

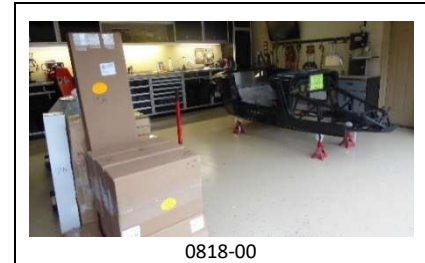
VPS Hot Rod Build Blog

Volume 1 – The Infant Years - 2018

The fun begins as I wait for the delivery of my kit. Highlights are going to be documented on my web site. This document is intended to be my personal notes and observations.

07/27/18: The BPE 400 c.i. Chevy Short Block is delivered. FedEx delivered it straight into the shop and set it on my 4 furniture dollies. This will allow me to move the 800 pound engine and transmission around the shop. I inventoried the box of parts that came with the engine sorted through the documentation. I assembled the documentation and created the Engine Documentation book.

08/09/18: The kit is delivered. Stewart Transport showed up as promised. Because of my narrow driveway, the kit was off-loaded at the top of the drive. Driver Jim was professional and through, hauling every box and setting the chassis onto my jack stands. All of my delivery anxiety was lifted, the kit set up in my shop. Now the fun begins.....



08/10/18: Preliminary inventory complete, organizing shop to start the build. Moved most of the boxes to the house 3rd bay and will bring them into the shop as needed. Long day, most boxes are light, a few heavy ones, but I got this initial step done. I determined that there were a few items that were indicated as included but I did not find them.

08/11/18: For the missing items, I made a list, file: "Missing Item List.xls", I sent this to F5R along with a query for the chassis powder coat. They call it matte or satin black, I queried what paint could match it and what powder coat is similar. We'll wait for a response. I created a true back-order list in order to track the incoming shipments.

The shop work begins. I decided to store the kit body in the shop. So I had to rearrange the remaining boxes in the shop and the engine so that I could store the body and be able to work on the chassis. I rotated the engine crate 90 degrees and moved the boxes right adjacent to the engine. Once I completed this work, I started the process of removing the body from the chassis. From everything I had learned from build school and the F5R Forum, 2 or 3 people are necessary to handle the body on and off the chassis. My challenge was to figure out a way to do it by myself.

In build school, the instructors insisted that I would need 2 or 3 people to remove the body from the chassis. My challenge was to prove them wrong.

I needed to be able to move the chassis on the furniture dollies so that I could manipulate the body and chassis independently. From Build School, I was pretty sure I could lift the body by myself and I knew the chassis was way too heavy to lift/move without mechanical assistance. In anticipation of this, I had previously made 4 chassis support stands out of 4x4's that would be placed on top of the dollies (0818-01). I set the engine crate on some 2x4's and used the furniture dollies with the chassis stands to support the chassis/body. These worked great.



The next step was to be able to lift the body off the chassis utilizing my overhead hoist. Now, having taken the top off my jeep many times, I was practiced in the concept and had a jeep top lifting frame hanging on the wall, how convenient. I fitted it to the body, had to relocate the 2 aft hooks by 6" inboard, and placed it into position. There were some aluminum trunk panels that needed removal and I removed the temporary screws holding the body to the chassis. I was ready to lift (0818-02). However, again from build school, I knew I had a CG issue for the first lift.



0818-02

Up it went and yes, for the initial lift, there was a CG issue but it was actually very light in handling (0818-03). I raised the body above the chassis, moved the chassis out of the way, and lowered the body to the floor. I went very slow and corrected for body/chassis interface issues, but all in all, it was actually very easy. With the body on the floor, I resolved the CG issue and located the lift point on the lifting frame (0818-04) Will not be an issue in the future.



0818-03

Then I manipulated the chassis and body to position them as I wanted in the shop. Grabbing the lifting frame by hand, I could pick up the body and move it wherever I wanted. It is actually lighter than the jeep hardtop.



0818-04

Next, I removed the furniture dolly stands and placed the chassis on my jack stands (0818-05 to 0818-08). In order to protect the chassis powder coat during the build, I attached some pipe insulation foam in strategic places on the chassis. We will see how this works out. Here is how I ended the day, of course with a glass of fine wine.



0818-05

0818-06

0818-07

0818-08

08/12/18: The morning became a documentation session. I printed out all of the applicable "additional" instructions that are not in the assembly manual and created another 3-ring binder. I also created a "Title and Registration" book that included some documentation on what it takes to register with TxDMV once I get to that point. I have a printed check list out in the shop to remind me that this data collection is an ongoing task.

Today's shop work included the start of the front suspension work. I organized the front upper and lower suspension arm hardware. I also set out the Koni shocks and parts along with the front brake caliper housings.

The shocks are chrome plated (I thought they would be the traditional Koni red, but no) and I cleaned and polished them ready for the assembly. The spring caps for the shocks are back-ordered, hence all work stopped here. I need to clean and paint the main arms of the front suspension matte black and at the same time paint the caliper housings red. All work stopped with this until I get the paint. Tomorrow I will shop the auto stores.

