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### Before starting

The following was done on my left-hand drive 73 Roadster. Other years and drive sides would likely require some changes to the process and/or descriptions, including perhaps crawling around under the dash.

First, carefully look over the current windshield installation. See if the frame matches nicely to the vent window gaskets. If it does not you'll know where things were when you started and what to expect during reinstallation. A gap at the top of one side cannot be corrected by twisting the windshield during reinstallation as I found when my new glass ended up broken 3 weeks later. Bear in mind these are 40 to 60 year old vehicles and have most likely been worked on many times over the years. Door alignment, vent window lean and windshield position all go into a nice mating frame to vent window meeting.

Examine all rubber gaskets and order new parts where necessary.

During disassembly, and while apart, examine the frame for internal loose or broken parts, stripped screw holes etc. It's a good idea to order about 10 each of short and long screws when ordering new parts. You won't need them all but they are handy to have. These are not Philips screws but a Philip screwdriver and screws will work. They are 10-32 flat head screws at 7/16" and 1/2" long.....although I've seen where a third, longer length is also listed as being used.

### Windshield Removal and Disassembly

Remove the dust skirts under the dash, the glove box, the brake failure warning light and the steering wheel to make for easier access. Then drill out the 7 rivets and remove the approx. 6" long metal box at the top of the front door jamb on both sides of the car. This will expose the windshield pillar legs for significantly easier realignment and installation of the bolts later on. Get some 1/8" x short rivets for the reinstallation.

Reach through the brake failure warning light hole with a long socket extension and a 9/16" x 12-pt. socket and remove the upper/rearward windshield bolt. Then without the extension remove the forward/lower bolt. Then go to the passenger side and reach through the glovebox with a long extension and remove the forward/lower bolt. Finally using a 9/16" open end wrench reach between the right hand side of the dash and the side wall of the car and remove the last bolt. This will be difficult to completely remove as the dash is in the way.....but it can be done.

Remove the two bolts holding the bottom of the center stay rod to the dash. You will need to lift the windshield slightly in order to completely remove these two overlong bolts.

Take the windshield to the workbench and remove the bottom corner screws. Then remove the 3 outer top rail screws on either end. Leave the 4<sup>th</sup> and 5<sup>th</sup> screws from the end in place as these hold the offset screw bar to the center rail.

Separate the frame from the glass.

## Windshield Frame Assembly with New Glass

*NOTE: Make sure you use the correct length screws in all the screw holes. When a screw starts to thread into place if it is over 1/8" away from being seated in the chamfer then it is probably too long. If it goes in all the way without grabbing threads it is probably too short.....although it is possible that the threaded hole it is going into is not fully up against the rail. Extreme care is required with the screw lengths as too long a screw can break the glass and too short a screw won't hold the frame together.*

To assemble the frame start by mounting the top and bottom rails. First make center marks on masking tape on both rails and on the new windshield. Use the bottom corners of the glass to hook the tape measure and then make a mark on masking tape near the top center edge of the glass. Next measure from the other bottom corner up to top center making a mark the same distance from the corner as the first one. The half way point between the two marks is the center of the top edge of the glass.



Measure between a bottom corner and the top center of The new glass. Make a mark at any close length. Then repeat from the opposite corner. Then find center between the two marks.



Then measure from bottom corner to bottom corner and mark the center point along the bottom of the glass.

Then measure straight across between those same two bottom corners and mark the center on masking tape near the bottom edge of the glass. The tape measure will be several inches below the bottom of the glass so do the best you can with this mark.

Next wrap the rubber glazing around the new windshield making sure it is in the same orientation as it was on the old glass, or the correct orientation if it is new rubber. The weld point of the rubber should

end up pretty close to center. Check measurements as accurately as possible to keep the glazing in the correct location all the way around.

Mix up a small amount of liquid car wax and Armor All in equal amounts. Use a small brush to coat the outside of the rubber glazing and the inside slot all around the frame. Or use liquid hand soap mixed in water. Do not apply this to the inside of the rubber glazing as you want some grab between the glass and the rubber. I like the Armor All/car wax mix because it is slippery and both products are safe for the car body and the rubber gaskets.



Liquid car wax is slippery and the Armorall will help keep it from drying out once applied.

