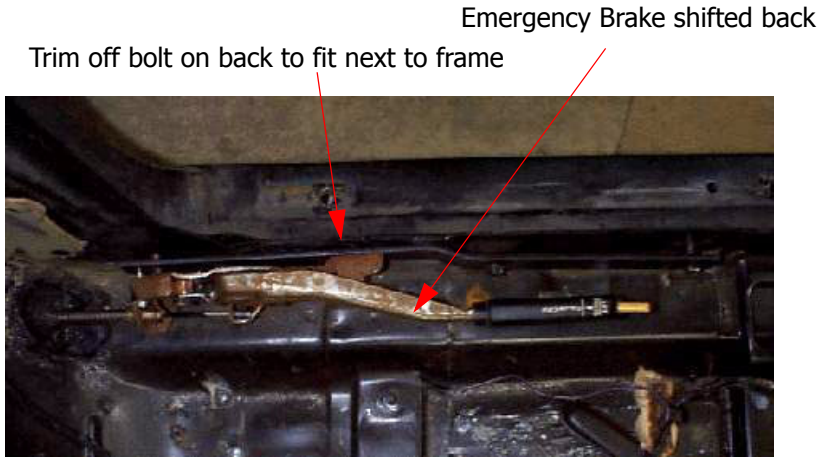


FIGURE 37. **Relocated emergency brake**

Option 2 - Modify Emergency Brake Handle

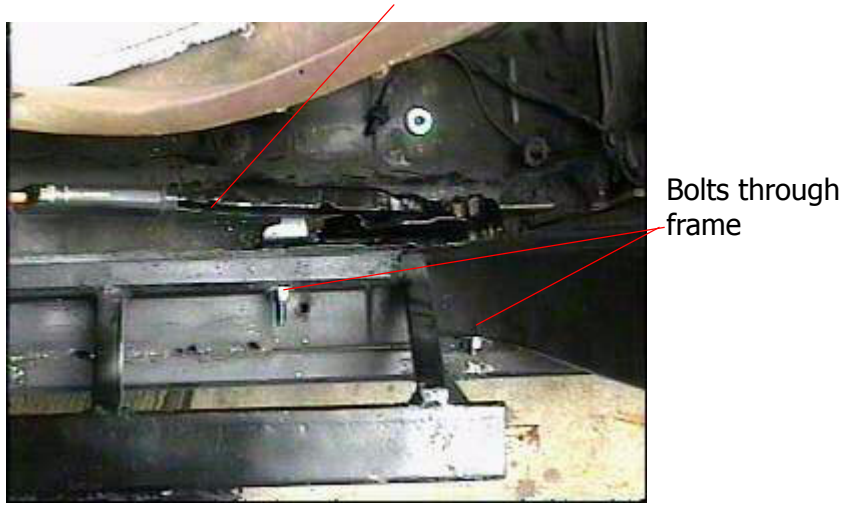


FIGURE 38. **Straight handle option**

Moving the Firewall

The firewall needs to be tipped forward approximately 3 1/2". This is accomplished by making a cut next to the sides down to the crease on the firewall that runs just above the center console. Make a cut on each side. When completed, you will be able to tilt the firewall forward.

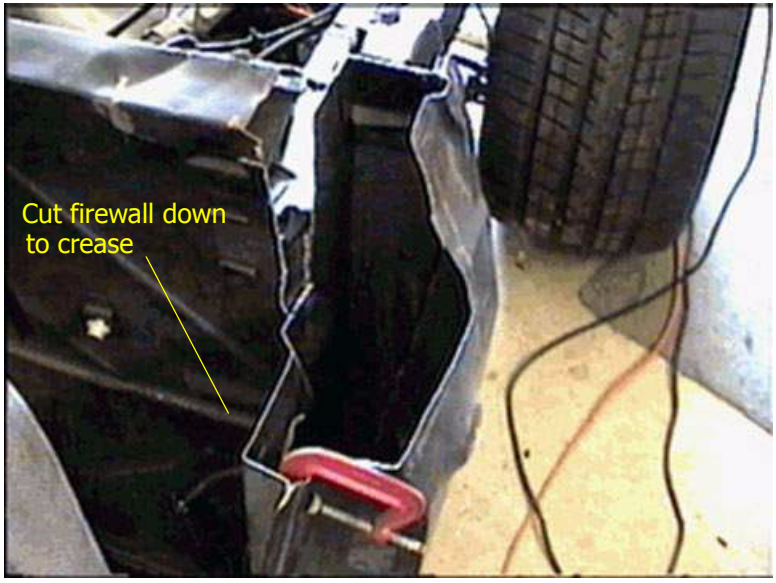


FIGURE 39. Firewall cut

Side Supports

It will be necessary to support the firewall with braces on either side of the cuts. These will be fabricated out of 1 x 2 tubing that is fastened to the top of the firewall and welded to the frame. The tube that is attached to the top of the firewall will also act as a point to weld the brace that ties into the tube imbedded in the frame once the kit is mounted.

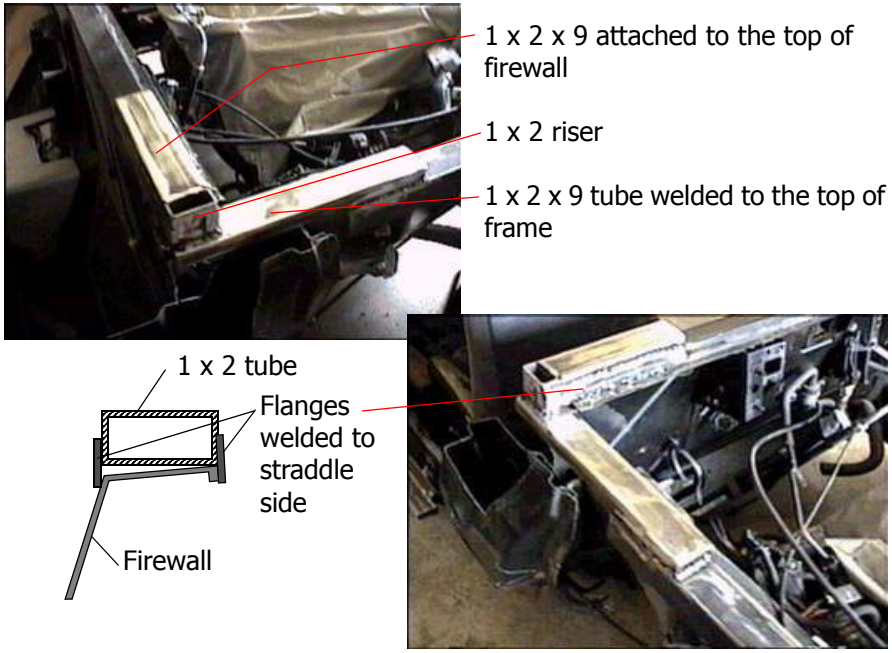
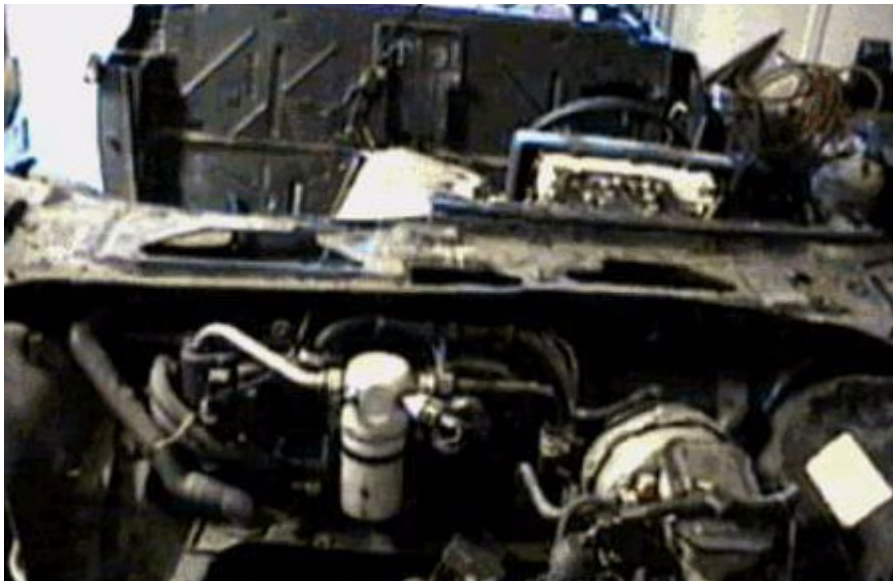


FIGURE 40. Firewall supports

Dash Cuts

The new dashboard will require cutting the top out of the existing dash. Before these cuts are made, be sure to remove the windshield wiper assembly and all mechanical and electrical components that are affixed to the portion of the dash that will be removed.

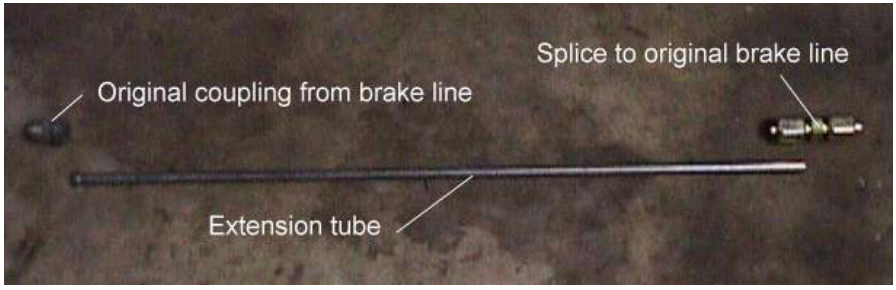


This is a noisy time consuming process. You will need to use the long sawzall blade.

After the metal sections have been removed. Build a rectangular brace out of 3/4" square tube. This will allow you to seal off the area between the trunk area and the interior.

Brakeline

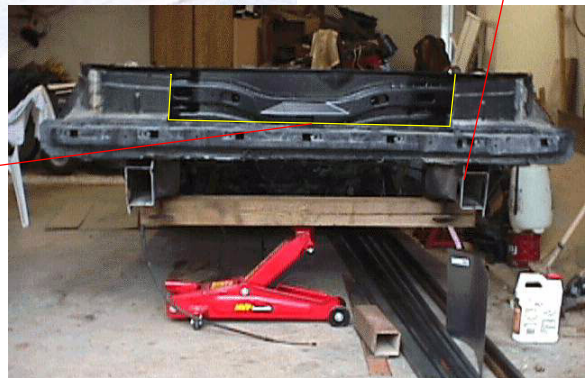
The brake line needs to be extended the 11" to compensate for the stretch of the frame. The existing fitting needs to be removed from the T connection. This fitting is a metric fitting. You will need to cut the existing brake line just in back of the fitting. Place the splice over the existing line and position the extension tube to determine the correct length. Cut the extension tube with a tube cutter. This end of the tube as well as the section of the original tube will need to be flared. Be sure to use a flaring tool that will provide a double flare. This equipment can be purchased, rented or in some cases auto stores will loan you this equipment.



Trunk cutout

It is necessary to cut off the rear horns to allow clearance of the lower bumper. You will also need to remove a section of the trunk.

Horns are cut back



Section to be removed

Side cuts

The following picture show the side being notched. This is a step that is normally done for those cars that have a rear quarter panel, like the VT or SE. This notch is not necessary on the roadster as you do not have the rear quarter windows.

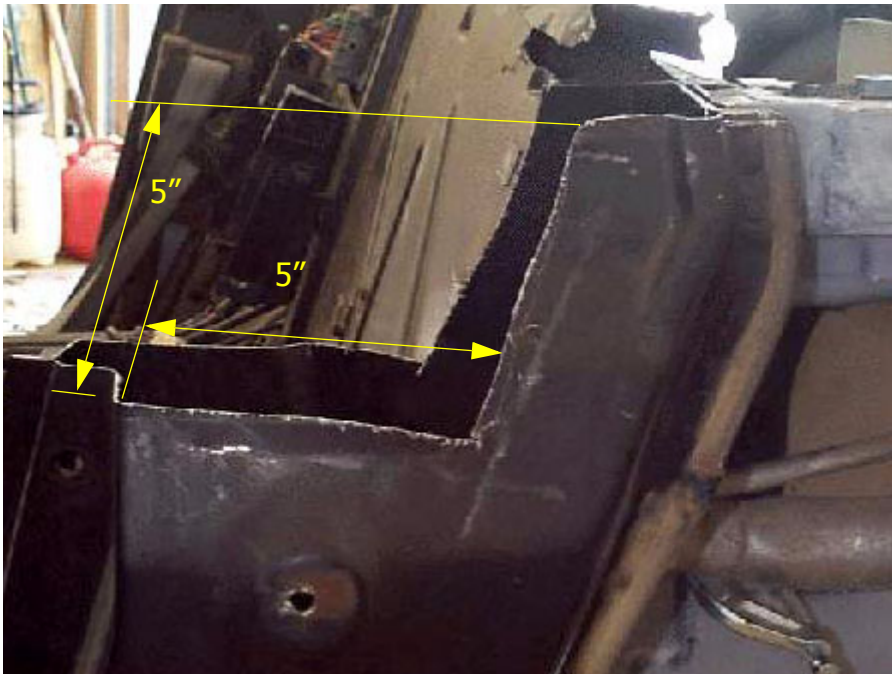


FIGURE 41. Side cut

When you trial fit the body, it may requires some trimming to clear the body.

Shock Plate

It is necessary to provide a solid mounting point for the door shocks. They exert a lot of pressure to lift and hold open the doors. The plates are constructed from 1/4" plate that is welded to a 2" angle iron. This angle iron is then bolted to the side panel.

The positioning of the plate will be set once the body is properly aligned in the test fitting stage.

FIGURE 42. Shock plate

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CHAPTER 5

Radiator and Front end Modifications

To prepare the front of the car, it will be necessary to relocate the radiator and air conditioning coil. This will involve removing part of the fenders and cutting off the front section of the car. Once this is done, you will fabricate new brackets to hold the air conditioning components and the radiator.

It is not actually necessary to remove the radiator and air conditioning coil. You may elect just to unhook all the mounts and tie the components out of the way. These illustrations are shown with the radiator removed.

FIGURE 43. **Front of car with radiator removed**

Once the radiator and A/C coil are removed, cut the fenders off down to the main frame.

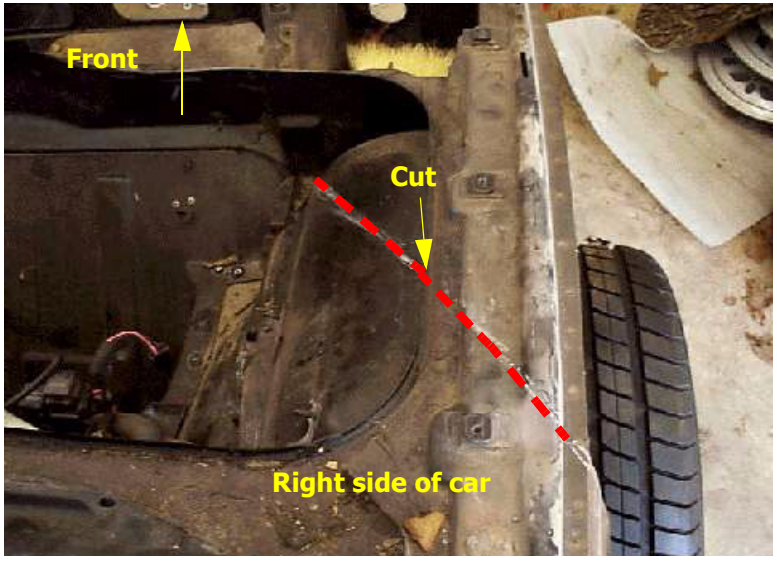


FIGURE 44. **Where to cut off front fenders**

FIGURE 45. Front view after fenders have been removed

It is also necessary to remove some of the sheet metal along the sides to allow the necessary clearance for the Body to set down on the frame.

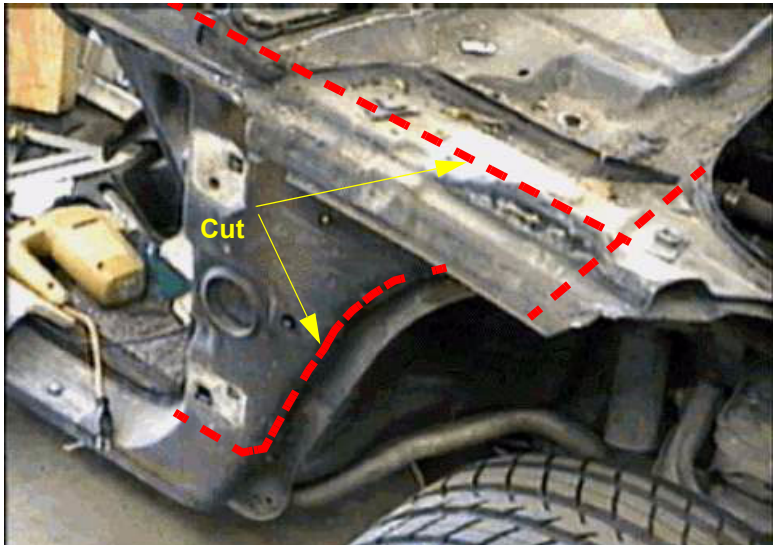


FIGURE 46. Marking area to trim fenders

When you make the cuts, we recommend that you use a 12" blade on your saw. It will be necessary to cut through braces that are inside this area that held on the door frames. We also suggest that you remove the front tires f

FIGURE 47. Fender after the cut

It is necessary to remove the windshield wiper control arms, wiper heads and the windshield wiper motor form the dash area. Once this is done, you need to cut off the top of the dash flush with the car.

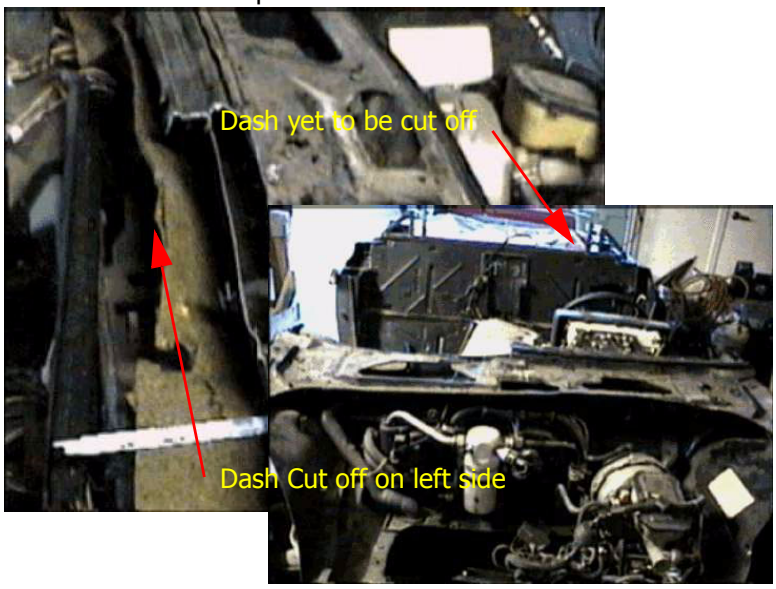


FIGURE 48. Front view of dash partially cut down

Radiator

The Kit utilizes the existing Fiero radiator. If you are using an engine other that the stock Fiero engine, you will need to look at adding additional radiators to provide the required cooling capacity for the engine.

Installation of the radiator requires building a special frame and angling the radiator to a near horizontal position. This fabricated bracket is inserted into the frame where the front section has been cut off. Here you can see one example of how you can use 2 x 3 and 1 x 3 tubing to make a frame. The notched shape is to allow clearance of the headlights.

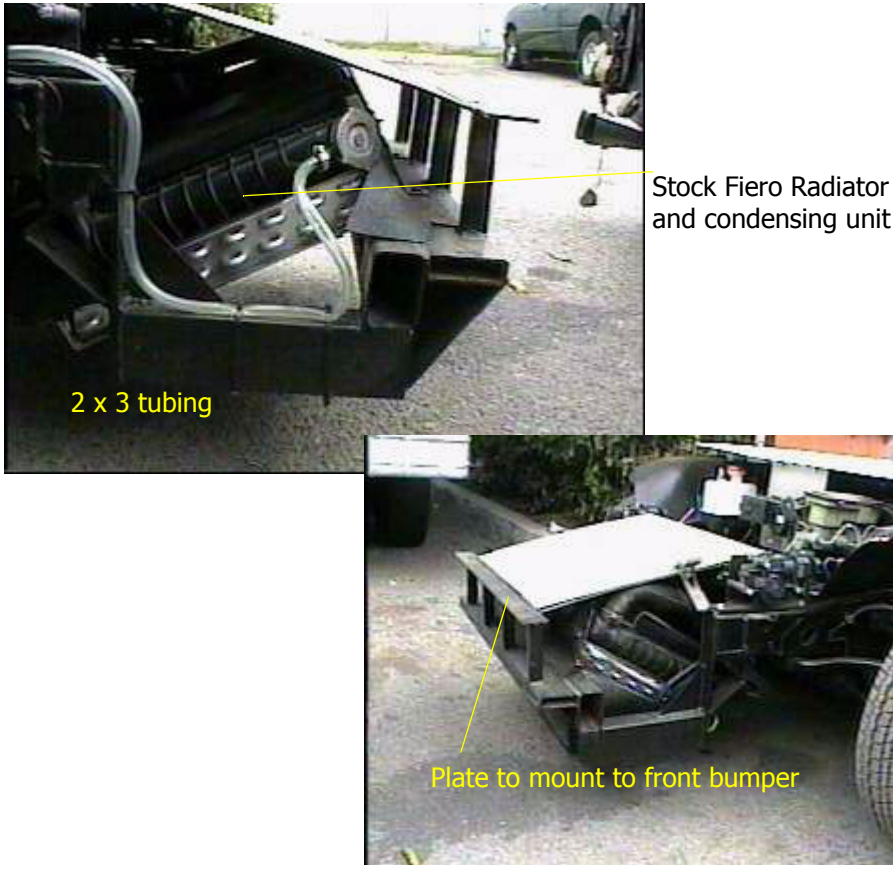


FIGURE 49. Radiator - Side Views

This is an example of a setup that uses the condenser unit only because the radiators have been mounted in the rear. The best way to construct this bracket is after test mounting the body and determining the clearance for the lights. This will vary depending if you are using pop-up lights or the fixed lights.

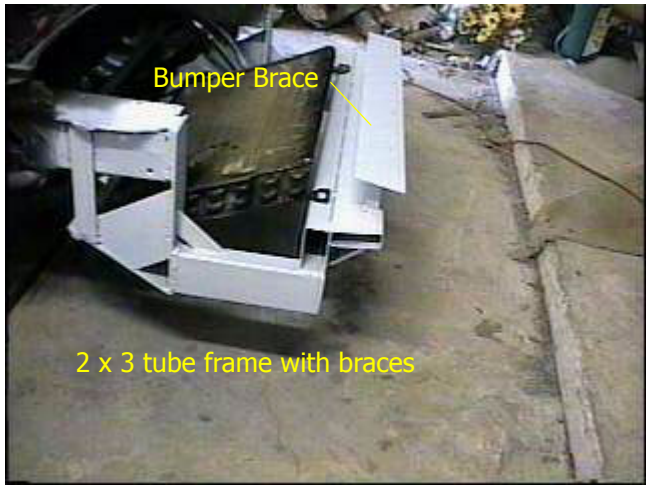


FIGURE 50. Radiator frame

Here you can see how the body will be mounted to the plate. You will drill through the body and tap the plate 1/4" x 20 to accept 1/4" screws.

Radiator cover framework

Once the body is installed, you will wish to construct a framework to cover the condenser/radiator unit. This will be covered with sheet metal to protect the interior of the trunk space. The idea is to make this removable in the event you should need to gain access to the Radiator fan or hidden components.

These examples show how the original Fiero boot area is retained. The plastic needs to be reinforced for support and this forms the basic framework that will be used to attach the radiator cover.

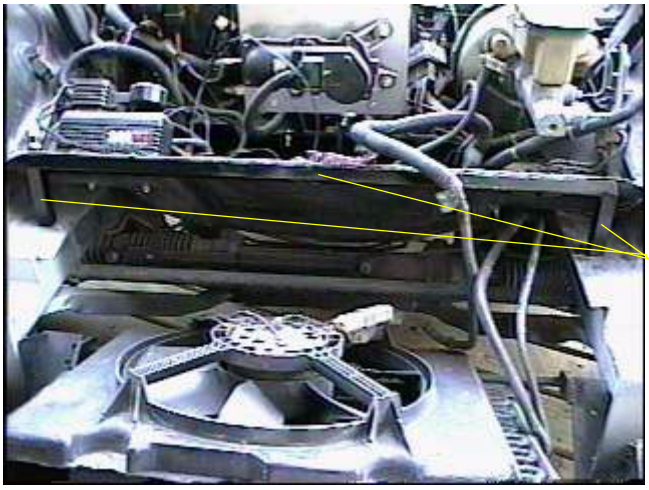
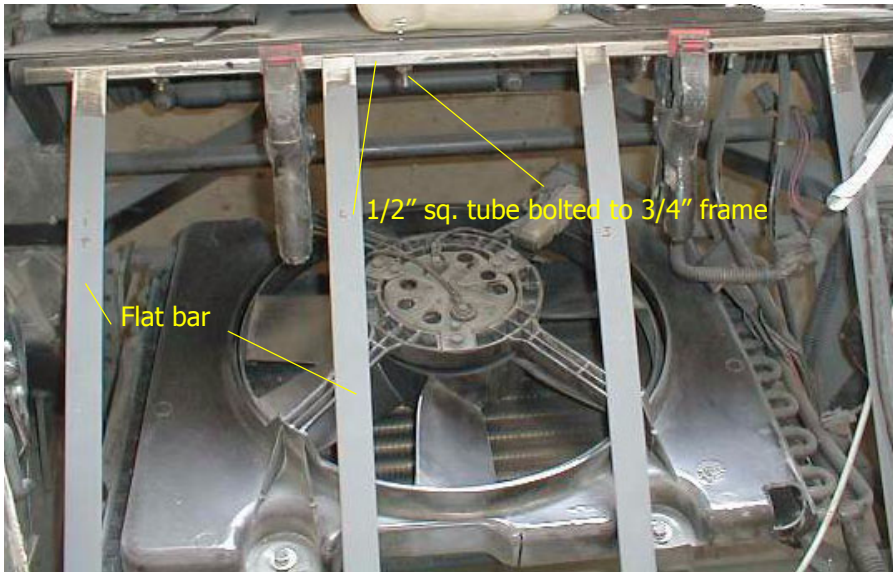
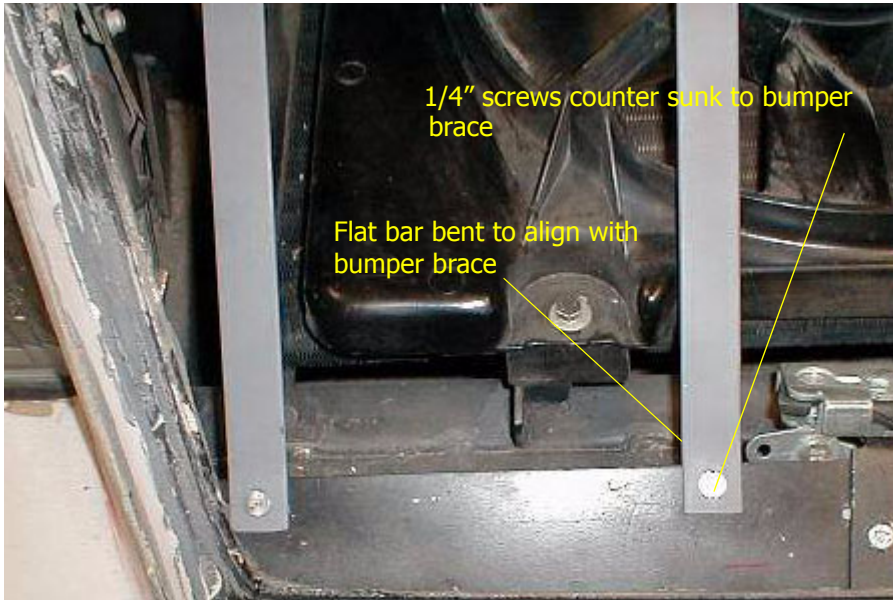


FIGURE 51. Boot support

The framework consists of 1/2″ square tube that is bolted to the 3/4″ tube. Next 1″ straps are cut to length and bent to match the contour of the trunk area.





Tack weld the flat bar to the 1/2” square bar after initial fitting. Remove and complete the welds.

FIGURE 52. **Frame assembly**

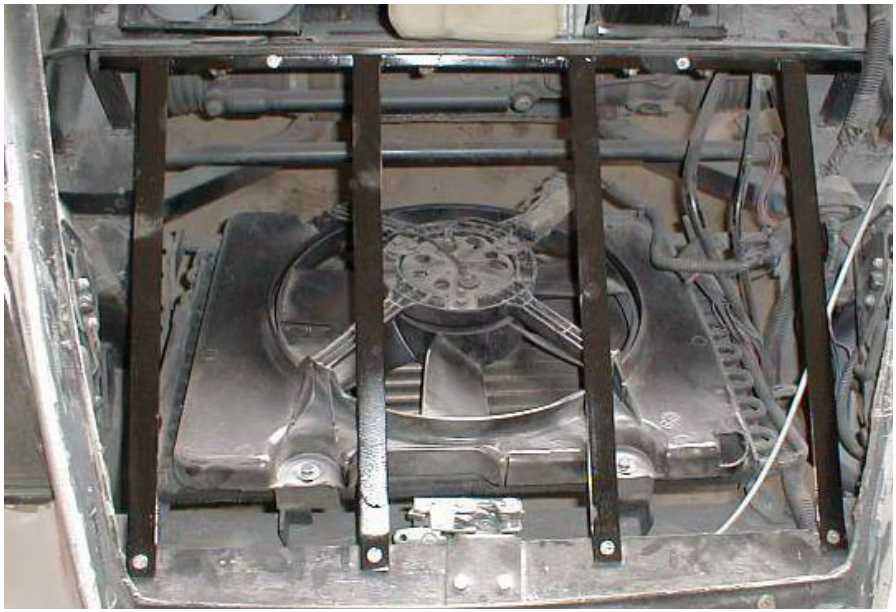


FIGURE 53. Completed framework

Once the framework is in place, you can now bend sheet metal to cover the framework. It is best to use a paper pattern to determine the exact dimensions. Once the template is created, cut and form the sheet metal to the opening. It is a good idea to mark the sheet metal with the location of the straps. This way you will know where to drill the holes for fastening the sheet metal to the braces. You can use 1/4" self tapping sheet metal screws to fasten the sheet metal to the braces.

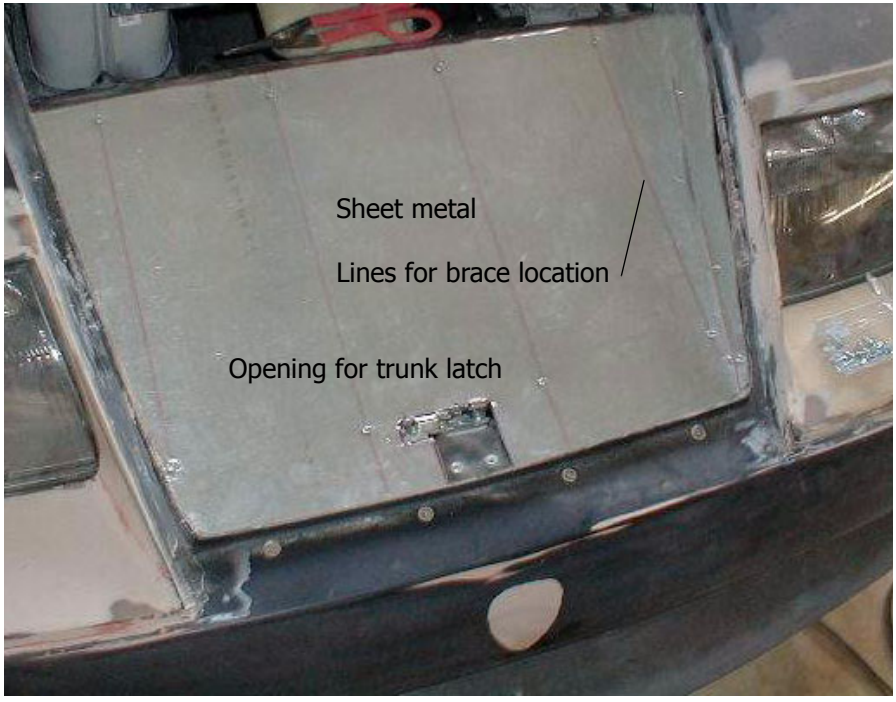


FIGURE 54. Trunk sheet metal

Trunk Latch

You can utilize the existing Fiero latch release to a bicycle cable connected to the IFG supplied hood release mechanism. The cable is threaded through a bar that has been welded to the bottom of the latch mechanism. The cable is looped around a 1/4” bolt that is attached to the latch release.

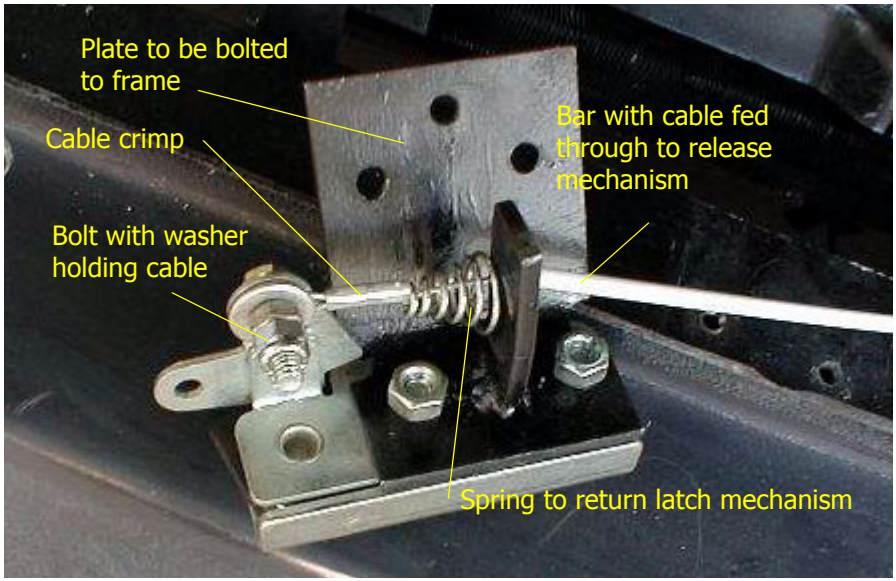
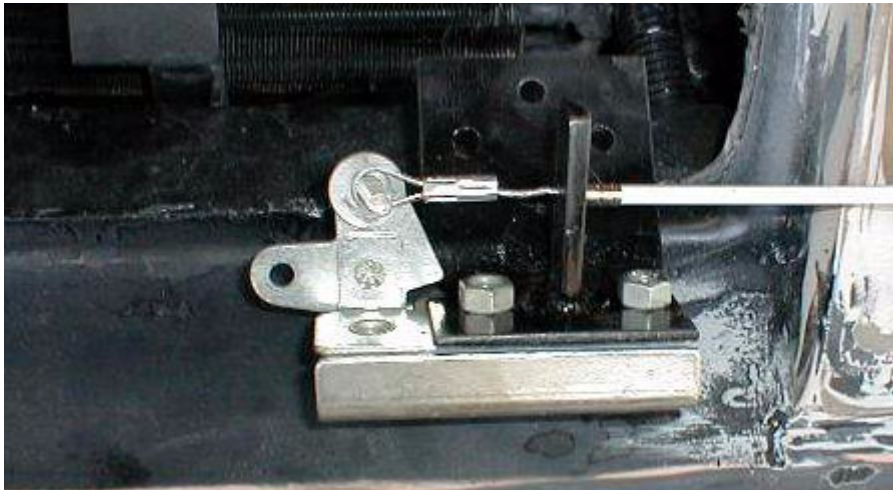


FIGURE 55. Latch assembly



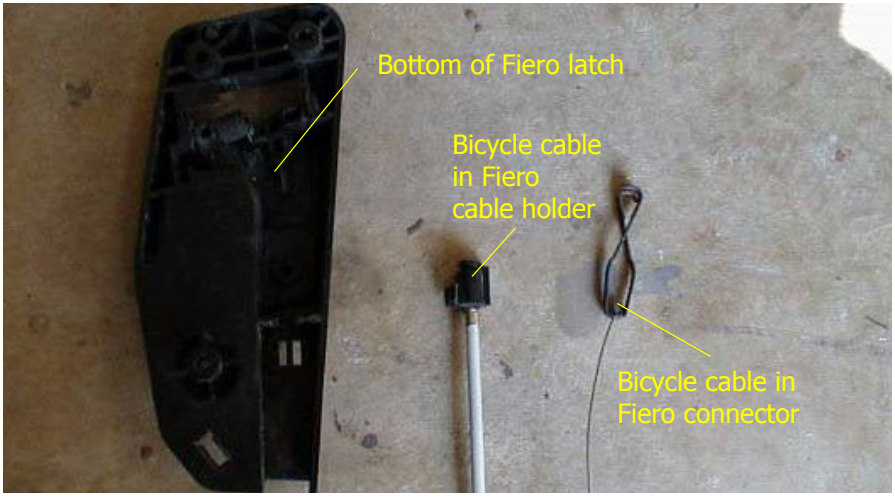


FIGURE 56. Interior connection pieces

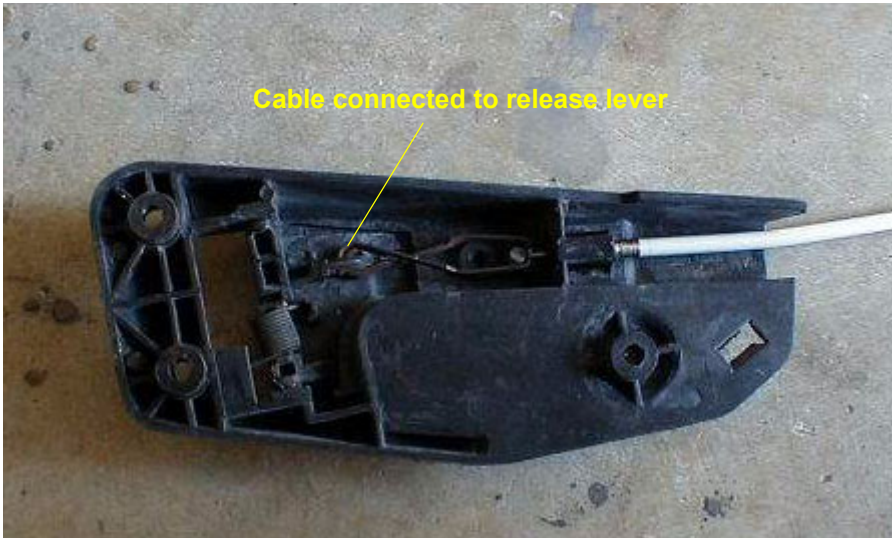


FIGURE 57. Completed interior latch assembly

Trunk Lid Brace

There are many solutions to use to hold open the trunk. You may elect to use the original Fiero trunk mechanism or you can even install gas assisted shocks to hold open the trunk. The following is a very simple solution that can be used as a trunk prop.

A simple rod was used with a small plate welded on the top to act as a stop. The rod was cut and welded at a 90% angle to act as a pivot point. This was inserted into a small angle bracket that had been drilled and countersunk to accept a 1/4" x 20 phillips head screw to fasten it to the trunk frame. A small hole is drilled in the rod to accept a cotter pin to hold the rod in place. A washer and spring were installed to prevent the brace from moving around.

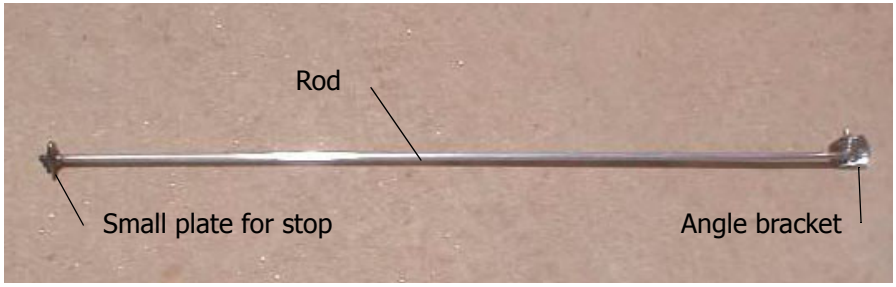


FIGURE 58. Trunk lid brace

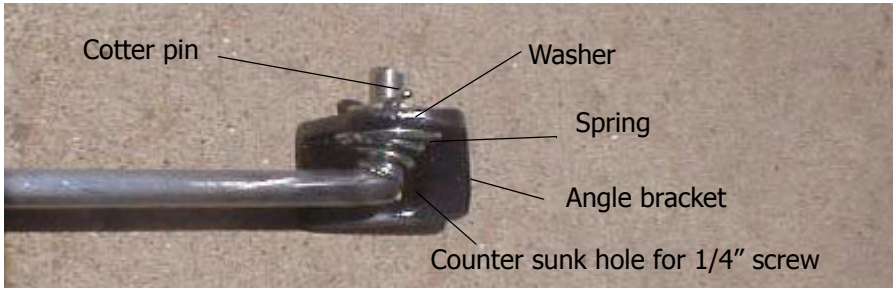


FIGURE 59. Angle bracket detail

CHAPTER 6

Grills

This chapter deals with the installation of the headlights, fog lights, taillights and the grills that are used on the Phantom kit.

Top, Rear and Front Grills

The following picture shows the rear grill, the two radiator grills, the motor deck lid grill and the two front grills by the fog lights. Depending on your color scheme that you select, you may wish to have these pieces powder coated for a quality finish. The emblems shown on the rear grill are not part of the package.

Fog lights and Front Grills

The front bumper has the openings for the fog lights and a narrow grill work that will allow airflow into the radiator. These are installed side by side. The fog light assembly consists of two fog lights and a bracket that they are bolted to. This bracket is secured to the car with two carriage bolts that are concealed by the fog lights themselves.

FIGURE 60. Fog Light components

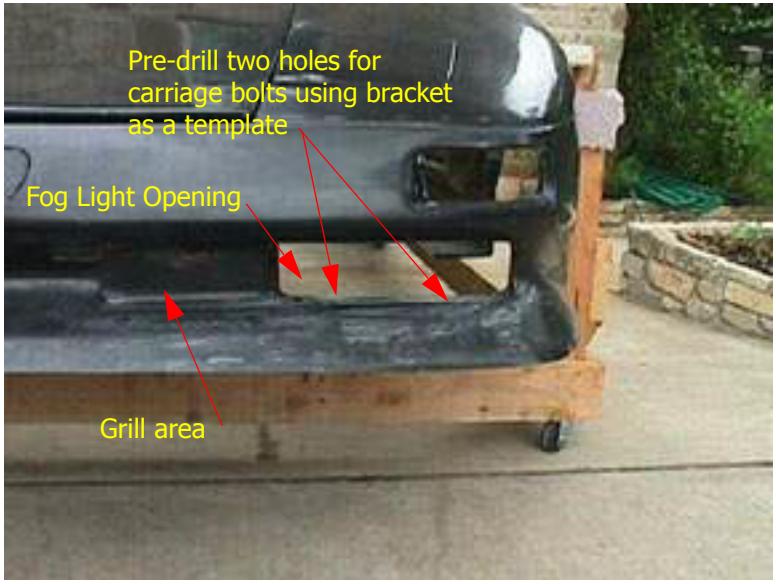


FIGURE 61. Bumper before fog lights and grill

It may be necessary to grind the corners of the opening to ensure a good fit of the fog lights next to the outside of the car.

FIGURE 62. Fog Lights and Grills installed

Rear Grills

The rear grills are easily inserted into the rear bumper by using 1/4" bolts and flat washers. It is necessary to cut slots in the fiberglass to slip the grill bolts into. Be sure to test fit the grills prior to cutting the slots.

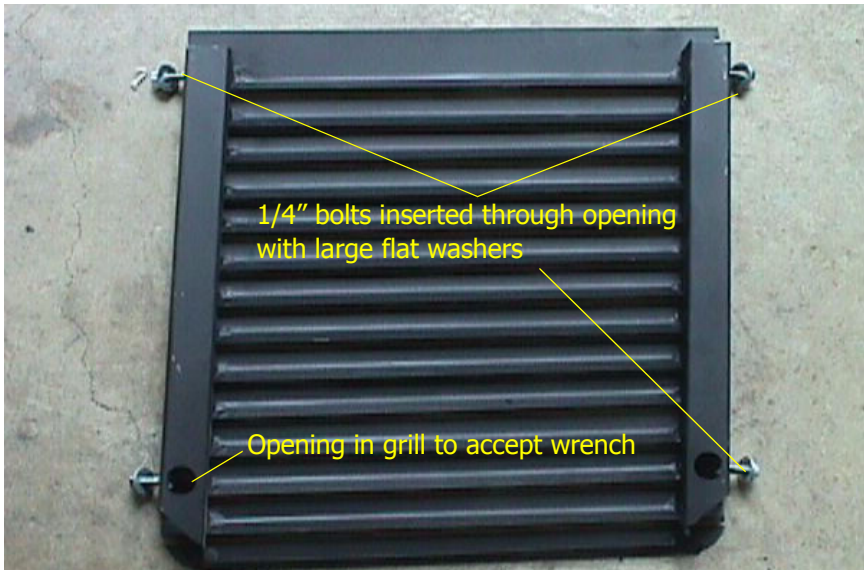
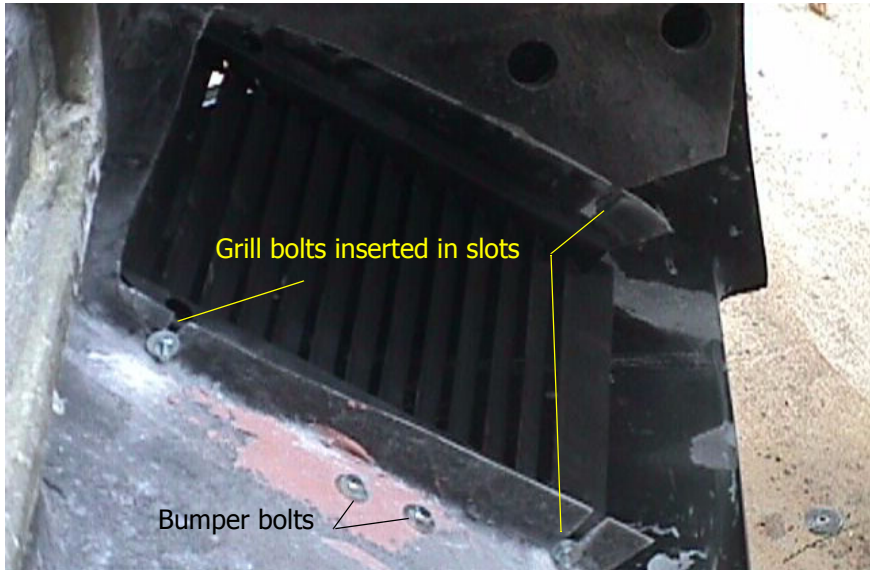


FIGURE 63. Rear radiator grill



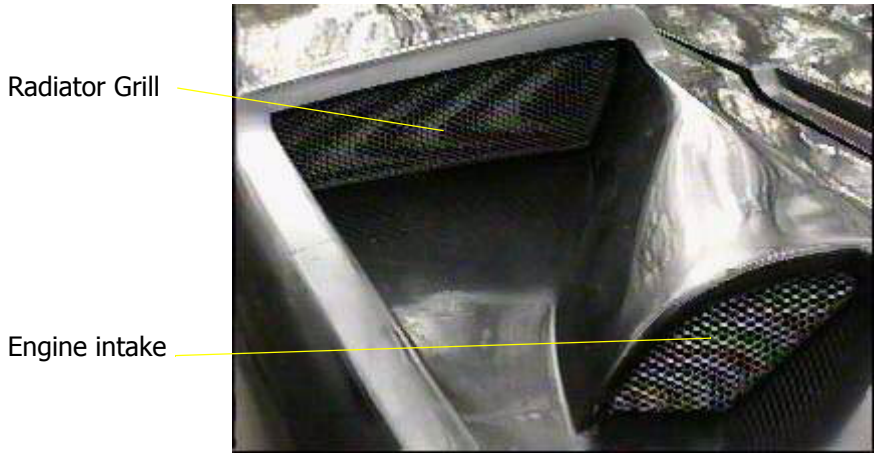
Depending on when your car is painted and the location of the radiators, it may be difficult to get in the side bolts. You may find it useful to drill an access hole through the side. This hole will be covered when the bumper is mounted.

FIGURE 64. Alternative access location

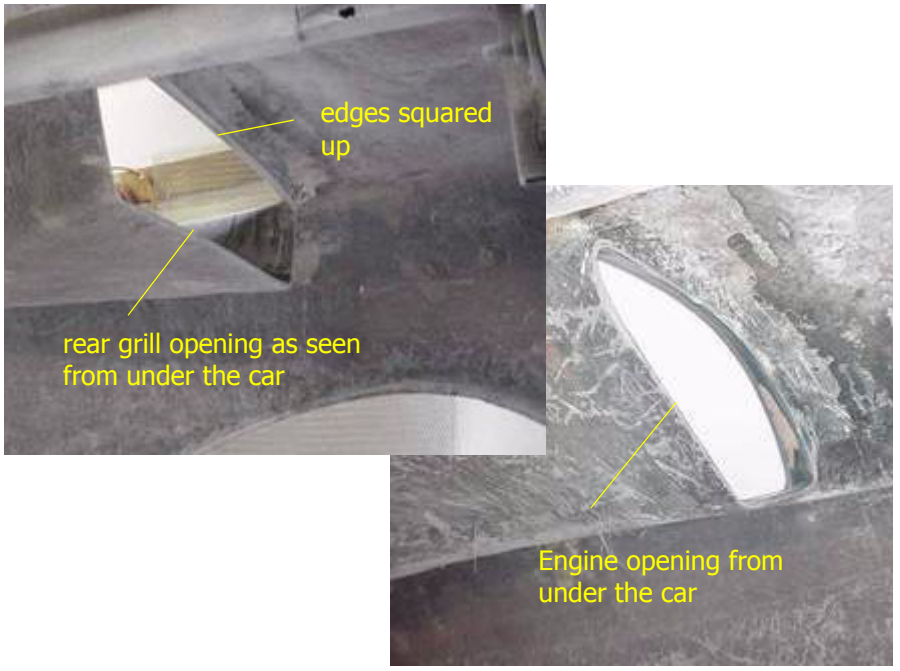
Motor Intake Grills

There are four grill areas that will be covered with wire mesh. First is the rear opening that provides air to the rear radiator, second the air intakes to the engine compartment, third the openings in front of the rear wheels and forth the openings directly in front of the windshield for fresh air intakes.

You may use something as simple as "gutter guard" that will be bondoed to the inside of the body.



The grills for the engine compartment are covered with a wire mesh. This process begins by making sure the edges of the vents are squared off.




welding rod and
braces hold grill
in place
Mesh is molded to the shape
of the grill


Grill bondoed to body


strings holding the
rods/grills in place
while bondo sets

Bottom Grills

Repeat the process for the bottom grill and the fresh air grill.

FIGURE 65. **Bottom Grill**

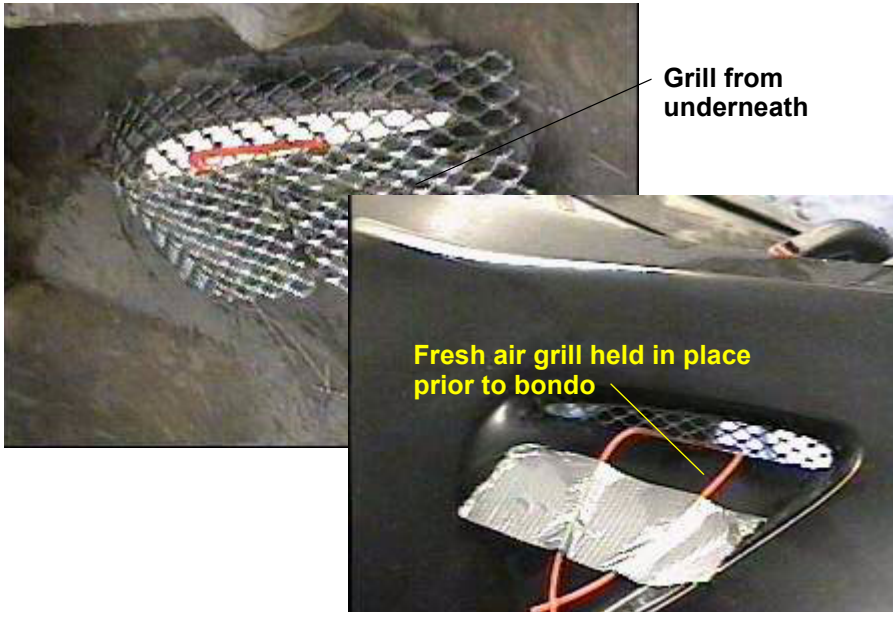


FIGURE 66. **Fresh air grill**

Side Louvers

The side louvers consist of two fiberglass pieces that will be bondoed into place.

