

VPS Hot Rod Build Blog

Volume 3 – Adolescence is Tough - 2020

Progress During January 2020 – Happy New Year

A New Year and a New Decade is Upon Us

January will be a great month to get on with the work. The New Year Cheers for the new decade is somewhat behind us and the Pro Football playoffs are upon us. So far, we have had some very good weather here in Dripping Springs which is a motivating factor for door open shop work.



0120-01

My January goals include:

- Create the removable engine side panels.
- Cut the grill mesh slots into the side panels and mount the grill material.
- Undercoat the panels, both the removable and installed pieces.
- Install the hood receiver pins.
- As a secondary goal, I plan on starting the body work required to level the interface between the side panels and hood to the body.

Time to get to work.

The Engine Side Panels – Again

I decided to cut the engine side panels along the line shown in 1219-09 and in 0120-01, just above the front tire and just above the headlight mounting hole. I mounted the forward lower piece to the Rod and used a bolt in the headlight hole to hold it temporarily in place (0120-01). The steel spacer provided with the kit that goes between the fiberglass panel and chassis mounting bracket was a bit too large and did not fit very well. I created a better spacer out of aluminum tube.

The remaining engine side panel required some type of mounting support along the cut line. A couple pieces of aluminum (0120-03) were fabricated and mounted onto the interior side of the engine panel. I used #8 countersunk machine screws that I epoxied into place (0120-04). After a torque strength test, a quick sanding, and a tiny bit of filler, the powder coated aluminum bars were bolted into place (0120-05).

A full-size pattern for the grill slots was printed out and taped in place onto the side panels (0120-07) in order to locate the 3-1/2" holes at each end of the slots. These were drilled out. A 1" aluminum bar was clamped at the side panel at the quadrants of the hole in order to establish a straight-line guide. A Dremel with a disc cutting tool was used to cut the fiberglass right along the aluminum bar. Just a bit of additional sanding completed the cutouts (0120-08 and 0120-09). The interior side of the engine panels were then painted with the same black undercoat that is being used throughout all of the build.

The grill mesh sheet was large enough to cut out and use just one piece for all three slots per each side (0120-10). #8 machine screws epoxied into the fiberglass countersunk panel holes were again utilized (0120-11). The remaining 1" strip of fiberglass between each of the slots appeared to be a bit on the weak side. A 3/4" x 1/8" aluminum strip was utilized as a doubler along these strips to provide the

needed strength (0120-12 and 0120-13). The finished engine side panels are shown in pictures 0120-14 to 0120-19.





Continuing the Door Fitments - Again

The gaps and the fitment of the closed doors are satisfactory. However, the operation of the doors was not quite right and the cutouts for the hinges in the chassis and doors were crude at best. I tackled the hinge cutouts first by designing a frame that could be epoxied into place and provide a better visual appearance. These frames were created with my 3D printer utilizing high strength ABS plastic. Picture 0120-20 illustrates two of the eight frames manufactured while picture 0120-21 shows one of the frames temporarily taped into place. These will eventually be epoxied into place and become part of the body and door.

Another issue was the driver's door striker latch engagement clash. Even though the door gaps were satisfactory, the latch was slightly too far aft to engage the striker bolt. The solution was to make a spacer/shim to place between the latch and door, thus moving the latch forward but keeping the door in place. I reversed engineered the shim to fit the latch and 3D printed it out of the ABS filament to about 1/8" thick. The latch and shim were mounted onto the door and after everything was reassembled, the door closed perfectly (0120-22 to 0120-24).

While the door work was progressing, the holes for the hood hold-down receiving pins were drilled into the firewall (0120-25). The receivers themselves cannot be installed until the body is removed. Just another item for the to-do list.



Continuing with the Body Overall Fitments – Again

The work on the body fitment to the engine side panels and doors continued. My approach is to work from the grill and continue aft to the trunk as the trunk will need the most work. There is not too much to discuss here as all the work is body filler application and sanding. In general, the areas that needed attention included:

- Engine side panels to the body, 0120-26.
- Driver door aft edge to body, 0120-27.
- Top of the driver's door, 0120-28. This included matching the door top front edge to the body, 0120-29, and the door top aft edge to body.
- Passenger side door front edge to body, 0120-30, and the door top edge to body, 0120-31.



January 2020 Ends

Golly gee wiz Mudhen, did this month go by in a hurry! However, fairly good progress was obtained as the goals for January were achieved, plus some:

- Removable engine side panels were created.
- The grill mesh slots on the engine side panels were completed.
- The nose cone, the permanent and removable engine side panels, and the doors interior were all painted with the black undercoat. This completes all of the undercoating.
- The hood receiver pins holes were aligned and drilled. The actual receivers will be installed the next time the body is removed.
- The body work required to level the interface between the side panels, body, and doors was completed.

It is now time to figure out how to solve a fairly major issue that was observed back in January 2019. Yep, this one has been hanging around for a year now. Glass of wine time, we will tackle this in February.



Progress During February 2020 – Will Phil be Good to US?

Happy Ground Hogs Day. February will be a short month (with respect to work on the Rod) as Ski Season occurs in the last half of the month.

Due to the short nature of the Rod work, I have one goal:

- Determine a solution for the engine air cleaner and hood interference issue.

Two- and one-half seconds after the engine was installed onto the chassis and the air cleaner was attached to the carb, the air cleaner / hood interference issue became obvious. The top of the Blueprint Engine supplied air cleaner unit with 4" filter was way above the top of the firewall. Picture 0220-01 was taken way back in January 24, 2019 just after the engine was installed. The bottom of the yellow yardstick in picture 0220-02 represents the top of the hood and, yes, there is an obvious interference issue.

