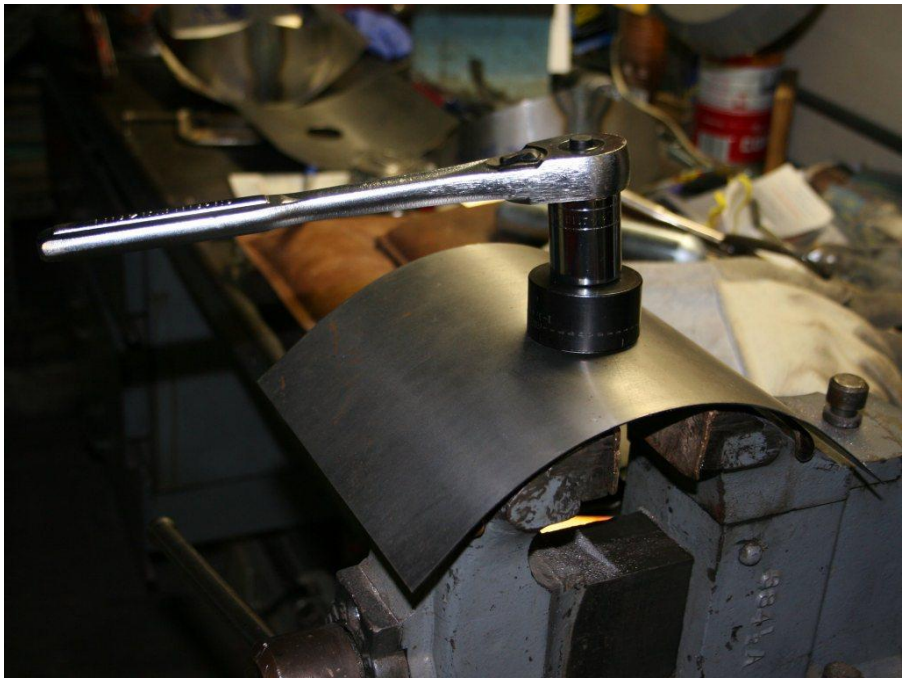
2012
Jan 1 to 15
Finished installing the castings for a final fit. All looks well. Started on the tail light housing. These are difficult to make due to all the compounded angles in the body. I used Solid Works to model these parts and I used the sheet metal program to make the side pieces. These were then placed on a full size drawing and then printed. The drawing was used to do a transfer on the flat panel pieces from a drawing to sheet metal. I then worked each section to fit the body to get a good fit. This took a lot of trial and error to get it right. Finally I got the sides correct and spot welded the pieces together. Before I did the spot welds I transferred each section to the copper sheets that will be used in the final part. The hemisphere is the next challenge to find out the cuts. This will be interesting how to solve this one.


Copper parts first trial.

Feb. I designed and cut the copper to make the tail light housings. In order to weld them I finally installed a new power lines to the shop to handle the tig welder. This took several weekends to complete. When I got this done I tried to weld the copper together. It proved to be a challenge due to the heat needed to make good welds. And I had two different thickness pieces of copper to join. When got hot enough to weld it would blow out and then made a repair nearly impossible. I had Dave look at it and he also concluded it will not make a nice housing for the car. So I am going to try another approach and see what can be done.

March 1 to 10
While I waited to see what I could do with the tail light housings I started another area that needed a part on the body. GM called this the Grand Prix x400 and some of the items or styling parts of the Grand Prix production car were used on this body. On the rear of the car where the taillights are installed, in the Catalina and Bonneville, they installed a casting filler piece to finish the body. These were attached by bolts and had a seam with a rubber seal where they attached to the body. If you look at the photos of the X400 you can see there is no seam at this part or where they attach. From what I had left of the back end GM styling made a sheet metal apart that was welded to the body. I used the castings for patterns and hand generated the two parts. I was able to weld them with the TIG which made nice welds. It took a lot of finish work to make them correct. I plan on attaching a stud to these parts to go through the body hole and them weld the part to the body and lead the seams. This stud will be used to hold the taillight housings in place.

March 10 to April 8
I welded the new tail extension on the body. I used studs on the extension to hold them in place while I welded them on the body. These studs will be used to hole the tail lamp housing on. After the welding I tined the surface and applied the lead to fill in the weld joints. I used the lead to take care of any low places in the extensions and the filed this down for a finish surface. I made a fit check with the rear bumper to make sure all was in the correct place.



Steel tail lamp reflector back hole for lamp

Finished housing for tail lamps

After trying to get a good weld with the copper parts for the tail lamps I found it was taking too much heat to get a good weld and when I got a good weld it only lasted for a very short time and the copper conduced too much heat too quickly. Since I did not have any facilities to keep the copper parts hot I decided to do a different design and go to a parabolic curve and do a fit to the side pieces I had designed and make it from steel. This turned out to be the answer. So I made the parts and welded them together. I then fitted them in position and made extensions on each

side for mounting. I now have to check the fit with the tail lamp grills and see if we have any problems. If all of these fits are ok I should be able to do the finish work on the body and start shooting the paint.

Fit up of the part on the back end of the body

Side leaded in for finish.