08/13/18: My overall plan is to powder coat as much as I can but both the upper and lower suspension arms have the spindle bearings permanently installed. Hence, these parts cannot go into an oven and painting them is the only solution. Off to the stores I went. I am going to try the VHT Chassis/Roll-Bar Matte Black paint on a couple of parts to see how well it matches the F5R chassis powder coat color.



0818-09

After a couple of false starts, I started with the front lower suspension arms and cleaned, prepped, and painted the 4 bushing sleeve collars. I was happy with the results but still noting that they are slightly glossier than the chassis. But I will use them, they are close enough. Next step, find a powder coat that matches the F5R chassis matte black. The day ended with this.



0818-10

08/14/18: Sandblasted and painted the front suspension lower swing arms. Started to blast the upper arms. Ordered some matte black powder coat, once received, I will test it to see if it matches.



0818-11



0818-12

08/15/18: Continued to sandblast and clean the upper control arms. This was very time consuming because of the size of the part and my limited space in the sandblast cabinet. When I was finally was satisfied with the cleaning process, I painted it with the VHT Chassis/Roll-Bar paint. Turned out reasonably good.



0818-13



0818-14

Pictures 0818-09 to 0818-14 illustrate the painting process.

Lessons know and learned: Overspray. OK, I live in the Hill Country of Texas. For painting, humidity is no problem, temperature is a big problem. So I am forced to spray paint in my AC'd shop. Great for me, terrible if overspray is not controlled. I covered everything in the shop but still, overspray dust was everywhere. Most of today was spent cleaning up the shop that was covered with the overspray dust. Time to make a small portable paint booth. After a glass of wine. I have a design. Tomorrow, I will build it.

08/16/18: After a run to the local Orange Store, I got my PVC, fittings and drop cloths, and \$27.40 later, I built my paint booth. The remainder of the day was dedicated to cleaning, prepping, and painting the front brake calipers using VHT Brake Caliper Red and Gloss. A hot rod has to have red calipers even if they are just PBR Mustang brakes!



0818-15



0818-16

08/17/18: Received 4 boxes of B/O items from F5R.

08/19/18: Inventoried boxes. Continued to paint the front and rear brake calipers, completed rear. I need to paint the bottom of the front calipers but need to wait until Thursday in order for the VHT to cure.

08/20/18: Partially assembled brakes and set aside. Assembled upper suspension arms and installed them onto the chassis. The remaining front suspension is on hold due to:

- Lower front suspension arms: B/O bushings, w/o powder coat powder in order to PC the adjuster links.
- Front Shocks: B/O spring caps.
- Front Spindles/Hubs: B/O Steering Arms and fender mounts.
- Front Brakes: W/O paint cure.
- Rear Brakes: B/O brake pads.

Started to layout IRS parts.

08/21/18: Organized the IRS parts. I cut off the ears on the rear spindles and polished the cut area. Drilled out upper hole as per manual. Inspected CV axles and center section differential to determine what needed to be painted. Differential requires 75W85 Premium Synthetic Lube Oil. I plan on painting the following:

- Both rear spindles. These have permanent mounted bearing, hence cannot PC.
- Aft cover on the differential, possibly the entire unit.
- CV axle shafts, about 1 foot is exposed raw steel.



I decided to try out a new paint shack design that incorporates one of my tables. Smaller and hopefully a bit more space efficient (0818-17).

08/22/18: I built my new paint shack and then cleaned, prepped, and painted the entire differential. Started to clean the rear spindles. Received my powder coat today.

08/23/18: A day of powder coating. Shown is a before and after shot of the powder coated front toe adjuster link (0818-18). I can now assemble the lower front suspension arms but still waiting on the back ordered bushings, so installation remain on hold.



Also shown are all the brackets for the rear brake mount powdered coated and curing in the oven (0818-19). The center section was also prepped and painted (0818-20 and 0818-21). The day also included cleaning up the shop and paint shack. Some of the over spray powder was recovered and the drop cloths were trashed. I have the paint shack down to just

two drop cloths. I built a paint / powder coat hanging frame that is capable of supporting heavier parts. Prepped the rear spindles, the next step is cleaning and painting.

I received a notice that F5R has shipped a box to be and it is expected to arrive on Tuesday. Hopefully bushings and fender mount are included so that the front suspension work can continue.

08/24/18: The lower front suspension arms were assembled. Rigged up shop crane to assist in the placement of the center section into the chassis.

08/25/18: Spent the day going very slow. Prepped the center section for installation and drained all of the fluid out of it. Used the shop crane and jack to adjust the position and place the center section into the chassis. The two rear bolts were installed with ease. The right front bolt



0818-22



0818-23

was installed fairly easily with some help of a dead blow hammer. However, the last bolt, the left front bolt, was out of alignment horizontally by about 1/8" and vertically by about 1/16". After much experimentation and frustration on attempting to align the chase bushing mount hole and the center section hole, I took a break, sat back just looking at it.

Finally I decided to back out the bushing metal sleeve out of the aft bushing allowing a little more freedom angle for the bolt to get forced into the center section hole. Then I took a really heavy mallet with an extender to the head of the bolt and let loose a good old fashion wallop. Sure enough the bolt started its journey down the center section hole. I was able to seat all 4 bolts and torque them up. The center section is now installed (0818-22 to 0818-24).



0818-24

08/26/18: Painted the rear spindles and the CV axles.