One solution available was to purchase a low-profile 2" air cleaner unit with a ribbed filter element top. The two units have about the same square inch area of filter element so air flow will be similar. Picture 0220-03 shows the top of the hood with respect to the low-profile filter. Unfortunately, the hood thickness, including the hood ribs sections, is about 3/4" thick and the hood contacts the front edge of the cleaner unit and prevents the hood from closing correctly. If the longitudinal hood ribs are cut off, clearance could be achieved but it would jeopardize hood strength. In addition, the gap between the air cleaner top and hood would be very small and, most likely, choking off air supply to the top of the air cleaner unit.

The end result is to utilize the low-profile air cleaner unit complimented by the extra clearance hood option for the kit. But no one mentioned that to me when I ordered the kit, even though I was very open with my engine selection, so I purchased the standard hood with my kit. Being a cheap SOB, attempting to modify the standard F5R hood is the first option.

My goal is to create a 3D printed hood enhancement out of ABS plastic and fiberglass it into place. The ABS inner core with a fiberglass shell epoxied onto the hood with an appropriate hood cutout will meet the clearance requirement and should meet the strength requirements as the bending moment of inertia of the cross section will be increased. Worst case scenario is that the hood is destroyed in the

process and the extra clearance hood is purchased to replace it. Buy Hey, this is a kit, one is supposed to build it, right?

I iterated through several hood enhancements in order to make a final decision. The possible enhancements included:

1. Hood scoop large enough to handle both original and low-profile air cleaner units.
2. Hood scoop large enough to handle just the low-profile air cleaner unit.
3. Various hood scoop shapes.
4. A hood bump-out large enough to handle both original and low-profile air cleaner units.
5. A hood bump-out large enough to handle just the low-profile air cleaner unit.

A 1/4 scale model was created for the 5 options above (a couple of others were also completed but not worth including here) in order to get a visual of the enhancement. These are shown in Picture 0220-04. Paper mockups were also created and set onto the hood. Option 1 is shown in Picture 0220-05. I decided that all options related to the original 4" air cleaner unit resulted in a situation where the hood enhancements were too tall and unreasonably blocked driver (and passenger) visibility. The enhancement selected was option 5. It has the lowest profile for visibility and provides about 1-1/2" clearance above the low-profile air cleaner unit.

Another challenge was the creation of the ABS hood bump-out. My 3D printer has limited size restrictions, so the full-size bump-out will need to be printed in five separate pieces and epoxied and fibreglassed together. Picture 0220-06 illustrates the 3D print models. The tabs on the interior of the bump-out will be used to bolt the sections together to facilitate the initial epoxy and fiberglass. Once the sections are securely epoxied, the tabs will be cut off leaving the interior of the bump-out smooth.



02/14/20: The ABS sections are currently being printed. However, it is time to get ready to try out my old ski legs so February's work will end here.

February 2020 Ends

Actually, a particularly good month even though it was very short work wise. Success is evaluated by reaching your goals and:

- A solution for the engine air cleaner and hood interference issue was determined. 0220-07 illustrates the paper plan of the final bump-out.



0220-07

Progress During March 2020 – Hot Rod Quarantini's For All

As we find out, our ski trip occurred just before everything hit the fan with the Coronavirus. Better be lucky than good any day and this also applied to my really old ski legs. We had a blast skiing but it was felt in those old leg muscles.

The goals for March are fairly simple:

- Complete the hood bump out part and install it into the hood.
- Complete the trunk lid interface with the body and install the trunk latch.



0320-01

Hood Bump Out Fabrication

I completed printing out the hood bump sections and assembled it together with temporary machine screws. I used a very level $\frac{3}{4}$ " MDF board as a work surface and epoxied the sections together. The next step was to add some fiberglass strips along the seams between the tabs on the bottom surface. The tabs were then cut off and sanded smooth once the epoxy was dry. Two layers of fiberglass was applied on the top surface and one layer on the bottom surface. Two more coats of epoxy were applied on the top and bottom surfaces and then these surfaces were sanded smooth. Body filler was added to level the top and bottom surfaces. I covered the top surface with blue tape to protect it during installation into the hood. 0320-02 shows the completed part. I decided to set the hood aside and work on the trunk.



0320-02

Trunk Lid Installation

The body to trunk lid interface was, as expected from the comments I read on the Forum, slightly off and body filler will be required on the body surrounding the trunk opening in order to level out the fitment. I wanted to install the trunk latch to ensure proper fitment and I followed the Assembly Manual instructions. The first step was to add the bulb weather strip onto the body trunk surround. I then installed the trunk release handle and cable as well as the trunk latch assembly (0320-03). I mounted the shoulder bolt to the striker bracket and set it into the latch, securing it with some tape. I closed the trunk lid, crawled under to Rod and reached into the trunk through the lower trunk opening and marked the rivnut locations for the striker bracket on the trunk lid. I took the trunk lid off the hinges, installed the rivnuts, installed the striker bracket, re-installed the lid back onto the hinges, and slowly closed the

trunk lid. Oh well, the striker fit was completely off, the latch did not and will not work in this configuration.

First off, the 90-degree bracket angle interfered with the latch assembly. Even after many attempts to achieve the correct angle, the shoulder bolt was way too short to fit into the latch smoothly and correctly. I decided to set this aside for now an attempt to make my own striker and bracket using my 3D printer and making bracket out of ABS plastic. The geometry of the bracket and its strength were challenges.

It was very difficult to make any measurements through to lower trunk floor opening so I basically went through a trial-and-error analysis in order to get the bracket geometry correct using the already established trunk lid rivnut locations. Fortunately, the bracket is relatively small and it printed rather quickly. Picture 0320-04 illustrates a couple of the configurations I tried. After 17 iterations, I determined that the pin face needed to be at a 70° angle from the mounting base to clear latch bracket. I used a 3/8" diameter aluminum rod for the pin at a length of 1-1/8" (Note: The shoulder bolt was 5/8" long). Strength was provided using a 1/8" x 1" aluminum strap on top of the ABS bracket so that the plastic was in compression with limited bending (0320-05 and 0320-06).