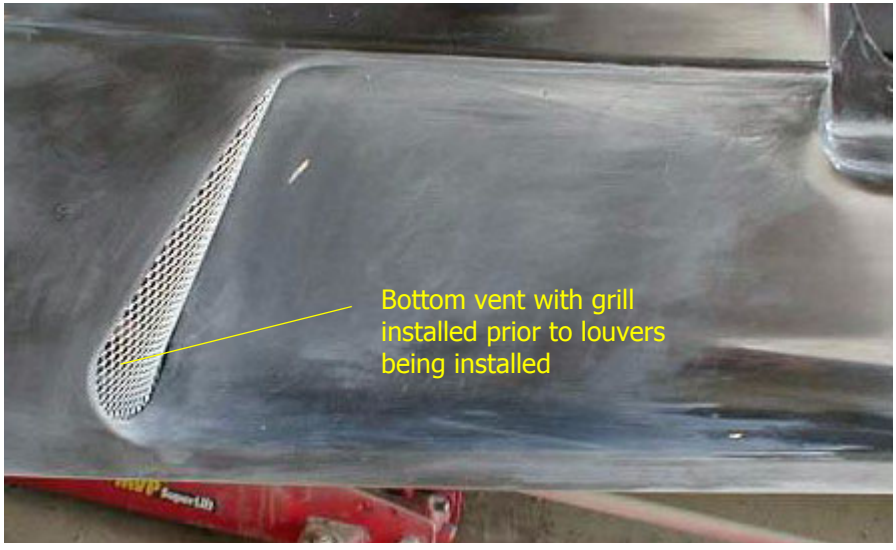


FIGURE 67. **Two louvers**

You may have to work with the angle and positioning prior to securing the louvers in place with bondo. Try to make sure the bondo is smoothed as close to the final shape while it is still pliable. It is tedious to sand the back area of the louvers. Wrapping sandpaper around a dowel can be helpful to reach a tight area.

FIGURE 68. **Final louver assembly**

CHAPTER 7

Lights

The types of headlights have changed over the years. The earlier models used a pop up style headlight where the later years have gone to a fixed light that uses the 300ZX headlights. We will cover both styles in this documentation.

Pop-Up Lights

Installation of the headlights involves cutting out the openings from the body large enough to be able to accommodate the headlight buckets. The buckets need to have two metal brackets bonded to the inside that will support the headlights. These brackets are connected to a bar that will be bonded to the underside of the fender and allow the lights to pop up and close.

This will involve the use of bondo and fiberglass. The best way to set up the lights to ensure consistency is to build a small jig to hold the pieces. The white bar that connects to the curved light hinges is fixed 3/8" above the surface of the lights and 1/2" back from the light. By using a piece of 3/8" plywood and securing the bracket with a two screws, you can then turn the light bucket upside down and position it 1/2" away from the bracket.

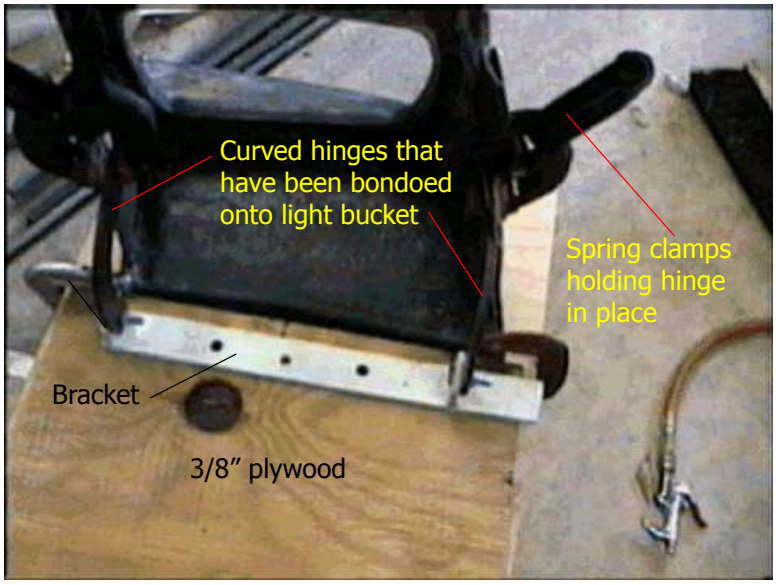


FIGURE 69. Headlight shell on jig

You can use C clamps to hold the headlight bucket in place while aligning the curved brackets. Do not use to much pressure on the clamp or you may break of the lip of the headlight bucket. It is important that you grind the surface of the headlight bucket where you will be using bondo to ensure that the waxy surface has been removed so that the bondo will adhere properly. You will need to drill a 1/4" hole in the end of the curved hinge to accommodate the bolts through the bracket. You may wish to drill several holes through the straight part of the bracket to allow the bondo to come through for a more secure bond. You will also have to bend the brackets slightly to align them properly with the bracket and the bucket. Once the proper alignment is done, apply the bondo and then use a spring clamp to hold the hinge in place until it dries.

When installing the bracket, make sure that the long tab is positioned to the outside of the car.

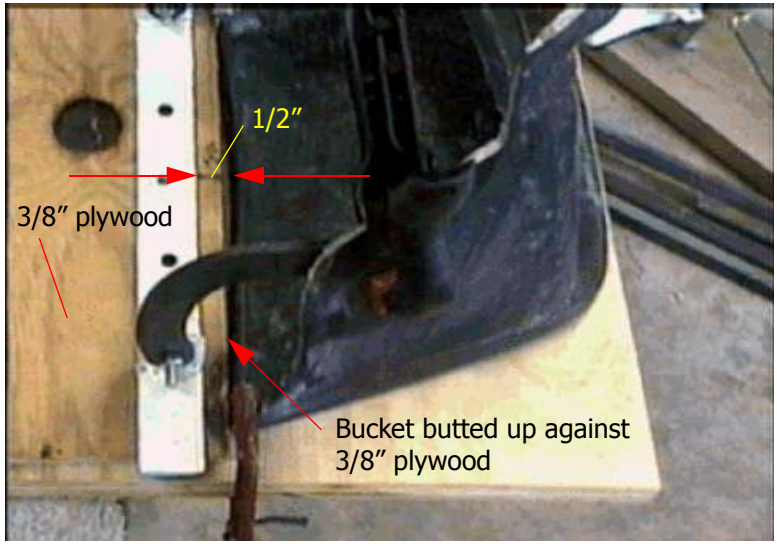


FIGURE 70. **Close-up of jig**

FIGURE 71. Hinge fiberglassed into place

It will be necessary to mount the bracket to the underneath side of the fender using the bondo and fiberglass procedure. Once the brackets have been attached to the bucket the headlight buckets must be mounted from the bottom. This requires the headlight openings to be large enough for the units to open up through the fender. Try to make this opening as close to the size of the bucket as possible.

FIGURE 72. Headlight test fitted on roughed up area

Once you are comfortable that the light is properly aligned, mark the location of the bracket in the roughed area of the body. Remove the headlight from the bracket and then use bondo to apply the bracket to the marked location. Once the bondo has cured, use fiberglass mat and resin to permanently secure the bracket in place. You will need multiple clamps to secure the matting in place while the fiberglass cures.

FIGURE 73. Bracket installed - view from under fender well

Once the bar has been fastened reattach the headlight bracket. It will be necessary to use a clamp to keep the headlight temporarily in the proper position while mounting the body on the frame.

FIGURE 74. **Headlight installed as seen from the front**

Mounting Headlights in Brackets

Utilize the existing headlight units from the Fiero to fasten the headlights into the bracket. This will require trimming off some of the existing areas on the bracket to make it fit. If the headlights in the Fiero are old, then you may wish to replace the existing headlights with new lights at this time.

FIGURE 75. **Fastening headlights to brackets**

Headlight Motors

Utilize the existing headlight motors from the Fiero and the brackets supplied with the kit. Remove the existing mechanical components from the headlight motors in preparation for mounting them to the IFG brackets.

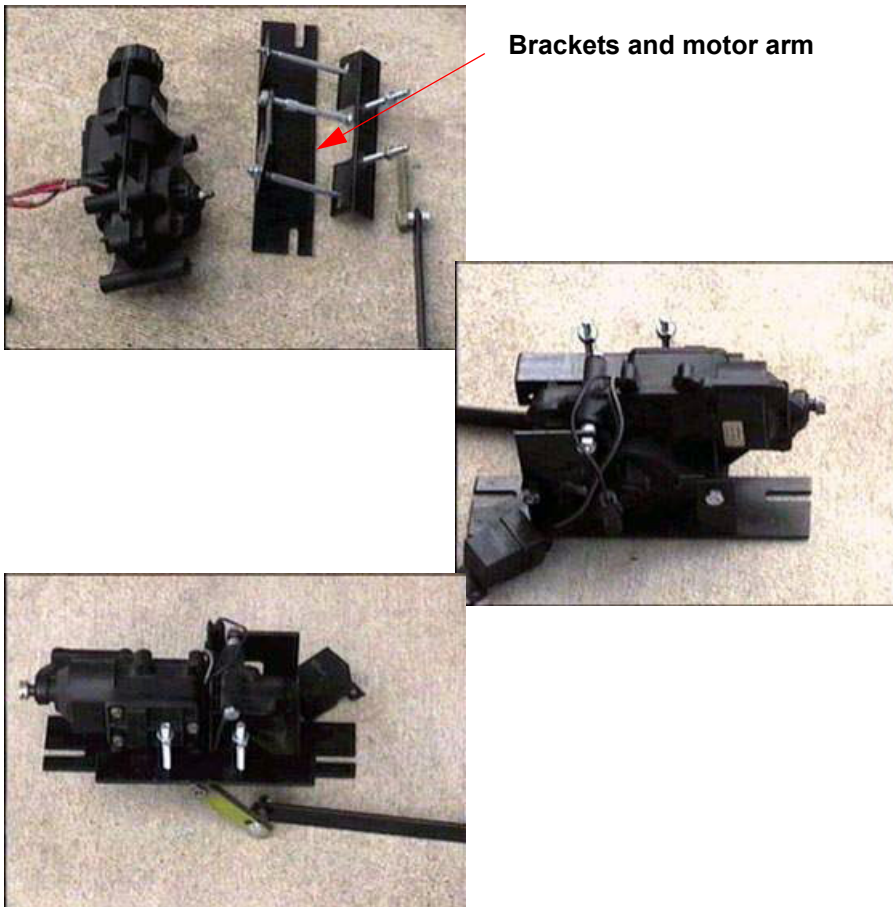


FIGURE 76. **Headlight pieces and assembled unit**

Fixed Headlights

The newer cars are using the fixed headlights which are actually 300ZX headlights. These can be fastened to the body directly.

FIGURE 77. **Fixed lights**

The 300ZX headlight has 4 mounting points. The front has two studs and the rear has two bolts. You will need some flexibility in the mounting techniques that will allow out drop the lights out after they body is mounted.

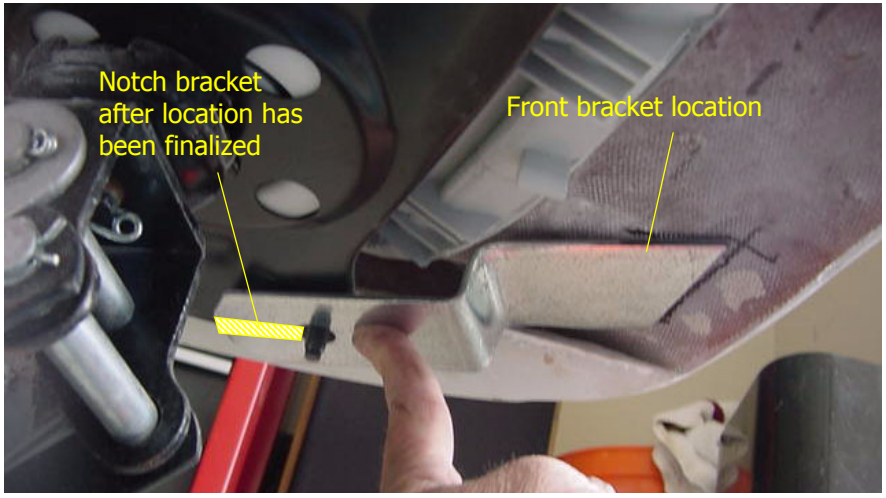
If you do install the fixed lights, please see the chapter on Wiring as there are changes that need to be made to accommodate the Fiero wiring harness.

The following photos are compliments of Ron Fletcher and showed how he mounted his lights.

Test Fit

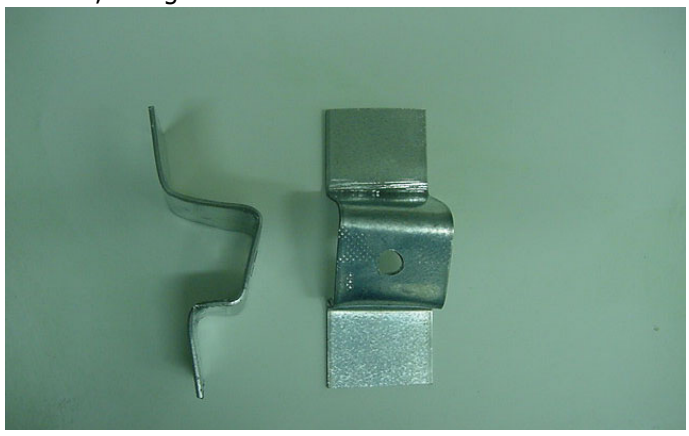
Position the headlights in the opening. A floor jack can be used to hold the light in position while you shape the brackets that will be used to secure the headlights to the body.

FIGURE 78. **Trial fit**

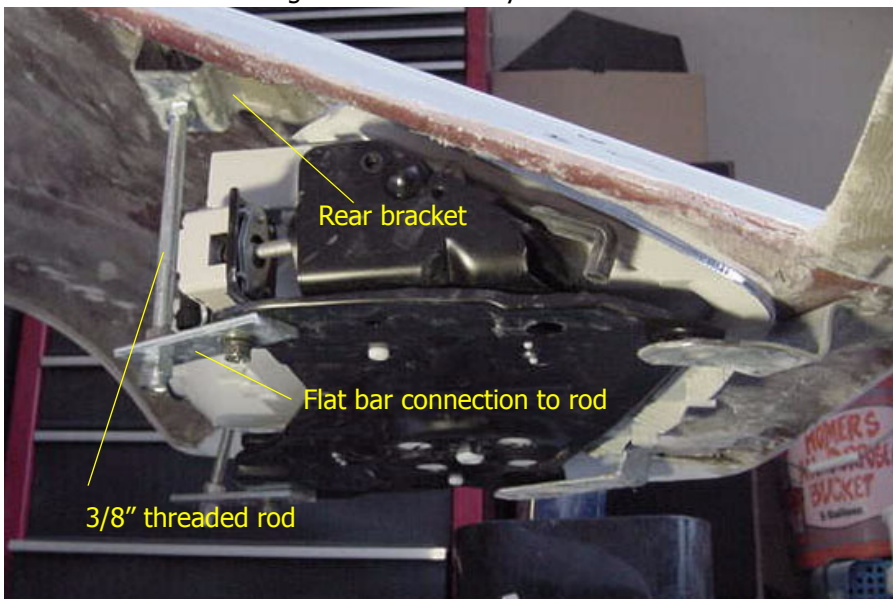


Fabricate a bracket that will be used on the front studs. The hole in the bracket is used initially to assist in the location of the bracket where it will be fastened to the body.

Once the position is set, then a slot will be cut in the bracket just wide enough for the studs to slide out. When the lights are permanently mounted, a large washer will be used on the bottom of the studs.



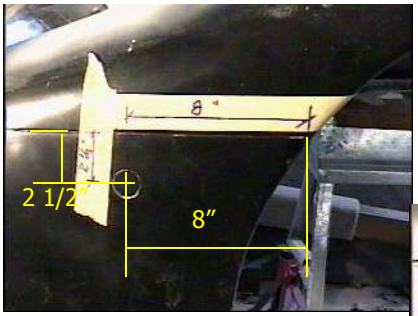
Next you will need to fabricate a bracket to hold a 3/8" threaded rod. This bracket is bondoed and glassed to the body the same as the front bracket



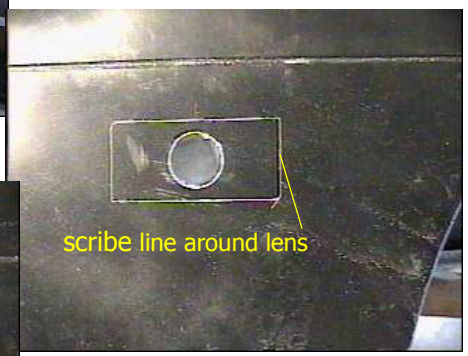
You will use flat bars to connect the rod to the rear bolts.

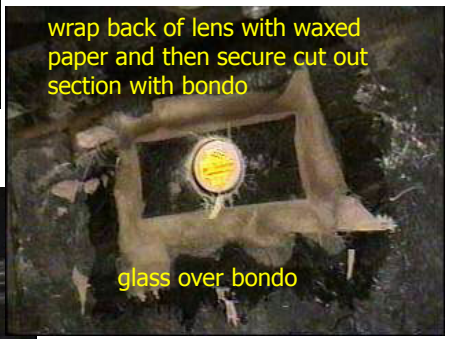
Side Marker Lights

The side marker lights consist of a lighted reflector that is mounted through the body. To achieve a more finished look, you may wish to recess the light using the following technique.



use the body seam to measure the location of the 1 1/4" diameter hole 8" in from wheel and 2 1/2" down





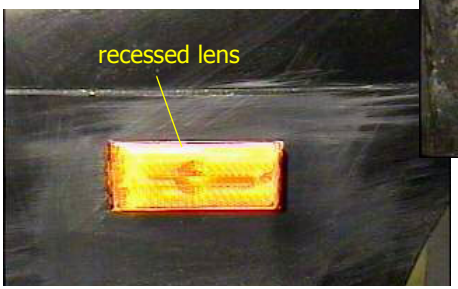
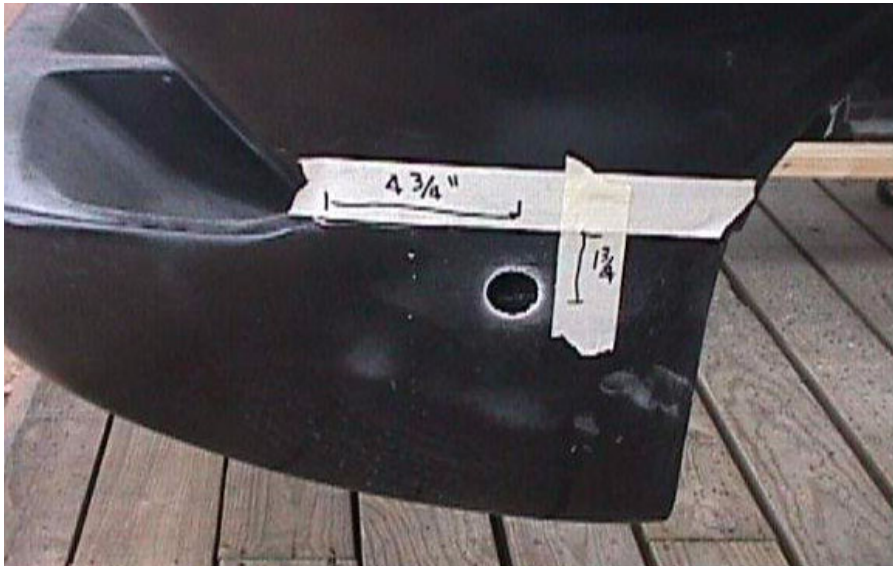


FIGURE 79. Front side marker light

Rear side marker light

The rear side marker lights are installed using the same technique as was used on the front.

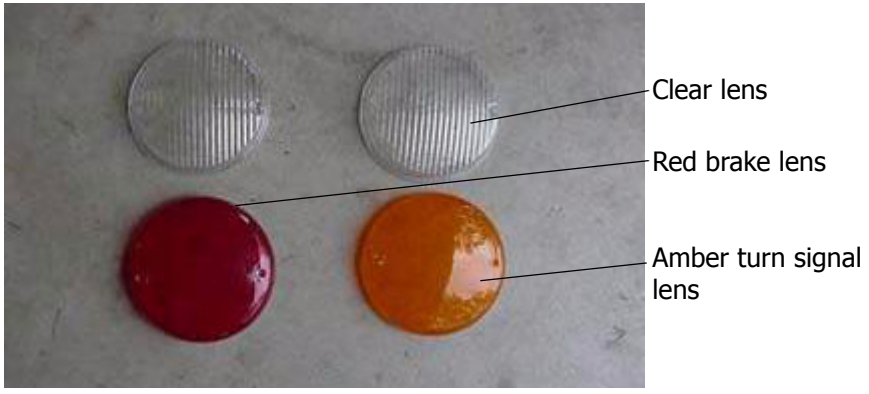


Tail lights

The kit allows you to use the existing Fiero taillights. The taillights consist of a plastic bezel, two clear lens one amber lens and one red lens.

FIGURE 80. Tail light assembly

Begin by drilling two holes through the rear of the bezels. The original Fiero taillight assemblies are glued to the inside of the body so the bulbs are visible through the holes. You may wish to paint the area in back of the bezels with a silver reflective paint.



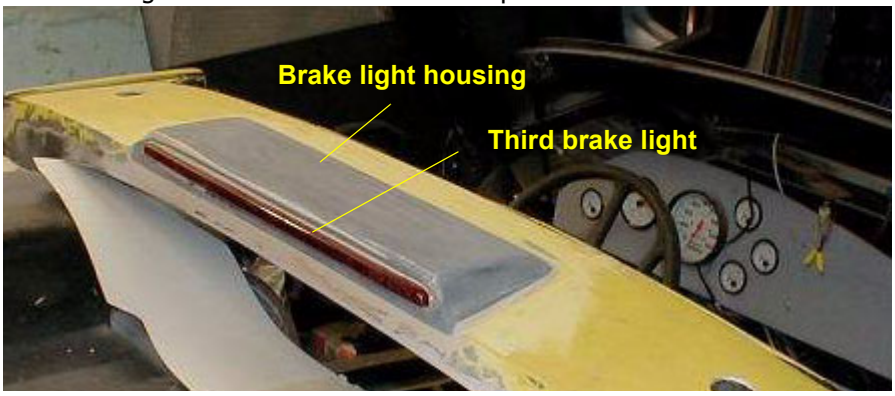
Next you will use small screws to fasten the bezel to the body. After the bezel is fastened to the body, you will then put in the clear lenses in the bezels. Next you will put the colored lenses over the clear lens. Carefully drill the colored lenses with a small bit. Use a slow speed so not to crack the lens. Once the holes are drilled. fasten the lenses with small machine screws. This will require tapping the body to accept the machine screws.

Original Lamborghini Lights

Some builders will purchase OEM lights for their cars. If you do replace the Fiero lights, see the wiring chapter on how to connect OEM lights to the Fiero harness.

Center Brake light

The center brake light consists of a separate light box that fits into a recess in the top of the roof. The actual brake light is inserted into the opening. The brake light wires are fed into the cockpit.



The brake light housing is bondoed into the roof for a seamless look.

FIGURE 81. Third brake light

CHAPTER 8

Doors

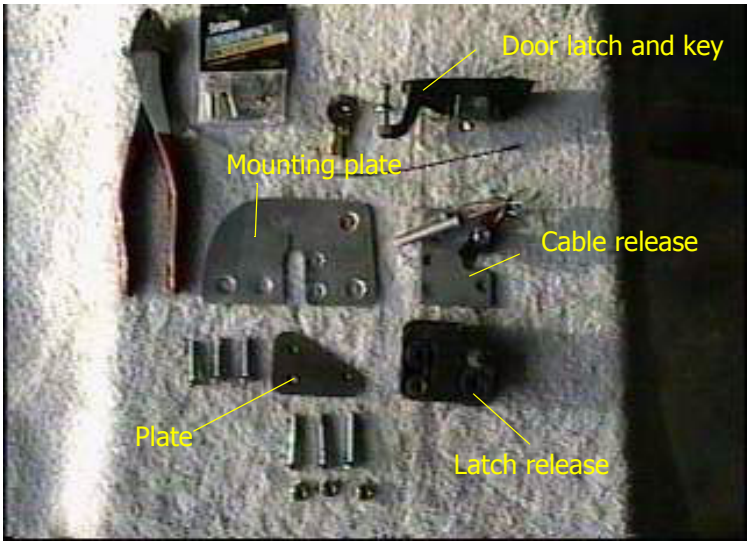
This section deals with the assembly and installation of the frames that fit within the doors as well as how the locking mechanisms are installed in the door.

Components

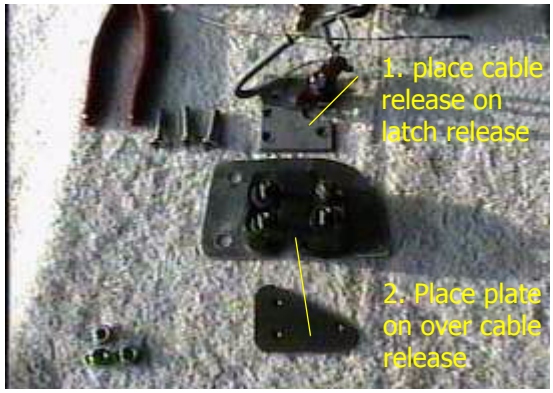
FIGURE 82. Door outside view and inside view

Parts for Doors

The latch mechanism requires being assembled from the pieces supplied with the kit



Place the latch release on the plate and insert the screws through the plate and fasten with nuts that were supplied



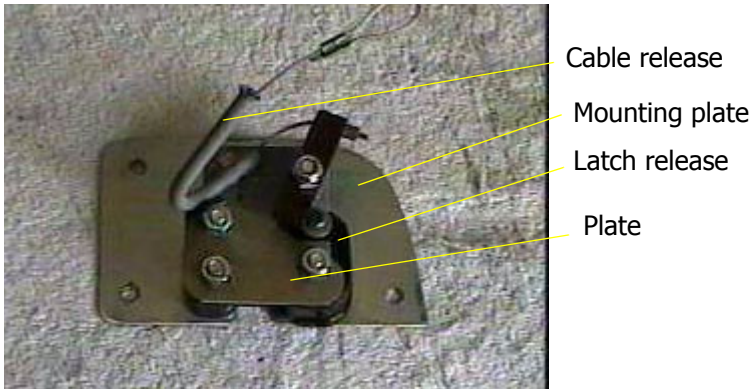


FIGURE 83. Completed latch assembly

This assembly will later be mounted in a cut out in the end of the door and secured by drilling holes through the plate and counter sinking the mounting bolts in the aluminum plate

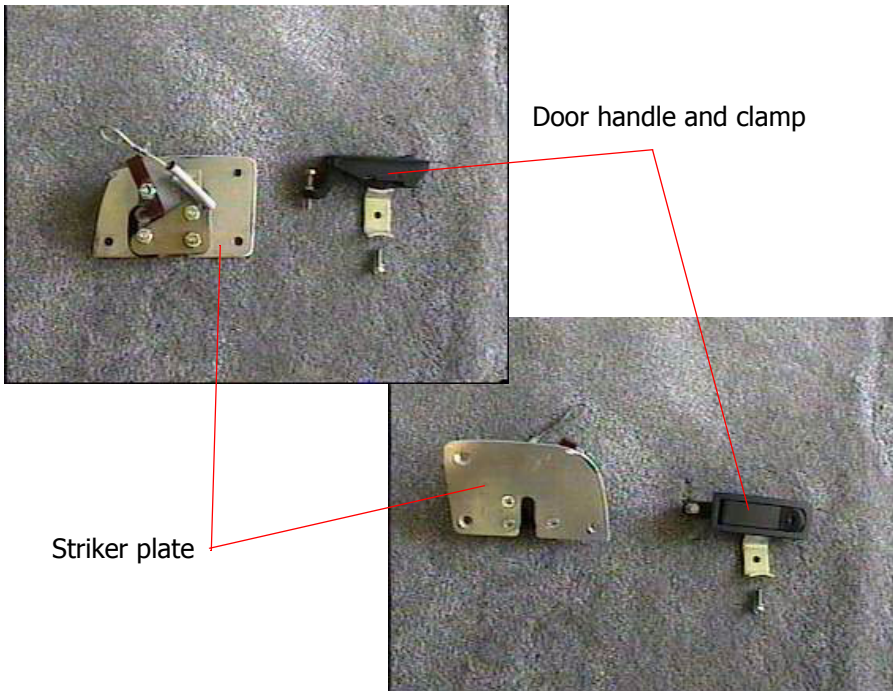
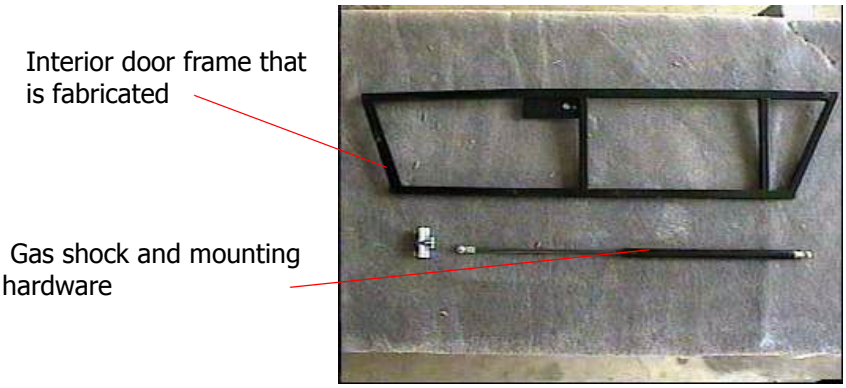


FIGURE 84. Door lock and latch assembly

Door Frame and Shock assembly



Door Frame Assembly

This involves building a subframe out of 3/4" square tube that will be inserted into the door. The end next to the door is connected with a flat bar instead of tube to allow clearance for the shock. This subframe will be attached to the door with 1/4" screws that are countersunk and secured through the fiberglass panels.

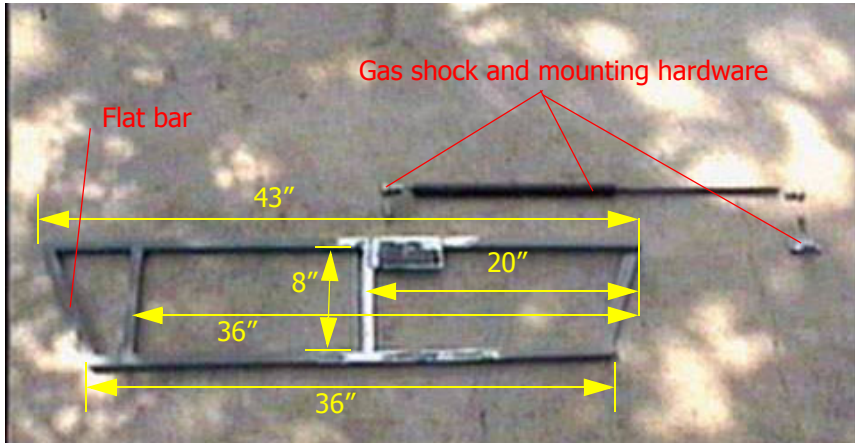


FIGURE 85. Door Frame

The dimensions are approximate and may need to be adjusted for proper fit within the door.

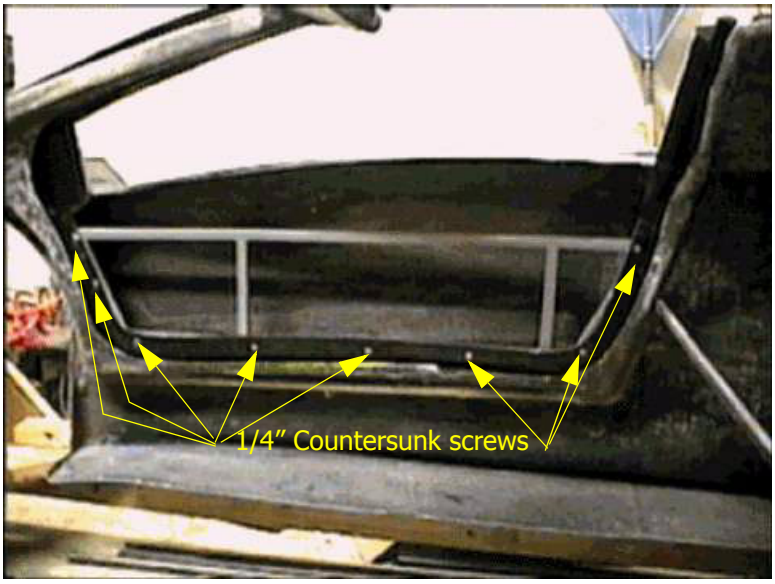


FIGURE 86. **Door frame fastened inside door**

Gas shock attach points

A plate is attached to the frame near the top of the door and the mid point of the door. Several holes can be drilled to allow options in positioning the attach point of the shock. The shock ball may need to be adjusted to clear the window.

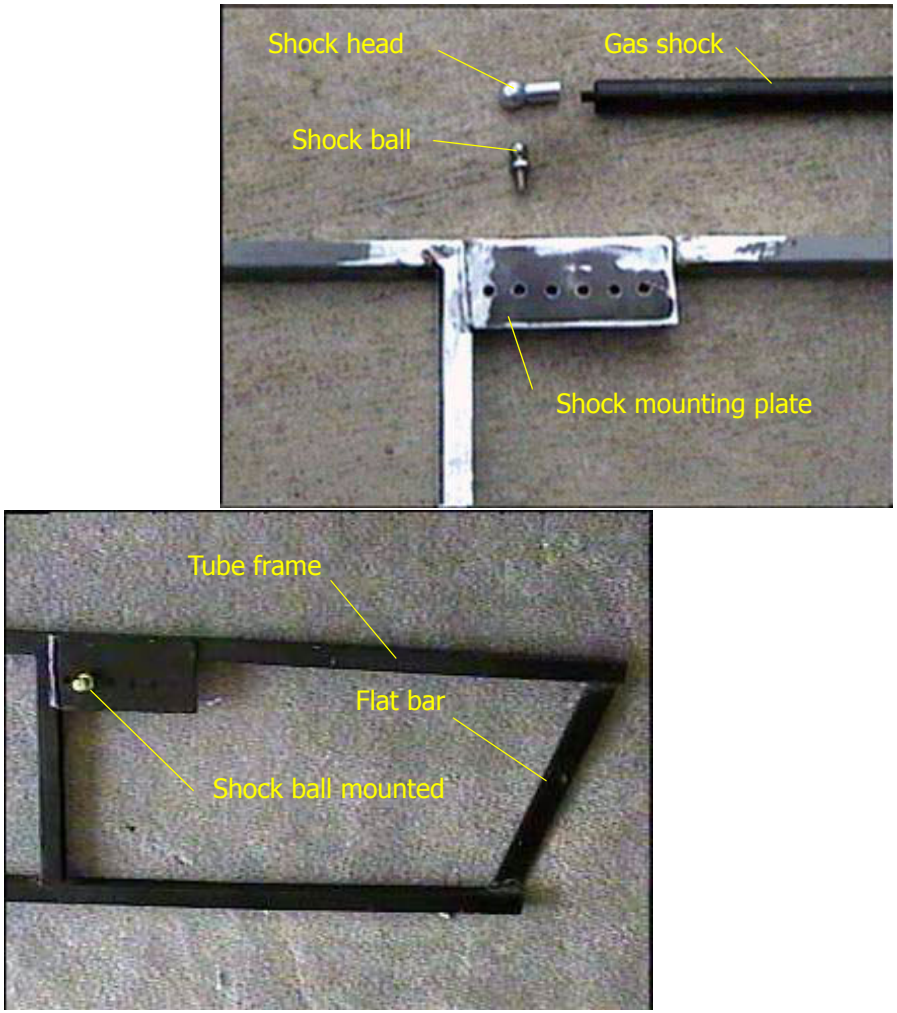


FIGURE 87. **Door shock attach point on frame**

Shock Plates on Body

When you are first testing the doors without the body being mounted on the chassis, you can simply locate the shock ball assembly on the body. However, once the body is permanently mounted, you will need to reinforce the attach point with a metal plate. This metal plate is created from an 8" square x 1/4" metal plate with a 2" angle iron welded on as an attach point for the body.

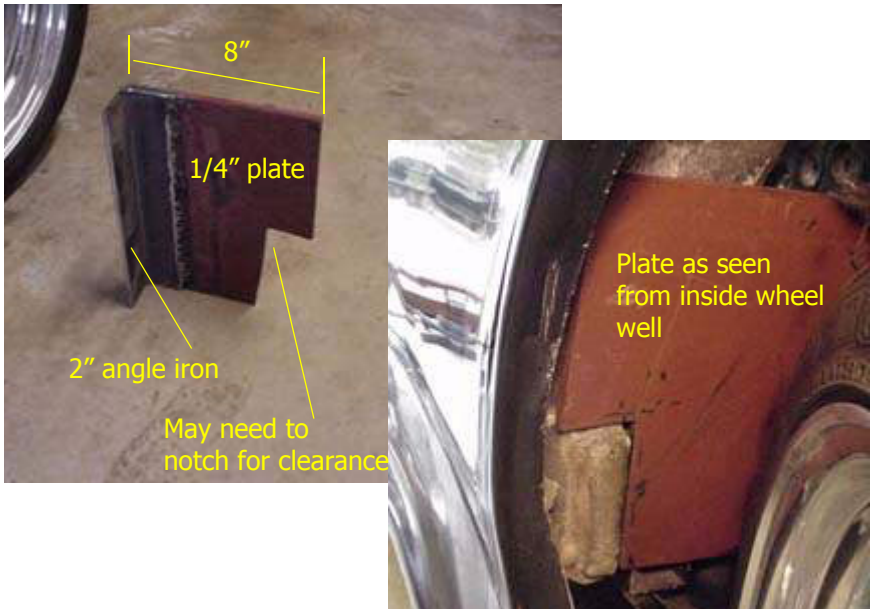
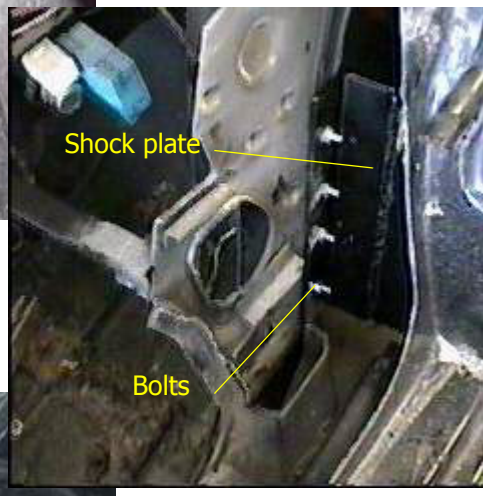


FIGURE 88. Body shock plate mount

The 1/4" plate is drilled and tapped to accept 1/4" x 20 bolts. The plate is fastened to the body by using 5/16" bolts that attach the angle iron through the side plates of the dash.

Trial fit the shock plate by clamping the angle iron to the edge of the dash. Once you are satisfied with the location, drill the holes through the plate and the dash.

The bolts will be covered later with a fiberglass enclosure to seal the area from the interior.



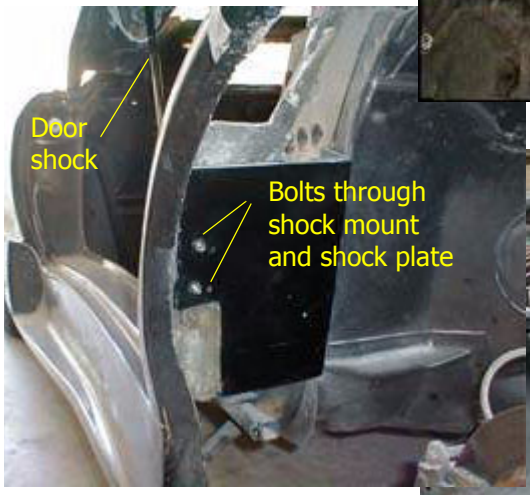


FIGURE 89. Completed body shock plate mount

Door Locks

when constructing the doors, some builders elect not to install the door handles and relay on keyless entry with solenoids and door poppers. We will assume that you have made the decision to use the door handles that were supplied with the kit. This does not mean that you cannot connect a solenoid later to open the door remotely.

It is necessary to cut an opening in the top of the door for the latch. The end of the door must be cut open to accept the latch mechanism.

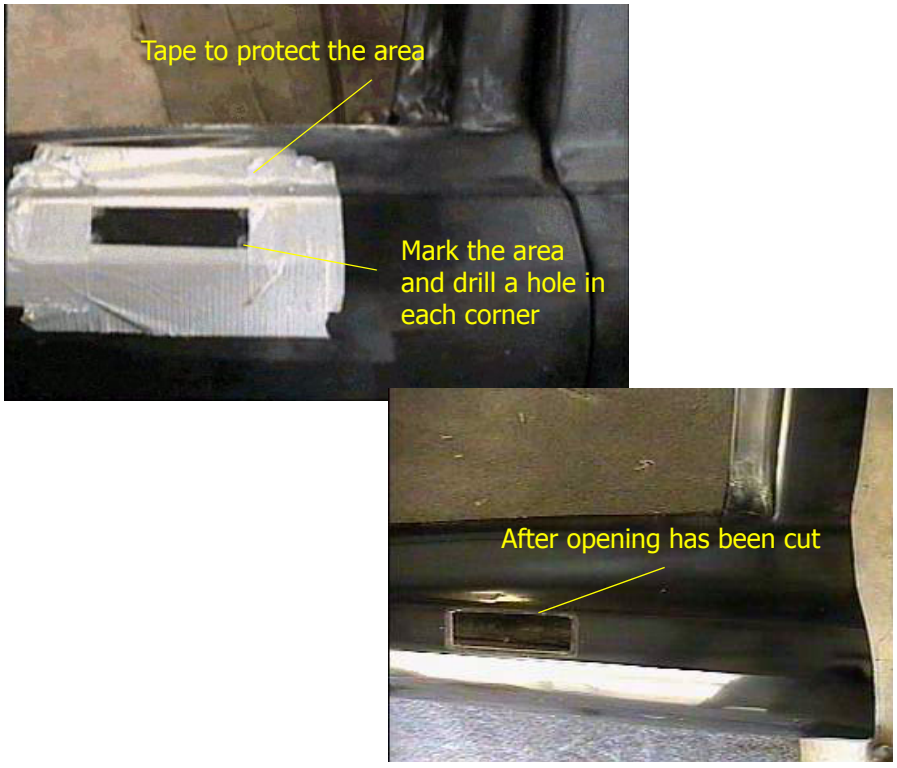
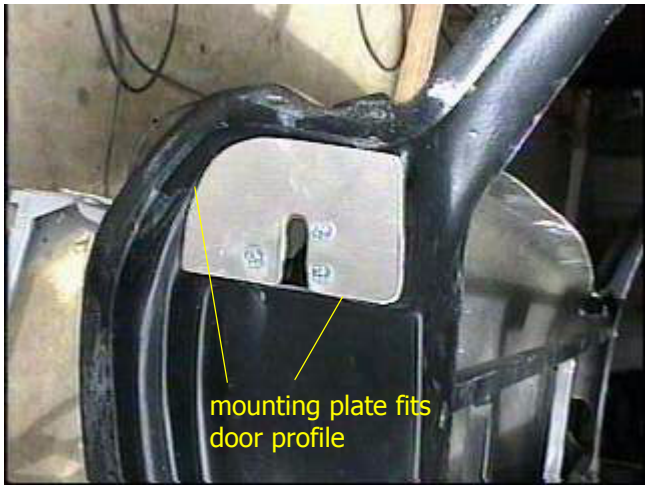


FIGURE 90. Door lock cutout

Install Latch Mechanism

To fasten the door latch mechanism to the door, it is necessary to cut an opening in the end of the door to accept the latch plate.

Once the opening have been cut, trial fit the latch mechanism. The plate should conform to the edge of the door as seen in this picture.



Once the proper positioning has been determined, drill three holes through the plate and the door. Counter sink the plate for the bolts

Be careful not to drill the holds too close to the outer edge as this limits the area inside the door to get the nuts on the bolts

Once the mounting plates are installed, you will need to connect the latch cable mechanism to the door latch. This can be accomplished by drilling a hole in the edge of a large washer and then creating a loop out of cable that connects to the loop on the latch. This allows you to remove the door lock by unscrewing the washer should you need to remove the door lock.

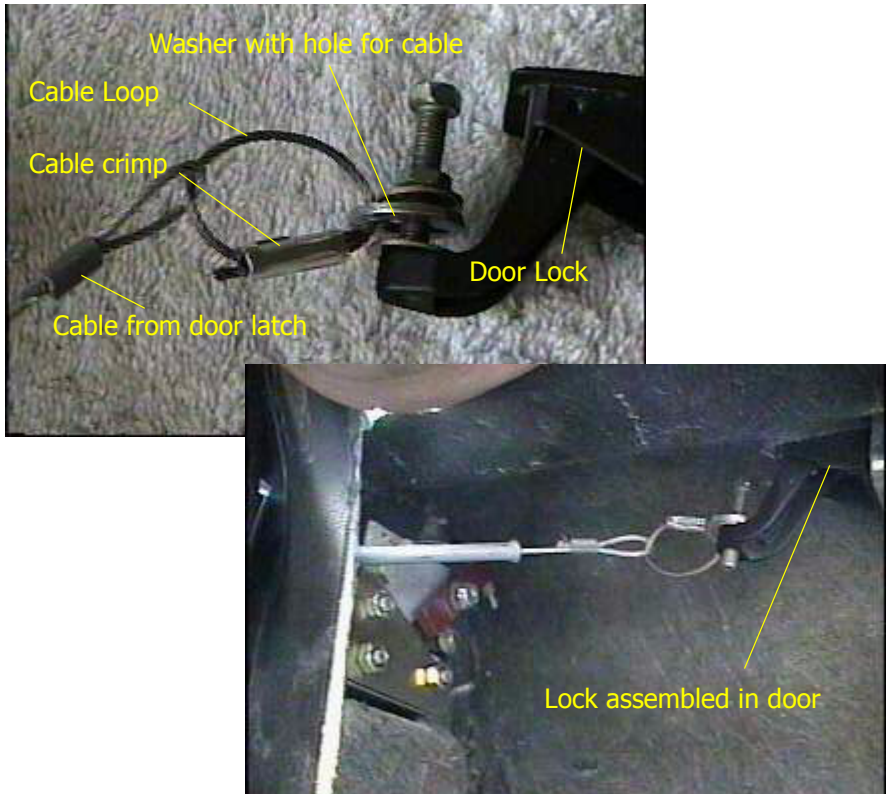


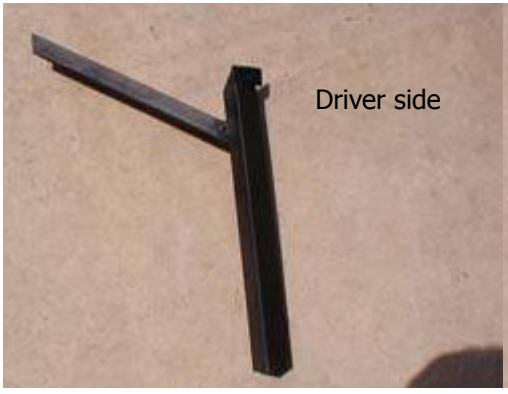
FIGURE 91. Completed door lock assembly

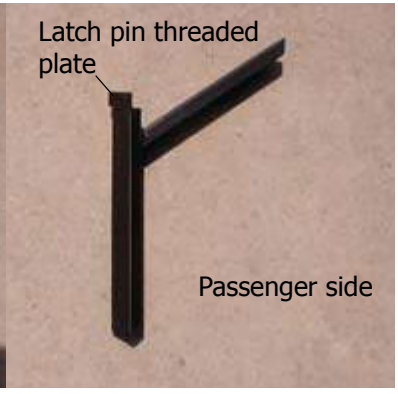
Latch Pin

Once the door latch has been assembled, it will be necessary to mount the latch pin to the body. Initially, this can be installed through the fiberglass in the door sill.

FIGURE 92. Latch Pin

After the body has been mounted, it is a good idea to attach the pin to a metal framework. Here you can see a frame has been fabricated that is welded to the body to support the latch.

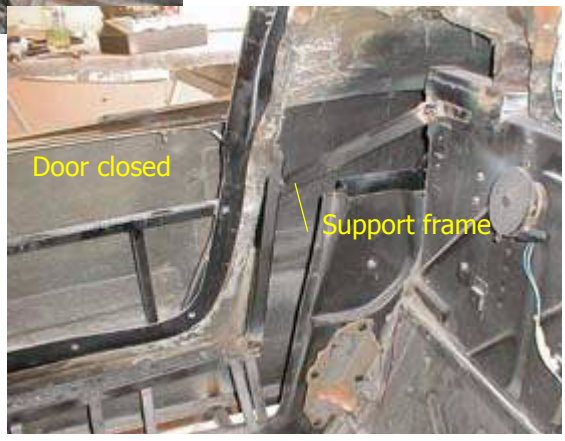




Here you can see how the frame is attached to the body.

Position the frame with the door latch in the proper position and then weld in place.

Support frame is welded to the frame rail attached to the body at the base of the door and to the structure that supports the firewall on the top.

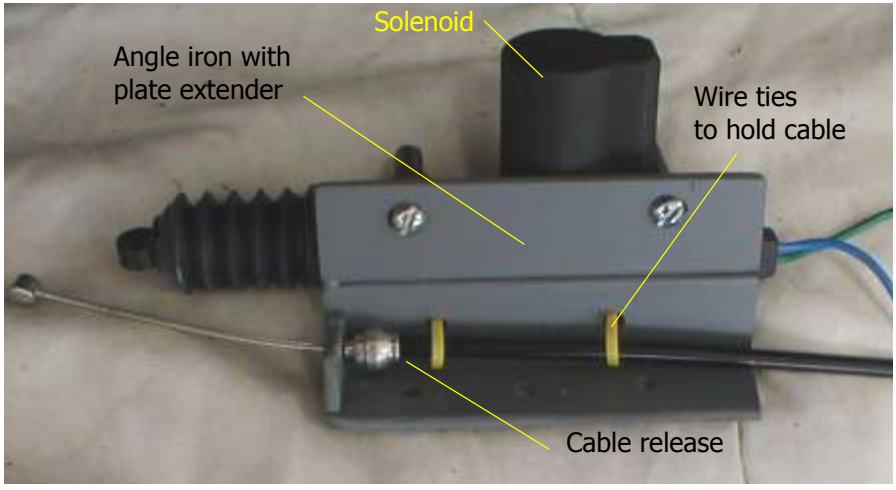


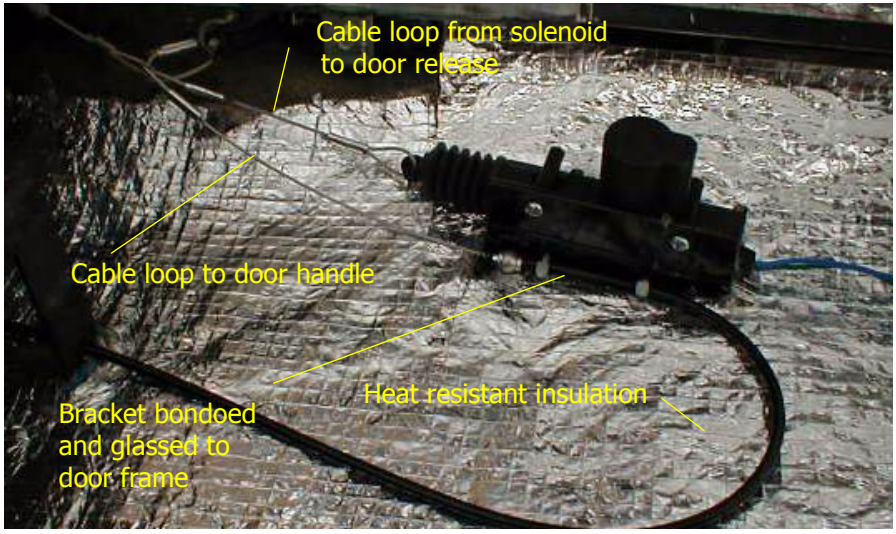
Interior Door Handles

The interior door handles are fastened to the door panels. You may wish to also use a solenoid to release the door handle with a connection to your alarm system.

Door solenoid

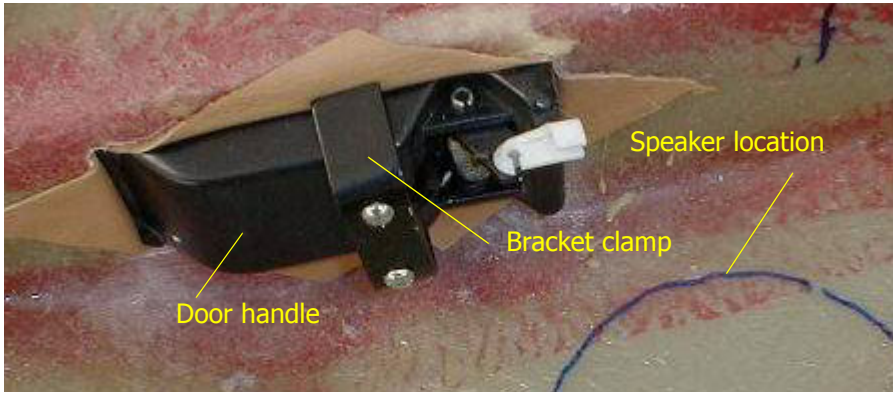
You can fabricate a bracket that will hold both the solenoid and the cable release from the door handle.

