Rusted Windshield Post and Header Frame Repairs

Many of the C3 cars on the road today face the ever so dreaded rusted windshield frame problem. In most cases a rusted windshield frame will be un-detected. Even a keen eye can miss problems when viewing a car before being purchased.

A perfect case and point to this would be the subject car used in the example pictures for this publication. The car is an original car with only 77 thousand miles on it. As of 2009, this car has spent the last 17 years stored indoors in a climate controlled environment. Keeping this in mind all the damage to this car would have been done between 1970 and 1992.
Why the windshield upper frame?

The upper windshield frame is constructed with five major components from the factory. Each of these components were spot welded together to form the upper windshield frame. The components of this upper frame included the two heavy main pillar post (originally part of the A pillar) the upper header and two lighter reinforcing corners.

The pillar post and the header are hollow constructed from steel and once a hole develops in the frame, water will more than likely enter the car. The entry path water will take is usually the floor board kick panel area of the car on either the driver or passenger side.

There are several things that can cause the windshield frame to develop rust and leaks and I will only cover a few of them below.

Over time debris from leaves; dirt and other substances will build up under the windshield outer stainless steel moldings and/or the upper windshield trim and over time these will hold moisture and thus rust.

Another issue is the way the Corvette windshield frame was constructed! The upper windshield frame is spot welded to the ends of the pillar post, and then corners are spot welded to both sections. The overlapping joints were never sealed from the factory! When our cars were new these joints did not leak, but they were an invitation to a future problem with the windshield frames. In the pictures A below, only one seam is shown but it is a nice close picture. Picture B has arrows illustrating where the other seams are located the red circles show damaged areas found when the test car was disassembled. Picture C shows you just how much damage can be under the windshield frame trim and go un-detected. Pretty nasty!
One major sign (I can not emphasize enough how major it is) that you have a windshield problem is the presence of silicone around the windshield stainless trim! If you see a car with this on the trim it’s a good bet the windshield frame has an issue! I have seen way too many cars come in with this applied between the windshield molding and the windshield glass to stop the leaks. This is usually an attempt by someone to stop the flow of water but when you use silicone as a seal on the windshield trim to the windshield you will accomplished one thing, a better water container!

There are many ways for rust to develop. Obviously you the reader are experiencing this problem or you wouldn’t be reading this publication. Regardless of the cause, repair is eminent!

**Signs that may indicate a rusted windshield frame!**

The most common sign you have a windshield frame rust problem would be water present in either the passenger side or driver side of the floor board. As mentioned above, the windshield frame is hollow and once water enters the inner section of the frame it can only go one place and this would be the floor of the car.

Another common sign would be rust present on top the number two body mounting bolts. If you remove your kick panels and look where the number two body mount bolts are located, look for the presence of rust or even flakes in some cases. This is usually a good indicator of a problem and the direct result of water will dripping from a leaking windshield frame.

Other signs would include drips coming from the upper windshield header trim and the presence of rust around the windshield frame in the lower corner of the windshield. Sometimes a visual inspection of the windshield pillar from the outside will reveal extensive rusting and in this case the pillar post molding trim should be removed for further inspection.
How can you identify these problems before buying a car!

Usually it is impossible to nail down the exact condition of the windshield frame. When the initial version of the publication was released many people commented on national forums “They all do”. We’ll I don’t know if they all have leaks, but it is a persistent problem in this industry and appears to more prevalent in cars from the mid-west and eastern states. Personally if I were spending a bunch of money for a car I would almost insist on removing the center upper interior trim molding, sun visors and pillar post trim as well as the kick panels for a detailed inspection.

I would do a visual inspection of the entire side pillar area of the windshield frame. If you are allowed to pull the kick panels off the car to look in the general area of the number two body mounting bolts. If signs of rust flakes appear, it would lead me to pass on this car unless I was prepared to do the repair, or allowed to further inspect the frame!

I would also take a strong flash light and look up under the dash pads at the metal cross bar paying attention to the lower corner areas as shown in the picture below.
Ok, let’s illustrate what went wrong with this car!

In the following example, the windshield trim has been removed to expose the problem sections. At first glance in the picture D below you can see the ½” hole present in the driver side and only a moderate hole showing up in the passenger side. Funny but true, none of the passenger side upper damage was visible before removing all the trim.

![Picture D](image)

Once the windshield frame was removed in Picture E, you can see the damage is much worse than initially thought.

![Picture E](image)
Picture F really shows how bad the damage was to this frame. Over time some previous owner inserted Bondo in the passenger side of the frame. In doing so they did a pretty good job of hiding the problem. This Bondo job hid all signs of any problem in the passenger side upper corner when looking from the inside! What was under the windshield was a real shocker.