The final configuration latched up successfully except latch spring does not provide enough force to pop the trunk open. I will need to add a door popper or something like that later, it is on the to-do list.

The latch is installed and the trunk is closed. I am not sure how good of a weather seal I have between the lid and the bulb weather strip, but since it is a roadster, it is not going to go into a car wash or (hopefully) be driven in the rain. The lid sat somewhat proud of the body around just about its complete perimeter. Body filler was applied to the body surrounding the trunk lid and sanded flush with the lid. The usual process, apply and sand, apply and sand (0320-07 and 0320-08). The edges on the body trunk opening and the trunk lid edges were rounded off. The entire trunk lid was sanded getting it ready for primer.



March 2020 Ends with a Virus

By Mid-March, all of the Coronavirus restrictions were in place. The weather has been gorgeous and Barb and I are going a little bonkers with the stay-at-home guidelines. The good news is that this leaves some time available to work on the Rod.

March's goals were completed:

- The hood bump out part was finished ready for installation onto the hood.
- The trunk lid interface and installation the trunk latch was completed.

So, if life gives you limes, make a margarita (or take the time to sip a few glasses of really good wine)!

Progress During April 2020 – More Quarantini's for All Us April's Fools

April 1st brought our 20th stay-at-home day. Something has got to give. I guess I will just have to work on the Hot Rod.

Goals for April:

- Complete the hood bump out and prepare the hood with 2nd stage primer sanding.
- Install the back fenders. Trim and shape the back fenders.
- Install the front fenders. Trim and shape the front fenders.
- Prepare all fenders with 2nd stage primer sanding.

Let me define what my definition of 2nd stage primer sanding. 1st stage is fitment using 80 grit sandpaper followed by 180 grit on the body filler areas. 2nd stage is sanding the entire gel coat with 180 grit eliminating gel coat low spots and imperfections preparing the component for primer.

Back to the Hood Bump Out

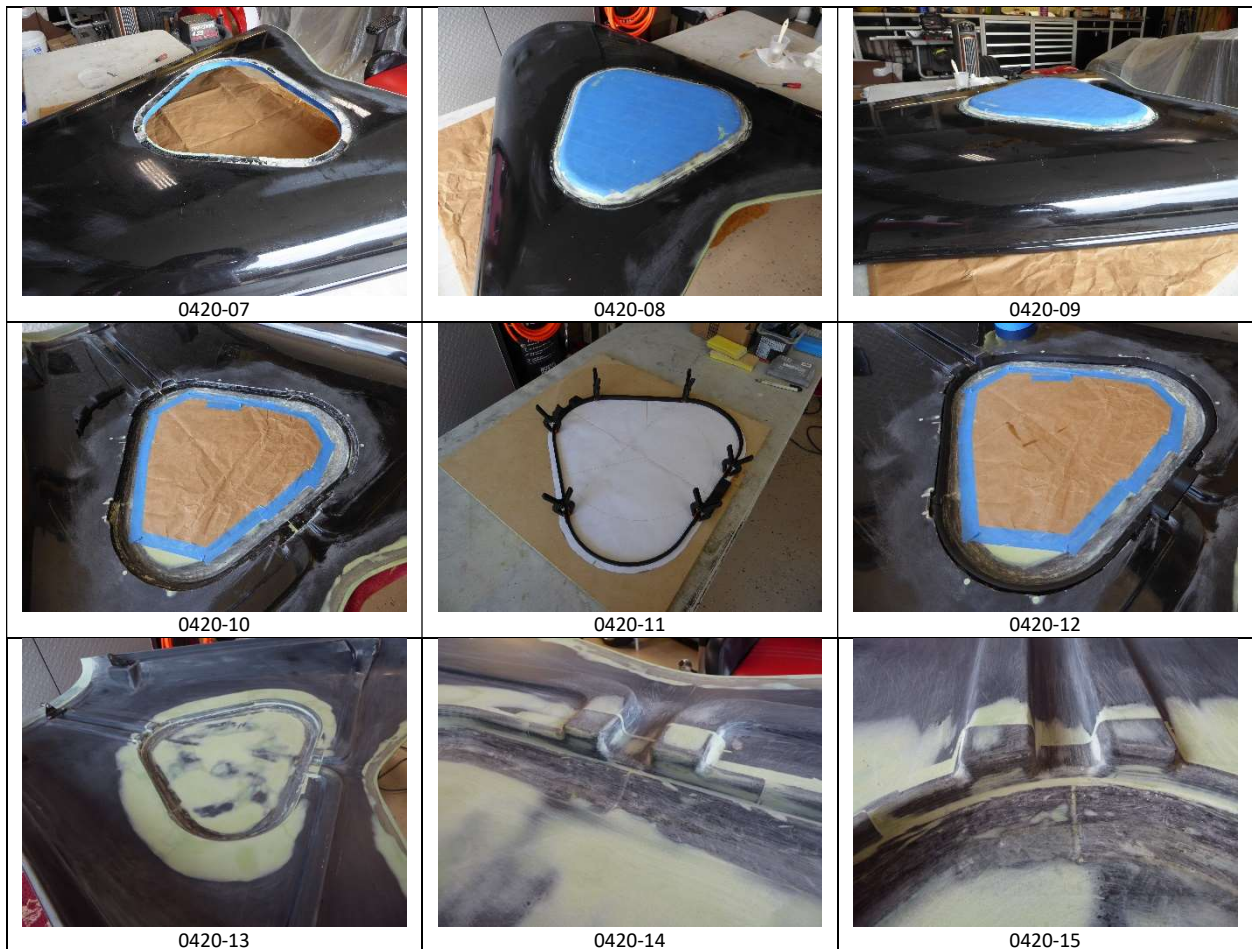
It is time to cut the hood and install the hood bump. I used a full-size pattern and taped it to the hood (0420-01). The hood pump was fabricated with a 1/8" thick perimeter rim. I marked the inside and outside edges of the rim onto the hood (0420-02) and removed the hood. Using a jigsaw, I cut the hood along the inside rim edge (0420-03) and discovered the double skin of the hood (0420-04) needed to be addressed. I utilized the hood bump 3D model and created a set of 3/8" thick perimeter spacers that would be epoxied between the hood skin layers. Picture 0420-05 shows the spacers sitting on top of the hood to illustrate the parts and 0420-06 shows the parts epoxied and clamped between the hood skins.