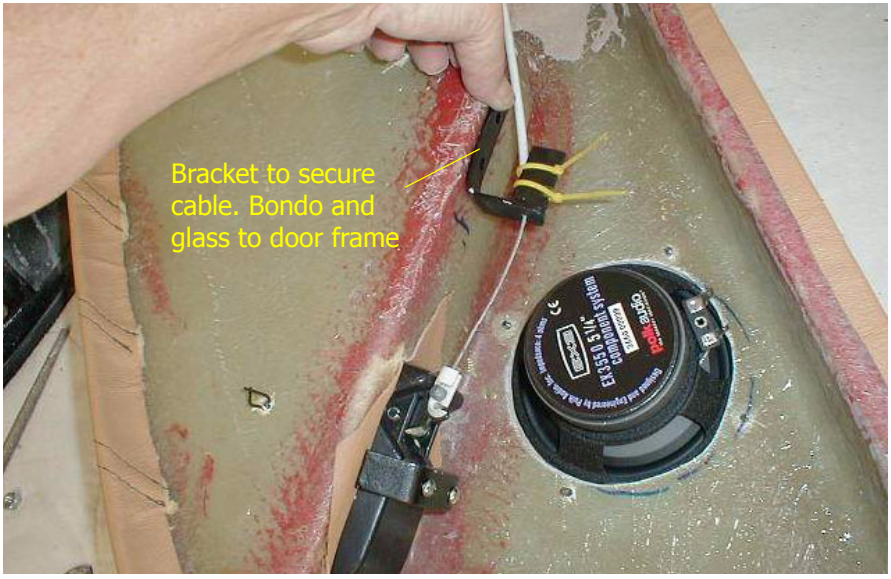




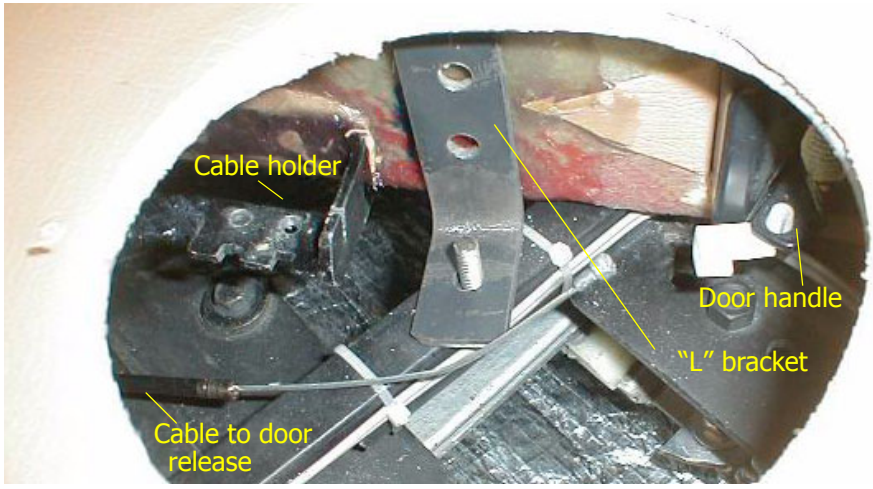
Door cable attachment

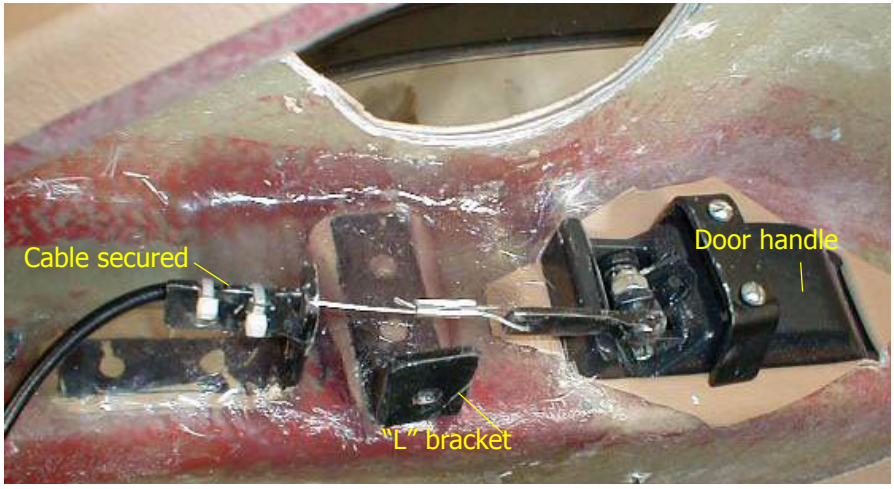
The cable from the door release is routed to the inside door handle. A special bracket is fabricated to hold the bicycle cable in place.





The door panel is bolted to the door frame with a special "L" bracket that is fabricated and bondoed to the inner door panel. The bolt it is secured to is a stud that has been welded to the inner door framework.


Cable holder
Door handle
"L" bracket
Cable to door release


Cable secured
Door handle
"L" bracket

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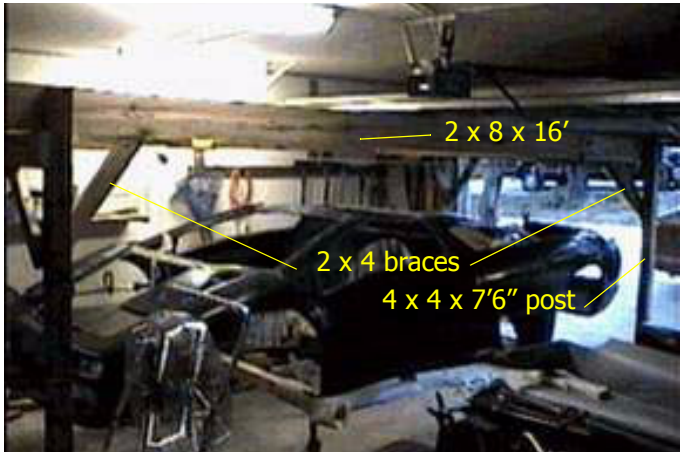
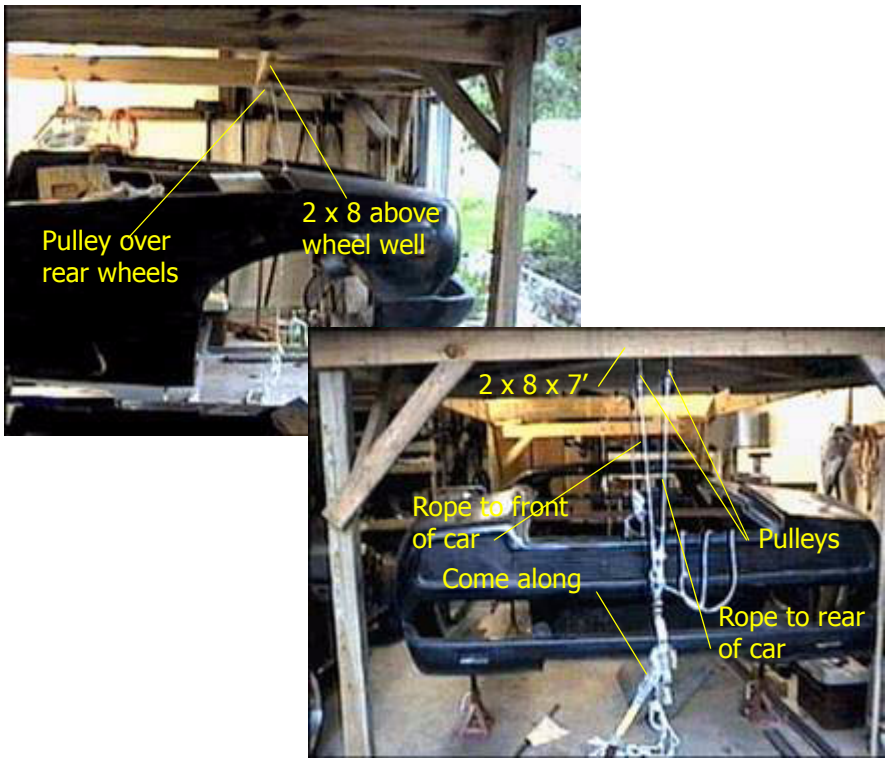
CHAPTER 9

Mounting Body

During the build of your car, you will need to trial fit the body numerous times. It is possible to construct a simple moveable rack that can lift the body and then move the body over the chassis and lower it into place. The following shows how to construct such a rack.



The rack consists of 2 - 2x8x16ft for the top rail. These were fastened to 4x4x7'6" posts with casters on the bottom. Use 2x8x7ft across the front and back on the top and bottom. 2x4 angle braces are used from the post to the 2x8s. Placed a 2x8 above the wheel wells over both the front and the rear wheels. install pulleys in the 2x8s over the wheel wells.



Use a come along attached to the ropes that allow you to lift the front and back together or separately. You do need to make sure that your garage has the clearance to move past the garage door opener as well as allow the doors to close.

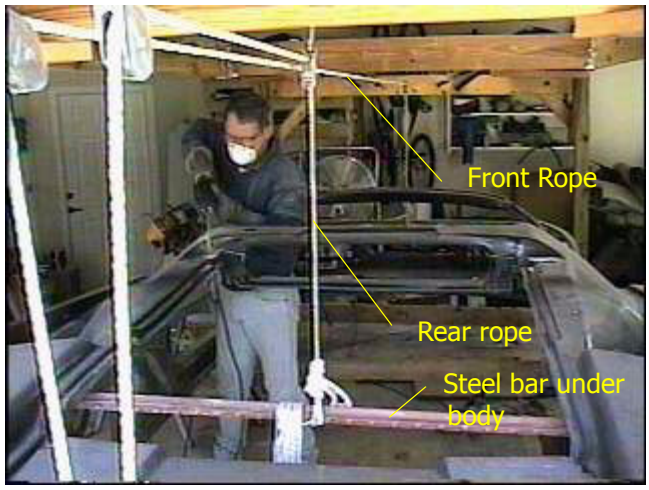


FIGURE 93. Body rack assembly

Test Fit For Clearance

Once you have a method of moving the body, you will want to test fit it on the chassis. Your body may have a large flange on the bottom. If so, it will be necessary to cut this off to clear the body. Save the pieces if you wish to re-attach them after you have the body mounted.

You are looking for clearance over the rear shock towers and the clearance over the brake fluid reservoir for starting points. It is handy to have several wedge shaped blocks of wood that can be used for adjustments that the body can rest on.

During this initial test fitting, you will want to check that the wheels are positioned correctly in the wheel wells both front and back.

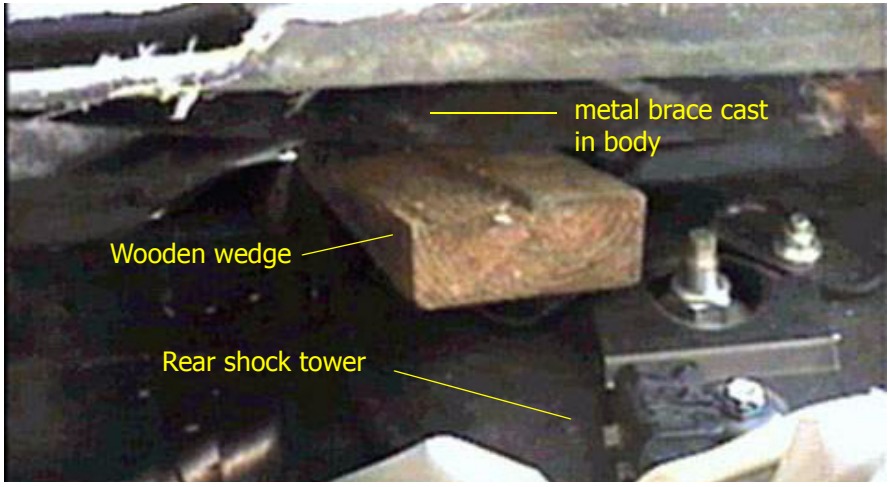


FIGURE 94. **Rear test fit**

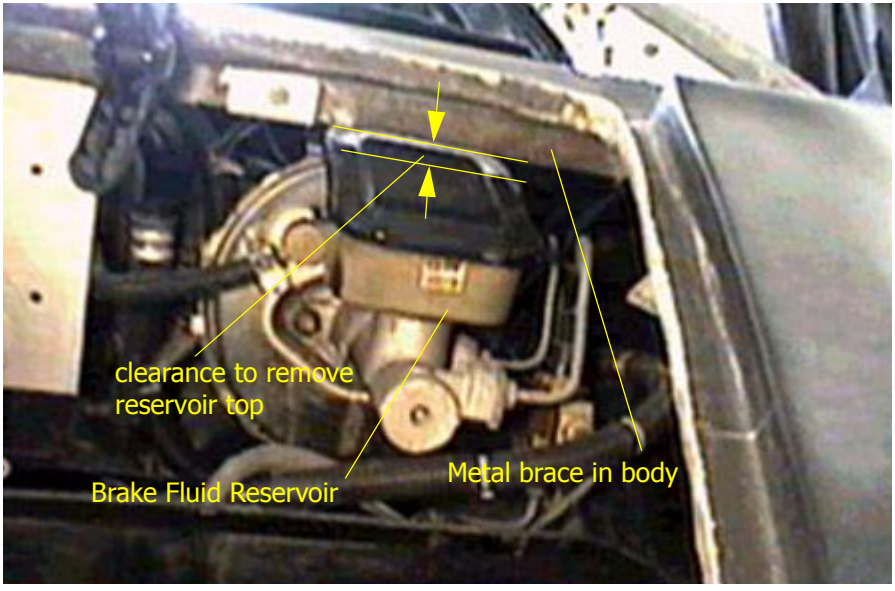


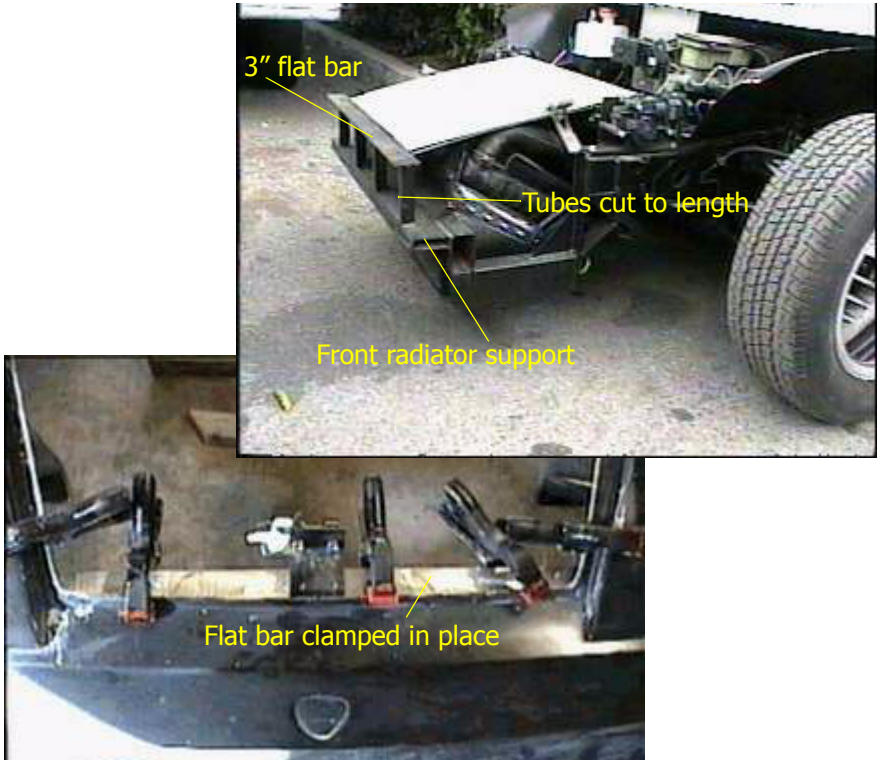
FIGURE 95. **Front test fit**

Mounting Point Preparation

The body is fastened to the body by welding the metal framework that has been cast in the body to the actual chassis. Once you have determined the proper positioning of the body, you will construct attach points on the body that will hold the body in the final position.

Front Bumper Area

When fabricating the radiator supports, you will have a 3" flat bar that will be clamped to the inside bumper. You will need to measure from this flat bar to the front bumper support to determine the length of the tube that will hold this bar in place. Ultimately, you will drill and tap this bar to accept counter sunk screws through the top of the bumper.



Front Wheel Well Area

The door hinges have a plate that extends into the front trunk area. You will need to fabricate two towers with a plate that the hinge extensions will rest on. The towers are constructed out of 1″ x 3″ rectangular tube with a 1/4″ plate welded to the top as a rest for the hinge plate. It is best to clamp the 1/4″ plate to the bottom of the door hinge plate and then measure and cut the 1 x 3 tube to fit.

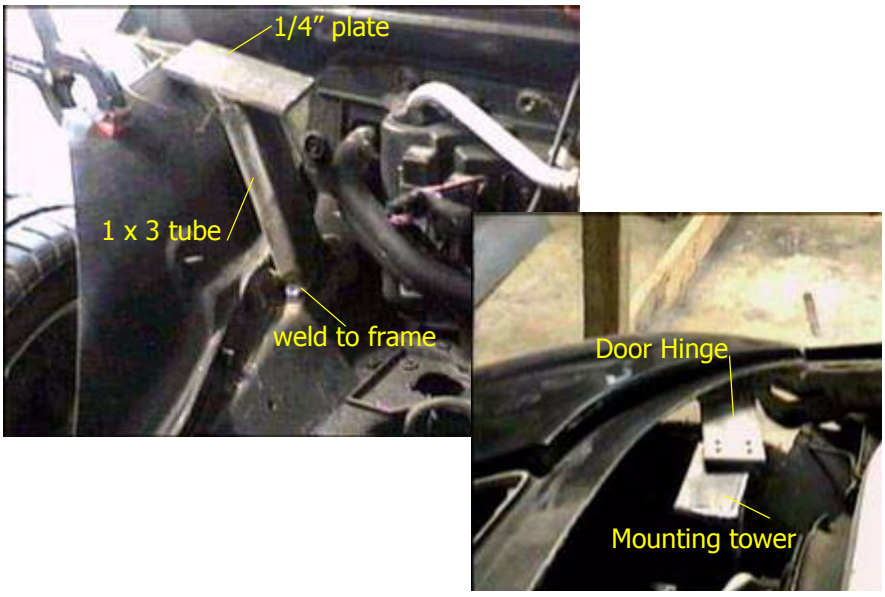


FIGURE 96. Passenger side mounting tower

Side

The sides of the body under the doors have a piece of metal glassed into the fiberglass. You will need to fabricate a rail for this metal support to rest on.

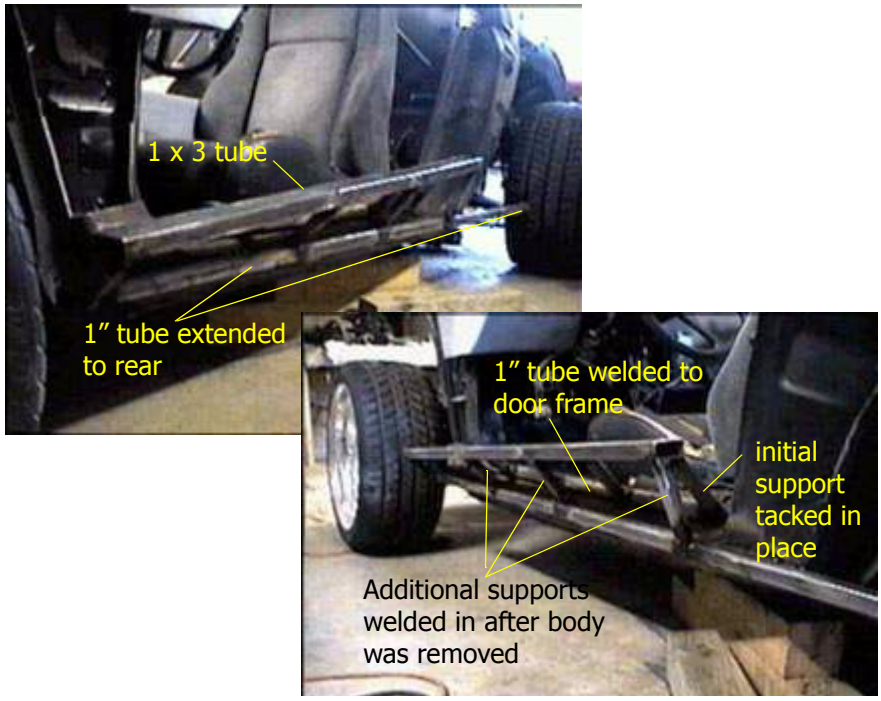
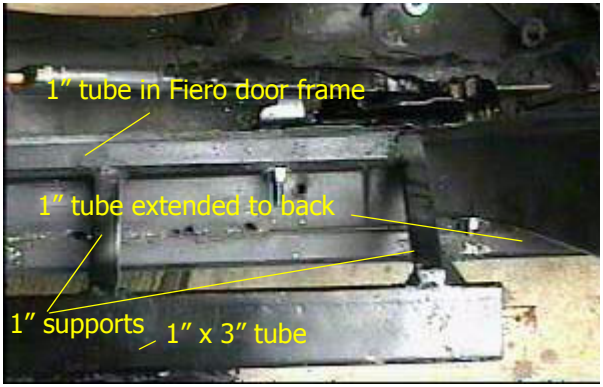


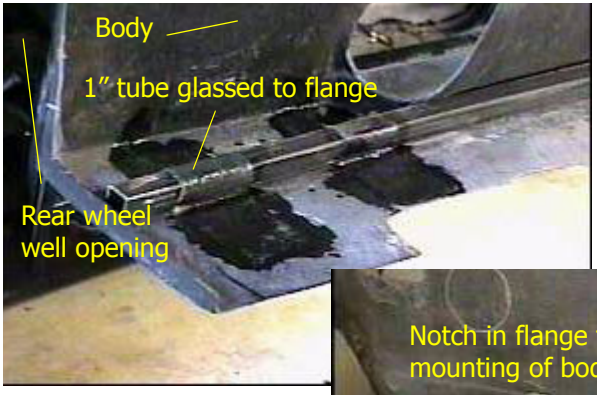
FIGURE 97. Side mount rail

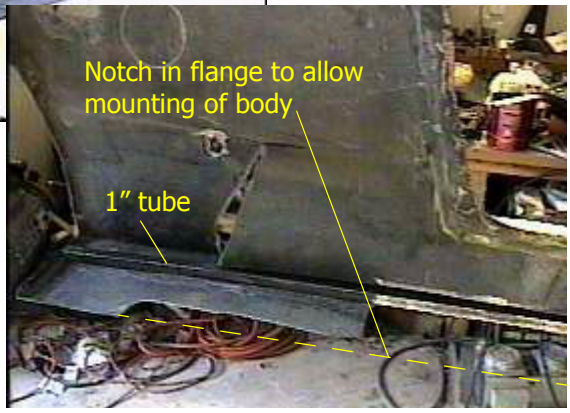
This rail is fabricated out of 1 x 3 tube and then welded to 1" square tube that has been fastened to the Fiero chassis. Start by welding the 1" square tube to the inner door frame on the Fiero, weld a second 1" tube to the bottom of the Fiero frame. This second tube should extend beyond the fiero frame towards the rear wheel. This will later be used for supporting the rear wheel well. With the body in place, clamp the 1 x 3 tube to the bottom of the door. Now measure and cut two pieces of 1" tube that will be tack welded to the tube on the Fiero and the 1 x 3 tube that is clamped to the bottom of the door. Now remove the body and then add additional support pieces and complete the welding for the side rail support.

This is a top view of the rail welded to the supports that are fastened to the Fiero frame. This creates a triangular support that adds stiffness to the body.



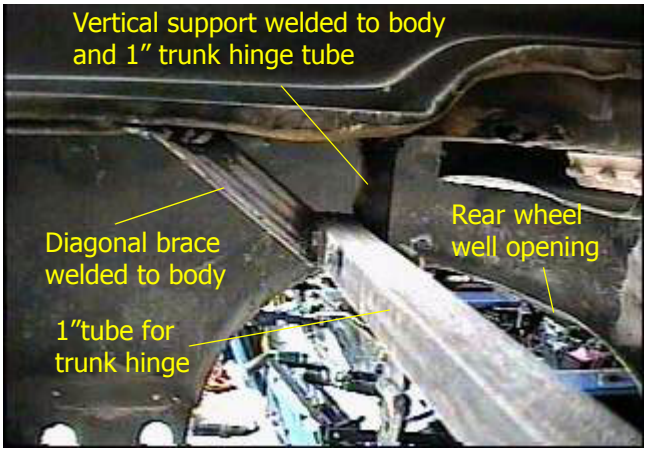
When the body is mounted, it will be necessary to secure the bottom flange of the body to the frame. To do this, you will need to glass in a 1″ tube inside the body that will later be used as an attach point.





Rear Wheel Well Area

It is necessary to run a 1" tube across the body for the rear trunk hinges to be mounted. Weld a diagonal brace from the tube mounted in the body to this 1" tube for additional support. Later this tube will be welded to the body.

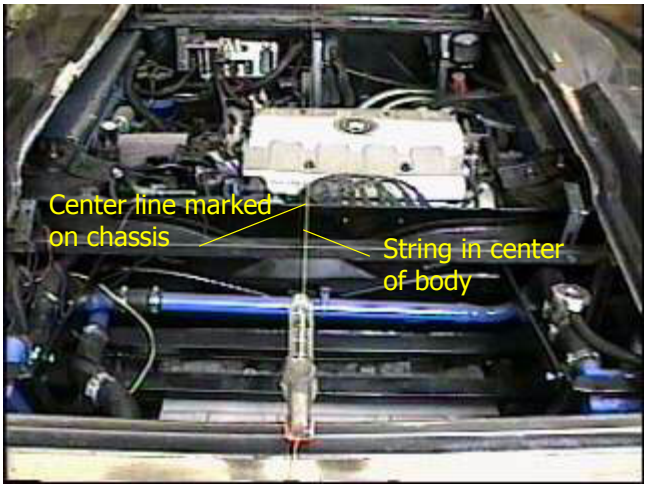


Attachment

Once you have completed all of the work on the chassis, it is time to permanently mount the body. **Be sure to have your doors on the body and aligned properly when making the final attachment**.

For those areas that you will be attaching to the tubing that is cast into the body, you will have to grind off the fiberglass that is covering the tube so you will be able to weld to the chassis. ***Fiberglass will burn when it gets too hot. Be sure and have a wet rag or fire extinguisher handy before you start the process.***

You will want to mark the center line of the chassis as well as the body. It is a good idea to run a string from the front to the back on the body to help with the alignment.



Start by double checking that the wheels are centered properly. Make sure that the chassis is level before setting on the body. You will need to check to make sure the body is level after you have the body positioned. Check in multiple locations.

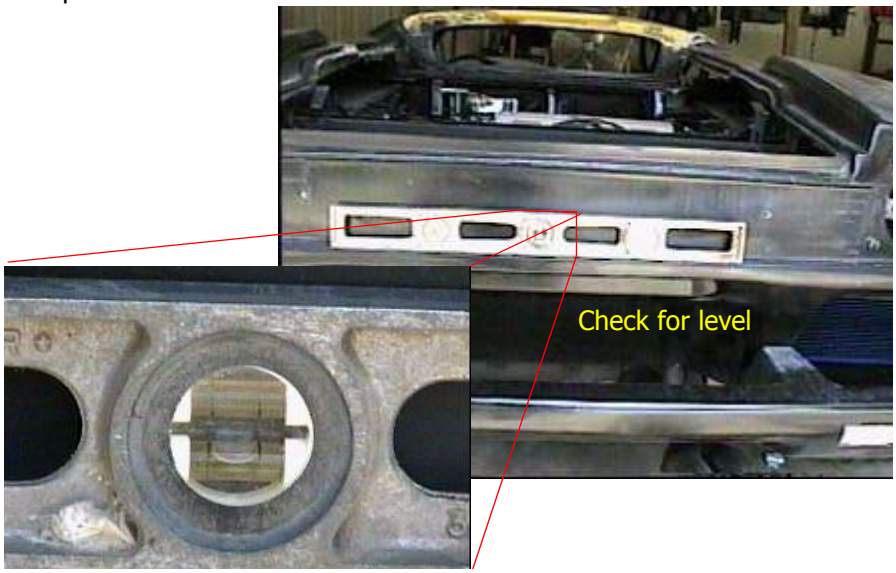


FIGURE 98. Check for level

After you have made sure everything is aligned, you can begin to weld the body in place. You can start on the sides under the doors by welding the tube in the body to the tube on the chassis. Work from side to side and continue to check your alignment to make sure that everything stays in place until you have the final welds in place.

The rear of the body is fastened to the frame of the trunk.

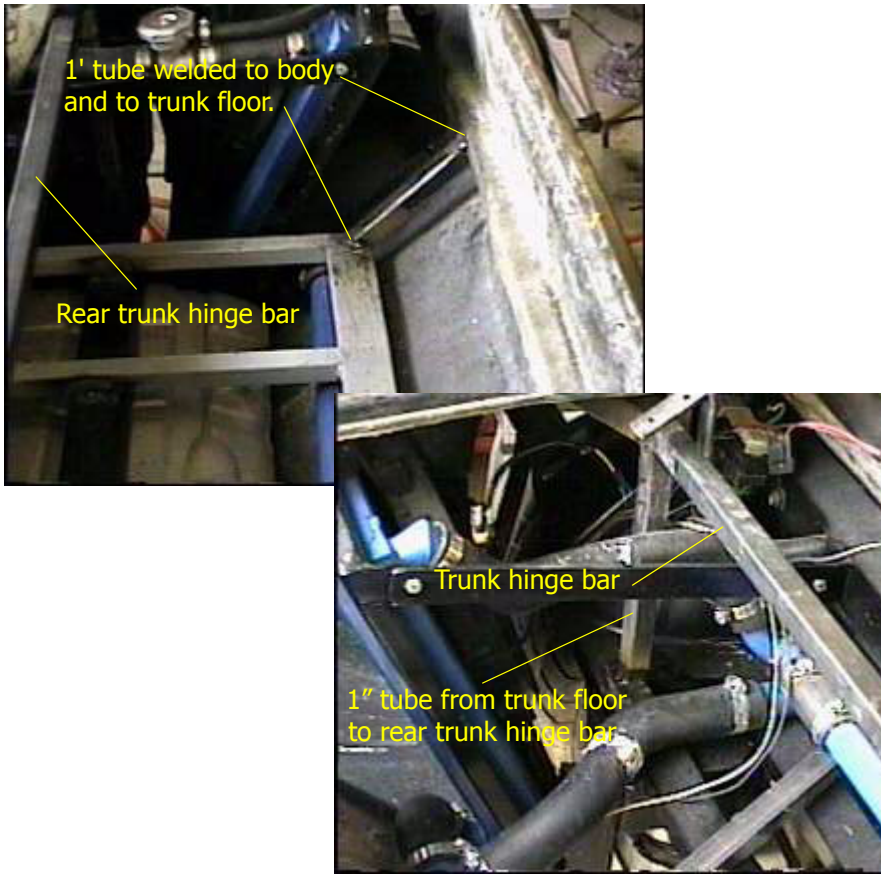


FIGURE 99. Rear attachment

The front hinges are now welded to the towers that were built earlier. You may also wish to weld a 1" bar between the two hinges for additional stability.

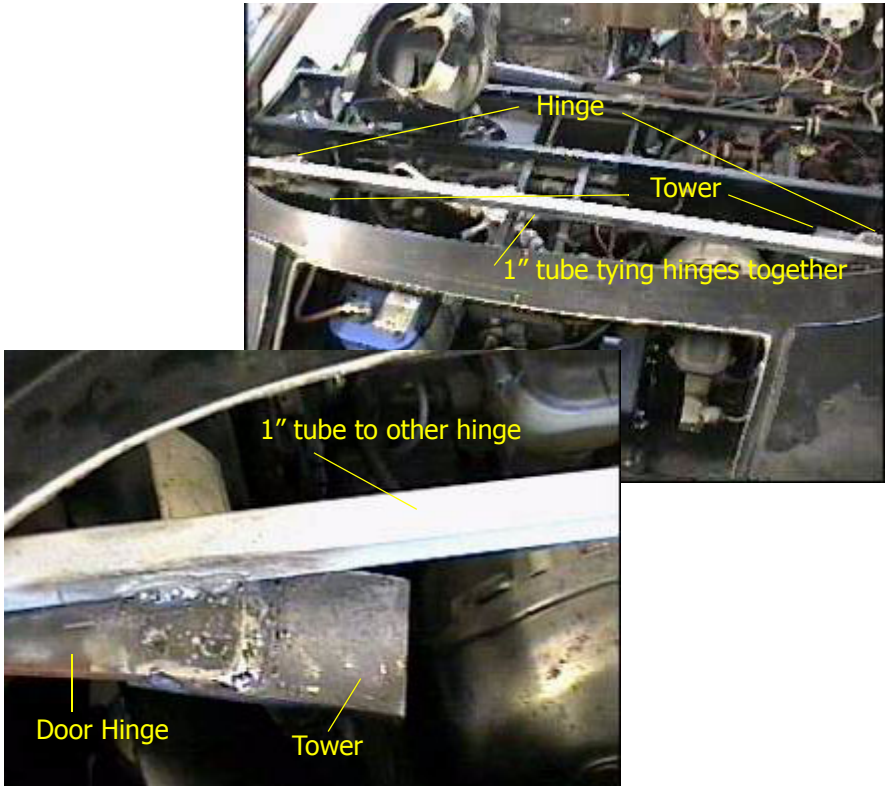
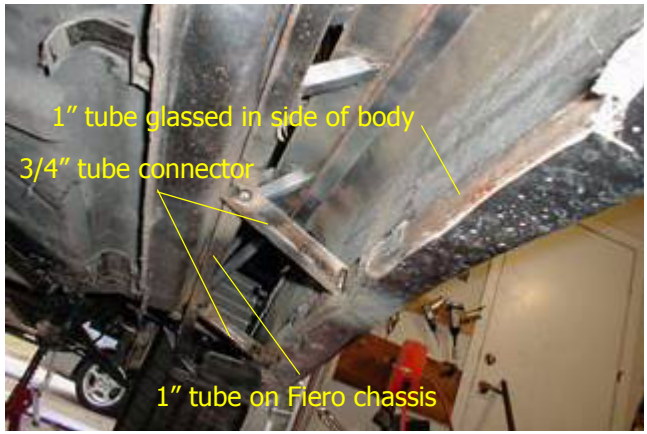


FIGURE 100. Front attachment

Once the sides have been welded under the doors, you will want to secure the lower edge of the rocker panel to the body. This is where the door alignment needs to be double checked prior to making these final welds.

Measure 3/4" tube that will go from the 1" tube that was glassed in the body to the 1"tube that has been welded to the Fiero chassis. This will provide the rigidity to make sure that the rocker panels do not move.



If you wish to replace the flange that was cut earlier to you can glass it in place and use body filler to finish off the bottom.

Glass mat being placed to fasten the flange in place

The rear wheel wells can be secured to the body by running a brace from the tube that was glassed in the rocker panel to the tube on the Fiero chassis and then to the chassis itself.

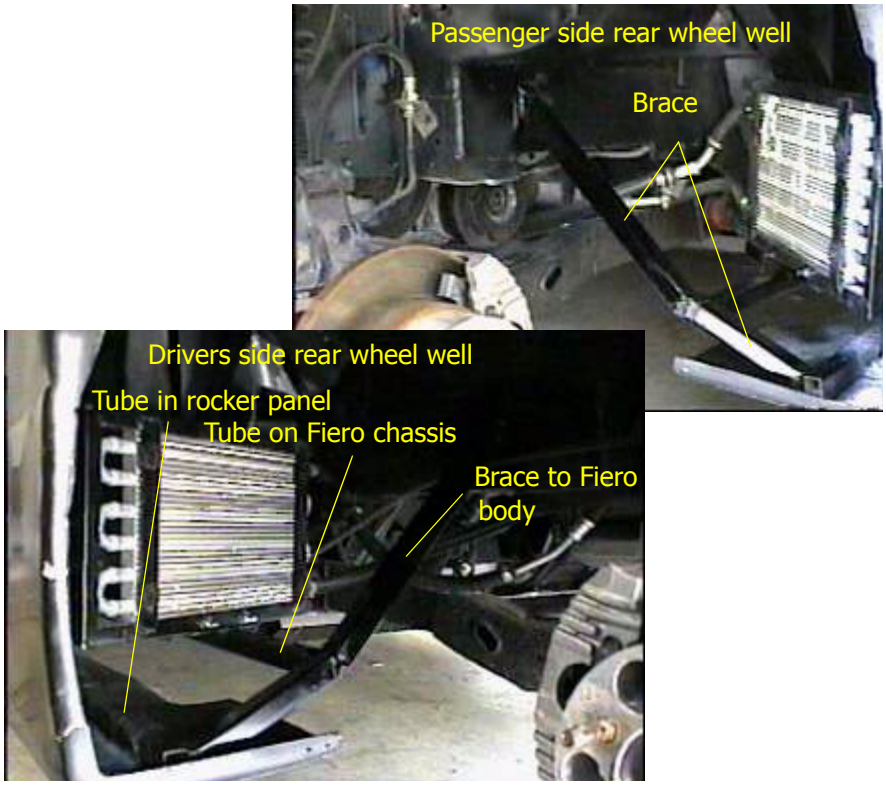


FIGURE 101. Rear wheel well attachments

The front wheel wells are secured in much the same manner of connecting a brace from the tube that was glassed into the body to the Fiero body itself.

FIGURE 102. **Front wheel well attachment**

Connection over firewall

Because the metal bracing in the body extends into the cockpit area, you can secure this area from the top of the firewall brace to this metal tube in the body.

This is also a good time to install a plate that will be used for the deck lid hinges. this plate can be welded to the firewall and the connecting tube as well.

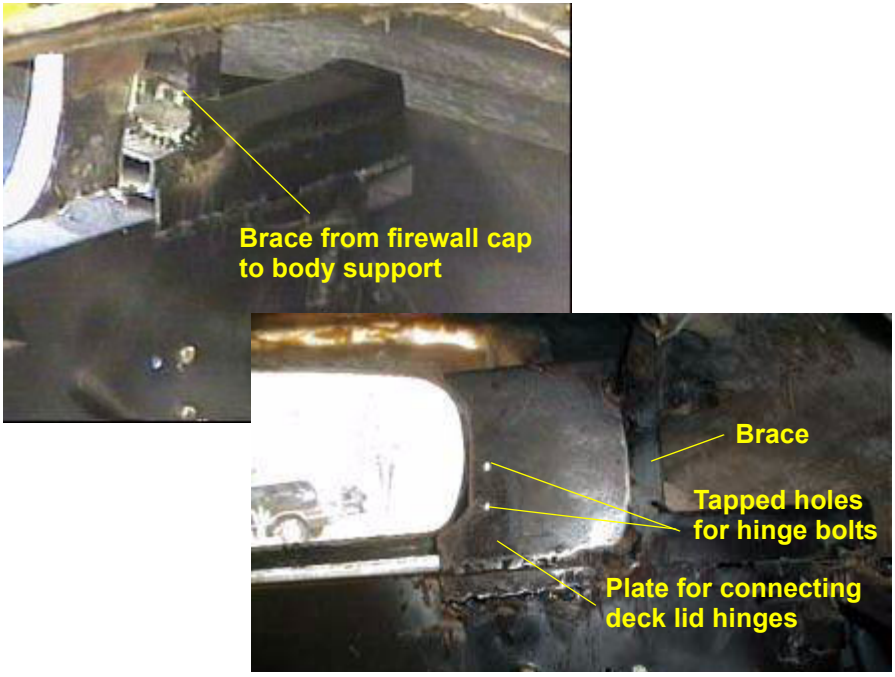
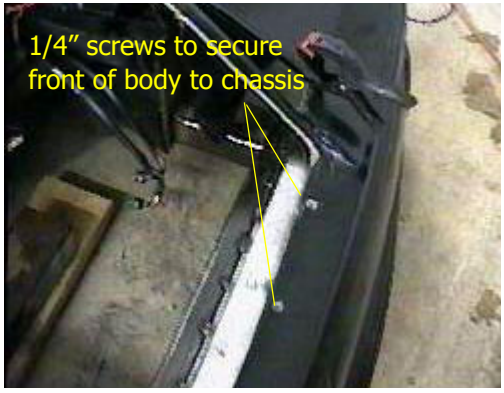


FIGURE 103. **Cockpit attachments**

Front trunk area

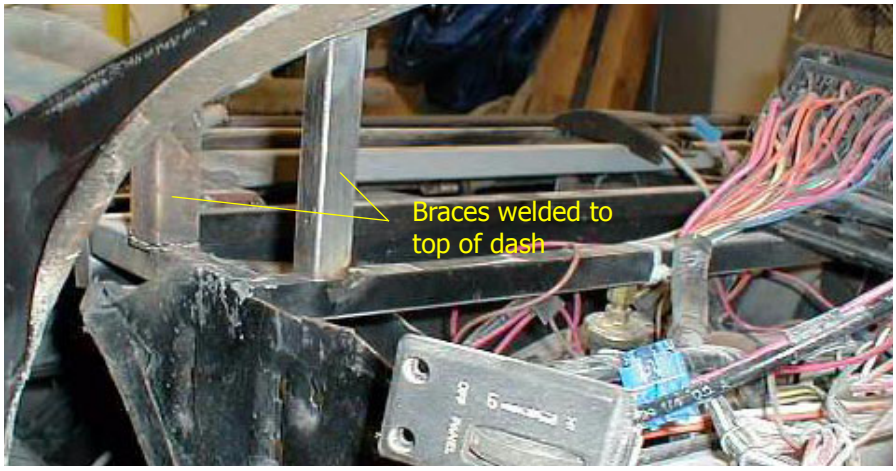
You will secure the front trunk area to the 3″ plate that had been welded to the radiator supports in an earlier step by using 1/4″ screws.



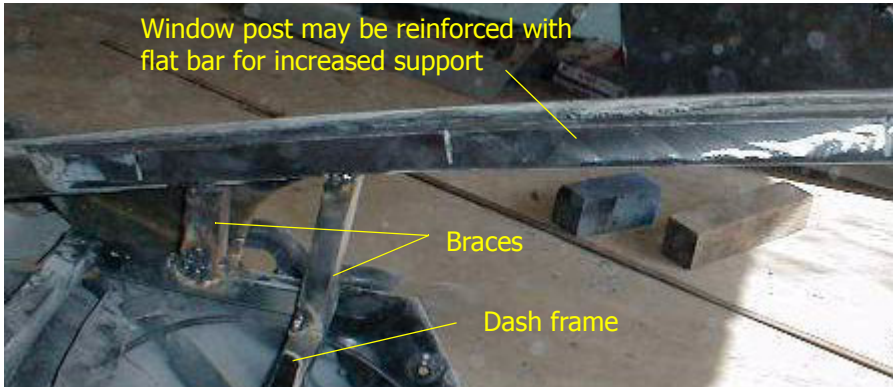
Windshield Supports

With the roadster, the windshield is not tied into a roof structure like on the VT or SE. To reinforce the windshield frame, it is a good idea to weld these side supports to the dash structure. The support can be located as far from the front so that it will not extend past the front edge of the side windows.

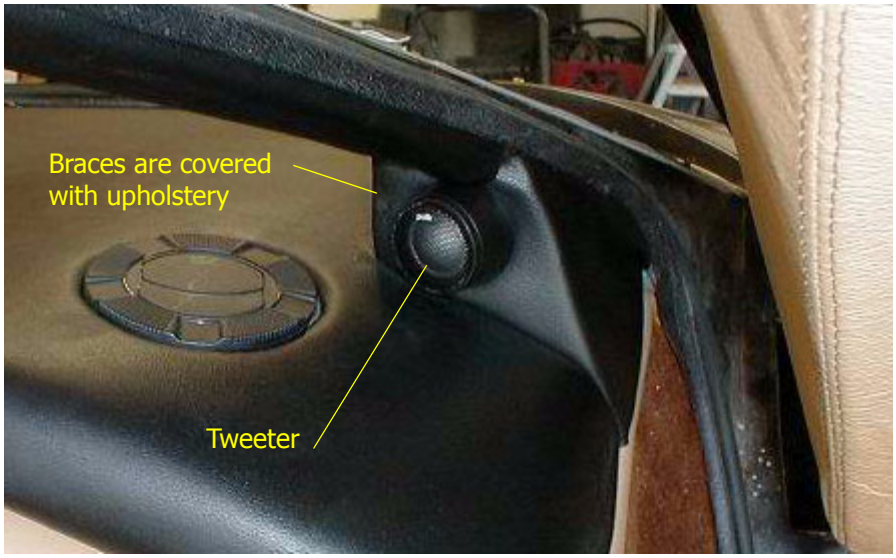
IMPROTANT!. Make sure that the doors are mounted on the body when determining the location and height of the support posts.



These supports are tied into the dash frame. You may also wish to reinforce the steel tube by welding a flat bar to the side.



Once the car is finished, these supports will be covered with upholstery. This cover is a good housing for the tweeters for the stereo system.



Skid Plate

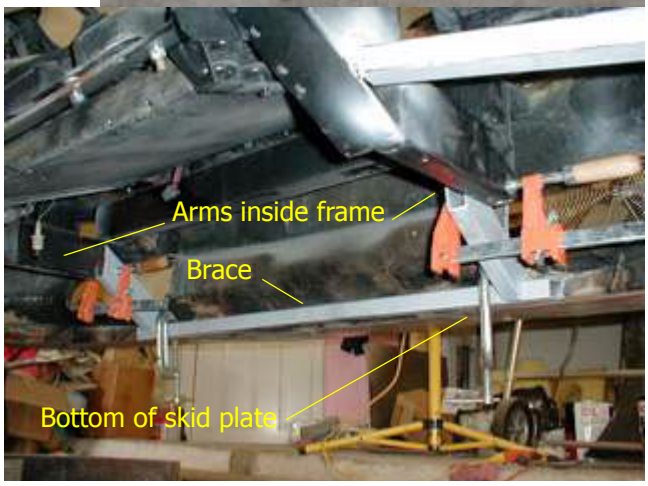
In Chapter 5, the skid plate was attached to the body prior to mounting the body. This shows how the skid plate is now fastened to the frame to provide the support that is needed to take any weight of the car should the skid plate come in contact with an obstacle.

Fabricate an assembly that consists of a 1 x 2 tube with diagonal braces that will be welded to the frame.

This is accomplished by setting the 1 x 2 tube on top of the skid plate and determining the length and angle of the supports.


Brace from skid plate to frame

Grind the surfaces and weld the skid plate to the brace and the arms from the brace directly to the frame.



Now you will need to run parallel braces from the frame of the Fiero all the way to the skid plate. This will provide the structural support to actually lift the car by the skid plate. Some builders actually mount small wheels under the bumper to allow it to roll over a bump.

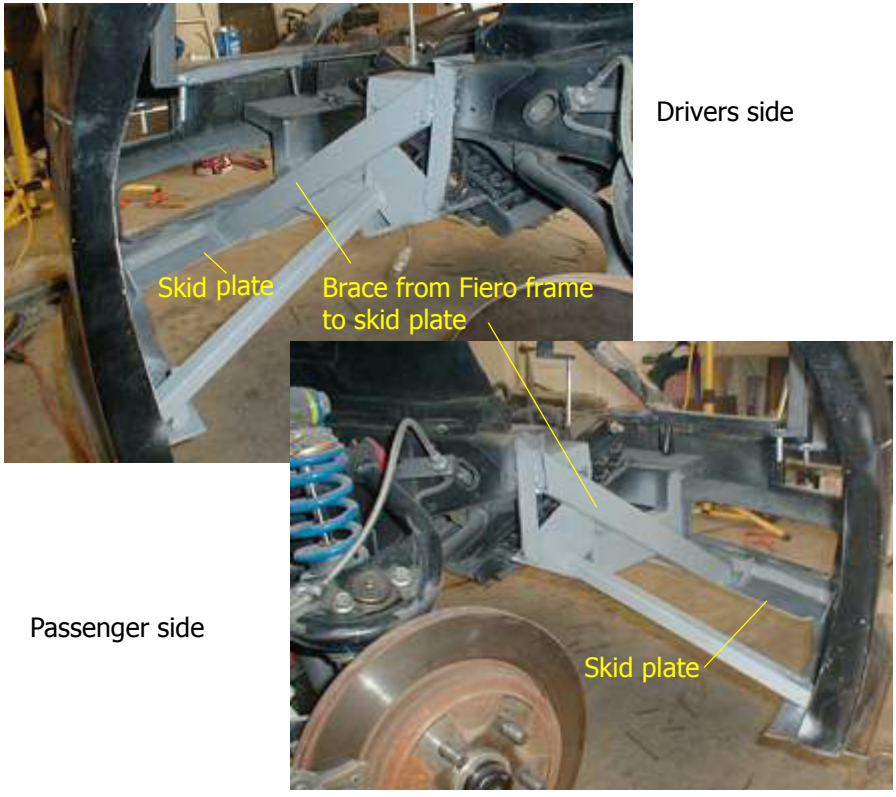


FIGURE 104. Skid plate assembled

Wheel Wells

Once the body has been mounted, you will want close in the wheel well area. This is done by using sheets of ABS that are cut and secured to close the area.

Front Wheel Wells

Depending on how you cut your fender wells. you may have open areas that will need to be filled in prior to installing the fender wells. One tech-

nique that can be used is to use a mesh that is pop riveted to the inner fender well. This can them be filled in with body filler to give it a shape. After the filler has dried, this can be sealed with fiberglass mat and resin. A good coat of flat black paint will finish off the area.

You will need to attach a framework to the inside of the fender well, on the body, not the Fiero, that can be used to fasten the ABS to. You can use a cardboard template to shape the angle iron. Drill holes in the angle iron to allow the bondo to hold it in place. Once the bondo has dried, complete the attachment with glass and resin.

FIGURE 105. Bracket for inner fender well

Using a cardboard template, cut out a pattern to transfer to the ABS. The

ABS can be shaped with a heat gun. The small tabs will be used to secure to the inner fender well with 1/4" self tapping screws. The ABS has a smooth finish and a textured finish. You will want the textured finish to be toward the wheel.

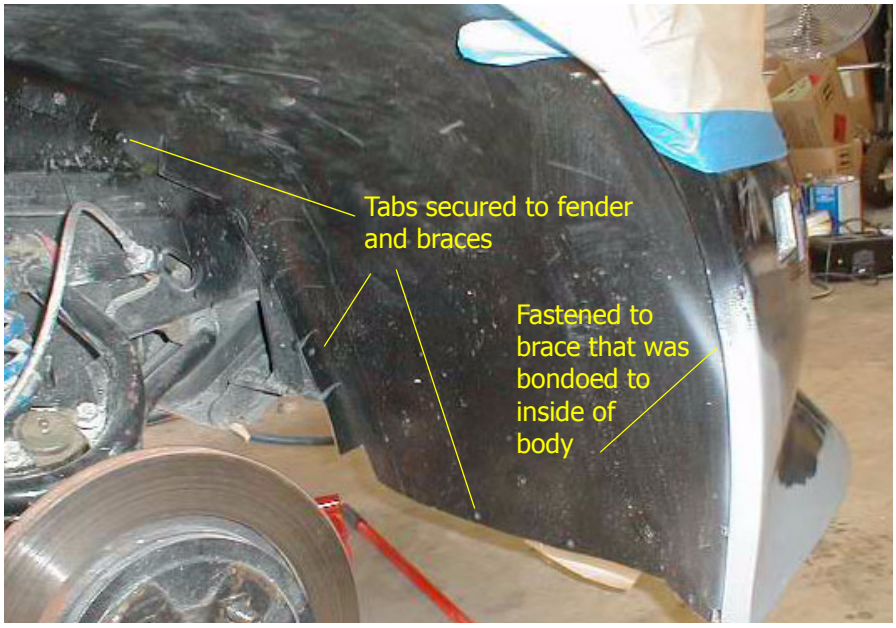


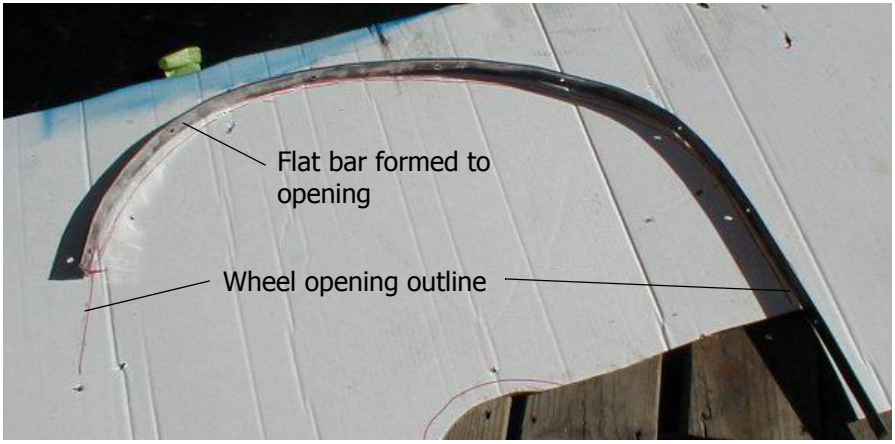
FIGURE 106. Front fender well

Rear Fender Well

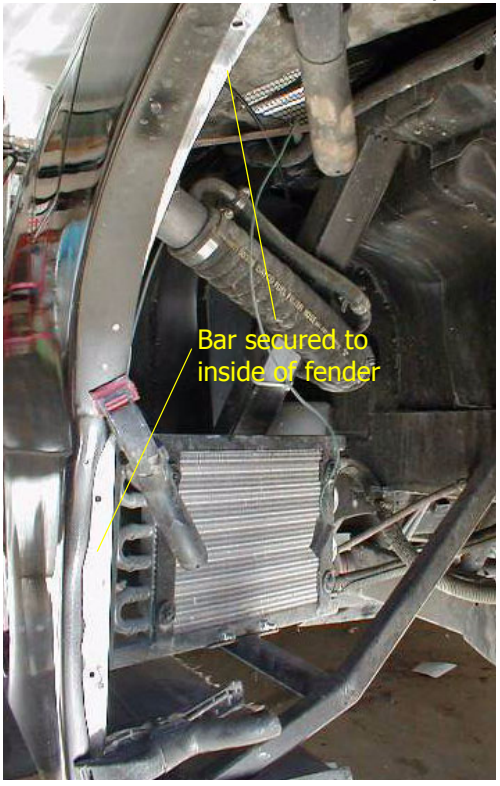
The rear fender well use a a similar technique, however the angle brackets will be attached to both the body and the Fiero.

