

## DATA SHEET

**project:** building and living with the first-ever Factory Five 818 kit car.

**part 1:** the origins of 818 (December 2013).

**part 2:** stripping the donor car (February 2014).

**part 3:** starting the build—finally (April 2014).

**part 4:** putting an engine in our kit car (May 2014).

**part 5:** hanging the body on the chassis (this issue).

# SOME ASSEMBLY REQUIRED

**Part 4: Reskinning a Crashed Subaru Into a Factory Five 818**

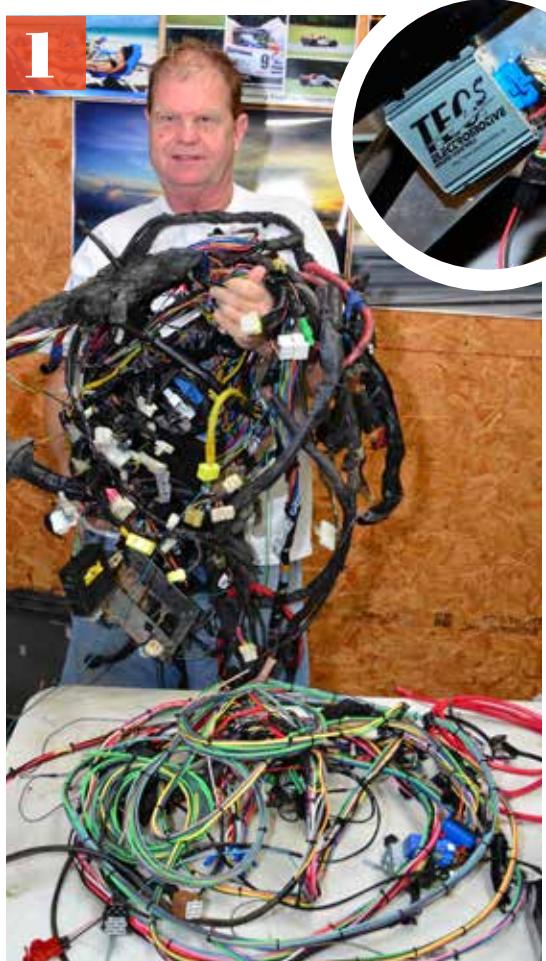
story by tom suddard  
photos by the author unless otherwise credited

Conquering the bodywork is usually the easiest part of a car project. Maybe we'll have to buff out some scratches or, at the worst, replace a fender. This project, a complete build of Factory Five's new 818 kit car, definitely broke that trend—broke it, crunched it up, then laid fiberglass over it.

We had to assemble the crowd-sourced body without any of the normal resources: no unibody, no old parts to reference, no friendly body shop to lend a hand, no web forums to guide us.

Besides Factory Five, we're the first ones to build an 818. Even the Factory Five assembly shop that was helping us, Very Cool Parts, hadn't built a body for an 818. What was stopping us? Nothing except fear. Oh, and engine plumbing.

Part four of this project series ended with an engine that was bolted in, but only just. Before any bodywork could begin, we had to lay the foundations of our WRX engine's cooling, electrical and fuel systems. We also had to hook up our throttle and shift linkages. Still riding a wave of excitement from bolting in the engine, we started prepping for the car's body.



The 818 is designed to use the donor Subaru Impreza's wiring harness, but the car doesn't actually need all the wires in that heavy mass. We instead opted for a custom harness from Very Cool Parts with just the necessary wires. It came ready to plug into our aftermarket Electromotive ECU and allowed us to completely wire the car in less than 2 hours.



Whether you go with the donor wiring harness or a custom one, make sure to use different colors and patterns to identify individual circuits. Route the wires neatly, too. It takes much more time to do this later, so avoid the trap of "I'll straighten up the wiring some other time."

One consequence of putting the engine in the rear: very long coolant lines. The 818's run along the bottom edges of the car to the front-mounted radiator. Factory Five says the stock water pump is strong enough to move the extra water, while long, finned coolant lines actually increase the system's cooling ability.