Body primed after finish of rear parts on body

April 14

Fitted the tail lamp housings to the grills and body. Made some adjustments to the pieces for a good fit. The grill mounting screws do not seem to be a problem for the housing fit. I need to

change the stud and mounting adapters to make them shorter for better clearance. I am now ready to take the trunk grill pieces to the casters for some minor repairs. There were several places where the drilled holes left a slight push out on the plated side and these needed to be filled. I only had 4 parts that need to be fixed and then to the Royal Plating in Tucson.. I have some minor pieces to add to the tail lamp housing to better support them and they will be ready for plating. I can now work on the body and get it ready for paint.

Rest of April
I finished the mounting hardware for the tail lamps to attach them to the body. All the grills from the rear and the tail lamp housings were take to be chrome plated.
Tail lamp housing in place on finished car.

The body was sanded and sprayed with K36 PPG primer. I used a black spray to make a guide coat and then sanded with a large hard flat block. This revealed places that were very small dimples in the sheet metal. These were either sanded out (until I saw the red base primer) or were filled with polyester glazing putty. All of this sanding was done by hand to make sure all surfaces were as flat as possible. Then another coat of K36 was sprayed and sand once more with a guide coat. After all small defects were take care of a final k36 coat was sprayed. This last coat was reduced more to flow better. This coat was sanded with 400 grit paper and all looked good. The body was completely washed out and all area cleaned. It is now ready of top coat.

May
I began a series of tests to find out how this car was painted. I had only about a 1 by .25inch sample area that showed any color which was listed at pearlescent yellow. In looking at the 1963 paint sheets, there is nothing like this listed so this was probably a custom finish. Today we have pearl finishes on many cars and they are done using a tri coat finish. Color- clear with pearl – clear. This will give a deep pearl finish. But back in the 60s this type of clear was not available and what may have been used might have been lacquer and clear lacquer. However in discussions with some car painters from that era we believe it may have been mixed in the color. So in order to use what is available today I set up several tests to see what may be needed.
I made 4 test plates. Each of these were coated with DP48LF primer, which I used as a sealer over the K36 finish. I then coated each with the yellow base coat we matched with what was left from the original body. I then did 4 tests. In looking on the web I found that there were what is call ghost pearls and they are colored. I call the supplier and we determined that either a gold or and green pearl were used on the yellow and we are not sure on which level. So I sprayed a coat of yellow with the gold and one with the green over the base yellow. Another test was to mix the pearl with the clear and try each colored pearl. And finally I tried to spray a mix of the clear with pearl and a tint of yellow. These were done and need to dry to look at them and see what might work
More May,
After much research into the pearl paints I found out that the mica pearls were started in 1984 on Corvette and Cadillac. The only pearls available before 1984 were made from sea shells and fish scales, neither of which are available today and these looked quite different than the mica pearls

of today. I took a piece of the rusted body part that still had a coat of the yellow on it and cleaned it up and then made a close examination of the paint. There was no evidence of any pearl in the paint. So we went with yellow paint and no pearl, the Pearlescent Yellow was a color name and not pearl paint.

After the final primer and sanding I got the body ready for the finish. I went with PPG color/clear coat. I masked off the under carriage and fire wall which were finished earlier. Since I was not sure if we would do a pearl finish, the doors and trunk lid were left attached to the body so all would match. This later proved to too much to do and requires more spraying. I sprayed the color and then did 4 coats of clear to allow for sanding and buffing. When I finished I saw two places where the air hose I was using for my breathing mask had contacted the clear coat on the quarter panel as well as some dirt blew out of the trunk lid structure in to the clear as well.

I sanded down the clear after a day or two and then removed the trunk lid to do later. I then resprayed the color and sprayed nearly 6 coats of clear. This went very well. I then sanded and buffed the coat. The clear went on so well that I used a wooden block and 800 grit paper and water with some soap in it and sanded the surfaces to flatten them out. This was a very light sanding. This was followed by 1000 and then 2000 as a final sanding. I then buffed the finish with my power buffer and 3M Prefect-It III rubbing compound. I then buffed with Perfect-it III glaze and then 3M Finesse-it II finishing material. This gave me a glass like surface and very deep finish.

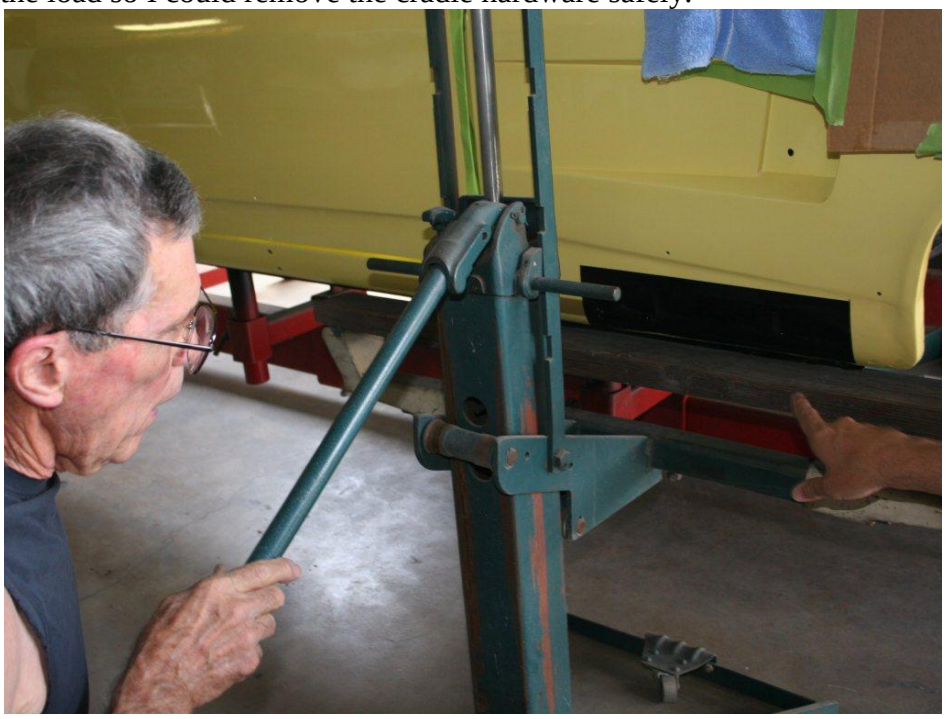
After the final compounding I masked off the car to spray black on the trunk area of the separation in the lid and grills so the yellow would not show. Also the exhaust ports and the back plate of the quarter grill holes. All the masking was removed and the body cleaned.