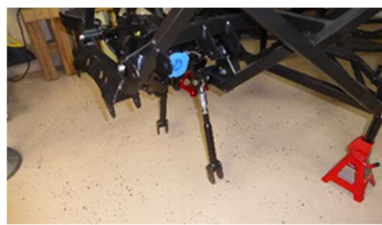
08/27/18: Finished painting the front brake calipers. Started with the installation of the rear suspension. Removed the 14mm wheel lug bolts from the hubs and installed the 1/2" lug bolts. Installed the left side hub onto the spindle and torqued the bolts. Repeated the same for the right side.

08/28/18: With the spindles and hubs ready for installation, I worked on installing the remaining IRS components. The sequence of the installation included:

- 0818-25: The Center Section Installed.
- 0818-26: Toe Adjustment Arms Installed.
- 0818-27: Lower Control Arms Installed.
- 0818-28: Upper Control Arms Installed.
- 0818-29: CV Axles Installed.
- 0818-30: Spindles and Hubs Installed.
- 0818-31: Rear Shocks Installed.



0818-25: The Center Section Installed.



0818-26: Toe Adjustment Arms Installed.



0818-27: Lower Control Arms Installed.



0818-28: Upper Control Arms Installed.



0818-29: CV Axles Installed.



0818-30: Spindles and Hubs Installed.

08/29/18: The F5R box I received included the front suspension bushings and the coil-over-shocks spring hats. This allowed me to install the rear-coil-over the shocks, the lower front suspension arms, and front coil-over-shocks (0818-32). In addition, I assembled the front brake calipers (0818-33).



0818-31: Rear Shocks Installed.

08/30/18: Started the pedal box work. Organized all of the components, some of which are brackets that required powder coating. So, I collected a number of item requiring powder coating such as the front bike fender mounting brackets and other items.



0818-32



0818-33

08/31/18: Spent the day powder coating. The month of August ends well.

September 2018

Continuing to Follow the Manual, But.....

09/01/18: The pedal box was assembled and installed into the chassis bracket. I attempted to install the right most front brake master cylinder and discovered that F5R had changed the design of the chassis bracket (0918-01). It is impossible to fit the MC in place without cutting a notch into the bracket (0918-02).



0918-01



0918-02

The day was spent modifying the bracket and completing the pedal box installation. I installed three master cylinders, one for the hydraulic clutch, and one each for the front and rear brakes. Once this was

finished, I started working on the firewall. The three aluminum panels need some clean up around their edges so I quit for the day and Barb and I went out to hear some music and have a glass of wine.

09/02/18: The last couple of days were devoted to the firewall installation. I decided that the lower foot box panels will be “permanently” installed and the upper panel will be removable. Hence, I will be using ¼”-20 button heads as the fastener of choice. The firewall was temporarily installed, the chassis frame was outlined on the back side, and removed to the bench. At the bench I spaced out the fastening pattern and drilled the ¼” holes (0918-03 and 0918-04).



09/03/18: I reinstalled the firewall and using it as a pattern, I drilled out the chassis frame with ¼” holes. Again, removing the firewall, the chassis holes were enlarged to 3/8” holes to install the rivnuts. I then realized that there are not enough ¼” rivnuts in the kit to accommodate the firewall installation so I had to order them.



09/04/18: My vision is to have the firewall “chrome” like in appearance. I researched many ways to polish aluminum to a mirror like finish and spent the day attempting to accomplish this. Basically, I failed miserably and had to step back and punt. I do not have a good set of buffing tools so instead of buying tools I would most likely use once, I decided to explore commercial powder coaters and go in the direction of a chrome powder coat solution. I’m still working on this. I also decided to LizardSkin the interior side of the firewall for sound and heat. Hence, I ordered a gallon of each of sound and ceramic LizardSkin and I’m currently waiting on delivery.

09/05/18: I’m waiting, and waiting, and waiting on deliveries. It appears that every system installed has a back order part related to it and, as a result, cannot be completed at this time. I unpacked a couple of items that are coming up including the steering rack installation and the engine mounts. These items have a number of bare steel parts and the day was spent powder coating them.

The status of the installed systems are:

- Front Suspension: B/O steering arms, hence, cannot finish the hub/spindle and front brakes installation.
- Rear Suspension: B/O rear brake pads and jam nut for the upper control arms, hence, the spindle hub connection bolts cannot be torqued up and the brakes cannot be installed.
- Pedal Box: Only two master cylinder reservoirs were provided with the kit. The kits suggests that the front and rear brakes share one reservoir. This is workable but not really a good idea. I plan to separate the front and rear brakes so that they are independent of each other. Hence, I need a third reservoir and I’m waiting on another order to arrive containing a triple reservoir setup.
- Firewall: Waiting on powder coat and LizardSkin.
- Steering Rack: B/O outer tie rods plus there would be no way to connection to the spindles because of the missing steering arms.

I plan to finish the rivnut installation for the firewall and then I am considering putting the chassis build on hold for a while and just start on the body work. I can work on this for quite a while as I am waiting on parts.