The 818's engine compartment isn't the same shape as an Impreza's, so we made new mounts for some things—like this coolant expansion tank. These aren't completely necessary, but they should make maintenance easier in the future.



Factory Five supplies this nifty adapter to allow the Impreza's transmission to be shifted by two cables. We routed them before mounting any bodywork, as they run along the side of the car.

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The last step was plumbing the fuel tank. Factory Five provides everything needed to transfer the Subaru sending unit and fuel pump to the supplied tank.

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We budgeted three weekends total to build the 818, so we needed to bring in a few reinforcements to stay on schedule. Wayne Presley of Very Cool Parts and Tom Prescott of The Body Werks lent a hand. Wayne knows Factory Five kits, and Tom knows bodywork.

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Rennie Bryant has been a fixture in the pages of GRM for decades, and he also joined us. See his perspective at [youtube.com/GRMtv](https://youtube.com/GRMtv).

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Yet again, we had Factory Five's instruction manual open on an HDTV in the shop. The only problem? We were each working on different parts of the car, but we could only have one page of the manual open at a time.

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Most projects start at the beginning, but the body assembly process starts in the middle: The sides of our 818 would be the first components installed. Notice that everything comes in a nice, glossy white gelcoat—we won't have to paint the 818 when it's finished.





After barely attaching the body, we marked the places we needed to trim. Every piece of bodywork on our 818 was taken off and reinstalled multiple times until we were happy with the fit.



Most of the bodywork on the 818 requires trimming, including the side pods. Make sure you wear a respirator and work in a well-ventilated area—fiberglass is nasty stuff.



Besides trimming, the 818's bodywork also requires every vent to be cut open. This lets the builder choose which vents to open, allowing for features like brake ducting and increased airflow to the radiator. We chose to open the bare minimum for now, but after some track testing that may change.



The 818's vents are filled with CNC-cut aluminum mesh. We glued them on with 3M epoxy and kept them in place to dry using old air tools as weights. Gluing from the backside creates a bond that's plenty strong enough, and it cuts down on the mess.



Don't forget the aluminum panels. As we installed the body, we were gluing and riveting these into every nook and cranny. The firewall between the driver and the fuel tank is extra thick, however, so it's bolted in rather than riveted.



The builder also has to install all of the 818's supplied light fixtures. Though not from the donor car, they are all DOT-approved and seem well built.

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Nobody likes working on a dirty car, and it's easier to clean things as you go. We took the extra time to remove all the shipping tape residue before installing our panels.

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Once all of the vent glue was dry, the trimming complete, and the lights installed, we bolted the side and rear panels onto the chassis. Our 818 was finally starting to take shape.



The next step was the engine cover, which is held in place by hood pins. Once we fitted it, we adjusted the rear mounting points for the side pods to achieve a correct panel gap.



The trunk lid was the last piece on the back of the car. Unfortunately, it was a little too short. We'll need to add some fiberglass later to get a tighter panel gap.



With the second build session drawing to a close, we test-fitted the doors, cracked open some frosty beverages, and admired our progress. Sure, we still had half a car to put together, but the hard part was done—or so we thought. In the next issue, we'll stick the front end on our 818.

## SOURCES

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**Electromotive, Inc.:** engine management, [electromotive-inc.com](http://electromotive-inc.com), (703) 331-0100

**Factory Five Racing, Inc.:** 818 kit, [factoryfive.com](http://factoryfive.com), (508) 291-3443

**Koni North America:** shocks, [koni-na.com](http://koni-na.com), (859) 586-4100

**Mach V Motorsports, LLC:** wheels, [fastwrx.com](http://fastwrx.com), (571) 434-8333

**S.P.E.C., Inc.:** clutch and flywheel, [specclutch.com](http://specclutch.com), (800) 828-4379

**Very Cool Parts:** construction help, [verycoolparts.com](http://verycoolparts.com), (760) 403-6266

**Yokohama Tire Corporation:** tires, [yokohamatire.com](http://yokohamatire.com), (800) 722-9888



Watch dozens of videos detailing our 818's build process at [grassrootsmotorsports.com/818](http://grassrootsmotorsports.com/818)