June 16

This was the big day. I was able to get a number of people that I work with to come over and we moved the car cradle over to the next bay of the car port. I padded the sides at the quarter panel so I could use the lifting fixtures I used to remove the body from the frame.

A concern was that I did not want to lift the cradle as well. This would be too much strain on the body. I used my bumper jacks that I used in the past under the rockers to lift the body. This took

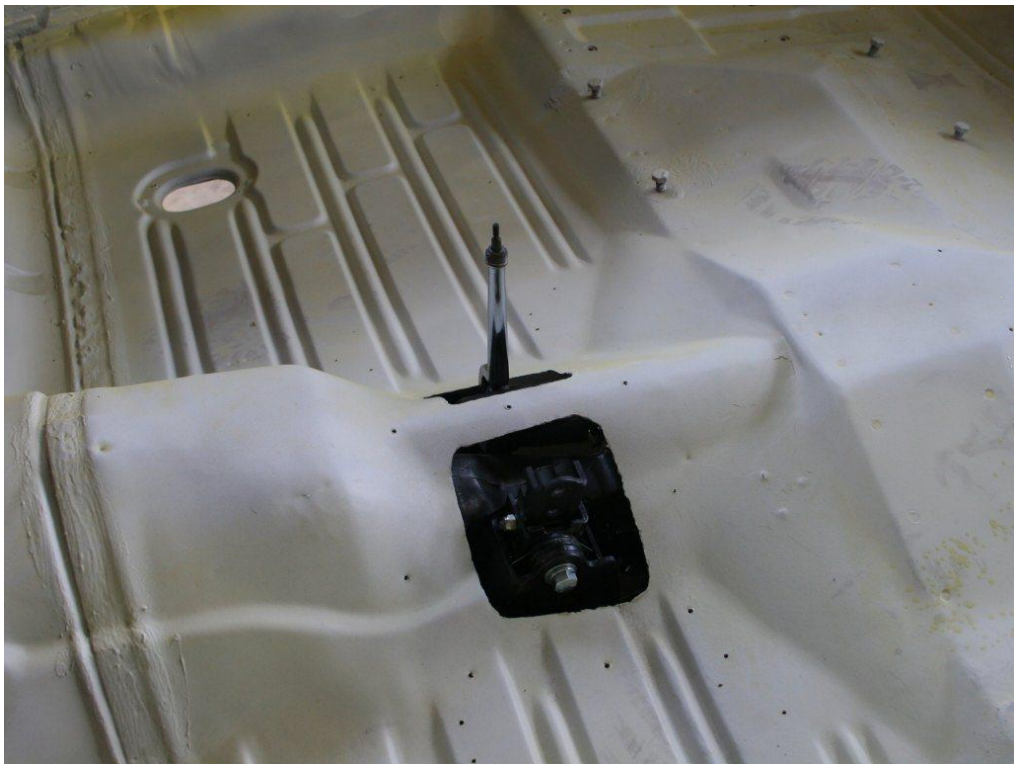
the load so I could remove the cradle hardware safely.



