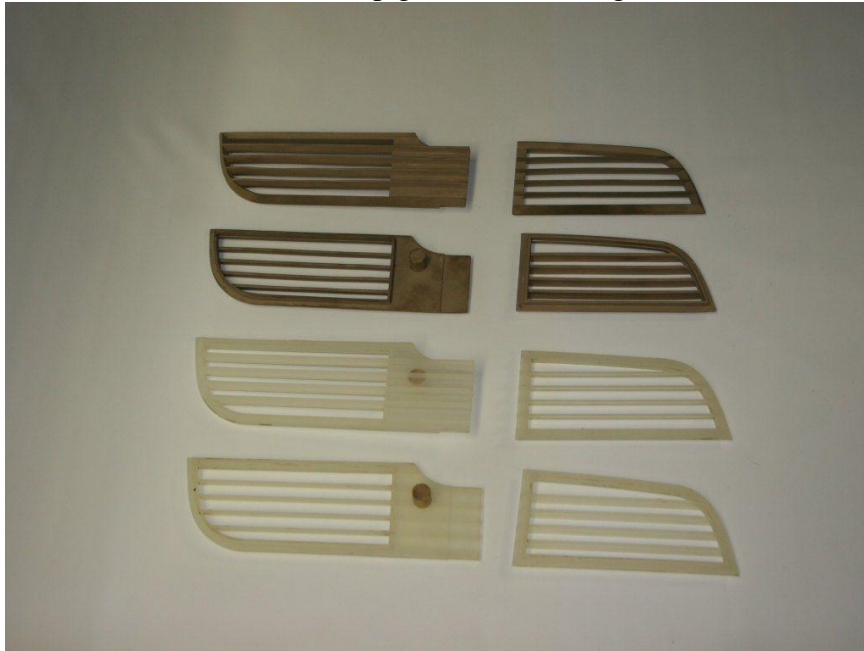


March 2011

The rear grills for the trunk design is done and the prototype parts for the casting molds have been made. Two of the pieces have been taken to the Beyond Bronze to cast and see if they will work. Below are the tail lamp grills after casting.



Above are the first fit up on the trunk rear.

March 27

Made the new door outer window rubber weather strips for the top of the doors at the windows. Attached the metal clips that hold the strips on the door and attached the plastic guides on the one end of these strips. I had the door latches zinc plated along with a number of bolts and parts at Arizona Metal Transfer. Before plating I removed all the springs so they would not become hard and break after going through the plating process. I installed the springs and then lubed the door latches.

April 2-3

Two of the castings for the taillights are finished. The fit to the body was very good. I opened up the holes in the body to fit the castings. Epoxy the wooden spacer on the left bottom tail light grill and got both top and bottom patterns ready to go to the casting co.

April 8

Installed the chrome and polished parts on the alternator brackets and installed the alternator. Fitted the water pump, chrome pulley, and the belts to the Power steering pulley and Alternator.

In meeting with the casting company we decided the solid models need to have something added to increase the thickness of the pieces. It was felt the long pieces would not cast correctly if this

was not done. They decided that it was better to add a 1/4 to 1/8 inch board to the backs as a solid piece. This extra metal will need to be milled off but it will make the casting easier.

April 17

It used 1/8 in board on the back of the each solid model patterns. I used double sides tape to hold these on the solid model. I felt the bosses for the studs need to be longer so I had to make wood inserts for the bosses on the patterns. I cut the boss inserts on the lathe for each one and epoxyed each one on. Got the drive shaft back and got is painted and installed. Also painted the shift floor cover and the clutch brake fire wall plate as well as the rear console mount that I had to make as the one in the car had rusted away

April 22

Continued work on the casting patterns for the rear of the car. Made the backer boards and new extensions for the screw bosses to make it easier to drill and tap the stud holes. Changed the backup switch bracket on the transmission with a plated one and set the switch and locked the switch arm in place. Trying to find out how I am going to install the exhaust cut out control on the transmission side. So far it looks like I can use a factory floor shifter for the automatic transmission and modify it to work. I need to get springs for the carb. return. These will have to be fairly strong. I have ordered several parts from Mc Master Carr. I also ordered the 45s for the cooling pipe for the heads, the key for the blower drive, and the fittings for the heater hoses on the timing cover. Except for the injector nozzle and solenoid, all that is needed to finish the frame assembly is the exhaust system.

April 29-30

Replaced the center metal strip between the two tail light grills and fitted the two grills on the right side.. The grills need the mount studs so I can get all the holes done. I got the parts for the cooling and heater hoses. I need to weld all the fittings for cooling together. I installed the 1/4 in key in the blower pulley. All that is left is the FI nozzle and controls to finish the main engine. Everything is ready for the exhaust system.