After removing the windshield and cleaning up the frame with a stiff wire wheel you will see from the two close-up pictures below the rust was a little more than the eye detected in the upper pictures. Compare Picture D with the one in Picture G-1 with that of G-2. Notice in Picture G-2 the only visible hole was a ½”! This is good example of why a rusted frame is so hard to spot!
Another surprise was the hole in the lower section of the windshield frame! This hole is circled in Picture H. below. This area of rust is more than likely caused by a leaking windshield seal. This area was slightly larger than a pin head before being wire brushed and cleaned. Fortunately after removing all of the rusted area we were able to find solid, non-rusted metal and proceeded to make a patch for this area.
WARNING. . Now the disclaimer!

Did you ever see a warning sign and ignore it?
Me too! . . . Now Please Read this one!

If you are considering purchase of the header, corners and side pillars to do your own replacement please let me warn you!

You could have quite a learning experience. This is not an easy job, it is not a job that should be performed by people with out prior experience in this field! Honestly, this should only be done by a trained professional.

It is easy to miss-align the upper corner of the frame; it is even easier to get the front edge cocked at the wrong angle. You must take your time be patient and Test Fit, Test Fit, and did I say Test Fit again! Drilling is not required before welding.

The parts if modified from their original as supplied new state are not returnable. This would include any welding, cutting, grinding marks, denting, and drilling holes of any kind. Obviously this job can be performed with the supplied parts or I would not be writing this publication.

If you are going to attempt this installation, use vise grips to hold the parts in place until you have completed your test fit. Once installed some trimming may be required for fitment of the upper corner moldings.

In the pictures below you will see several hints as to how we do this job! Remember! This is not an installation instruction manual nor is it meant to be one! This publication is simply suggestions being made about our technique and to give you a better understanding of how WE do this job!

This is our opinion and ours only. Other professional shops may have better ideas on how to perform this procedure and by no means are we trying to tell you our way is the best way hands down. Should anyone have ideas about improving this help page, feel free to contact our Customer Service at the provided email address below!

If you don’t know how to remove the windshield moldings from your car you should NOT attempt this repair procedure.

Ok you blew by all the above! Good Luck and please read on:
Installation:

It would be easy for me to sit here and tell you how simple it is to replace the windshield frame. It’s easier for us, but we have the luxury doing this job so many times we built a special jig for the major replacement of the frames shown in Picture I below.

The jig we use was made years ago and it allows us to cut away any section of the windshield frame without worrying about the final product alignment.

The jig, if bolted in place properly allows us to sit the parts in place before welding assuring us of a perfect aligned repair. You can get a general idea of what our jig looks like from the two pictures below. We do not have any blue prints for this and I’m sorry it is not for sale! (Note the presence of the vise grips in both pictures).

Picture I

You as an individual will not have access to a jig! Taking pre-cut measurements before you remove anything is a must! It is a smart idea to measure from the tip of the upper corners to fixed point on the car and then do the same in an X pattern. If removing the side pillars use additional measurements to make sure you have not changed the windshield frame angle.

Measuring in advance will save you a ton of problems when going back together and especially so if your car is a convertible. Using the X measurements will allow you to know the frame is square and in proper alignment before you do the first weld. If you have access to a laser level on a transom it will make this repair even more accurate.

A coupe is way easier to repair than a convertible due to the center T bar. Convertible owners should exercise extreme caution before cutting or welding any part in place. If you think you have the parts in the correct place and you ready to weld the parts, place only enough welds to hold the structure in place. Install your end moldings and your hardtop and check the fitment. If the car is not equipped with a hardtop, raise the soft top and check everything twice before final weld.
Repair parts and the Quality:

Before I go deeper in to the repair I would like to take a minute to debunk a myth! The reproduction headers and corners don’t fit. Yes, they do!

There are two minor problems with the reproduction headers. One is the location of the mirror bracket screw holes, and the second is the inner passenger side lip. Neither will cause any problems for you during your installation.

The lower two screw holes for mounting the mirror bracket are not in the correct position and this was just brought to my attention during the writing of this publication. To install your mirror bracket you will need to drill and tap new holes. The metal is thick enough and it will not cause you any problems. In June 2009 the manufacture will change the holes to reflect the correct position. Until then they will need to be relocated. We have detailed pictures of this toward the end of this article.

The lip on the inner passenger side is a little lower than we would like but this too is supposed to be corrected in the next production run. The lower lip is not of any consequence since the trim molding covers this entire area.

I have illustrated above in Picture J, the original frame from the subject car and the current reproduction side by side and end to end. These pictures are not cropped or edited in any manner! You will notice the new upper is on top of the old one illustrating both the top and the bottom comparison. We did the end to end comparison to illustrate the length is also the exact same.
Other Things You Should Know:
(And then we'll move on)

If you take your car to a shop and they tell you the parts can not be installed or the parts are wrong, they just might be intimidated by the repair and have little or no knowledge of how this repair is done. As I mentioned above, this repair is not easy and I would look for another shop.