In order for the ABS to sit correctly against the Fiero, it is best to make a cardboard template to determine the shape for the ABS. You will need to shape an metal flat bar that can be bondoed to the inside of the body. You can hold a piece of cardboard against the car and then from the inside, draw the wheel well opening as the basis for shaping this angle.

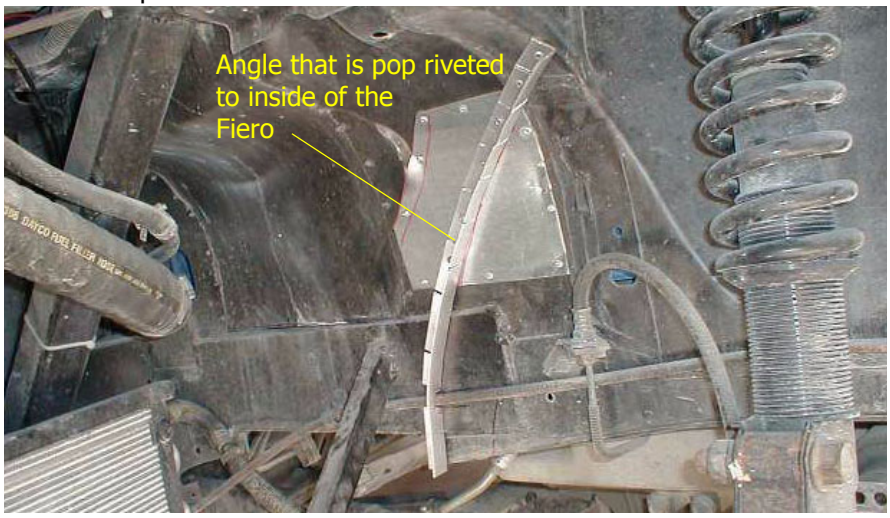
This may be one of those items that would be easier to do when the body has not been mounted and you have easier access to the inside of the fenders. The purpose of the flat bar is to provide a secure anchor point for the ABS.



Next the bar is secured to the fender well on the body.



Next you will need to attach an angle to the inside of the Fiero chassis as a connection point for the ABS.



Now cut the inner piece of ABS to match the template to clear the shock towers, brake lines etc. Insert it into the fender well and temporarily secure it leaving the outer edge protruding past the car.

Now scribe a line on the back of the ABS that matches the body contour. Cut the ABS off 1/4" inside the line so the edge of the ABS will be inside the

fender well. Sand the edge of the ABS to provide a finished look. Secure the ABS to the framework and mount the tire.

FIGURE 107. **Rear Wheel Well**

CHAPTER 10

Deck Lid

This will chapter will detail the installation of the rear bumper, the front trunk and the two decklids that cover the engine and the rear storage compartment.

Motor Deck Lid

This section will deal with the motor deck lid, the gas shocks, the receivers for the roof and the rear grill.

Deck lid Hinges

The motor deck lid is fastened to the firewall using 1/4" bolts and flat washers. The hinges can either be bolted directly to the fiberglass or you may optionally install a plate that can be drilled and tapped to accept the bolts. This will provide a more stable anchor as the decklids are under pressure from the gas shocks.

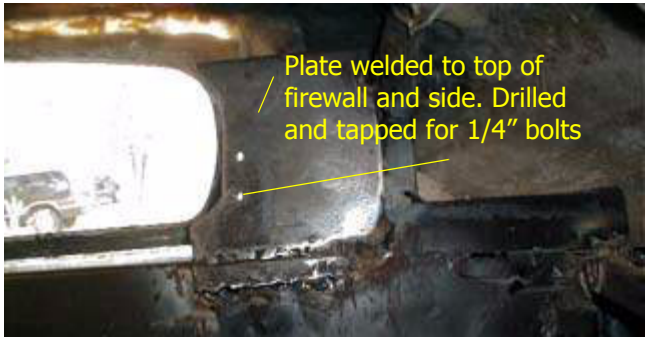


FIGURE 108. **Anchor plate for deck lid hinges**

FIGURE 109. **Deck lid hinge detail**

Roof Receivers

The roof is stored on top of the motor deck lid. It is necessary to mount install two receivers in the motor deck lid to accept the pins in the roof for storage.

Once the deck lid hinges have been fastened to the car, place the roof on the deck lid and locate where the receivers need to be installed. Obviously you need to have located the mounting pins in the roof prior to this step. See the section on the roof for how to accomplish this prerequisite.

Begin by selecting a hole saw that is the same size as the receiver. Drill the opening in the deck lid. It will be necessary to fasten the receiver from the underside.

FIGURE 110. Receiver hole

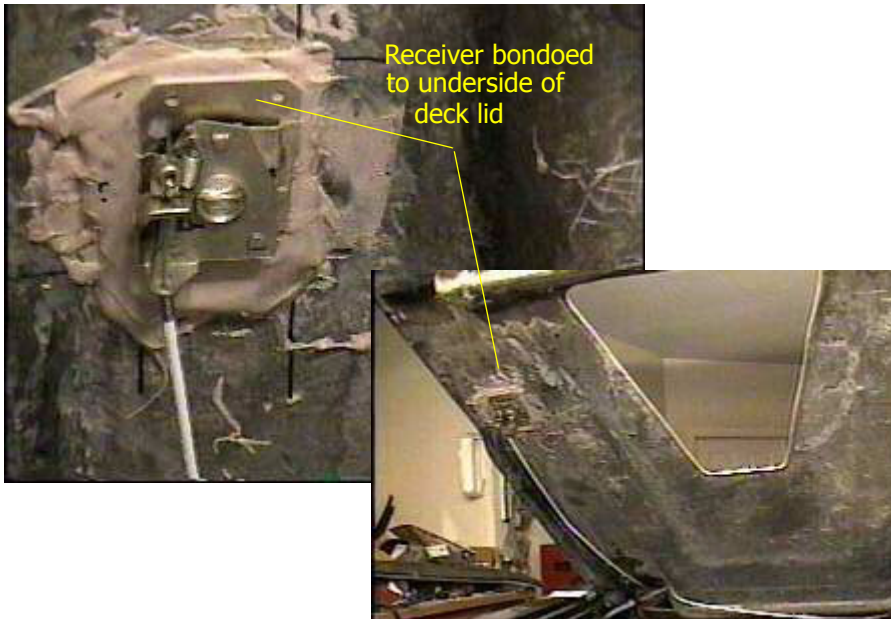
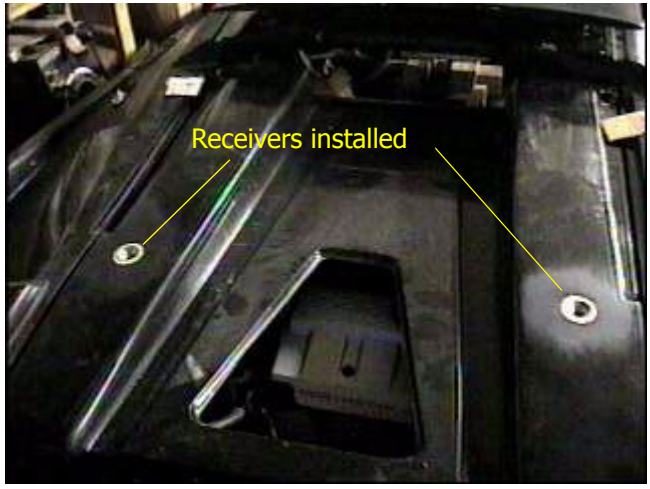


FIGURE 111. **Receiver mount**



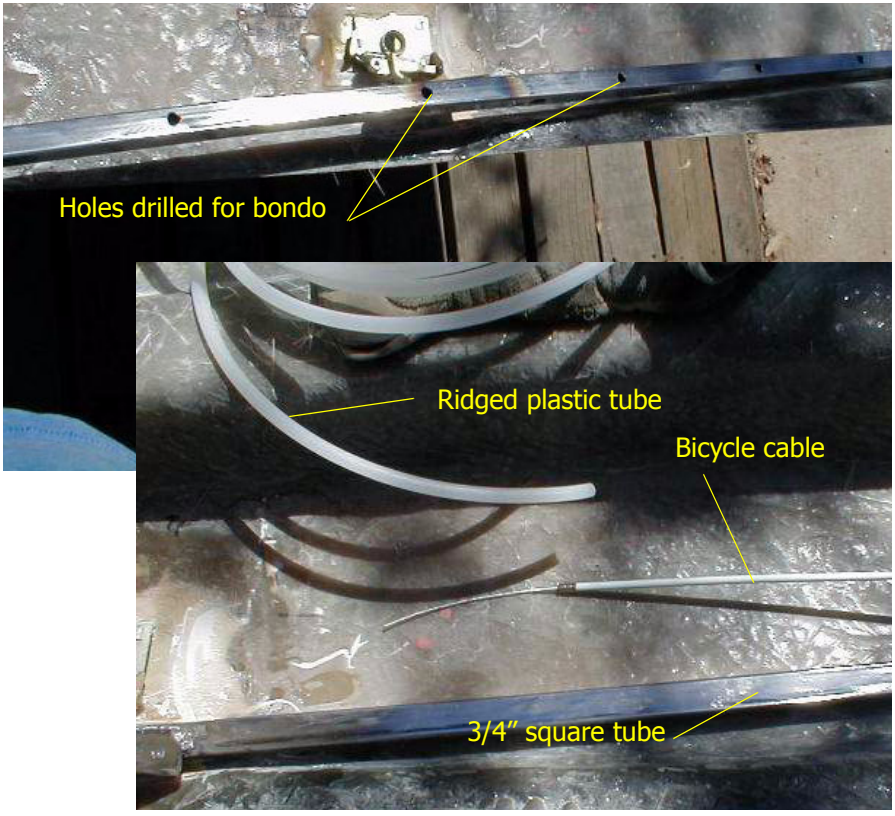
The receivers can be operated with electric solenoids or by a manual cable. The installation shown here is for the manual cable. You may use a bicycle brake or shifter cable for this purpose.

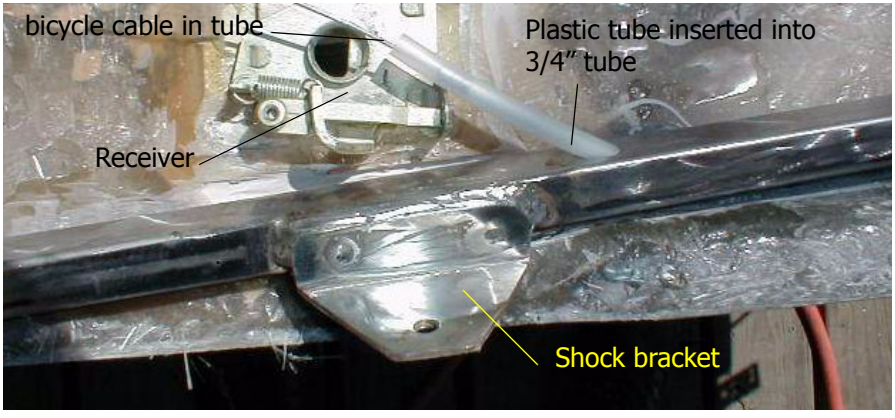
Cable and Shock Mounts

Because the gas shocks exert constant pressure against the deck lid, you may wish to add some additional reinforcing to the deck lid to prevent warping the lid. You can also use this extra reinforcing to hide the bicycle cable as well as fasten the bracket that will hold the end of the shock assembly.

One hint is to use a small plastic hose that can be inserted as a guide for the bicycle cable. This type of hose can typically be found at a hardwares store and is commonly used for plumbing under sinks.

Use a 3/4" square tube that has been bent to the contour of the deck lid. You can drill holes on the side that will be fastened to the deck lid to allow the bondo to create a better bond. This tube will be glassed in later.


Holes drilled for bondo
Ridged plastic tube
Bicycle cable
3/4" square tube


bicycle cable in tube
Plastic tube inserted into 3/4" tube
Receiver
Shock bracket

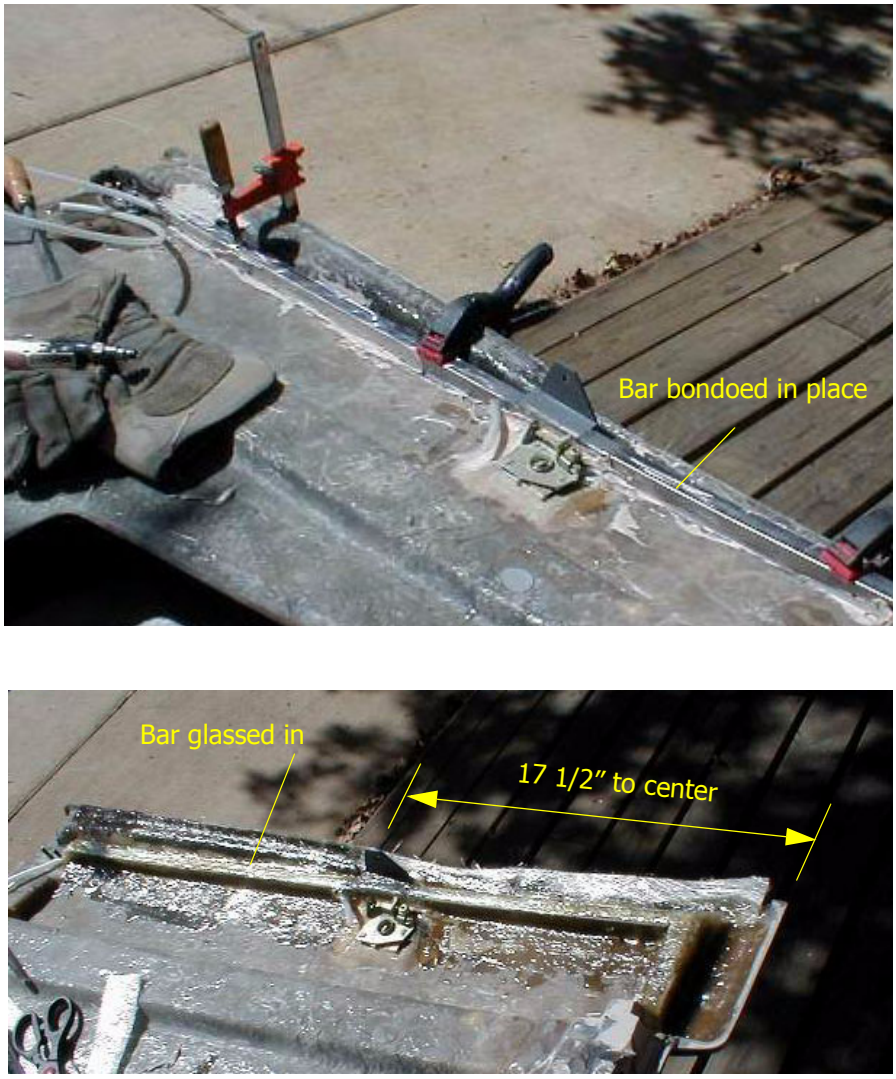


FIGURE 112. Location of shock support

The shock mounting bracket is positioned 17 1/2″ from the end of the deck lid edge. The other end of the shock is mounted on the frame.

FIGURE 113. **Upper shock mounted on motor deck lid**

FIGURE 114. **Body shock mount for motor deck lid**

A piece of square tube is welded to the body support and a hole drill and tapped to accept the lower shock ball.

Deck Lid Grill and Latch Assembly

To be able to latch the deck lid and still leave a way to vent the engine compartment, you may wish to fabricate a framework that will hold a grill. This will consist of a frame that will be bondoed to the deck lid, a grill and a frame to hold the grill in place.

The first step after mounting the motor deck lid, is to look at the latch locations for closing and locking the deck lid. This will set the requirements for where the deck lid grill will need to be positioned

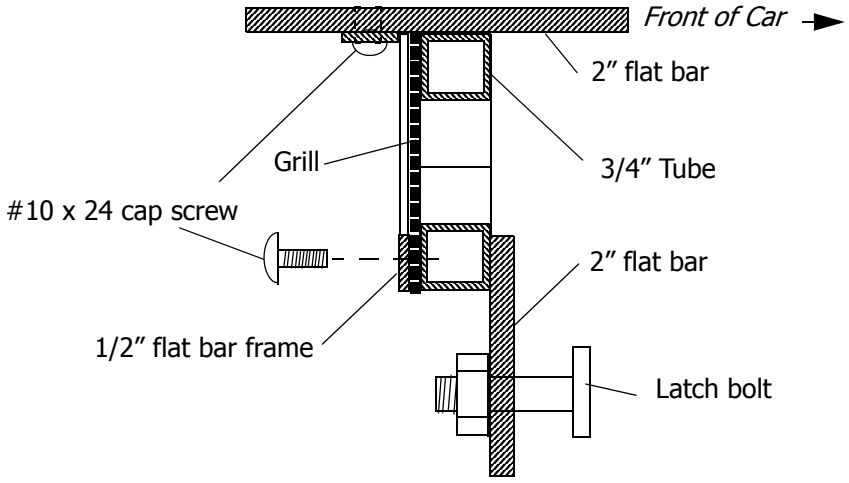


FIGURE 115. Cross section of grill assembly

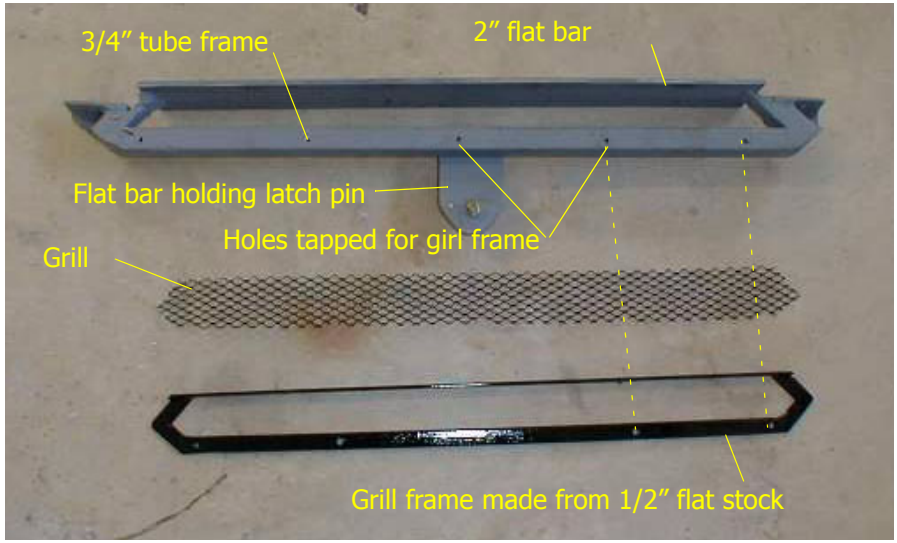


FIGURE 116. Grill components

The 2″ flat bar is drilled to allow the bondo to protrude and make a solid connection prior to glassing it in place.

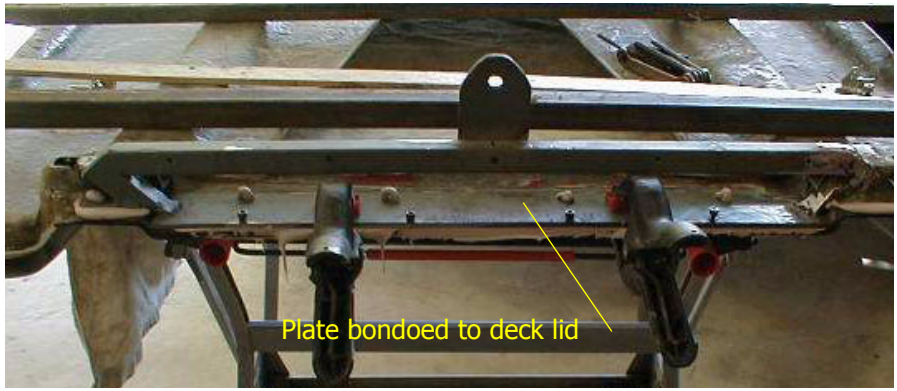


FIGURE 117. Deck lid frame latch

Once the frame is positioned, you can now focus on locating the latch on the back of the Fiero firewall.

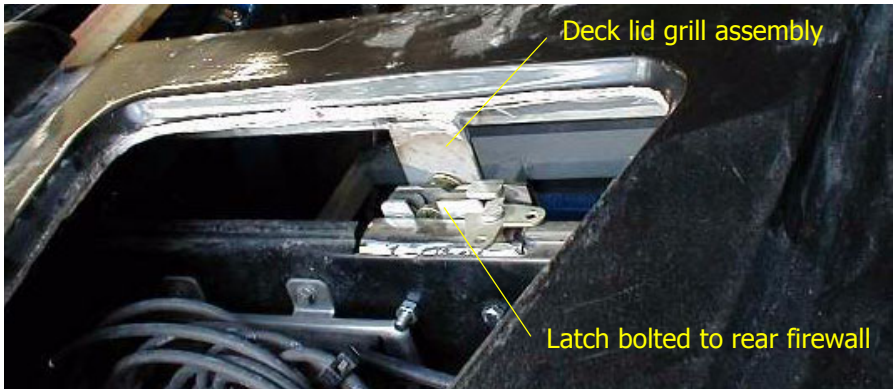


FIGURE 118. Latch as viewed through deck lid

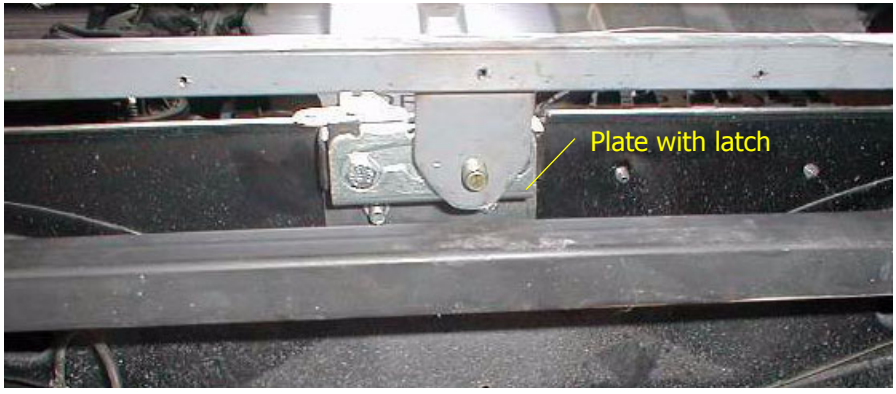


FIGURE 119. Latch as viewed from rear

The latch is bolted to a plate and the plate is bolted to the firewall.

The latch can be opened either with a cable of you may use a solenoid that is triggered from a keyless entry device on your alarm system. This is one solution that uses a solenoid and a connecting rod to release the deck lid.

FIGURE 120. Solenoid release

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CHAPTER 11

Bumpers

This will chapter will detail the installation of the rear bumper, the front trunk and the two deck lids that cover the engine and the rear storage compartment.

It will be necessary to check for fit of the rear bumper prior to any connections are made. If necessary, you may have to grind a small area to ensure a good fit.

FIGURE 121. Rear Bumper

To fasten the rear bumper to the body, it is necessary to fabricate a metal plate that is drilled and tapped to accommodate a bolt through the body. The best way to accomplish this is to drill a hole through the bottom of the bumper that will not be seen when it is mounted. A 1 1/2" hole saw works well for this part. Once this hole is drilled, insert a 1" x 1/4" flat bar into the hole. Drill and tap a 1/4" hole in the center that will be countersunk to hold the bar in place. Secure the bar with the 1/4" screw and then drill and tap two 5/16" holes through the bumper into the metal flat bar approximately 4" apart.

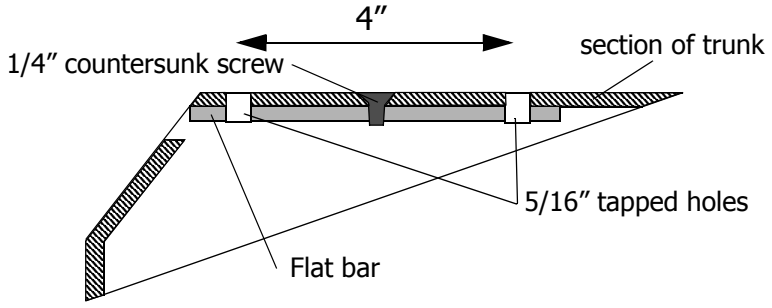


FIGURE 122. Diagram of flat bar assembly

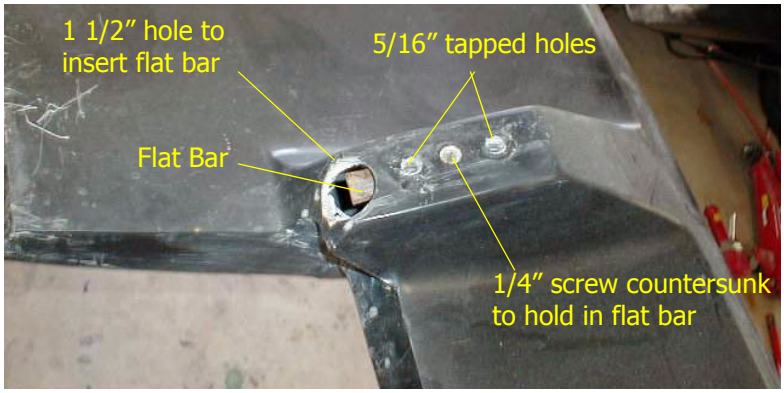
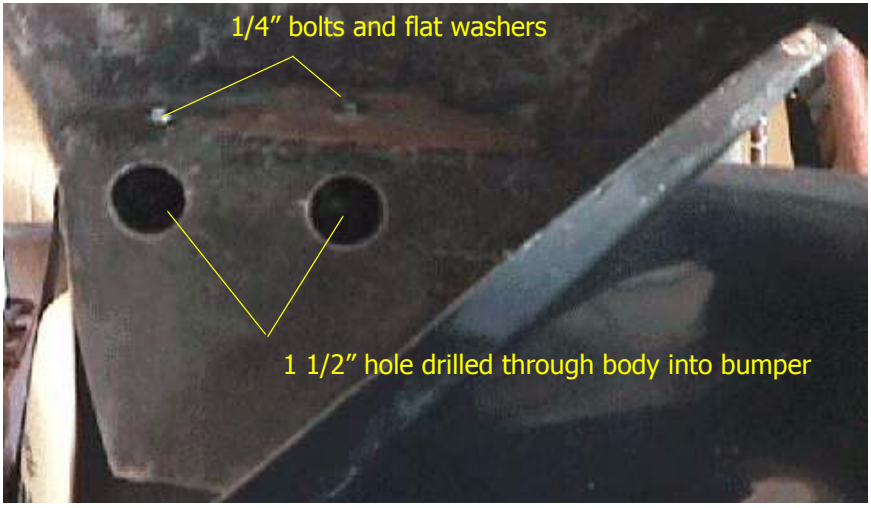


FIGURE 123. Flat bar installed

The 5/6" holes will be used to secure the bumper to the back edge of the car using 5/16" bolts with flat washers.

FIGURE 124. Bumper to back of body connections

Once the bumper has been temporarily positioned, drill two 1 1/2" diameter holes trough the body and the inner wall of the bumper. Drill two 1/4" holes down though the body into the bumper. The bumper will be bolted



to each side with 1/4″ bolts and flat washers. The 1 1/2″ holes allow you to get a wrench on the bolts to tighten them. Repeat for other side.

FIGURE 125. Side bumper mounting holes

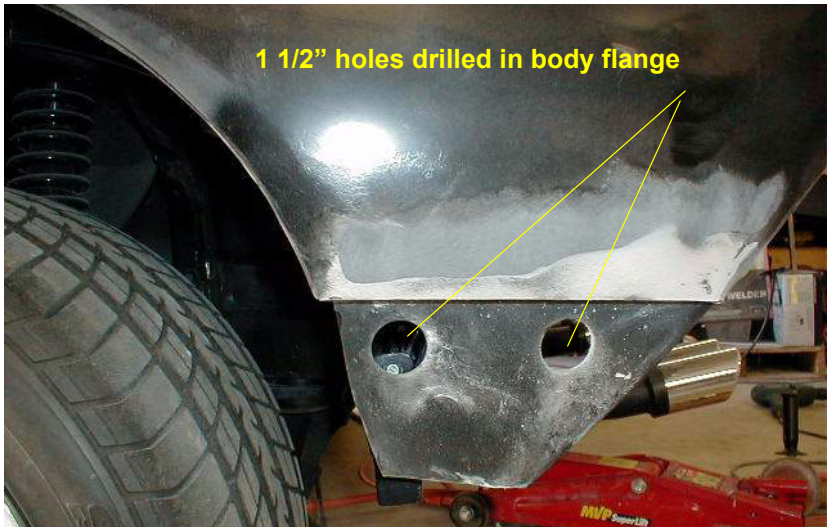
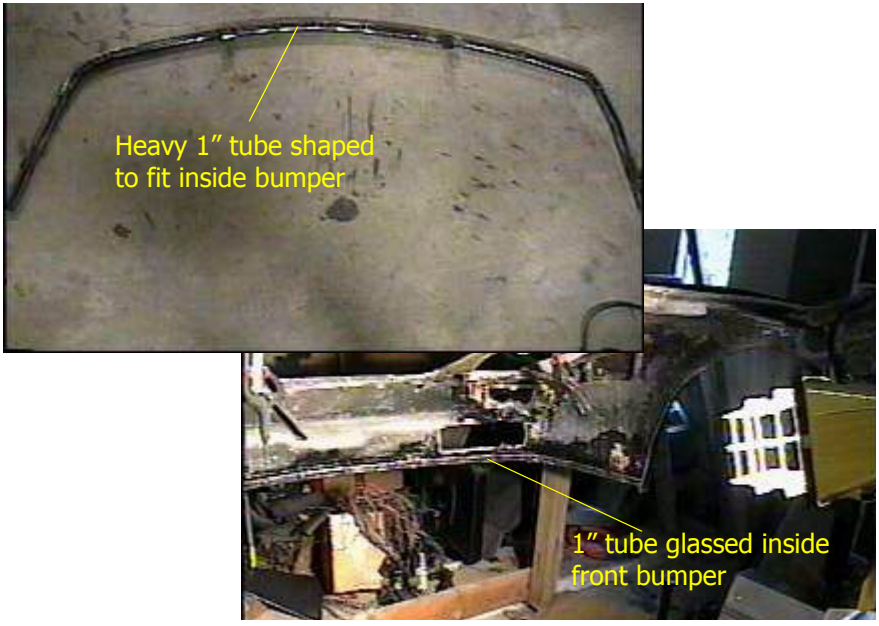


FIGURE 126. **Body holes for bumper**

Front Bumper skid plate

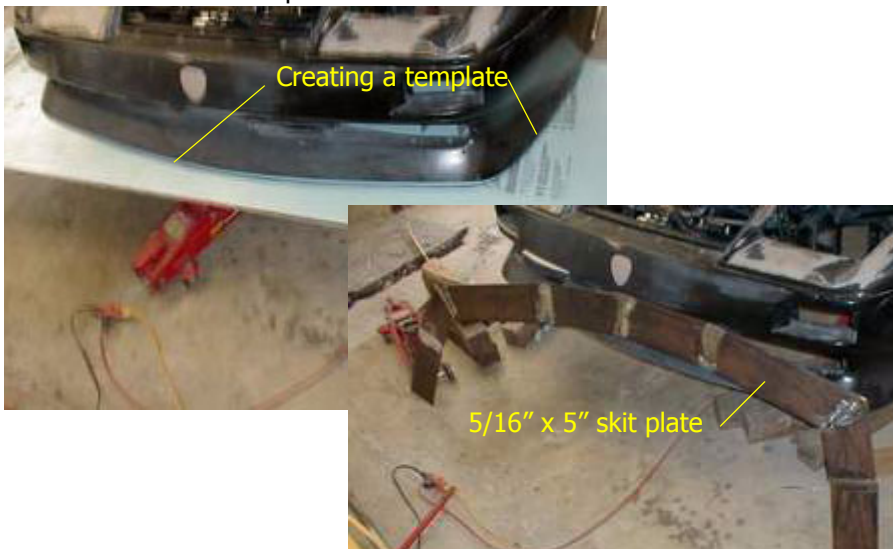
The front edge of the fiberglass bumper is very low. It would be a good idea to install a skid plate to reinforce the front edge to avoid cracking or breaking it should you encounter an obstacle.

Start by fashioning a curved tube out of heavy 1” square tube that will be glassed onto the body just above the edge of the bumper.



Next, make a template of the front bumper area that will be used as a pattern for the skid plate. Use a 5/16″ x 5″ plate to form the skid plate. The

skid plate will be welded to the 1" tube and then reinforced with structural members from the skid plate to the Fiero chassis.



Triangular tabs are used to weld the skid plate to the heavy 1" bar that has been glassed onto the body.

FIGURE 127. Skid plate - view from under car

See the section on mounting body for how this is tied to the Fiero chassis.

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CHAPTER 12

Rear Trunk Lid

The trunk lid on the roadster has to be hinged in such a fashion that the front of the trunk pivots down to clear the motor deck lid. This involves locating the hinges in from the front edge of the trunk.

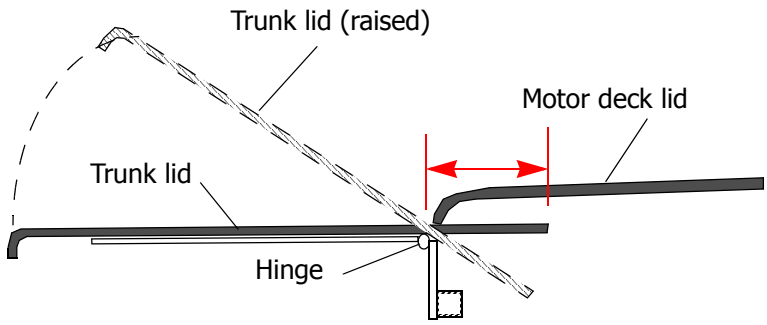


FIGURE 128. **Pivot diagram**

One of the differences that is used on the trunk lid is to extend the hinge to extend the full length of the trunk. The reason for doing this is to provide a structural component for mounting the wing. **This will require test locating the wing to determine where the hinges need to be positioned.**

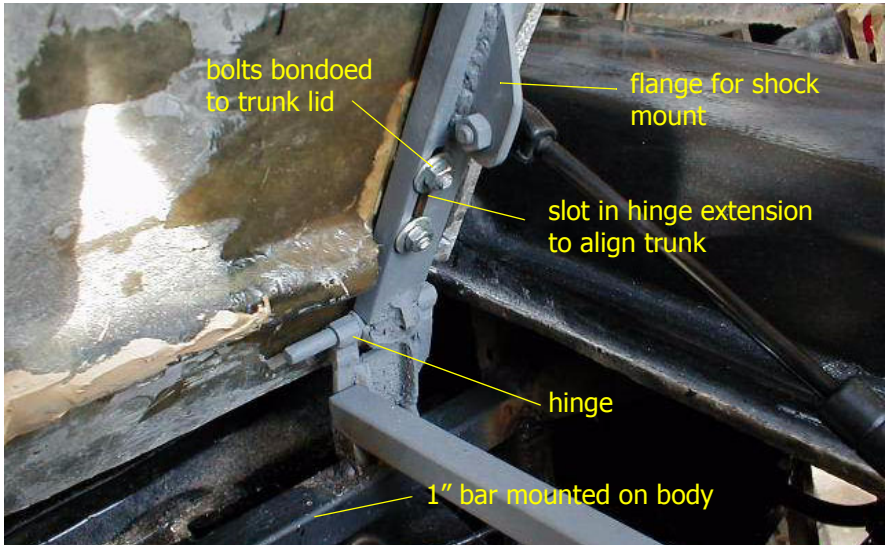


FIGURE 129. Trunk hinge assembly

It is necessary to assemble a framework for the trunk latch as well as a mounting point for the shocks that hold up the trunk lid. This assembly is also used as part of the framework that is used for the sheet metal that will frame the trunk.

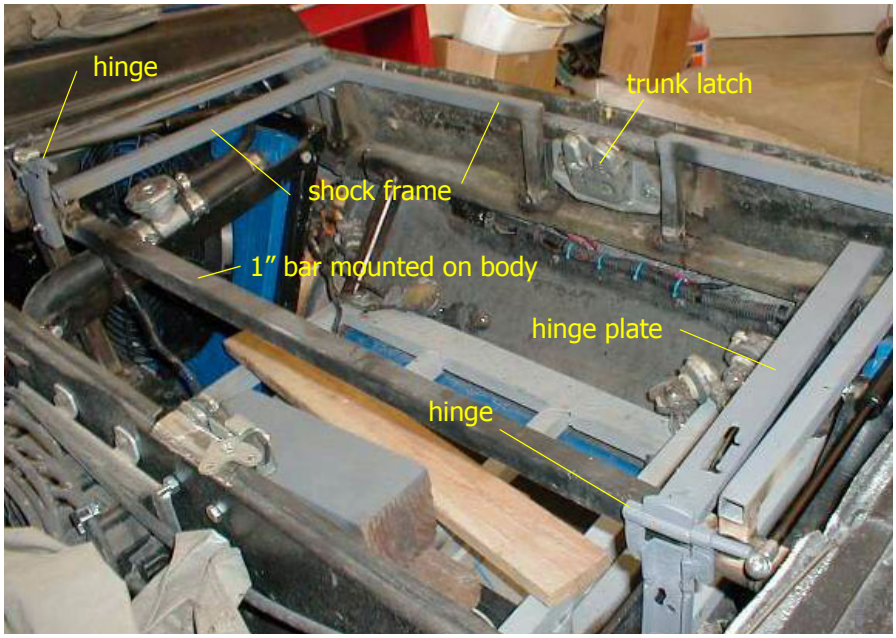


FIGURE 130. Shock and latch layout

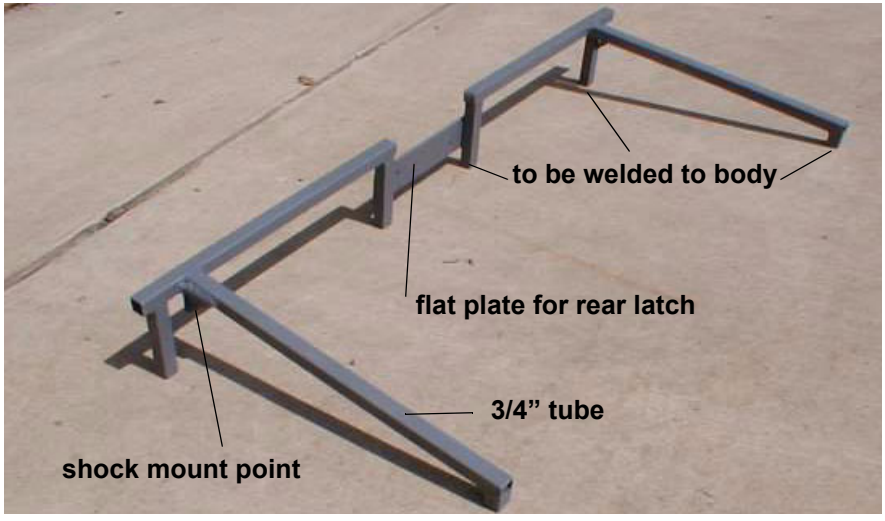
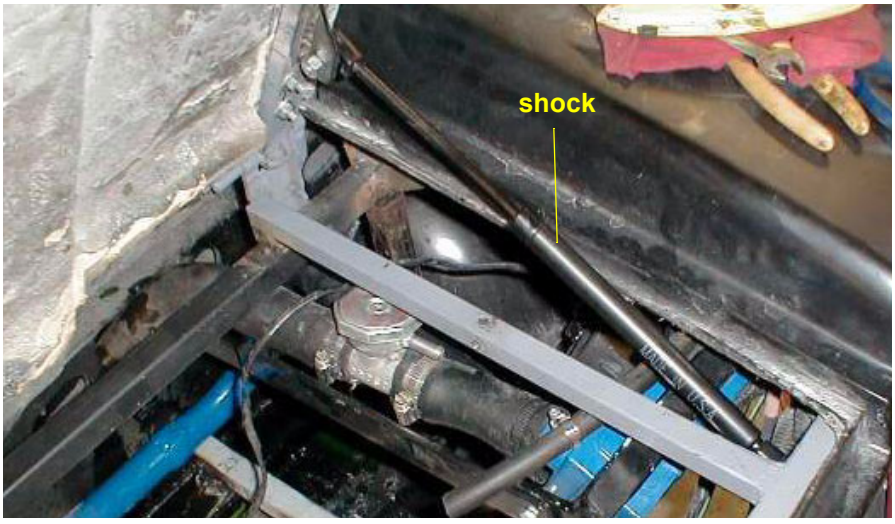


FIGURE 131. **Shock framework**



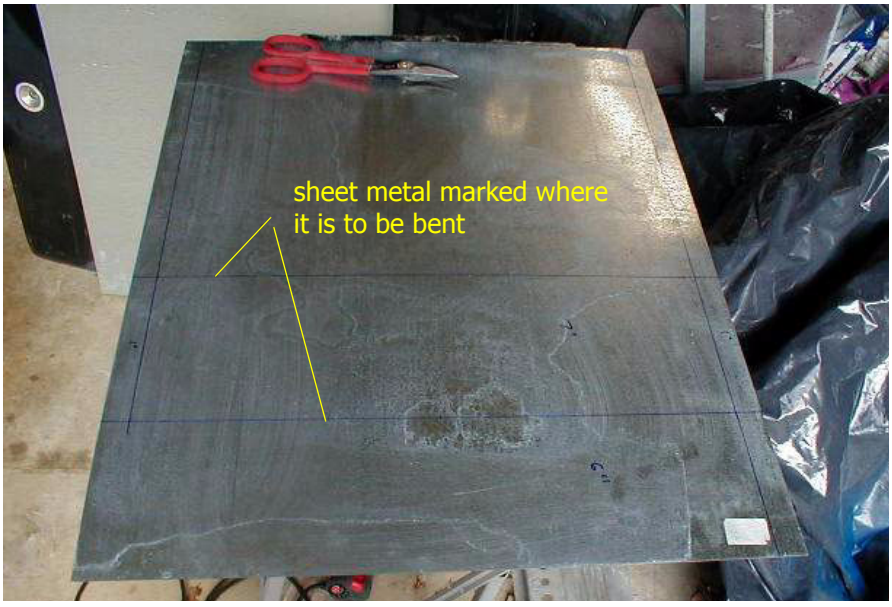
Trunk floor

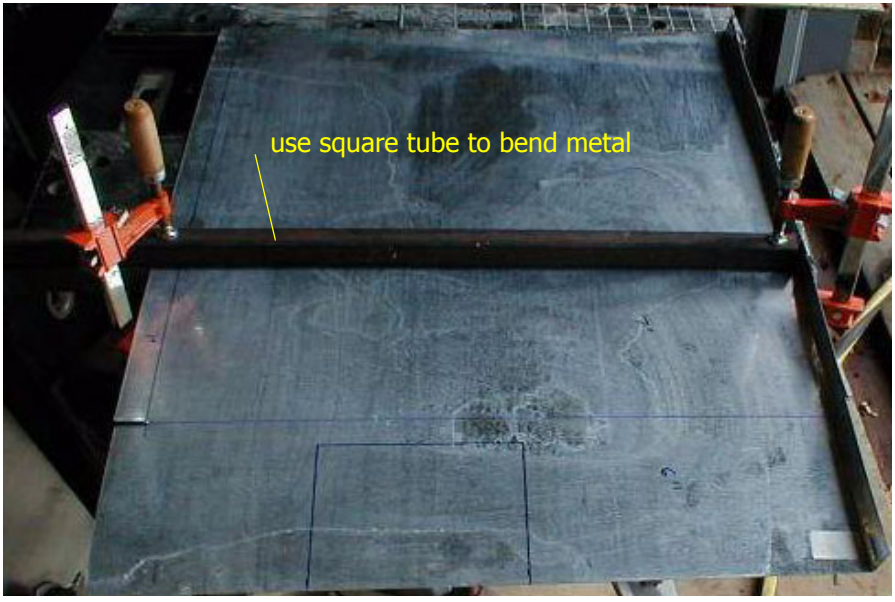
Depending on the motor configuration, you may be able to retain part of the Fiero trunk or you may need to construct your own trunk area. This will

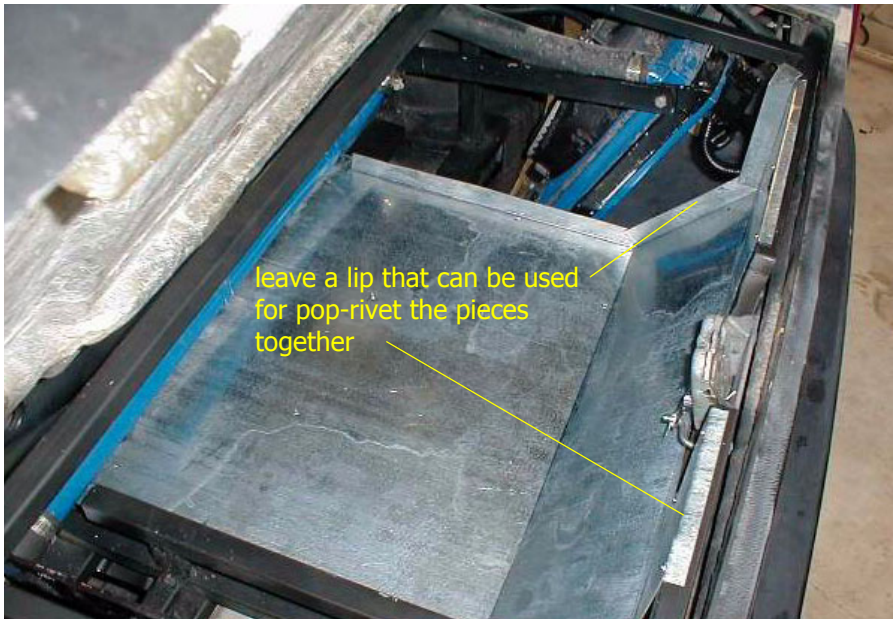
require framing in an area with 1″ tube to create the floor. these pieces are welded to 1″ x 2″ tube that has been welded to the body.

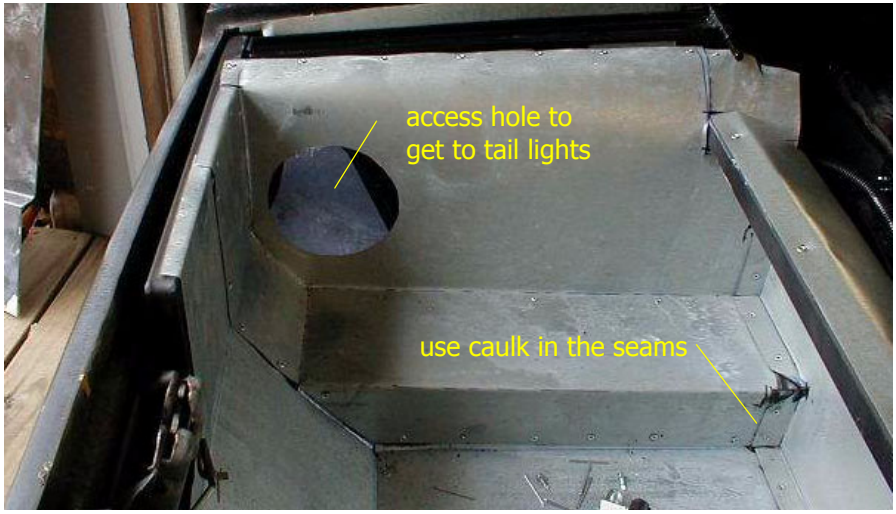
Once you have the frame completed, you can begin the process of filling in the area with sheet metal. The best way to do this is to begin with a paper template that can be used for cutting the sheet metal. Each trunk may be different because of the configurations. This illustration shows how the trunk is constructed around the rear radiators and piping to still give a small storage area.

If you have access to a break machine to bend the sheet metal that is ideal. However you can accomplish this by using clamps, square tube, patience and a rubber hammer to create a straight crease in the sheet metal.






leave a lip that can be used
for pop-rivet the pieces
together


access hole to
get to tail lights
use caulk in the seams

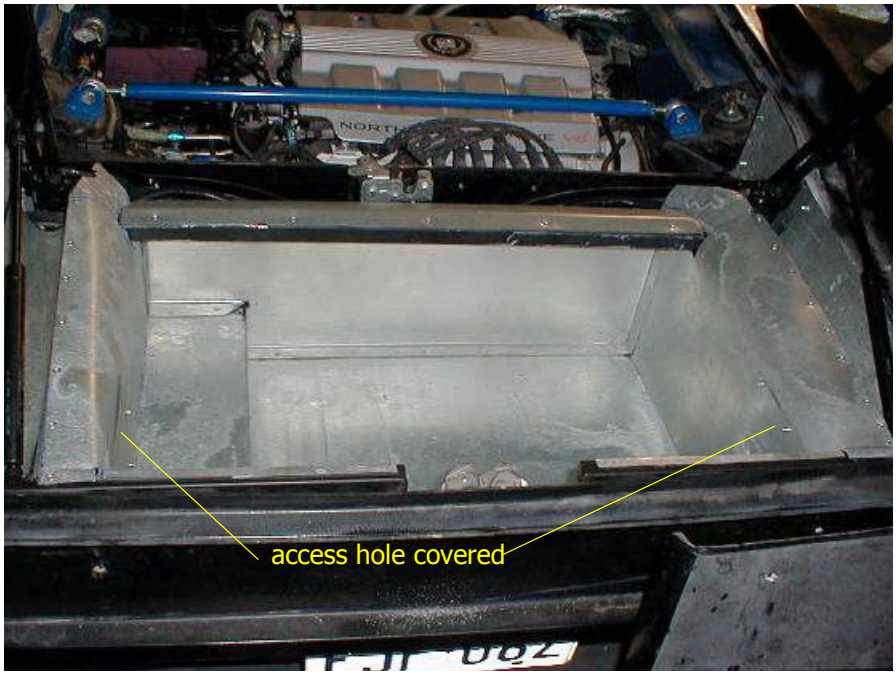
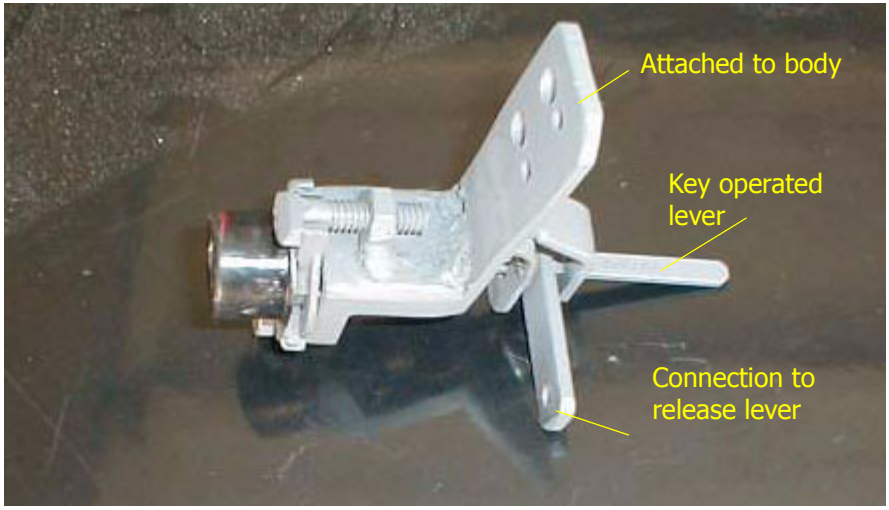


FIGURE 132. **Finished trunk metal**

Rear Trunk Latch

After fastening the framework to the body, you have several options on how to open the trunk. Here you see how the Fiero trunk lock was moved to the side of the taillight. This involved fabricating a special bracket, mounting and rods to open the trunk.