09/06/18 to 09/08/18: I found a great powder coat company in Spicewood just up the road a bit and dropped off the firewall parts to be powder coated with a super chrome finish. I also installed all of the firewall rivnuts into the chassis (0918-05) and installed the main steering arm onto the chassis. I cleaned up the shop and I am getting ready to build a sanding booth for the body.



09/09/18 to 09/15/18: I continued to wait on parts so I started on

the body work. There is a wax layer on the surface of the gel coat so that the parts can be removed from the molds. Since nothing will stick to the wax, such as body filler or primer, first up was to de-wax and wash all of the fiberglass components. With



this done, the next step was to clean up the mold seams which are present on the main body and the nose cone. I started with the removal of the seam flashing and what I discovered was a fair bit of under fill along the seams that also required quite a bit of clean up (0918-06 and 0918-07).

T

he next step is to fill in and level out the seams with body filler. I started with the nose cone using Evercoat Everglass for the base layer and sanded this smooth. Then I topped it with Evercoat Rage Gold to fill in the small imperfections and sanded it smooth. This is a very time consuming and tedious process but, so far, I like the results (0918-08).

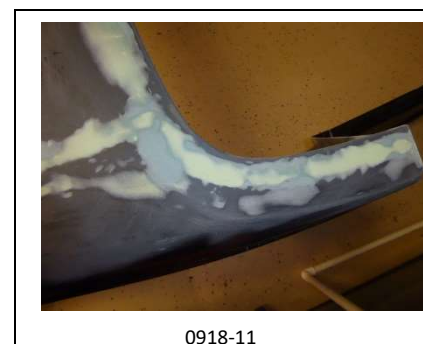
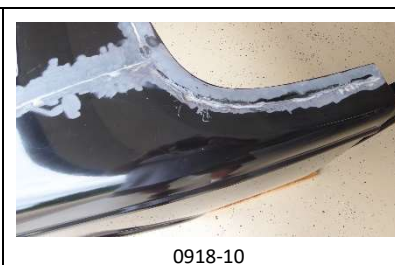


The same process was applied to the main body seams and these seams are ready for body filler. I am currently working on the main body front seam (0918-09 and 0918-10).

09/16/18 to 09/19/18:

Continued with the body work (0918-11). The process is basically a fill-sand-fill-sand-etc.-etc.-etc. process. Based on this experience I really got to know the Evercoat fillers pretty well.

Once the catalyst is added, there is about 4 minutes of useful pot life. Hence, very small batches were made up, one minute mix time, which leaves 3 minutes to get it onto the body. The good news is that it can be sanded in about 20 minutes. I have pretty much finished the seam work so I want to start the body mounting process. Need to complete a few steps prior to the mounting and get my firewall back from paint prison.



The strings taped to the body (0918-12 and 0918-13) was used to find and mark the body centerline in order to facilitate body to chassis mounting.

09/20/18 to 09/29/18: Took a little time with Barb for some R&R. While we were away, a box of back-ordered parts were delivered.

09/30/18: Rear suspension jam nuts and missing front suspension parts were included in the box but no rear brake pads yet. The rear suspension is complete (except for the brakes) and I worked front suspension spindles, hubs, and brakes (0918-14).

Following the manual, I assembled the front spindle, hub, steering arm, and bike fender mount together and installed them onto the chassis. However, it became real obvious real quick that it would be impossible to torque the control arm to spindle castle nuts with the bike fender frame in place. So I took them all apart and with just the spindle installed, I torqued up the castle nuts. Note: the upper castle nut needed a washer spacer installed so that the cotter pin would properly engage the nut.



0918-12



0918-13



0918-14

September ended and the status of the installed systems are:

- Rear Suspension: B/O rear brake pads, hence, the brakes cannot be installed.
- Pedal Box: Received triple reservoir and I am waiting on the firewall to continue. I am still undecided as to installing the reservoir on the engine side of the firewall for ease of access or under the dash as per the manual with the access panel.
- Firewall: Waiting on powder coat and LizardSkin.
- Steering Rack: B/O outer tie rods to be installed.

October 2018

Some Chassis Work, Wait On Parts, Body Fitment Frustrations

10/01/18 to 10/07/18: With the spindles reassembled, I installed the hubs, rotors, and front brakes (1018-01 to 1018-03).



1018-01

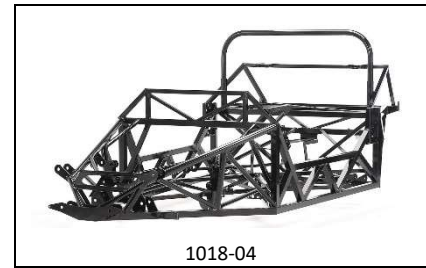


1018-02



1018-03

While I am waiting for the firewall, I started to re-think the roll bar issue. The kit comes with a single roll bar that spans across the chassis (1018-04). Everyone agrees that it is only a show piece and not really a true safety roll bar because of its simplistic design and because it has no real fore-aft support structure. Also, in my opinion, it is not very eye appealing. So much so that the roll bar is not even installed on any of the hot rods pictured on Factory Five's website.



1018-04

While I attended the build school last May, Tim Collins came on by to show us his hot rod build during one of our lunch breaks. He had installed a dual roll bar system (1018-05 and 1018-06) of his own design which he shares on the F5R forum.