When the parts are received by you or the repair shop, you’ll also note the lack of holes in the new part! I don’t know why this causes concern but it does. I have discussed this in detail with the manufacturer and we both agreed. Pre-stamping the holes would only make the installation process more difficult and erase any margin for error. Not having pre-drilled holes will give you some flexibility in your installation. I hate drilling holes and there are bunches to drill, but it is in your best interest.

On first inspection one would think the upper header looks nothing like what is on the car. This is evident by looking at Picture D, E and F above! It is understandable but not having an understanding of how the original frame is constructed will make this a little confusing. Once you have the original frame apart in sections it should shed some light on this for you.

The upper windshield frame is a great part! I have personally installed this part over and over again for years! From the pictures above and ones that will follow below I’m sure you will agree.

Beware of shops that think they can just patch up holes like the ones in Pictures D, E and F. You can not patch weld these and get a proper repair in most cases. Yes there instances where a patch is a good repair but I’ve always figures I’ve gone this far I may as well do it the right way. It is way too much trouble to do this job twice on the same car. This is not silly putty and a wire, it is the main roll cage of your car and this is one reason I suggest the repair being done in the proper manner over patch welds.
How we fixed it, and what we did to this car:

What you need: You will need patience, a chisel, and a good hammer, spot weld drill bit, a welder and if you want to do it the professional way a large 220 volt 12” arm spot welder. You can use a stick welder or a mig, but we use only a spot welder since it was the way GM did it and it leaves a clean edge. Clean edges eliminate the extra work created by a regular welder and there are no welds to grind out when completed.

The first thing I suggest you do is to take a picture of the main corner before you remove it from the car! This will give you the ultimate guide for how the corner is supposed to look after it is installed.

Below I have photo shopped a corner to illustrate the different areas of the frame and there exact location before and after installation. The picture to the left hand upper side is the most important picture you can take prior to removing any metal parts from the car!

Next we removed all the damaged areas of the windshield frame including the upper and the two corners. This can be done in two different methods. Most hardware stores will sell you a spot weld cutter which is basically a center drill bit with an outer cutting tip made as one bit. Use this bit to drill out all the old spot welds. Once the spot welds are cut out, the frame will still need to be chiseled apart. Take your time doing this especially if you are not removing the side pillars. Any damage you do will need to be repaired before you proceed.

To illustrate the locations of the spot welds, I’ve inserted pictures from the factory assembly manual below (Located in UPC1, Sheet 6 – 7 in most books) In Pictures K and L. Please note the welds are shown as an X in the pictures K and L below. Also note the three welds on the outer side of the corner reinforcement and two used on the inside edge in Picture K.
If you take your time and drill out most of the welds you can separate the sections with a small chisel and hammer. The alternative way would be to get out the saw’s all and cut away but this is not advised!
Once you have removed the upper section you should precede to the corners and if needed the pillars. If you are only replacing the header and corners then once you have removed the upper section and the corner reinforcement you should have a pillar sticking up as pictured in Picture M below. Note in the upper part of this picture the new pillars with the labels A and B. A is the area of the windshield pillar that mates to the upper frame, and B is the area where the upper corner is to be installed on the pillar. Number A in the picture below is to be spot welded to the end of the header.

You’ll also note the lack of the jig in picture M, it is removed from the car for clean up of parts we plan to re-use and then installed before welding. (not me in the picture below).
Should you need to replace the side pillar the reproduction of this part comes with a tapered bottom as shown in top of picture M illustrated with the letter C. This is done to allow you to remove the entire side section and still have metal to insert in the lower A pillar. To replace the pillar in this manner you would need to be or find an experienced welder! This weld can only be performed with either a Mig or by stick welding.

Once we have the existing parts cleaned up and ready, we then test fit our replacement parts as shown below in Picture N. You will notice the vise grip clamps in the left hand side of the picture.

Picture N.
Please also notice the Vise grip holding the upper header to the clamped to the lip A in picture M above. This picture O reflects the upper header installed on the pillars without the corners installed and really illustrates exactly how this frame is to be assembled. Once the header is clamped down the corners are set in place to assure us we have the correct position on the header. This is very critical! If you have the upper header tilted it will not install correctly.
Once we have the parts fitted to the frame we then begin to spot weld the items in place as shown in Picture P. Notice that two small spot welds were placed at the end of the upper corner. The same was done on the lower section of this corner. Spot welding the edge will force this edge to sit down properly and allow the parts to fit even better. We know, it’s not how GM did it, but we have better results with the parts when installed in this manner.