The next step was to router to a 1/8" depth the area between the rim inner and outer edges (0420-07). The hood bump was epoxied into place and temporarily secured with #6 machine screws (0420-08 and 0420-09).

The hood was turned over and the interior face of the cutout was addressed (0420-10). An interior ring for the cutout was 3D printed (0420-11) and epoxied into place (0420-12). Body filler was added to all gaps and sanded smooth (0420-13 to 0420-15). The hood was re-installed onto the Rod and all was just about perfect. However, now that the hood cleared the air cleaner and rested correctly onto the engine side panels, the body was slightly proud of the hood in the center area and some more body filler was necessary (0420-16 and 0420-17).





Fender Installation

I started with the as-delivered rear fenders and installed them to the body using rivnuts as per the Assembly Manual (0420-18). Time was spent studying the fender trim shapes and I decided that the as-delivered shape was a little bit clunky and a bit too large for my tires. So, I elected to trim the fenders $\frac{3}{4}$ " from the face of the tire/wheel. Starting with the driver side, I made a marking spacer tool using a $\frac{3}{4}$ " aluminum angle and taped a felt tip pen to it. I could then mark the inside of the fender exactly $\frac{3}{4}$ " away from the wheel. A Dremel cut off wheel was used to trim away the excess fiberglass. I made several different paper templates for the forward and trailing edges to be able to visualize the cuts. When I was satisfied with final selection, I taped the pattern to the fender, marked the cut line, and used a jigsaw to trim away the excess. I sanded everything to get to the final shape.

Now I needed to transfer the driver side fender shape to the passenger side fender. I created a template by tightly taping together paper sheets to follow the contour of the fender (0420-19 and 0420-20). I carefully removed the template, inverted the contour, and taped it onto the passenger fender (0420-21 and 0420-22). After transferring the mark up to the fender (0420-23 and 0420-24), the template was removed and the excess fiberglass was cut off using a jigsaw. All the edges were sanded smooth and the fender was reinstalled onto the body.

I followed the same process for the front fenders and used the identical patterns for the trailing edge (0420-25). The front edge is the same ellipse I used for the front edge of the rear fender; however, it is centered symmetrical (0420-26 and 0420-27). The work was completed with an overall sanding and then the fenders were remounted onto the chassis. Just for fun, I set my surplus windshield frame in place and, low and behold, it now looks like a Hot Rod!





April 2020 Ends – Day 49 of the Home Stay Insanity

An invisible bug brought the USA to a standstill, who would ever have imagined that! I just give thanks for the fun projects we work on to keep us sane. April brought some of the best Texas weather possible, 85-degree days with mostly clear skies. It is perfect for working with the shop door open and just plain old being outside.

All of April's goals were met, plus some. In summary:

- The hood is complete with the added bump out and fitment to the body.
- The forward and rear fenders are installed.

Work on the Rod during April was very satisfying as the body work is complete enough to seriously push towards a paint job, select a paint shop, and get a quote. Picture 0420-28 to 0420-33 illustrate the progress through the end of April 2020.



Progress During May, June, July 2020 – MAYDAY MAYDAY All Are Going CRAZY

I assume all of us are tired of being locked up due to the Vid and the rest of the crazy activities occurring all around us. Fortunately, living at the edge of the Texas Hill Country, it is fairly peaceful around here.

I am looking forward to achieving some major milestones and goals as the project marches towards the paint shop. But to get there, I need to complete some additional body work that can only be done with the body removed from the chassis. However, I want to build the center console now with the body in place for fitment purposes.

Work during May included the following installs:

- Headlights
- Hood Support Rod and Hood Release Lever
- Taillights, License Plate Bracket, and Exhaust Tips
- Roll Bar and Waterfall

The above work was completed about mid-May. Then, during the remainder of May and all of June and July, all worked centered around the construction of the center console.

Headlight Install

The kit came with the new LED headlights which are pretty cool (0520-00). However, the assembly manual addresses the wiring for the old style headlights. I knew F5R was shut down due to the VID lockdowns but I contacted them anyway and they answered right away. I was advised to use the pigtail that came in the Headlight Housing box and I got the following wiring information from them:



Headlight	Pigtail	Wire Harness
Ground (Black)	Black	Black
Low Beam (Yellow, Upper Bulb)	Red	Red

High Beam (White, Both Bulbs)	White	Brown
Remaining 2 Wires Coming from the Headlight		
12V Key On	Red	New 12V Key On Power
Turn Signals	Green	DS – Dark Green PS – Light Blue

The headlights were then installed, wired up, and tested. Pictures 0520-01 to 0520-03 show the headlight installations.