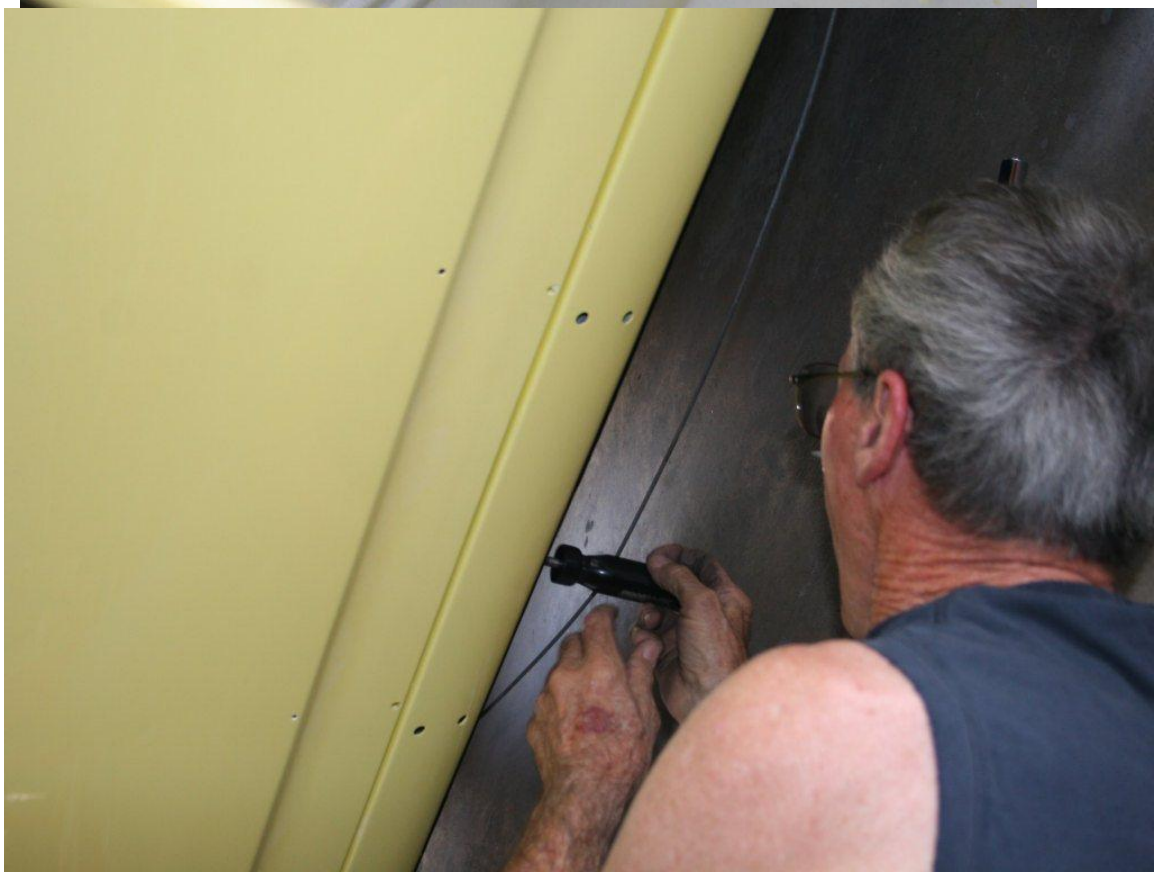
I then could use the lifting fixtures on the fire wall and the one on the wheel well openings to do the lift. This work out well and the body was now free to roll the frame under. We rolled out the frame and with everyone watching carefully lowered the body.
All went well. I did have interference with the shifter and exhaust control. Both will take some adjustment and cutting to get a good fit.

Exhaust cutout lever starts to show through the floor

I later found that the tail pipes were contacting the trunk back so they will need some change. We pushed the body and frame back into the shop. After cleaning up everything I measured the position of the body to the frame and all sides. I loosened up all the bolts and moved the body till all the measurements were same side to side. All the bolts were installed and tightened down to see how the body would change. Shims will be needed to correct the door alignment, but all looks good at this point and I need to install the trunk and see if it changed any.



Exhaust cutout control lever appearing through the floor hole.



Body on the frame

Ready to move into the shop

So this was one of the larger steps to finish the car.
Stop here Feb 5 edit
June /July
I worked with the shims to get the doors aligned to the body. I first made sure the doors were lined up with the fire wall and the rockers. Then I used the body shims to finish the alignment to the quarter panels. I did find a problem in looking at the factory photos. The rear view mirrors on the doors had been moved. The ones on the doors when I got the car were forward of the vent window post and the paint had been done with them mounted in this location. The photos showed the mirrors near the end of the door by the fender. When I scrape off the paint on the original doors you could see where the holes were filled on the door end. The original doors were rusted so bad there was not much left to repair so they were replaced. They may not have been any use at the end of the door and were moved to be useful. After lots of inspection of photos the mirrors were near the fender in all the 63 photos so I decided to move them to the original position. I had drilled the holes for the mount by the vent pillar so I removed the doors and filled the holes and repainted the doors. I also wanted to redo the trunk lid so I prepped both the doors and the trunk. Everything went fine until the second coat of clear. Something must have contaminated the clear and made spots all over the clear and it looked like craters on the moon. I had to quit and sand all the clear off and recoat them. The doors came out great and I decided to wait on the trunk lid till later.