Lock modifications are shown below



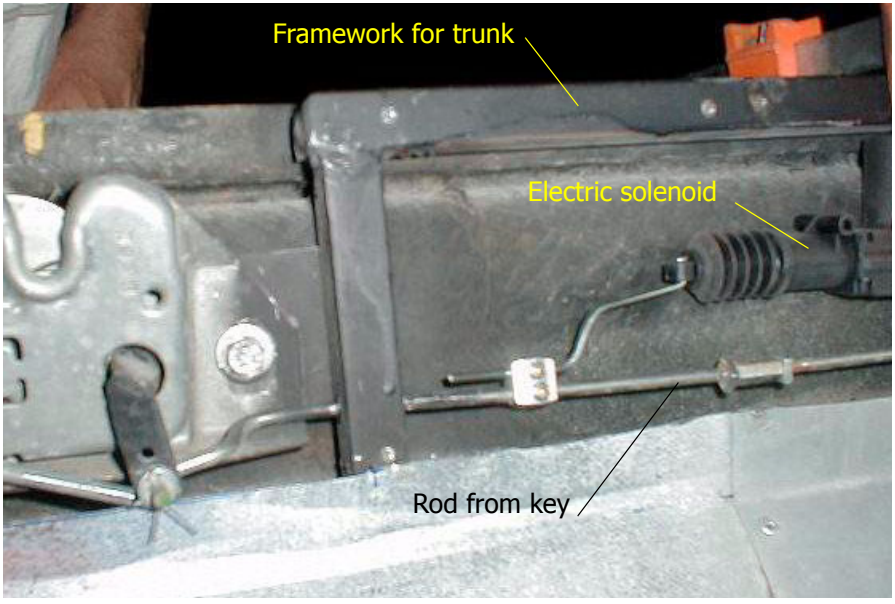
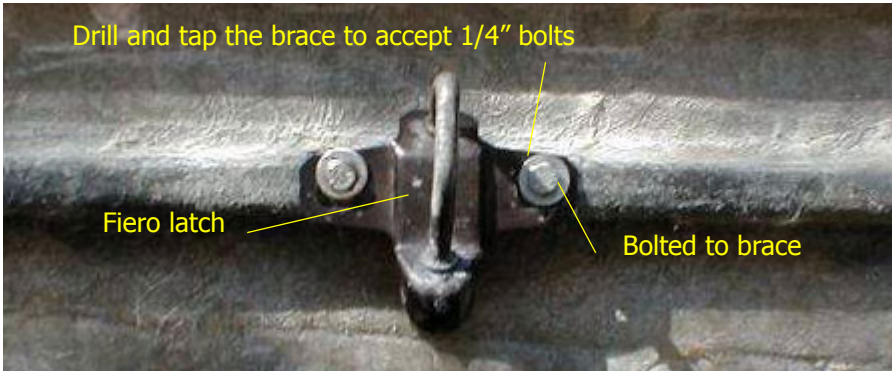


FIGURE 133. Rear trunk latch

Using this setup, you can use the key to open the trunk or you can use your keyless entry system to activate the electric solenoid.

The other part of the latch mechanism is fastened to the bracing on the top of the trunk lid



Rain Gutter

The gap between the rear deck lid and the trunk can be filled in with a piece of sheet metal to act as a rain gutter.

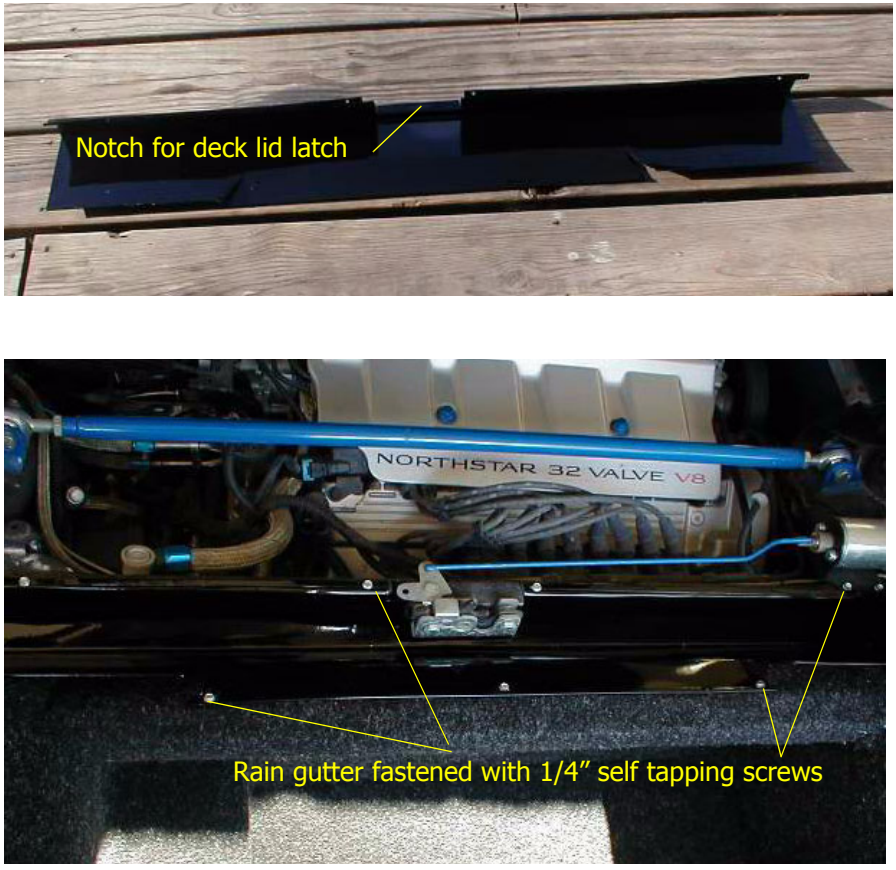
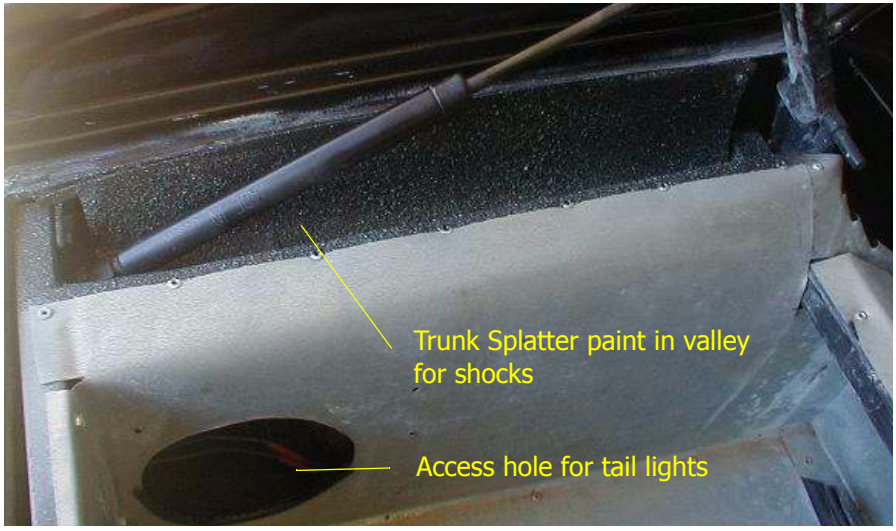
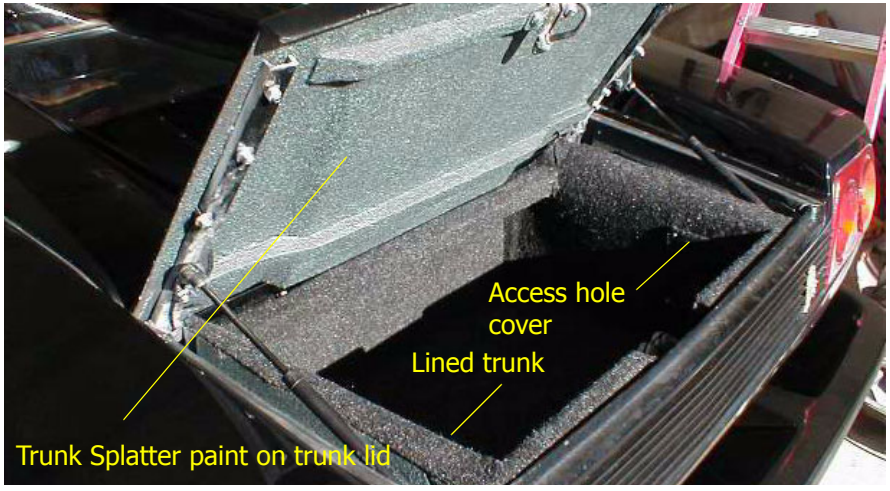


FIGURE 134. Rain Gutter

Trunk Lining

The trunk can be lined with a special Trunk Lining Carpet. Before installing the carpet, you can use Trunk Splatter paint on the inside of the trunk lid as well as the area where the shocks are installed.



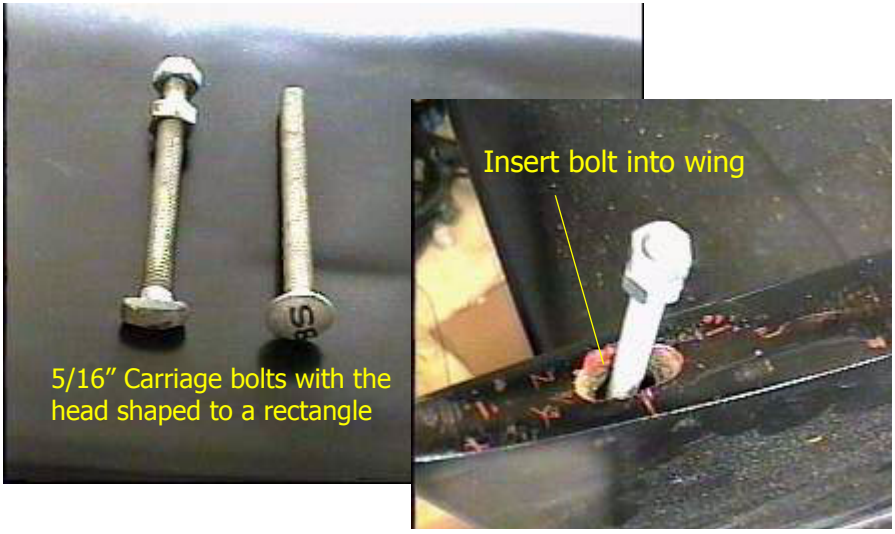


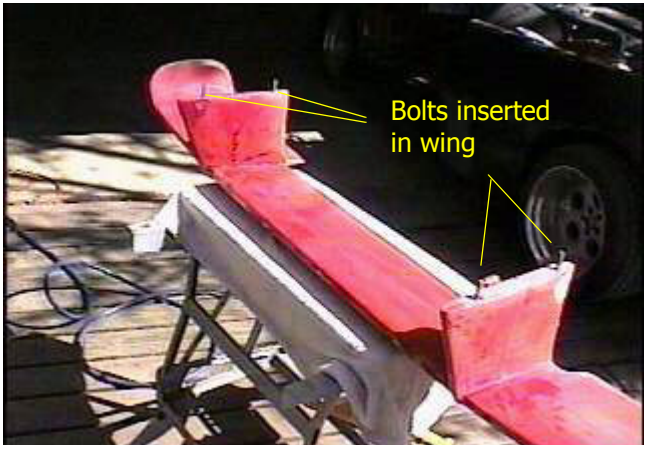
CHAPTER 13

Wing

The wing comes as a single piece. Some builders elect to cut the flap out and make it moveable.

To fasten the wing to the trunk, it is necessary to install bolts in the bottom of the wing. Once inserted, the holes are filled with glass mat and resin to make sure the bolts are securely anchored.





Once the bolts are securely fastened in the wing, drill holes through the metal braces that are part of the trunk hinge.

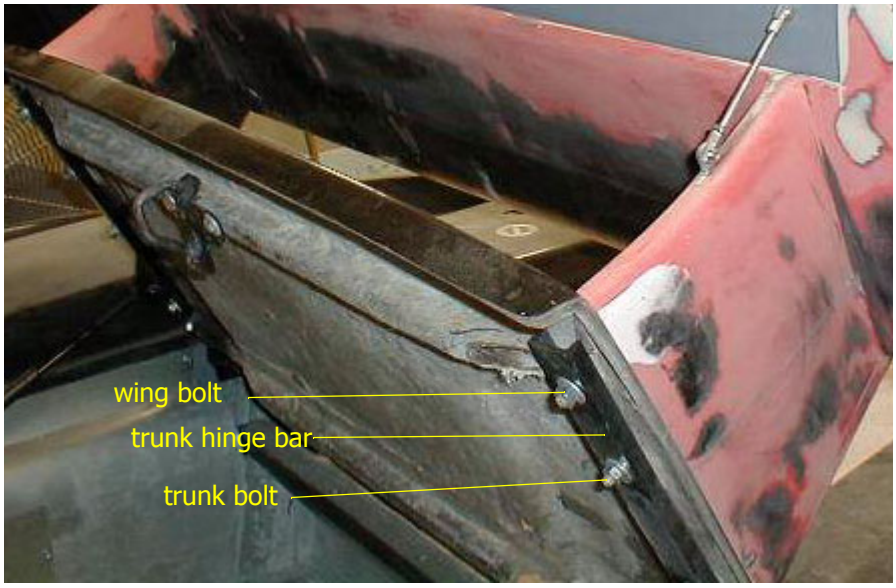


FIGURE 135. **Wing bolt connections to trunk**

Wing removed

There may be times when you wish to not have the wing mounted. Simply remove the wing by unbolting it from the trunk lid. To fill in the holes, you can take four 1/2” carriage bolts and grind the tops smooth.

Paint them to match the body color and this will allow you to fill in the holes and give a finished appearance to the trunk.

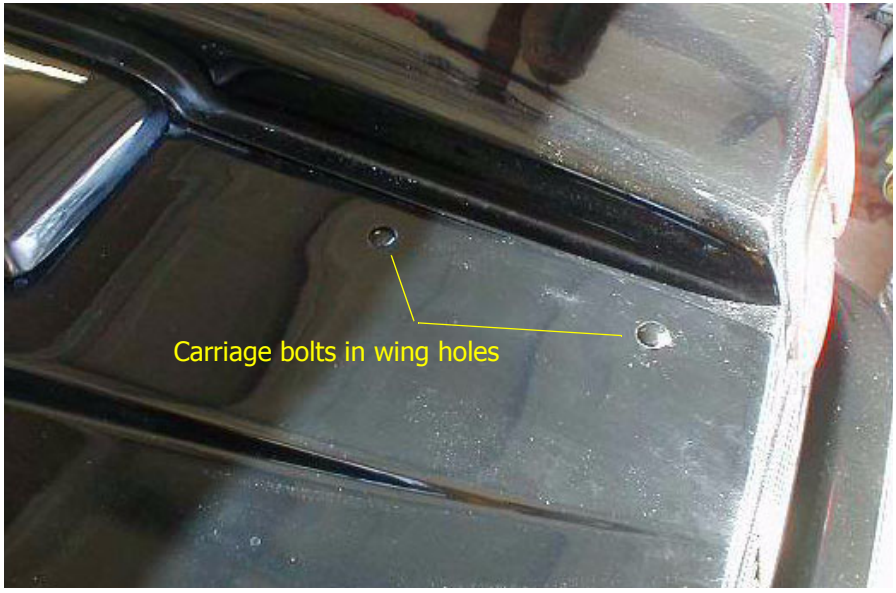


FIGURE 136. **Trunk lid without wing**

CHAPTER 14

Power Windows

The windows on the roadster are designed to be installed with an optional electric openers. The windows are compound curved windows that must fit within the frame. The frame has to be inserted into the door and then secured. This is a very tedious process. To prevent cracking or breaking the windows the utmost care must be taken to make sure that the frame and guide rails match the glass. Make sure the glass slides easily with in the track.

The pieces you will need to install your windows are the window, the frame and guide rails, the electric motors, the door frame and the Fiero controls.

FIGURE 137. **Window in protective wrap**

The glass included with the kit is AGP Lamborghini glass. If there are any rough edges on the glass these can be smoothed with emery cloth. It is best to work with the glass on a padded surface to prevent any scratching of the surface.

FIGURE 138. **Window Frames**

The easiest way to insure that the frame fits is to leave it all intact until it is installed in the window. Once the frame is secured, you can then cut our the section that is above the roof line.

Channel Assembly

Start by taking the frame and laying it on a padded surface.

Now putting small pieces of the padded channel lining on the edge of the glass and lay it on the frame. Make sure that the frame fits the contour of the glass. If it does not, bend the frame to make sure it is matching the curvature. This is critical if the window is going to slide smoothly.

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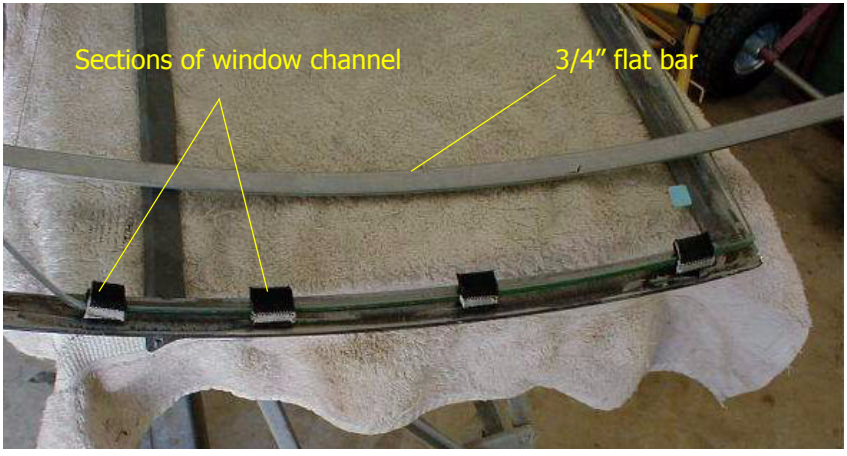


Next take a piece of 3/4" flat stock and bend it to match the curve and set it on top of the channel pieces. Make sure that the glass is aligned properly

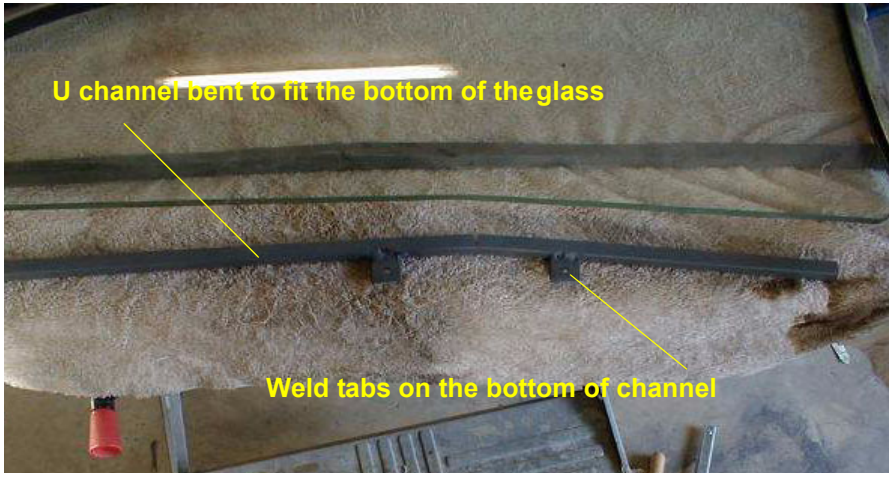
in the frame. Clamp the bar to the frame over the window channel and carefully slide the glass out. Now cut 3/4" pieces to weld the flat bar to the channel. Do this between the window channel sections.

FIGURE 139. Flat bar welded to frame with new channel inserted

FIGURE 140. Glass in lined channel

Repeat for the other end and the top. It is only necessary to extend the top channel to the edge of the roof line. Remember you are going to cut our that section once it is installed.

The glass should now slide smoothly in the channel. Make sure it seats properly in the top channel.



Take a section of U channel and cut and bend to fit the bottom edge of the glass. This will later be filled with Silicone sealant to fix it to the bottom of the glass. You will need to weld tabs to this section. The exact tab position will be determined once the motors are installed.

Installing the frame

Now that the window is sliding up and down in the channel. Take the whole assembly and slide it into the door. It may be necessary to grind the inside of the rear posts to make sure the glass is as close to the inside as necessary.

You will need to check to make sure the Gas shock clears the window where it exits the door as well as where it attaches to the metal door frame.

IMPORTANT: Before you actually secure your frame in place, make sure that the weather seal has been installed on you door frame and is in place when you make the final settings. The weather seal will change the alignment of the door itself and can cause the window to be out of alignment if not resting on the weather seal.

Secure Track to inner door

FIGURE 141. Front track

Secure the end of the track next to the front of the door by welding a small tab to the edge of the window frame. This will then be welded to a piece of metal that will be glassed to the inner door. The welding of the tab to the frame will need to be done when the frame is not in the car and the lined channel has been removed. Make sure the tab allows the window to clear any metal. When you actually weld the tab to the tube inside, be sure to put a wet cloth over the lined channel so it does not melt from the heat of the weld.

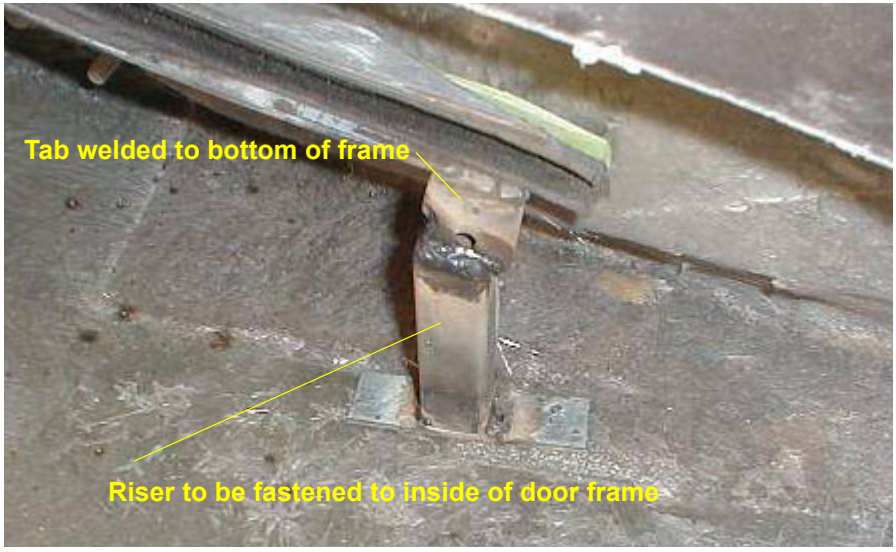


FIGURE 142. **Back Track**

Repeat the process for the edge at the back of the door. This will need a riser to be assembled as it will sit farther from the inside of the door.

When fastening the top guide, you can remove the channel and secure the window channel to the window post by using a screw through one of the tabs connecting the window frame to the flat bar into the window post.

This may involve trimming some of the window post to make the channel fit properly. You are going to build the door to fit the channel. Remember glass does not bend so make sure the channel works properly and then secure it to the door and with screws and bondo.

It will be necessary to remove the section of the channel from the end of the front post to the back post before the roof can be set on to check the fit.

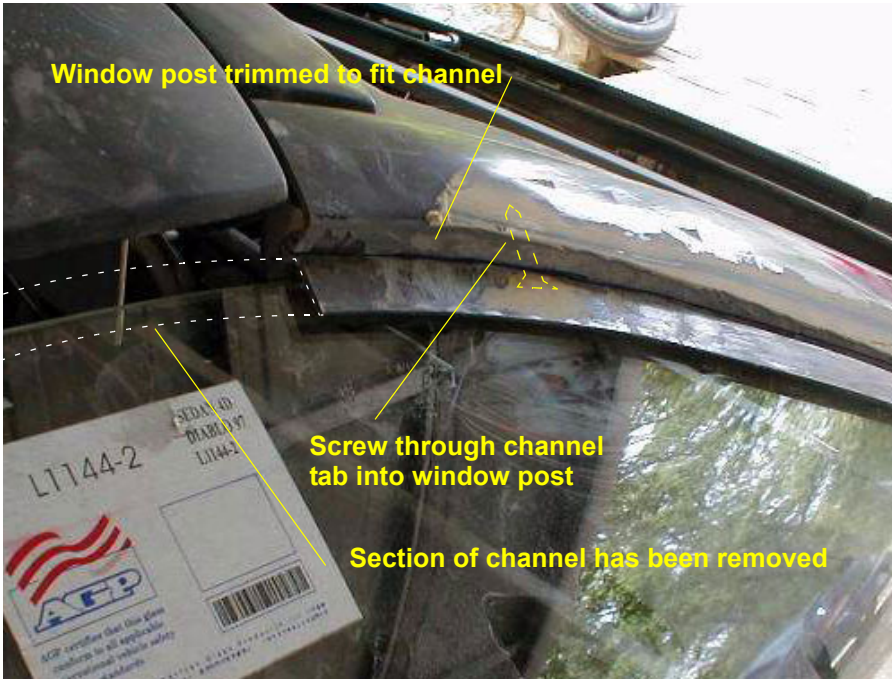


FIGURE 143. **Fastening top channel to post**

Once the window frame is secure and the window slides smoothly, fasten the frame in permanently with bondo.

Here you can see the edge of the window post is finished into the window frame. When painted, it will produce a very smooth edge.

It may be necessary to build up the back edge of the window post depending on what steps had to be taken to make the window channel fit properly.


Front Window post after finishing


Rear window post after finishing

FIGURE 144. **Finished Channel**

Electric Motor modifications

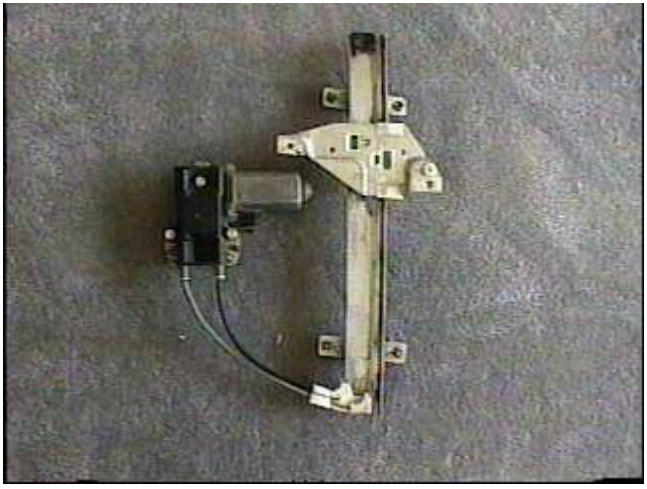


FIGURE 145. Electric Motor assembly

The electric motors that are provided with the kit consist of the motor and a cable driven track that raises and lowers the window. The motor assembly will need to be fastened to the door frame. However, it is necessary to make some modifications to the track before proceeding.

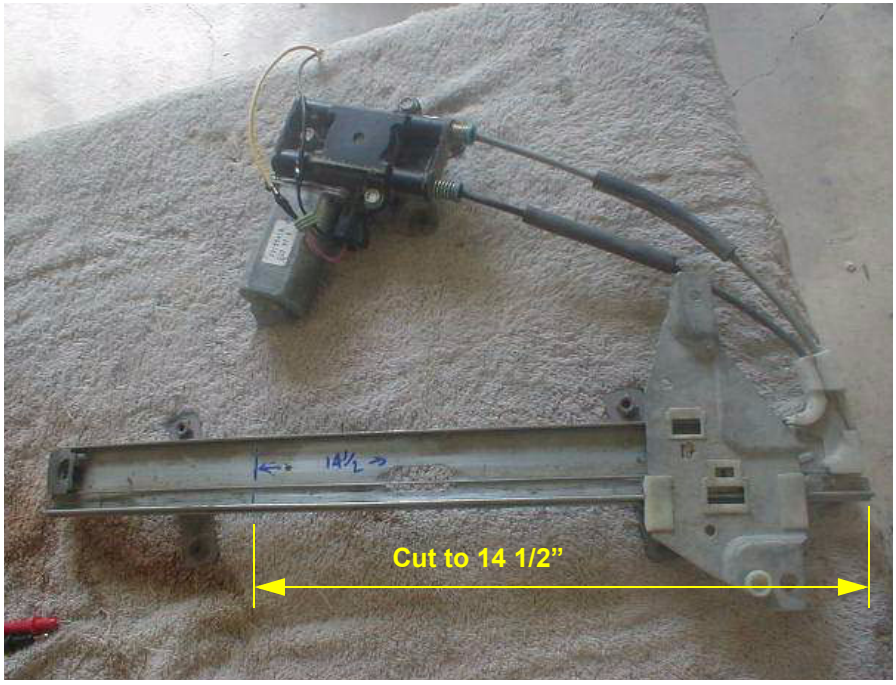
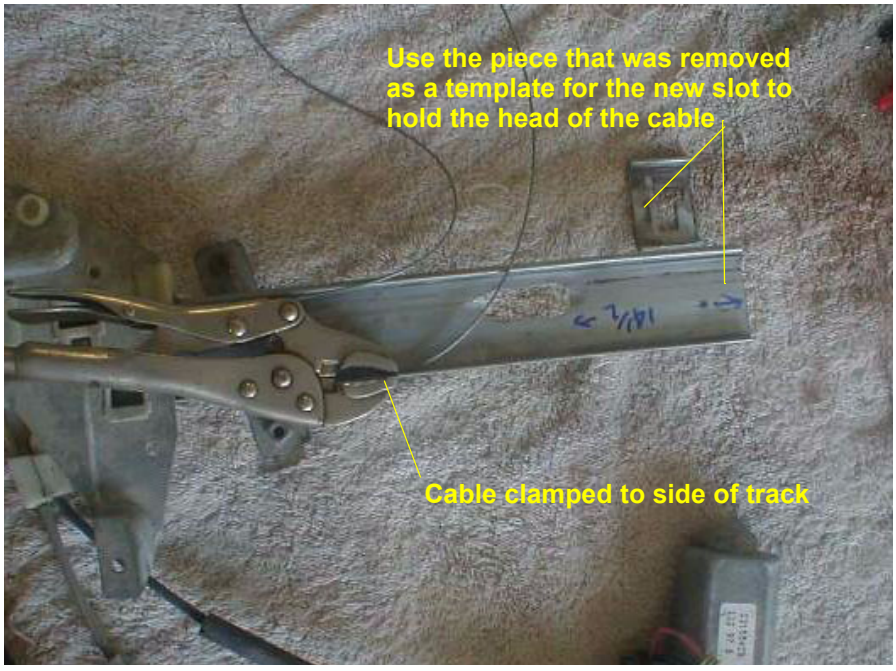
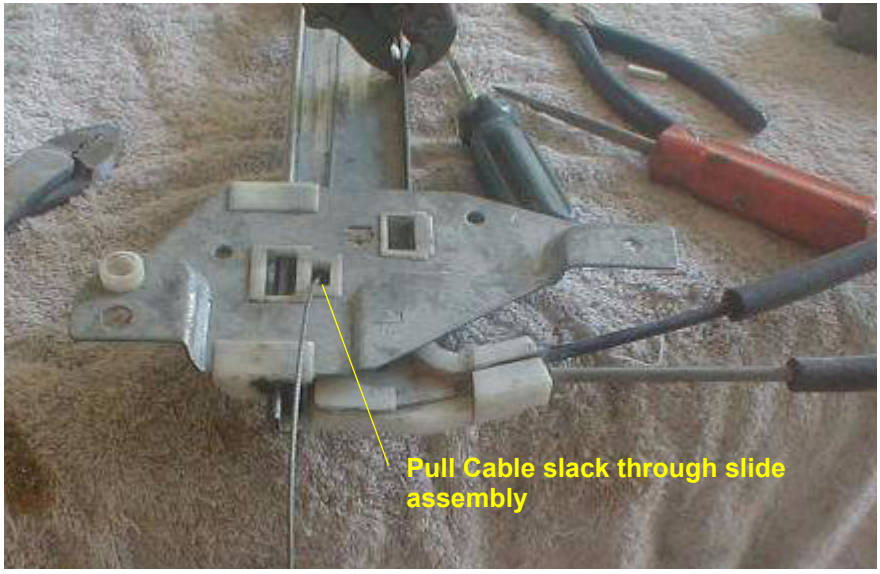


FIGURE 146. **Where to cut**

The track will need to be shortened to 14 1/2”. This will require removing the cable, cutting a new hole to hold the top assembly and shortening the cable. The cable is coiled on a spool inside the motor assembly. You need to make sure that it does not get slack and become tangled in the spool. The best way to do this is to clamp the cable to the side of the track with vice grips and then remove the top assembly prior to cutting the track.

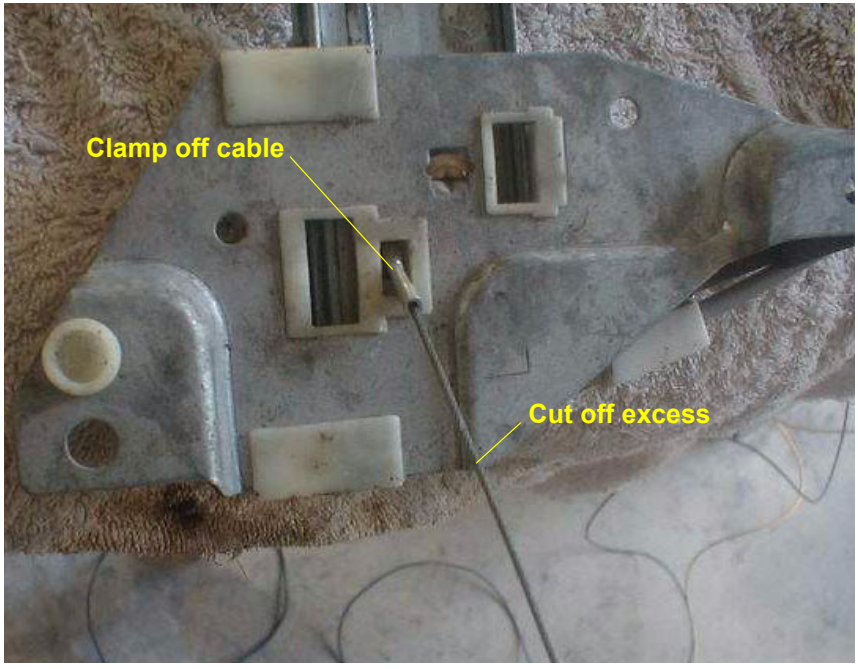


Once the top unit is installed, remove the slack from the cable at the slide assembly.



Make sure that spring is compressed at motor before fastening and cutting cable

Now use a cable clamp and clamp off the cable and cut off the excess.



Attach motor to Door Frame

This is what the final frame will look like when completed.

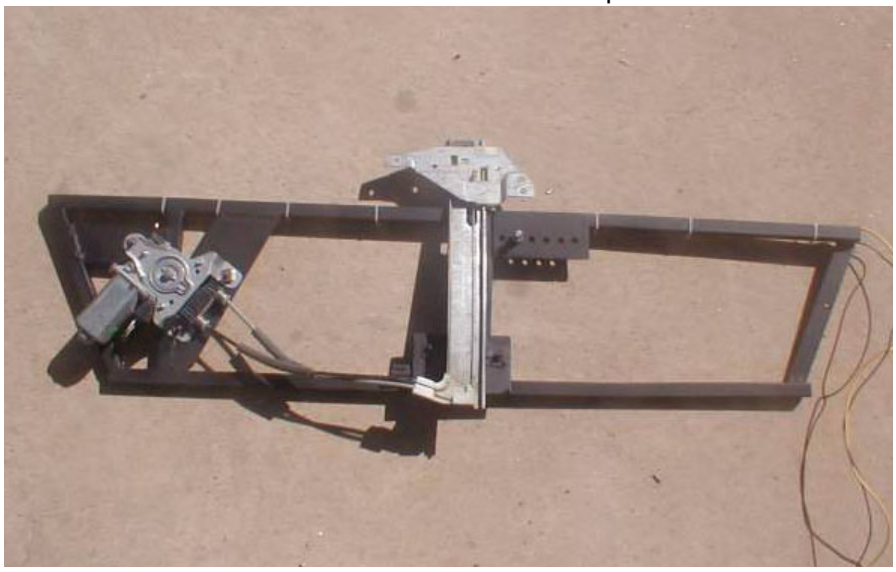
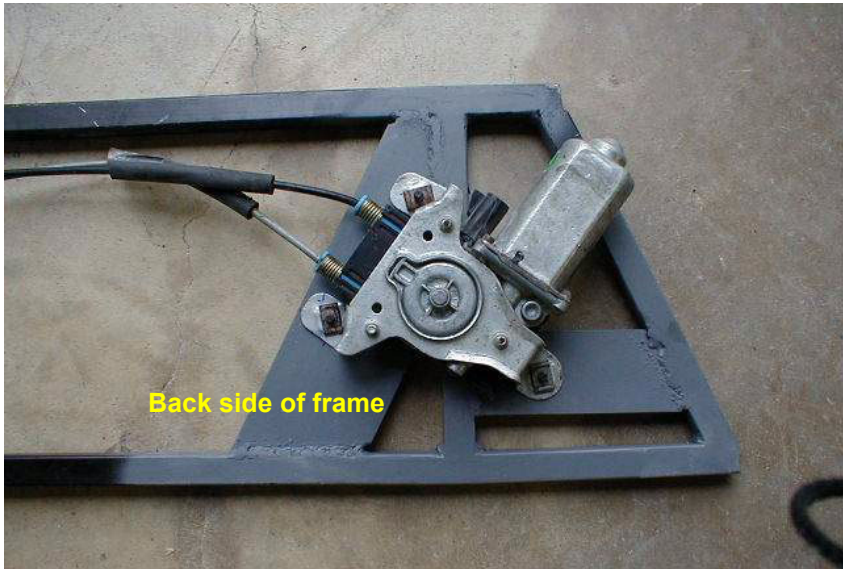
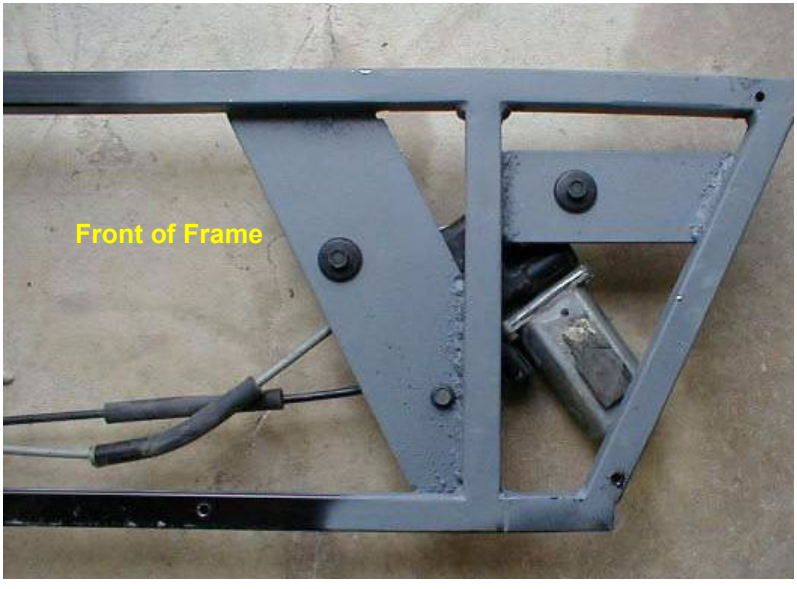


FIGURE 147. Completed frame assembly

Start by determining where the center of the gravity is for the window. This is pretty much trial and error. By raising an lowering the windows you will find a spot that it doesn't bind on the front or back. It will be a little closer towards the back than the front. Mark this point on the frame and then determine how to mount the motor to the frame.



By positioning the motor assembly on the frame, you can determine where the plates need to be welded to give you a good anchor point for the motor assembly.



The next step is to fasten the track to a hinge that will allow the track to tilt as the window moves up the track. This hinge can be a door hinge that is modified to fit the frame rail. Drill two holes through the frame and insert 1/4" bolts. Weld the bolts in place so they will not turn when tightening the nuts onto the hinge.

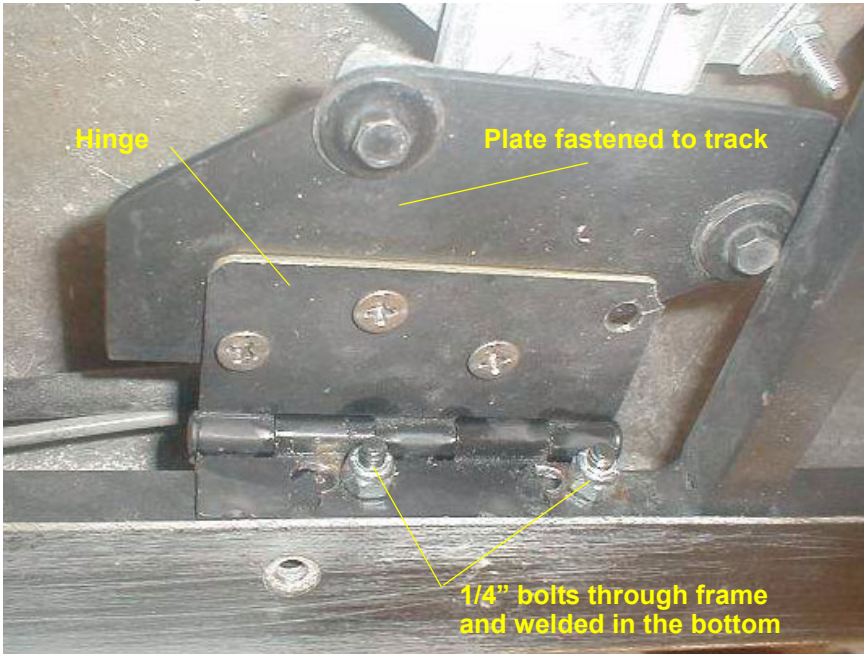
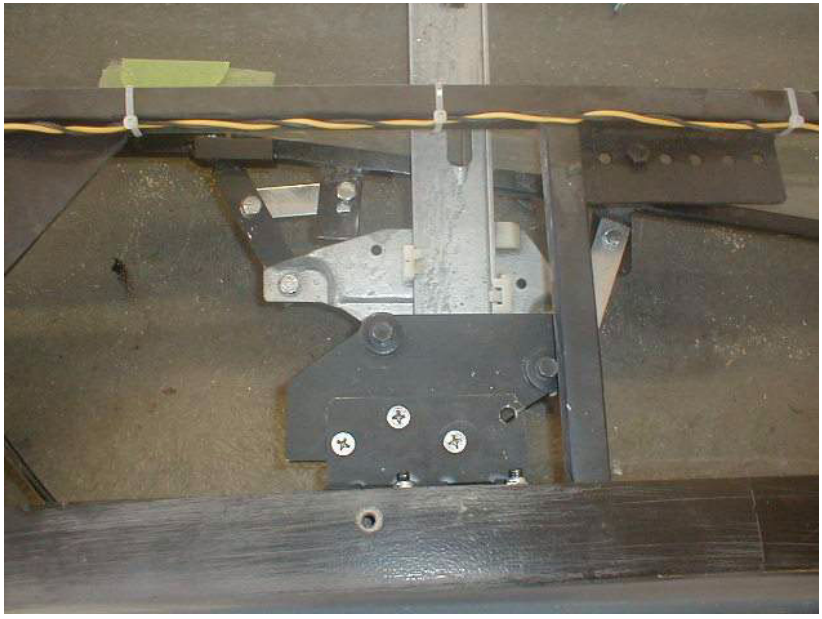
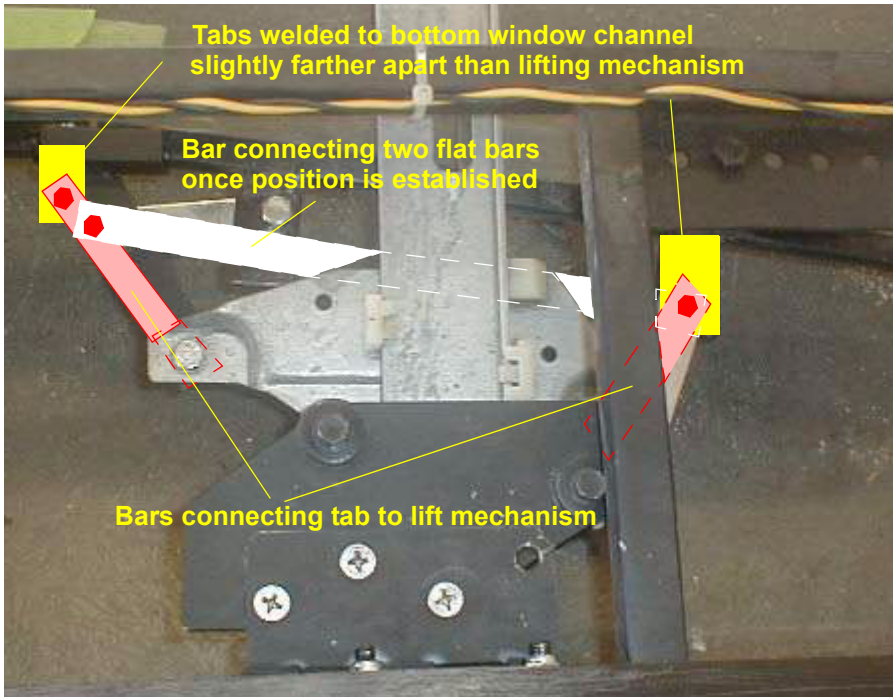


FIGURE 148. **Hinge assembly**

Connecting the window to the track can be accomplished by using three pieces of flat bar. The illustration shows one method that could be improved upon.



Because the tabs were not located properly on the bottom channel, an alternative method was implemented. The following shows what would work best.



The illustration shows that with the two independent bars this will allow you to adjust the lengths to accommodate the window in the horizontal position. Once it is set, connect the two bars with a third bar that will freeze the position.

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CHAPTER 15

Windows

We have addressed the power windows in a separate chapter. This section will deal with the remaining windows in the front and back.

Rear Window

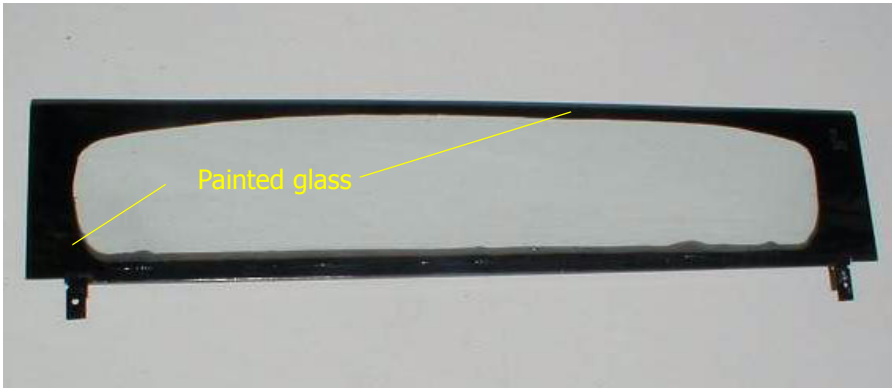
The rear window is a single sheet of safety glass that is held in place by a fabricated channel. Make sure that the fiberglass edge around the window is squared up and flat to mate up to the glass.

It is a good idea to actually black out the glass that is not visible.

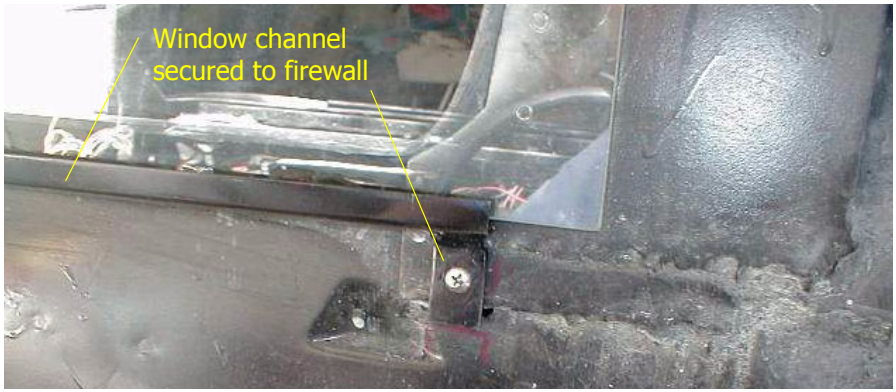
Start by taking a piece of window channel and welding two tabs on the bottom. Trial fit the bracket on the inside firewall. Set the glass in the channel and when you are satisfied with the position, trace the opening of the window onto the glass.

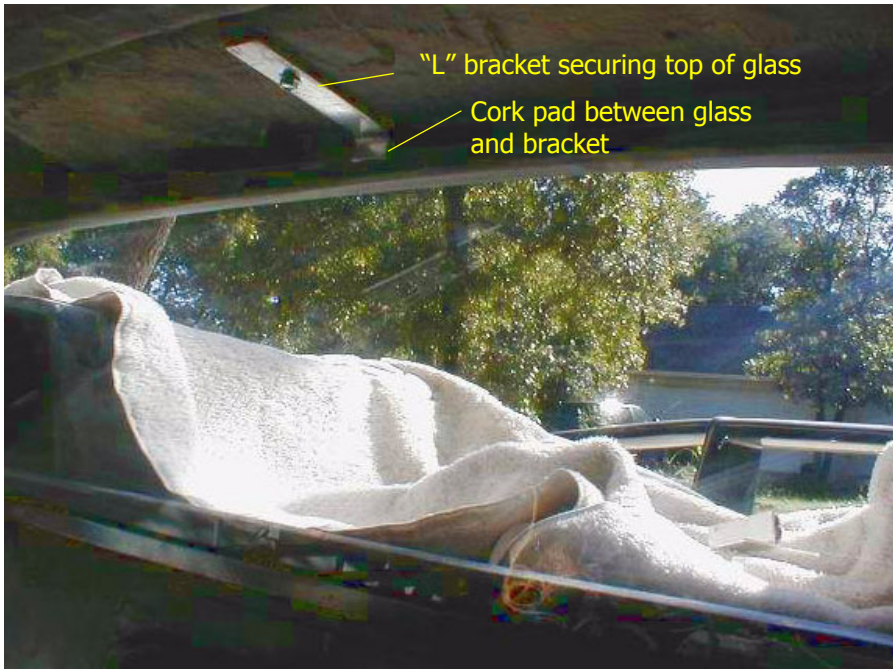
Now remove the glass and tape over the window area with masking tape. Cut the edge of the tape to leave the window area filled in. Paint the glass with a black mat paint.

Put a bead of silicone sealant into the channel and seat the glass in the silicone.



The window frame is now secured to the firewall with screws through the tabs, Extended "L" brackets hold the top of the glass against the top.





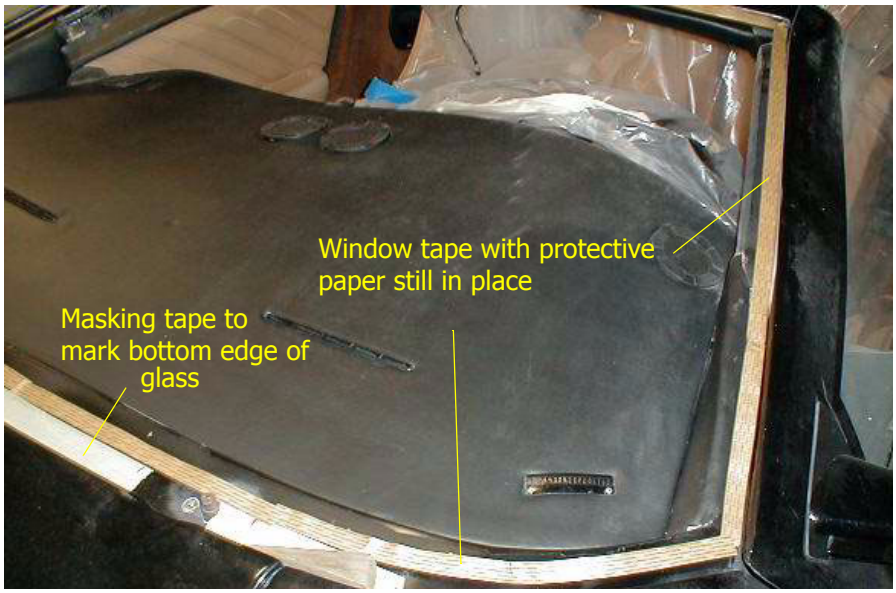
Once the window has been secured, seal any minor gaps between the glass and the body with a waterproof sealant. It is best to use a sealant specifically made for glass.

Windshield

The windshield is something that you may wish to have professionally installed. Whether you choose to do it yourself or have it professionally installed, you will still need to do the preparation.

Start by test fitting the windshield into the frame. Check that the window comes in contact with the frame across the top, bottom and sides.