1018-05



1018-06

So using Tim's design as a basis, I put together my own design and I am considering getting this made up (1018-07). I will finish the design drawing, obtain a cost, and then decide if I want to install it or just eliminate the roll bar altogether.

Another issue that is rapidly approaching is how to torque up the rear axle nuts and the only way to accomplish this, without wheels in place, is to utilize the emergency brake to lock the hub. So with time on my hands, I assembled the E-Brake handle (1018-08) and plan to temporarily install it once I receive the rear brake pads.



1018-07

10/08/18 to 10/10/18: As I continue to wait for the firewall, I spent the last couple of days powder coatings just about everything I could find, ie door and trunk hinges, brackets and mounting plates, etc. I received a box of B/O parts from F5R which included the rear brake pads, steering arm links, and the steering connector joints.



1018-08

10/11/18: I picked up my firewall from the Powder Coaters. They did a great job and it looks pretty good. They used a Super Chrome powder coat material but it does not have the shine I'm looking for and, as I find out later in the week, I was a bit premature in having it coated. I installed it onto the chassis.

10/12/18 to 10/14/18: Body Preliminary Fitment. I decided to proceed with the body mounting process and start the body preliminary fitment work. The first step was to put the chassis back onto the roller stands. I moved the chassis out of the way, lifted the body with my hoist, returned the chassis to a position under the body, and then lowered the body onto the chassis. Slow going to watch for interferences. In order to facilitate the mounting, I had to remove the top portion of the firewall. Once the body was sitting on the chassis, I re-installed the firewall, squared the body to the chassis, and used clamps to hold it in place (1018-09).

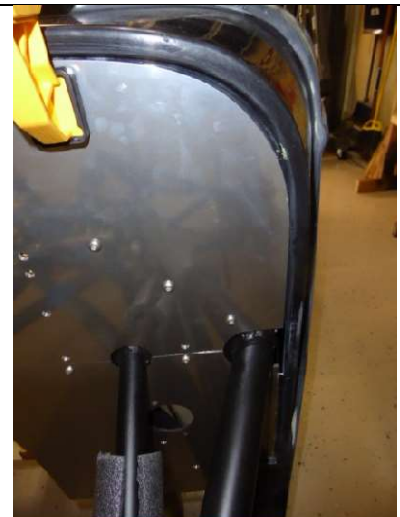


1018-09

The body fit onto the chassis fairly well but there were some interference issues such as the top radius of the body at the firewall 1018-10 and 1018-11). It took a bit of work to reshape the radius so that it fit correctly. The driver side has the opposite issue where the body radius is larger than the firewall radius. My choices are leave it as it is or fill it in, either way it will be noticeable.



1018-10



1018-11

I double checked centerline measurements, heights, levelness, squareness, cockpit measurement, and every other possibility I could think of. Being satisfied, I installed the rear chassis mounts, the door sill screws, and the plastic application type of rivnuts to the body/firewall interface. The body is now installed onto the chassis.

10/15/18 to 10/17/18:

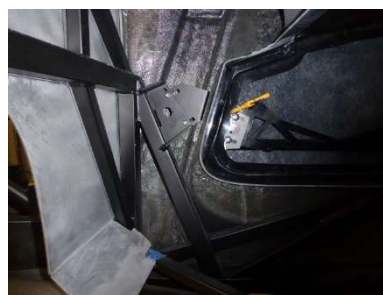
Passenger Side Door Install. I actually installed the door hinge standoff bracket prior to mounting the body. I continued with the hinge cutouts on the body. With that done, I spent the next day and a half sanding the door edges to obtain the initial fitment onto the body (1018-12). Next came the door hinge cutouts and the frame installation. In mounting the striker bracket, I discovered a 3/8" gap between the plate and the body (1018-13 and 1018-14). I plan on adding some washers to take up the gap. I also mounted the striker bracket on the driver side which fit next to the body.



1018-12



1018-13



1018-14



1018-15

10/18/18: I just received most of the remaining back-order items from F5R. Since I received the rear brake pads, I installed the rear rotors and brakes just so I could finish that work (1018-15).

10/19/18 to 10/31/18: At about this point I discovered a conflict between the assembly manual and what I understood from build school on how the striker should be installed. In build school, the striker was installed with the built-in washer resting on the body door jam and becoming a body/chassis mounting point. Whereas the assembly manual shows a 3/4" hole drilled through the door jam and the striker mounted directly to the striker bracket, hence the body free floats around it. Also, if the striker is

installed via the build school method, the door would have to be fitted farther aft and the gap at the top of the door/body interface would be exceedingly large. Picture 1018-16, which was taken after the door fitment, illustrates the critical gap for the position of the door. Note the washer which indicates the critical gap.

Also, striker and striker bracket, in reality, can only be installed in one location with very little adjustment capabilities even though all bolt locations are through slotted holes. I queried F5R about the striker bracket to body gap and, in a response received very quickly, confirmed I was installing it correctly. However, by following the assembly manual for the door frame installation which locates the door latch first, locating the striker/latch interface would be very difficult.



I made decision to step back and reexamine the door installation and progress with the initial fitment. I realize that there is very little installed onto the chassis, including the engine, and after all of the components are installed, the additional weight could cause some sagging of the chassis which will change the gaps. As a structural engineer, the chassis appears to be very stiff so I'm trusting sag will be minimal and not cause a major issue for the final fitment. The following is the procedure I developed for myself to install the doors.