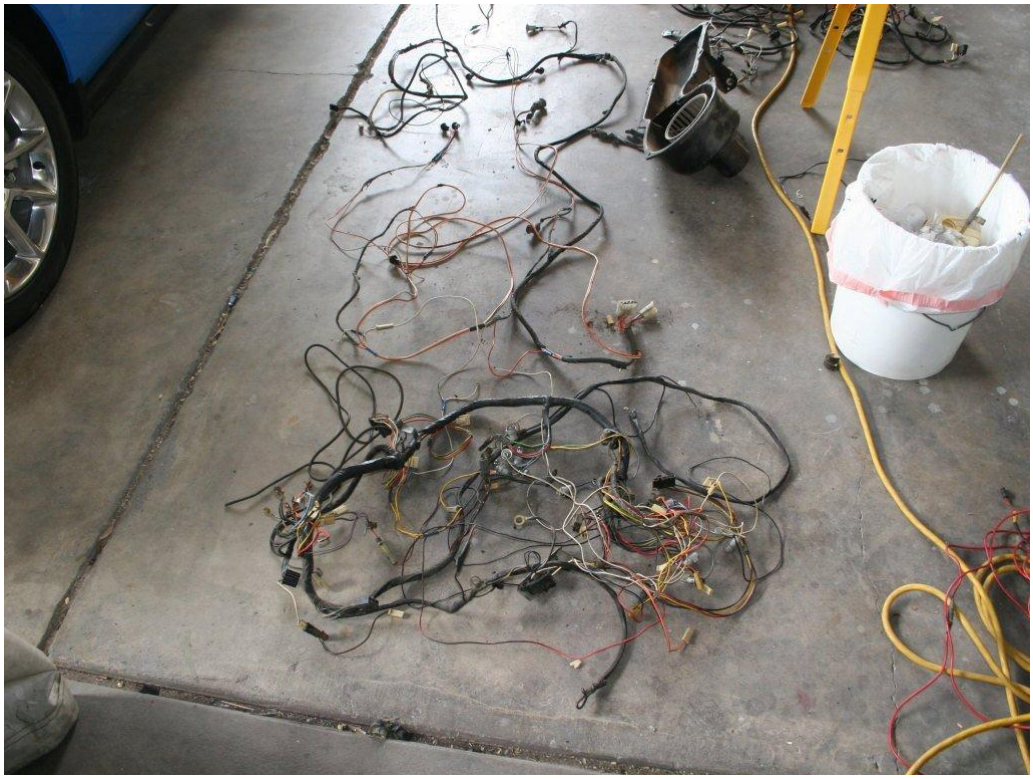
July 4-7
I spent a lot of time working on the exhaust cutout control. It needed to be raised and moved to clear the body as well as positioning it in the correct location in the photos. I had to design new mounts and nearly ended up replacing nearly all the parts I made earlier. Since I used an automatic transmission shifter for the exhaust cutout system, it had the curved sector that had a

raised spot that was used to keep the shifter in Park and would not easily push out of place without pushing down on the knob on the shifter. The position of this shifter reversed this sector so the lock would be in the open pipe position. I removed the sector off the mount and welded it in a new location to keep the control moving in the correct arc and would lock in the closed position.. Now it looks correct and needs only housing surrounding it to cover.
I installed the fire wall pad, brake and clutch control peddles the emergency brake control and the power brake master cylinder. Installed the console parts and got them into the correct positions. Installed the doors on the body and lined them up. Next: I installed the convertible top boot fastening stainless trim around the body opening and the quarter window weather strip. I had to make up the quarter window weather strips.

July 14-15
The outer weather strips for the top of the doors were installed and vent molding. I installed sound deadener to the door inner sheet metal. This replaced the deadener that was on the car.

July 21-22
I installed the door latches and handles and rubber bumpers in the doors as well as the stops for the windows. All the rods for the windshield wipers were installed. I started on the vent window rubber installation and the felt track. The felt track was a problem to find what would work. I finally found a track and got it installed in the frame along with the vent rubber. The rubber is held in the chrome frame with metal clips. These had to be removed from the old rubber and this was hard to remove and keep in tack. It took several old windows to get good metal clips that would work.

July 28-29
I painted the black on the quarter panel chrome grill side pieces and installed them. They turned out great. Installed the chrome bars on the quarters and door for the rocker molding.



Original wire harness (A mess)

I did an inspection of the wiring harness from the car. They were a mess. This harness had been spliced and spliced. Changes had been done over and over until it was nearly impossible to tell what ran where. I decided to purchase new harnesses and convert them as needed to fit the car. I ordered the harnesses from M&H Electric in Calif. They had all of them available for the car and could supply everything but the fuse block. I pulled a fuse block off and old harness and sent it to them. The wiring harness came in and they look great all the color codes match the codes in the manuals. Had to get a number of different section of harnesses for the entire car. The power vent window harness was one they did not have a pattern for so I sent the old harness and they made one for me. A fabric called mole hair was used to as a lining in the quarter window track. I had to make the rubber weather strips that fit on the top of doors and quarter between the glass and the door. I installed them on both the doors and quarters.

Aug 4-5

All new glass was purchased for the car from Pilkington glass. They are the supplier in the US of LOF glass. The glass arrived during the week and it was in good condition. No breaks.

I took all the side glass and the chrome frames to National Auto Glass and had them mounted. All the glass is date coded as best we could estimate based of the production date for this car. We used the rope techniques in the pinch weld of the rubber gasket on the windshield and it worked out great with no problems. I sealed the glass to the rubber with a special liquid compound for this gasket. Then I used a nonhardening sealer around the rubber to body seal. The people at National Auto Glass were very helpful in getting the materials I needed. They have not installed a gasket windshield for some years. The head of the shop was familiar with the process and did it years ago. I installed the trim pieces on the windshield frame. It is interesting that GM did not insert all the screws in the trim. I had to drill new holes and install the screws to get things to fit right.

Aug 11-12
I installed the vent windows and the final trim on the windshield along with the rubber weather strip on the windshield pillar. Did preliminary alignment to the vent window to windshield, the rest will have to wait until the top is on so I can set all the glass. This took some time to do, had to refit nearly all the holes to make thing come out right. With the vents in I could install the vent power motors. I pulled out all the power window motors and arms to get them cleaned and ready to install.

Aug 18-19
Did some parts search for X400 parts in the shed.