Hood Support Rod and Hood Release Lever

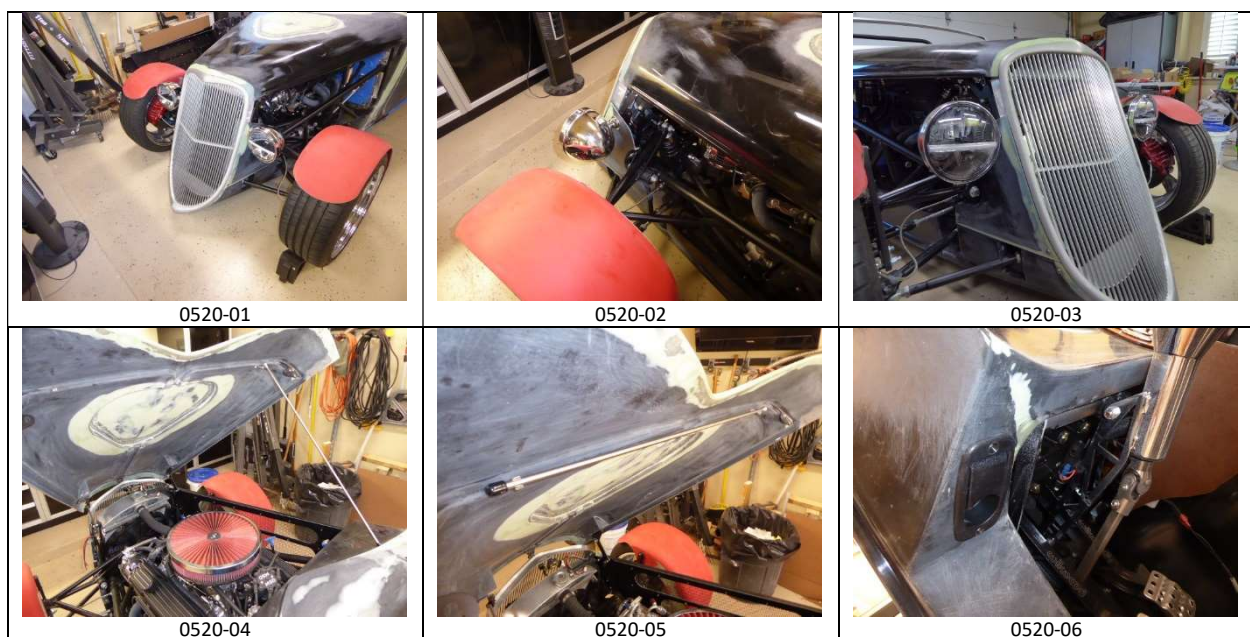
Because of the hood bump-out and the required air filter clearance, the hood support rod installation was installed transversely as shown in 0520-04 and 0520-05.

The hood release lever was installed into the body door sill area adjacent to the steering column (0520-06). The actual cable will be fitted later with the body off. Final installation and hook up will occur after body paint.

Taillights, License Plate Bracket, and Exhaust Tips

The taillights were installed and wired up with quick disconnects to facilitate the removal of the body (0520-07 to 0520-09).

The hot rod kit does not come with a backup light and I believe it is necessary to have one. This was addressed back in August 2019 when I ran a green wire from the fuse box through the transmission switch on its way to the license plate bracket. I discarded the kit provided bracket and purchased a United Pacific LED Hot Rod License Plate Bracket shown in 0520-10. This bracket includes a backup light and a license plate light. I had to make a mounting bracket out of an aluminum angle which I powder coated matt black (0520-11). The bracket installation with a temporary license plate and mounted exhaust tips are shown in 0520-12.





Roll Bar and Waterfall Installation

Back in October 2018 I designed a dual roll bar system but, besides the design, never acted on it. Now that it is May 2020, I am opting for simplicity and have decided to install the kit provided single roll bar with no comments on its appearance. The first step was getting it to fit into the chassis receiver pipes. This took a fair bit of time sanding the bare roll bar pipe (the non-powder coated ends) with emery cloth to remove some minor corrosion and to reduce the diameter slightly. The fitment also required some WD-40 and a rubber mallet to pound it into place. After four or five fitment sessions, it could be installed and removed with only some persuasion. It was placed into its lowest position in the receiver tubes and head clearance (2" recommended) was checked (0520-13).

The next step was to drill 1-1/2" diameter hole, accurately located, into the sloping curved surface of the waterfall. The assembly manual suggested to come up from underneath and mark the back of the waterfall. Yea, Right, Not Possible, Laughing Hysterically. Build school provided the suggestion of using a laser light hanging from the ceiling at the center of the receiver pipe, good workable idea. But, being a simpleton, I decided to build a locator jig.

With the waterfall removed (of course) and the roll bar inserted into the receiver pipes, two 1x4's were placed on each side of the roll bar spanning the rod. These were connected together with two pieces of fiberboard adjacent to the roll bar. The roll bar widths and the body to jig interface were marked so the jig could be removed and accurately replaced (0520-14). The roll bar was removed, the waterfall installed, and the jig set into place. I was some tape as straight lines locating the center of the receiver tubes (0520-15). A small plumb bob was used to extend the center point from the tape cross to the surface of the waterfall and the hole center was marked. Using a 1-1/2" diameter hole saw and holding the drill as vertical as possible, the holes were drilled. I had covered the receiver pipes previously with tape so debris would not collect in the pipes and picture 0520-16 shows the waterfall holes looking straight down onto the receiver pipe. Pictures 0520-17 to 0520-19 illustrates the fitment of the roll bar through the waterfall.

Additional holes were drilled into the waterfall for the roll bar hold down pins and with the roll bar and waterfall removed, hole for the pins were drill into the receiver tubes (0520-20). The back side of the

waterfall was black faced (0520-21) and the front face was 2nd stage primer sanded. All of the roll bar components were then re-installed onto the body/chassis completing the roll bar installation (0520-22).



Dash Instrument Panel and Center Console Construction

It is now mid-May. The next two months are devoted to the design and construction of the center console. The first step is to define the functional requirements.