June 4

I had to changed the right side cooling pipe design. Cut the pipe apart and added the two 45s to move the pipe more to the outside so I have better clearance for the blower idler. Tack welded the sections together for a fit and will have Larry weld them . Have added springs to the carb linkage to see if this will now return the links. They are strong but they need to be to work. Will see how this goes as I get more together. I need the FI nozzle and solenoid to finish the engine. Installed the heater hose fitting to the timing cover. Hope this will work for the heater since I do not have any fittings on this cover and Pontiac does not seem to have one that will work and not have the crossover bypass at the top of the cover.



June 18

Got the two casting for the left side tail lights and fitted the grills to the body. They look very good. Now will have to wait until I get the next sets of castings to finish the body for painting. Modified the radiator to block water fitting on the right side of the block to clear the blower pulley- tensioner. Did a tack up of the pipes and took it to Larry T for welding. Got the injection nozzle from Bill N and will need to fit in into the manifold. Bill suggested installing an electric fuel pump for this injector based on today fuel and being able to start this motor easily. I think we have a way to include all of this inside the solenoid housing as the new pumps are very small and the solenoids are small. Will see what we can do.

June 28

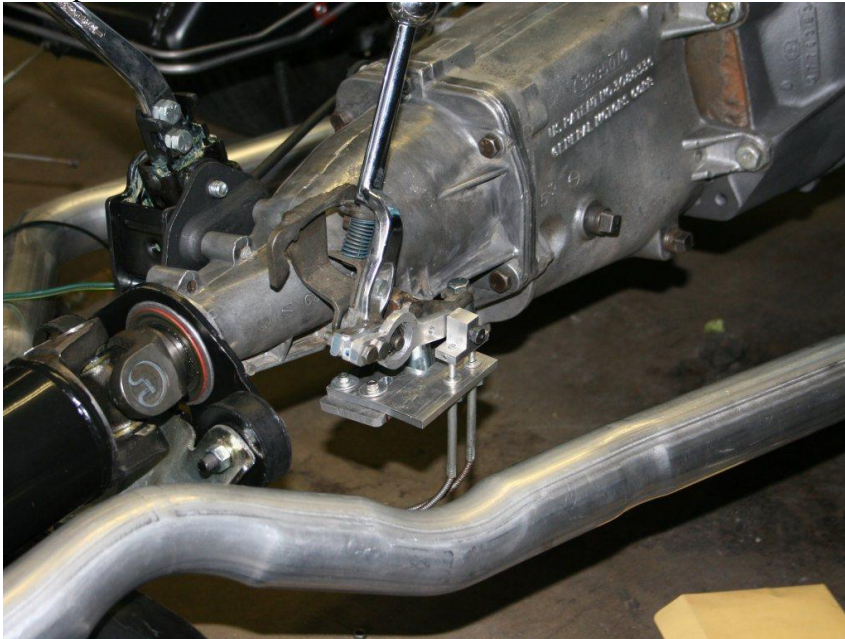
Drilled and installed the fuel injection nozzle in to the intake manifold. Installed the linkage and springs for the carburetors and all them are on the manifold. All the linkage will need to be adjusted. The carburetor manifold is now on and the bolts torqued. Next step will be the solenoid for the injector.

July 3

Machined a bracket and used a automatic transmission floor shifter for control of the exhaust cutouts. All of this is unknown as nothing existed on the car or frame. Going by the factory photos, it appears as this is what was used. I made a plate that bolted to the bottom of the 4 speed transmission extra mount holes. Machined the shifter base and the plate to allow the shifter to be raised to match the photos I have. If needed the spacers can be changed to move the



shifter up or down as needed. Will have to design the levers when the exhaust is installed the will open and close the cutouts.



Exhaust control mounting.



Exhaust cut out control mounted to the transmission side. Cables used to control the cutout.



Exhaust with cutouts near mufflers.







July 9-10

I did a search for rear outside mirrors. These were a bullet mirror that was painted to match the body. I found the mirrors on line and ordered them. These are a new reproduction of the bullet mirror. They look good. They may be slightly shorter in length than the original ones but I have nothing to compare them to. I got the coolant pipe back from Larry for the right side. Got it ground down and painted. I got the two coolant pipes installed and all the parts sealed for coolant. Both the Alt and PS pump look good and the new pipe gives the necessary clearance for the tensioner for the blower belts. Installed all the carbs and replaced the fasteners on the linkage with special locking nuts. Only thing now is the linkage adjustment. I am concerned with the spring pressure. It is too great. Need to look into less spring pressure on the carb linkage and perhaps adding a spring on the linkage at the fire wall. Polished the two vacuum pipes and got them installed on the top intake manifold. All the fuel line fittings are installed both on the carbs and the fuel block and ready for the hoses. The bend charts for the tail pipe were not correct for the 2.25 pipes so I have ordered the pipes and had to order different cutouts since we will be using 2.25in pipes. I should have everything next week and see how this will work. Some more of the rear casting are under way.