Aug 25-26.
Found the rear view mirror bracket and attach it at the interior trim on the windshield header. Had a problem with the parts lining up right at the ends. Had to remove the outer end parts and install missing screws to hold down the top trim to the header frame. I had to drill these holes they were not done by the factory but were needed to get things lined up on the sides.

Sept 1 -9
Spent this week on vacation and did a number of things to the car. I rebuilt all the power window regulators. They need cleaning and new lube in the motor gear boxes. I replaced the drive gears in the door regulators with new ones which helped to make the operator work smoother. Tested all the motors and they were fine. Lubed all the parts and got them ready to be installed. Installed all the quarter window glass they went in fine and work well. I had some problems with the door glass. The glass had trouble with the vent window division channel. It was too tight. I used a .25" thick plastic piece in the track to open it up more and sprayed silicone lube in the tracks. This got them to work better. I now need the top frame on to finish the window alignment. I began installing the wiring harness for the windows (PW). I had to modify the rear PW harness for a connector to the lighter that is in the rear arm rests which is unique to this car. I looked over the harness that came out of the car. It was a mess. It had a lot of changes and splices in it. Many items were tape up and not used, it looked like they did a lot of changes and changed their minds. I decided not to try and do the same thing to the new harness. The original harness was so bad that it would have been unsafe to ever use and it was amazing it lasted as long as it did. I got the fuse block installed and the wires out to the engine.


Heater box stripped of paint

I got the heater box stripped of paint and ready to be painted. I started cleaning the blower housing. I got the grills back from chrome plating, for the trunk and began to fit them. They are working out fairly well except for the center joint. The chrome built up on the ends and needed to be ground off for a fit. I ordered the fasteners for all the grills and the red plastic for the lenses. After the fit up I will use wide pin stripe tape for the black fillers. I used a precision cutter to cut the strips for the inserts

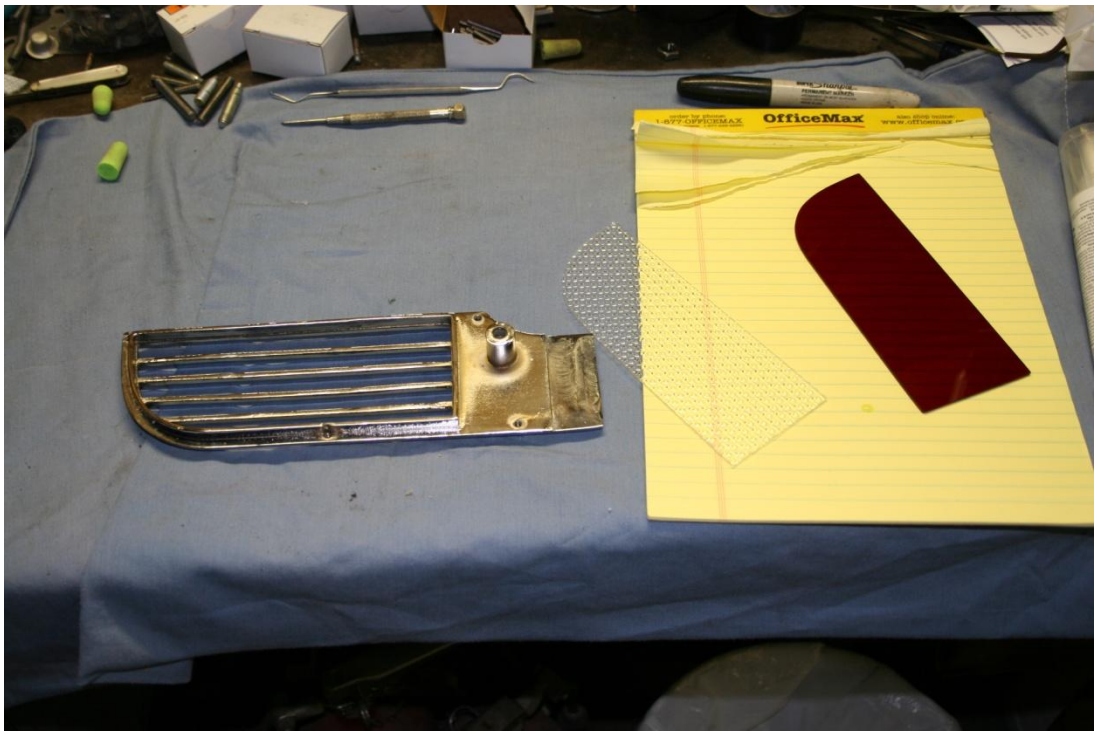
Began inspection of the door panels and other interior items to see what is needed. The carpet is here and will need to be fitted to all the console parts.

Sept to Oct 2012
I took the convertible top bows apart and had all pieces sand blasted. I had a problem with the front bow. The first one I did had been hit in the center and was bent, but it was in excellent condition. I had the other two, blasted and both were in bad shape and would need a lot of work to repair. I decided to use the bent bow and straighten it out.

Convertible top bows before cleaning

I got the vent window harness and got it installed as well and many of the other wires in the rear. There is still some minor modification needed to finish the wiring. Found a replacement radio antenna cable. The one I had was broken and will not work. Looked at the reverb units and found one that appears to be in fair shape. I will probably send off this unit and the radio for rebuild. I took the speedometer to a shop and had it checked it is fine. This is a 0 to 160 mph speedometer so it is special.