Now press the top and bottom rails onto the glass keeping their centers at the masking tape marks.



The center marks on the windshield need to line up with the center stay rod.  
Note that these photos were taken once the windshield was installed.

After the top and bottom rails are mounted press on one of the side pillars. Leave the offset mounting bar with the 4 threaded holes mounted to the ends of the rails, but with the two screws loose so the bar can wiggle around a bit. Once in place a longer 10-32 screw may be needed to grab the screw bar and pull it up to the top rail. Then do the opposite pillar. These can be difficult to get into place. It can be helpful to carefully angle a small screwdriver through the screw hole and into the mating threaded hole so you can pry sideways to bring them into alignment. Very carefully though as you don't want to muck up the threads. It is probably easier to make the top rail to pillar connection first, and then the bottom rail. It can also be helpful to use a couple 18" bar clamps to gently pull the top and bottom rails together, but don't overtighten and make sure the clamp ends can't hit the glass. Finally, once both top corners are secured, and one bottom corner is secured, a pipe clamp between the pillar bolt legs can pull the last pillar bottom into place.

Finally check the glazing rubber all the way around on both sides of the glass to make sure it is fully into the frame slot.

If you have new gaskets for the vent window ends and bottom rail to cowl then you can use the same liquid concoction you used on the rubber glazing. Bear in mind that a stiffer, new bottom rail to cowl gasket will make the installation project much more difficult so if they are in decent condition you might want to reuse the old gaskets for these locations.

### Reinstallation of the Windshield on the car

First spread some of the lubricating liquid you've been using onto the cowl and bottom of the gasket. This will make it easier to move things around.

Lower the windshield into place and then lift it slightly and insert the two center stay rod bottom bolts. Get the bolts started and threaded in about  $\frac{1}{4}$  to  $\frac{1}{2}$  inch. Finish tightening them once all four pillar mounting bolts are in place but not fully tightened.

Use sliding 6" C-clamps and slotted blocks (see photo) to pull the windshield frame down to the cowl on the car. Take a look at the spacers next. One end has a longer flat than the other end. This longer flat goes forward and down. There may be an approx.  $\frac{1}{4}$ " thick plastic spacer or a thinner metal spacer with a thinner non-metallic isolation spacer. The isolation spacer goes between the metal spacer and the car body. You can clearly see the assembly of all of this because in the disassembly process you removed the two ~6" long metal covers in the door frame, thus exposing the pillar leg.

I like this C-clamp method because it puts all clamping pressure on the bottom of the window frame. This means that you are pulling down on the bottom of the frame and the glass is following along. If you pull down from the top of the windshield then you are putting pressure on the glass. There are all sorts of creative ways to pull the frame down into place and I used some them on my two previous installs. Then I saw where someone had done it this way and I immediately saw the advantages. It creates less stress on the glass plus is much simpler than finding places to attach ropes, straps or long clamps.

Slip in the spacer blocks between the pillar mount arms and the inner fender, and then insert a bolt through the hole closest to the car door on both sides. Leave this bolt loose. It can be helpful with alignment of the spacer to take a couple inch long piece of masking tape and stick one end of it to the outer face of the spacer, leaving an inch or two extending straight down. Then you can grab hold of this tape extension and use it as a handle to move the spacer into the required position.

In order to use the slotted clamping blocks you will need to remove the press on door jamb trim several inches down from the top. Once that is off you can slip the slotted clamp blocks right onto the thin metal downward facing edge. Try and find some hardwood scraps for these blocks as pine or other soft woods will likely break under the clamping pressure. The blocks are about  $\frac{3}{4}$ " x  $\frac{3}{4}$ " x 2-1/2" long with a 1/16" slot offset to one side. The narrow side will go against the dash.



The C-clamp has rubber pads installed to protect the face of the pillar. The wood block will hold up better if it is made from a hardwood such as oak or maple as vs. pine, hemlock or spruce. It will take some experimenting to find the best position of the clamp in order to pull in the correct direction while not slipping off. The red rag in the left hand photo is protecting the door card from being damaged by the steel clamp.