Fuel supply block on rear of blower.

July 19

Started to design the exhaust cut out system. Got the two cutouts done and am working on the linkage to move them.

July 22

Had the exhaust pipes made and did a test fit. The front pipes are good and need only some adjustments to fit well. The tail pipe is not correct and needs to be redone. I selected the positions for the cutouts just in front of the mufflers. Will take them to Indy Muffler, Jim Freund to get them changed. Things look good. Did a comparison with the pipe I took off the parts car so they can be used as a pattern.

August 6

Continued the exhaust pipe fit. We got the manifold pipes to fit well after a few minor bend corrections. We cut the pipe for the cutouts and reformed a new piece to fit between the main pipe and the cutout. This will give some adjustment to the position of the pipes and the cut out. The tail pipes are a problem and I will have to take the Bonneville to the shop to have them made. These are a much larger diameter pipe than the ones used on the standard system so they will take some time to fit. Even though the Bonneville is longer the shape over the differential is the same and that is where we have a problem with the bend charts. I am going to try and

modify the cutouts so there is a right and a left.



Installed the starter. Am glad I did this now as I had to remove the exhaust manifold to get the starter in. I am not sure if this will be case if you could get the car up on a lift, but there appears to be no clearance to get it between the engine and the manifold. Everything is now in place except the fuel pump and lines to the injector and carbs.

September 7

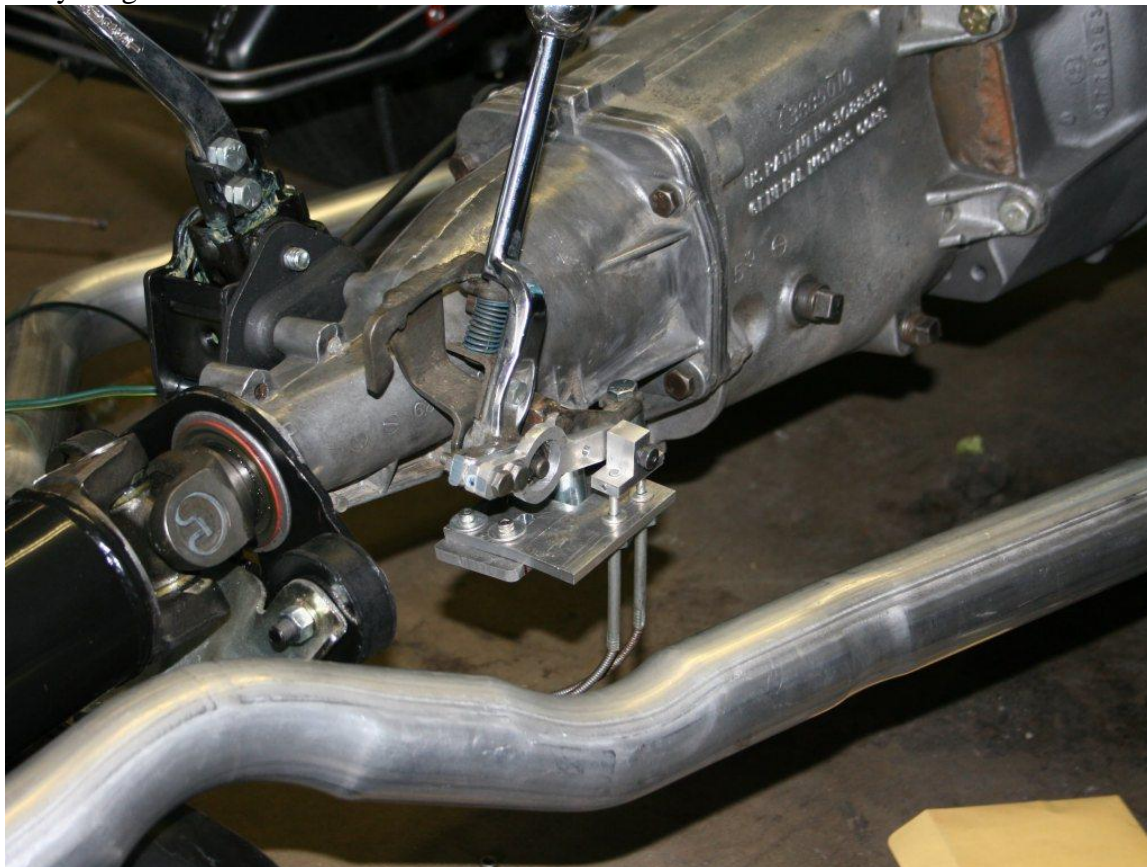
Over the past weeks I have been trying to find a way to make the exhaust cut outs work. Since all I had was a photo of the lever sticking out the floor and nothing left on the car, I had to start from scratch. It looks like a floor shifter from a car with an automatic transmission console was used. After a some experimenting I modified the shifter and mount and attached it to a plate bolted to the bottom of the transmission. There were two holes on the bottom of the case that came close to positioning the lever through the floor. After some measurements on the body I determined the location of the shifter and made the necessary cuts in the steel shifter mount to get it to work. The problem was the shifter was backwards to make it work out to lift the cable controls to open the cutouts. I tried a lot of levers to reverse the motion but nothing would work due to how close everything is. After a lot of fabrication of links, I gave up that idea. I made a new link to fit on the shift lever that extended it towards the front of the car. This gave me a way to lift the cables and open the cutouts. I had to make a new mounting plate for the cable and was able to place some adjustments in the plate to move it back and forth. One thing I was worried about was the motion of the cable back and forth as you lifter the inner cable due to the swing of the sifter lever and arm. However it seems to be ok and the motion so far is not a problem. I