Door Installation Procedure

To start this procedure, I read the installation manual multiple times and studied all of the instructions on door installation. I also read or watched anything I could find on the forum concerning the doors. I studied KGB911's "Dangerous Curves" and watched Eric Hanson's 5 part video multiple times. Then, of course, I am throwing my neophyte opinions into it. I made the decision to start on the body installation well before completing almost all of the mechanical installations. The status of my build was:

- Front end and the steering rack were installed.
- Grill temporarily positioned.
- IRS and rear suspension installed.
- Hinge Standoff Brackets were installed according to the assembly manual but without the door stops.
- The chassis was sitting on my roller stands, completely leveled.
- I am making the assumption that the chassis has enough stiffness built into it that the overall deflections will be minimal once all of the components are installed and the car is at full weight. This could be an issue during final assembly.
- My chassis tubing and structural layout is slightly different than what is shown in the manual and what I worked with during my attendance at the Build School. I believe the chassis striker plate may be modified to that shown in the manual.

The overall philosophy I utilized is that the striker and the rear frame bracket can only be mounted in one place each and the frame and latch would follow these locations. The door gaps would also be the result of these installed locations.

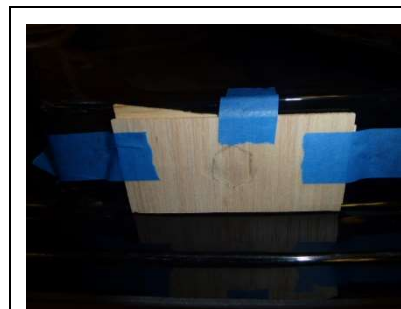
Prior to starting the door installation, the body needs to be aligned and centered onto the chassis and mounted using the rear wheel mounts and the door sill mounts. Ensure you have the 45.5" cockpit gap (1018-17). I used a length of $\frac{3}{4}$ " PVC pipe cut to exactly 45.5" length (a good straight piece of wood will accomplish the same thing). The firewall was installed and secured to the body. I elected to have a removable top half of the firewall which made installing the striker mount bracket and the striker much easier.



1018-17

1. As a first step, I scuffed the interior of the door to remove the glass shards and splinters using a red scuff pad just to save my hands and fingers during the install.
2. Complete the body cutouts for the hinges according to the assembly manual. Mark the upper cutout per the manual and use a right angle Dremel to drill some pilot holes. Transferred the cutout markup to the outside of the body and used a Dremel scroll saw to cut the hole. Install the upper hinge onto the standoff. Assemble the door hinge rear plate to the hinge and mount the lower hinge to the rear plate. Mark the bottom of the hinge and remove the rear plate assembly. Use a vertical level to find the outboard mark for the lower cutout. Use the hinge thickness to mark the upper line. Measure inboard to mark the final line. Drill two holes at each end of the markups. Make the cutout like the upper cutout. Mount the lower hinge to ensure proper operation. I had to grind off part of the lower hinge bolt washer due to the close tolerance fit next to the body. Install the door stop.
3. Remove the hinges. Fit the doors to the body using the top door/body critical gap as the starting point. Some sanding of the door in this area was necessary to achieve this gap first. Sand the door edges to obtain a tight fit to the body cutouts. I address final door gaps in a later step.
4. Tape the door to the body and, using the body hinge cutouts, mark the door for its hinge cutouts and make the cutouts per the manual. The door cutouts only need to be large enough to fit the hinge through them. Remove the door and install the hinges.
5. There is only one location for the rear bracket. Place the door back onto the body, through the hinges, and tape in place. Place the rear bracket in the door between the hinges as far inboard as possible. Mark the top and bottom bolt slots. Use the angle Dremel to drill pilot holes in the middle of your marks. Enlarge the hole to $\frac{3}{8}$ " diameter. Mount the rear bracket with the $\frac{5}{16}$ " button heads.

6. Install the striker bracket and striker. It is not really adjustable and can only go in one way. Use an angle Dremel to drill a pilot hole as far outboard as possible. Enlarge the hole to fit the striker. A $\frac{5}{32}$ " gap is required between the striker head and the door. I taped a



1018-18



1018-19

$\frac{5}{32}$ " piece of balsa wood to the door to keep the gap and to be used to make an impression of the striker head (1018-18). Put the door in place and shove it forward so that the striker indents the balsa and makes an impression in the wood. Use the impression to accurately know where the center of the striker lands on the door.

7. Use a drill to mark the center of the striker (1018-19). Use the template in the manual to make the latch cutouts in the door. Mount the latch onto the door with the frame door latch mount bracket in place (1018-20 to 1018-22).



1018-20



1018-21

8. Install the door to ensure proper alignment of the striker and latch. I needed to add some washers as spacers between the striker mounted washer and the striker bracket to move the striker head slightly aft to fit into the latch.
9. Install the door frame. I drilled two new holes on the frame door latch mount bracket as it was easier to fit up the attachment bolts. Bolt the door frame to the hinges and confirm the striker head is centered into the latch.