You will need to pull the bottom rail rubber gasket (either old or new) forward while the windshield is dropping down into place. It has a tendency to curl back under the rail. You can lay a ¼" rope down under the gasket as it begins to rest on the cowl and pull it out from one end once the windshield is solidly down on the car. This will pull out the gasket edge out as the rope is withdrawn. This method is documented in many places. Personally I found that by first applying the lubricating liquid to the gasket and the cowl I could accomplish this on my old, good condition gasket with my fingers.

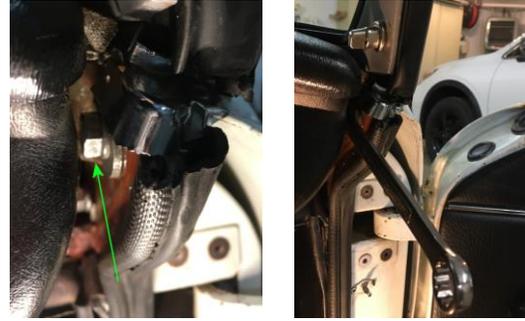
Now it's time to start inserting the mounting bolts. First though take the four pillar mounting bolts to a bench grinder and put a point on the ends. The center stay rod bolts should already have this point. Grinding a point on the four pillar bolts will make it much easier to start threading them into the pillar mounting holes.

Also note that there is a large flat washer with one straight edge and a lock washer on each bolt. The positioning of the flat washer's straight edge can be ignored initially but should be paid attention to when it comes time to do the final tightening of these bolts.

The drivers side pillar bolt (through the brake warning light hole in the dash) can be threaded into place using the 9/16" socket and extension. It will take some wiggling to get it all lined up and the threads started. The passenger side is harder. You will have to reach in with your left hand and point the bolt end into the hole through the sidewall of the car. Once more or less in place press on the bolt head in with your thumb you then use the 9/16" open end wrench in your right hand to reach in between the car's sidewall and the dash end to turn the bolt head. Time, patience and persistence are likely required.



The upper bolt is being inserted with a long extension on a 3/8" ratchet. A 9/16" x 12 pt. socket will be easier to get onto the bolt head than a 6-point socket.



The right hand upper bolt can be reached by inserting a 9/16" open end wrench in between the right end of the dash and the side wall of the car.

With the bolts closest to the doors installed use them as a pivot point to align the forward/lower bolt holes. Use strap clamps between the outer top corners of the windshield frame and the shipping tie down eyes under the front bumper. Tighten the straps evenly and enough to pull the top of the windshield forward, but not overly tight. Be careful not to put undue stress on the windshield. Check the forward/lower pillar arm bolt hole alignment and adjust the straps as necessary.



Apply very gentle and uniform pressure on both strap clamps. The idea is to pull the top of the frame forward, without twisting it, thus pivoting down the fronts of the pillar bolt legs far enough to get close to lining up with the bolt holes in the side wall of the car. Once close, gentle prying with a Philips screwdriver inserted from inside the car and into the threaded hole in the pillar leg can bring it into close enough alignment for the bolt threads to catch. Again be very careful when prying so as not to distort the threads in the pillar legs.



The driver's side lower/forward bolt shown being accessed from below the dash.



The passenger side lower/forward bolt is reached through the glovebox with a long extension.

With all four pillar bolts in place but still loose check the alignment of the pillars to the door vent windows and adjust the pillar angle as necessary. It may be necessary to remove a door card and adjust the vent window angle if one side is good but the other side is off by a lot. But if all this aligned nicely on the old windshield it should still align nicely on the new one.

With the four pillar mounting bolts still loose put the top up on the car, secure the two rear fixing points of the top to the hooks below the rear window and then the two clamps on the top rail of the windshield. No need to connect anything but these forward/rearward pulling points.

Close the door windows and shut the doors and check for proper alignment of everything. If there is time leave the windshield to settle out overnight

Now finish tightening the two center stay rod to dash bolts and the four pillar bolts. Remember that the flat washers on the four pillar bolts have one straight edge. You need to position this edge in order to get full clearance of body components that could interfere with sliding the pillar leg into its proper position.

Note that when fully tightened the center stay rod plate will pull the middle of the bottom rail down to the cowl. The captured screw plate below the cowl can slide forward and back. Pulling the plate down in conjunction with the tightening the pillar bolts will allow the center plate to find it's correct location that doesn't affect the overall angle of the windshield.

Finally reassemble all removed components including riveting the pillar leg covers back into place.