There can be slight dips but they should not exceed 1/4". Check to see that the edges of the doors do not hit the edge of the glass. While the window is in place, mark the lower edge with tape to determine where to put the sealant.



You can either use a urethane window sealant which requires it to be applied hot and you have to work quickly. This is what the professionals use. Another alternative is to use butyl window tape. This is normally a ribbon that has a paper protection on one side. It is very sticky and will hold the windshield in place quite nicely.

You can pick up a universal edge trim from any glass shop. This can be place along the top and bottom edges to provide a finished look.

FIGURE 149. **Windshield installed**

CHAPTER 16

Wiper Installation

Wiper Plate Mount

The kit comes with an aluminum plate and standoffs used to mount the stock Fiero wiper motor. It is necessary to extend the electrical connections by 12" to the motor. The plate is pre-drilled to accept the stock mounting holes of the wiper motor.

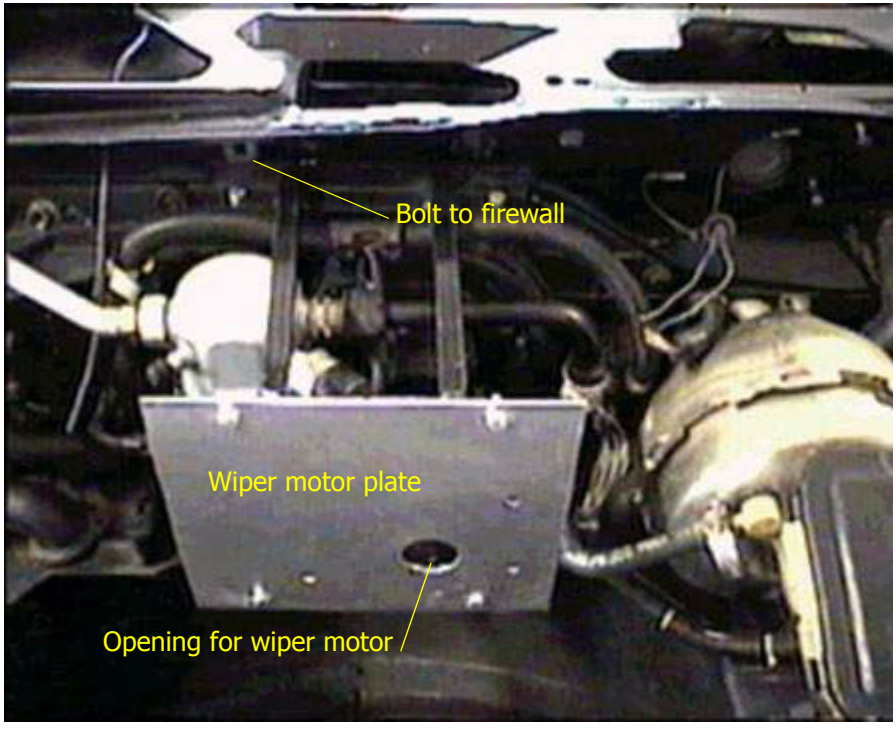


FIGURE 150. Wiper plate - front view

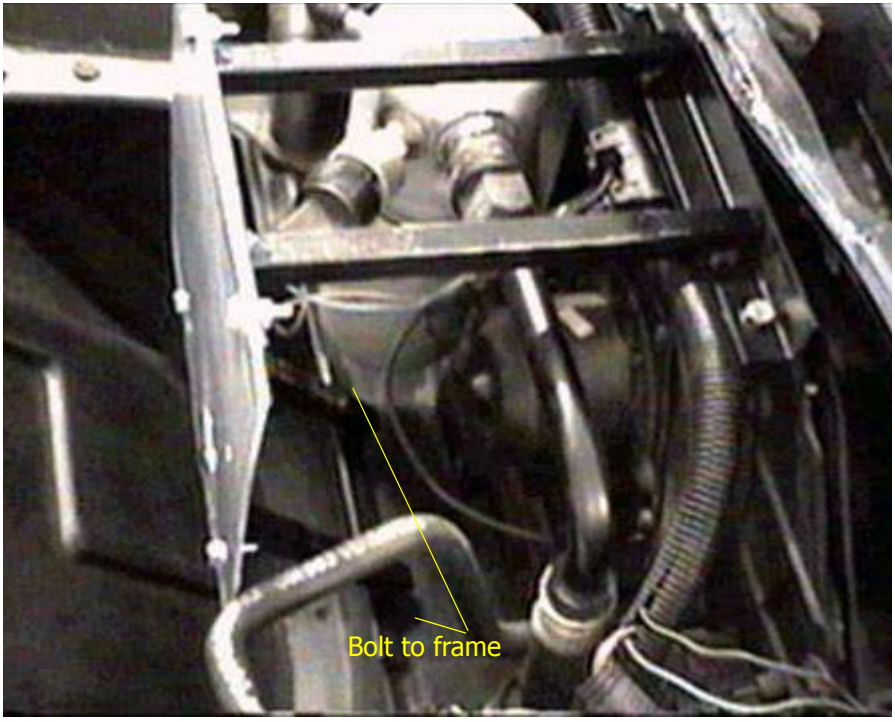
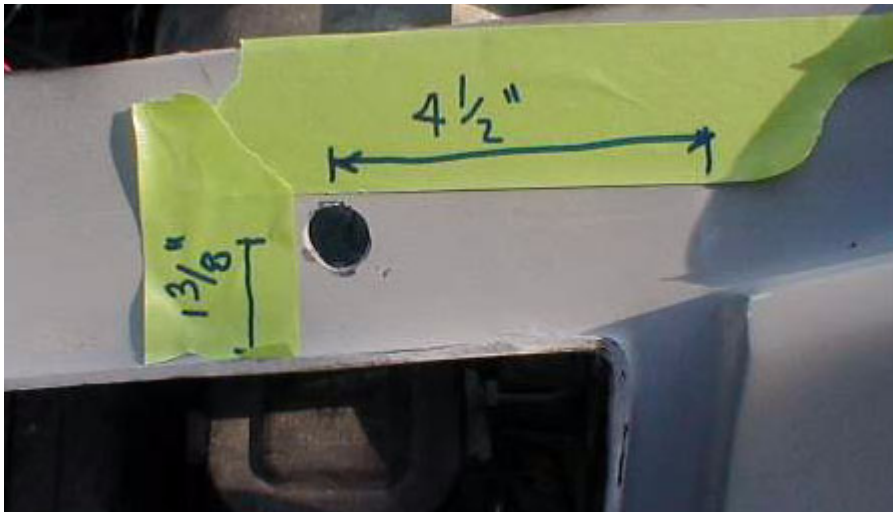


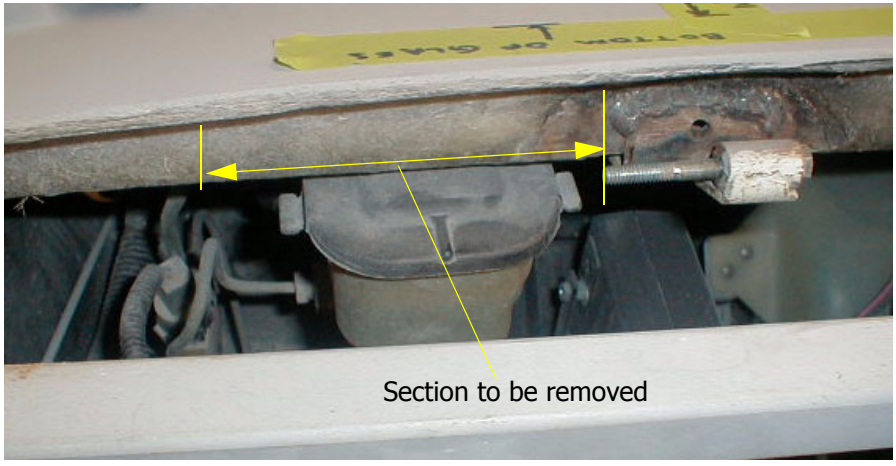
FIGURE 151. **Wiper plate -side view**

Location of pivot arm

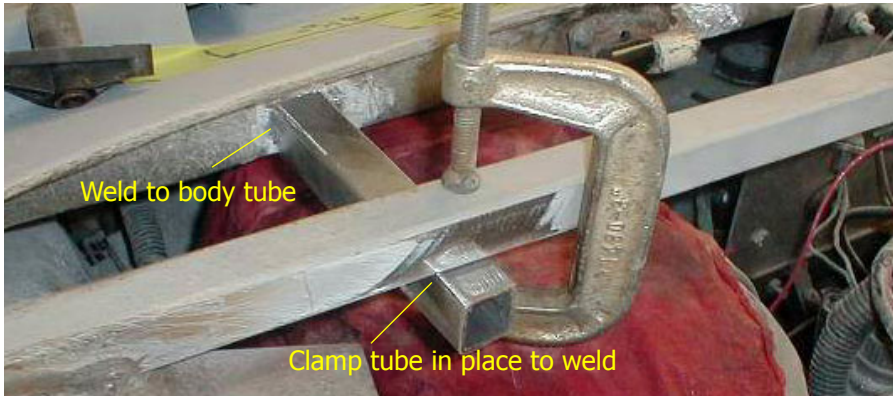
The kit comes with the necessary components to be able to use the existing Fiero windshield wiper motor and controls for the roadster. You will want to make sure you have established the location of the lower edge of the windshield for proper clearance of the wiper assembly. Next continue by locating the position for the wiper post to extend through the body.

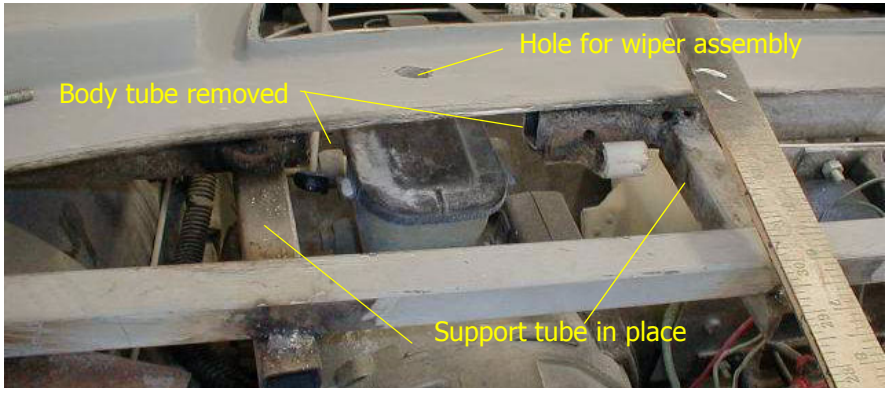


Normally this will position the wiper assembly directly above the brake fluid reservoir. There is also a body support tube that is in this same location. This support tube will need to be removed. In order to remove the section of tube, the remaining section must be supported from the body.



Start by welding two sections from the body tube to the support piece that has been welded between the two door hinge plates.





Wiper Assembly

You will use the existing Fiero motor that has been installed on the special mounting plate. It will require extending the wiring harness to accommodate the new location. This can be accomplished by removing the wiring covers from the existing harness and cut the harness. Splice in sufficient length matching the colors to the original harness ends.

You will use half of the original Fiero wiper linkage.

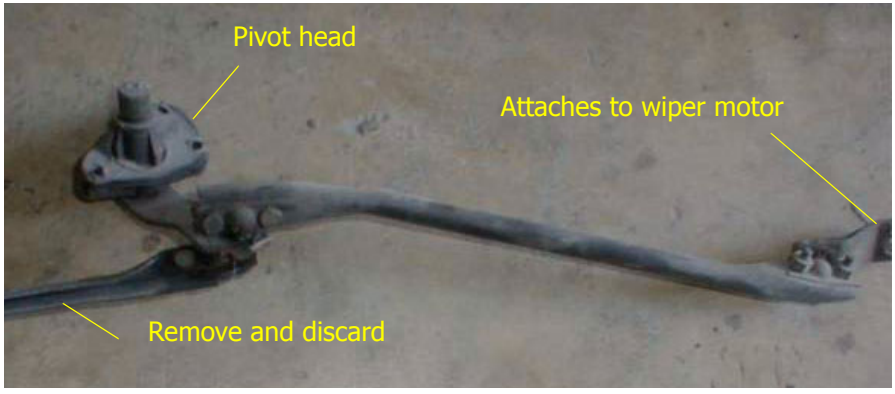
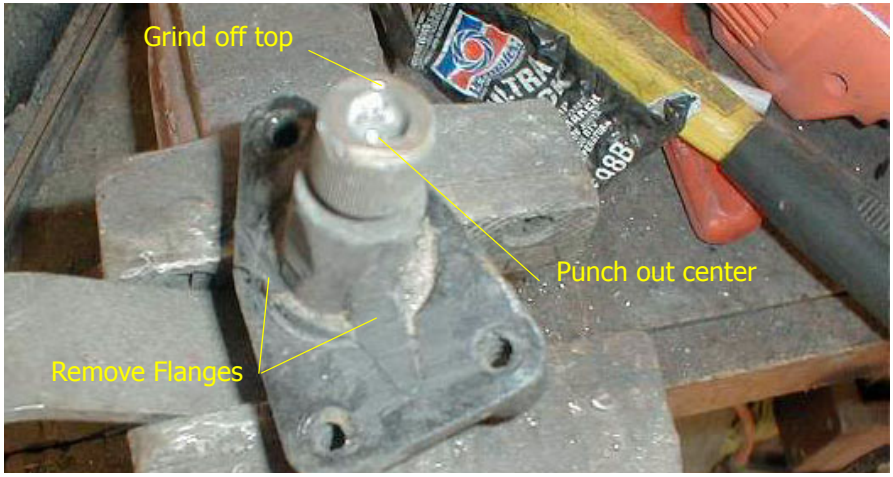
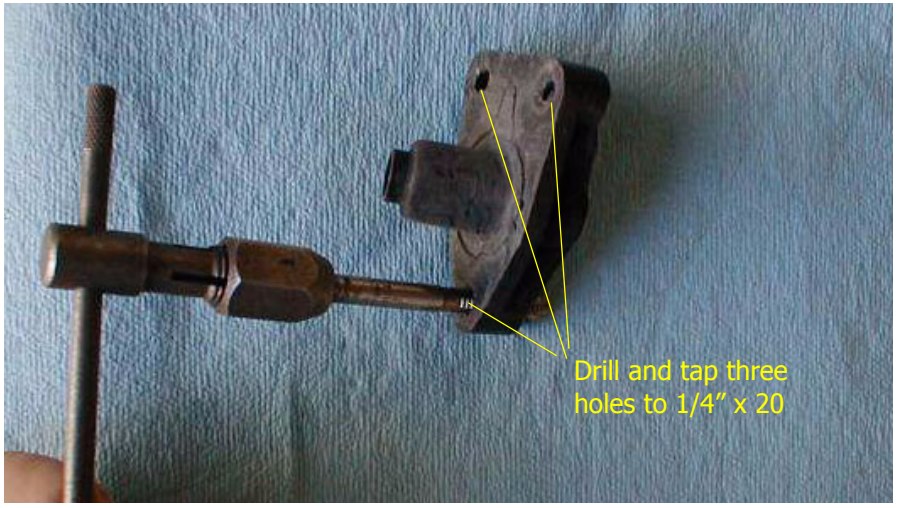


FIGURE 152. Original Fiero wiper linkage

It will be necessary to remove the cap from the existing arm to change out the pivot rod. To do this, put the pivot head in the vice and grind off the very top of the assembly with a grinder. Once this is done, carefully tap out the rod using a punch. You will also need to grind off the flanges on the side to allow the pivot head assembly to fit through the opening.



Once this is done, you will need to drill and tap the existing holes to accept a 1/4" x 20 bolt.



The kit is supplied with a new arm, spacers, heim joint and washer to assemble the new arm.

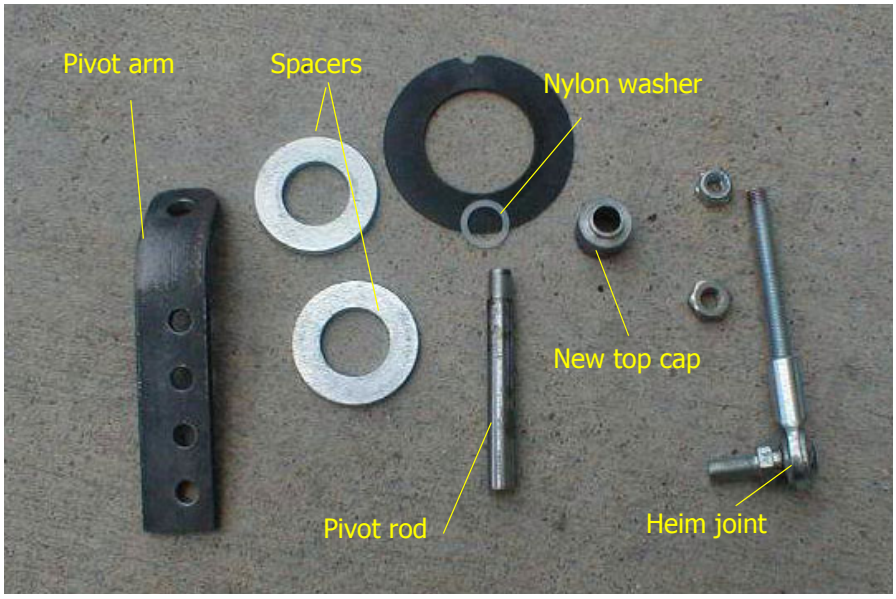
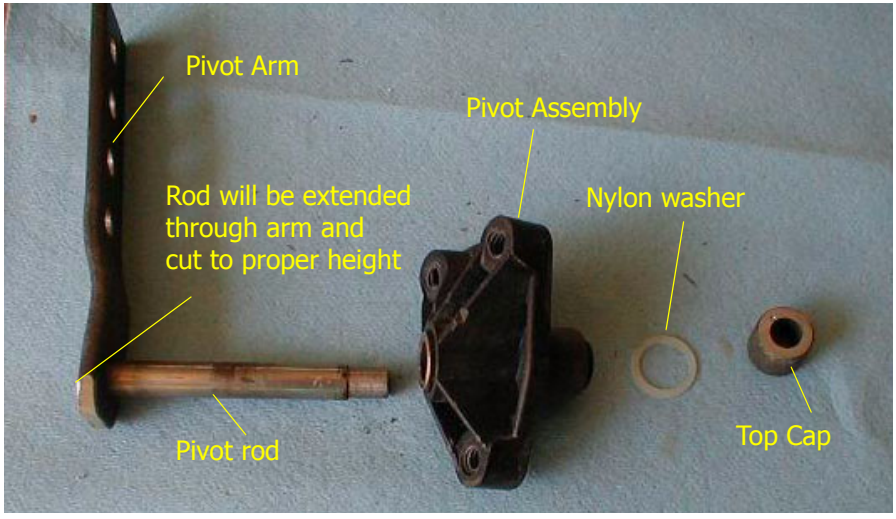
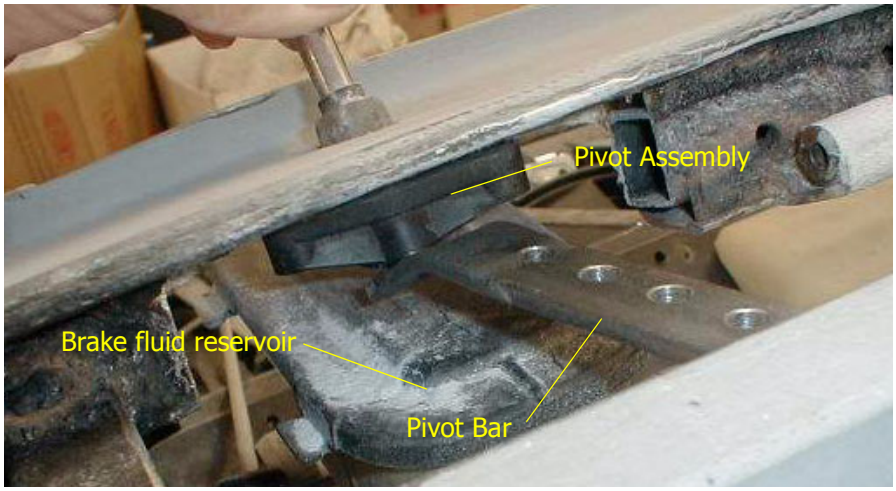


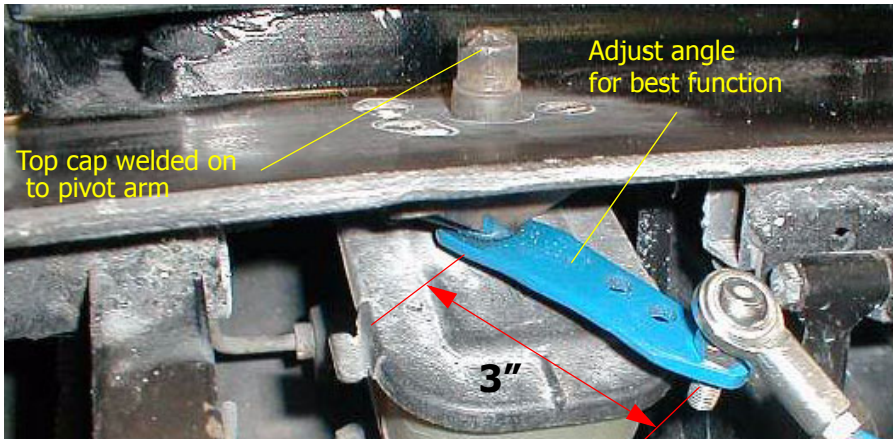
FIGURE 153. New wiper assembly pieces



You can begin by welding the top cap to the new pivot rod. Do not weld the rod to the pivot bar until you determine the proper height. Depending on the thickness of the fiberglass, you may need to add spacers to get the proper settings.



Once you have determined the proper location and angle to the windshield, you will drill three holes to fasten the pivot assembly to the body. The length from the center of the pivot rod to the heim joint location should be 3” to achieve the proper sweep on the arm.



The original Fiero linkage is cut and welded to a rod with the Heim joint connected to it.

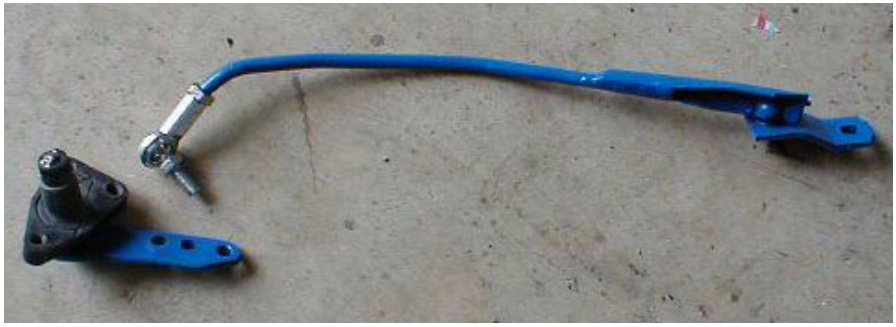
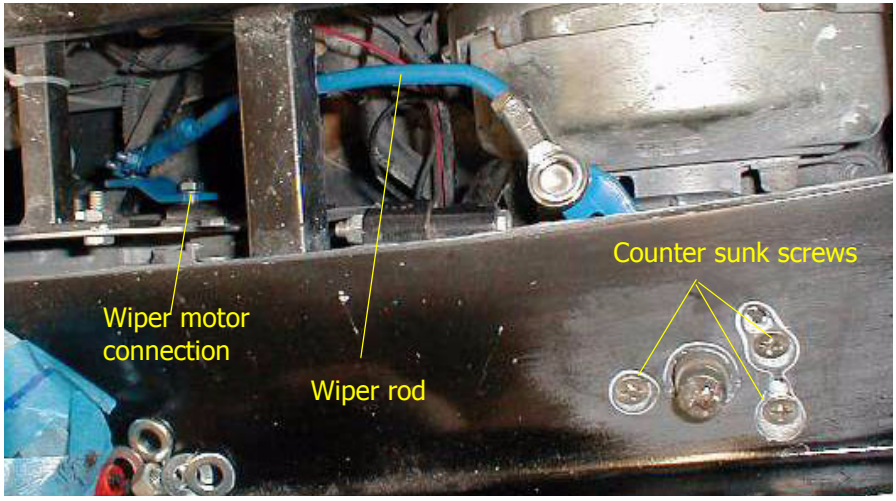
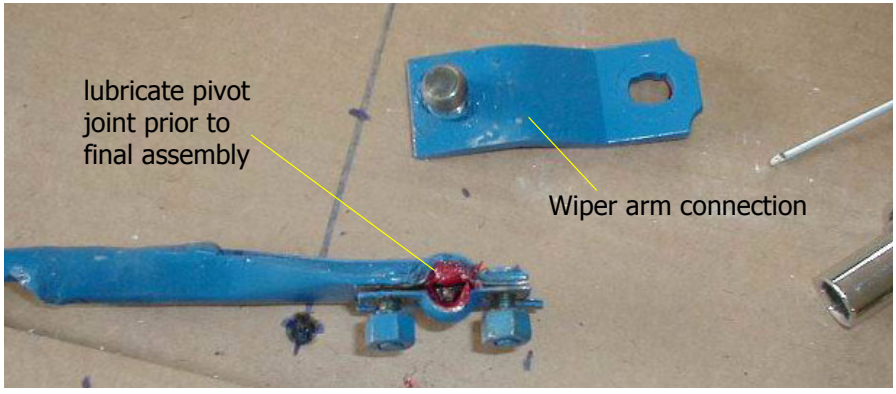


FIGURE 154. Final assembled arm components



Be sure to check the sweep of the wiper arm before the dash and windshield are finally positioned. It is also a good idea to be sure and lubricate the attachment to the wiper motor.



Once the windshield is installed, you can install the wiper blades.

FIGURE 155.

Windshield wiper installed

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CHAPTER 17

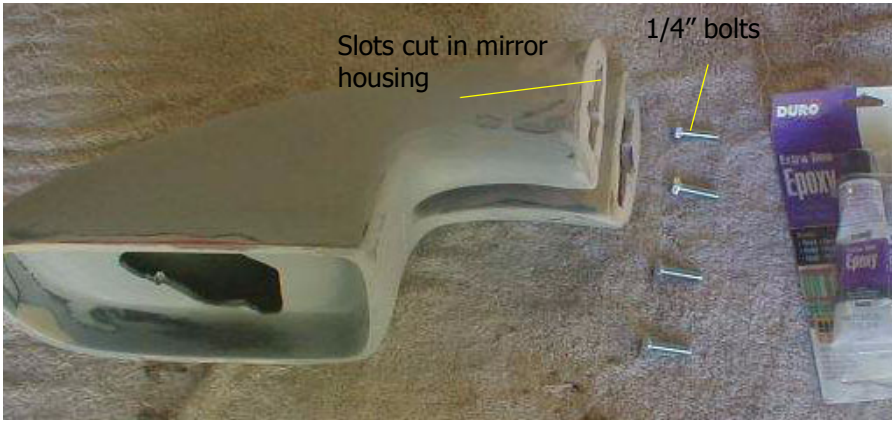
Mirrors

The kit comes with the mirror housings and mirrors that when used in conjunction with the original Fiero motors, you are able to adjust the mirrors from within the car.

Outside Mirrors

The Fiero motors and Fiero Mirror need to be salvaged from the donor vehicle as they are not included with the kit.

In order to secure the mirror housing to the body, you will need to secure studs in the housing that can be bolted to the body.



One technique that can be used is to cut a slot across the mounting point on the bottom of the mirror housing large enough to pass a large flat washer and 1/4" bolt through. These washer and bolt assembly will be epoxied into place. The slot can them be filled in with bondo. Other builders have installed a plate in the mirror and then tapped and drilled the plate using bolts from the body out into the plate to secure the mirrors. Choose the method that works best for your.

The mirror is then positioned on the body and the corresponding holes drilled in the door. The housing is secured from the hole in the door using flat washers and lock nuts on the studs.

FIGURE 156. Mirror mounted

Mirror motors

Check to see what angle the mirror needs to be at for the best possible viewing. Depending on the angle, it may be necessary to remove the portion of the mirror that has the motor cast in place. If so, you will need to fabricate an assembly to hold the mirror motor in place.

It is important to properly align the mirror so that it responds correctly to the mirror controls. When the Up button is pushed, the mirror should tilt up.

The existing Fiero mirror plates are used to secure the new mirrors. Use butyl window tape and silicon sealant to hold the mirror to the plate.

Interior mirror

The interior mirror can be salvaged from the Fiero and reused. However there are several mirrors that have lights built in to them that can be used as well.

FIGURE 157. **Chevy Lumina Mirror**

A Chery Lumina has dome lights built into the bottom of the mirror along with map lights. These can be connected to the dome light switches in the doors.

Because the doors on these cars are normally in an open position when they are parked for people to look at the car, it may be a good idea to have a toggle switch to cut poser to the dome lights to save the battery for such an event.

The wiring can be run through the windshield frame and later covered with upholstery.

CHAPTER 18

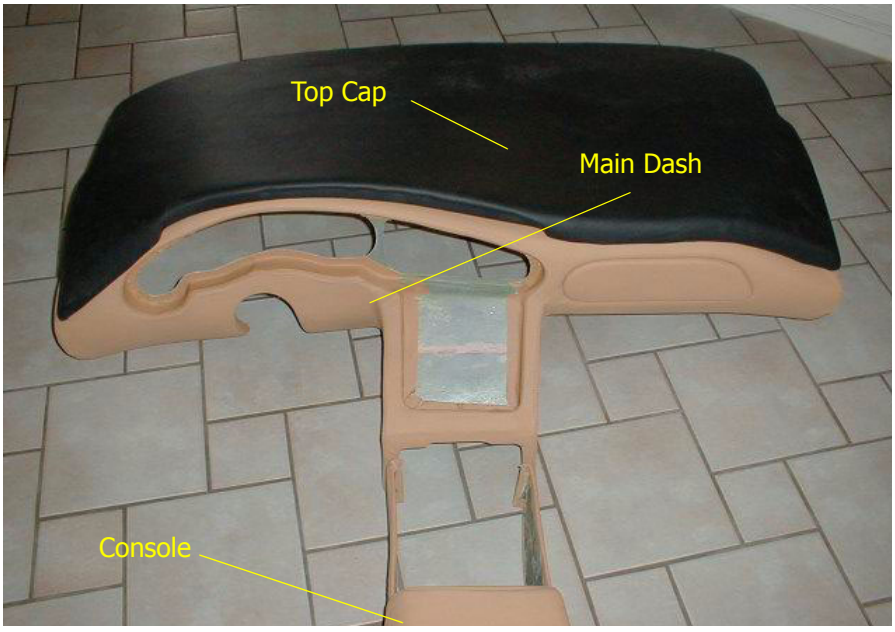
Dash Board and Console

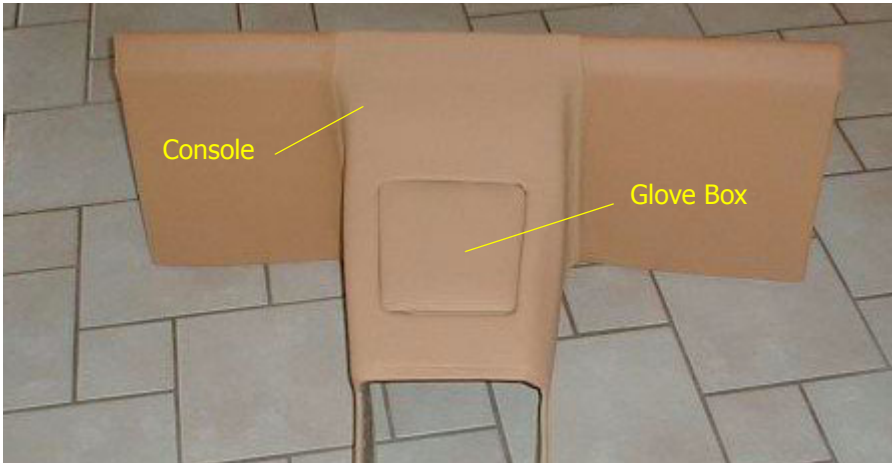
This section will deal with the installation of the dash board and center console. This includes the instruments in the 2000 style dash.The installation of the wiper assembly will also be addressed in this section. The lamborghini steering wheel shown is not included as part of basic kit.

FIGURE 158. **Dash assembly**

Dash Components

The dash consists of the top cap, the main body that houses the instruments and the center console.





Dash Installation

You will begin by trial fitting the main sash section over the framework that has been built over the existing Fiero Dash. On the Roadster because the windshield requires additional structural support, it may be necessary to notch the dash and top cap to fit around these posts.

In making the notch, you can install the main dash piece and then mark with tape the section that will need to be cut out of the top cap to clear the

posts. Simply peel back the leather from the top cap and cut out the neces-

sary section of the fiberglass. Reglue the leather to the dash.

Defroster Vents

There are 4 defroster adjustable vents and two vent slits that are installed in the top cap. Start by determining the location of the 4 adjustable vents. They are typically 5″ back from the front edge of the cap piece. Only the two center vents will be functional, the two outer ones are only for looks.

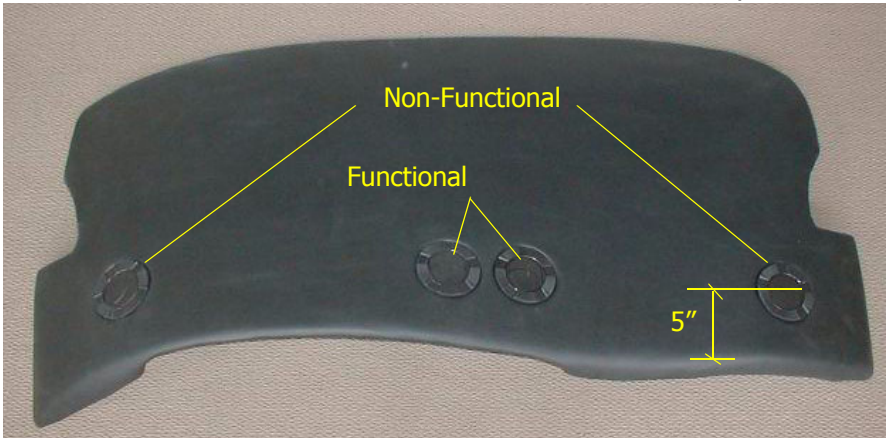


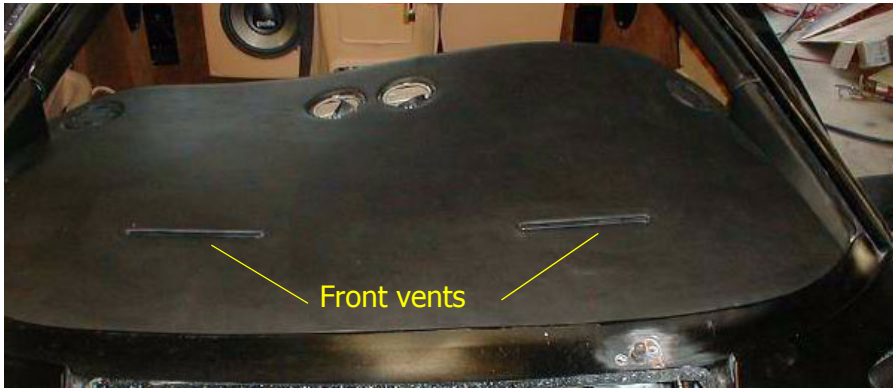
FIGURE 159. Defroster vent locations

To install the vents, start by determining their location and then cutting out a small piece of the leather in the center of the hole. You do not want to drill directly through the leather as the drill bit can tear the foam underneath and damage the look of the dash. Next drill a small pilot hole through the fiberglass. From the back side, carefully drill the opening for the defroster vent such that it just passes through the fiberglass but not through the foam on the top of the dash. Remove the leather over the opening such that the vent can be temporarily placed in position. Determine where the edge of the vent is on the foam padding. You will want to remove the foam padding to allow the vent to be recessed and sit flush with the top of the dash. Once the foam has been removed, reglue the leather to the dash to accommodate the new shape.

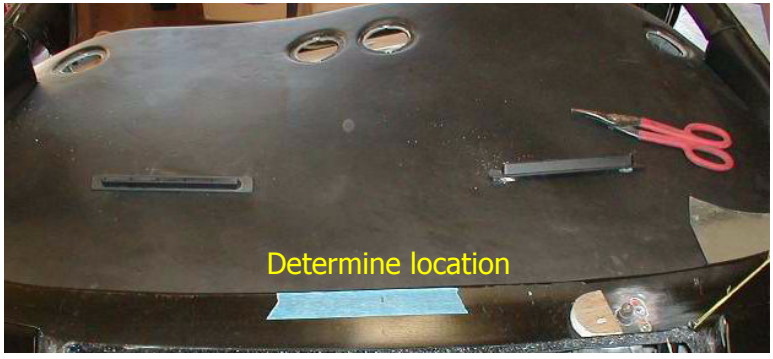
The following illustrations will walk you through the procedure.

FIGURE 160. Vent installation process

Front Vents



Start by determining where you would like the two vents to be located that is most visually appealing. These vents are non-functional. Once the vents are located, drill a very small pilot hole through the top cap at each end of the vent opening. From the underside, carefully use a cutter to remove the fiberglass the size of the opening. Using a file, shape the opening to accommodate the vent. The vent lip is installed from the underneath side of the dash. Prior to installation, carefully cut a slit though the leather and glue the leather to the underneath side of the dash. Now insert and glue the vent from the bottom of the dash.



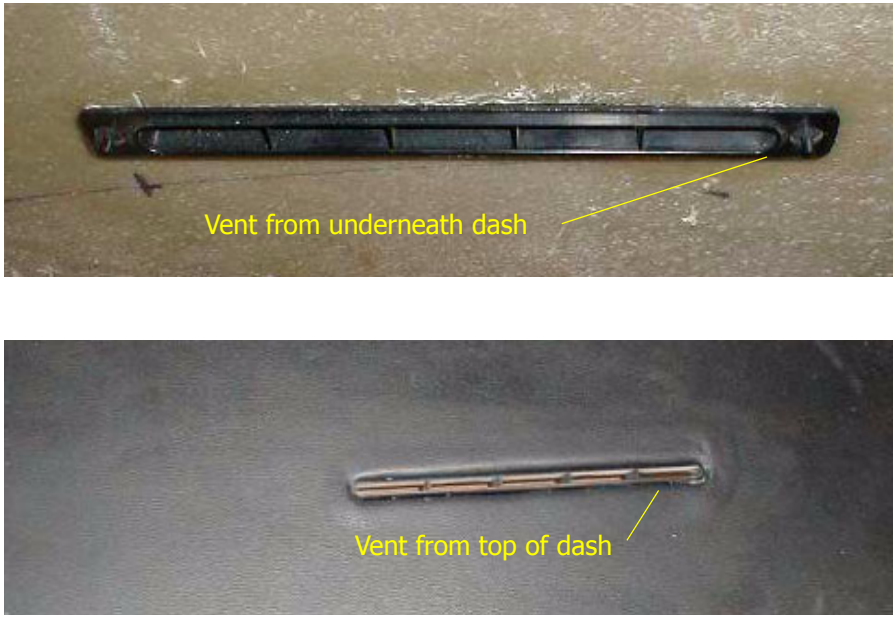


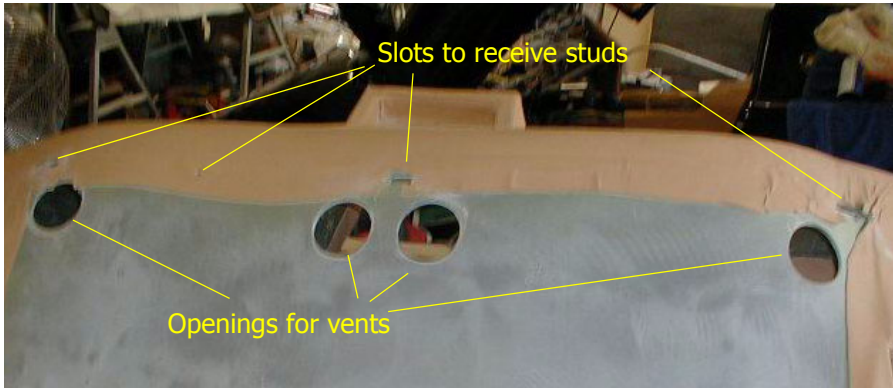
FIGURE 161. **Front Vent**

Connecting Top Cap to Main Dash

Once the dash is installed, it will be necessary to secure the top cap to the main dash. This is accomplished by building and securing studs to the bottom of the top cap. These are 1/4" bolts that have been welded to a flat bar and the flat bar secured to the top cap.

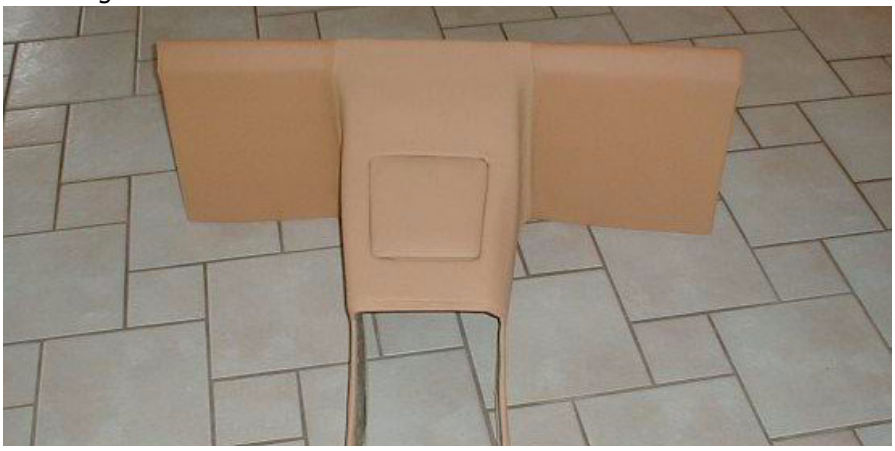
1/4" wide slots will be cut in the main dash to accept the bolts. The bolts are then secured with flat washers and nuts to hold the top cap in place.


Studs bondoed and secured to top cap


Slots to receive studs
Openings for vents

Console

Mounting

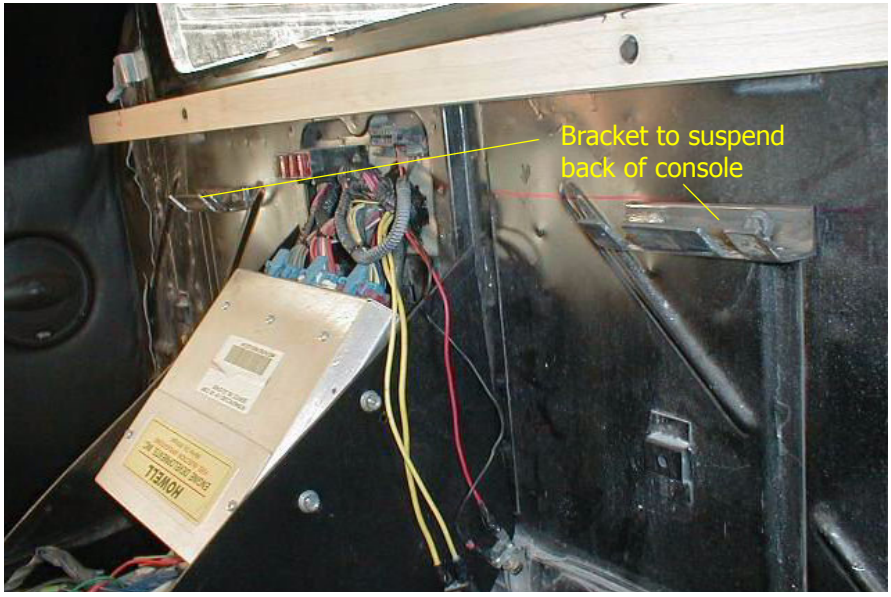


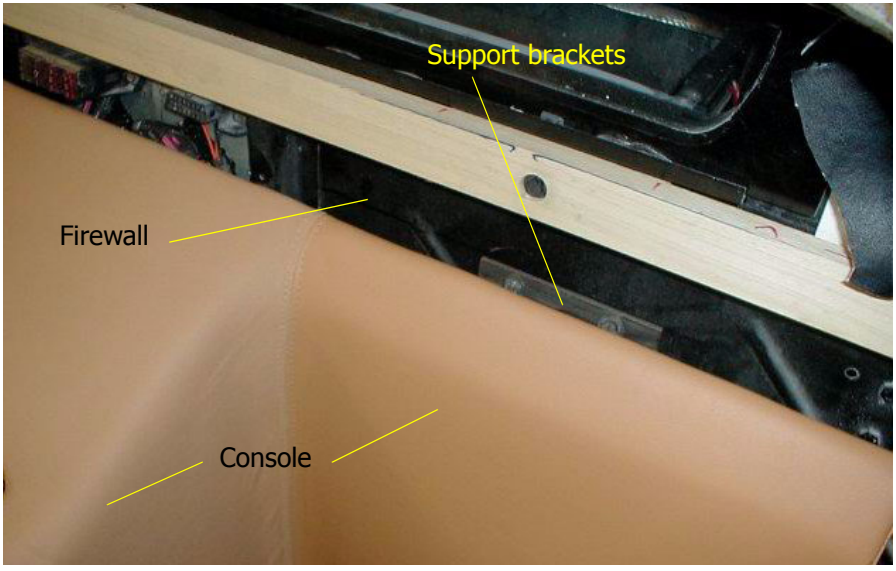
The center console is secured to a frame that has been welded to the Fiero console and then hung off of the Fiero Firewall.

Build a frame out of 1/2" tube that the console will rest on. This frame work is welded to the existing Fiero console. **Make sure that the gas tank is**

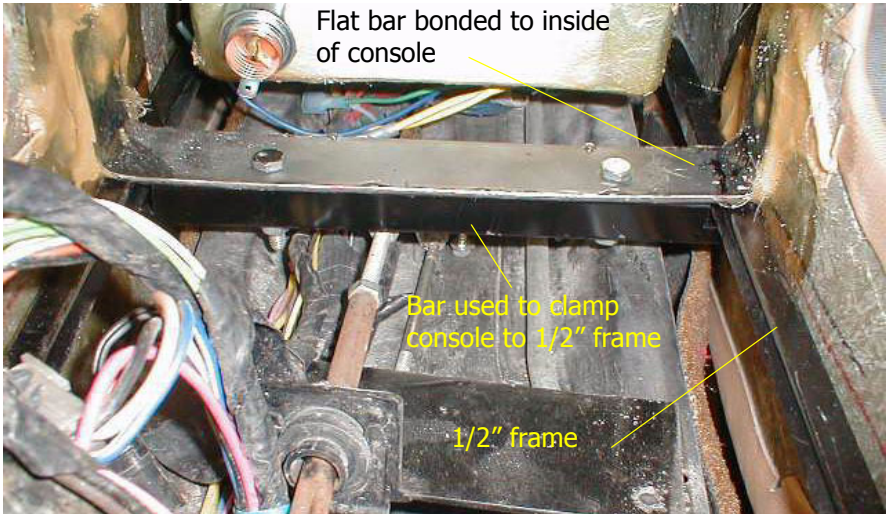
removed from the car when doing this welding to prevent any accidents.

The console is positioned such that it clears the computer on the firewall. Once you are satisfied with the positioning of the console, attach two angle iron brackets to the firewall to support the back edge of the console. These brackets can be bolted or welded to the firewall.





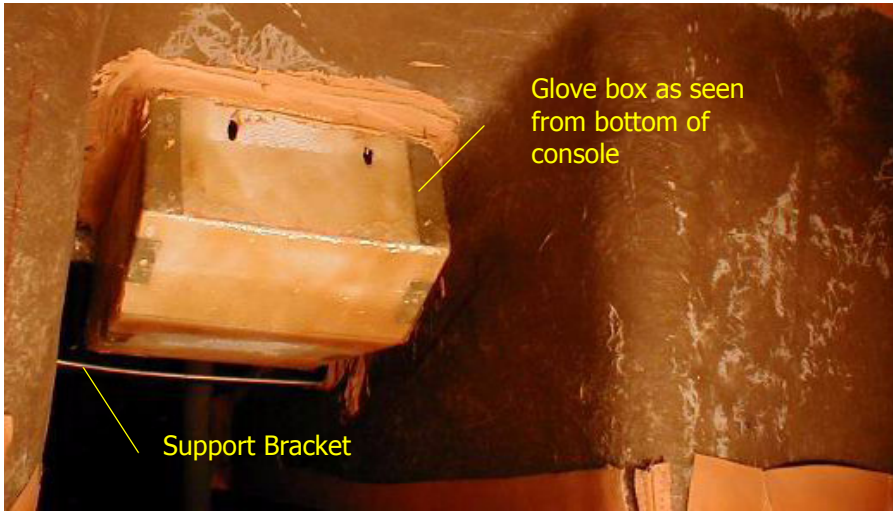
You will also bond a flat bar to the inside of the console. This bar will be used as a clamp to secure the console to the 1/2" tube frame on the Fiero.



Glove Box

The console comes with an opening in the top a glove box. You may elect to construct a clove box and hinge the cover or simply secure the cover for effect.

If you wish to make a functional clove box, you can construct one from FRB board and bond it to the inside of the console.



The glove box cover can be fastened using the original Fiero hinges that have been fastened to a sheet of ABS. The console cover is then secured to the flap.

An alternative method is to use a piano hinge on the edge closest to the shifter and have the top flip open from the back.

Shifter cover

The carbon fiber console insert can be secured to the console with small counter sunk screws. It will be necessary to cut out the opening for the shifter and gate.

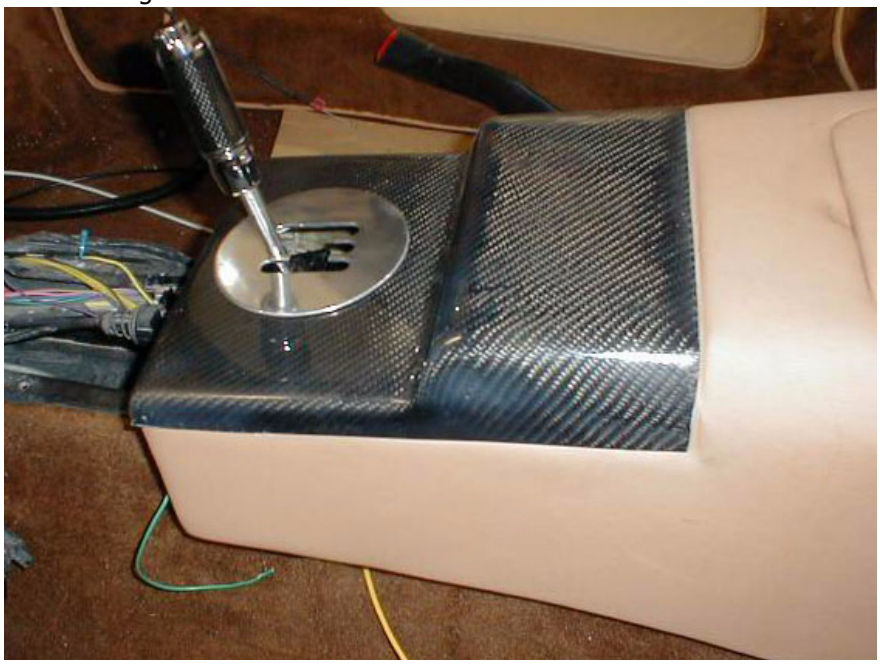


FIGURE 162. **Carbon fiber console**

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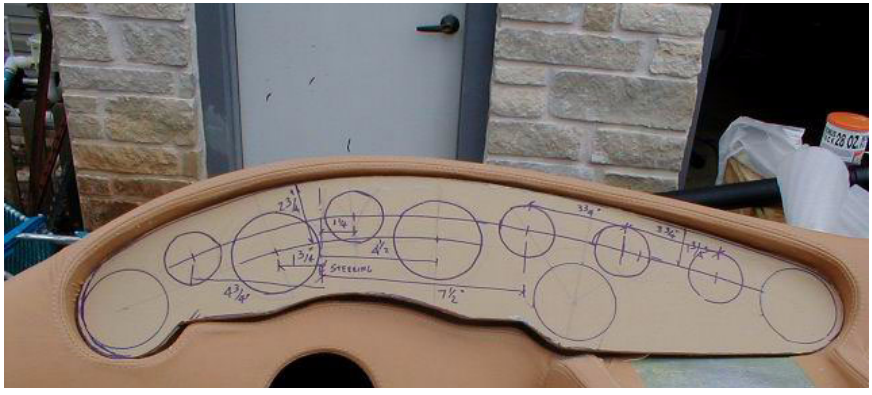
CHAPTER 19

Instruments

Instrument layout

The dash will come with a carbon fiber insert for the instruments. It is best to start by making a template for the gauge locations. One method is to make a template out of plexiglass.

Start with a cardboard template formed to the insert in the dash.



The following measurements are approximate and should be used as a guide.