I got all the parts for the rear grills back from the chrome shop. I made the tail light lenses by using a red plastic and a diamond plastic sheet to act as a diffuser. I cut these for and exact fit and installed them in the frame using silicone rubber to seal them. Al suggested keeping the diamonds in the diffuser aligned horizontally. This worked out very good and the lenses work very well.



Plastic lens parts for tail lights

I began to install the grills in the trunk area. I decided to use the flexible caulk to install the grills and seal them. I did this so they can be re moved if needed. I had to grind off the center section joint. The chrome built up too much on the ends and did not fit well. This worked well and did not affect the chrome plating. The grills fit very well and look good. I only have the trunk ones to complete the full installation. I installed the chrome rods in the door bottoms, the quarters and the rear quarters.

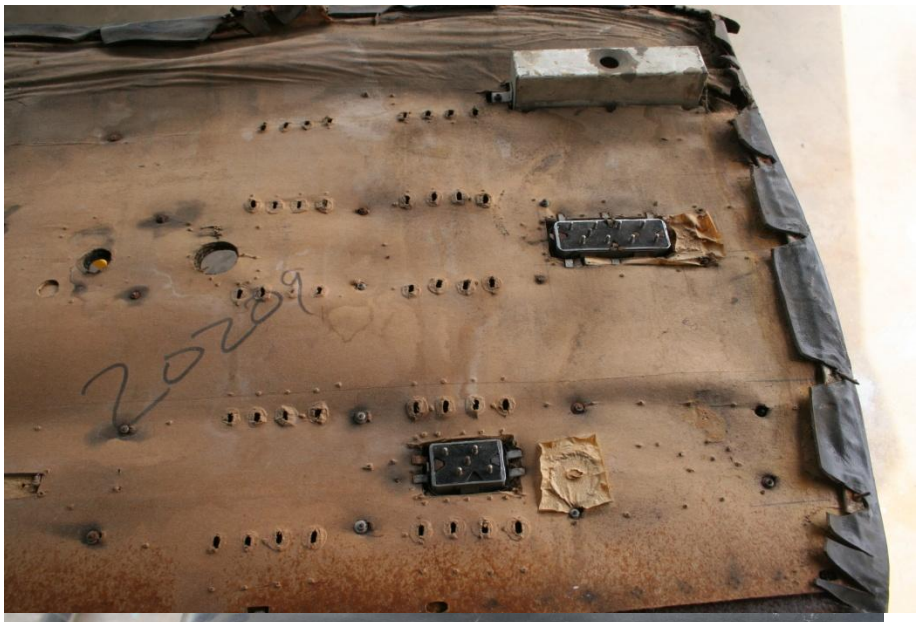
A lot of time was spent repairing the trunk release. This unit was special and there is no key lock for the trunk. It had been badly damaged before I got the car and someone tried to pry the trunk lid open with a pry bar in the middle of the lid. With help of Dave making some special parts got it back together.

October November:
Painted the trunk lid and rubbed it out. It was installed Mid November and lined up. The X400 letters are going to be a challenge to install and reach the studs and nuts to hold them on. Removed the paint on the heater and blower housings and painted them. The heater box had been painted with a satin black paint instead of the semi gloss gray. The blower housing was painted with a wrinkle black paint this has been a challenge to get a good coat. Installed some of the lower trim on the doors, quarter and trunk quarter area. The brush chrome looks very good and a nice match to what was there originally.

Heater core housing

Blower housing

I took the door panels apart to see what I will need to replace them. Also the chrome will need to be redone on all the pieces. The panels were in very poor condition. The water barrier had been removed and water badly damaged the bottom of the panel to the point it could not be saved. The leather was is very poor condition and the trim not great. All the trim was brass pieces that were machined and welded together. These brass trim pieces surround a brass plate that was painted wrinkle black. These trim pieces were held on by 2-56 shafts with nuts and washer. I had a number of these studs break off in the trim piece so they will need to be replaced with new holes. I decided to use SS set screws for the studs. I will need to do the repairs and then get them to the plating shop.



Door panels

I selected the leather for the interior. We estimate it will take nearly 9 hides of do this interior. Everything is leather. I found new door panel card board and metal edging all that is needed is the leather and we can start on them.

I now have the top, top well and material for the pads as well as all the carpeting. As soon as the top is on I can start on the interior and install the dash.

November 17-18
I attached the heater box on the fire wall and the blower on the engine side. Did the final adjustment of the trunk lid and started to install the last trim plates. I fitted all the trim on the trunk lid. Finished installing the rubber boots that connect the doors to the body, for the wiring that goes to the windows and lights in the doors.

November 19-24

I had all the top bows powder coated to get the correct finish on them. The paint did not look good or hold up well during assembly. I worked on installing the wiring harness and got some of the lights fixed in place. Worked on door alignment and powered up the windows and began to line them up. Today I attached the top cylinders to the hoses and the rebuilt pump. I rebuilt the top pump several weeks ago. I then purged the cylinders and pump of air. I used a pump system supplied by Convertible Top Service in Calif. to prime the cylinders. The cylinders were attached to the top brackets and the system was installed in to the car. I ordered the leather for the interior. I need the leather so we can make the welting for the dash and leather for the rear plate behind the back seats. I ordered top from KEE top. I had no way of knowing what color the top was on the car. The top that was on the car when I got it in 1982 looked black but it may have been changed. I did get the build sheets from Pontiac Historical Services. On these sheets the car was built with a black top. Since I have never seen any photos with the top up, I went back to the black tops as this would look best on the yellow car.