designed a clevis for the contours to hold the cable and attach it to the cutout. All that is left is to make a way to hold the cables outer sheaf to make it work.

Sept 1-

Finally got the exhaust cutout controls to work. I could not get the levers to work right due to how close to the transmission mount the levers needed to be to work. I design a new lever for the shifter that reversed the raising motion so as you moved the lever to the rear it opened the cutout gate. I then mounted each cutout cable on a plate that was attached to the base plate and would allow the cable attaching plate to move back and forth for adjustment. There is enough give in the cable mounts so I could make them fixed and they could bend enough to work. I made mounts for each exhaust clamp in the center to have a hold down for the cable sheaf and make it work, I also made a clevis that would go on the cutout arm and attach to the cable to open and close each one. The system works and now needs some plating to finish and attach everything.



November 26

Got the tail pipes and assembled the system and tightened all the clamps. I still need to tack weld all the joints to keep things fixed. It looks very good and in the correct position. The only area I am concerned about is the cutouts and if they will clear the floor, won't know until the body is back on the frame. I used a high temp RTV on the cutout to stop any leaks. Will see if this will work. With the exception of the welds the frame is now ready for the body.

I got the last of the casting for the rear of the car. These came out fine, but I now have to remove about 1/8 inch in thickness from all the plates. This will take some time and still keep all the bosses that were cast on the plates for mounting. Right now they are very heavy and need to get the weight down. I have asked one of our instrument makers at NOAO to help me get this done. He will use my mill and finish off these pieces. These casting have held me up on painting the body and getting it back on the frame. I also got the copper sphere and plates to make the tail lights housing. I have the design but they will not be easy to make.

Dec 11

Started Dave started to remove the metal from the castings. So far things look very good. The two bottom pieces (small ones) for the trunk lid are looking very good. Duane is doing all the holes for the tail light grills. So we are under way.

Dec last two weeks

Dave has removed a lot of the extra bronze from all the castings and taped the stud holes. All has been working out very well so far. There or a few places I will have to have welded where drills or taps dented the casting fronts. So far all looks very good and can be easily repaired. I have been fitting the castings on the car. The top two tail light grills have mounted very nicely and lineup will with the body. The bottom two tail lamp grills were a little more of a problem. I had to attach the bottom grills that are below the trunk lid and the line up the two tail lamp grills. After some minor sheet metal changes it all worked. I milled the over laps on each piece so they would fit tight and even. Final filling got the fit very good. I established a center line on the trunk lid all the way down to the key lock. This was used to determine the cuts and angles for each piece that had to butt together in the center. I mounted the two small pieces on the trunk lid bottom. I determine the angle for the butt joint and use the belt sander to cut the angle and flatten the ends. I took several tries to get it done but they came out great. I then did the bottom two plates and the lower tail lamp grill. So far it all looks very good and matches the design and the factory photos. These grills have been one of the most difficult parts to get done. I had nothing but the photos to go by and all the design work was hard to do trying to design the rear of the car so it would work. So far I am very pleased with the results. I still have to work out how to make the housings and attach them to the body.

Below are the raw castings before machining off the excess material on the back.



The casting below are for the trunk lid before machining.







Fit up of casting after machining



I am impressed with how the castings all came out. This was a lot of processes to do to make them. From design to rapid prototyping, to moulds the bronze casting to machining. When I

mounted them on the body all lined up very well. The casting company did a great job on these.