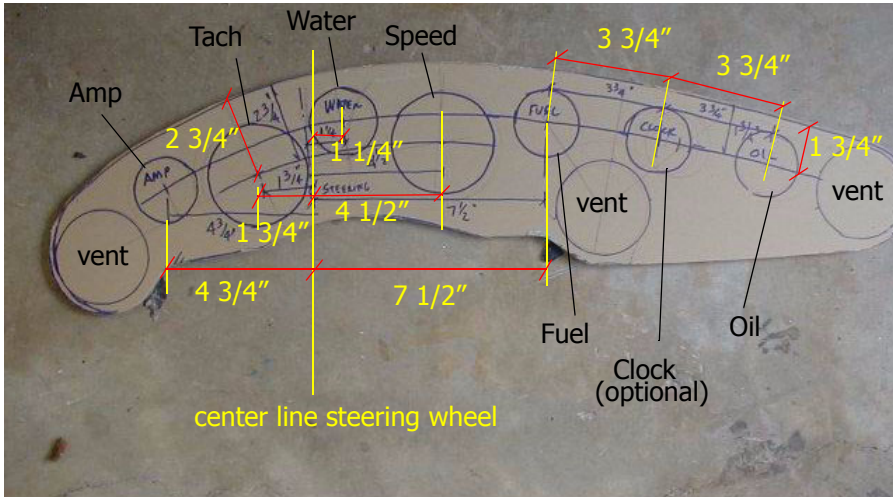


FIGURE 163. Temporary Gauge layout

Now is the time to make a wiring harness to connect the power, ground and light that can be easily disconnected from the dash. The individual gauge connectors will be connected when the instruments are inserted into the dash.

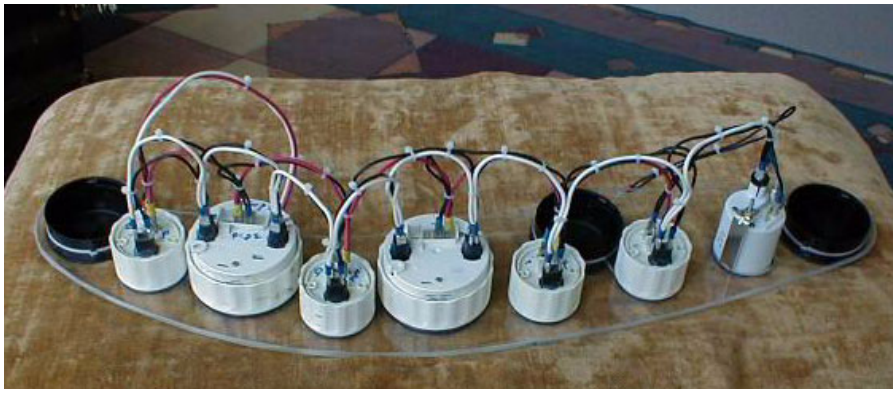
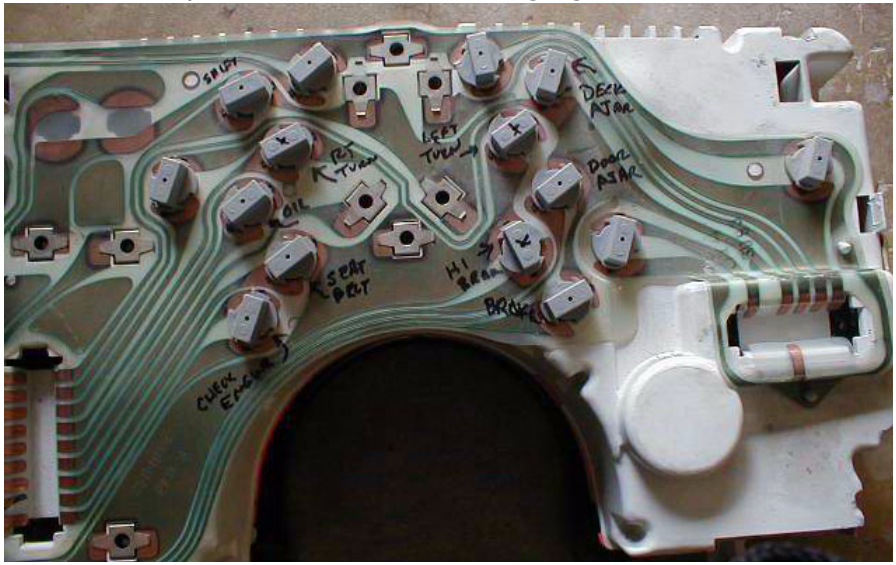
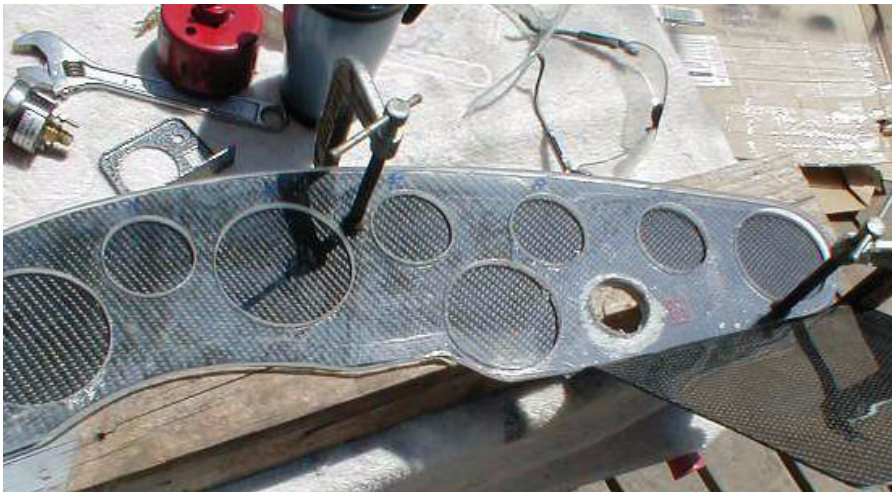


FIGURE 164. **Gauge wiring harness**

The Haynes Fiero Manual wiring diagram is very helpful at this stage. However if you don't have access to a wiring diagram, you can use the Fiero instrument cluster and follow the circuits back to the connector and determine the wires you will need to connect the gauges.



Now that you have a template, the next step is to drill out the locations for the gauges in the carbon fiber. Start by clamping the plexiglass template to the carbon fiber.



It is important to have a template to prevent the hole saw from jumping and marring the surface of the carbon fiber. Go slow and take your time and the results will be as shown below.

FIGURE 165. Finished instrument cluster

Heater connections

You can use the existing heater and A/C controls and box in the Fiero for your car. There are currently three chambers in the heater box. You will actually only be using two.

You will need to make sure that all of the controls are working prior to installing the dash. As you test the heater and A/C controls, you will see what areas open and close for each of the settings. The center chamber will be covered by the top cap that you will be making and is not necessary for your use

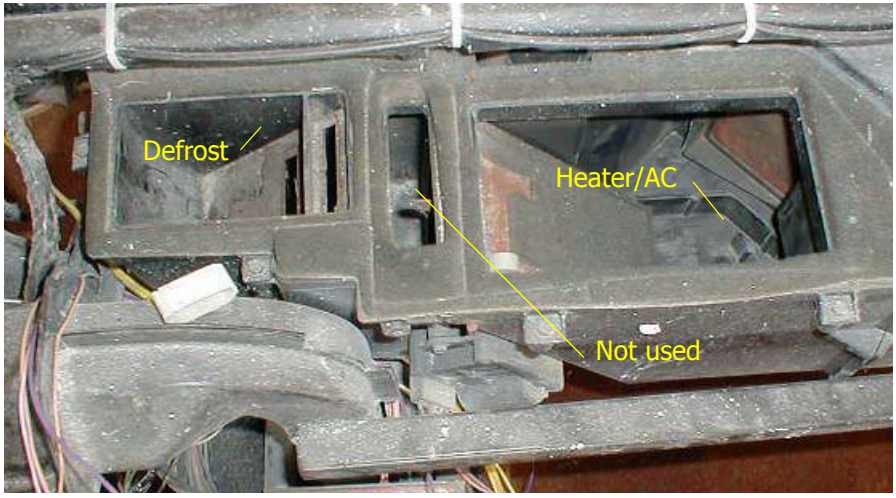
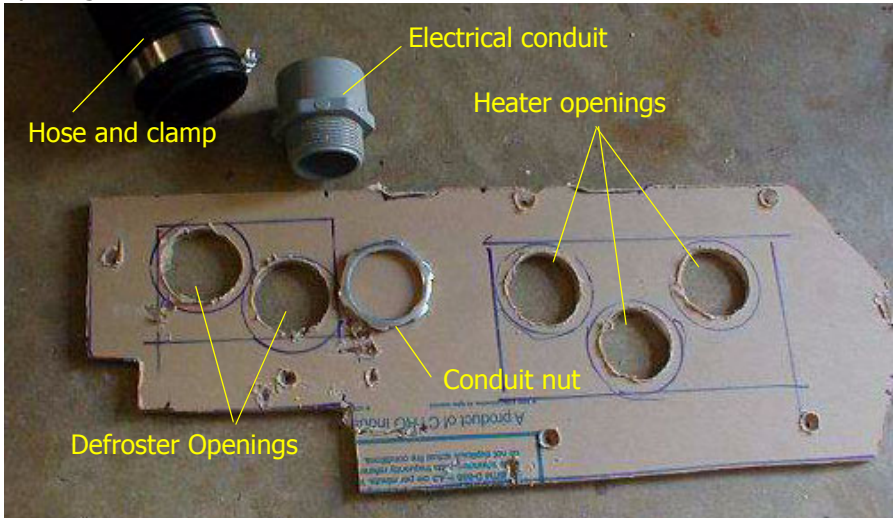
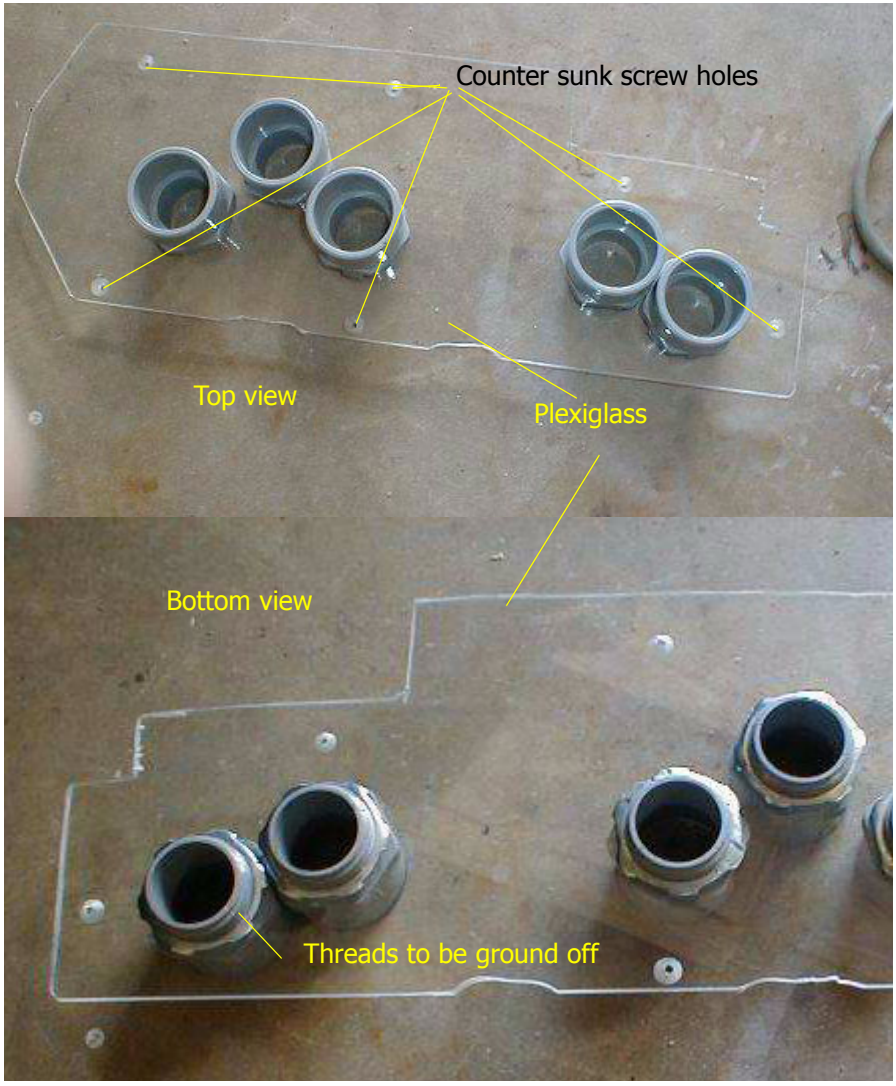


FIGURE 166. Heater control box

You will start by making a plate to fit the shape of the top of the heater box. In this case plexiglass was used to assist in locating where the opening needed to be place. The heater and A/C vents that are in the face of the dash will require three openings while the defroster section will require two openings.



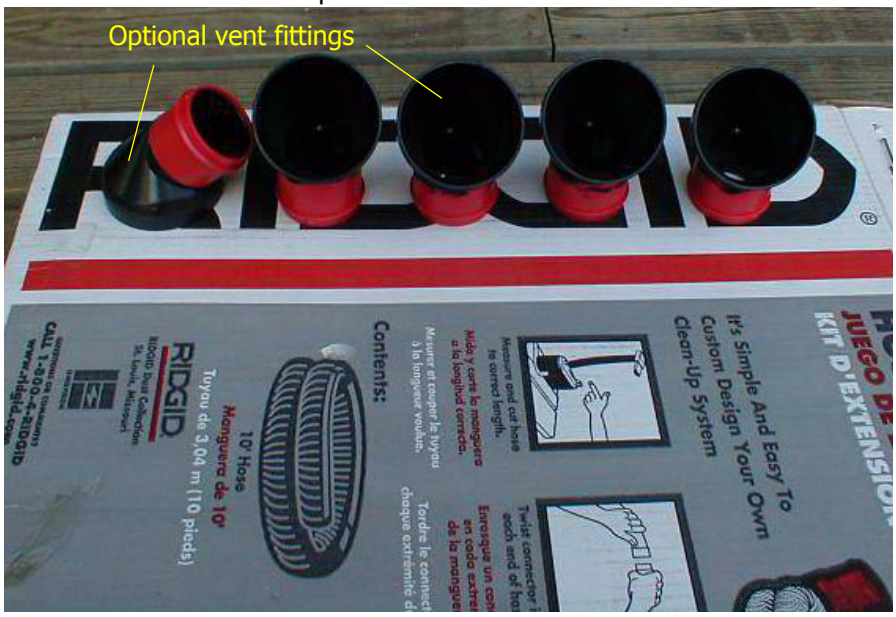
A simple solution to connect the heater hoses to the heater box is to use large electrical conduit connectors that are bolted into the plexiglass. Once they are fastened, then the excess threads are ground off to not interfere with the flaps inside the heater box.



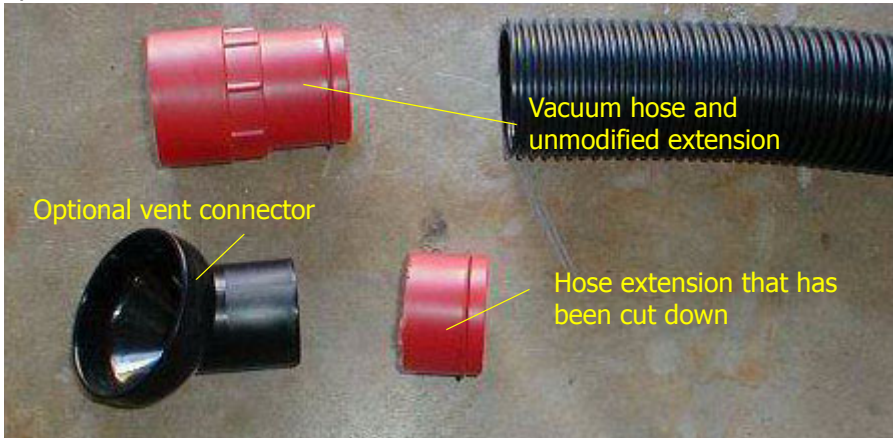
The existing padding on top of the heater box will act as the seal against the plexiglass. You will note that the center chamber is sealed by the plexiglass. There are actually openings inside the chamber that will equalize the pressure.

FIGURE 167. **Heater top in place**

The actual heater hose can be constructed from 2" vacuum cleaner hose from Home Depot. There is a kit that is made for shop vacs that is a 10 extension with connection pieces.



The vacuum hose kit comes with the hose and red extension connectors. There are special 45 degree vent connection pieces that are available as an option that will fit into the red connectors.



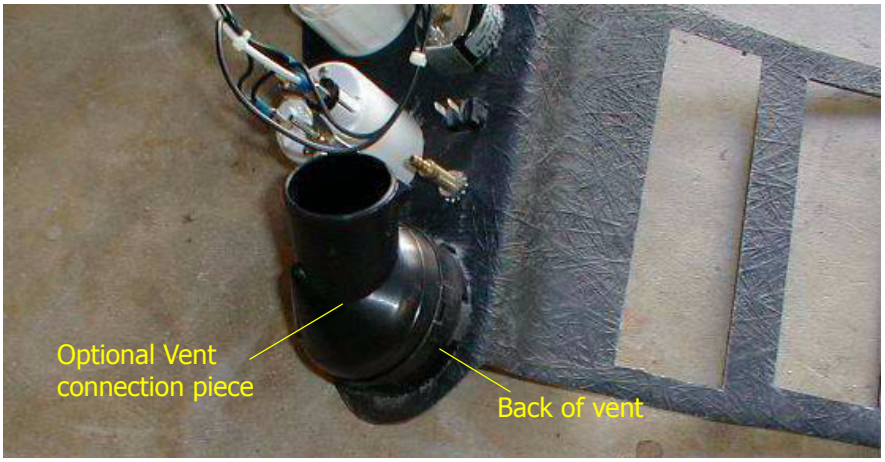


FIGURE 168. **Hose connections for dash**

Only the two center defrosters are actually connected to the heater box. The two outer vents are not functional.

CHAPTER 20

Roof

One of the unique features of the Roadster is that it has a removable roof. As we saw in the Deck Lid chapter, it can be stored on top of the deck lid when it is not in the normal position. The roof is held in place by two pins that are inserted into the windshield frame and two pins that are snapped into holders on the top of the body.

FIGURE 169. **Roof in place on body**

FIGURE 170. **Roof in stored location**

Mounting Pins in Roof

The roof comes with the threaded studs for the front bullet pins. There are threaded catches that have to be installed into the roof structure itself.

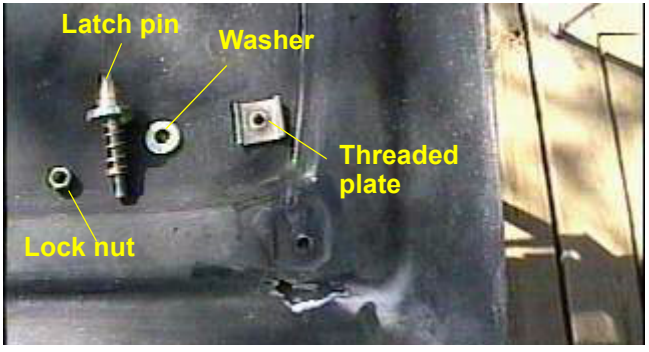
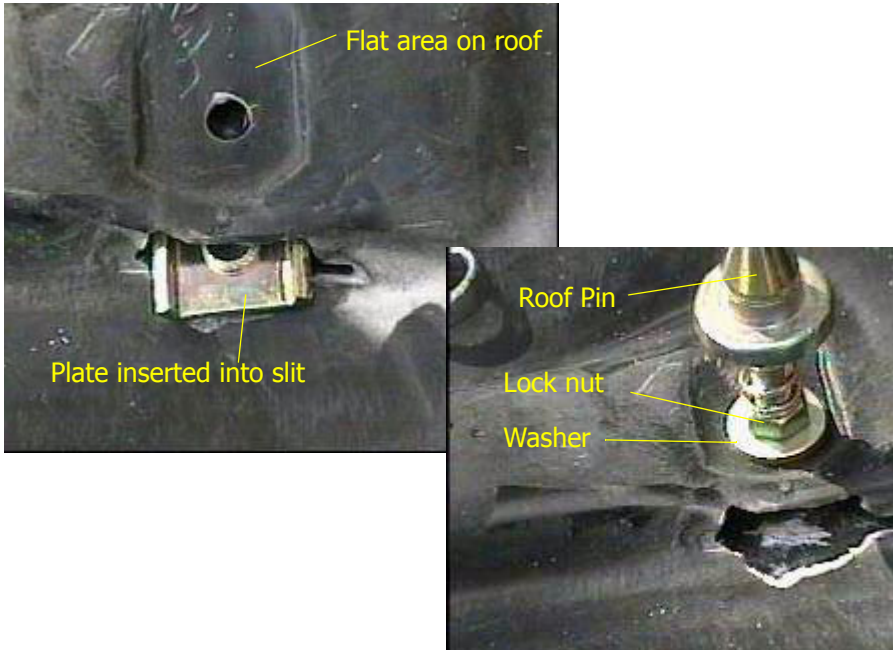
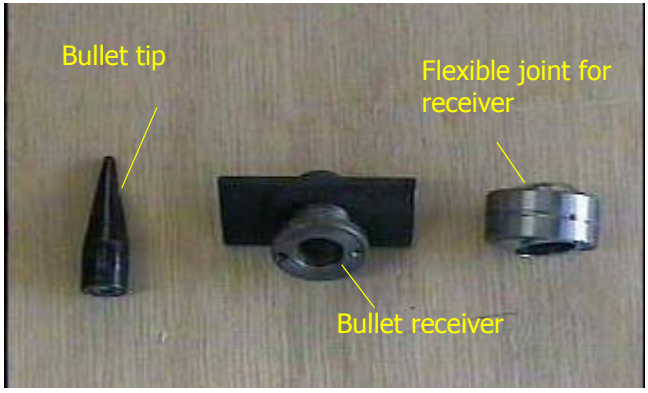


FIGURE 171. **Threaded latch pin pieces**

These pins are located in the two flat areas that are in the roof. It is necessary to cut a small slit in the roof itself to be able to slide in the plate. Once this plate is in place, the lock nut and washer are threaded onto the pin and then the pin is threaded into the plate. The plate can be bondoed in and the slit closed.



Front Pin piece



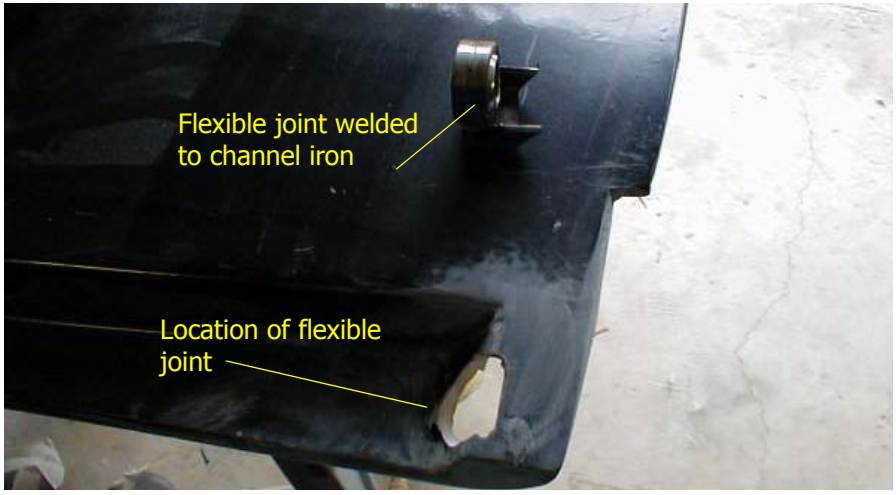
Front Connectors on body

The front connectors that are in the windshield frame actually operate like a ball joint. They will move up and down to allow the roof pins to be inserted with the rear of the roof elevated slightly to allow the rear pins to clear the body. There should be some space between the top of the window edge and the bottom of the roof. This will allow a rubber gasket to be installed.

Front connectors on Deck Lid

The bullet connectors need to be installed on the deck lid in order to accommodate the roof in the stored location. You have two choices. You can install the receiver in the back of the body instead of the deck lid but this will not allow you to raise the engine cover with the roof in the storage location. You may install the receivers in the deck lid in such a fashion that the deck lid could be raised with the roof in the stored location.

The example we are showing is with the receivers in the deck lid. You may have to modify the location in order for the roof to clear the rear window when it is being raised.



To make sure that the receivers line up properly, insert the assembly onto the pins and then position the roof on the deck lid.

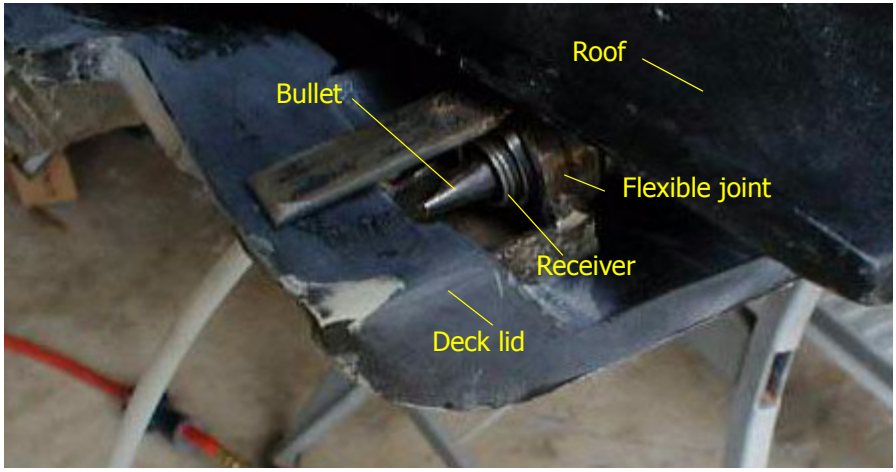
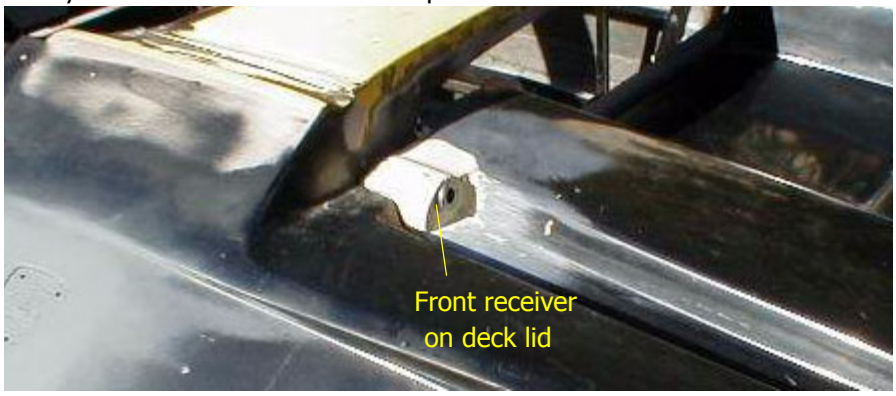


FIGURE 172. Determine location of deck lid front receiver

Now you can secure the receiver in place.



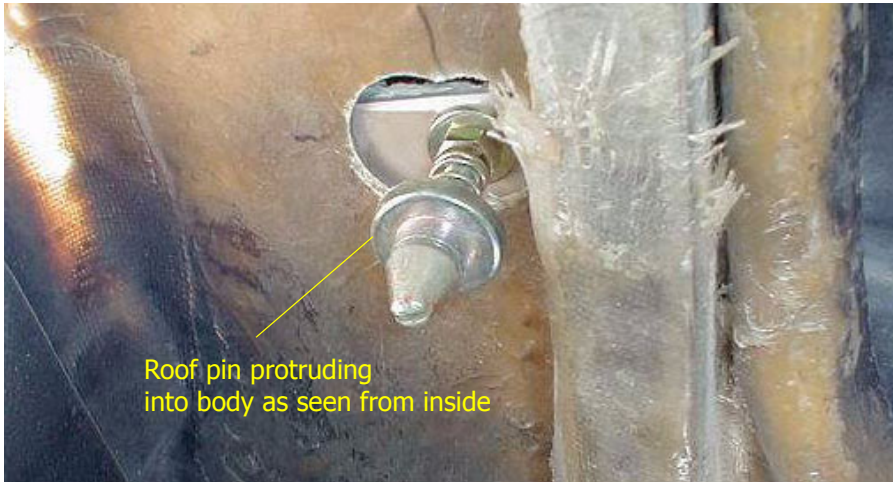
With the front location set, place the roof on the deck lid. The pins in the rear of the roof will now mark the location where the rear receivers are to be installed. See the section on the Deck Lids for the installation of the rear receivers.

Rear Connectors on Main Body

It is important make sure that the receivers on the body and the deck lid are positioned such that roof will fasten properly in either location. The location on the main body requires that the receivers are actually recessed about 1". This requires you to build a framework that will allow the proper location of the receiver.

Start by inserting the front roof bullets into the receivers on the windshield. This will determine where the holes need to be located on the body section.

Drill a hole through the body to allow the pins to protrude into the body.



Next you will need to construct a frame to accept the receiver. You can construct a "T" structure out of rectangular tubing that will go on either side of the pin. This will be bondoed and glassed in place. The receiver will then be secured to this "T" structure for the pin to lock into,

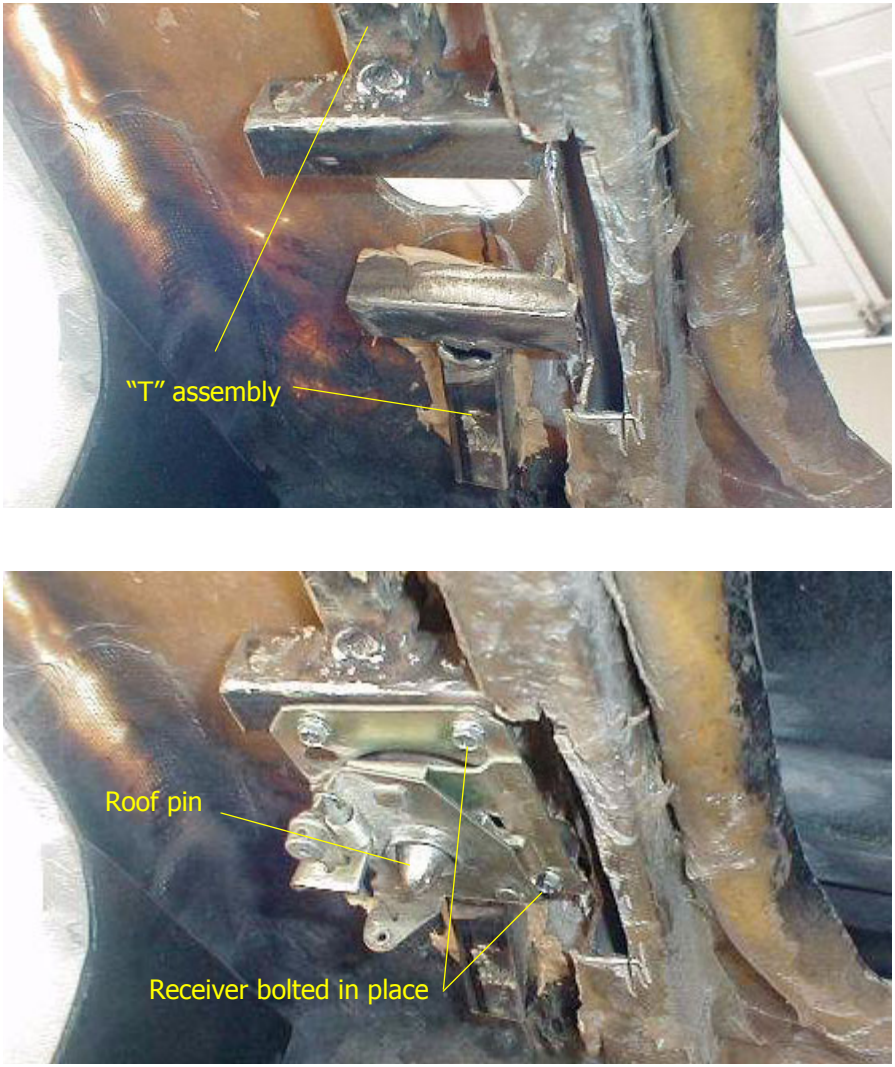
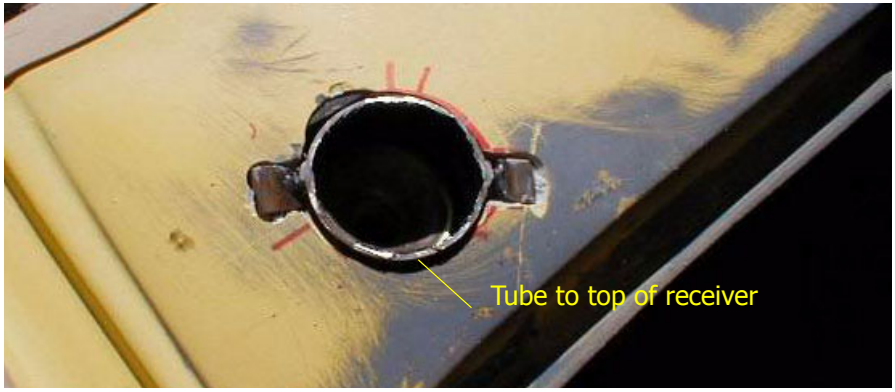


FIGURE 173. Inside "T" assembly

Receiver Tube Construction

Now that the locations for the receiver has been fixed, it is necessary to construct a tube from the top of the body to the receiver. Actually a piece of the stainless steel radiator tubing from the Fiero works ideally.

Enlarge the hole to the same diameter of the top of the receiver. Weld small tabs on the tube that will be slightly below the body line.



Now fill in the gaps with body filler. You can also take this opportunity to create a rubber pad that the roof will rest on.

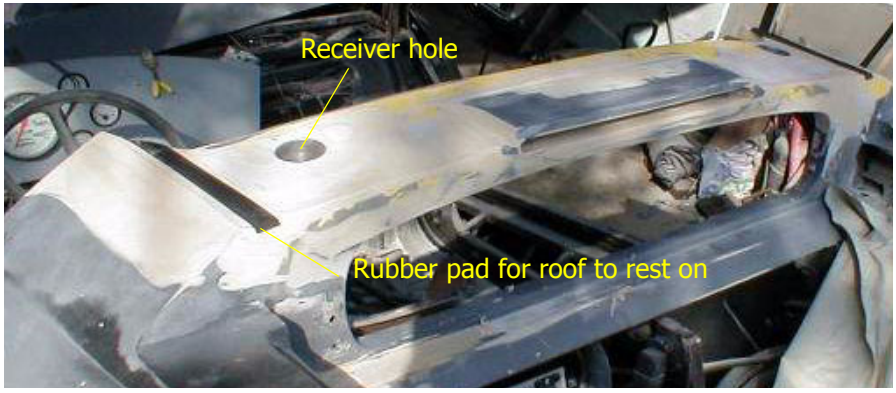


FIGURE 174. **Roof on Body**

FIGURE 175. **Roof on Deck Lid**

Roof Release Mechanism

We will use the original Fiero handles to release each side of the roof. The handle will be attached to two cables on each side. One cable will release the mechanism on the motor deck lid at the same time that it releases the mechanism in the roof. We start by cutting down the Fiero handle

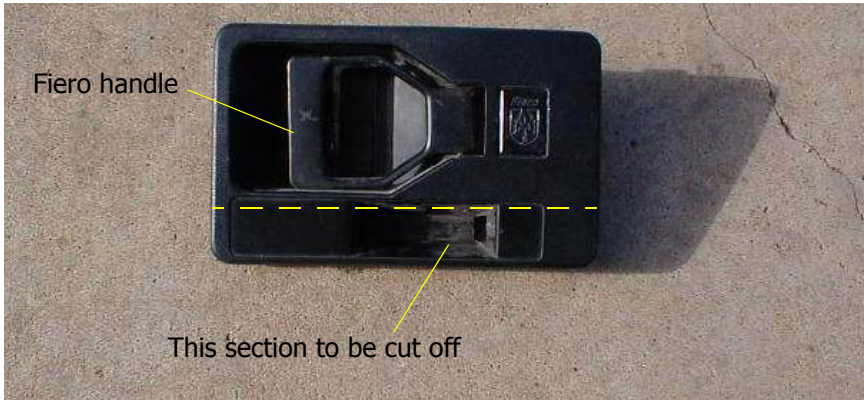


FIGURE 176. Modified door handle plate

Once the base plate is modified, you will need to modify the handle assembly itself to with two brackets. One to fasten the handle to the firewall and one to secure the cable assemblies.

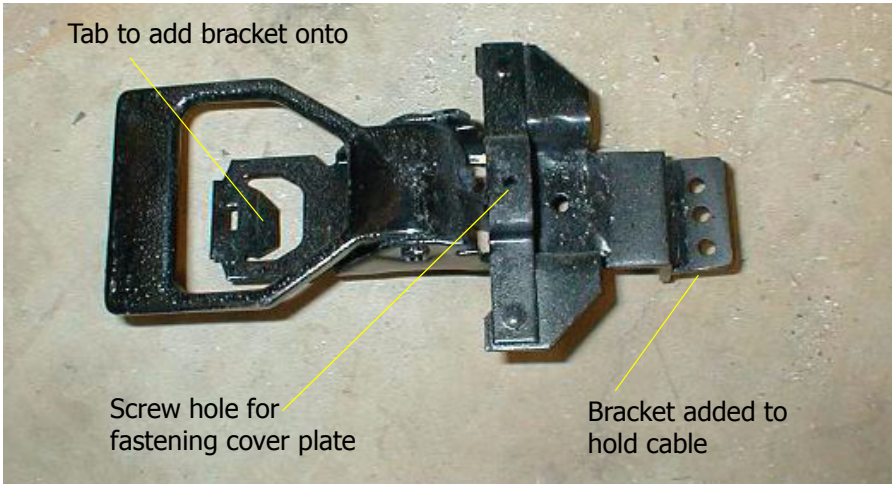


FIGURE 177. Fiero handle - top view

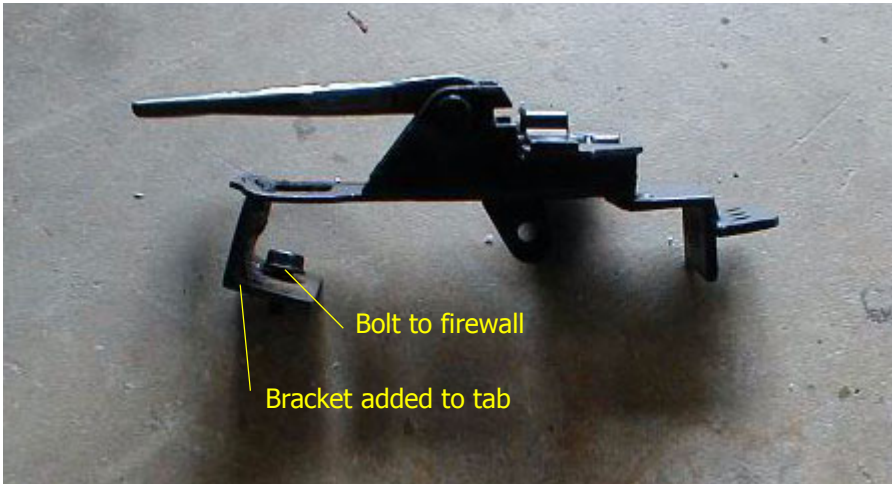
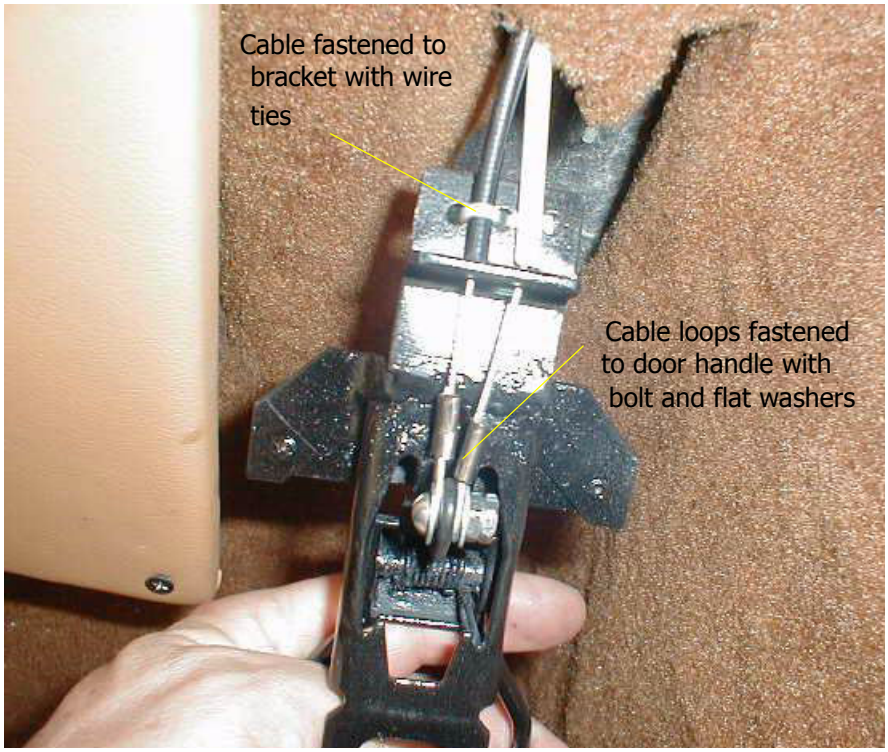


FIGURE 178. Fiero handle - side view



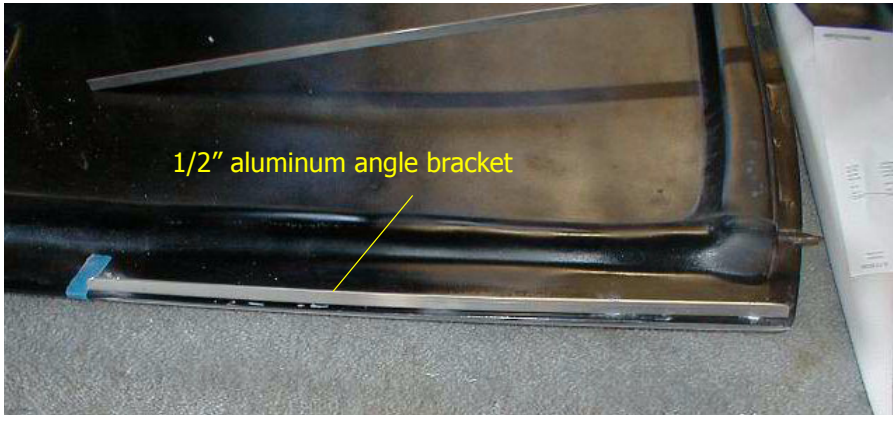
The assembly is now bolted to the firewall and the plate secured to the bracket to complete the installation.

FIGURE 179. Finished roof release mechanism

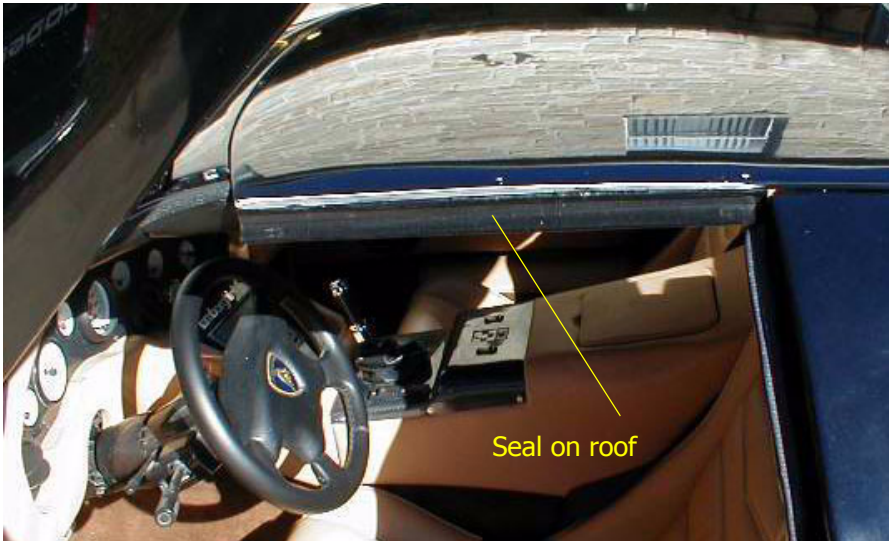
Roof Seal

You need to fashion a rubber seal that will fit against the window when the roof is installed and the windows are in the up position.

This can be accomplished by fastening a 1/2" aluminum angle bracket to the inside of the roof. You will then fasten a piece of weather stripping to this bracket that will seat against the window.



You may need to adjust the angle to ensure the rubber seal is seated against the glass.


Seal on roof


Door closed with window
against seal

CHAPTER 21

Interior

When you get to this chapter you are now starting on the finish that will make your car one that will be complete your hard work. This chapter will cover the installation of the door panels, headliner and carpet. If you have purchased the interior kit, it will come with the seats, dash, center console and all of the carpeting needed to finish out the interior.

Interior pieces

FIGURE 180. Door Panels

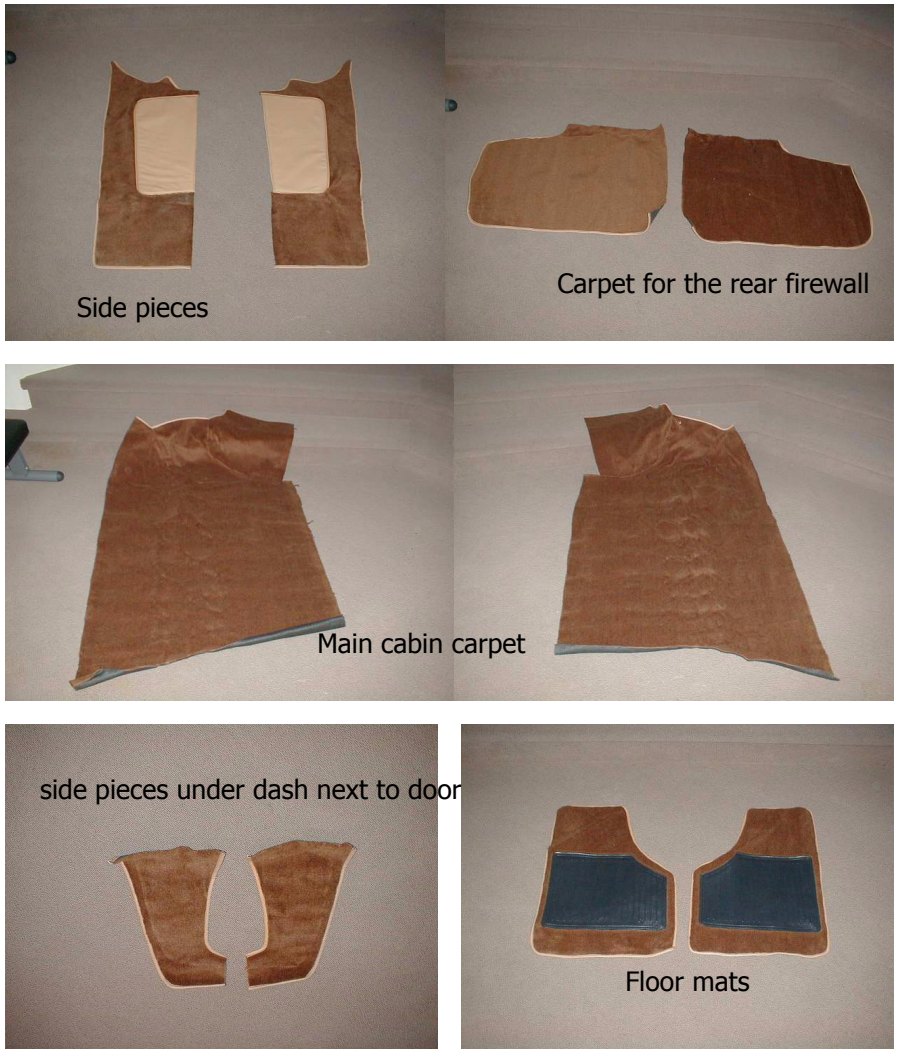


FIGURE 181. Main carpet pieces

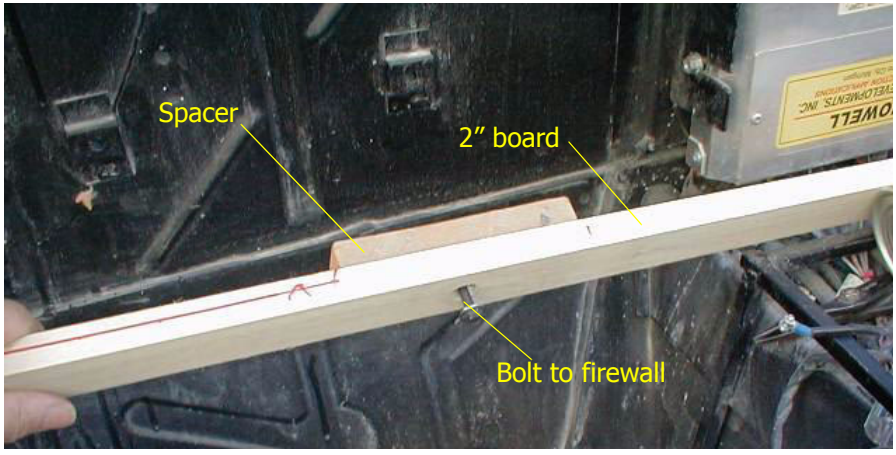
Side Panels

The kit comes with side door panels that close in the opening between the body and the Fiero tub at the door locations. The panel is bondoed to the side of the body and the panel glassed to the tub.

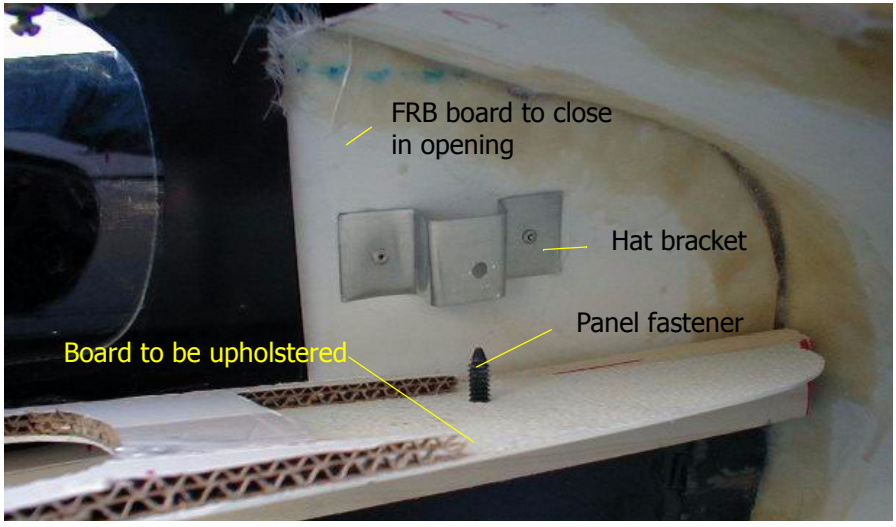
The areas from the firewall to the back of the door are filled in with FRB board. The FRB board is then glassed in place to produce a sealed area. You can mount your speakers in the FRB board. You will need to use the speaker hole to gain access to the cable guides for the roof release.

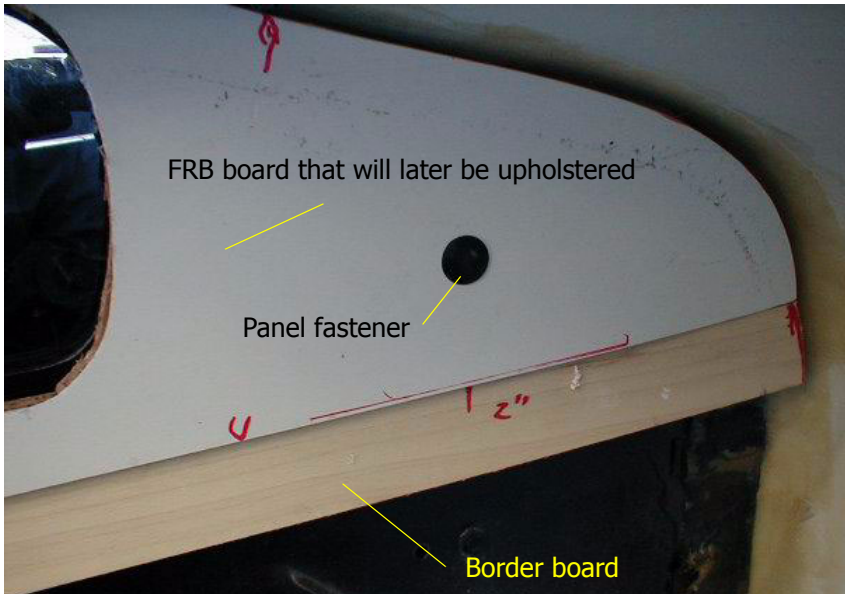
FIGURE 182. Side Panels

For the firewall, install a 2" board that will be used as a border for upholstery around the rear window and carpeting below. This board is bolted to the firewall and uses a wooden spacer to provide an offset.



The gap above the firewall to the roof is closed in with FRB board and glassed into place. A simple tin hat bracket is fabricated and pop riveted to the FRB board. An upholstery panel fastener is used to secure the second piece of FRB board that will be upholstered and attached to the rear hat bracket.