Top bows assembled and ready for installation

Nov 24 to Dec 1:
All the leather came in. I ordered 9 hides based on them being 50 sqft each. They sent me 11 hides to come up with the correct amount off square feet I needed to keep the blemishes down. I installed the tack strips into the back bow and the front bow. I then assembled the bows together with all the wavy washers and inserts. We lifted the bows and installed them into the car. I opened them up and positioned them to the correct position for the top. I installed the rubber seals for the windows and began the process of aligning all the windows, top bows, doors and weather stripping. This process took a couple of day to complete. The rear bow was set to the 25 inches height needed for the back window.

Mid December:
With the help of a close friend who is a upholster, we installed the window and top. This took about three day to complete as we had to make new pads which I attached to the bows to hold everything in place. Before I painted the car I drilled holes for ¼-20 nutserts. After the body was painted I installed the nutserts in to the holes. This was done since the old holes were made by sheet metal screws and will not take the constant in and out required to install the top. I found special stainless steel screws that had a pointed end to make it easier to install them into the nutserts. The top fit well but did require a number of in and outs of the back bolt in bow. The finish of the top took about two more days. This involved inserting the rubber and finishing the adjustments of everything on the windows and frames.

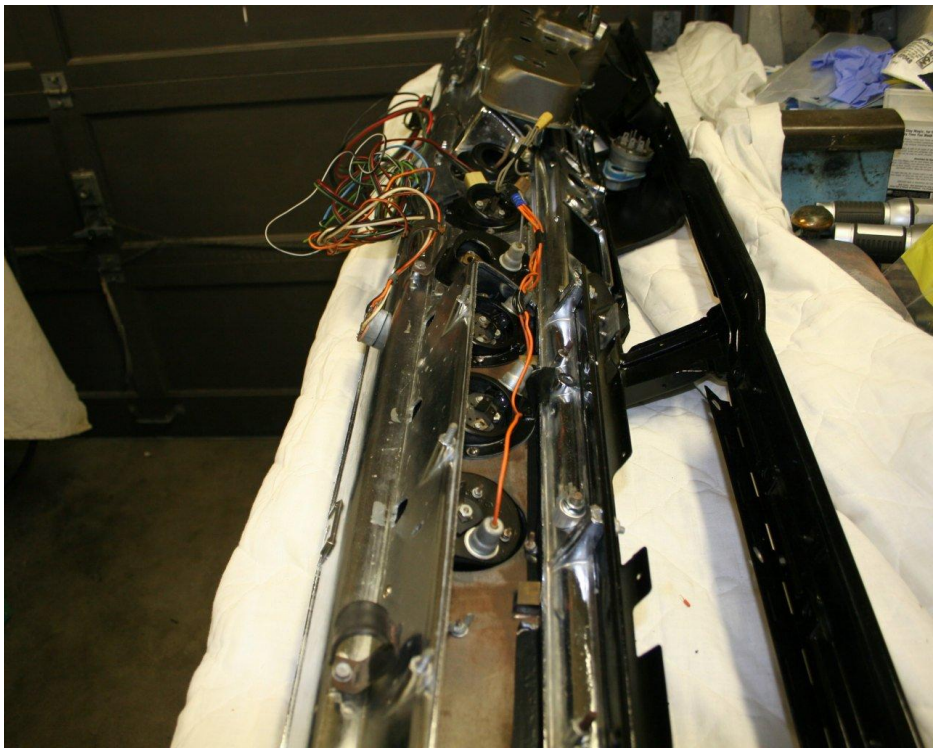
Dec 21 to Jan 1 2013

Now that the top was installed I brought out the dash. I worked on the dash back when I got the car in the 80s. All in instruments were still in good condition and only needed cleaning. Fortunately and upper chrome part of the dash survived all the years of abuse and only needed cleaning. This was very good as the upper chrome part had been worked over a lot by GM to fit the instruments and trim. I painted the lower part and all the wrinkle black pieces. We placed

the dash on the bench so I could install all the items that would be hard to do after it was in the car. I installed the speedometer, which is special for this car. It is a 0 to 160mph speedometer. I made and installed new lamp harness in to the instruments. I installed the welting strips of leather on each side of the body that will be by the dash. We then installed the dash for the first time in some 30 years. After looking at the original wiring harness I was able to piece back together the lamps and wiring needed to make the instruments work. Since everything was custom it took a lot of time to rework the harness to make it work. In placed of all the splices GM did to the harness, I used all GM connectors I could find so it will last and not cause problems later. The original harness was so much of a mess that is was nearly impossible to tell what was done.

I did run into a problem installing the heater control head. It would not seat on the dash frame. I found that the screws and nuts holding the trim on the dash extended too far into the back and caused the control head to not seat down. I had to modify the control head frame on the sides to fit. The original control head was in such bad condition it could not be used. The wiring has taken days to work out and I will not know if all works until nearly complete.

Dash rear before instruments were installed



Dash instruments installed

Speedometer with the SO number written on top

Dash installed