The Hot Rod kit provides the basic engine instrumentation and installation provisions. The volume behind the dash is somewhat limited and since the wire harness is designed for the F5R Roadster (and

not directly for the Hot Rod though all the functions are the same), the harness is a cluster mess and provisions are required to hide the behind dash harness components. Also, in addition to the basic instruments, the VPS Hot Rod is equipped with AC/Heat plus a sound system. Additional dash space is required to mount these items which make a center console a requirement and a redesign of the dashboard as additional switches were added. (Also refer to October 2019 Progress Report for a description of the Dashboard Mockup II.)

The Dashboard Requirements

The redesign of the dashboard is to include the basic engine instruments plus the following switches and components:

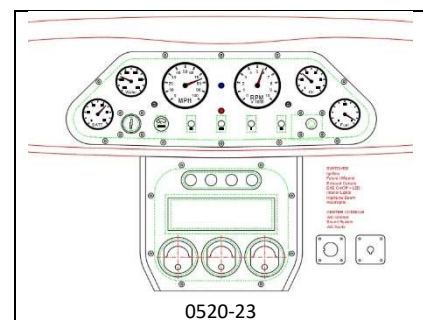
Basic Kit Instruments	Switches	Indicator Lights
Speedometer Tachometer Battery Volts Water Temperature Oil Pressure Fuel Level Fuel Tank Level	Ignition (key) Wind Shield Wiper (Future) Exhaust Cutouts EAS On/Off Interior Lights High/Low Beam Headlights	Left Turn Signal (Green Arrow) Right Turn Signal (Green Arrow) Bright Light On (Blue) EAS Indicator (Red)

The center console is to be designed to install the following:

- AC/Heater Controls
- Sound System Receiver Pioneer DEH-S5120BTG (Single DIN Rack)
- AC/Heater Ducts
- Shifter Boot Cover
- Cup Holder
- Arm Rest with Glove Box

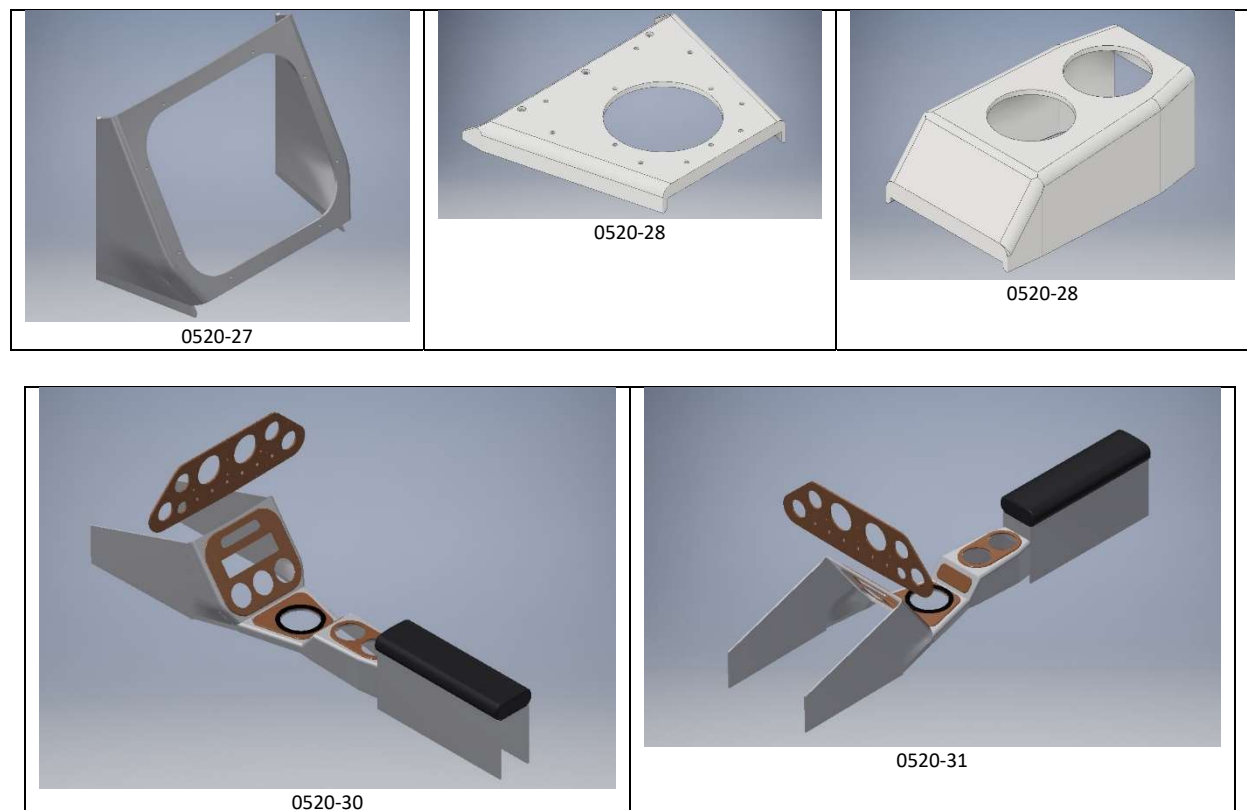
The center console will be designed so that it can be installed with its components installed with the body off the chassis. The AC/Heater controls have a capillary tube that runs directly into the AC evaporator unit mounted on the chassis firewall frame and it would be almost impossible to install it if the controls were mounted onto the dash. This also facilitates the permanent install of the AC Ducts leaving only the defroster hoses to be connected when reinstalling the body onto the chassis.

The dash and center console were first drawn to determine the size requirements as well as the component layouts. This is shown in 0520-23. All of the main elements of the console will include wood trim to match the dashboard. The next step was to develop some quick mockups of the console sections. The sound and heat insulation were installed onto the transmission cover and the cover carpet was laid in place. Now more accurate dimensions are possible. A couple of different configurations were developed and placed in the cockpit to get a visual representation of the entire layout. Pictures 0520-24 to 0520-26 illustrate the (almost) final layout.