After the upper and corners are welded in place we then transfer all the old hole markings from the old upper support to the new upper support. This is done only after it is installed and because it just makes it easier to drill the new holes without having to fight holding the part. It also affords you the opportunity to test the upper corners and then drill the holes where they need to be instead of pre-drilling them only to find out you need to play move the hole.
Once the upper header and corners are installed we must then repair that little hole and the missing lip we removed from the lower bottom section of the windshield pillar. We repaired this by fabricating a repair section of metal from another original used pillar we had in stock. In the Picture Q below the left hand picture shows the condition of the frame after the rusted top section was removed. In the center picture below I’ve outlined the section that needed to either be repaired or replaced. In the picture to the right is the finished product.

![Picture Q](image1)

We now have our frame in place so it is time to treat the frame. We use “Correless” by Eastwood which is a rust inhibitor. I’m sure there are plenty of other products out there capable of doing just as good of a job, but we use this specific product based solely on our own prior experience. Coreless can be sanded unlike other products available, and is very user friendly.

If you notice in the picture R below, you will see four stages, bare metal, coreless, primer and the black paint. Mark A is the “Coreless” which resembles the old red oxide primer and Mark C is the final color coat. Please notice screw B which was placed in the original screw hole from the pillar and used as a guide for installing the upper channel.

![Picture R](image2)
Before installing the windshield in the car, you must drill the location of the windshield molding retainer clips! This is a MUST since you can not drill the holes after the windshield is in place.

In our installation we always go one step further than GM did. We pinch off a section of the windshield sealing tape and use this to seal up any edges created by the assembly process. This would include the lower pillar, both seams created by the upper corner installation and any other imperfection created by the spot welder. You want to use this in any area where the new windshield seal will contact and any portion that is exposed to the elements after the windshield is installed.

Below in Picture S will show you exactly what we are talking about. In the left side it shows the corner and the edges, in the middle and right hand picture you’ll see the sealing smeared in the exposed edges. We are not concerned about the inside edges, they are supposed to look this way!

Once this is done and before we install the windshield, we now have to relocate our mirror bracket mounting holes. As I stated at the very beginning this error in the header was not pointed out to me until recently. To explain why is easy. In the past I’ve always supervised this job and when the final frame is installed the remaining installation is left up to the tech. When pointed out to me, I removed the newly installed mirror bracket only to expose the new taped holes. Again, this is being corrected by the manufacturer and in about 3 months from 03-30-2009 the new product will not require this.

To help you with the mirror bracket installation we have included below some pictures of the original header bar with the original mirror mounting bracket (this is a convertible). Please note the gap between the bracket and the header bar. If you are trying to obtain a flush fit you’re wasting your time. The concern on a convertible should be placed on the alignment of the latch striker and not the fitment of the bracket to the header bar.
New bracket installed Top side.

New Bracket Installed Bottom view. Please note it fits better than the factory bar and bracket. It is the two bottom holes that must be re-drilled and tapped.
By using the picture below as a guide you can easily see how to mount the mirror bracket. The convertible bracket will need to be mounted on the inside edge by installing the retaining screws in holes B. Once you have it screwed down then mark the correct position of holes for A, drill and tap.

On a coupe it is less critical and you can use the existing holes by inserting your screws in the holes marked C and mounting the bracket. Once you have these two screws in place you will need to mark, drill and tap the hole for hole D. the hole for D never has been pre-drilled and probably due to the header working for both coupe and convertible. Should you feel the need to drill the holes in the exact place simply transfer the holes for C from your old header bar, drill and tap them. Once you have these two holes in place only then do you drill and tap the hole for D.

Now it was time to install the windshield. Since this is a very original car and it had the original un-marked windshield in it, we took extra time to make sure it was removed without cracking it.

The original windshield was re-installed using a 3/16” ribbon windshield tape. We prefer this size over the 5/16 tape on original windshields. Original windshields are thicker than the reproductions and generic replacements. When using the reproduction windshields we use the larger size tape for fitment purposes. Also NOTE: We only use the ribbon tape on restorations after a waiver is signed. In most if not all states you are required to install the windshield using urethane sealant. If you are using urethane please make adjustments to your tip before running your bead.
Also note that on most cars 1977-1982 you will almost certainly have to use the urethane if replacing the windshield with a new glass. Problems in the fitment of the replacement windshields will dictate this use.

If you have made it this far we congratulate you! We hope this publication helps you in the restoration of your vehicle and we hope this has been helpful. This publication will continue to be edited and changes will be made as I re-read and edited. There are still more pictures and more details on this to illustrate.
Please remember, we have advised you to seek professional assistance in this job. If you weld the parts in the wrong place or change the pillar position you will compromise this installation. All the parts for the windshield frame are correct except where noted above! All the parts can be installed without problems and as warned above, this is not a job you should do if you are not very familiar with the techniques mentioned above.

Good Luck and if you have any questions, please feel free to email customer service at WillcoxCustomerService@WillcoxCorvette.com. Please do not email or call our sales staff about questions from this publication. Direct all inquires direct to the email address listed above.

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