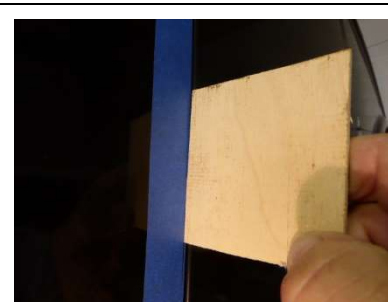


1018-22

10. Gaps and fitment: Check for proper operation of the door. Open slowly and carefully as there will be interface issues that require attention. Now it's time to create the proper gaps and fitment. I started with keeping everything to 1/8" gaps. If I need to make



1018-23



1018-24

adjustments during final fitment, I have a little wiggle room for 3/16" gaps. I made a gap tool from 1/8" plywood with a .015" brass strip mounted to the bottom edge. I then put tape on the door edge. Use the gap tool to draw a line on the door tape 1/8" from the body door cutout by slipping the brass strip in the tight fit existing gap (1018-23 and 1018-24).

11. Unbolt the door from the hinges and sand the door edges to the gap line on the tape. Re-fit the door onto the hinges to check the gaps. Remark the gap lines, remove the door, sand, and repeat, repeat, repeat until the gaps are good. Also note that in inside of the styling half round will be to be carved out slightly to eliminate the interference with the body styling half round when opening the door.

That concludes the door installation procedure I used. As a result, the driver door opens easily and without interference. However, right now the passenger door has an interference issue at the top of the door/body interface above the hinges (1018-25).

All of this work spilled into November, but I am still calling this work complete at the end of October. We took a little tour of East Texas during this period, I still do not understand why Barb says I am always working in the shop.



1018-25

November 2018

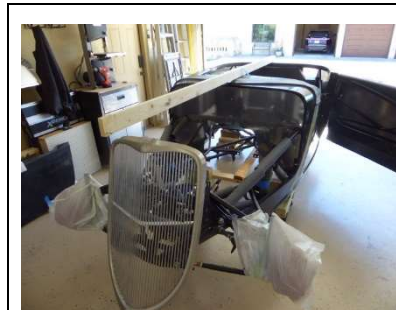
Not Necessarily Following the Order in the Manual, But Continuing with the Preliminary Body Fitment

11/01/18 to 11/05/18: November is dedicated to the fitment of the front-end panels, i.e. the hood, engine side panels, and the nose cone. Started with studying the assemble manual. I put the grill on loosely and, as per the manual, set the hood in place. I attempted to match the hood front edge with the grill by sanding the edge and adjusting the grill position. When I got a good fit, I realized immediately that the side panels had to be in place as they have a fixed vertical distance between the body lower edge and the hood/side panel interface. I trimmed the forward edge of the side panels to match the grill.

The next thing I discovered was that the grill was in its aft most upright position and I did not want to end up with no way to adjust the grill during final fitment. So I stepped back again and decided to rebuild the whole grill/hood interface knowing that I would need to add material back to the front edges of the hood and side panels.

11/05/18 to 11/08/18: Break time, Barb & I went to Bandera, TX, to join the fun at the 11th Street Cowboy Bar Wednesday Steak Night. This is where they fire up the pits, you bring your own steaks and grill them up, get the sides from the Bar, and enjoy your meal with a couple of brews while listening to some great county music. YaHoo.....

11/09/18 to 11/18/18: My overall approach was to set the grill in place exactly where I wanted it to be and then match the hood, side panels, and nose cone to the grill. I reinstalled the grill in the forward most position and spent quite a bit of time making sure it was centered correctly with respect to the



1118-01



1118-02

chassis and body. I knew where the centerline of the body was and had to extend that line to the grill location. Using a couple pieces of wood nailed together and a couple of screws at each end, I attached a very tight string line at the ends of the screws, hence my straight line (1118-01). I centered the string line on my known locations, hung a washer weight over the grill and determined where grill centerline was (1118-02). I tightened the grill in the centerline location, which is not to be moved during the fitment process.

Placing the hood back onto the body/grill, I determined about 5/8" of material was required on the side panels and hood (1118-03). For the side panels, I taped some poster board to the panel, pressed it to the grill to determine grill curve, and cut off the excess. I placed some wax paper along the front edge



1118-03



1118-04

between the poster board and the panel to act as a release agent for the fiberglass. I epoxied a couple of layers of fiberglass to the front edge (1118-04). After it cured, I cut off the excess and filled the low spots with some short strand body filler. I cleaned up the edges and fitted it to the grill and body with a 1/8" gaps using the gap tool and tape method as I did for the doors.

The passenger side panel was delivered improperly cut at the aft panel/body interface. The gash and edge was built up with fiberglass using the same process as the front edge (1118-05) and gapped accordingly.

The challenge with the hood was to develop the three-dimensional curve for the forward edge. I taped up the grill at the hood/grill interface, added some wax paper, put the hood in place, and added the short strand body filler (1118-06 and 1118-07).

I removed the hood to the work table. (Lesson Learned: I do not believe I needed the wax paper, I think the body fill would have popped off tape easily enough.) I sanded the fill smooth and created a small relief to the underside of the hood. I then epoxied in a couple of layers of fiberglass (1118-08 and 1118-09). Using the short strand body filler, I then reshaped the hood front edge to match the grill (1118-10) and, using the gap procedure, developed the 1/8" gap (1118-11 to 1118-13). I also sanded smooth and using body filler the underside of the hood as this will also be seen when the hood is open. Hopefully all that remains for final fitment is some cleanup of the filler and rounding the edges.