With the knowledge of the mockup layout and the gross dimensions known, the detailed design commenced. This was first drawn in 2D and it was quickly realized that the simplest method to construct the parts was to fabricate them out of ABS plastic utilizing a 3D printer. Each part was then 3D modeled. Pictures 0520-27 to 0520-29 illustrate some of the 3D model components. Pictures 0520-30 and 0520-31 illustrate the vision for the complete center console.



The under-dash console and shifter section was 3D printed first and test fitted. Pictures 0520-32 and 0520-33 illustrate the raw parts as well as a mock-up of the wood panel. Picture 0520-34 shows the components primed and ready for the next step.

The original kit included enough vinyl cloth to cover the rear cockpit waterfall. Early on the decision was made to paint the waterfall to match the body color which made the vinyl redundant. Not to waste anything, the decision was made to cover the center console using this redundant vinyl. The vinyl was cut and attached to the under-dash console, shifter section, and forward panels using 3M Super 77 spray adhesive. Pictures 0520-35 and 0520-36 illustrate the parts covered and assembled.



The wood trim panels were created utilizing the same 3D printed process making templates to be cut out using a router table. This provided for a fully accurate hole cutout. For instance, the speedometer and tachometer mount in a 3-5/32" hole, no drill or hole saws for that size. Picture 0520-37 illustrates the router templates. 5mm Birch plywood was selected as the wood of choice (today) and the raw pieces were cut out. The process includes the following steps:

1. Tape the template to the raw wood cutout using 2-sided tape.
2. Using the router with a follower bit, create the gross shapes.
3. Remove the template.
4. Sand the edges and front faces smooth.
5. Stain the wood using 2 coats of Gun Stock stain.
6. Fiberglass the front faces with 1.5 oz fiberglass cloth and epoxy resin.
7. Add 3 more coats of epoxy resin to the front face.
8. Add one coat of epoxy resin the back faces, this will keep the wood from splintering when the cutouts are made.
9. Sand the front faces smooth eliminating all scratches progressing from 180 to 600 grit sandpaper. This will leave the front faces looking hazy for now.
10. Mount the template back onto the epoxied shapes.
11. Drill 1" or 3/4" holes in all the cutouts.
12. Using the router, create the cutouts.
13. Using a drill press, drill all of the remaining holes for the switches and mounting bolts.
14. Test fit all the components, sand the cutouts accordingly, file square the corners for the single DIN cutout.
15. Final step, spray all the components with an automotive Clear Coat. This will pop the shine back into the sanded epoxy surfaces and they are now ready for mounting.

Picture 0520-38 shows the epoxied trim components. The templates were taped back onto the trim panels and the instrument holes were routed out (0520-39) or drilled out. The final trim panels are shown in 0520-40.



June 2020 - Disaster Strikes

06/11/2020: It is now mid-June when disaster strikes. The vinyl just will not stick to the under-dash console, shifter section, and forward panels, especially in the concave section of the under-dash console. After attempting numerous fixes, many a glass of really good wine, enjoying to the maximum our friends visit to celebrate three birthdays, relaxing in the aftermath, I came to the conclusion to junk all of the above work and punt (but I am not watching football this year). Complete disaster but I genuinely enjoy a challenge, this too shall pass.

The New and Improved Center Console Construction

The good news is that the upper dash instrument panel layout will remain the same so the router template can be salvaged. Also, the functional criteria of the center console will remain the same.

I decided to fabricate a two-piece center console that will surround the transmission cover (hence, no carpet on the transmission cover and it will have no concave surfaces). The forward section will be composed of the under-dash unit, shifter section and cup holders. The aft section will be the arm rest and glove box. I plan to fiberglass the outer surfaces of both units and finish the surfaces to paint quality

smoothness. The design also will include the same wood trim pieces, albeit they will be different shapes compared to the previous work.

It is decision time for the overall look of the center console. If the decision is to use black vinyl or leather then I will need to get help from a professional upholsterer. The second option is to have the console painted the same as the body color. The plan is to have the surface paint quality smooth which keeps both options open for now.

The same design process was used as before so that a crude mock-up utilizing cardboard could be created (0620-01). As more information was gathered, the 3D model was generated (0620-02). A building jig was assembled as the parts were being printed. The assembly steps and test fitting are shown in pictures 0620-04 to 0620-09. The arm rest was assembled in a similar manner and then sprayed with a black primer (0620-10 to 0620-12).



July 2020 – Work Continues on the Center Console

The final selection for the wood trim must be finalized now. The birch solution is just satisfactory but does lack some pop. Fortunately, in Austin there is a specialty wood lumber yard that is fairly close by. I purchased a sheet of mahogany and cherry veneer and then tested numerous stains and topcoats (0720-01). I had my favorites and with the help of some friends, a decision was made. Following the same process utilized in May, a new set of wood trim panels were created (0720-02 and 0720-03).



August 2020 - Work Continues on the Center Console

Very slow-go in August. Finished off the center console ready for primer. The interior of the console was sprayed with rattle can black primer and the exterior will be coated with the same primer system as the body. The upper dash gauges were transferred from the mock-up dash to the (for now) final dash



and mounted on the body (0820-01). There will be no access to the upper dash directly above the center console after it is installed so a couple of mounting modifications were made to facilitate its install. This included permanent mounting nuts installed along the lower edge of the dash and permanent mounting nuts installed for the ignition switch. Picture 0820-02 illustrated the nut mounting plates that were epoxied into place.

08/09/20: Project Milestone - 2 years in the making, Barb wonders if this project will ever be finished!