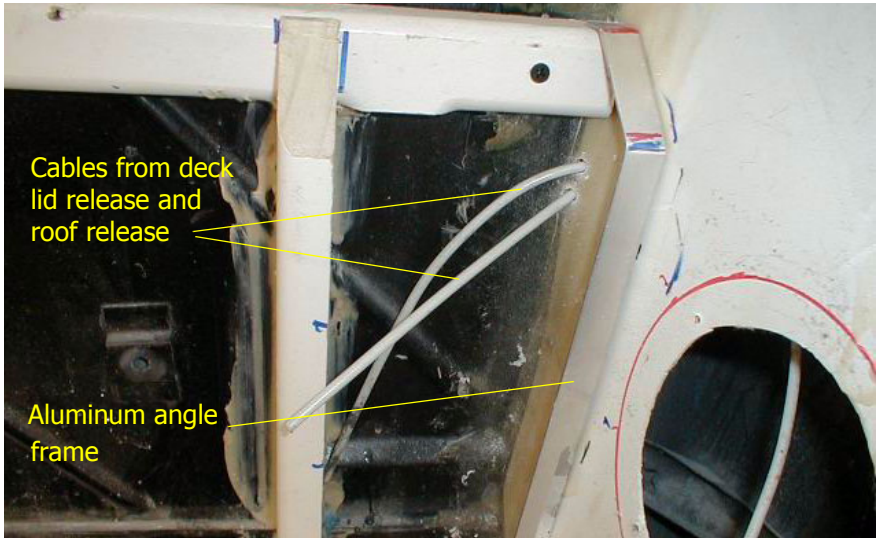
Framing for Roof Release Assembly

Part of the interior is to accommodate the roof release mechanism. See the Roof Section for the assembly of the release mechanism. We will start with creating an area to mount the handles.

Once the center console location has been determined, you will frame in an area on either side that will later be covered with carpeting and finish out the firewall area in back of the seats.

The framework is glued and secured to the firewall with screws. You will need to construct a frame on the FRB from aluminum angle iron to form the housing to support the Fiero handle.

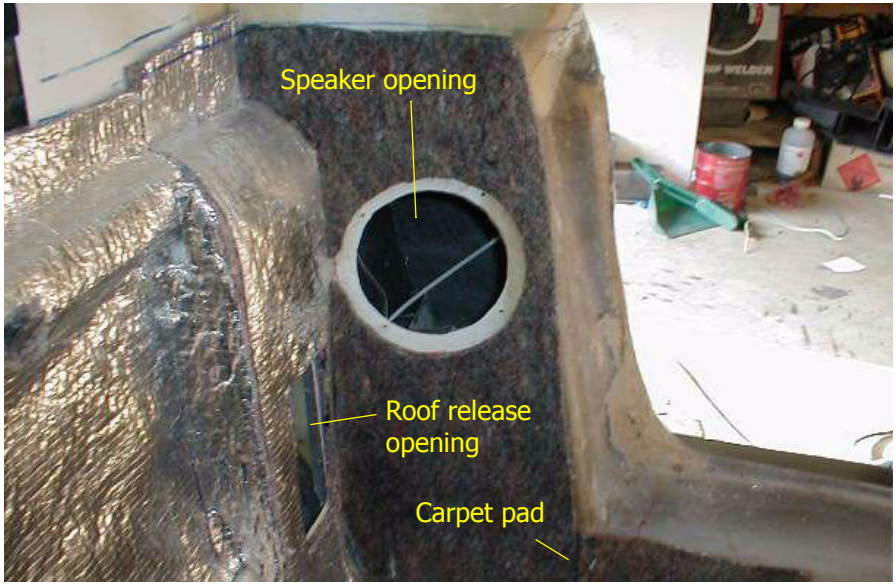

Brackets to support console
Framework


Cables from deck lid release and roof release
Aluminum angle frame

Fill in the area between the wooden frame and the aluminum angle with FRB board. Cut a square hole to accommodate the Fiero door plate. This area is covered with heat resistant insulation.

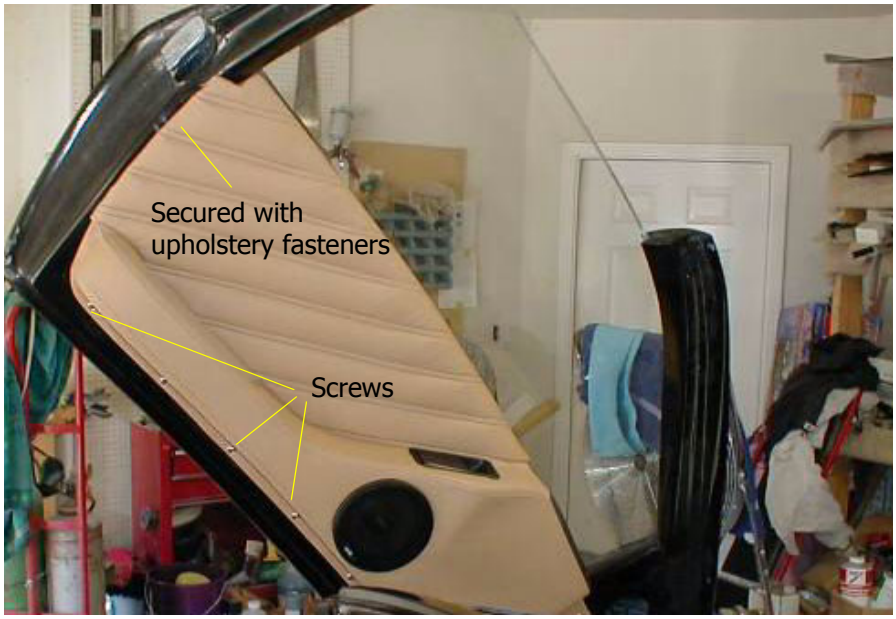
The sides are covered with the carpet padding to cut down on road noise. Once this is completed, the area is covered with carpet that is glued to the top of the padding with spray adhesive.

When you cut the padding around the speaker opening, cut it back from the opening so that when the carpet is glued, it will still allow the speaker cover to be recessed into the carpet.



Door Panels

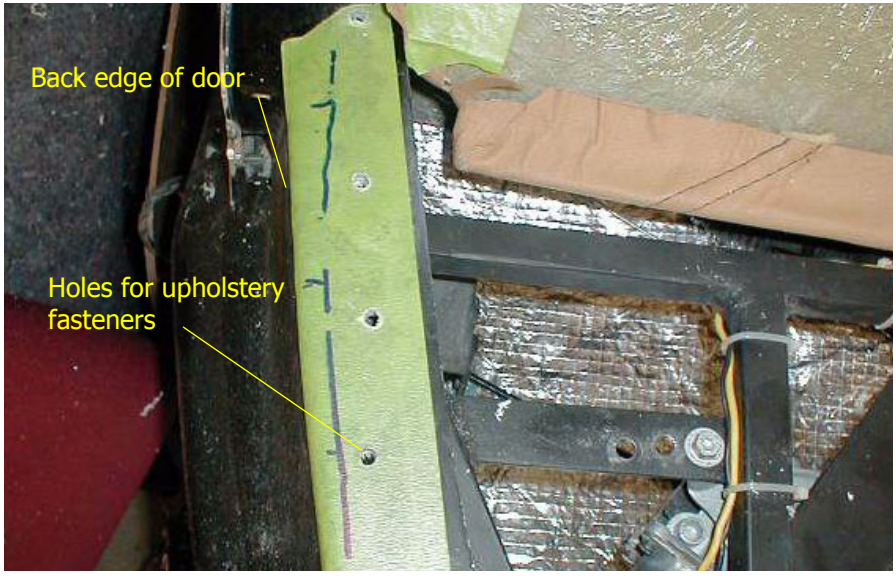
The door panels are secured to the frame by an "L" bracket accessible through the speaker opening. See the Doors section. The rest of the panel is fastened with upholstery fasteners on the back edge and screws on the bottom and front edge.

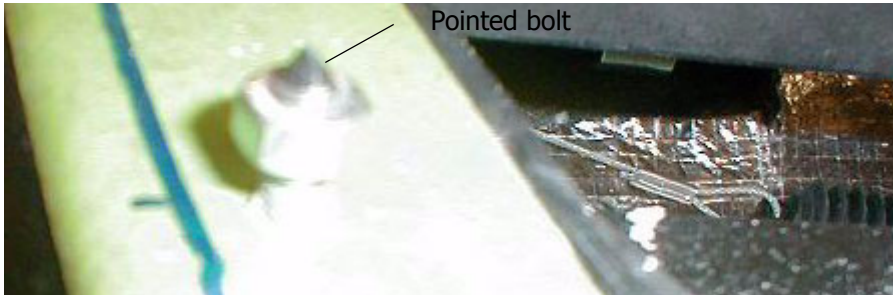


Upholstery Fasteners

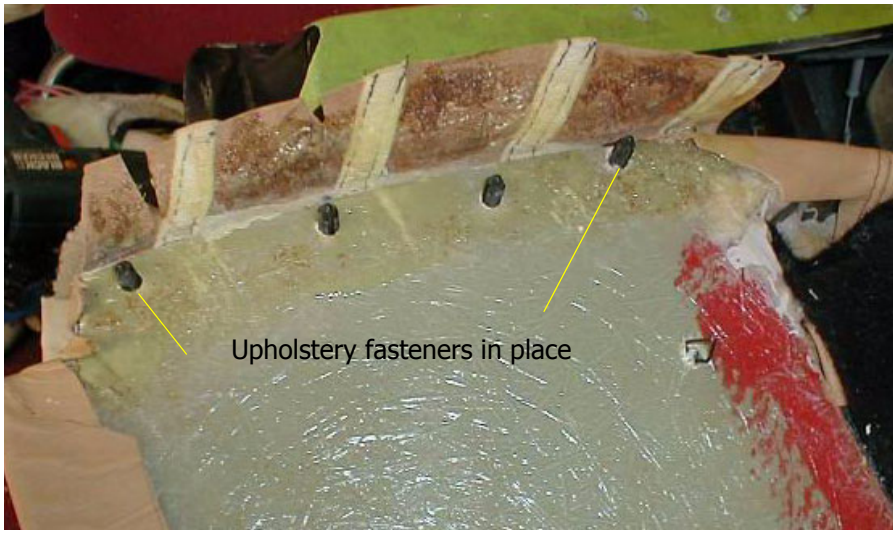
The back edge of the door panel is secured to the door with upholstery fasteners. Start by placing masking tape on the inner door frame. Set the panel in place on the door and mark the edge of the panel. Remove the panel and drill 1/4” holes evenly spaced along the back edge of the door.

In order to determine where the proper location should be for the fasteners to align with the holes, Take a 1/4” bolt, cut the head off and grind it to a point. Thread a nut on the bolt and place it in one of the holes. Now set the panel on the door and press down on the pointed bolt. This will leave an impression where to drill the hold in the panel.





Peel back the upholstery on the inner door panel and drill the first hole. Insert an upholstery fastener through the hole and place the panel back on the door frame. With the first fastener partially inserted into the first hole, you can mark the remaining holes. Once all the fasteners have been inserted, you can glue back the leather to the door panel.

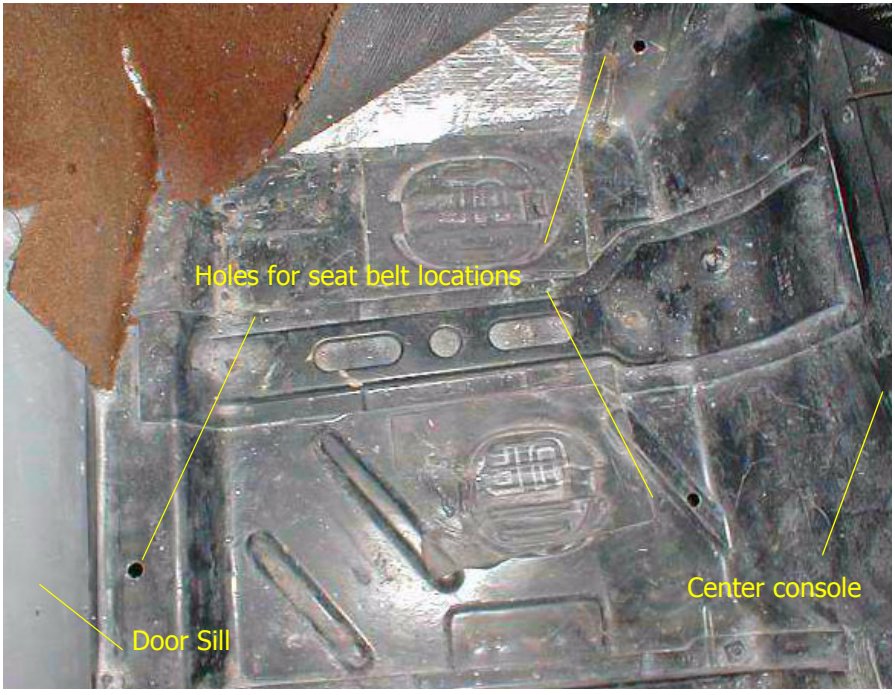


Now secure the panel to the door frame by pushing the upholstery fasteners into the holes on the door frame. Bolt the panel through the speaker opening and then use chrome screws and caps to secure the bottom and front edge to the door.

Seat Belts

Before you install the carpet, you will want to locate the seat belt brackets installation points on both the floor and the firewall. Once these points have been located, continue with the carpet installation.

The seat belts will be bolted in once the carpet has been installed. To find the holes after the carpet is installed, use an awl that is worked through the pad and carpet.


Holes for seat belt locations
Center console
Door Sill


Seat Belt connection
to firewall

Carpet

The carpet is installed over the top of the felt carpet padding that is supplied as part of the kit. Cut the padding to the proper shape and then use spray adhesive to glue it to the Fiero chassis.

Test fit the carpet to make sure that it fits properly. Once you are satisfied with the fit, use spray carpet adhesive to secure it in place.

FIGURE 183. Carpet Pad

The panels on the sides of the dash are filled in with FRB board and then covered with a thin foam. Actually a headliner padding will work well in this situation.

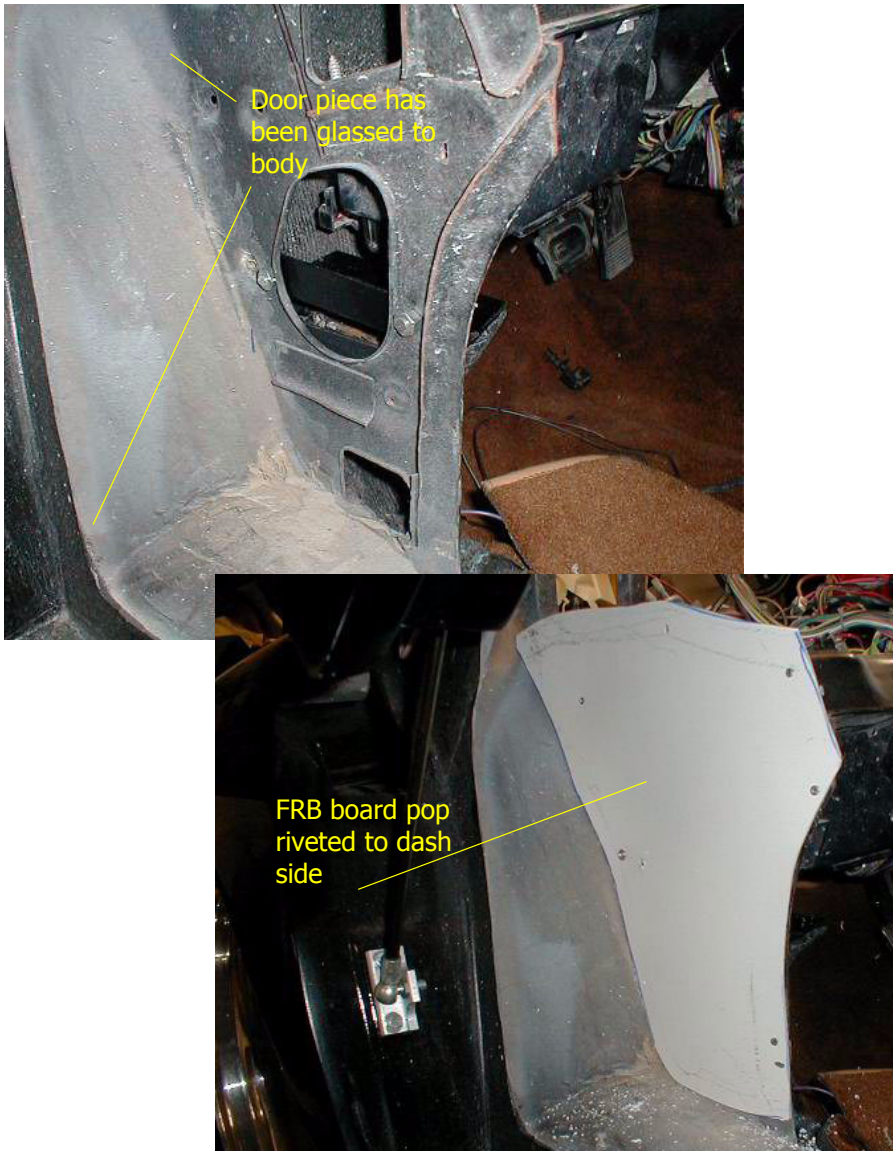
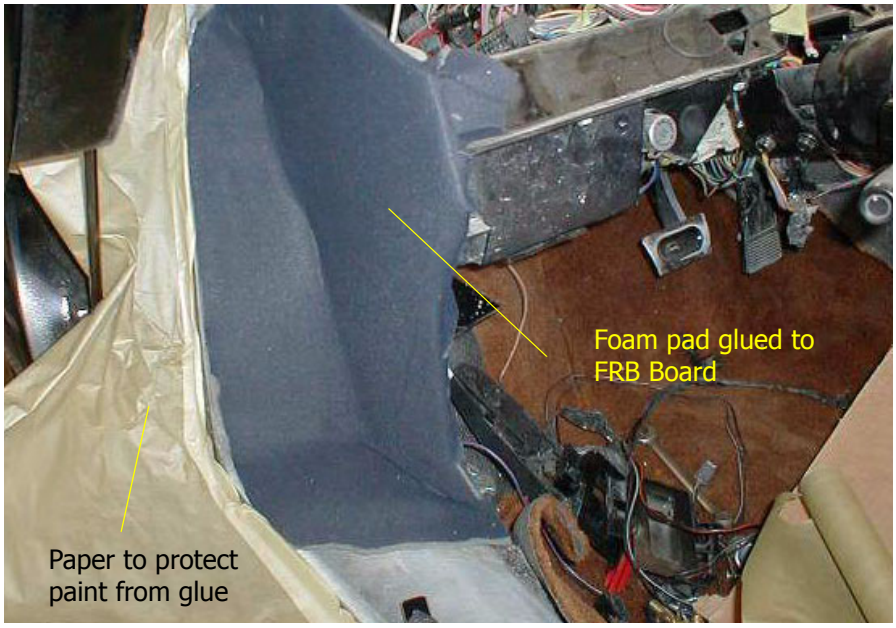
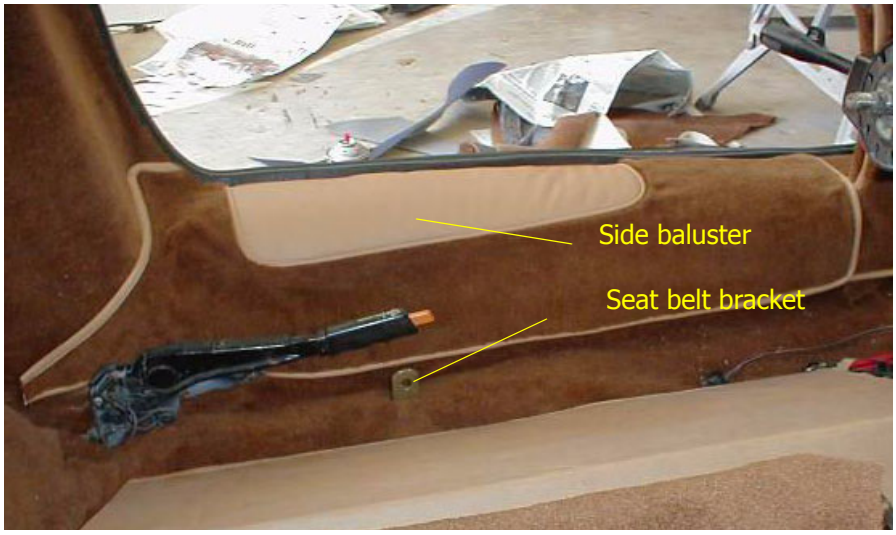


FIGURE 184. **Dash side filler**



Now glue the carpet to the foam to complete the door jam area.


Door seal
Leave extra leather to wrap
under weather stripping



Complete the interior covering the side panels, back window and top with foam and vinyl to give a finished look.

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CHAPTER 22

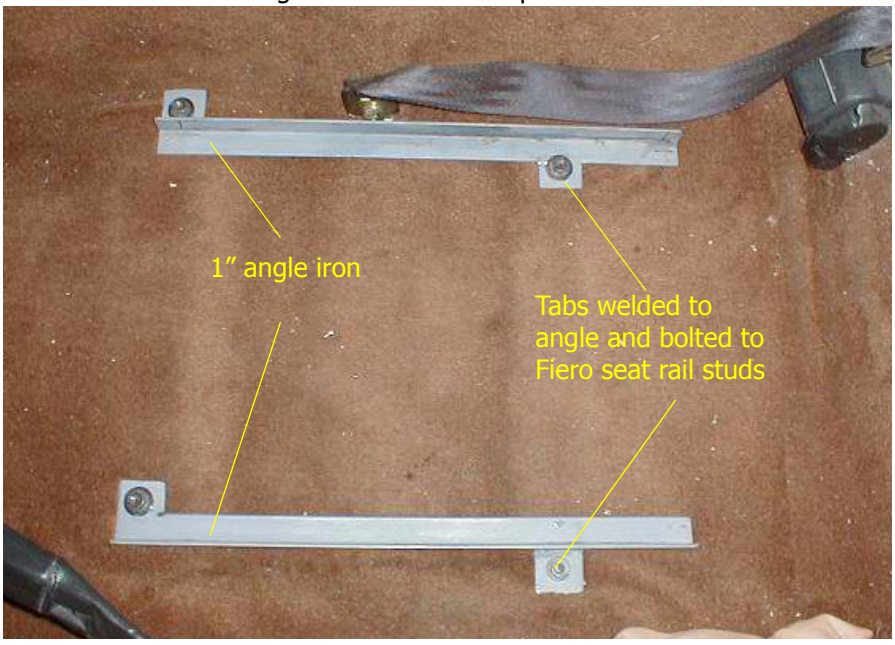
Seats

This section will show how to install the seats. The headroom in the Diablo is very limited. Depending on the height of the driver, you may use the Fiero seat rails to allow moving the seats. This option is going to lower the seats to sit nearly on the carpet to allow more headroom. The seats them selves will be in a fixed position.

These seats are part of the optional leather interior. There are two rows of studs that will be used to secure the seats to the frame.

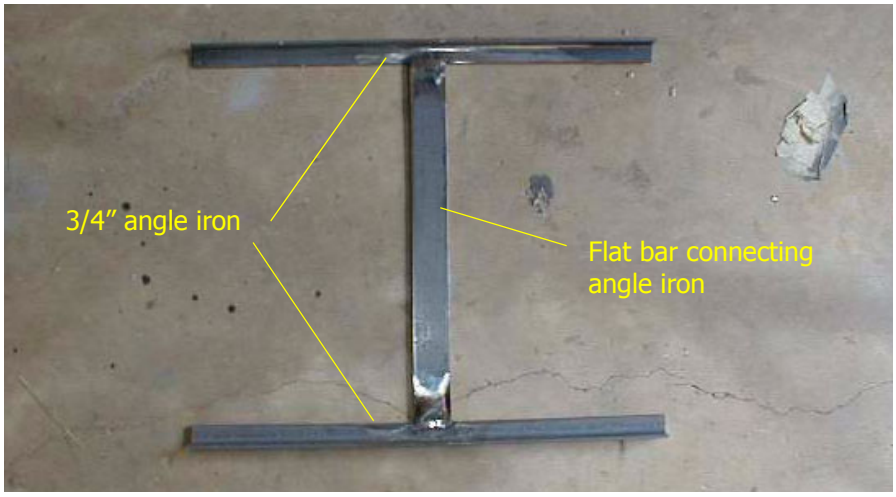
Seat Frame

We will take advantage of the existing studs that were used to fasten the Fiero seat tracks in place. Start by using two 1" angle iron that have tabs welded to them.The angle irons need to be parallel.

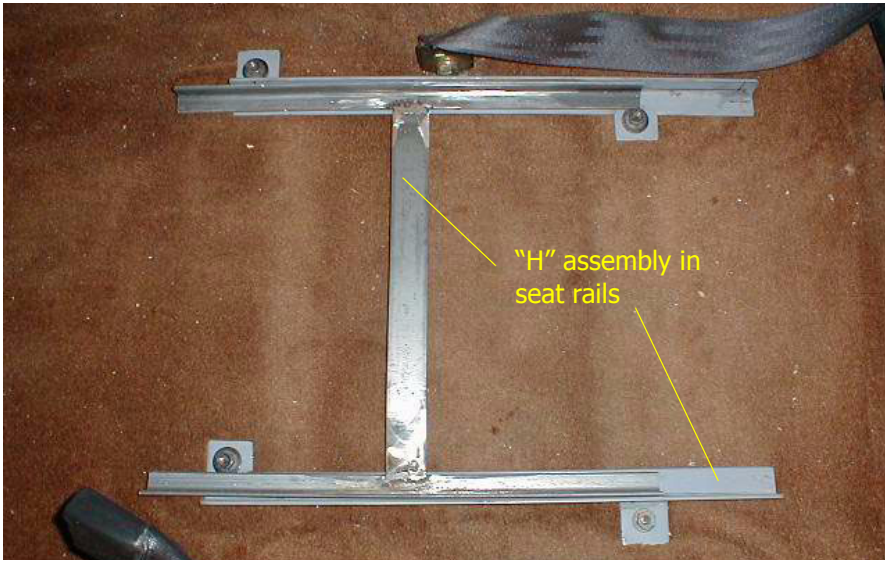


Next we will need to construct an assembly that will fit inside the 1" rails. This will be made of 3/4" angle iron connected by a flat bar to maintain the position. This will make a frame in the shape of an "H". This frame will then be connected to the bottom of the seat.

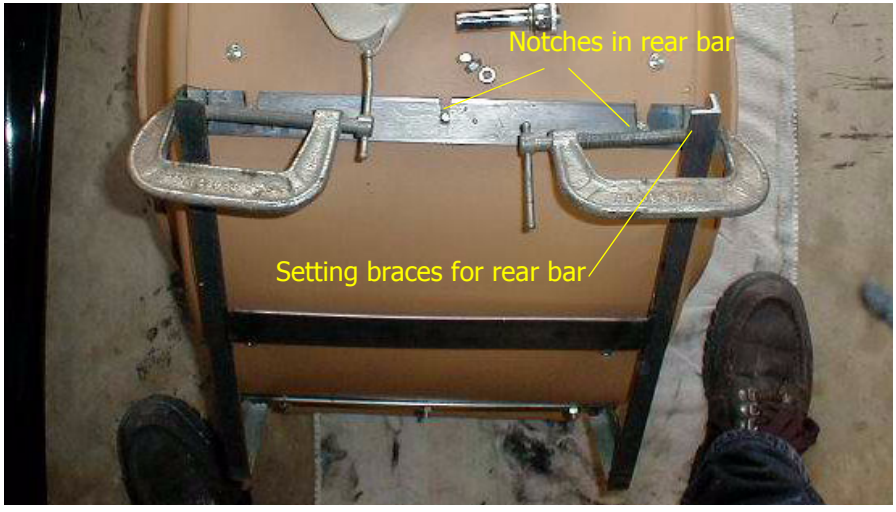
Before this is done, it will be necessary to position the seat in the car to set the proper angle. Once this angles determined, you will complete the frame work that is connected to the existing bolts in the frame.



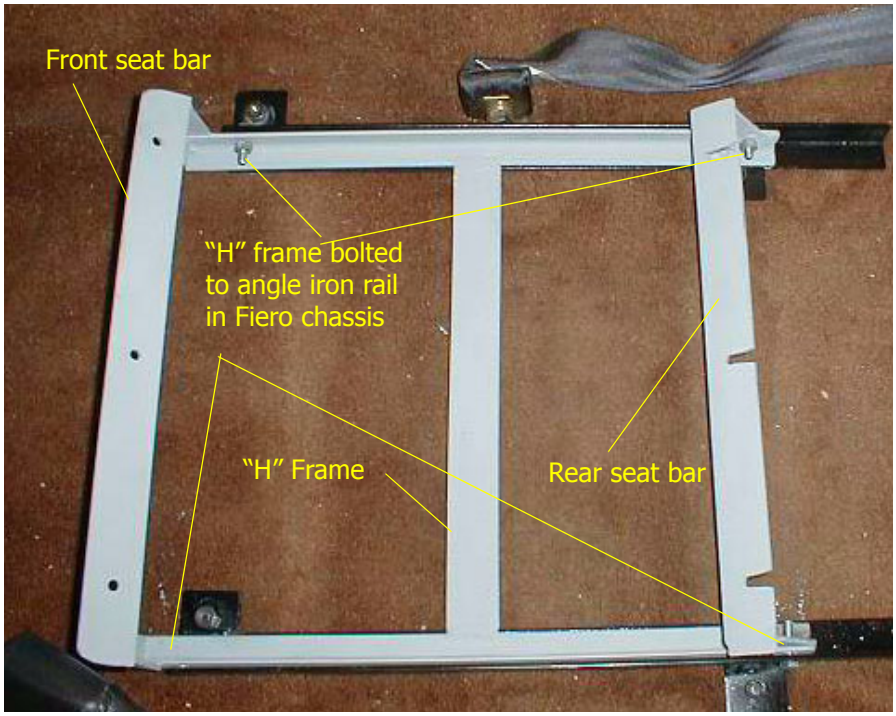
This assembly should slide forward and backward in the rails that are bolted to the floor.



Once the angle has been set, you will need to drill three holes in a flat bar to attach to the front bolts that are in the seat. You will also need to make a flat bar with three notches to accommodate the three bolts on the back of the seat. Measure and then weld the supports from the front flat bar to the "H" frame. Set this assembly back on the seat and then measure and cut the rear supports that are welded to the back bar.



Once the frame has been assembled, place the seat in the car in the rails and mark the proper location on the angle iron rails. Remove the seat and take the "H" frame off of the seat. Now drill holes in each corner through the "H" frame and the angle iron rails. The frame is secured with 1/4" bolts in each of the four corners.



It is easiest to bolt the frame in place without the seat in the frame.

Because of the angle of the seat, the notches will allow the seat to be inserted into the front bar holes first and then the back bolts will nest in the notches on the back bar. Use 1/4" flat washers and locking nuts on the bolts.

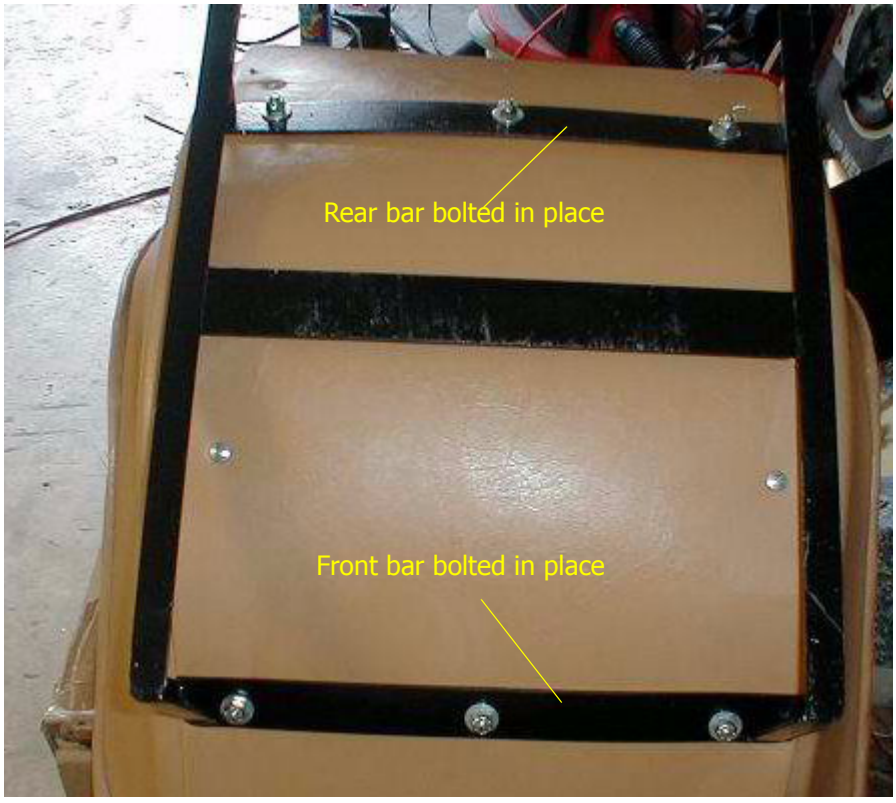


FIGURE 185. Framework fastened to seat bottom

Before final fastening to the frame in the Fiero, trial fit the seat into the frame. Once you are satisfied with the angle and location, remove the seat and secure the frame to the Fiero rails.

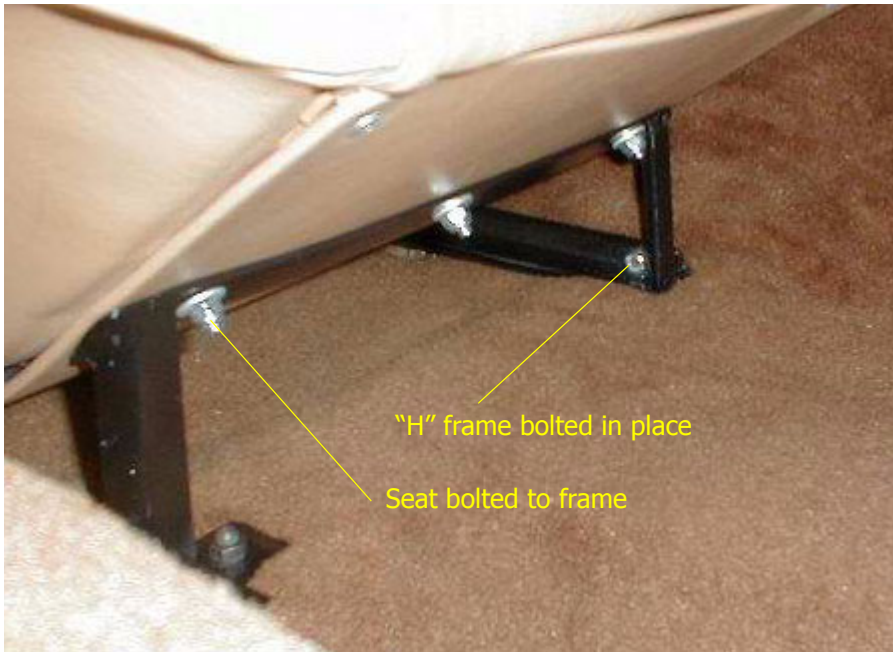


FIGURE 186. Seat bolted in final location

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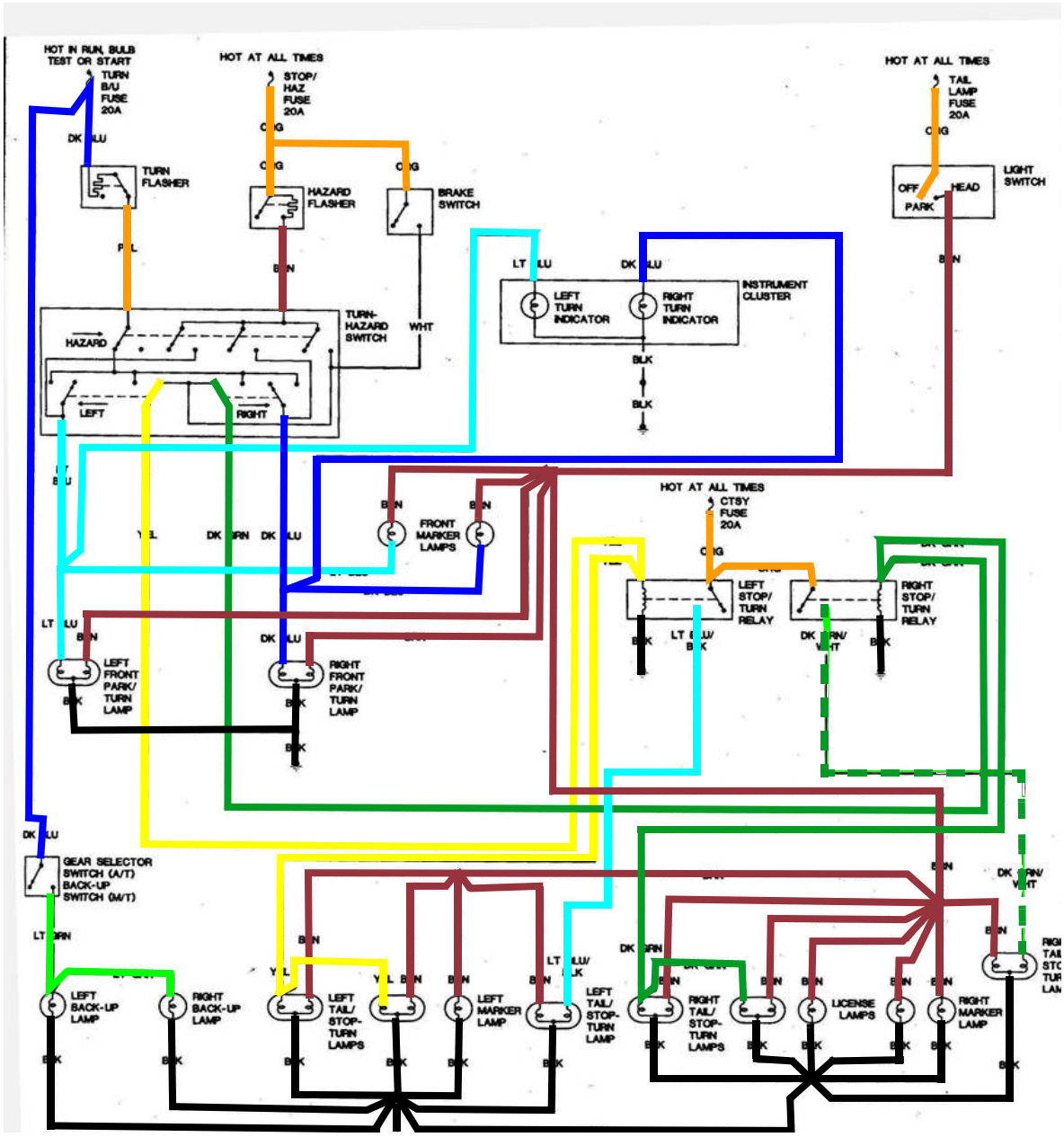
CHAPTER 23

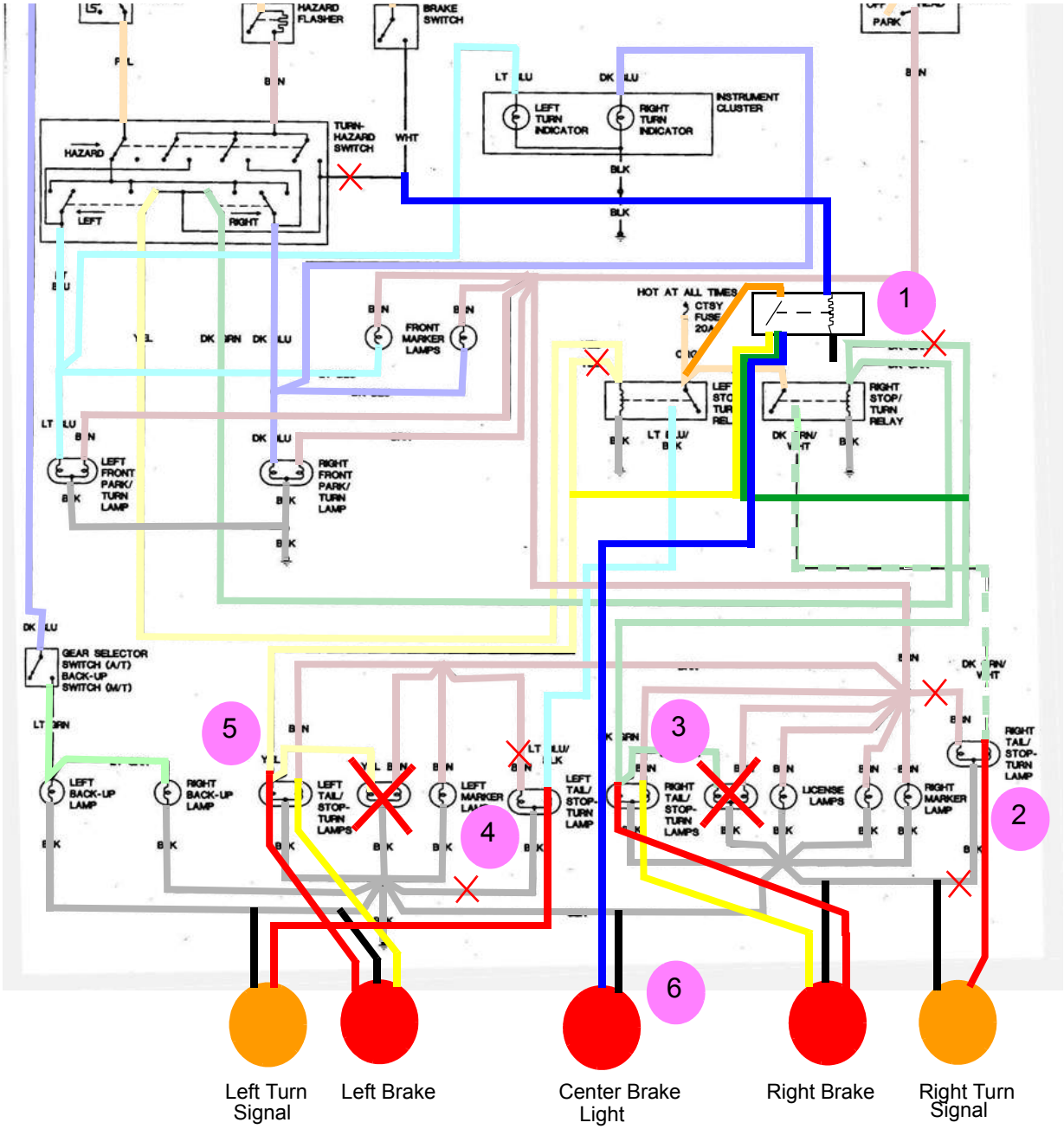
Optional Wiring

This section deals with some of the optional wiring that may be needed depending on how you choose to construct your car.

OEM Tail light connections to Fiero harness

The following diagram shows the stock Fiero Harness. It utilizes more lights than the Lamborghini. The second diagram show the modifications that will be necessary to eliminate the extra lights and make the necessary connections to the OEM Lamborghini tail lights as well as how the third brake light can be connected.


HOT IN RUN, BULB TEST OR START
TURN B/U FUSE 20A
HOT AT ALL TIMES
STOP/ HAZ FUSE 20A
HOT AT ALL TIMES
TAIL LAMP FUSE 20A
TURN FLASHER
HAZARD FLASHER
BRAKE SWITCH
LIGHT SWITCH
OFF
HEAD
PARK
INSTRUMENT CLUSTER
LEFT TURN INDICATOR
RIGHT TURN INDICATOR
TURN-HAZARD SWITCH
HAZARD
LEFT
RIGHT
WHT
BLK
FRONT MARKER LAMPS
HOT AT ALL TIMES
CTSY FUSE 20A
LEFT STOP/ TURN RELAY
RIGHT STOP/ TURN RELAY
LEFT FRONT PARK/ TURN LAMP
RIGHT FRONT PARK/ TURN LAMP
GEAR SELECTOR SWITCH (A/T) BACK-UP SWITCH (M/T)
LEFT BACK-UP LAMP
RIGHT BACK-UP LAMP
LEFT TAIL/ STOP-TURN LAMPS
LEFT MARKER LAMP
LEFT TAIL/ STOP-TURN LAMP
RIGHT TAIL/ STOP-TURN LAMPS
LICENSE LAMPS
RIGHT MARKER LAMP


HAZARD FLASHER
BRAKE SWITCH
INSTRUMENT CLUSTER
LEFT TURN INDICATOR
RIGHT TURN INDICATOR
TURN-HAZARD SWITCH
HAZARD
LEFT
RIGHT
WHT
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LEFT FRONT PARK/ TURN LAMP
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LEFT MARKER LAMP
LEFT TAIL/ STOP-TURN LAMP
RIGHT TAIL/ STOP-TURN LAMPS
LICENSE LAMPS
RIGHT MARKER LAMP
RIGHT TAIL/ STOP-TURN LAMP
1
2
3
4
5
6
Left Turn Signal
Left Brake
Center Brake Light
Right Brake
Right Turn Signal

Lets take each item separately.

1. Add a new relay

It is necessary to add a third relay to control the brake lights. Tap into the orange wires that come from the existing two relays to the power side of the new relay. Cut the white wire from the brake switch and run it to the new relay. Cut the Yellow and Green wire that go to existing brake light/turn signals. Connect them along with a third wire for the center brake light to the relay that is powered by the activation of the brake.

2. Connect Right Turn Signal

Connect the Green wire with White stripe to the Red wire on the Right Turn Signal of the Amber Lamborghini light. Connect the black wire from the Lamborghini light to black ground wires on the Fiero harness.

3. Connect Right Brake light

Connect the Dark Green wire to the Red wire on the Red Lens of the Lamborghini Lens. Connect the Black wire from the Lamborghini light to the black ground wires on the Fiero Harness. Connect the Brown wire to the Yellow wire on the Lamborghini Light.

Remove the other Fiero socket as it has no purpose.

4. Connect Left Brake Light

Connect the Yellow wire to the Red wire on the Red Lens of the Lamborghini Lens. Connect the Black wire from the Lamborghini light to the black ground wires on the Fiero Harness. Connect the Brown wire to the Yellow wire on the Lamborghini Light.

Remove the other Fiero socket as it has no purpose.

5. Connect Left Turn Signal

Connect the Light Blue wire to the Red wire on the Left Turn Signal of the Amber Lamborghini light. Connect the black wire from the Lamborghini light to black ground wires on the Fiero harness.

6. Connect the Third Brake Light

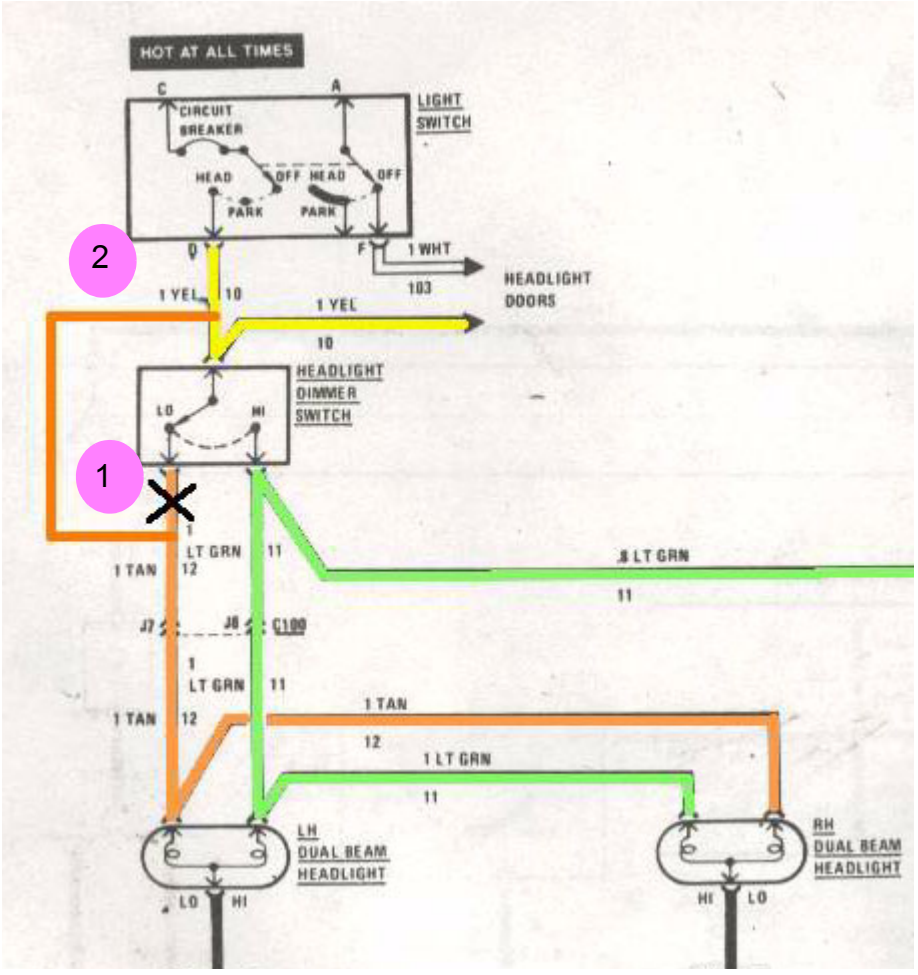
Connect the third wire that was added to the new brake relay to one of the wires on the third brake light. Connect the second wire from the third brake light to the black ground wire on the Fiero Harness.

OEM Headlights to Fiero harness

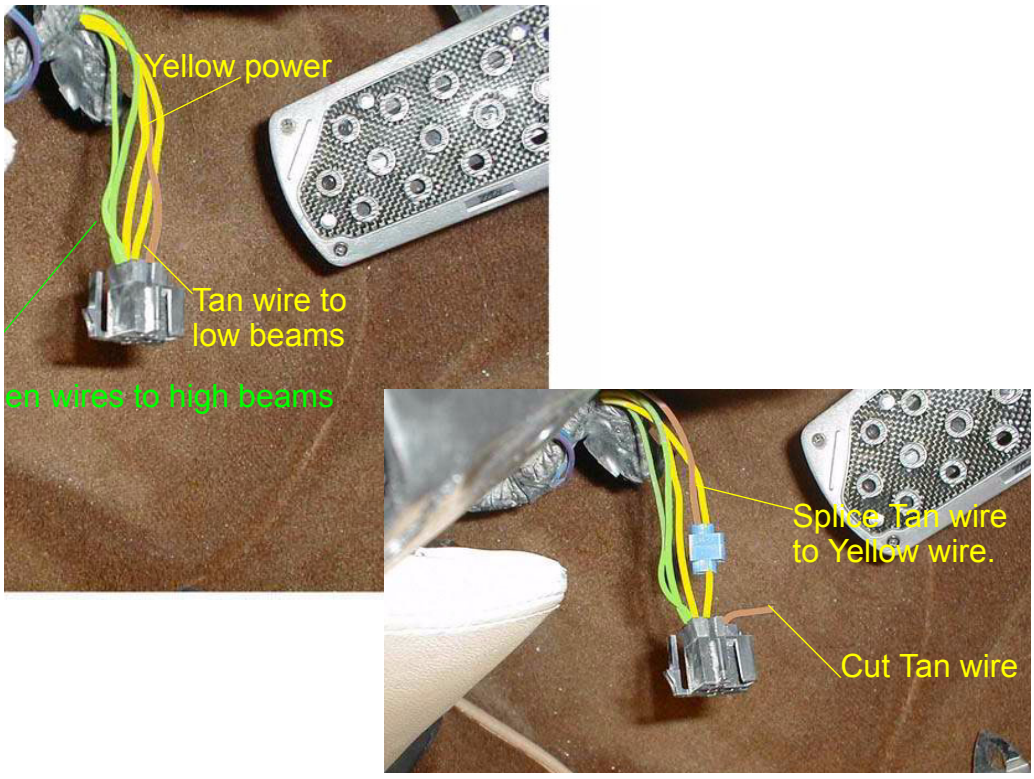
The following diagram shows how to connect the Fiero wiring harness to the 300ZX headlights. The original Fiero lights had a single headlight unit with a high and low beam. The 300ZX headlights have two separate lights. If you simply connect the high beam to the small light and the low beam to the square light, when you turn the high beams on, the low beams go out. On the 300ZX, the high beam is intended to be "additive" to the low beam, not a stand alone light.

To correct this problem, it is necessary to modify the Fiero harness so that the low beams are constantly on when the headlights are turned on. When you turn on the high beams, it illuminates the round light for additional brightness to the already low beams.

The following diagrams show the modifications that will be necessary to accomplish this.



Begin by removing the plug on the steering column that goes to the dimmer switch. This connector will have two yellow wires, one tan wire and two light green wires.



Step 1.

Cut the Tan wire that goes to the low beams.

Step 2.

Connect the Tan wire to the Yellow wire using a crimp on splice.

This essentially disables the low beam control from the dimmer switch and leaves the low beams constantly on when the headlight switch is turned on. The High beams are activated when the dimmer switch is turned to high beam.

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