11/19/18 to 11/23/18: Turkey Break: Barb and I traveled to New Orleans to be with Barb's family for Thanksgiving.



1118-05



1118-06



1118-07



1118-08



1118-09



1118-10



1118-11



1118-12



1118-13

11/24/18 to 11/30/18: Nose Cone (NC) Fitment. After becoming very frustrated in trying to fit the as-delivered NC per the assembly manual, I closed it and set it aside. The NC would never fit to the grill and side panels unless it is split into 2 pieces as its curved portion is too small. Here is a summary of my approach:

1. Cut the NC in half right down its longitudinal centerline.
2. I had to reshape the aft NC/body interface so that the suspension openings were correctly aligned fore and aft.
3. Work each side to obtain a tight fit with the grill.
4. Clamp in place at the grill lower nose and with the side panels. The NC is curved slightly more than the grill and I plan to put a button head there to correct this. For now, clamp the edge at this point to properly orientate the NC.
5. This results in a $\frac{3}{4}$ " gap along the longitudinal NC seam (1118-14).
6. Place some tape along the longitudinal seam on the underside of the NC. Then epoxy a couple of layers of fiberglass to the seam inside the engine bay in-situ (1118-15). When cured and removed to the worktable, the underside of the NC seam is shown in 1118-16. The NC is not very sturdy at this point so care was taken when handling it.
7. Clamp in place a couple of paint sticks to bring the NC to its correct width. Epoxy several more layers of fiberglass to the seam (1118-17). Sand smooth as required.
8. Fill in the underside seam with body filler and sand smooth (1118-18).
9. Picture 1118-19 shows the fitment with the slight bulge of the NC/Grill interface.



Preliminary Body Fitment Pretty Much Complete.....

November comes rapidly to an end. The bodywork is fairly easy but tedious, very time-consuming, and an open mind is essential. Now I get to take it all apart and continue with the mechanical install.

December 2018

12/01/18 to 12/10/18: I am OK with the preliminary fitment of the doors, hood, side panels and nose cone. During this period, I completed several tasks, these are:

1. I tweaked the door fitments and ended up with a smooth operation of the latches. I am at a point where I will remove the body and continue with the mechanical work.
2. The firewall remains an issue. During the body fitment process, I damaged the powder coat finish beyond use. So, I spent some time stripping off the powder coat on the top and two side panels. I attempted to polish the top panel and still failed miserably again. I'm going to cost out a professional polish or chrome plate. We will see but this is the next step in the mechanical build.
3. I spent a considerable amount of time updating the website. I decided to utilize a new format on the progress reports and I had to spend time reformatting the existing reports and documenting October's, November's, and December's progress.

I received notification from F5R that the last of my back-order items are being shipped I should receive them on 12/11/18.

12/11/18 to 12/31/18: Well the Holiday cheer took a toll on Hot Rod build time but I was able to move forward.

I located a shop in South Austin that does aluminum polishing for the custom car industry and anybody else that wants shiny aluminum. I dropped off the firewall and foot panels and it took about two weeks (due to the Holidays) to complete. I was really happy with the results. Sorry, no pictures at this time.

While the firewall was out for polishing, I decided to do an initial fitting of the windshield onto the body. However, when I opened the windshield box, I discovered a cracked windshield. After notifying F5R and small discussion, they sent me a replacement windshield FOC. Thanks, F5R.

Next what I discovered was that the driver's side body under the windshield was so out of contour that the windshield would never sit correctly even with the gasket (1218-01). Also, I discovered that the underside of the body in this area has a fiberglass flaw that will need to be rectified. Making a note of this, future work will include adding fiberglass on the body underside and contouring the upper surface. Not a big deal, just some more work. I removed the body and stored all the parts.



My next step was to install the brake lines. As I referenced in the pedal box installation, I decided to split the front and rear brake systems into two separate systems. Hence, two reservoirs are required for the brakes. I am also installing a hydraulic clutch, so actually three reservoirs are required. I purchased a polished aluminum OTB Gear Master Cylinder Triple Remote Reservoir for this purpose. The two single reservoirs that came with the kit are now surplus.

The brake line installation was not too difficult but mistakes were made and I needed to purchase a couple of extra lines from the local auto parts store. I encountered some difficulty getting the lines to fit up based on the assembly manual installation description. This resulted in adding two splice joints, one in the rear system and one in the forward system (1218-05, 1218-08). I now have an additional four possible new leak locations, not desirable but it is what it is. Pictures of the installation include 1218-02 to 1218-09.



There was also some challenge in installing the banjo bolts with respect to getting the final clock position of the bolts and torquing them to 29 ft-lbs (1218-10). In order to achieve the proper torque, the bolts rotated some. I had to guess at a starting rotational position, torque them up, and hope the final position was good. I will need to check for leakage between the crush washers when I bleed the system.

Merry Christmas to all. This was about the end of December; it did continue into the first week of January but all-in-all 2018 was a very good year.