08/12/20 – 08/30/20: Paint – Paint – Paint

The center console is finished and the time has come to move forward to how the project will be painted. The entire remainder of the month was focused on research into primers and final paint. The primary focus is on PPG's Vibrance Collection and it became almost overwhelming. By the end of August my understanding (or lack of) what to do became dangerous to the decision-making process. It is time to start talking to the professional paint shops. My goal is to apply the primer system and complete all the block sanding. Then all the fiberglass body parts will be handed over to the professionals for the final topcoat system. Time will tell if this will work out.

June, July, August Ends – Summer is done and the VID Persists

At least the center console was completed, it only took three months. Time to start pushing toward paint. The Rod is essentially assembled, the remainder of the work is to tick off the to-do list, debug some bugs, prime and paint, final assembly, and complete the interior.

Progress During September, October, and November 2020 – Time to Get After the To-Do List

The weather is cooling, just perfect for having too much fun and visiting all of our wineries and friends. Must only go west of Austin as central Texas people remain calm and friendly.

Focus Time – Goals for 3 months include:

- Have fun, the weather is really good this time of year.
- Complete the to-do's that can be accomplished with the body on.
- Remove all the fiberglass body parts and complete the to-do's that pertain to these parts.
- Talk to the paint professionals and develop the overall primer and paint plan.
- Build the paint shack and start priming the body parts.
- Finalize cockpit floor installation.
- Continue to tick off to-do's that pertain to the chassis and cockpit.

A long list to accomplish but overcoming challenges is extremely rewarding.

09/01/20 – 09/11/20: Worked on the to-do's that can be accomplished with the body on. This included:

- Installed the body to door speaker wire conduit (0920-01).
- Tightened the exhaust tips as there was a slight misfit gap between the tip and the exhaust pipe (0920-02).
- Red paint touch-up on all the brake calipers (0920-03).
- Re-aligned the doors for better closing fit-up.



The decision was made to remove the body and prepare the fiberglass parts for prime and paint. The first step was to remove the parts attached to the body and this included:

- Headlights and taillights.
- Upper dash gauge assembly.
- Roll bar.
- Windshield frame.
- Door striker pins. The pin mounting plate was loosened, pulled back away from the body, and secured clear of the body.
- Remove the trunk bottom floor panel.
- Gently folded the trunk sides inward to clear the trunk area fiberglass.
- Clean up the main garage so that the chassis can be stored during the final body work.

Time to remove all the body parts. The following fiberglass components are to be painted and they were removed in the following order:

- Center Console, 2 each.
- Waterfall, 1 each.
- Trunk Lid, 1 each.
- Hood, 1 each.
- Engine Side Panels, 2 each.
- Nose Cone, 1 each.
- Engine Headlight panels, 2 each.
- Doors, 2 each.
- Front Fenders, 2 each.
- Rear Fenders, 2 each.
- Main Body, 1 each.

Just prior to removing the main body, the following bolts were removed:

- Front Chassis/Nose Cone bolts, 2 each.
- Side screws in the door area, 3 each side, 6 total.
- Rear wheel well bolts, 2 each.

The main body was lifted off the chassis using the overhead hoist. The engine was fired up and the chassis was moved to the main garage. The main body was lowered and set on the shop floor. The whole process of removing the fiberglass body parts and putting the chassis in the main garage took about 2 hours.

09/11/20: Remember 911.

09/12/20 – 11/30/20: Time to prepare all the fiberglass for primer and paint.

A couple of areas on the main body required some fiberglass touch up. This included:

- The area in the main body aft door jam at the waterfall interface was cut short which left a gap when the waterfall is installed. This area, on both sides, was built up with fiberglass (1020-01 and 1020-02).
- The front passenger side where the body bolts to the chassis and nose cone was also cut short and required additional fiberglass so that it could be bolted securely (1020-03).



The next 2-1/2 months were spent SANDING. All the fiberglass surfaces that are to receive the color coat was lightly hand sanded with 180 grit and then with 320 grit. When this sanding was complete, each surface was inspected and all imperfections were identified and marked. This included gel coat imperfections (numerous), pin holes, deep scratches, and any other area that just did not feel flat and smooth. These imperfections were filled in with Evercoat Metal Glaze Putty and again sanded smooth with 180 and 320 grit sandpaper. Photos 1120-01 to 1120-15 are the final products ready for primer and paint.





September, October, and November Ends – Time for some Wine and Turkey

The fiberglass surface preparation took much longer than anticipated. A quick trip to New Orleans to share the Thanksgiving cheer with Barb's family (No Covid problems here!) and then back to the shop to finish the final sanding areas.

Major Milestone: All sanding was completed at 3:12pm on Friday 04 December 2020.

Major Conclusion: I am not equipped to perform any type of major painting project. The decision was made to let the professionals do all the paint prime coats, prime coat block sanding as required, topcoats, and clear coats.

Satisfied with the work completed during the last 3 months, it is time to get the fiberglass painted. After all that sanding, my shoulders are sore!

Progress During December 2020 – So to sum up 2020, the Grinch said it best: Stink, Stank, Stunk.

With the Covid, mandatory masks, hand sanitizer, lockdowns, riots, hurricanes, election results, etc. behind us, we will not dwell on the negative here except to laugh at it, Christmas Cheer is rapidly approaching. Goals for December include:

- Talk to the paint professionals and develop the overall primer and paint plan. Obtain quotes from 3 to 4 paint shops.
- Move the fiberglass parts to the main garage.
- With the sanding complete, give the shop a thorough cleaning.
- Return the chassis to the shop.
- Continue to tick off to-do's that pertain to the chassis and cockpit.

So, let us get on with it, December ends. All the fiberglass parts are in the main garage. The shop was cleaned from top to bottom and the chassis was returned to the shop. Christmas arrived and good cheer was obtained.